

## A contribution to the aphid (Homoptera: Aphidinea) fauna of the Kurgan Province

### К фауне тлей (Homoptera: Aphidinea) Курганской области

T.A. NOVGORODOVA & A.V. STEKOLSHCHIKOV\*

Т.А. НОВГОРОВОДА, А.В. СТЕКОЛЬЩИКОВ\*

T.A. Novgorodova, Institute of Systematics and Ecology of Animals, Siberian Branch of the Russian Academy of Sciences, 11 Frunze St, Novosibirsk 630091, Russia. E-mail: tanovg@yandex.ru

A.V. Stekolshchikov, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: aphids@zin.ru \*Corresponding author.

The detail investigation of the aphid fauna of the Kurgan Province (Russia) was started only at the end of the first decade of the XXI century. Until that time only brief and incomplete information about aphids living in the region had been published. The aim of this study was combining and critical review of previously published information on aphids of the region (including data in specialised applied publications) with addition of original new data. Based on summarised data, a conclusion was done that the aphid fauna of the region includes 113 species (from 48 genera), 31 of them have been recorded for this territory for the first time.

Планомерные исследования фауны тлей в Курганской области России были начаты лишь в конце первого десятилетия XXI-го века и к настоящему времени в литературе имеются только краткие и неполные сведения о тлях обитающих в области. Целью настоящей статьи было объединение и критическая оценка сведений о тлях Курганской области, опубликованных в разрозненных, главным образом прикладных работах. Эти сведения были дополнены нашими оригинальными данными, полученными на основании сделанных в области коллекционных сборов. Это позволило получить наиболее полный список видов тлей обитающих в Курганской области, который в настоящее время включает 113 видов, относящихся к 48 родам, при этом 31 вид впервые отмечается для Курганской области.

**Key words:** aphids, Kurgan Province, fauna

**Ключевые слова:** тли, Курганская область, фауна

## INTRODUCTION

The Kurgan Province is located in the Asian part of Eurasia, in the south-west of West-Siberian plane and occupies an area of about 71.500 km<sup>2</sup>. It extends for about 430 km from the West to the East and 290 km from the North to the South. The Kurgan Province is located in three natural zones: forest, forest-steppe and steppe. The climate of the region is continental with long severe winters and short hot rainless summers. Annual precipitation decreases

in the direction from the north-west to the south-east from 420 to 320 mm. The annual amount of total solar radiation equals to 99.8 kcal/cm<sup>-2</sup>. The vegetation period of plants lasts for 132 days.

Aphid fauna of the Kurgan Province was poorly investigated before 2008. Rare investigations were focused only on agricultural pests. So, almost all data obtained were of the applied character. The first record of aphids in the Kurgan Province was published by an agronomist A. Chazov (Chazov, 1913). The author noted that oats (*Hordeum vulgare*

L.) and rye (*Secale cereale* L.) were strongly damaged by *Sitobion avenae* (Fabricius, 1775) (called by the author *Aphis avenae*) in 1911. Chazov also described the situation when disappearance of these aphids from oats at an experimental plot was accompanied by appearance of the same aphids on peas. He explained this phenomenon as a migration of aphids from oats to peas. However, *Sitobion avenae* cannot live in nature on peas. So, this observation of Chazov lets us to doubt either about the determination of aphids or his conclusion about the migration of these aphids to the peas.

Only 40 years later one more aphid species (*Aphis craccivora* Koch, 1854) was recorded for the Kurgan Province (Lopatin, 1949). Lopatin and Sokolov (1955) noted four new aphid species collected at this territory: *Acyrtosiphon pisum* (Harris, 1776), *Aphis pomi* de Geer, 1773, *Cryptomyzus ribis* (Linnaeus, 1758), and *Tetraneura ulmi* (Linnaeus, 1758). During the next 44 years the number of publications and aphid species gradually increased. In 1999, all known to that date literature data were summarised and a list of 25 aphid species inhabiting the territory was presented (Utkin, 1999). In addition to the six species mentioned above, he recorded the following ones: *Aphis fabae* Scopoli, 1763, *Aphis gossypii* Glover, 1877, *Aphis idaei* van der Goot, 1912, *Aphis spiraephaga* F.P. Müller, 1961 (as *Aphis spiraephila* Patch, 1914), *Aphis (Bursaphis) grossulariae* Kaltenbach, 1843, *Aulacorthum solani* (Kaltenbach, 1843), *Brevicoryne brassicae* (Linnaeus, 1758), *Chaetosiphella stipae* Hille Ris Lambers, 1947, *Chaitophorus salicti* (Schrank, 1801), *Chaitophorus tremulae* Koch, 1854, *Cholodkovskya viridula* (Cholodkovsky, 1911), *Hyalopterus pruni* (Geoffroy, 1762), *Myzus (Nectarosiphon) persicae* (Sulzer, 1776), *Pemphigus fuscicornis* (Koch, 1857), *Rhopalosiphum padi* (Linnaeus, 1758), *Schizaphis graminum* (Rondani, [1847] 1852), *Sitobion avenae* (Fabricius, 1775), *Therioaphis trifolii* (Monell, 1882), *Trama rara* Mordvilko, 1908.

However, some works mentioned by Utkin (1999) in the text lack any information about any aphids collected directly in the Kurgan Province. So, some of aphid species were found to be enlisted by mistake, as the authors had only noted these aphids as possible pests of different plants: *Brevicoryne brassicae* in Malakhov (1986), *Chaitophorus tremulae* in Gninenko (1978), *Rhopalosiphum padi*, *Schizaphis graminum* and *Sitobion avenae* in Stepanovskikh et al. (1984, 1988), *Aphis fabae* and *Acyrtosiphon pisum* in Kessler (1964), Lopatin (1964), Lopatin et al. (1967), Sikorskiy & Nikonova (1982), and Stepanovskikh (1990), *Aphis craccivora* in Oksak & Stepanovskikh (1983).

It is also very difficult to understand why "cereal aphids" mentioned in Lopatin & Sokolov (1955) were interpreted by Utkin as *Schizaphis graminum* (Rondani, [1847]1852) and aphids from peas (Nemchenko & Tolstousov, 1988) as *Acyrtosiphon pisum* (Harris, 1776). Thus, by 2000 the aphid fauna of the Kurgan Province had comprised 20 species.

Since 2006, we started a detailed systematical investigation of the aphid fauna of the Kurgan Province. The data collected by O. Yuzhakova (a student at the Kurgan State University) and A. Gavrilyuk (a PhD student at the Institute of Systematics and Ecology of Animals SB RAS, Novosibirsk) formed the basis for this article. Although some data have been already published (Gavrilyuk & Novgorodova, 2007; Gavrilyuk et al., 2008; Stekolshchikov et al., 2007, 2008; Yuzhakova, 2008; Yuzhakova & Novgorodova, 2010), most of data were presented in abstracts of regional conferences and thus are not readily available for aphidologists. The detail investigation of all the material collected showed that the reports on 9 species (*Aphis comosa* (Börner, 1950), *Aphis eugeniae* van der Goot, 1917, *Aphis sanguisorbae* Schrank, 1801, *Aphis thalictri* Koch, 1854, *Chaitophorus horii horii* Takahashi, 1939, *Cinara hyperophila* (Koch, 1855), *Colopha compressa* (Koch, 1856), *Macrosiphoniella teriolana* Hille Ris

Lambers, 1931 and *Uroleucon (Uromelan) simile* (Hille Ris Lambers, 1939) were incorrect. We excluded these species from the list because of either misidentification or insufficient material to identify those species without any doubt (using no “cf.”).

So far, 113 species of aphids belonging to 48 genera have been registered for the Kurgan Province, 31 of them for the first time in literature. Newly recorded species are listed below. Species registered earlier for the territory are listed in the Table.

Microscope slides were prepared using Faure-Berlese mounting fluid or Canada balsam (Blackman & Eastop, 2000). The material is deposited in the Institute of Systematics and Ecology of Animals (Novosibirsk, Russia) and in the Zoological Institute (St Petersburg, Russia). Aphid synonymy follows Remaudière and Remaudière (1997) with subsequent additions (Blackman & Eastop, 2011; Eastop & Blackman, 2005; Holman, 2009).

**Abbreviations.** *Aphid's morphs:* al. – alate viviparous female, apt. – apterous viviparous female, em. – emigrant, fund. – fundatrix, gyn. – gynopara.

### List of species recorded for the Kurgan Province for the first time

#### Superfamily APHIDOIDEA

##### Family ERIOSOMATIDAE

###### *Pemphigus bursarius* (Linnaeus, 1758)

*Material:* Ketovo Distr.: near vill. Temlyakovo, 30 June 2008, *Populus nigra* L., in longitudinal gall on the midrib, em., leg. O.Yu. Yuzhakova.

###### *Pemphigus immunis* Buckton, 1896

*Material:* Pritobol'nyy Distr.: near Akulinkino Lake, 1 July 2008, *Populus nigra* L., in gall located at the base of petioles, fund., leg. O.Yu. Yuzhakova.

###### *Pemphigus protospirae* Lichtenstein, 1884

*Material:* Pritobol'nyy Distr.: near Akulinkino Lake, 2 July 2008, *Populus nigra* L., in spiral gall on leaf petiole, em., leg. O.Yu. Yuzhakova.

##### Family LACHNIDAE

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

*Material:* Ketovo Distr.: vill. Temlyakovo, green moss pine forest, 1 July 2008, *Pinus sylvestris* L., on needles, apt., leg. O.Yu. Yuzhakova; city of Kurgan, Glinki microdistrict, 12 Aug. 2007, *Pinus sylvestris* L., on needles, apt., leg. O.Yu. Yuzhakova; Kurtamysh Distr.: vill. Uzkovo, pine forest, 27 June 2009, *Pinus sylvestris* L., on needles, apt., leg. O.Yu. Yuzhakova.

##### Family ANOECIDAE

###### *Anoecia corni* (Fabricius, 1775)

*Material:* city of Kurgan: Glinki microdistrict, 25 Aug. 2008, *Malus baccata* (L.) Borkh. (accidentally), on leaf, gyn., leg. O.Yu. Yuzhakova.

##### Family CHAITOPHORIDAE

###### *Chaitophorus crinitus* Ivanovskaja, 1973

*Material:* Pritobol'nyy Distr.: shore of Akulinkino Lake, 2 July 2008, *Salix alba* L., on lower side of leaves, apt., leg. O.Yu. Yuzhakova.

###### *Chaitophorus leucomelas* Koch, 1854

*Material:* Kargapol'e Distr.: vill. Osinovskoe, 7 July 2009, *Populus nigra* L., on lower side of leaf, apt. and al., leg. O.Yu. Yuzhakova; Ketovo Distr.: near vill. Koltashevo, near a pond, 4 July 2006, *Populus* sp., in gall belonging to another species of aphids: formed by folding of leaf in half along midrib, the lower surface of leaves folded inward, al., leg. O.Yu. Yuzhakova.

###### *Sipha (Rungisia) arenarii* Mordvilko, 1921

*Material:* Kurtamysh Distr.: vill. Uzkovo, near Gor'koe Lake, 28 June 2009, *Elymus repens* L., on upper side of leaves, apt., leg. O.Yu. Yuzhakova.

##### Family APHIDIDAE

##### Subfamily PTEROCOMMATINAE

###### *Pterocomma jacksoni* Theobald, 1921

*Material:* Kurtamysh Distr.: vill. Uzkovo, near Gor'koe Lake, 27 June 2009, *Salix* sp., on the bark of shoots, apt., leg. O.Yu. Yuzhakova.

**Table.** Summary of publications on aphid fauna of Kurgan Province.

Species	References	Article topics
1. <i>Cholodkovskaya viridula</i> (Cholodkovsky, 1911)	Gninenko et al. (1985) Utkin (1999)	Ecological Faunistic
2. <i>Eriosoma lamiginosum</i> (Hartig, 1841)	Yuzhakova & Novgorodova (2010)	Faunistic
3. <i>Eriosoma ulmi</i> (Linnaeus, 1758)	Yuzhakova & Novgorodova (2010)	Faunistic
4. <i>Pemphigus fuscicornis</i> (Koch, 1857)	Voskresenskiy (1963) Utkin (1999)	Applied Faunistic
5. <i>Pemphigus phenax</i> Börner et Blunck, 1916	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
6. <i>Pemphigus populigræ</i> (Schränk, 1801)	Yuzhakova & Novgorodova (2010) (as <i>Pemphigus populi</i> Courchet, 1879)	Faunistic
7. <i>Pemphigus spyrothecæ</i> Passerini, 1860	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Lopatin & Sokolov (1955) Utkin (1999)	Faunistic Applied Faunistic
9. <i>Thecabius affinis</i> (Kaltenbach, 1843)	Yuzhakova & Novgorodova (2010)	Faunistic
10. <i>Cinara pilicornis</i> (Hartig, 1841)	Yuzhakova & Novgorodova (2010)	Faunistic
11. <i>Cinara pinea</i> (Mordvilko, 1895)	Gavrilyuk & Novgorodova (2007), Yuzhakova (2009) Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Ecological Faunistic
12. <i>Cinara pini</i> (Linnaeus, 1758)	Yuzhakova & Novgorodova (2010) Panfilova (1995) Utkin (1999)	Faunistic Applied Faunistic
14. <i>Trama troglodytes</i> von Heyden, 1837	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological

Species	References	Article topics
15. <i>Glyphina betulae</i> (Linnaeus, 1758)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
16. <i>Hamamelistes betulinus</i> (Horvath, 1896)	Yuzhakova & Novgorodova (2010)	Faunistic
17. <i>Callipterinella tuberculata</i> (von Heyden, 1837)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
18. <i>Euцерaphis punctipennis</i> (Zetterstedt, 1828)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
19. <i>Symydobius oblongus</i> (von Heyden, 1837)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
20. <i>Therioaphis trifolii</i> (Monell, 1882)	Yatskaya & Nechaeva (1980) Utkin (1999)	Applied Faunistic
21. <i>Chaetosiphella stipae</i> Hille Ris Lambers, 1947	Ivanovskaja (1977)	Faunistic
22. <i>Chaitophorus horii beuthami</i> (Börner, 1950)	Yuzhakova & Novgorodova (2010)	Faunistic
23. <i>Chaitophorus populeti</i> (Panzer, 1801)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
24. <i>Chaitophorus saliciti</i> (Schrank, 1801)	Ivanovskaja (1977), Yuzhakova & Novgorodova (2010)	Faunistic
25. <i>Chaitophorus tremulae</i> Koch, 1854	Yuzhakova (2008)	Faunistic
26. <i>Chaitophorus vitellinae</i> (Schrank, 1801)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
27. <i>Laingia psammae</i> Theobald, 1922	Yuzhakova & Novgorodova (2010)	Faunistic
28. <i>Sipha (Rungia) maydis</i> Passerini, 1860	Yuzhakova & Novgorodova (2010)	Faunistic
29. <i>Pterocomma rufipes</i> (Hartig, 1841)	Yuzhakova & Novgorodova (2010)	Faunistic
30. <i>Pterocomma salicis</i> (Linnaeus, 1758)	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
31. <i>Pterocomma tremulae</i> Börner, 1940	Stekolshchikov et al. (2008), Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic

Species	References	Article topics
	Lopatin et al. (1968), Yatskaya (1988)	Applied
32. <i>Hyalopterus pruni</i> (Geoffroy, 1762)	Utkin (1999), Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
33. <i>Rhopalosiphum padi</i> (Linnaeus, 1758)	Yatskaya (1988), Stepanovskikh et al. (1988) Utkin (1999)	Applied Faunistic
34. <i>Schizaphis graminum</i> (Rondani, [1847] 1852)	Voskresenskiy (1956a, 1963), Yatskaya (1981, 1983) (as <i>Schizaphis graminum</i> Rond.), Yatskaya et al. (1977), Stepanovskikh et al. (1988), Utkin (1993), Koropa (2004, 2005a, 2005b, 2008) Voskresenskiy (1956b), Voskresenskiy (1958) (as <i>Toxoptera graminum</i> Tr.) Utkin (1999)	Applied Ecological Faunistic
35. <i>Aphis acetosae</i> Linnaeus, 1761	Gavrilyuk & Novgorodova (2007), Gavrilyuk et al. (2008) Yuzhakova & Novgorodova (2010)	Ecological Faunistic
36. <i>Aphis coronillae</i> Ferrari, 1872	Stekolshchikov et al. (2008), Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
37. <i>Aphis craccivora</i> Koch, 1854	Lopatin (1949) (as <i>Aphis medicaginis</i> Koch.), Yatskaya (1974), Yatskaya & Nechaeva (1980) Utkin (1999), Yuzhakova (2008) Gavrilyuk et al. (2008)	Applied Faunistic Ecological
38. <i>Aphis elegantula</i> Szelegiewicz, 1963	Yuzhakova & Novgorodova (2010)	Faunistic
39. <i>Aphis eryngiiglomerata</i> Bozhko, 1963	Gavrilyuk & Novgorodova (2007) Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Ecological Faunistic
40. <i>Aphis euphorbiae</i> Kaltrenbach, 1843	Stekolshchikov et al. (2007), Yuzhakova & Novgorodova (2010) Panfilova (1995)	Faunistic Applied
41. <i>Aphis fabae</i> Scopoli, 1763	Utkin (1999), Yuzhakova (2008, 2010) Gavrilyuk & Novgorodova (2007), Gavrilyuk et al. (2008), Yuzhakova (2009)	Faunistic Ecological

Species	References	Article topics
42. <i>Aphis farinosa</i> J.F. Gmelin, 1790	Gavrilyuk & Novgorodova (2007) Yuzhakova & Novgorodova (2010)	Ecological Faunistic
43. <i>Aphis frangulae</i> Kaltendach, 1845	Yuzhakova & Novgorodova (2010)	Faunistic
44. <i>Aphis gossypii</i> Glover, 1877	Utkin (1999)*	Faunistic
45. <i>Aphis hieracii</i> Schrank, 1801	Yuzhakova & Novgorodova (2010) Yatskaya (1988)	Faunistic Applied
46. <i>Aphis idaei</i> van der Goot, 1912	Utkin (1999), Yuzhakova (2008)	Faunistic
47. <i>Aphis plantaginis</i> Goeze, 1778	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
48. <i>Aphis pomi</i> de Geer, 1773	Lopatin & Sokolov (1955), Voskresenskiy (1956a), Lopatin & Biryukova (1963), Lopatin et al. (1965, 1968), Yatskaya (1988) Utkin (1993, 1999)	Applied Faunistic
49. <i>Aphis pseudocomosa</i> Stroyan, 1972	Gavrilyuk & Novgorodova (2007), Gavrilyuk et al., 2008	Ecological
50. <i>Aphis rumicis</i> Linnaeus, 1758	Stekolshchikov et al. (2008), Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
51. <i>Aphis sanguisorbicola</i> Takahashi, 1966	Yuzhakova & Novgorodova (2010)	Faunistic
52. <i>Aphis solanella</i> Theobald, 1914	Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
53. <i>Aphis spiraeophaga</i> F.P. Müller, 1961	Ivanovskaja (1977), Utkin (1999), Yuzhakova (2008), Yuzhakova & Novgorodova (2010) Yuzhakova (2009)	Faunistic Ecological
54. <i>Aphis ulmariae</i> Schrank, 1801	Gavrilyuk et al. (2008) Yuzhakova & Novgorodova (2010)	Ecological Faunistic

Species	References	Article topics
55. <i>Aphis urticata</i> J.F. Gmelin, 1790	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
56. <i>Aphis (Bursaphis) grossulariae</i> Kaltenbach, 1843	Lopatin et al. (1968), Yatskaya (1988)	Applied
	Utkin (1999)	Faunistic
57. <i>Aphis (Bursaphis) schneideri</i> (Börner, 1940)	Gavrilyuk et al. (2008)	Ecological
	Gavrilyuk et al. (2008)	Ecological
58. <i>Aphis (Pseudoprotaphis) picridicola</i> Holman, 1966	Yuzhakova & Novgorodova (2010)	Faunistic
	Stekolshchikov et al. (2007) (as <i>Protaphis picridicola</i> Holman, 1966), Yuzhakova & Novgorodova (2010) (as <i>Protaphis picridicola</i> Holman, 1966)	Faunistic
59. <i>Protaphis dudichi</i> Börner, 1940	Stekolshchikov et al. (2007), Yuzhakova & Novgorodova (2010)	Faunistic
	Gavrilyuk et al. (2008)	Ecological
60. <i>Brachycaudus spiraea</i> Börner, 1932	Yuzhakova (2009)	Ecological
	Yuzhakova & Novgorodova (2010)	Faunistic
61. <i>Brachycaudus (Appelia) prunicola</i> (Kaltenbach, 1843)	Gavrilyuk & Novgorodova (2007)	Ecological
	Stekolshchikov et al. (2008), Yuzhakova & Novgorodova (2010)	Faunistic
62. <i>Brevicoryne brassicae</i> (Linnaeus, 1758)	Yatskaya (1985)	Applied
	Utkin (1999)	Faunistic
63. <i>Diuraphis (Holcaphis) agrostidis</i> (Muddathir, 1965)	Stekolshchikov et al. (2008), Yuzhakova & Novgorodova (2010)	Faunistic
	Yuzhakova & Novgorodova (2010)	Faunistic
64. <i>Hydaphis hofmanni</i> Börner, 1950	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
65. <i>Semiaphis anthrisci</i> (Kaltenbach, 1843)	Lopatin et al. (1968), Yatskaya (1988)	Applied
	Yuzhakova (2008)	Faunistic
66. <i>Myzus cerasi</i> (Fabricius, 1775)	Yuzhakova (2009)	Ecological



Species	References	Article topics
67. <i>Myzus (Nectarosiphon) persicae</i> (Sulzer, 1776)	Utkin (1999)*	Faunistic
68. <i>Acaudinum centaureae</i> (Koch, 1854)	Yuzhakova & Novgorodova (2010)	Faunistic
69. <i>Acyrtosiphon pisum</i> (Harris, 1776)**	Lopatın & Sokolov (1955), Voskresenskiy (1956a, 1963), Kholmov (1963), Lopatin et al. (1965), Amel'kin et al. (1968), Panfilova (1972, 1974, 1975, 1995), Yatskaya (1974), Yatskaya et al. (1977), Yatskaya & Nechaeva (1980), Stepanovskikh et al. (1988), Khalus (2004a, 2004b, 2006a, 2006b, 2007)	Applied
	Ivanovskaja (1977), Utkin (1999)	Faunistic
70. <i>Aulacorthum solami</i> (Kaltenbach, 1843)	Utkin (1999)*	Faunistic
71. <i>Cryptomyzus ribis</i> (Linnaeus, 1758)***	Lopatın & Sokolov (1955), Voskresenskiy (1956a), Lopatin et al. (1968), Yatskaya (1988)	Applied
	Utkin (1999)	Faunistic
	Gavrilyuk & Novgorodova (2007), Gavrilyuk et al. (2008)	Ecological
72. <i>Macrosiphoniella artemisiae</i> (Boyer de Fonscolombe, 1841)	Yuzhakova & Novgorodova (2010)	Faunistic
73. <i>Macrosiphum rosae</i> (Linnaeus, 1758)	Yuzhakova & Novgorodova (2010)	Faunistic
	Gavrilyuk et al. (2008)	Ecological
74. <i>Metopeurum fuscoviride</i> Stroyan, 1950	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
75. <i>Microlophium sibiricum</i> (Mordvilko, 1914)	Yuzhakova & Novgorodova (2010)	Faunistic
76. <i>Microsiphum giganteum</i> Nevsky, 1928	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
	Yuzhakova (2009)	Ecological
77. <i>Microsiphum jazykovi</i> Nevsky, 1928	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
	Yuzhakova (2009)	Ecological
78. <i>Microsiphum woronieckae</i> Judenko, 1931	Stekolshchikov et al. (2008), Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
	Yuzhakova (2009)	Ecological

Species	References	Article topics
79. <i>Sitobion avenae</i> (Fabricius, 1775)	Yatskaya et al. (1977), Yatskaya (1981) (as <i>Macrosiphum avenae</i> F.), Stepanovskikh et al. (1988), Koropa (2004, 2005a, 2008)	Applied
	Utkin (1999)	Faunistic
80. <i>Titanosiphon dracunculii</i> Nevsky, 1928	Gavrilyuk et al. (2008), Yuzhakova (2009)	Ecological
	Yuzhakova (2008), Yuzhakova & Novgorodova (2010)	Faunistic
81. <i>Uroleucon cichorii</i> (Koch, 1855)	Yuzhakova (2008)	Faunistic
	Yuzhakova & Novgorodova (2010)	Faunistic
82. <i>Uroleucon (Uromelan) jaceae</i> (Linnaeus, 1758)	Yuzhakova (2008)	Faunistic
	Yuzhakova & Novgorodova (2010)	Faunistic

\* Utkin (1999) refers to a booklet "The prediction of the distribution of pests and diseases of agricultural crops in 1991 and measures of their control" (1991); we did not see this publication.

\*\* Utkin (1999) cited some other sources (listed below as in Utkin (1999)); we did not see these publications.  
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 \*\*\* Utkin (1999) cited the following publication which we did not find:  
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***Pterocomma pilosum konoii***

Hori ex Takahashi, 1939

*Material:* Kargapol'e Distr.: vill. Osinovskoe, 7 July 2009, *Salix* sp., on the bark of old shoots, apt., leg. O.Yu. Yuzhakova.

## Subfamily APHIDINAE

## Tribe APHIDINI

## Subtribe RHOPALOSIPHINA

***Schizaphis agrostis*** Hille Ris Lambers, 1947

*Material:* city of Kurgan: Glinki microdistrict, 28 July 2008, *Elymus* sp., on leaf, apt., leg. O.Yu. Yuzhakova.

## Subtribe APHIDINA

***Aphis agrimoniae*** Shinji, 1922

*Material:* Mokrousovo Distr.: vill. Mokrousovo, mixed forest, 19 July 2009, *Agrimonia pilosa* Ledeb., on upper and lower side of leaf, apt., leg. O.Yu. Yuzhakova.

***Aphis esulae*** (Börner, 1940)

*Material:* Kargapol'e Distr.: vill. Osinovskoe, 8 July 2009, *Euphorbia* sp., on inflorescence, apt. and al., leg. O.Yu. Yuzhakova; Kurtamysh Distr.: vill. Uzkovo, nearby Gor'koe lake, 28 June 2009, *Euphorbia* sp., near inflorescence, apt. and al., leg. O.Yu. Yuzhakova; Lebyazh'ye Distr.: vill. Lis'ye, 22 July 2008, *Euphorbia virgata* Waldst., on stem and inflorescences, apt., leg. A.V. Gavrilyuk; same locality, green stands, 23 July 2008, *Euphorbia* sp., on stem and inflorescences, apt., leg. A.V. Gavrilyuk; Mokrousovo Distr.: vill. Mikhaylovka, cereal-mixed-grass meadow, 18 July 2009, *Euphorbia* sp., on apical part of shoots, apt. and al., leg. O.Yu. Yuzhakova; same locality, meadow, 19 July 2009, *Euphorbia* sp., on inflorescences, apt., leg. O.Yu. Yuzhakova.

***Aphis forbesi*** Weed, 1889

*Material:* city of Kurgan: Glinki microdistrict, 29 July 2007, *Fragaria vesca* L., on rachis of compound leaf, apt., leg. O.Yu. Yuzhakova; vicinity of city of Kurgan, 20 July 2008, *Fragaria moschata* Duch., on basal part of plant and on petioles, apt., leg. A.V. Gavrilyuk.

***Aphis gentianae*** (Börner, 1940)

*Material:* Mokrousovo Distr.: vill. Mikhaylovka, meadow, 19 July 2009, *Gentiana cruciata* L., on apical part of shoot, apt. and al., leg. O.Yu. Yuzhakova.

***Aphis intybi*** Koch, 1855

*Material:* Kurtamysh Distr.: vill. Uzkovo, nearby Gor'koe lake, 28 June 2009, *Cichorium intybus* L., on base of leaf, apt., leg. O.Yu. Yuzhakova; Mokrousovo Distr.: near vill. Mikhaylovka, cereal-mixed-grass meadow, 20 July 2009, *Cichorium* sp., on apical part of stem, apt., leg. O.Yu. Yuzhakova.

***Aphis korshunovi*** Ivanovskaya, 1971

*Material:* Mokrousovo Distr.: near vill. Mokrousovo, meadow, 20 July 2009, *Veronica* sp., on inflorescences, apt., leg. O.Yu. Yuzhakova.

***Aphis neothalictri*** Pashtshenko, 1994

*Material:* Belozerskoe Distr.: vill. Nizhnetobol'noe, 24 July 2009, *Thalictrum flavum* L., on apical part of shoot, apt., leg. O.Yu. Yuzhakova.

***Aphis polygonata*** (Nevsky, 1929)

*Material:* city of Kurgan: Glinki microdistrict, 29 July 2007, *Polygonum aviculare* L., on stem in bases of leaves, apt., leg. O.Yu. Yuzhakova.

***Aphis taraxacicola*** (Börner, 1940)

*Material:* Kargapol'e Distr.: vill. Osinovskoe, cereal-mixed-grass meadow, 6 July 2009, *Taraxacum* sp., on basal part of plant, apt., leg. O.Yu. Yuzhakova.

***Aphis ucrainensis*** Zhuravlyov, 1997

*Material:* Kargapol'e Distr.: vill. Osinovskoe, nearby Osinovka river, 8 July 2009, *Spiraea* sp., on apical part of stem, apt., leg. O.Yu. Yuzhakova; Ketovo Distr.: near vill. Temlyakovo, 11 June 2006, *Spiraea* sp., on the bark of young shoots, apt., leg. O.Yu. Yuzhakova; Kurtamysh Distr.: vill. Uzkovo, 27 June 2009, *Spiraea crenata* L., apt. and al., leg. O.Yu. Yuzhakova.

Tribe **MACROSIPHINI**Subtribe **ANURAPHIDINA*****Brachycaudus (Acaudus) lychnidis***  
(Linnaeus, 1758)

*Material:* Mokrousovo Distr.: near vill. Mokrousovo, meadow, 20 July 2009, *Silene vulgaris* (Moench) Garcke, on stem, apt., leg. O.Yu. Yuzhakova.

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

*Material:* Kargapol'e Distr.: vill. Osinoskoe, 6 July 2009, *Carduus* sp., on stem near inflorescence and on lower side of leaf, apt. and al., leg. O.Yu. Yuzhakova.

Subtribe **LIOSOMAPHIDINA*****Cavariella archangelicae*** (Scopoli, 1763)

*Material:* Ketovo Distr.: near vill. Temlyakovo, 9 June 2006, *Populus tremula* L. (accidentally), on young shoots and upper side of leaves, al., leg. A.V. Gavriljuk.

***Hydaphias molluginis*** Börner, 1939

*Material:* Ketovo Distr.: near vill. Temlyakovo, 30 June 2008, *Galium ruthenicum* Willd., on inflorescence, apt., leg. O.Yu. Yuzhakova.

Subtribe **MYZYNA*****Aulacorthum cylastis*** Börner, 1942

*Material:* Lebyazh'ye Distr.: vill. Lis'ye, 23 July 2008, *Rubus saxatilis* L., on lower side of the twisted leaves, apt., leg. A.V. Gavriljuk.

Subtribe **MACROSIPHINA*****Capitophorus carduinus*** (Walker, 1850)

*Material:* Kurtamysh Distr.: vill. Uzkovo, nearby Gor'koe lake, 28 June 2009, *Carduus* sp., on lower side of leaf, al., leg. O.Yu. Yuzhakova.

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

*Material:* city of Kurgan: Uval microdistrict, agrobiological station of Kurgan State Univer-

sity, 29 May 2007, *Lonicera tatarica* L., on lower side of leaf, al., leg. O.Yu. Yuzhakova.

***Uroleucon (Uromelan) aeneum***  
(Hille Ris Lambers, 1939)

*Material:* city of Kurgan: Glinki microdistrict, 25 Aug. 2008, *Carduus crispus* L., on stem and lower side of leaf, apt., leg. O.Yu. Yuzhakova.

***Uroleucon (Uromelan) minor***  
(Börner, 1940)

*Material:* Mokrousovo District.: vill. Mokrousovo, mixed forest, 19 July 2009, *Serratula wolffii* Andrae, on apical part of stems, apt. and al., leg. O.Yu. Yuzhakova.

***Volutaphis schusteri*** (Börner, 1939)

*Material:* Mokrousovo Distr.: near vill. Mokrousovo, cereal-mixed-grass meadow, 20 July 2009, *Silene multiflora* (Ehrh.) Pers., on stem, apt., leg. O.Yu. Yuzhakova.

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