

## ANNOTATED LIST OF TETRANYCHOIDEA MITES (ACARI: TROMBIDIFORMES) OF CENTRAL EUROPEAN RUSSIA

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**ABSTRACT:** An annotated list of the Tetranychoida fauna of Central European Russia, which includes 39 species of the family Tetranychidae belonging to 11 genera and one species of the Tenuipalpidae family, is presented. This paper provides a brief review of key investigations, including rare and little-known papers, which deal with the diversity of tetranychoid mites in the above region. During the study, three species that are new to the fauna of Russia have been recorded: *Eotetranychus thujae*, *Eo. uncatius* and *Eurytetranychus furcisetus*. *Eotetranychus thujae* feeds on the plants of the Cypress family, while *Eu. furcisetus* inhabits mainly the species of the genus *Picea*. Both species are alien to Russia, being widespread in the urbanized territories of Central European Russia on ornamental coniferous plants. Four species that are new to Central European Russia—*Bryobia vasiljevi*, *Neotetranychus rubi*, *Oligonychus lagodechii* and *O. piceae*—were also recorded. In addition, some data on tetranychoid mite species, obtained during a plant quarantine laboratory analysis, are provided.

**KEY WORDS:** spider mites, false spider mites, fauna, new records.

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### INTRODUCTION

Central European Russia, or the central part of the Middle Zone of Russia, in comparison with other geographical areas of the former USSR, has not been fully investigated with respect to Tetranychoida (Bagdasaryan 1957; Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987; Akimov and Zhovnerchuk 2010; Livshits *et al.* 2013). There are some fragmentary data about spider mites from some administrative divisions of Central European Russia, mostly from Moscow and Moskovskaya Oblast, often with the emphasis on acarocomplexes in agroecosystems (Antonova 1955, 1960; Wainstein 1960; Mitrofanov *et al.* 1987; Popov 1988, 1997, 2013). When comparing our records with the known data, it turned out that the available information on tetranychoid mites of the study area is scattered or hardly accessible. All this ultimately prompted the author to write an overview of the Tetranychoida of Central European Russia, including the results of the author's primary research.

Firstly, the key publications devoted to the fauna of Tetranychoida in Central European Russia should be noted. I have analyzed references starting from the 1950s, since that is when G.F. Reck and B.A. Wainstein have published their fundamental investigations on the systematics and the diagnostics of the Tetranychoida species of the USSR. For this reason, previous identifications for the study area are questionable. In addition, previously made records are not preserved in collections, and the indications about the records are extremely generalized (e.g., Vasiljev (1910), Chu-

rakov and Shesterikova (1933)<sup>1</sup>, Beresnev (1935), Gerasimov (1946), etc.).

In the 1920s–1950s, Churakov and Shesterikova (1933) and Sawzdarg (1955) conducted the study of pest mites of fruit and berry crops in Central European Russia, including Tetranychidae, under the guidance of Prof. E.E. Sawzdarg<sup>2</sup> of the Timiryazev Agricultural Academy<sup>3</sup>. The thesis of one of his graduate students is devoted directly to *Panonychus ulmi*, with reference to other Tetranychoida species recorded from apple trees. The identification of spider mites was carried out under the guidance of G.F. Reck (Lo Yuj-zyuan 1957, 1958).

A series of publications by I.I. Antonova (1955, 1957, 1959, 1960) was dedicated to the fauna and ecology of spider mites on the territory of the Main Botanical Garden of the Academy of Sciences of the Soviet Union<sup>4</sup>, Moscow (which included green-

<sup>1</sup> Churakov and Shesterikova (1933) note that the exact identification of the spider mite species from the apple tree was not carried out. The authors suggested that the studied species belongs to *Paratetranychus pilosus* Canestrini et Fanzago, 1876 (now a junior synonym of *Panonychus ulmi*). This paper is cited by subsequent authors (Bondarenko 1967; Sunga 1999).

<sup>2</sup> In honor of Prof. E.E. Sawzdarg, *Tetranychus sawzdargi* was described by V.I. Mitrofanov in 1980 from Moscow (the territory of the Horticultural Research Center for Breeding, Agrotechnology and Nursery).

<sup>3</sup> Later, it was renamed as Russian State Agrarian University—Moscow Timiryazev Agricultural Academy.

<sup>4</sup> Now it is the Main botanical garden of the Russian Academy of Sciences (RAS).

houses). The identification was carried out by B.A. Wainstein, who described *Schizotetranychus beckeri* from these collections (Wainstein 1958) and included most of these data in his monograph on the tetranychoids of Kazakhstan, when characterizing the distribution of certain species on the territory of the USSR (Wainstein 1960).

N.V. Bondarenko (1967) summarized in his thesis the information on the fauna of Tetranychoida of the Nonchernozem belt of the USSR (northern, north-western and central parts of European Russia), including greenhouses. This study is mainly based on the analysis of secondary sources<sup>1</sup>, including a little-known publication by Lebedeva (1958) on spider mites in Moscow parks. Bondarenko (1967) listed 29 species of Tetranychidae and 2 species of Tenuipalpidae, which are listed only in the text of the thesis<sup>2</sup>. Presently, Bondarenko's (1967) data need critical analysis, because the taxonomic position of the listed species has changed. Additionally, it should be noted that this investigation contained incomplete information about the exact locations of the spider mite records, since the main focus of the work was on pest species, their biology and control measures.

The distribution of spider mite species, which are the most important pests of agricultural crops on the territory of the former USSR, including European Russia, is provided in a series of publications prepared with the participation of I.Z. Livshits and V.I. Mitrofanov (Kopaneva 1982, 1983, 1984; Mitrofanov *et al.* 1987; Livshits *et al.* 2013).

G.A. Beglyarov *et al.*, along with the problems of control of spider mites and biological control, also investigated the issues of the systematics and species composition of the genus *Tetranychus* in the former USSR (Beglyarov *et al.* 1963). In recent decades, the species composition and the ecology of the genus *Tetranychus* have been studied in the publications of Prof. Popov (1985, 1988, 1997, 2013). Tetranychoids on fruit crops in European Russia were investigated by Prof. N.N. Tretyakov, as well as by others who worked under his leadership (Sunga 1999; Tretyakov 2006). However, as a result, no new species have been found in the

studied region. Additionally, Dr. A.S. Zeinalov (Federal Horticultural Research Center for Breeding, Agrotechnology and Nursery) has been investigating pests, including tetranychoids mites, on berry and fruit crops in European Russia (Zeinalov 2008, 2016).

Updating the information on Russia's tetranychoid fauna is important both for studying the biodiversity, as well as for monitoring the phytosanitary situation, since there are invasive species among these mites. They may be potentially dangerous not only for agricultural crops, but for forest and ornamental plants. Biological invasions of plant-feeding mites are closely related to the movement of plant products, including imported plants for planting (Navajas and Ochoa 2013; Saccaggi *et al.* 2018; Stavrinides 2018), which are widely used in the landscaping of urbanized areas. The Central European part of Russia is characterized by significant urbanization, which has determined the choice of the studied habitats when collecting material.

This paper provides an overview of the Tetranychoida fauna of Central European Russia, based on secondary sources and primary data.

## MATERIALS AND METHODS

The collections were carried out in 2017–2022 using the route method on the territory of Central European Moscow, Moskovskaya Oblast, Smolensk (Smolenskskaya Oblast), Kaluga (Kaluzhskaya Oblast), Nizhny Novgorod (Nizhegorodskaya Oblast), Yoshkar-Ola (Republic of Mari El). The collected mites were preserved in 70% ethanol; some of them were mounted for the purpose of subsequent morphological species identification. Some specimens were collected by beating the branches against an A4 sheet of white paper.

The slides were prepared with Hoyer's medium (Walter and Krantz 2009) according to the modified method (Kamayev 2019). In addition, a number of slides, mounted in a gum arabic medium, were investigated. The identification of mites was carried out under transmitted light using ZEISS Axio Imager 2 and Levenhuk MED D45T LCD phase-contrast microscopes.

The general appearance and the diagnostic characters of some spider mite species were illustrated with the help of ZEISS SteREO Discovery v20 (for mites on plants) and ZEISS Axio Imager 2 (for slides). Photographing with subsequent processing of the illustrations was carried out with the

<sup>1</sup> I could not get any information about the collection of spider mites of N.V. Bondarenko.

<sup>2</sup> Mitrofanov *et al.* (1987) refer to the abstract of Bondarenko's thesis that did not provide a complete list of tetranychoids species unlike the full-text thesis (Bondarenko 1967).

help of Zen 2.3 and Zerene Stacker software. The final processing of the resulting images was performed in Adobe Photoshop CC.

Materials and slides are stored in the acarological cabinet of the All-Russian Plant Quarantine Centre (VNIKR, Bykovo, Moskovskaya Oblast, Russia) and partly in the author's personal collection (Moscow, Russia).

## SYSTEMATICS

Family **Tetranychidae** **Donnadieu, 1875**

Subfamily **Bryobiinae** **Berlese, 1913**

Tribe **Bryobiini** **Reck, 1952**

Genus ***Bryobia*** **Koch, 1836**

### ***Bryobia graminum* (Schrank, 1781)**

*Bryobia graminum*: Bondarenko 1967: 27; Popov 1988: 47

**Material.** 5 females, Moskovskaya Oblast, Balashchinskiy District, Chernoye Village, 55°44'45" N, 38°4'21" E, on *Cucumis sativus*, May 1995, coll. A.K. Akhatov; 9 females, Moskovskaya Oblast, the settlement of Moskovskiy, 55°35'20" N, 37°21'49" E, greenhouses, on *Cucumis sativus*, 21 May 2016, 15 March 2017, coll. A.K. Akhatov.

**Host Plants.** This species is polyphagous, recorded from 42 plant species belonging to 13 families (Migeon and Dorkeld 2022). It is a pest of *Cucumis sativus* (Popov 1988; Akhatov 2016).

**Remarks.** The identification of *Bryobia* on *Cucumis sativus* from the greenhouses of Moskovskaya Oblast was carried out by V.I. Mitrofanov (Popov 1988). Soviet acarologists I.Z. Livshits and V.I. Mitrofanov (Livshits 1960; Livshits and Mitrofanov 1966) considered "*Bryobia praetiosa*" a complex of a large number of *Bryobia* species, which includes *B. graminum*. This point of view was accepted by Bondarenko (1967). In another paper, Livshits and Mitrofanov (1971) considered *B. praetiosa* a valid species, indicating that the species' definition was based on one preliminarily identified female. Later, they suggested that *Bryobia praetiosa* is a junior synonym of *B. graminum* (Mitrofanov *et al.* 1987). Both are currently considered valid (Migeon and Dorkeld 2022).

**Distribution.** It is known from Europe; North Africa; the Caucasus; Western, Central and East Asia; Australia and New Zealand; South America (Chile) (Migeon and Dorkeld 2022). This species was recorded from Central European Russia (from Moskovskaya Oblast) (Popov 1988).

### ***Bryobia lagodechiana* Reck, 1953**

*Bryobia lagodechiana*: Antonova 1960: 88; Wainstein 1960: 112; Bondarenko 1967: 27  
*Bryobia recki*: Wainstein 1956a: 385; Antonova 1959: 6; Antonova 1960: 88

**Host Plants.** This species is polyphagous, recorded from at least 30 plant species belonging to 18 families (Migeon and Dorkeld 2022). Additionally, it was observed on *Hyssopus officinalis*, *Campanula* spp., *Potentilla* sp. in the study region (Antonova 1960).

**Remarks.** *Bryobia lagodechiana* and *B. recki* Wainstein, 1956 were synonymized by Wainstein (1960).

**Distribution.** This species is known from Georgia, Kazakhstan, countries of the Europe, Canada and New Zealand (Migeon and Dorkeld 2022). It was recorded from European Russia (Reck 1959; Bondarenko 1967; Mitrofanov *et al.* 1987), including Moscow and Moskovskaya Oblast (Antonova 1960; Wainstein 1960).

### ***Bryobia lonicerae* Reck, 1956**

*Bryobia lonicerae*: Antonova 1959: 6; Antonova 1960: 88; Reck 1959: 89; Bondarenko 1967: 27; Mitrofanov *et al.* 1987: 152

**Host Plants.** *Lonicera* sp. (Reck 1959; Antonova 1960; Migeon and Dorkeld 2022).

**Distribution.** This species is known from Georgia, Ukraine, Tajikistan and European Russia (Reck 1959; Bondarenko 1967; Mitrofanov *et al.* 1987), including Moscow (Antonova 1960).

### ***Bryobia osterloffii* Reck, 1947**

*Bryobia osterloffii*: Antonova 1955: 51; Antonova 1959: 6; Antonova 1960: 88; Bondarenko 1967: 27

**Host Plants.** This species is recorded from at least 11 plant species belonging to 8 families (Migeon and Dorkeld 2022).

**Distribution.** This species is found in Georgia, Armenia, Azerbaijan, Uzbekistan (Bagdasaryan 1959; Reck 1959; Mitrofanov *et al.* 1987) and known from Central European Russia (from Moscow) (Antonova 1960; Bondarenko 1967).

### ***Bryobia ribis* Thomas, 1896**

*Bryobia praetiosa*: Sawzdarog 1955: 335  
*Bryobia ribis*: Kopaneva 1984: 35

**Host Plants.** *Ribes* species (Migeon and Dorkeld 2022). This species feeds on fruit crops (Rosaceae), *Trifolium* and Poaceae in laboratory experiments (Livshits *et al.* 2013).

**Remarks.** In Sawsgard's (1955) thesis, *B. praetiosa* is mentioned as a senior synonym for *B. ribis*, which was recorded in 1940 from *Ribes* plants on the territory of the All-Union Agricultural Exhibition (presently, the Exhibition of Achievements of National Economy or VDNH), Moscow. Afterwards, *B. ribis* was considered as a valid species (Livshits 1960; Mitrofanov *et al.* 1987). According to Kopaneva (1984) and Zeinalov (2016), *B. ribis* is widespread on *Ribes* plantings in European Russia.

**Distribution.** This species was recorded in Denmark, Germany, France, the Netherlands, Norway, Switzerland, the United Kingdom, Ukraine (Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022) and European Russia (Sawsgard 1955; Kopaneva 1984; Zeinalov 2016).

#### ***Bryobia rubrioculus* (Scheuten, 1857)**

*Bryobia redikorzevi*: Lo Yuj-zyuan 1957: 167; Antonova 1959: 6; Antonova 1960: 88; Livshits 1960: 39; Wainstein 1960: 110; Bondarenko 1967: 27; Kopaneva 1984: 35

**Material.** 1 female, Moskovskaya Oblast, Balashchinskij District, Chernoye Village, 55°44'45" N, 38°4'21" E, on *Chelidonium majus*, July 2019, coll. A.K. Akhatov; 4 females, 1 larva, Moscow, Kolomenskoye, Dyakovskiy Apple Garden, 55°39'49" N, 37°39'59" E, on *Malus domestica*, 5 July 2021, coll. I.O. Kamayev; 3 females, Moscow, Sokolniki District, public garden, 55°47'34" N, 37°40'49" E, on *Malus* sp., 18 July 2021, coll. I.O. Kamayev; 2 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'25" N, 38°6'13" E, on *Prunus domestica*, 20 July 2021, coll. I.O. Kamayev; 1 female, Kaluga, Kosmonavta Komarova St., 54°30'56" N, 36°14'6" E, on *Prunus domestica*, 24 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous (Migeon and Dorkeld 2022). It is a pest of fruit crops (Wainstein 1960; Mitrofanov *et al.* 1987; Livshits *et al.* 2013).

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022) and is widespread on the territory of Russia: its European part, West Siberia, the Far East (Primorsky Krai) (Wainstein 1960; Mitrofanov *et al.* 1987; Livshits *et al.* 2013). It is known from Central European Russia, mainly from Moscow and Moskovskaya Oblast (Lo Yuj-zyuan 1957; Antonova 1959, 1960; Wainstein 1960; Livshits 1960; Bondarenko 1967).

#### ***Bryobia praetiosa* Koch, 1836**

*Bryobia praetiosa*: Antonova 1959: 6; Antonova 1960: 88; Wainstein 1960: 103  
*Bryobia pseudopraetiosa*: Antonova 1959: 6

**Material.** 3 females, Nizhny Novgorod, 56°20'7" N, 43°58'15" E, on ornamental plants of *Juniperus* sp., 7 September 2019, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, also recorded on *Juniperus* plants (Migeon and Dorkeld 2022). In the study region, it was observed on *Coreopsis* sp., *Hieracium* sp., *Prunella* sp., *Incarvillea* sp. (Antonova 1960).

**Remarks.** See the Remarks section for *B. graminum*.

**Distribution.** This cosmopolitan species is also known from Central European Russia (only from Moscow) (Antonova 1959, 1960; Migeon and Dorkeld 2022).

#### ***Bryobia vasiljevi* Reck, 1953**

**Material.** 4 females, Moskovskaya Oblast, Balashchinskij District, Chernoye Village, 55°44'45" N, 38°4'21" E, on *Cucumis sativus*, May 1999, coll. A.K. Akhatov.

**Host Plants.** This species has been recorded from least 25 plant genera belonging to 12 families, including *Cucumis* (Migeon and Dorkeld 2022).

**Distribution.** France, Italy, Hungary, countries of the Balkan Peninsula, Georgia, Syria, New Zealand, Chile (Migeon and Dorkeld 2022). It was recorded from Central European Russia for the first time.

#### Tribe **Petrobini** Reck, 1952

##### Genus ***Petrobia*** Murray, 1877

#### ***Petrobia latens* (Müller, 1776)**

*Petrobia latens*: Antonova 1959: 6; Antonova 1960: 88; Wainstein 1960: 136; Bondarenko 1967: 27

**Host Plants.** This species has been recorded from over 120 species belonging to 33 families (Migeon and Dorkeld 2022), including *Elytrigia repens* in the study region (Antonova 1959; Wainstein 1960).

**Remarks.** It is a pest of *Cucumis sativus* in greenhouses (Akhatov, 2016).

**Distribution.** This cosmopolitan species is also known from Central European Russia (from Moscow and Ryazan) (Antonova 1960; Wainstein 1960; Bondarenko 1967; Migeon and Dorkeld 2022).

Tribe **Hystrihonychini Pritchard and Baker, 1955**

Genus ***Tetranychopsis* Canestrini, 1889**

***Tetranychopsis horridus* (Canestrini and Fanzago, 1876)**

*Tetranychopsis horridus*: Antonova 1959: 6; Antonova 1960: 88; Wainstein 1960: 117; Bondarenko 1967: 27; Mitrofanov *et al.* 1987: 191

**Material.** 4 females, Moscow, Khoroshyovskiy District, Chapayevskiy Park, 55°48'3" N, 37°31'14" E, on *Corylus avellana*, 10 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species has been recorded from 14 plant species belonging to 8 families (Migeon and Dorkeld 2022), in the study region—from *Corylus* and *Carpinus* (Wainstein 1960).

**Distribution.** This species is distributed in Eurasia and North America (Migeon and Dorkeld 2022). It is known from Russia (from Moscow and Moskovskaya Oblast) (Antonova 1959, 1960; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987).

Subfamily **Tetranychinae Berlese, 1913**

Tribe **Eurytetranychini Reck, 1950**

Genus ***Eurytetranychus* Oudemans, 1931**

***Eurytetranychus furcisetus* Wainstein, 1956**

**Material.** 1 female, Moscow, Pokrovskoe-Streshnevo, ornamental plantings, 55°49'35" N, 37°27'60" E, on *Picea pungens*, 29 July 2018, coll. I.O. Kamayev; 9 females, Moscow, Arboretum of the Main Botanical Garden, 55°50'30" N, 37°36'36" E, on *Picea glauca*, 25 June 2021, 22 August 2021, 29 August 2022, coll. I.O. Kamayev; 13 females, Moscow, Park, ornamental plantings, 55°41'15" N, 37°30'21" E, on *Picea pungens*, 25 August 2022, coll. I.O. Kamayev; 2 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, ornamental plantings, 55°38'24" N, 38°5'56" E, on *Picea pungens*, 2 July 2021, coll. I.O. Kamayev; 3 females, Kaluga, Komarov Blvd., ornamental plantings, 54°30'46" N, 36°14'4" E, on *Picea pungens*, 24 July 2021, coll. I.O. Kamayev; 3 females, Nizhny Novgorod, near Georgijevskiy Syezd, ornamental plantings, 56°19'48" N, 44°0'42" E, on *Picea pungens*, 7 September 2019, coll. I.O. Kamayev; 4 females, Yoshkar-Ola, near 68 Proletarskaya St., ornamental plantings, 56°38'55" N, 47°52'42" E, on *Picea pungens*, 6 August 2020, coll. I.O. Kamayev; 2 females, Smolensk, Pamyati Geroyev Square, ornamental plantings, 54°46'44"

N, 32°3'57" E, on *Picea pungens*, 12 September 2021, coll. I.O. Kamayev.

**Host Plants.** *Picea schrenkiana*, *Pinus sylvestris* (Wainstein 1956b, 1960; Mitrofanov *et al.* 1987), *Picea pungens* (Zhovnerchuk 2014; Kontschan and Ripka, 2017).

**Remarks.** *Eurytetranychus furcisetus* is referred to as the *species group 6* of *Eurytetranychus* by Khanjani *et al.* (2017). This species group is characterized by short dorsal setae (their length is clearly shorter than the interval between them).

**Distribution.** This species is known from Kazakhstan, Kyrgyzstan (Wainstein 1956b, 1960; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022) and Ukraine (Zhovnerchuk 2014). A confirmation of *Eu. furcisetus* occurrences in Hungary is needed (Kontschan and Ripka 2017). It was recorded from Russia for the first time.

Tribe **Tetranychini Reck, 1950**

Genus ***Amphitetranychus* Oudemans, 1931**

*Amphitetranychus viennensis* (Zacher, 1920)

*Tetranychus crataegi*: Lebedeva 1958: 69

*Tetranychus viennensis*: Bondarenko 1967: 28

*Amphitetranychus viennensis*: Kopaneva 1984: 44

**Material.** 5 females, Moscow, Russian State Agrarian University campus—Moscow Timiryazev Agricultural Academy, Michurin Garden, 55°49'55" N, 37°33'39" E, on *Malus* sp., 28 July 2018, coll. A.V. Schipulin; 2 females, Moscow, near 39A, Leninskiy Prospect, 55°42'24" N 37°35'4" E, on *Crataegus* sp., 3 July 2021, coll. I.O. Kamayev; 4 females, Moscow, ornamental plantings on Akademika Zelinskogo St., 55°42'14" N, 37°34'31" E, on *Malus* sp., 3 July 2021, coll. I.O. Kamayev; 4 females, 2 males, Moscow, Kolomenskoye, Dyakovskiy Apple Garden, 55°39'49" N, 37°39'59" E, on *Malus domestica*, *Prunus domestica*, 5 July 2021, coll. I.O. Kamayev; 3 females, Moscow, Khoroshyovskiy District, ornamental plantings near the CSKA Sports Complex, 55°47'36" N, 37°31'13" E, on *Crataegus* sp., 6 July 2021, coll. I.O. Kamayev; 2 females, Moscow, Orekhovo-Borisovo Yuzhnoye, apple garden near MKAD 24 km, 55°47'36" N, 37°31'13" E, on *Malus domestica*, 7 July 2021, coll. I.O. Kamayev; 2 females, 1 male, Moscow, Arboretum of the Main Botanical Garden, 55°50'41" N, 37°35'37" E, on *Crataegus* sp., 22 August 2021, coll. I.O. Kamayev; 1 female, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'8" E, on *Malus* sp., 20 July 2021, coll. I.O. Kamayev; 5 females, Kaluga, Kosmo-

navta Komarova St., 54°30'56" N, 36°14'6" E, on *Prunus domestica*, 24 July 2021, coll. I.O. Kamayev; 1 female, Kaluga, Komarov Blvd., ornamental plantings, 54°30'45" N, 36°14'5" E, on *Sorbus* sp., 24 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, preferring Rosaceae plants (Migeon and Dorkeld 2022). It is a pest of fruit crops (Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987; Livshits *et al.* 2013).

**Remarks.** Lebedeva (1958) and Bondarenko (1967) note the records of this species in the gardens and parks of Moscow. According to Kopaneva (1984) and to A.S. Zeinalov (pers. comm.), *A. viennensis* is widespread in Central European Russia.

**Distribution.** This species is widespread in Eurasia (Migeon and Dorkeld 2022) and is known from Russia (Lebedeva 1958; Reck 1959; Wainstein 1960; Kopaneva 1984: 44; Mitrofanov *et al.* 1987; Livshits *et al.* 2013).

#### Genus *Eotetranychus* Oudemans, 1931

##### *Eotetranychus aceri* Reck, 1948

*Schizotetranychus aceri*: Lebedeva 1958: 69

**Material.** 5 females, 4 males, Moscow, Kolomenskoye, near the Kolomenskoye Stream, 55°39'56" N, 37°40'3" E, on *Acer platanoides*, 5 July 2021, coll. I.O. Kamayev; 12 females, 3 males, Moscow, Sokolniki Park, 55°47'31" N, 37°40'27" E, on *Acer platanoides*, 18 July 2021, coll. I.O. Kamayev; 2 females, 2 males, Kaluga, Kosmonavta Komarova St., 54°30'46" N, 36°14'2" E, on *Acer negundo*, 24 July 2021, coll. I.O. Kamayev.

**Host Plants.** *Acer*, *Prunus* and *Pyrus* (Migeon and Dorkeld 2022); in the study region—on *Acer negundo* (Lebedeva 1958).

**Remarks.** Soviet acarologists considered *Eotetranychus* a subgenus of *Schizotetranychus* genus (Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987). *Schizotetranychus aceri* was synonymized with *Sch. pruni* (Oudemans, 1931) by Wainstein (1956c). Then Reck (1959) agreed with this synonymization. Apparently, this point of view was accepted in the subsequent studies by Bondarenko (1967) and Mitrofanov *et al.* (1987). Now, *Eo. aceri* is considered a valid species (Migeon and Dorkeld 2022).

**Distribution.** Georgia, France, Italy, Spain, countries of the Balkan Peninsula (Migeon and Dorkeld 2022). In Russia, this species is known only from Moscow (Lebedeva 1958).

##### *Eotetranychus carpini* (Oudemans, 1905)

*Schizotetranychus carpini*: Antonova 1959: 6; Antonova 1960: 88; Bondarenko 1967: 28  
*Schizotetranychus (Eotetranychus) carpini*: Wainstein 1960: 179

**Material.** 2 females, 1 male, Moscow, Arboretum of the Main Botanical Garden, 55°50'38" N, 37°35'35" E, on *Corylus avellana*, 29 August 2021, coll. I.O. Kamayev; 3 females, Moskovskaya Oblast, Istra Urban District, Kostrovo, 55°54'2" N, 36°42'46" E, on *Corylus avellana*, 4 August 2021, coll. I.O. Kamayev.

**Host Plants.** This polyphagous species has been recorded from 54 plant species belonging to 15 families (Migeon and Dorkeld 2022), including the species of *Carpinus* and *Corylus* in the studied region (Wainstein 1960).

**Distribution.** This species is widespread in Eurasia, North Africa and North America (Migeon and Dorkeld 2022). It is known from Central European Russia (from Moscow and Moskovskaya Oblast) (Antonova 1960; Wainstein 1960; Bondarenko 1967).

##### *Eotetranychus fraxini* Reck, 1948

*Schizotetranychus fraxini*: Lebedeva 1958: 69; Bondarenko 1967: 28

**Host Plants.** This species has been mainly recorded from *Fraxinus* species (Migeon and Dorkeld 2022), including *Fraxinus excelsior* in the study region (Lebedeva 1958; Bondarenko 1967).

**Distribution.** Armenia, Georgia, Ukraine, countries of the Balkan Peninsula, Hungary, Italy (Migeon and Dorkeld 2022). This species is known from Central European Russia, only from parks in Moscow (Lebedeva 1958; Bondarenko 1967).

##### *Eotetranychus populi* (Koch, 1838)

*Schizotetranychus salicicola*: Antonova 1955: 51; Lebedeva 1958: 69; Antonova 1959: 6; Antonova 1960: 88

*Schizotetranychus populi*: Bondarenko 1967: 28

**Material.** 13 females, 5 males, Moscow, a public garden near the "Serp and Molot" railway station, 56°44'50" N, 37°41'1" E, on *Populus* sp., 17 August 2017, coll. S. Yu. Mukhanov; 3 females, Moscow, near Leninskiy Prospect, 39A, 55°42'24" N, 37°35'4" E, on *Populus ×sibirica*, 3 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, preferring *Populus* and *Salix* species (Migeon and Dorkeld 2022). It is recorded from *Populus* in the study region (Antonova 1955; Lebedeva 1958).

**Distribution.** This species is widespread in the Holarctic region (Migeon and Dorkeld 2022) and it is known from Central European Russia (only from Moscow) (Antonova 1955, 1959, 1960; Lebedeva 1958).

***Eotetranychus pruni* (Oudemans, 1931)**

*Schizotetranychus pruni*: Antonova 1959: 6; Antonova 1960: 88; Bondarenko 1967: 28; Kopaneva, 1984: 44; Zeinalov, 2008: 91; Livshits *et al.* 2013: 160

*Schizotetranychus (Eotetranychus) pruni*: Wainstein 1960: 192; Mitrofanov *et al.* 1987: 99

**Material.** 19 females, 14 males, Moscow, Arboretum of the Main Botanical Garden, 55°50'41" N, 37°35'37" E, on *Corylus avellana*, 22–29 August 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous. While recorded from 40 plant species belonging to 10 families (Migeon and Dorkeld 2022), this species prefers plants of the Rosaceae family (Livshits *et al.* 2013). It is known as a pest (Wainstein 1960; Livshits *et al.* 2013).

**Distribution.** This species is widespread in Eurasia and has also been recorded from North America (USA) (Migeon and Dorkeld 2022). It is known from Central European Russia (Antonova 1960; Wainstein 1960; Bondarenko 1967; Kopaneva 1984; Mitrofanov *et al.* 1987; Zeinalov, 2008; Livshits *et al.* 2013).

***Eotetranychus tiliarium* (Hermann, 1804)**

*Schizotetranychus tearius* (sic!): Lebedeva 1958: 69

*Schizotetranychus telarius*: Antonova 1955: 51; Antonova 1959: 6; Antonova 1960: 89

*Schizotetranychus tiliarium*: Bondarenko 1967: 28

**Material.** 1 female, 4 males, Moscow, Khoroshyovskiy District, 2-d Peschanaya St., 55°47'41" N, 37°30'49" E, on *Tilia* sp., 11 July 2021, coll. I.O. Kamayev; 14 females, 4 males, Moscow, Sokolniki Park, 55°47'31" N, 37°40'27" E, on *Tilia* sp., 18 July 2021, coll. I.O. Kamayev; 4 females, 2 males, Kaluga, Kosmonavta Komarova St., 54°30'50" N, 36°13'55" E, on *Tilia* sp., 24 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species has been recorded from 33 plant species belonging to 10 families (Migeon and Dorkeld 2022), including *Tilia* in the study region (Antonova 1955).

**Distribution.** This species is distributed in Eurasia and North America (Migeon and Dorkeld 2022) and it is known from Central European Rus-

sia (from Moscow) (Lebedeva 1958; Antonova 1960; Bondarenko 1967).

***Eotetranychus thujae* (McGregor, 1950)**

**Material.** 1 female, Moscow, ornamental plantings near 40, Leninskiy Prospect, 55°42'14" N, 37°34'31" E, on *Thuja occidentalis*, 3 July 2021, coll. I.O. Kamayev; 2 females, Moscow, Bolshoy Trekhsvyatitelskiy Pereulok, 55°45'20" N, 37°38'41" E, on *Thuja occidentalis*, 3 July 2021, coll. I.O. Kamayev; 4 females, Moscow, central zone of Izmailovskiy Park, 55°46'28" N, 37°44'59" E, on *Thuja occidentalis*, 6 July 2021, coll. I.O. Kamayev; 4 females, 1 male, Moscow, Botanical Garden of Moscow State University, 55°46'50" N, 37°38'8" E, on *Chamaecyparis pisifera*, 21 August 2021, coll. I.O. Kamayev; 2 females, Moskovskaya Oblast, Dzerzhinsky, 55°37'21" N, 37°48'18" E, on *Thuja occidentalis*, 30 May 2017, coll. I.O. Kamayev; 111 females, Moskovskaya Oblast, Ramenskiy Urban District, Bykovo, 55°38'26" N, 38°6'2" E, on *Thuja occidentalis*, *Juniperus scopulorum*, *Juniperus* spp., 21 September 2018, 2 July 2021, coll. I.O. Kamayev; 4 females, Kaluga, Komarov Blvd., ornamental plantings, 54°30'45" N, 36°14'6" E, on *Thuja occidentalis*, 24 July 2021, coll. I.O. Kamayev; 3 females, Nizhny Novgorod, ornamental plantings near 272–274, Maksima Gorkogo St., 56°19'17" N, 44°1'56" E, on *Thuja occidentalis*, 7 September 2019, coll. I.O. Kamayev; 4 females, Yoshkar-Ola, public park, 56°38'16" N, 47°53'25" E, on *Thuja occidentalis*, 30 July 2020, coll. I.O. Kamayev; 4 females, Yoshkar-Ola, ornamental plantings near 21/11, the Pobedy Blvd., 56°38'20" N, 47°52'38" E, on *Thuja occidentalis*, 2 August 2020, coll. I.O. Kamayev; 5 females, Yoshkar-Ola, ornamental plantings near 66, Proletarskaya St., 56°38'53" N, 47°52'48" E, on *Thuja occidentalis*, 6 August 2020, coll. I.O. Kamayev; 3 females, Yoshkar-Ola, ornamental plantings near 8–8A Maschinostroiteley St., 56°38'49" N, 47°52'28" E, on *Thuja occidentalis*, 6 August 2020, coll. I.O. Kamayev; 6 females, Smolensk, ornamental plantings near a movie theater, 54°46'41" N, 32°3'10" E, on *Thuja occidentalis*, 12 September 2021, coll. I.O. Kamayev.

**Host Plants.** Cupressaceae (Migeon and Dorkeld 2022).

**Remarks.** This species is included in the identification keys of Wainstein (1960) and Mitrofanov *et al.* (1975) as *Schizotetranychus (Mononychus) thujae* with notes about its distribution in the USA. Kontschan and Ripka (2017), when discussing

Hungarian fauna, referred this species as *Platytranychus thujae*. The basis for the synonymy of *Platytranychus* and *Eotetranychus* was examined in detail by Seeman *et al.* (2017).

**Distribution.** This species is known from the USA (McGregor 1950), and it was detected in Hungary in 2015 (Kontschan and Ripka 2017). *Eotetranychus thujae* was recorded from Russia for the first time.

#### *Eotetranychus uncatus* Garman, 1952

**Material.** 6 females, 7 males, Moscow, Arboretum of the Main Botanical Garden, 55°50'38" N, 37°35'35" E, on *Betula* sp., *Corylus avellana*, 29 August 2021, 29 August 2022, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, recorded from 37 plant species belonging to 10 families (Migeon and Dorkeld 2022).

**Distribution.** This species has been recorded from Canada, Mexico, the USA, Paraguay, India, China, France, Iran, Japan, Kazakhstan, the Netherlands, Poland (Pritchard and Baker 1955; Wainstein 1960; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022), Latvia (Petrov 1971). *Eotetranychus uncatus* was recorded from Central European Russia for the first time.

#### Genus *Neotetranychus* Trägårdh, 1915

##### *Neotetranychus rubi* Trägårdh, 1915

**Material.** 10 females, 2 males, Moscow, Sokolniki Park, 55°47'57" N, 37°40'46" E, on *Rubus idaeus*, 18 July 2021, coll. I.O. Kamayev; 1 female, Moscow, the Main Botanical Garden, 55°50'12" N, 37°36'35" E, on *Rubus idaeus*, 25 July 2021, coll. I.O. Kamayev; 8 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, forest park, 55°38'30" N, 38°6'2" E, on *Rubus idaeus*, 20 July 2021, coll. I.O. Kamayev; 2 females, Moskovskaya Oblast, Ramensky Urban District, a forest park near the Dergayevskiy Water Canal, 55°35'50" N, 38°13'38" E, on *Rubus idaeus*, 8 August 2021, coll. A.V. Schipulin; 3 females, 1 male, Moskovskaya Oblast, Balashchinskiy District, Chernoye Village, 55°44'36" N, 38°4'6" E, on *Rubus idaeus*, 30 July 2021, coll. A.K. Akhatov.

**Host Plants.** *Rubus* species (Migeon and Dorkeld 2022).

**Remarks.** *Neotetranychus rubi* is a pest of raspberry (Livshits *et al.* 2013). This species has not been recorded from Central European Russia (Mitrofanov *et al.* 1987; Popov 1997; Zeinalov, 2008, 2016, pers. comm.).

**Distribution.** This species is widespread in the Transcaucasus and Europe (Migeon and Dorkeld 2022), including Latvia (Petrov 1971) and Ukraine (Kopaneva 1984; Mitrofanov *et al.* 1987; Akimov and Zhovnerchuk 2010). It is known from the Far East of Russia (Khabarovsk Krai) (Mitrofanov *et al.* 1987). *Neotetranychus rubi* was recorded from Central European Russia for the first time.

#### Genus *Oligonychus* Berlese, 1886

##### *Oligonychus buschi* (Reck, 1956)

*Homonychus buschi*: Mitrofanov *et al.* 1987: 135

*Oligonychus (Paratetranychus) buschi*:

Wainstein 1960: 211

*Paratetranychus buschi*: Reck 1959: 66;

Bondarenko 1967: 28

**Host Plants.** *Quercus* species (Migeon and Dorkeld 2022).

**Distribution.** *Oligonychus buschi* has been recorded from Georgia, Armenia, Azerbaijan, European Russia (Reck 1959; Mitrofanov *et al.* 1987), Hungary (Kontschan and Ripka 2017). This species is known from Central European Russia (from Moskovskaya Oblast) (Wainstein 1960; Bondarenko 1967).

##### *Oligonychus kobachidzei* (Reck, 1947)

*Paratetranychus kobachidzei*: Antonova 1959: 6;

Antonova 1960: 88; Bondarenko 1967: 28

**Host Plants.** *Corylus avellana*, *Juglans regia*, *Platanus* spp. (Reck 1959; Mitrofanov *et al.* 1987), *Quercus* sp., *Ulmus* sp. (Antonova 1960; Wainstein 1960; Bondarenko 1967).

**Remarks.** This species has not been listed for Russia by Reck (1959), Wainstein (1960) and Mitrofanov *et al.* (1987). The distribution of this species in the study region needs further confirmation.

**Distribution.** This species has been recorded from Georgia, Armenia, Azerbaijan (Reck 1959; Mitrofanov *et al.* 1987), and it is known from Central European Russia (from Moscow) (Antonova 1959, 1960; Bondarenko 1967).

##### *Oligonychus karamatus* (Ehara, 1956)

*Oligonychus (Oligonychus) karamatus*:

Wainstein 1960: 207

*Oligonychus (Wainsteiniella) karamatus*:

Mitrofanov *et al.* 1987: 114

*Paratetranychus karamatus*: Antonova 1959: 6;

Antonova 1960: 88; Bondarenko 1967: 28

**Material.** 4 females, 2 males, Moscow, "Sad Budushchego" Park, 55°49'35" N, 37°27'60" E, on

*Larix* sp., 18 August 2018, coll. I.O. Kamayev; 3 females, Moscow, ornamental plantings on Akademika Zelinskogo St., 55°42'11" N, 37°34'36" E, on *Larix* sp., 3 July 2021, coll. I.O. Kamayev; 2 females, Nizhny Novgorod, 56°19'58" N, 43°58'17" E, on *Larix* sp., 6 September 2019, coll. I.O. Kamayev; 5 females, Yoshkar-Ola, ornamental plantings near 8, Maschinostroiteley St., 56°38'49" N, 47°52'28" E, on *Larix* sp., 1 August 2020, coll. I.O. Kamayev.

**Host Plants.** Species of *Larix* genus, including *L. decidua* and *L. kaempferi* (Antonova 1960; Wainstein 1960; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022).

**Distribution.** This species is known from Japan, South Korea, China, Latvia, Ukraine, Poland, Hungary, Slovenia (Migeon and Dorkeld 2022) and Russia (Primorsky Krai, Moscow, Moskovskaya Oblast, Saint Peterburg, Leningradakaya Oblast) (Antonova 1960; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987).

#### *Oligonychus lagodechii* Livshits and Mitrofanov, 1969

**Material.** 4 females, Moscow, Arboretum of the Main Botanical Garden, 55°50'32" N, 37°36'36" E, on *Chamaecyparis pisifera* f. *plumosa*, 25 June 2021, coll. I.O. Kamayev; 3 females, Moscow, central zone of Izmailovsky Park, 55°46'27" N, 37°44'59" E, on *Thuja occidentalis*, 6 July 2021, coll. I.O. Kamayev; 2 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'2" E, on *Juniperus scopulorum*, 21 September 2018, coll. I.O. Kamayev.

**Host Plants.** This species is predominantly known from Cupressaceae plants (Livshits and Mitrofanov 1969; Mitrofanov *et al.* 1975, 1987; Akimov and Zhovnerchuk 2010; Kamayev and Karpun 2020; Migeon and Dorkeld 2022).

**Remarks.** The species is quite thermophilic. It is supposed that *O. lagodechii* was introduced with plants for planting, from the territory of their natural distribution.

**Distribution.** This species is known from Georgia, Azerbaijan, Ukraine, Hungary and Russia (Livshits and Mitrofanov 1969; Mitrofanov *et al.* 1975, 1987; Akimov and Zhovnerchuk 2010; Kontschan and Ripka 2017; Kamayev and Karpun 2020). It was recorded from Central European Russia for the first time.

#### *Oligonychus longiclavatus* (Reck, 1953)

*Metatetranychoides longiclavatus*:  
Mitrofanov *et al.* 1987: 111

*Oligonychus (Metatetranychoides) quercifolius*:  
Wainstein 1960: 216

*Paratetranychus longiclavatus*:

Bondarenko 1967: 28

*Paratetranychus quercifolius*: Antonova 1959: 6;  
Antonova 1960: 88

**Material.** 7 females, 1 male, Moscow, Arboretum of the Main Botanical Garden, 55°50'36" N, 37°36'40" E, on *Quercus robur*, 25 June–18 August 2021, coll. I.O. Kamayev; 9 females, Moscow, ornamental plantings near Leninskiy Prospect 40, 55°42'9" N, 37°34'8" E, on *Quercus robur*, 3 July 2021, coll. I.O. Kamayev; 7 females, 1 male, Moskovskaya Oblast, Ramensky Urban District, Bykovo, forest park, 55°38'29" N, 38°6'10" E, on *Quercus robur*, 10–13 August 2021, coll. I.O. Kamayev.

**Host Plants.** *Quercus* spp. (Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987).

**Distribution.** Georgia, Armenia, Azerbaijan, countries of Central Asia, Ukraine (Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987; Akimov and Zhovnerchuk 2010), Hungary (Kontschan and Ripka 2017). This species is known from Central European Russia (from Moscow and Moskovskaya Oblast) (Antonova 1959, 1960; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987).

#### *Oligonychus piceae* (Reck, 1953)

**Material.** 6 females, 1 male, Moscow, "Serebryany Bor" forest park, 55°46'38" N, 37°25'47" E, on *Pinus sylvestris*, 21 July 2018, coll. I.O. Kamayev; 18 females, 1 male, Moscow, Park, ornamental plantings, 55°41'28" N, 37°30'14" E, on *Pinus sylvestris*, 25 August 2022, coll. I.O. Kamayev; 16 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'3" E, on *Pinus sylvestris*, 21 September 2018, 11–17 September 2020, coll. I.O. Kamayev; 6 females, Nizhny Novgorod, 56°19'25" N, 43°59'55" E, on *Pinus sylvestris*, 7 September 2019, coll. I.O. Kamayev; 1 female, Yoshkar-Ola, ornamental plantings, 56°37'55" N, 47°52'54" E, on *Pinus sylvestris*, 1 August 2020, coll. I.O. Kamayev; 5 females, Yoshkar-Ola, ornamental plantings near 39 Leninskiy Prospect, 56°38'52" N, 47°52'20" E, on *Pinus sylvestris*, 6 August 2020, coll. I.O. Kamayev.

**Host Plants.** *Picea* spp., including *Picea orientalis*; *Pinus* spp., including *Pinus nigra*, *Pinus sylvestris* (Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022).

**Remarks.** This species is abundant on pine trees; in case of high abundance, it may cause severe damage to young trees.

**Distribution.** This species is known from Russia (North Caucasus, Primorsky Krai) (Mitrofanov *et al.* 1987), Kyrgyzstan and China (Migeon and Dorkeld 2022). It was recorded from Central European Russia for the first time.

***Oligonychus pinaceus* Mitrofanov and Bossenko, 1975**

*Oligonychus (Oligonychus) brevipodus*: Wainstein 1960: 209

*Oligonychus (Wainsteiniella) pinaceus*: Mitrofanov *et al.* 1987: 113

**Material.** 2 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'3" E, on *Pinus sylvestris*, 21 September 2018, 2 July 2021, coll. I.O. Kamayev.

**Host Plants.** *Pinus hamata*, *P. sylvestris* (Mitrofanov *et al.* 1975, 1987).

**Remarks.** Antonova (1959, 1960) referred to this species as *Paratetranychus* sp.; a single specimen was detected on *Quercus* in the Main Botanical Garden, Moscow. Later, this specimen was identified as *Oligonychus brevipodus* (Targioni Tozzetti, 1878) by Wainstein (1960). Wainstein's (1960: 208, Fig. 254) monograph presents this specimen as a markedly damaged sample. Mitrofanov *et al.* (1987) has redefined this specimen as *O. pinaceus*, noting the possible accidental introduction onto an uncharacteristic host-plant.

The description of *O. pinaceus* was given by Mitrofanov *et al.* (1975).

**Distribution.** This species is known from Latvia, Ukraine and Russia (Mitrofanov *et al.* 1975, 1987; Zhovnerchuk, Auger, 2019).

***Oligonychus ununguis* (Jacobi, 1905)**

*Oligonychus (Oligonychus) ununguis*: Mitrofanov *et al.* 1987: 116

*Oligonychus (Paratetranychus) ununguis*: Wainstein 1960: 212

*Paratetranychus ununguis*: Antonova 1955: 51; Antonova 1957: 89; Antonova 1959: 6; Antonova 1960: 88; Bondarenko 1967: 28

**Material.** 1 female, 1 male, Moscow, Pokrovskoe-Streshnevo forest park, ornamental plantings, 55°49'35" N, 37°27'60" E, on *Picea pungens*, 29 July 2018, coll. I.O. Kamayev; 3 females, Moscow, Timiryazevsky Park, 55°48'39" N, 37°32'58" E, on *Picea abies*, 25 August 2018, coll. I.O. Kamayev; 1 female, Moscow, Novopeschanaya St., ornamental plantings, 55°47'54" N, 37°30'52" E, on *Larix* sp., 25 August 2018, coll. I.O. Kamayev; 5 females, Moscow, Arboretum of the Main Botanical Garden,

55°50'34" N, 37°35'58" E, on *Abies sibirica*, 25 June 2021, coll. I.O. Kamayev; 2 females, Moscow, Arboretum of the Main Botanical Garden, 55°50'32" N, 37°36'36" E, on *Chamaecyparis pisifera* f. *plumosa*, 25 June 2021, coll. I.O. Kamayev; 15 females, 1 male, Moscow, Sokolniki Park, 55°47'46" N, 37°40'47" E, on *Juniperus scopulorum*, 18 July 2021, coll. I.O. Kamayev; 12 females, 2 males, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'3" E, on *Picea abies*, 21 September 2018, 2 July 2021, coll. I.O. Kamayev; females, Moskovskaya Oblast, Istra Urban District, Kostrovo, 55°54'6" N, 36°42'47" E, on *Picea abies*, 4 August 2021, coll. I.O. Kamayev; 1 female, Nizhny Novgorod, ornamental plantings near Georgijevskiy Syezd, 56°19'48" N, 44°0'42" E, on *Picea pungens*, 7 September 2019, coll. I.O. Kamayev; 2 females, Yoshkar-Ola, garden square, 56°38'5" N, 47°53'1" E, on *Picea pungens*, 1 August 2020, coll. I.O. Kamayev; 1 female, Smolensk, ornamental plantings on Gagarin Blvd., 54°46'31" N, 32°2'59" E, on *Thuja occidentalis*, 12 September 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, predominantly occupying coniferous plants in the trophic spectre (Migeon and Dorkeld 2022). It has been detected on *Cupressus* (in a greenhouse), as well as on *Picea pungens* (Antonova 1955).

**Remarks.** In case of high abundance, *O. ununguis* damages ornamental plants of *Picea* spp. (Antonova 1957, 1960; Bondarenko 1967). It should be noted that the species was detected on *Picea* sp. plants for planting during a plant quarantine laboratory analysis.

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022). It is known from Moscow (Antonova 1957, 1960), Moskovskaya Oblast, Yaroslavskaya Oblast, Leningradskaya Oblast, Primorsky Krai (Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987).

Genus ***Panonychus* Yokoyama, 1929**

***Panonychus citri* (McGregor, 1916)**

*Metatetranychus citri*: Antonova 1955: 51; Antonova 1957: 86; Antonova 1959: 6; Antonova 1960: 88

*Panonychus citri*: Bondarenko 1967: 28; Kopaneva 1984: 44; Mitrofanov *et al.* 1987: 86

**Material.** 2 females, 2 males, Moscow, old stock greenhouse of the Main Botanical Garden, 55°50'1" N, 37°35'46" E, on *Ficus elastica*, 11

March 2021, coll. I.O. Kamayev; 4 females, 3 males, Moskovskaya Oblast, Krasnogorsk, private flat, 55°49'14" N, 37°22'37" E, on *Citrus limon*, 31 May 2021, coll. N.A. Gura.

**Host Plants.** This species is polyphagous: it was recorded from 111 plant species belonging to 38 families (Migeon and Dorkeld 2022), including *Citrus* spp. and *Prunus laurocerasus* (Antonova 1955).

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022). It is known from European Russia: only from greenhouses (Antonova 1960, Bondarenko 1967; Mitrofanov *et al.* 1987).

#### *Panonychus ulmi* (Koch, 1836)

*Metatetranychus ulmi*: Sawzdar 1955: 334; Lo Yuj-zyuan 1957: 167; Antonova 1959: 5; Antonova 1960: 88

*Panonychus ulmi*: Wainstein 1960: 203; Bondarenko 1967: 28; Kopaneva 1984: 35; Mitrofanov *et al.* 1987: 85; Livshits *et al.* 2013: 162

**Material.** 8 females, 1 male, Moskovskaya Oblast, Izmailovo, Federal Horticultural Research Center for Breeding, Agrotechnology and Nursery, 55°33'59" N, 37°38'41" E, on *Malus domestica*, 26 July 2021, coll. I.O. Kamayev; 1 female, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'25" N, 38°6'13" E, on *Pyrus* sp., 10 August 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous: it has been recorded from 151 plant species belonging to 37 families (Migeon and Dorkeld 2022). It is a pest of fruit trees (Lo Yuj-zyuan 1957; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987; Livshits *et al.* 2013). In the study region, it has been recorded from *Malus*, *Prunus*, *Sorbus*, *Crataegus*, *Morus* (Antonova 1955, 1960) and *Ribes* (Zeinalov, 2016).

**Remarks.** There were outbreaks of *P. ulmi* in 1951–1952 and 1954 in Moskovskaya Oblast with a subsequent yield loss of fruit trees (Lo Yuj-zyuan 1958). Lebedeva (1958) gives only a common name “plodovyy (vyazovyy) pautinnyy kleshchik” (fruit or elm spider mite). It should be noted that *Panonychus ulmi* occurs on plants for planting, and it is usually discovered in the course of plant quarantine laboratory analyses.

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022). It is known from Central European Russia: Moscow, Moskovskaya Oblast, Lipetskaya Oblast, Tambovskaya Oblast (Sawzdar 1955; Lo Yuj-zyuan 1957, 1958; An-

tonova 1959, 1960; Wainstein 1960; Mitrofanov *et al.* 1987).

#### Genus *Schizotetranychus* Trägårdh, 1915

##### *Schizotetranychus beckeri* Wainstein, 1958

*Schizotetranychus* (*Schizotetranychus*) *beckeri*: Wainstein 1958: 457; Wainstein 1960: 172; Mitrofanov *et al.* 1987: 107

*Schizotetranychus beckeri*: Antonova 1959: 5; Antonova 1960: 88; Bondarenko 1967: 28

**Host Plants.** Poaceae: *Calamagrostis langsdorffii*, *Dactylis glomerata*, *Digraphus arundinacea*, *Agropyron ramosum*, *Helictotrichon* sp. (Wainstein, 1958; Antonova 1960).

**Distribution.** This species is known only from Central European Russia (Moskovskaya Oblast) (Wainstein 1958, 1960; Antonova 1960; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022).

##### *Schizotetranychus jachontovi* Reck, 1953

*Schizotetranychus jachontovi*: Antonova 1959: 6; Antonova 1960: 88; Bondarenko 1967: 28.

*Schizotetranychus* (*Schizotetranychus*) *jachontovi*: Wainstein 1960: 172; Mitrofanov *et al.* 1987: 109.

**Material.** 8 females, 1 male, Moskovskaya Oblast, Ramensky Urban District, Bykovo, forest park, 55°38'29" N, 38°6'10" E, on *Quercus robur*, 10–20 August 2021, coll. I.O. Kamayev; 2 females, 4 males, Moscow, Biryulyovo Vostochnoye District, plantings near Lipetskaya St., 55°36'14" N, 38°40'16" E, on *Quercus robur*, 28 August 2021, coll. I.O. Kamayev.

**Host Plants.** *Quercus* sp. (Reck 1959; Antonova 1960; Wainstein 1960; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022).

**Distribution.** This species is known from Georgia, Azerbaijan, Ukraine (Reck 1959; Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022) and Central European Russia (Moscow) (Antonova 1960; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987).

##### *Schizotetranychus schizopus* (Zacher, 1913)

*Schizotetranychus schizopus*: Antonova 1960: 88; Bondarenko 1967: 28

*Schizotetranychus* (*Schizotetranychus*) *schizopus*: Wainstein 1960: 170; Mitrofanov *et al.* 1987: 103

**Material.** 28 females, 4 males, Moscow, “Serebryany Bor” forest park, 55°46'41" N, 37°26'1" E, on *Salix* sp., 21 July 2018, 19 June 2021, 30 August

2022, coll. I.O. Kamayev; 6 females, Moskovskaya Oblast, Ramensky Urban District, Bykovo, forest park, 55°38'29" N, 38°6'10" E, on *Salix* sp., 10 August 2021, coll. I.O. Kamayev.

**Host Plants.** This species feeds mainly on *Salix* and *Populus* (Mitrofanov *et al.* 1987; Migeon and Dorkeld 2022).

**Remarks.** Reck (1959) has noted, albeit without detailed information, the spread of this species in European Russia.

**Distribution.** This species is spread in Eurasia and North America (Migeon and Dorkeld 2022). It is known from Moscow (Antonova 1960), Saint Petersburg, Ryazan and Primorsky Krai (Wainstein 1960; Mitrofanov *et al.* 1987).

### Genus *Tetranychus* Dufour, 1832

#### *Tetranychus atlanticus* McGregor, 1941

*Tetranychus atlanticus*: Bondarenko 1967: 28; Popov 1988: 46; Popov 2013: 231, 235

**Material.** 2 females, 2 males, Moscow, near Leninskiy Prospect, 40, 55°42'9" N, 37°34'8" E, on *Lamia album*, 3 July 2021, coll. I.O. Kamayev; 2 females, Moscow, Bolshoy Trekhsvyatitelskiy Pereulok, 55°45'19" N, 37°38'42" E, on weeds: *Galinsoga quadriradiata*, *Stellaria media*, 3 July 2021, coll. I.O. Kamayev; 4 females, 8 males, Moskovskaya Oblast, Ramensky Urban District, Bykovo, greenhouse, 55°38'26" N, 38°6'5" E, on *Phaseolus vulgaris* and *Quercus robur*, 16 March 2021, coll. S.Yu. Mukhanov; 2 females, 4 males, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'24" N, 38°5'56" E, on *Rosa* sp., 2 July 2021, coll. I.O. Kamayev; 7 females, 4 males, Moskovskaya Oblast, Izmailovo, Federal Horticultural Research Center for Breeding, Agrotechnology and Nursery, 55°34'5" N, 37°38'32" E, on *Fragaria ananassa*, 26 July 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous (Mitrofanov *et al.* 1987).

**Remarks.** Many specialists consider that species a junior synonym of *T. turkestanii* (Wainstein 1960; Baker and Tuttle 1994; Seeman and Beard 2011; Migeon and Dorkeld 2022). However, Mitrofanov (Mitrofanov *et al.* 1987) and then Popov (1988, 1997) considered *T. atlanticus* a valid species, which differs from *T. turkestanii* in the width of the aedeagus knob (>4 µm) and the ratio of the length of the aedeagus shaft to the width of the aedeagus knob (1–2). According to Popov (1997, 2013), *T. atlanticus* is widespread in Central European Russia.

**Distribution.** This species is recorded from Africa, North America (USA), Eurasia (Russia, Turkey, Ukraine, Azerbaijan, Central Asia) (Beglyarov *et al.* 1963; Mitrofanov *et al.* 1987). It is known from Central European Russia: Moskovskaya Oblast, Tverskaya Oblast, Yaroslavskaya Oblast, Tulsckaya Oblast and Voronezhskaya Oblast (Mitrofanov *et al.* 1987; Popov 1988, 2013).

#### *Tetranychus przhevalskii* Reck, 1956

*Polynychus przhevalskii*: Kopaneva 1983: 39

*Polynychus (Reckiella) przhevalskii*:

Mitrofanov *et al.* 1987: 138

*Tetranychus przhevalskii*: Antonova 1959: 6;

Antonova 1960: 88; Wainstein 1960: 158;

Bondarenko 1967: 28

**Material.** 4 females, 1 male, Moskovskaya Oblast, Ramensky Urban District, Bykovo, territory of a greenhouse, 55°38'26" N, 38°6'5" E, on fruit of *Cucurbita*, 12 October 2020, coll. A.V. Schipulin; 4 females, 2 males, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'25" N, 38°6'13" E, on Poaceae, 20–21 July 2021, coll. I.O. Kamayev.

**Host Plants.** Poaceae (see Fig. 21), including *Triticum* spp. and *Zea mays* (Reck 1959; Wainstein 1960; Mitrofanov *et al.* 1987). This species has been detected on *Phleum phleoidis*, *Roegneria angustiglumis*, *Helictotrichon pubescens* in the study area (Antonova 1960).

**Remarks.** This species is a pest of grain crops (Reck 1959; Mitrofanov *et al.* 1987). *Tetranychus przhevalskii* is widespread in Russia (Kopaneva 1983; Mitrofanov *et al.* 1987). In addition to the above data, the specimens of *T. przhevalskii* have been studied from the Altai Krai (southeast of West Siberia), the Republic of Tatarstan and the Samarskaya Oblast, where this species has caused severe damage to *Triticum* sp. shoots in 2020 and 2021. Additionally, *T. przhevalskii* has been recorded from *Cucurbita* sp. in a greenhouse. Previously, the ability of *T. przhevalskii* to develop on plants other than Poaceae was pointed out in laboratory experiments by Akimov and Starover (1970).

**Distribution.** Georgia, Ukraine, Kazakhstan, Russia (including Moskovskaya Oblast) (Reck 1959; Antonova 1960; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987; Akimov and Zhovnerchuk 2010).

#### *Tetranychus sawzdargi* Mitrofanov, 1980

*Tetranychus sawzdargi*: Mitrofanov *et al.* 1980:

1572; Mitrofanov *et al.* 1987: 127;

Popov 1988: 47; Popov 1997: 13

**Material.** 1 female, 4 males, Moscow, Marfino District, ornamental plantings, 55°49'31" N, 37°35'41" E, on *Ulmus glabra*, 25 July 2021, coll. I.O. Kamayev; 2 females, 1 male, Moscow, the Main Botanical Garden, 55°50'34" N, 37°36'48" E, on *Rosa canina*, 18 August 2021, coll. I.O. Kamayev; 4 females, 4 males, Moskovskaya Oblast, Balashchinskij District, Chernoye Village, 55°44'24" N, 38°3'16" E, on *Rosa canina*, 12 August 2021, coll. A.K. Akhatov.

**Host Plants.** Grossulariaceae: *Ribes nigrum*; Malvaceae: *Hibiscus* sp.; Salicaceae: *Populus suaveolens*; Rosaceae: *Rosa* sp., *Rubus idaeus* (Mitrofanov *et al.* 1980, 1987; Popov 2013), *Fragaria* spp. (Popov 1988, 2013).

**Remarks.** This species is a pest of berry crops, especially *Fragaria* spp. (Popov 1988, 2013). According to Popov (2013) and Yu. I. Meshkov (pers. comm.), *T. sawzdargi* is widespread on *Rosa canina* in Moscow and Moskovskaya Oblast.

**Distribution.** This species is known from Russia (Moscow, Moskovskaya Oblast, Khabarovsk Krai) (Mitrofanov *et al.* 1980, 1987; Popov 1988, 1997, 2013) and Kyrgyzstan (Strunkova, 1988).

***Tetranychus turkestanii* (Ugarov and Nikolskii, 1937)**

*Tetranychus turkestanii*: Wainstein 1960: 155; Kopaneva 1983: 39; Kopaneva 1984: 44; Mitrofanov *et al.* 1987: 130

*Tetranychus turkestanicus* (sic!): Kopaneva 1982: 35

**Host Plants.** This species is polyphagous, recorded from 270 plant species belonging to 65 families (Migeon and Dorkeld 2022).

**Remarks.** See the Remarks subsection on *T. atlanticus*.

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022). It is known from Central European Russia (from Moskovskaya Oblast) (Wainstein 1960; Mitrofanov *et al.* 1987).

***Tetranychus urticae* Koch, 1835**

*Epitetranychus althea*, Beresnev 1935: 283  
*Tetranychus cinnabarinus*, Antonova 1959: 6;  
 Antonova 1960: 88; Wainstein 1960: 163;  
 Beglyarov *et al.* 1963: 6; Bondarenko 1967: 28;  
 Mitrofanov *et al.* 1987: 128; Popov 1988: 46  
*Tetranychus multisetus*, Antonova 1955: 51  
*Tetranychus telarius*, Beresnev 1935: 282;  
 Wainstein 1960: 158; Beglyarov *et al.* 1963: 6;  
 Bondarenko 1967: 28  
*Tetranychus urticae*, Antonova 1955: 51;  
 Sawzdarg 1955: 316; Antonova 1957: 86;

Lo Yuj-zyuan 1957: 167; Lebedeva 1958: 69;  
 Antonova 1959: 5; Antonova 1960: 88;  
 Beglyarov *et al.* 1963: 6; Kopaneva 1982: 35;  
 Kopaneva 1984: 44; Mitrofanov *et al.* 1987: 129

**Material.** 13 females, 10 males, Moscow, old stock greenhouse of the Main Botanical Garden, 55°50'1" N, 37°35'46" E, on *Brachychiton paradoxus*, *Averrhoa carambola*, *Colocasia esculenta*, *Chamaedorea concolor*, March–April 2021, coll. I.O. Kamayev; 3 females, 3 males, Moscow, Botanical Garden of Moscow State University, greenhouse, 55°46'39" N, 37°38'9" E, on *Adansonia*, *Murraya*, 19 March 2021, coll. I.O. Kamayev; 8 females, 2 males, Moscow, Khoroshyovsky District, Peschanaya St., park, 55°48'4" N, 37°30'40" E, on *Tilia cordata*, 4 July 2021, coll. I.O. Kamayev; 1 female, 1 male, Moscow, Kolomenskoye, 55°39'46" N, 37°40'5" E, on *Ulmus* sp., 5 July 2021, coll. I.O. Kamayev; 2 females, 1 male, Moskovskaya Oblast, Ramensky Urban District, Bykovo, 55°38'26" N, 38°6'0" E, on *Rosa* sp., April 2019, coll. L.P. Evsikova; 5 females, 4 males, Moskovskaya Oblast, Ramensky Urban District, Bykovo, greenhouse, 55°38'26" N, 38°6'0" E, weed introduction greenhouse of VNIKR: on *Ipomoea carnea*, *Solanum torvum*, *Bidens subalternans*, *Miscanthus sinensis*, 12 March 2021, coll. I.O. Kamayev; 3 females, 2 males, Moskovskaya Oblast, Izmailovo, Federal Horticultural Research Center for Breeding, Agrotechnology and Nursery, 55°34'5" N, 37°38'25" E, on *Ribes nigrum*, 26 July 2021, coll. I.O. Kamayev; 2 females, 1 male, Smolensk, ornamental plantings on Gagarin Blvd., 54°46'31" N, 32°2'59" E, on *Sambucus nigra*, 12 September 2021, coll. I.O. Kamayev.

**Host Plants.** This species is polyphagous, recorded from more than 1,100 plant species belonging to 127 families (Migeon and Dorkeld 2022). As shown by Antonova (1960), *T. urticae* was detected on at least 460 plant species belonging to 54 families in the Main Botanical Garden, Moscow.

**Remarks.** It should be noted that Soviet acarologists considered *T. urticae* and *T. cinnabarinus* (Boisduval, 1867) different valid species (Wainstein 1958, 1960; Beglyarov *et al.* 1963; Bondarenko 1967; Mitrofanov *et al.* 1987). Mitrofanov *et al.* (1987) suggested diagnostic characters—shape of dorsal lobes, shape of aedeagus and length of its knob, colour of mites' stages—to be used in differentiating *T. urticae* and *T. cinnabarinus*. Auger *et al.* (2013) provided compelling evidence—the variability of the aforementioned and other

morphological characters, as well as physiological and molecular genetic data—suggesting that *T. cinabarinus* is a junior synonym of *T. urticae*. This interpretation of *T. urticae* species is now common.

It should be noted that the species was detected on plants for planting and fruits, in the course of a plant quarantine laboratory analysis.

**Distribution.** This species is cosmopolitan (Migeon and Dorkeld 2022). It is widespread in Russia, including its Central European part (Antonova 1957, 1959, 1960; Lo Yuj-zyuan 1957; Wainstein 1960; Bondarenko 1967; Mitrofanov *et al.* 1987; Popov 1988, 1997, 2013).

#### Family Tenuipalpidae Berlese, 1913

##### Genus *Brevipalpus* Donnadieu, 1875

##### *Brevipalpus obovatus* Donnadieu, 1875

*Brevipalpus obovatus*: Antonova 1955: 51; Antonova 1957: 86; Antonova 1959: 6; Antonova 1960: 88; Wainstein 1960: 244; Bondarenko 1967: 27.

**Material.** 44 females, 1 male, Moskovskaya Oblast, Ramensky Urban District, Bykovo, greenhouse, 55°38'26" N, 38°6'5" E, on *Diospyros nigra*, *Hibiscus hybrida*, 22–24 July 2020, coll. S. Yu. Mukhanov.

**Host Plants.** This species is reliably known from more than 40 plant species belonging to 30 families (Livshits *et al.* 2013). In the greenhouses of the Main Botanical Garden (Moscow), it was detected on more than 100 plant species, mostly on *Phytolacca*, *Cactaceae* and *Prunus laurocerasus* (Antonova 1959).

**Distribution.** This species is cosmopolitan, widespread in greenhouses (Mitrofanov and Strunkova 1979; Livshits *et al.* 2013; CABI 2021). It is known from Central European Russia (from the greenhouses of the Main Botanical Garden, Moscow) (Antonova 1955, 1957, 1959, 1960; Wainstein 1960; Bondarenko 1967).

## CONCLUSION

The analysis of the secondary sources and primary data shows that currently known Tetranychoida fauna of Central European Russia includes 39 species of the Tetranychidae family belonging to 11 genera, as well as one Tenuipalpidae species. For comparison, 12 species of spider mites have been recorded from Latvia (Petrov 1971), 24—from Germany, 31—from Poland (Migeon and Dorkeld 2022), 39—from Hungary (Kontschan 2019), 45—from Serbia (Marčić *et al.* 2020).

The following species are not included in the list of tetranychoids of Central European Russia.

*Tetranychus ludeni* Zacher, 1913 (= *T. salviae* Oudemans, 1931), Tetranychidae. It was recorded in the 1950s only in the greenhouses of the Main Botanical Garden, Moscow, on *Salvia* and *Cucumis sativus* (Antonova 1955, 1957, 1959, 1960). While this species was mentioned in Wainstein's (1960) monograph, which dealt with the greenhouses of Moscow (162 pp.), it was not listed for the USSR by Mitrofanov *et al.* (1987), nor for Central European Russia by Popov (1988, 1997, 2013). According to the results of our research, *T. ludeni* has not been recorded in the Main Botanical Garden and the Botanical Garden of Moscow State University.

*Cenopalpus pulcher* (Canestrini and Fanzago, 1876), Tenuipalpidae was listed for European Russia by Reck (1959) without links to references. Bondarenko (1967) has noted this species on apple trees in the suburban area of Leningrad (presently, Saint Petersburg, northwest of European Russia) with reference to Kallinikova's (1927) work, which stated that the identification of mites was performed with the participation of I.I. Sokolov and V.V. Redikorzev, only up to the genus; for Tenuipalpidae, only *Tenuipalpis* was listed with a note about high abundance. The unambiguous attribution of Tenuipalpidae species from Kallinikova (1927) by Bondarenko (1967) is controversial in the absence of reliable data about other records of this species. All other data about the wide distribution of *Cenopalpus pulcher* in the Nonchernozem belt of the USSR, including Central European Russia, is apparently based on the opinions of G.F. Reck and N.V. Bondarenko (Mitrofanov and Strunkova 1979; Kopaneva 1984). Later, Tretyakov (2006) and Livshits *et al.* (2013) have listed this species for North Caucasus but not for Central European Russia.

As a result of the present study, three species *Eotetranychus thujae*, *Eo. uncatatus* and *Eurytetranychus furcisetus* were recorded for the fauna of Russia for the first time. *Eotetranychus thujae* was described from the USA, where this species is widespread in the southern and southeastern states (McGregor 1950; Pritchard and Baker 1955). For the European continent, it was first recorded from Hungary in 2015 (Kontschan and Ripka 2017). This study shows that *Eo. thujae* is widespread in the urban territories of Central European Russia. It should be noted that this species was included in the diagnostic keys by Soviet acarologists with a remark about the distribution on the

territory of the USA (Wainstein 1960; Mitrofanov *et al.* 1975), but not recorded for the USSR (Mitrofanov *et al.* 1987). In Russia, *Eo. thujae* is considered an alien species. The most likely pathway is through the importation of ornamental Cupressaceae plants. Alternatively, it could have spread naturally, since the species currently inhabits old *Thuja* plantations (created before 1991).

Also, *Eu. furcisetus* is considered an alien species for Central European Russia. The most likely pathway of this species is via *Picea pungens* plants used for planting. *Eurytetranychus furcisetus* was described from southern Kazakhstan, from *Pinus sylvestris* and *Picea schrenkiana*, distributed in the Tien Shan Mountains (Wainstein 1956b). Until recently, this species and was reliably unknown outside of Central Asia (i. e., outside of Kazakhstan and Kyrgyzstan) (Mitrofanov *et al.* 1987).

*Bryobia vasiljevi*, *Neotetranychus rubi*, *Oligonychus lagodechii* and *O. piceae* were recorded from Central European Russia for the first time.

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