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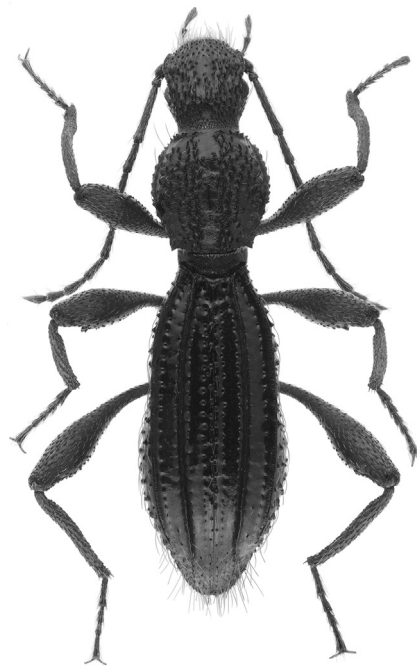


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## A contribution to the aphid fauna (Homoptera: Aphidinea) of Kaliningrad Region, Russia

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**Abstract.** The study of the aphid fauna in Kaliningrad Region (Russia) started in 60s of the 20<sup>th</sup> century, but a regional checklist has not been published yet. Based on material deposited in the collection of the Zoological Institute of the Russian Academy of Sciences and the Belarusian State University and data scattered in various scientific publications, we compiled the first comprehensive list of aphids recorded from Kaliningrad Region. The list includes 61 genera, 110 species and two subspecies of which 30 species and one subspecies are recorded in the region for the first time. The recorded taxonomic diversity is lower than in the nearby countries – Poland, Lithuania and Latvia. At least 11 species (10% of the faunal list) are alien for the regional fauna.

**Key words:** Homoptera, Aphidinea, alien species, Baltic region, new faunal records, regional checklist.

### К фауне тлей (Homoptera: Aphidinea) Калининградской области, Россия

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**Резюме.** Исследования фауны тлей в Калининградской области были начаты в 60-е годы XX столетия, однако до настоящего времени ни одного чек-листа тлей региона не было опубликовано. На основе материалов, хранящихся в коллекциях Зоологического института РАН и Белорусского государственного университета, и данных, имеющихся в научных публикациях, мы составили первый максимально полный список тлей, зарегистрированных в Калининградской области. Он включает 61 род, 110 видов и 2 подвида, из которых 30 видов и 1 подвид впервые отмечаются для фауны области. Выявленное таксономическое разнообразие тлей на территории Калининградской области оказалось меньше, чем в соседних странах – Польше, Литве и Латвии. Не менее 11 видов (10% видового богатства известной к настоящему времени региональной фауны тлей) являются чужеродными для фауны Калининградской области.

**Ключевые слова:** Homoptera, Aphidinea, чужеродные виды, балтийский регион, новые фаунистические находки, региональный список видов.

## Introduction

Kaliningrad Region is the westernmost region of Russia located on the coast of the Baltic Sea. The area of the region is 15,125 km<sup>2</sup>, its maximum length from west to east is 205 km, from north to south – 108 km. The relief of the region is a hilly plain, some parts of which are below the sea level. The average absolute height of the land surface of Kaliningrad Region above the level of the World Ocean is 15 meters. The climate of Kaliningrad Region is transitional from maritime to temperate continental, the average air temperature is about +8 °C, the maximum air temperature in summer is 22 to 26 °C, the minimum temperature in winter is from –3 to –15 °C. The heat and frosts in the region are short-term, snow cover is absent or does not last long. It rains on average 185 days a year, the annual amount of precipitation varies across the region from 600 to 740 mm. The territory of Kaliningrad Region belongs to the zone of mixed coniferous-deciduous forests. At the present time forests in the region are predominantly secondary – both naturally regenerated and planted in the 18<sup>th</sup>–19<sup>th</sup> centuries after broad-leaved forests were cut down.

The first studies of the aphid fauna of Kaliningrad Region were carried out by A. Rupais in 60s of the 20<sup>th</sup> century, they concerned pests of trees and shrubs in green areas. In his paper based on the results of these studies, Rupais [1964] listed 41 aphid species. Five years later, the book “Atlas of the Baltic dendrophilous plantlice” [Rupais, 1969] was published, in which 36 more species found after the publication of 1964 were given for Kaliningrad Region.

Recently, a short report on the aphid fauna of the arboretum of the Botanical Garden of Immanuel Kant Baltic Federal University (Kaliningrad) was published [Buga, 2020]. Of the twelve aphid species listed in the article, five were not mentioned in Rupais’s publications. There is no other information in the scientific literature about the aphid fauna of this region, except for the work by Rakauskas [2003] devoted to the possibility of formation of intermediate morphs in aphids, which mentions the discovery in Kaliningrad Region *Aphis (Bursaphis) schneideri* (Börner, 1940), a species already mentioned earlier for this area [Rupais, 1969]. Thus, up to now, 80 species of aphids have been known in the region, while

all of them were confined to trees and shrubs, and their possible presence on herbaceous plants was discussed only for dioecious species.

The authors of the present work started their research in Kaliningrad Region in 1982. First A.V. Stekolshchikov, then S.V. Buga, and in recent years A.R. Manukyan made aphid samples on the studied territory, which allowed us to significantly expand the list of aphid species known in this region.

## Material and methods

The article is based on materials collected in Kaliningrad Region by A.V. Stekolshchikov in 1982, by S.V. Buga in 1994–1998, 2000, 2016 and by A.R. Manukyan in 2022. In addition, the authors used materials from several collections of aphids from willow (*Salix*), which were made in Kaliningrad Region in 1997 by A.I. Khalaim (Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia).

Collection localities. For listing the material examined, the following notation is used:

GRS – Gvardeysk District, railway stopping point “1271 km”;

GGO – Guryevsk District, Golubevo village;

GGU – Guryevsk District, Guryevsk, town green area;

GKV – Guryevsk District, near to Kosmodemyanskoe village;

KBG – Kaliningrad, arboretum of the Botanical Garden of Immanuel Kant Baltic Federal University;

KGA – Kaliningrad, city green area;

KPV – Kaliningrad, Pribrezhnyy township;

KRS – Kaliningrad, North Railway Station;

LAD – Ladushkin, near “Sosnovyy Bor” railway stopping point;

OZV – Ozersk District, Zhuchkovo village;

SGA – Svetlogorsk, town green area;

SMF – Svetlogorsk, mixed forest near the town;

YAN – Yantarnyy urban-type settlement;

ZCP – Zelenogradsk District, Curonian Spit;

ZGA – Zelenogradsk District, Zelenogradsk, town green area;

ZMO – Zelenogradsk District, Morskoe urban-type settlement, green area;

ZRS – Zelenogradsk District, Rybachiy urban-type settlement, green area.

The microscope slides were prepared using Faure-Berlese mounting fluid [Shaposhnikov, 1964]. The specimens were examined using Leica DM E light microscope, stereomicroscopes Nikon SMZ25 and Zeiss Stemi 2000. Aphid identifications were done with reference to authoritatively identified material from the collections of the Zoological Institute of the Russian Academy of Sciences.

Aphid taxonomic classification follows Shaposhnikov [1964]. In this classification Pterocommatinae is considered as a separate subfamily of Aphididae, and Drepanosiphidae includes several subfamilies.

The names of plant species are given according to the World Flora Online [www.worldfloraonline.org].

All reviewed microscope slides are deposited in the collections of the Zoological Institute of the Russian Academy of Sciences and Zoological Department of the Belarusian State University (Minsk, Belarus).

Abbreviations. Aphid morphs: al. – alate female, apt. – apterous female. Collectors: AM – A.R. Manukyan, AKh – A.I. Khalaim, AS – A.V. Stekolshchikov, SB – S.V. Buga.

### Order Homoptera Suborder Aphidinea Superfamily Adelgoidea Family Adelgidae *Adelges laricis* Vallot, 1836

**Records for the region.** *Larix* sp., without faunal data [Rupais, 1964].

*Adelges tardus* (Dreyfus, 1888)

**Records for the region.** *Picea abies* (L.) H. Karst., without faunal data, pseudo-fundatrices [Rupais, 1964].

*Adelges (Aphrastasia) pectinatae* (Cholodkovsky, 1888)

**Records for the region.** *Abies* sp., without faunal data [Rupais, 1964].

*Adelges (Cholodkovskya) viridanus* (Cholodkovsky, 1896)

**Records for the region.** *Larix* sp., Guryevsk Distr., Guryevsk [Rupais, 1964].

*Adelges (Dreyfusia) piceae* (Ratzeburg, 1844)

**Records for the region.** *Abies concolor* (Gordon et Glend.) Lindl. ex Hildebr., Guryevsk Distr. (Rodniki vill., 7.08.1962) [Rupais, 1964].

*Adelges (Sacchiphantes) abietis* (Linnaeus, 1758)

**Records for the region.** *Picea abies* (L.) H. Karst., *Picea glauca* (Moench) Voss, without faunal data [Rupais, 1964].

### Superfamily Phylloxeroidea Family Phylloxeridae *Phylloxera coccinea* (von Heyden, 1837)

**Material.** ZCP: apt., *Quercus robur* L., on underside of leaves, 12.08.1996 (SB); GGU: apt., *Quercus robur* L., on underside of leaves, 17.08.1998 (SB).

### Superfamily Aphidoidea Family Eriosomatidae Subfamily Eriosomatinae Tribe Eriosomatini *Eriosoma ulmi* (Linnaeus, 1758)

**Material.** KBG: al. (dead specimens), *Ulmus* sp., in specific leaf gall, 10.08.1995 (SB); GGU: apt., *Ribes rubrum* hort. cv., on thin roots, 14.08.1998 (SB).

**Records for the region.** *Ulmus glabra* Huds., *Ulmus* sp., without faunal data [Rupais, 1964, as

"*Schizoneura ulmi* L."; without faunal data [Rupais, 1969]; *Ulmus* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

#### Tribe Tetraneurini

*Kaltenbachiella pallida* (Haliday, 1838)

**Records for the region.** *Ulmus glabra* Huds., *Ulmus minor* Mill., in various locations including Guryevsk Distr. (Vasilkovo vill.) [Rupais, 1964, as "*Schizoneura ulmi* L."]; without faunal data [Rupais, 1969].

*Tetraneura ulmi* (Linnaeus, 1758)

**Records for the region.** *Ulmus glabra* Huds., *Ulmus minor* Mill., in various locations including Zelenogradsk Distr. (Roshchino vill.), Guryevsk Distr. (Nizovie vill.), Nesterov Distr. (Yasnaya Polyana vill.), Krasnoznamensk Distr. (Krasnoznamensk), and Yantarnyy urban-type settlement [Rupais, 1964, as "*Byrsocrypta ulmi* L."]; without faunal data [Rupais, 1969].

#### Subfamily Pemphiginae

*Pachypappa vesicalis* Koch, 1856

**Records for the region.** *Populus alba* L., without faunal data [Rupais, 1964].

*Pemphigus bursarius* (Linnaeus, 1758)

**Records for the region.** *Populus nigra* L., in various locations including Gvardeysk Distr., Gvardeysk [Rupais, 1964].

*Pemphigus spyrothecae* Passerini, 1856

**Material.** KGA: al. (sexuparae), *Populus nigra* L. 'Italica' in spiral shape galls on leaf petioles, 14.25.08.1997, 16.08.1998 (SB).

**Records for the region.** *Populus nigra* L., in various locations including Gvardeysk Distr., Gvardeysk [Rupais, 1964].

#### Subfamily Prociphilinae

*Prociphilus (Stagona) pini* (Burmeister, 1835)

**Records for the region.** Without faunal data [Rupais, 1969, as "*Prociphilus crataegi* (Tullgr.)"].

*Prociphilus (Stagona) xylostei* (de Geer, 1773)

**Material.** KBG: al., *Lonicera* sp., on a growing shoot among wax flakes, 10.08.1995 (SB).

**Records for the region.** Without faunal data [Rupais, 1969]; *Lonicera* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Thecablus affinis* (Kaltenbach, 1843)

**Material.** KBG: al. (dead specimens), *Populus* sp., in specific leaf gall, 10.08.1995 (SB).

**Records for the region.** *Populus xberolinensis* Dippel, in various locations including Krasnoznamensk

Distr., Krasnoznamensk [Rupais, 1964]; without faunal data [Rupais, 1969]; *Populus* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

#### Family Lachnidae

##### Subfamily Lachninae

*Lachnus roboris* (Linnaeus, 1758)

**Records for the region.** Without faunal data [Rupais, 1969].

##### Subfamily Eulachninae

*Cinara (Cupressobium) cupressi* (Buckton, 1881)

**Records for the region.** *Thuja* sp., Zelenogradsk Distr. (Kotelnikovo vill.), Gvardeysk Distr. (Krasnyy Yar vill.) [Rupais, 1964].

*Cinara (Schizolachnus) pineti* (Fabricius, 1781)

**Material.** KBG: apt., *Pinus mugo* Turra, on needles, 10.08.1995 (SB).

**Records for the region.** *Pinus* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

#### Family Thelaxidae

*Glyphina betulae* (Linnaeus, 1758)

**Records for the region.** *Betula* sp., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

*Thelaxes dryophila* (Schrank, 1801)

**Material.** KGA: apt., *Quercus robur* L., on underside of leaves, 8.08.1996 (SB).

**Records for the region.** *Quercus alba* L., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Rupais, 1964]; without faunal data [Rupais, 1969].

#### Family Drepanosiphidae

##### Subfamily Calaphidinae

##### Tribe Calaphidini

*Betulaphis quadrituberculata* (Kaltenbach, 1843)

**Records for the region.** *Betula pendula* Roth, Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Rupais, 1964].

*Calaphis flava* (Mordvilko, 1928)

**Material.** KBG: al., *Betula pubescens* Ehrh., on underside of leaves, 10.08.1995 (SB).

**Records for the region.** *Betula* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Euceraphis betulae* (Koch, 1855)

**Material.** LAD: al., *Cicuta virosa* L. (accidentally), on basal leaf, 4.08.1982 (AS).



*Euceraphis punctipennis* (Zetterstedt, 1828)

**Material.** LAD: al., *Angelica sylvestris* L. (accidentally), on basal leaf, 12.08.1982 (AS); KBG: al., *Betula* sp., on underside of leaves, 10.08.1995 (SB); SMF: al., *Betula pendula* Roth, on underside of leaves, 11.08.1995 (SB); KGA: al., *Betula pendula* Roth, on underside of leaves, 14.08.1997 (SB).

**Records for the region.** *Betula* sp., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969]; *Betula* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Monaphis antennata* (Kaltenbach, 1843)

**Material.** KBG: al., *Betula* sp., on underside of leaves, 10.08.1995 (SB).

**Records for the region.** *Betula* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Symydobius oblongus* (von Heyden, 1837)

**Material.** KBG: apt., *Betula* sp., on bark of branches and twigs, 10.08.1995 (SB).

**Records for the region.** *Betula* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

**Tribe Panaphidini****Subtribe Myzocallidina***Myzocallis carpini* (Koch, 1855)

**Material.** ZGA: al., *Carpinus betulus* L., on underside of leaves, 13.08.1994, 14.08.1995 (SB); KGA: al., *Carpinus betulus* L., on underside of leaves, 14.08.1997 (SB).

**Records for the region.** *Carpinus betulus* L., without faunal data [Rupais, 1964, as “*Myzocallis coryli* Goetze”]; without faunal data [Rupais, 1969]; *Carpinus betulus* L., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Myzocallis coryli* (Goeze, 1778)

**Material.** GGU: al., *Corylus avellana* L., on underside of leaves, 18.08.1994 (SB); SMF: al., *Corylus avellana* L., on underside of leaves, 11.08.1995 (SB).

**Records for the region.** *Corylus avellana* L., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

*Tuberculatus annulatus* (Hartig, 1841)

**Material.** SMF: al., *Quercus robur* L., on underside of leaves, 11.08.1995 (SB); GGU: al., *Quercus robur* L., on underside of leaves, 17.08.1998 (SB).

**Records for the region.** *Quercus robur* L., *Quercus macranthera* Fisch. et C.A. Mey. ex Hohen., *Quercus petraea* (Matt.) Liebl., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

*Tuberculatus neglectus* (Krzywiac, 1966)

**Material.** GGU: al., *Quercus petraea* (Matt.) Liebl., on underside of leaves, 18.08.1994 (SB); KBG: al., *Quercus petraea* (Matt.) Liebl., on underside of leaves, 10.08.1995 (SB).

**Records for the region.** *Quercus petraea* (Matt.) Liebl., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

**Subtribe Panaphidina***Eucallipterus tiliae* (Linnaeus, 1758)

**Material.** LAD: al., *Aegopodium podagraria* L. (accidentally), on basal leaf, 12.08.1982 (AS); SGA: apt., *Tilia cordata* Mill., on underside of leaves, 17.08.1994 (SB); GGU: al., *Tilia cordata* Mill., on underside of leaves, 12.08.1998 (SB); KGA: apt., *Tilia cordata* Mill., on underside of leaves, 18.08.1998 (SB); YAN: al., *Tilia* sp., 3.07.2021 (AM); ZRV: al., *Tilia* sp., 6.07.2021 (AM).

**Records for the region.** *Tilia cordata* Mill., *Tilia europaea* L., *Tilia platyphyllos* Scop., in various locations including Chernyakhovsk Distr. (Chernyakhovsk), Guryevsk Distr. (Kamenka vill.), Zelenogradsk Distr. (Gorbatovka vill.), Ozersk Distr. (Yudino vill.), Kaliningrad [Rupais, 1964]; without faunal data [Rupais, 1969].

*Panaphis juglandis* (Goeze, 1778)

**Material.** GGU: al., *Juglans regia* L., on underside of leaves, 6.08.2016 (SB).

*Pterocallis alni* (de Geer, 1773)

**Records for the region.** *Alnus glutinosa* (L.) Gaertn., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

*Tinocallis (Eotinocallis) platani* (Kaltenbach, 1843)

**Material.** SGA: apt., *Ulmus laevis* Pall., on underside of leaves, 17.08.1994 (SB); GGU: al., *Ulmus laevis* Pall., on underside of leaves, 5.08.2016 (SB).

**Records for the region.** *Ulmus laevis* Pall., Guryevsk Distr. (Nizovie vill.), Nesterov Distr. (Yasnaya Polyana vill.) [Rupais, 1964]; without faunal data [Rupais, 1969].

**Tribe Therioaphidini***Appendiseta robiniae* (Gillette, 1907)

**Material.** GGU: al., *Robinia pseudoacacia* L., on underside of leaves, 5.08.2016 (SB).

**Subfamily Drepanosiphinae***Drepanosiphum platanoidis* (Schrank, 1801)

**Material.** SGA: al., *Acer pseudoplatanus* L., on underside of leaves, 17.08.1994 (SB); KBG: al., *Acer pseudoplatanus* L., on underside of leaves, 10.08.1995 (SB); GGU: al., *Betula pendula* Roth (accidentally), on underside of leaves, 12.08.1998 (SB); KGA: al., *Acer* sp., 28.06.2021 (AM).

**Records for the region.** *Acer pseudoplatanus* L., Ozersk Distr. (Yudino vill.), Kaliningrad, Guryevsk Distr. (Vasilkovo vill.) [Rupais, 1964]; without faunal data [Rupais, 1969]; *Acer pseudoplatanus* L., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

**Subfamily Phyllaphidinae***Phyllaphis fagi* (Linnaeus, 1761)

**Records for the region.** *Fagus sylvatica* L., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

**Family Chaitophoridae****Subfamily Chaitophorinae****Tribe Chaitophorini***Chaitophorus capreae* (Mosley, 1841)

**Records for the region.** Without faunal data [Rupais, 1969].

*Chaitophorus leucomelas* Koch, 1854

**Records for the region.** Without faunal data [Rupais, 1969].

*Chaitophorus nassonowi* Mordvilko, 1894

**Records for the region.** Without faunal data [Rupais, 1969].

*Chaitophorus populeti* (Panzer, 1801)

**Material.** ZCP: apt., *Populus tremula* L., on leaf petioles and underside of leaves, 14.08.1996 (SB).

**Records for the region.** Without faunal data [Rupais, 1969].

*Chaitophorus populialbae* (Boyer de Fonscolombe, 1841)

**Records for the region.** *Populus alba* L., without faunal data [Rupais, 1964]; without faunal data [Rupais, 1969].

*Chaitophorus salicti* (Schrank, 1801)

**Material.** GKV: apt., *Salix caprea* L., on leaves and young shoots, 16.05.1997 (AKh); ZCP: apt., al., *Salix repens* L., *Salix cinerea* L., 19.06.1997 (AKh).

*Chaitophorus salijaponicus niger* Mordvilko, 1929

**Material.** ZCP: apt., al., *Salix repens* L., on leaves, 19.06.1997 (AKh); KGA: apt., *Salix* sp., on underside of leaves, 16.08.1998 (SB).

*Chaitophorus tremulae* Koch, 1854

**Records for the region.** Without faunal data [Rupais, 1969].

*Chaitophorus vitellinae* (Schrank, 1801)

**Records for the region.** Without faunal data [Rupais, 1969].

**Tribe Periphyllini***Periphyllus acericola* (Walker, 1848)

**Material.** SGA: al., *Acer pseudoplatanus* L., on underside of leaves, 17.08.1994 (SB).

**Records for the region.** Without faunal data [Rupais, 1969].

*Periphyllus aceris* (Linnaeus, 1761)

**Material.** KGA: al., *Acer platanoides* L., on underside of leaves, 14.08.1997 (SB).

**Records for the region.** *Acer platanoides* L., Krasnoznamen'sk Distr. (Fevralskoe vill.) [Rupais, 1964, as "*Periphyllus acer* L."]; without faunal data [Rupais, 1969].

*Periphyllus lyropictus* (Kessler, 1886)

**Material.** SGA: apt., *Acer platanoides* L., on underside of leaves, 17.08.1994, 11.08.1995 (SB).

*Periphyllus testudinaceus* (Ferne, 1852)

**Material.** SGA: apt., *Acer platanoides* L., on underside of leaves, 17.08.1994 (SB).

**Records for the region.** *Acer saccharinum* L., *Acer pseudoplatanus* L., *Acer platanoides* L., *Acer negundo* L., in various locations including Kaliningrad [Rupais, 1964]; without faunal data [Rupais, 1969, as "*Periphyllus villosus* (Hart.)"].

**Tribe Siphini***Laingia psammae* Theobald, 1922

**Material.** ZCP: apt., *Ammophila arenaria* (L.) Link, in naturally rolled leaves, 25.08.1997, 20.08.2000 (SB).

**Family Aphididae****Subfamily Pterocommatinae***Pterocomma pilosum* Buckton, 1879

**Material.** GKV: apt., *Salix purpurea* L., on shoot, 16.05.1997 (AKh).

*Pterocomma rufipes* (Hartig, 1841)

**Material.** ZCP: apt., *Salix xfragilis* L., on young shoots, 19.06.1997 (AKh).

**Records for the region.** Without faunal data [Rupais, 1969].

*Pterocomma salicis* (Linnaeus, 1758)

**Material.** OZV: apt., al., *Salix viminalis* L., on young shoots, 1.07.1997 (AKh); ZCP: al., *Salix myrsinifolia* Salisb., on shoot, 6.07.1997 (AKh); GRS: apt., *Salix cinerea* L., on young shoot, 27.07.1997 (AKh).

**Subfamily Aphidinae****Tribe Aphidini****Subtribe Rhopalosiphina***Hyalopterus pruni* (Geoffroy, 1762)

**Material.** LAD: apt., al., *Sium latifolium* L. (accidentally), on basal leaf, 12.08.1982 (AS); ZMO: apt., *Prunus* sp., 24.07.2021 (AM).

**Records for the region.** Without faunal data [Rupais, 1969].

*Rhopalosiphum nymphaeae* (Linnaeus, 1761)

**Records for the region.** Without faunal data [Rupais, 1969].

*Rhopalosiphum padi* (Linnaeus, 1758)

**Records for the region.** *Prunus padus* L., in numerous locations [Rupais, 1964]; without faunal data [Rupais, 1969].

**Subtribe Aphidina***Aphis craccivora* Koch, 1854

**Material.** GGU: apt., *Robinia pseudoacacia* L., on underside of leaves and growing shoots, 5.08.2016 (SB).

**Records for the region.** On various plants, including *Robinia pseudoacacia* L., without faunal data [Rupais, 1969].

*Aphis fabae fabae* Scopoli, 1763

**Material.** LAD: apt., al., *Cicuta virosa* L., on umbel rays, 4, 17.08.1982 (AS); al., *Daucus carota* L., on umbel rays, 8.08.1982 (AS); al., *Torilis japonica* (Houtt.) DC., on umbel rays, 9.08.1982 (AS); apt., al., *Angelica sylvestris* L., on umbel rays, 12, 15.08.1982 (AS); ZCP: al., *Valeriana officinalis* L., on umbel rays, 24.08.1998 (SB); al., *Hippophae rhamnoides* L., on growing shoots, 24.08.1998 (SB).

**Records for the region.** Without faunal data [Rupais, 1969].

*Aphis fabae evonymi* Fabricius, 1775

**Records for the region.** *Euonymus europaeus* L., Svetlyy urban county (Volochnavskoe vill., 21.07.1962), and Polesk Distr. (Zhuravlevka vill., 10.08.1962) [Rupais, 1964, as "*Aphis cognatella* Scop."]; without faunal data [Rupais, 1969, as "*Aphis cognatella* Scop."].

*Aphis fabae cirsiacanthoidis* Scopoli, 1763

**Material.** GGU: apt., *Philadelphus coronaries* L., on underside of leaves and growing shoots, 5.08.2016 (SB); GGO: apt., al., *Carduus* sp., 17.07.2021 (AM).

*Aphis farinosa* Gmelin, 1790

**Material.** GKV: apt., *Salix caprea* L., on leaves and young shoots, 16.05.1997 (AKh); ZCP: apt., oviparous female, *Salix repens* L., on apices of young shoots, 19.06.1997 (AKh).

*Aphis idaei* van der Goot, 1912

**Records for the region.** Without faunal data [Rupais, 1969].

*Aphis lambersi* (Börner, 1940)

**Material.** LAD: apt., *Daucus carota* L., on root collar and in leaf-sheath of basal leaves, 9.08.1982 (AS).

*Aphis pomi* de Geer, 1773

**Material.** ZCP: apt., *Malus sylvestris* (L.) Mill., on underside of leaves and growing shoots, 24.08.1997, 16.08.1998 (SB).

**Records for the region.** *Crataegus monogyna* Jacq., *Sorbus aucuparia* L., *Malus* sp., in various locations including Guryevsk Distr. (Razino vill., 13.08.1962), Zelenogradsk Distr. (Russkoe vill., 14.08.1962, and Zelenogradsk, 15.08.1962), Gvardeysk Distr. (Gvardeysk, 9.08.1962) [Rupais, 1964]; without faunal data [Rupais, 1969].

*Aphis ruborum* (Börner ex Börner et Schilder, 1931)

**Records for the region.** Without faunal data [Rupais, 1969].

*Aphis sambuci* Linnaeus, 1758

**Material.** KGA: apt., *Sambucus* sp., on leaf petioles, 18.08.1998 (SB).

**Records for the region.** *Sambucus nigra* L., in numerous locations [Rupais, 1964]; without faunal data [Rupais, 1969].

*Aphis subnitida* (Börner, 1940)

**Material.** apt., *Pimpinella saxifraga* L., on stem, umbel rays, leaf petioles in basal part of plant, basal part of stem, root collar and in leaf-sheath of basal leaves, 13, 18, 20.08.1982 (AS).

*Aphis urticata* Gmelin, 1790

**Material.** KRS: apt., *Urtica dioica* L., on stem, leaf petioles and underside of leaves, 12.08.1995 (SB).

*Aphis viburni* Scopoli, 1763

**Material.** ZCP: apt., *Viburnum opulus* L., on underside of leaves, 14.08.1996 (SB).

**Records for the region.** *Viburnum* sp., Svetlogorsk Distr. (Donskoe vill.), Chernyakhovsk Distr. (Kamenskoe vill.), Pravdinsk Distr. (Zheleznodorozhnyy), and Kaliningrad (the Botanical Garden of Immanuel Kant Baltic Federal University) [Rupais, 1964]; without faunal data [Rupais, 1969].

*Aphis (Bursaphis) schneideri* (Börner, 1940)

**Records for the region.** Without faunal data [Rupais, 1969]; *Ribes* spp., Zelenogradsk Distr., Zelenogradsk, 10.08.1996 [Rakauskas, 2003].

## Tribe Macrosiphini

## Subtribe Anuraphidina

*Anuraphis farfarae* (Koch, 1854)

**Material.** ZCP: apt., *Petasites spurius* (Retz.) Reichb., on underground parts of leaf petioles and underground shoots, 9.08.1996 (SB).

*Anuraphis subterranea* (Walker, 1852)

**Material.** LAD: apt., *Heracleum sphondylium* subsp. *sibiricum* (L.) Simonk., in leaf-sheath of basal leaves, on root collar and on roots, 6, 11.08.1982 (AS).

*Brachycaudus (Brachycaudus) helichrysi*  
(Kaltenbach, 1843)

**Material.** GGU: apt., *Jacobaea vulgaris* Gaertn., on underside of leaves and growing shoots, 4.07.1996 (SB); ZGA: apt., *Leucanthemum maximum* (Ramond) DC., on stems under inflorescences, 14.08.1997 (SB).

*Brachycaudus (Brachycaudus) spiraeae* Börner, 1932

**Records for the region.** *Spiraea alba* Du Roi and *Spiraea salicifolia* L., without faunal data; *Spiraea xbillardii* Hérincq, in various locations including Guryevsk Distr. (Vasilkovo vill.) and Baltiysk Distr. (Primorsk) [Rupais, 1964]; without faunal data [Rupais, 1969].

*Brachycaudus (Prunaphis) cardui* (Linnaeus, 1758)

**Records for the region.** Without faunal data [Rupais, 1969].

*Dysaphis crataegi* (Kaltenbach, 1843), s. l.

**Records for the region.** Without faunal data [Rupais, 1969].

*Dysaphis hirsutissima* (Börner, 1940)

**Material.** ZCP: apt., *Anthriscus sylvestris* (L.) Hoffm., on root collar, 24.08.1998 (SB).

**Subtribe Liosomaphidina***Cavariella aegopodii* (Scopoli, 1763)

**Material.** LAD: apt., *Sium latifolium* L., on stem near umbrella and umbel rays, 6.08.1982 (AS); apt., *Pimpinella saxifrage* L., in leaf-sheath, 17, 20.08.1982 (AS).

*Cavariella konoii* Takahashi, 1939

**Material.** LAD: apt., *Cicuta virosa* L., on leaves and umbel rays, 4.08.1982 (AS); apt., *Angelica sylvestris* L., on umbel rays, 12.08.1982 (AS).

*Cavariella pastinacae* (Linnaeus, 1758)

**Material.** LAD: apt., al., *Heracleum sphondylium* subsp. *sibiricum* (L.) Simonk., on umbel rays, 11, 18.08.1982 (AS); ZCP: al., *Salix ×fragilis* L., 25.06.1997 (AKh).

*Cavariella theobaldi* (Gillette et Bragg, 1918)

**Material.** LAD: apt., al., *Heracleum sphondylium* subsp. *sibiricum* (L.) Simonk., on umbel rays and basal part of stem, 6, 11, 16.08.1982 (AS); GKV: apt., *Salix caprea* L., on leaves, 16.05.1997 (AKh); ZCP: apt., al., *Salix ×fragilis* L., 25.06.1997 (AKh).

**Records for the region.** Without faunal data [Rupais, 1969].

*Hyadaphis foeniculi* (Passerini, 1860)

**Material.** LAD: apt., *Cicuta virosa* L., on leaves and umbel rays, 4.08.1982 (AS).

**Records for the region.** *Lonicera xylosteum* L., in various locations including of Yantarnyy urban-type settlement [Rupais, 1964, as "*Hyadaphis xylostei* Schr."]. The absence of this species in subsequent publication of Rupais [1969] suggests that it was later reidentified by the author as *Hyadaphis passerinii* (del Guercio, 1911). However, the lack of accurate data on this does not allow us to exclude this species from the list of fauna of Kaliningrad Region.

*Hyadaphis passerinii* (del Guercio, 1911)

**Record for the region.** Without faunal data [Rupais, 1969].

*Liosomaphis berberidis* (Kaltenbach, 1843)

**Material.** KBG: apt., *Berberis thunbergii* DC var. *atropurpurea* Chenault, on underside of leaves, 10.08.1995 (SB); ZGA: apt., *Berberis vulgaris* L., on underside of leaves, 14.08.1995 (SB); ZCP: apt., *Berberis vulgaris* L., on underside of leaves, 16.08.1998 (SB).

**Records for the region.** *Berberis* sp., in various locations including Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Rupais, 1964]; without faunal data [Rupais, 1969].

**Subtribe Myzina***Aulacorthum aegopodii* Börner, 1939

**Material.** GGU: apt., *Aegopodium podagraria* L., on underside of leaves, 5.08.2016 (SB).

*Myzus cerasi* (Fabricius, 1775)

**Material.** ZRV: apt., *Prunus* sp., 6.07.2021 (AM).

**Records for the region.** Without faunal data [Rupais, 1969].

*Myzus lythri* (Schrank, 1801)

**Records for the region.** Without faunal data [Rupais, 1969].

*Paramyzus heraclei* Börner, 1933

**Material.** LAD: apt., *Heracleum sphondylium* subsp. *sibiricum* (L.) Simonk., on lower side of leaves, 17.08.1982 (AS).

*Phorodon humuli* (Schrank, 1801)

**Material.** ZCP: apt., *Humulus lupulus* L., on underside of leaves, 14.08.1996 (SB).

**Records for the region.** Without faunal data [Rupais, 1969].

**Subtribe Macrosiphina***Acyrtosiphon caraganae* (Cholodkovsky, 1908)

**Records for the region.** *Caragana arborescens* Lam., in various locations including Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Rupais, 1964]; without faunal data [Rupais, 1969].

*Amphorophora rubi* (Kaltenbach, 1843)

**Records for the region.** Without faunal data [Rupais, 1969].

*Capitophorus similis* van der Goot, 1915

**Material.** ZCP: apt., *Petasites spurius* (Retz.) Reichb., on underside of leaves, 9.08.1996, 24.08.1997 (SB).

*Chaetosiphon (Pentatrachopus) tetrarhodum* (Walker, 1849)

**Records for the region.** Without faunal data [Rupais, 1969].

*Corylobium avellanae* (Schrank, 1801)

**Material.** SMF: al., apt., *Corylus avellana* L., on underside of leaves, 11.08.1995 (SB).

**Records for the region.** Without faunal data [Rupais, 1969].

*Cryptomyzus korschelti* Börner, 1938

**Records for the region.** *Ribes alpinum* L., Kaliningrad [Rupais, 1964]; without faunal data [Rupais, 1969].

*Cryptomyzus ribis* (Linnaeus, 1758)

**Records for the region.** *Ribes rubrum* L., Pravdinsk Distr. (Goncharovo vill.) [Rupais, 1964]; without faunal data [Rupais, 1969].



*Hyperomyzus lactucae* (Linnaeus, 1758)

**Records for the region.** Without faunal data [Rupais, 1969].

*Hyperomyzus (Hyperomyzella) rhinanthi*  
(Schouteden, 1903)

**Records for the region.** Without faunal data [Rupais, 1969].

*Hyperomyzus (Neonasonovia) picridis* (Börner, 1916)

**Records for the region.** Without faunal data [Rupais, 1969].

*Impatientinum asiaticum* Nevsky, 1929

**Material.** GGU: apt., *Impatiens parviflora* DC., on flower pedicels, 18.08.1994 (SB).

*Macrosiphoniella millefolii* (de Geer, 1773)

**Material.** ZCP: apt., *Achillea millefolium* L. s.l., on leaf petioles and underside of leaves, 4.08.1998 (SB).

*Macrosiphum rosae* (Linnaeus, 1758)

**Material.** KBG: apt., *Rosa* sp., on underside of leaves and growing shoots, 10.08.1995 (SB).

**Records for the region.** *Rosa rugosa* Thunb., *Rosa* sp., everywhere [Rupais, 1964, as "*Macrosiphon rosae* L."]; without faunal data [Rupais, 1969, as "*Macrosiphon rosa* L."]; *Rosa* sp., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University [Buga, 2020].

*Megoura litoralis* F.P. Müller, 1952

**Material.** ZCP: apt., *Lathyrus japonicus* subsp. *maritimus* (L.) P.W. Ball, on leaf petioles and growing shoots, 14, 24.08.1997, 12.08.1998 (SB).

*Metopeurum fuscoviride* Stroyan, 1950

**Material.** KPV: apt., *Tanacetum* sp., 3.08.2021 (AM).

*Metopolophium dirhodum* (Walker, 1849)

**Records for the region.** Without faunal data [Rupais, 1969].

*Nasonovia ribisnigri* (Mosley, 1841)

**Records for the region.** Without faunal data [Rupais, 1969].

*Rhopalomyzus (Judenkoa) loniceræ* (Siebold, 1839)

**Records for the region.** *Lonicera tatarica* L., Kaliningrad, the Botanical Garden of Immanuel Kant Baltic Federal University, and Bagrationovsk Distr. (Yuzhnyy vill.) [Rupais, 1964]; without faunal data [Rupais, 1969].

*Sitobion fragariae* (Walker, 1848)

**Records for the region.** Without faunal data [Rupais, 1969, as "*Macrosiphum fragariae* (Walk.)"].

*Uroleucon (Uroleucon) achilleae* (Koch, 1855)

**Material.** ZCP: apt., *Achillea millefolium* L. s. l., on leaf petioles and underside of leaves, 4.08.1998 (SB).

*Uroleucon (Lambersius) erigeronense* (Thomas, 1878)

**Material.** KRS: apt., *Erigeron canadensis* L., on stem, leaf petioles and underside of leaves, 12.08.1995 (SB).

## Discussion

In the course of this study, 30 species and one subspecies of aphids were found in Kaliningrad Region, which were not previously recorded in this territory. Thus, to date, 110 species and two subspecies of aphids are known for the fauna of Kaliningrad Region. Comparison with the aphid fauna of nearby areas – Lithuania (364 species and one subspecies) [Rakauskas, 2014], Latvia (382 species) [Rupais, 1989] or much larger – of Poland (764 species) [Osiańczak, Hałaj, 2010, 2012; Wojciechowski et al., 2015] shows that, at the moment, we probably do not know more than a third of the species inhabiting the area.

Amongst Homoptera, aphids represent one of the most numerous in Europe group of alien insects [Wieczorek, 2011]. To date, at least four aphid species, *Acyrtosiphon caraganae*, *Appendiseta robiniae*, *Panaphis juglandis*, and *Uroleucon (Lambersius) erigeronense*, are present in the list of Aphididae species alien to Europe [Coeur d'acier et al., 2010].

The first ones, *Acyrtosiphon caraganae* and *Panaphis juglandis*, are known as originated from temperate regions of Asia, the other ones, *Appendiseta robiniae* and *Uroleucon erigeronense*, from North America [Wieczorek, 2011].

The geographical distribution of herbivorous insects is limited by the presence of their host plants. For the following aphid species, *Adelges piceae*, *A. pectinatae*, *Cinara cupressi*, *Cryptomyzus ribis*, *Myzus cerasi*, *Myzus lythri*, and *Pemphigus spyrothecae*, the main hosts were absent in the natural flora of the Kaliningrad Region. Therefore, we consider these 11 aphid species, constituting 10% of the total, are alien to the fauna of the region.

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