



## A new species of *Aphis* (Homoptera: Aphididae: Aphidina) from Siberia

## Новый вид рода *Aphis* (Homoptera: Aphididae: Aphidina) из Сибири

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**Abstract.** *Aphis sibirica* sp. nov. is described by apterous and alate viviparous females collected in the Irkutsk and Novosibirsk provinces of Russia at *Euphrasia pectinata* Ten., *Odontites vulgaris* Moench, *Pedicularis palustris* subsp. *opsiantha* (Ekman) Almq., *Rhinanthus serotinus* subsp. *aestivalis* (N.W. Zinger) Dostál (all four from the family Orobanchaceae), *Elaeagnus rhamnoides* (L.) A. Nelson (Elaeagnaceae), and *Medicago* sp. (Fabaceae). Diagnostic characters that distinguish the new species from its congeners inhabiting the same plants, and from other polyphagous species of *Aphis* are discussed.

**Резюме.** Новый для науки вид *Aphis sibirica* sp. nov. описывается по бескрылым и крылатым живородящим самкам, собранным с *Euphrasia pectinata* Ten., *Odontites vulgaris* Moench, *Pedicularis palustris* subsp. *opsiantha* (Ekman) Almq., *Rhinanthus serotinus* subsp. *aestivalis* (N.W. Zinger) Dostál (все четыре вида из семейства Orobanchaceae), *Elaeagnus rhamnoides* (L.) A. Nelson (Elaeagnaceae) и *Medicago* sp. (Fabaceae) в Иркутской и Новосибирской областях России. Обсуждаются морфологические признаки, отличающие новый вид от других видов рода, обитающих на этих растениях, и от других многоядных видов рода *Aphis*.

**Key words:** taxonomy, Western and Eastern Siberia, Aphididae, new species

**Ключевые слова:** таксономия, Западная и Восточная Сибирь, Aphididae, новый вид

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### Introduction

In July 2017, apterous viviparous females of an aphid species from the genus *Aphis* Linnaeus, 1758 were found at three different plant species in Novosibirsk by employees of the Institute of Systematics and Ecology of Animals, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (ISEA). In July of the following year, individuals of this spe-

cies were collected from two other plant species in the Ol'khonskiy District of the Irkutsk Province in Eastern Siberia during expeditions organised by the Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZIN) and the Joint Directorate of the Baikal-Lena State Nature Reserve and the Pribaikal'skiy National Park (Irkutsk, Russia). We consider the collected species as a new for science and describe it below.

## Material and methods

Material was collected by T.A. Novgorodova and A.S. Ryabinin (ISEA) and A.V. Stekolshchikov (ZIN). Microscope slides were prepared using Faure-Berlese mounting fluid (Shaposhnikov, 1964). The specimens were examined using a Leica DM E light microscope.

Measurements, in micrometres ( $\mu\text{m}$ ), are of lengths unless otherwise specified. In the tables and text, the measurements, counts of setae and rhinaria, and ratios are presented as ranges, with arithmetic means in parentheses; if the arithmetic means differ significantly between samples then the means of the two extreme samples are given in parentheses, for example 284–589 (326–535). The apterous viviparous female is described in greatest detail. For the other morphs, the differences from the apterous vivipara are pointed out.

In our work, we follow the classification of higher taxa by Gavrilov-Zimin & Danzig (2012) and Danzig & Gavrilov-Zimin (2014), in which the suborder Aphidinea belongs to the order Homoptera, superorder Arthrotrichoptera and cohort Hemiptera.

The following abbreviations for the aphid morphs are used: al. – alate viviparous female, alatif. apt. – alatiform apterous viviparous females, apt. – apterous viviparous female.

The holotype of the new species is deposited in the Zoological Institute of the Russian Academy of Sciences, St Petersburg (ZIN); the paratypes are deposited in ZIN, the Institute of Systematics and Ecology of Animals of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (ISEA), the Natural History Museum (London, United Kingdom), and Muséum national d'Histoire naturelle (Paris, France).

## Results

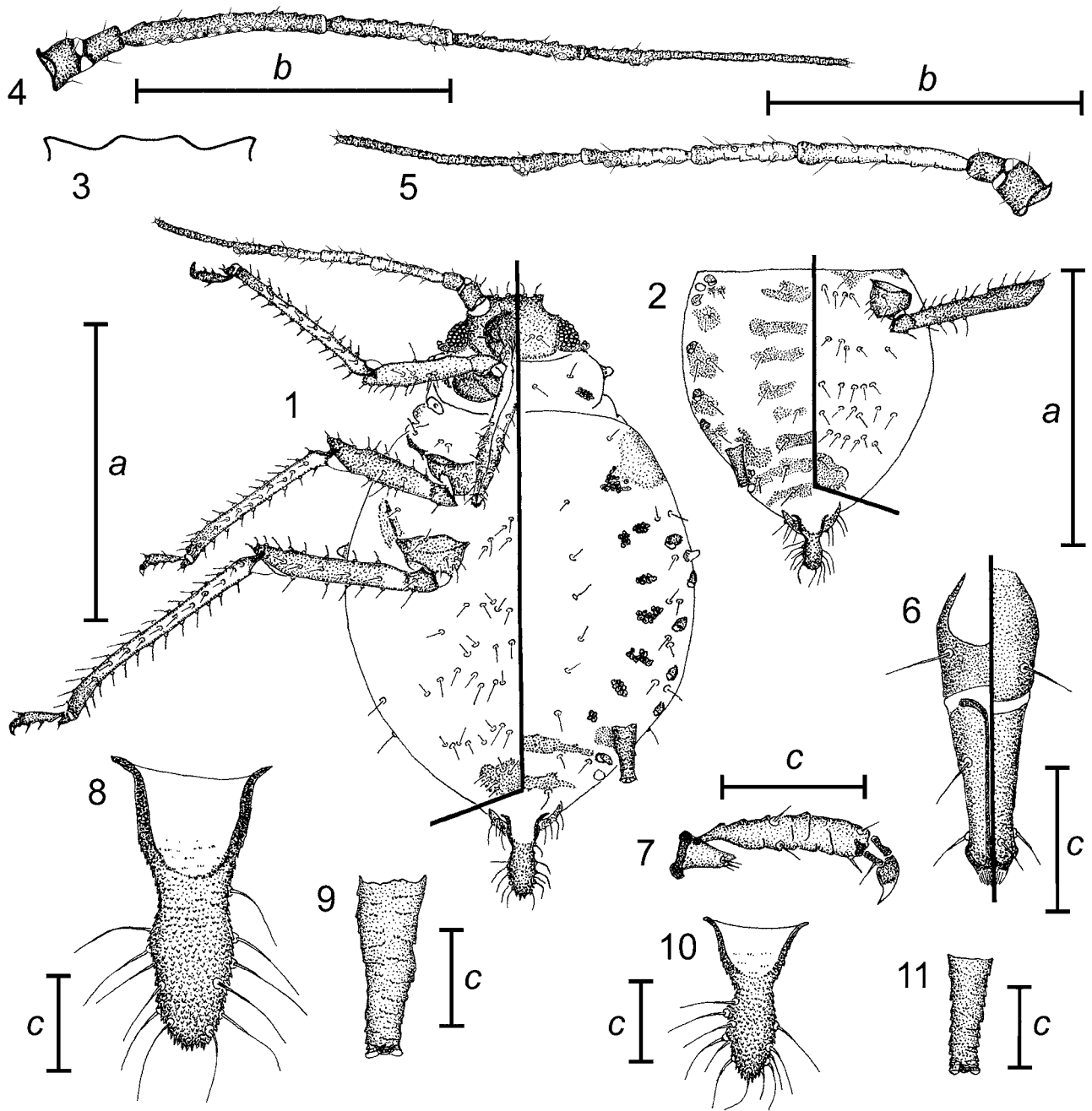
### *Aphis sibirica* sp. nov.

(Figs 1–11)

**Holotype.** Apterous viviparous female, **Russia**, “*Aphis sibirica* sp. nov., 15.VII.2018, Irkutsk Prov., Ol'khonskiy Distr., near Elantsy Vill., *Rhinanthus serotinus aestivalis* (N.W. Zinger) Dostál, on the stem at the top of the plant, leg. A.V. Stekolshchikov”, No. 10996 [collection number in ZIN], slide No. 22, specimen No. 2 [right specimen].

**Paratypes.** **Russia:** Novosibirsk, combined heat and power plant No. 5, ash-and-slag dump, 20.VII.2017, at *Odontites vulgaris* Moench, 7 apt. (ISEA, No. 14671), 20.VII.2017, at *Odontites vulgaris* Moench, 27 apt. (ISEA, No. 14672), 20.VII.2017, at *Medicago* sp., 5 apt. (ISEA, No. 14808), 24.VII.2017, at *Odontites vulgaris* Moench, 1 apt. (ISEA, No. 14676), 24.VII.2017, at *Odontites vulgaris* Moench, 27 apt. (ISEA, No. 14810), 25.VII.2017, at *Odontites vulgaris* Moench, 16 apt. (ISEA, No. 14681), 25.VII.2017, at *Elaeagnus rhamnoides* (L.) A.Nelson, 25 apt. (ISEA, No. 14683), 25.VII.2017, at *Medicago* sp., 6 apt. (ISEA, No. 14811), 26.VII.2017, at *Odontites vulgaris* Moench, 10 apt. (ISEA, No. 14812); **Irkutsk Prov.**, Ol'khonskiy Distr., near Elantsy Vill., 15.VII.2018, at *Pedicularis palustris opsiantha* (Ekman) Almq., 19 apt., 3 al. (ZIN, No. 10994), at *Rhinanthus serotinus aestivalis* (N.W. Zinger) Dostál, 74 apt., 2 al., 2 alatif. apt. (ZIN, No. 10996), 16.VII.2018, *Euphrasia pectinata* Ten., 5 apt., 2 al. (ZIN, No. 11009).

**Description.** *Apterous viviparous female.* Body broadly elliptical, 1.5–2.1 (1.6–1.9) times as long as wide. Live individuals gray, brown, brownish-gray or brownish gray green, with distinct waxy pulverulence; specimens fixed in alcohol dirty gray green or brownish gray green; bases and apices of antennae, and sometimes apices of 3rd–5th antennal segment, femora of middle and hind, or only hind legs, apices of tibia, tarsi, siphunculi and cauda dark. Cleared specimens with dark brown head, 1st antennal segment, coxae, apices of tibiae and tarsi of all legs, femora of middle and hind legs (except for bases), peritremes on abdomen, intersegmental muscle sclerites on thorax and I–V abdominal tergites, siphunculi, anal and subgenital plate, and cauda; with brown 2nd antennal segment, apices of 3rd–5th antennal segments, 6th antennal segment, two last segments of rostrum, trochanters of all legs, dorsal part of fore femora, bases of tibiae, and sclerites and bands on thorax and abdomen. Pronotum often with sclerotised band which sometimes thin and almost interrupted in midline; abdominal tergite VIII always with band which sometimes thin; abdominal tergite VII almost always with band and postsiphuncular sclerites; abdominal segments I, V and VII often with small marginal sclerites; and some or all abdominal tergites occasionally with sclerites sometimes forming short sclerotised bands. Surface of head, dorsal sides of thorax, abdominal tergites I–VII reticulate; contour of cells on thorax and



**Figs 1–11.** *Aphis sibirica* sp. nov., apterous and alate viviparous females. 1, body of apterae; 2, abdomen of alatae; 3, frons of apterae; 4, antenna of apterae; 5, antenna of alatae.; 6, ultimate rostral segments of apterae; 7, hind tarsus of apterae; 8, siphunculus of apterae; 9, siphunculus of alatae; 10, cauda of apterae; 11, cauda of alatae. Scale bars: a – 1000  $\mu$ m; b – 500  $\mu$ m; c – 100  $\mu$ m.

abdominal tergites I–VI formed by wide irregular line, and on tergite VII, by flat fused large spinules. Surface of abdominal tergite VIII with long rows of small pointed spinules which partially fusing and forming scales. Surface of ventral side of thorax smooth; the same of abdomen with long rows of

small pointed spinules sometimes forming strongly stretched reticulate cells. Setae on dorsal and ventral sides of thorax and abdomen finely pointed; numbers of marginal setae 0–2, 1–3, 1–4, 1–3, 1–3, 1–3, 0–2 on each side of abdominal segments I–VII, respectively. Marginal tubercles present on

prothorax, I and VII segments of abdomen, usually large, but sometimes small, and in one specimen (0.4% of all specimens) marginal tubercles on segment VII completely absent; marginal tubercles on other segments absent and only one specimen with two marginal tubercles on abdominal segment VI, and one specimen with one tubercle on segment III. Head with epicranial coronal suture or with clear traces of epicranial coronal suture. Frontal tubercles distinct but not well developed; antennal tubercles relatively high; median tubercle not surpassing the level of antennal tubercles. Setae on head finely pointed. Antennae 6-segmented, or very rarely 5-segmented as result of incomplete fusing of 3rd and 4th segments; 1st, 2nd and base of 3rd antennal segment slightly wrinkled, almost smooth, 3rd (except base) and 4th–6th segments with large scales. Antennae without secondary rhinaria. Setae on antennae pointed or more often finely pointed. Rostrum reaching meso- or metathorax. Ultimate rostral segment elongate wedge-shaped, with straight or slightly concave sides, 1.64–2.67 (1.91–2.23) times as long as its basal width. Legs normally developed; setae on tarsi pointed; setae on coxae, trochanters, femora and tibiae finely pointed. Chaetotaxy of first tarsal segments 3, 3, 3 in 53% of specimens, 3, 3, 2 in 20% of specimens, and first tarsal segments on one hind leg with two and on other legs with three setae in 27% of specimens. Arms of mesosternal furca connected by wide base. Spiracles reniform. Siphunculi almost cylindrical, gradually tapering towards apex, sometimes very slightly S-shaped, with relatively small, but distinct flange. Surface of siphunculi imbricated, covered by rough scales which sometimes formed by partially fused large pointed spinulae. Subgenital plate oval, with finely pointed setae. Setae on anal plate finely pointed. Cauda finger-shaped, with distinct constriction in basal third, with rounded apex and long finely pointed setae.

*Measurements of the holotype.* Body – 2017×1178, antenna – 1128: III – 273×30 (in middle), IV – 167, V – 164, VI – 107+266; hind femur – 508, hind tibia – 873; siphunculus – 182×52 (in middle); cauda – 291×154 (at base) ×129 (before base). Additional measurements are given in Table 1.

*Alate viviparous female.* Body elliptical, 2.1–2.2 times as long as wide. Live individuals dirty

gray green or brownish gray green, with weak waxy pulverulence dorsally; head, thorax, antennae, femora of middle and hind, or only hind legs, apices of tibia, tarsi, siphunculi and cauda dark. Thorax of cleared specimens dark brown, 2nd–6th antennal segment (except pale base of 3rd segment) brown. Abdomen always with sclerotised band on tergites VI–VIII, with sclerites on some or all abdominal tergites, and with large marginal sclerites on abdominal segments II–VII; sclerites on I–V abdominal tergites sometimes forming short sclerotised bands often interrupted in the midline, band on tergite VI short; marginal sclerites and band on segment VII always fused. Surface of head and thorax smooth, slightly wrinkled; abdominal tergites I–VI smooth, with rare spinulae on sclerites and sclerotised bands, and with flat or pointed large spinules on marginal sclerites, sometimes forming cells. Antennae 6-segmented, 2nd antennal segment with small scales on ventral side. Third antennal segment with 9–19 (13.5–16.4) secondary rhinaria, 4th segment with 0–5 (0.8–2.8) secondary rhinaria, and 5th segment without rhinaria. Secondary rhinaria round or oval, with internal diameter of very different sizes (8–23), very weakly protuberant, with external diameter 4.0–8.0 times as long as their height. Rostrum reaching mesothorax. Cauda conical at basal half, with a more or less distinct constriction almost in middle and finger-shaped in distal half, with rounded or almost pointed apex.

*Alatiform apterous viviparous female.* Antennae with 0–9 (5.3) small (internal diameter 8–13) secondary rhinaria on 3rd antennal segment.

*Mode of life.* The life cycle is unknown. Near Novosibirsk, the aphids were collected on the stem (mainly at its apex) of *Odontites vulgaris* Moench (Orobanchaceae), on which they formed colonies. Small colonies were also found once at the apex of the shoot of *Elaeagnus rhamnoides* (L.) A. Nelson (Elaeagnaceae), and two times on the stems of *Medicago* sp. (Fabaceae).

In the Irkutsk Province, the aphids were collected from *Pedicularis palustris* subsp. *opsiantha* (Ekman) Almq., *Rhinanthus serotinus* subsp. *aestivalis* (N.W. Zinger) Dostál, and *Euphrasia pectinata* Ten. (all three species from the family Orobanchaceae). Colonies of aphids on all three species of host plants were located at the top of

**Table 1.** Measurements of fundatrices and apterous viviparous females of *Aphis sibirica* sp. nov.

				Apterous viviparous females	Alatiform apterous viviparous females	Alate viviparous females	
Number of samples / number of specimens				12 / 223	1 / 2	3 / 7	
Length of body				1320–2264 (1416–2055)	2086–2147 (2117)	1929–2286 (2001–2096)	
Length of antenna				630–1380 (748–1220)	1259–1323 (1287)	1232–1417 (1290–1378)	
Length of antenna / length of body				0.39–0.74 (0.52–0.63)	0.59–0.62 (0.61)	0.62–0.71 (0.64)	
Hind femora	length			284–589 (326–535)	518–569 (542)	463–574 (513–535)	
	length / length of body			0.18–0.33 (0.21–0.28)	0.25–0.26	0.24–0.26 (0.25)	
	length / head width across the eyes			0.83–1.42 (0.95–1.29)	1.20–1.22 (1.21)	1.24–1.39 (1.25–1.35)	
Hind tibia	length			487–1035 (583–910)	903–980 (939)	892–1071 (966–1030)	
	length / length of body			0.32–0.55 (0.38–0.48)	0.43–0.46 (0.44)	0.46–0.53 (0.48)	
Head width across the eyes				321–475 (343–425)	430	372–403 (391)	
Setae	on head	occipital	length	33–71 (44–61)	38–58 (48)	38–58 (44–54)	
			length / articular diameter of 3rd antennal segment	1.53–3.83 (2.23–2.91)	1.50–2.88 (2.16)	2.25–3.38 (2.58–3.04)	
		frontal	length	43–71 (59)	53–61 (57)	43–59 (53)	
			length / articular diameter of 3rd antennal segment	1.89–4.31 (2.58–3.13)	2.10–3.00 (2.53)	2.43–3.92 (2.72–3.33)	
	on 1st antennal segment	number			4–6 (4.2–5.2)	5	4–5 (4.5–5.0)
		length			20–51 (32)	41–43 (42)	28–41 (34)

Table 1. Continued.

			Apterous viviparous females	Alatiform apterous viviparous females	Alate viviparous females	
Setae	on 3rd antennal segment	number	1–11 (3.6–8.2)	8–9 (8.3)	5–9 (7.2–8.0)	
		length	20–56 (25–41)	41–53 (44)	28–51 (32–42)	
		length / articular diameter of 3rd antennal segment	1.06–3.14 (1.34–2.14)	1.68–2.63 (1.97)	1.57–2.86 (1.88–2.31)	
	on base of last antennal segment	number	1–4 (2.8)	2–3 (2.8)	2–3 (2.9)	
		length / articular diameter of last antennal segment	0.92–2.33 (1.17–1.56)	1.43–1.67 (1.54)	1.27–2.00 (1.61)	
	length of ventral seta on hind trochanter / basal diameter of hind femur		0.74–1.73 (1.03–1.40)	1.08–1.33 (1.17)	1.00–1.33 (1.09–1.24)	
	on hind femur	length of longest	dorsal	43–78 (63)	61–73 (67)	48–71 (50–62)
			ventral	41–78 (54–72)	68–76 (73)	43–61 (53)
			dorso-apical	15–38 (26)	25–30 (29)	20–29 (24)
	on hind tibia	longest dorsal	46–89 (69)	73–76 (74)	53–68 (55–67)	
		longest dorsal / mid-diameter of the hind tibia	1.19–2.13 (1.44–1.78)	1.49–1.67 (1.56)	1.56–2.25 (1.71–2.14)	
	number on 2nd segment of hind tarsus		dorsal	0–2 (0.0–0.3)	0	0–1 (0.0–0.3)
			ventral	0–2 (0.6–1.2)	1–2 (1.3)	1–2 (1.3–2.0)
	on abdominal tergite III	number of spinal and marginal		5–8 (5.8–7.0)	6–7	6–8 (6.7)
		spinal	length	25–71 (35–59)	52–56 (54)	43–63 (52)
length / articular diameter of 3rd antennal segment			1.33–3.38 (1.89–2.67)	2.05–2.75 (2.39)	2.13–3.57 (2.82)	
marginal		length	33–84 (48–68)	61–66 (63)	41–66 (53)	
		length / articular diameter of 3rd antennal segment	1.87–4.00 (2.35–3.38)	2.40–3.25 (2.81)	2.13–4.00 (2.75–3.27)	

**Table 1. Continued.**

				Apterous viviparous females	Alatiform ap-terous viviparous females	Alate viviparous females	
Setae	on abdominal tergite III	ventral	length	30–68 (50)	56–58 (57)	43–58 (52)	
			length / articular diameter of 3rd antennal segment	1.41–3.85 (2.06–2.75)	2.20–2.88 (2.52)	2.13–3.54 (2.48–3.18)	
	number on abdominal tergite VI between siphunculi			1–4 (2.1)	2	2	
	on abdominal tergite VIII	number		1–3 (2.0)	2	2	
		length		41–86 (52–78)	58	48–58 (53)	
		length / articular diameter of 3rd antennal segment		2.00–4.00 (2.84–3.76)	2.30–2.88 (2.58)	2.67–3.33 (2.83–3.03)	
	number on subgenital plate	on anterior half		1–7 (2.0–3.3)	4–5	2–5 (2.5–4.3)	
		along the hind margin		7–20 (10.0–13.9)	13–17	11–13 (11.7)	
	Last antennal segment	length of base			73–129 (85–118)	106–124 (116)	106–137 (123)
		length of processus terminalis			167–320 (182–282)	223–296 (259)	273–321 (303)
length of processus terminalis / length of base			1.77–2.86 (2.15–2.57)	1.91–2.43 (2.24)	2.08–2.70 (2.51)		
Ultimate rostral segment	number of accessory setae			1–3 (1.8–2.1)	2	2–3 (2.1)	
	length			94–132 (101–121)	119–121	109–119 (114)	
	length /	head width across the eyes		0.24–0.32 (0.29)	0.28	0.28–0.30 (0.29)	
		length of 2nd segment of hind tarsus		0.91–1.24 (1.03)	0.96–1.00 (0.98)	0.87–1.05 (0.96)	
length of base of last antennal segment		0.91–1.41 (1.11)	0.98–1.12 (1.04)	0.83–1.07 (0.93)			
2nd segment of hind tarsus	length			89–134 (93–120)	119–126 (123)	109–132 (119)	
	length /	maximum width		3.60–5.44 (4.27–5.03)	4.80–5.44 (5.08)	5.18–5.73 (5.51)	
		head width across the eyes		0.23–0.33 (0.28)	0.29	0.28–0.34 (0.31)	
		length of base of last antennal segment		0.92–1.26 (1.07)	1.02–1.14 (1.06)	0.90–1.05 (0.97)	

Table 1. Continued.

		Apterous viviparous females	Alatiform apterous viviparous females	Alate viviparous females
Siphunculus	length	91–249 (111–180)	207–218 (214)	137–190 (169)
	length / length of body	0.06–0.12 (0.09)	0.10	0.07–0.09 (0.08)
	length/width of siphunculus at base	1.54–3.78 (2.23–3.14)	2.97–4.10 (3.39)	2.50–4.14 (3.08–3.43)
	length/ width of siphunculus at half length	2.18–5.23 (2.80–4.01)	3.50–4.20 (3.90)	3.29–5.29 (4.11–4.46)
	length/ length of 3rd antennal segment	0.44–0.85 (0.66)	0.59–0.71 (0.64)	0.43–0.60 (0.52)
Cauda	length	177–318 (200–283)	278	187–202 (194)
	length / basal width	1.36–2.50 (1.66–2.15)	1.75	1.21–1.50 (1.37)
	number of setae	7–19 (9.7–14.7)	13	11–15 (13.0)
Length of siphunculus / length of cauda		0.36–0.91 (0.49–0.70)	0.75–0.76	0.71–1.01 (0.87)

the stem or between flowers and were visited by ants.

It is very likely that *Aphis sibirica* **sp. nov.** is a wide oligophagous species inhabiting plants of the family Orobanchaceae. This is evidenced by the fact that of the twelve samples of this species, nine colonies were found precisely at the species of Orobanchaceae, and only three smaller colonies were located on the plants of other families. Furthermore, these last three samples were collected on the territory of the ash-and-slag dump at the initial stages of its self-revegetation. The extreme conditions which are usual for such technogenic landscapes could have caused disruption of the food specialisation of aphids.

**Diagnostic characters.** Twelve species of *Aphis* were previously recorded on plants of the family Orobanchaceae: *A. asclepiadis* Fitch, 1851, *A. coffeata* Mamontova, 1979, *A. craccivora* Koch, 1854, *A. fabae* Scopoli, 1763, *A. frangulae* Kaltenbach, 1845, *A. gerardiae* (Thomas, 1879), *A. gossypii* Glover, 1877, *A. illinoisensis* Shimer,

1866, *A. nasturtii* Kaltenbach, 1843, *A. pediculariphaga* Pashtshenko, 1994, *A. septentrionalis* Pashtshenko, 1994, and *A. solanella* Theobald, 1914, but only four of them, *A. coffeata*, *A. gerardiae*, *A. pediculariphaga*, and *A. septentrionalis*, live strictly on plants of this family, whereas the others are polyphagous species. These four species can be easily distinguished from *A. sibirica* by the ratio of siphunculi to cauda: only in *A. coffeata*, the minimum value of this ratio reaches 0.90 (*vs.* 0.36–0.91 in *A. sibirica* **sp. nov.**), while in the other three species, it is significantly more than 1. In addition, *A. coffeata* and *A. pediculariphaga* differ from the new species in a large number of setae on the abdominal tergite VIII: 3–8 and 5–8, respectively (*vs.* 2–3 in *A. sibirica* **sp. nov.**), and *A. septentrionalis* has a smaller number of setae on the cauda: 4–7 (*vs.* 7–19 in *A. sibirica* **sp. nov.**). Also, *A. pediculariphaga* often has marginal tubercles on the abdominal segments II–VI (*vs.* marginal tubercles are very rarely present in *A. sibirica* **sp. nov.**) and the secondary rhinaria



**Table 2.** Comparison of apterous viviparous females of *Aphis fabae* and *A. sibirica* sp. nov. (after Stroyan, 1984; Heie, 1986; Blackman & Eastop, 2019).

	<i>Aphis fabae</i>	<i>Aphis sibirica</i>
Total number of marginal tubercles on abdominal tergites II–VI	0–7	0–2
Length of 3rd antennal segment / length of cauda	1.20–1.90	0.57–1.24
Number of setae on VIII abdominal tergite	2–7	1–3
Length of siphunculus / length of body	0.08–0.17	0.06–0.12
Length of siphunculus / length of longest setae on 3rd antennal segment	2.40–5.40	1.54–4.29
Length of siphunculus / length of cauda	0.70–1.81	0.36–0.91
Number of setae on cauda	7–27	7–19

on 3rd–5th antennal segments of the apterous vivipara (*vs.* secondary rhinaria is completely absent in *A. sibirica* sp. nov.).

*Aphis illinoisensis*, which is heteroecious holocyclic in USA and migrates from *Viburnum prunifolium* (Baker, 1917) to species of the family Vitaceae, was once found at *Agalinis laevigata* (Favret et al., 2010), a species belonging to Orobanchaceae. This aphid species is also easy to distinguish from *A. sibirica* sp. nov. by very long siphunculi which are 0.25–0.40 of the body length and more than twice as long as the cauda.

Specialised, non-polyphagous species of the genus *Aphis* are not known from *Elaeagnus*. At the same time, three species known from *Medicago* (*A. medicaginis* Koch, 1854, *A. coronillae* Ferrari, 1872, and *A. yangbajaingana* Zhang ex Zhang et Zhong, 1981) are easily distinguishable from *A. sibirica* sp. nov. by the long siphunculi, significantly exceeding the length of the cauda.

Among polyphagous species, the new species is close to the aphids of the so-called *Aphis fabae* group and is most similar to *A. fabae* itself. However, the new species can be distinguished by the following characters: the ratio of the length of 3rd antennal segment to the length of the cauda, the ratio of the length of siphunculi to the length of the cauda (this ratio is rarely less than 0.90 in *A. fabae*); the presence of the constriction at the cauda (which are not constricted in *A. fabae*); the presence of two and only extremely rarely one or three

setae on the abdominal tergite VIII (this tergite has four to seven or very rarely two to three setae in *A. fabae*), most individuals of *A. sibirica* sp. nov. have three setae on the first segment of the hind tarsus (*vs.* two setae in *A. fabae*). Some morphological characters that can differentiate these two species by the apterous viviparous females are given in Table 2. *Aphis sibirica* can be easily distinguished from *A. solanella*, the species close to *A. fabae*, by the short siphunculi: in *A. sibirica*, they are 0.36–0.91 as long as the cauda, 0.06–0.12 as long as the body, and 1.54–3.78 as long as their diameter in the middle of the length (for *A. solanella*, 1.30–1.90, 0.13–0.20, and 3.50–7.50, respectively).

**Etymology.** The specific epithet *sibirica* is a feminine singular adjective derived from the geographical name of Siberia, where the new species was collected.

**Distribution.** Known from Western (Novosibirsk Province, Novosibirsk) and Eastern (Irkutsk Province, Ol'khonskiy District, near Yelantsy Village) Siberia.

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