Acarina 32 (2): 157–167

REVIEW OF THE SPIDER MITE FAUNA OF UZBEKISTAN, WITH NEW RECORDS (PROSTIGMATA: TETRANYCHIDAE)

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ABSTRACT: This study lists 23 species belonging to 14 genera of Tetranychidae from Uzbekistan (Central Asia). In addition, we provide the analysis of key sources published in 1910s–1980s on the identification of the spider mite *Tetranychus turkestani* (Ugarov and Nikolskii, 1937), inhabiting cotton plants in Central Asia. This species is the main pest on cotton, fruit, as well as vegetable and melon crops of Uzbekistan, which is confirmed by our data. *Bryobia praetiosa* Koch, 1836, *Eurytetranychus buxi* (Garman, 1935), *Eotetranychus libocedri* (McGregor, 1936), *Oligonychus brevipilosus* (Zacher, 1932), *O. longiclavatus* (Reck, 1953) and *O. ununguis* (Jacobi, 1905) are new species for the fauna of this region. It is believed that *Peritetranychus tuberculatus* Ugarov and Nikolskii, 1937 and *Peritetranychus glabrisetus* Ugarov and Nikolskii, 1937 are synonyms of *Panonychus ulmi* (Koch, 1836).

KEY WORDS: Central Asia, phytophagous mites, biodiversity, alien species, plant protection

DOI: 10.21684/0132-8077-2024-32-2-157-167

INTRODUCTION

The spider mite *Tetranychus telarius* (Linnaeus, 1758) from Central Asia, including Uzbekistan, was first mentioned the by I. Vasiljev[1] (1910, 1914) in the context of researching the harmfulness of this pest for cotton, melon, watermelon, plum and apple trees. According to V. Nikolskii (1947), the identification was carried out by the acarologist N. Banks (USA), to whom Vasiljev has sent the material in 1907.

Since 1911, a large group of specialists has been engaged in researching the ecology, the harmful effects and the development of control measures for spider mites on cotton (*Gossypium* spp.) in Central Asia. This research was done on the basis of the Turkestan Entomological Station (Tashkent), which, in 1925, was transformed into the Uzbek (Central Asian) Plant Protection Station (STAZRA). Since 1931, it became part of the Institute of Cotton Industry (NIHI); and in 1958, it received the status of an independent research institute[2] (Plotnikov 1914, 1926a, b; Vasiljev 1924; Yakhontov 1928, 1931; Popov 1931a, b; Lebedeva 1931; Piontkovskii 1932; Kosobutskii 1934; Ugarov 1936; Ugarov and Nikolskii 1937; Uspenskii 1937, 1951, 1960, 1982; Polevshchikova 1965; Khodosevich, 1965 etc.)[3].

For a long time, there was no agreement regarding the species identification of the spider mite from cotton. For example, Vasiljev (1924), Plotnikov (1926a, b) and Yakhontov (1928) continued to cite the name *Tetranychus telarius*; then Yakhontov (1931) used the name *Tetranychus altheae* von Hanstein, 1901; Popov (1931a, b), Lebedeva (1931) and Kosobutskii (1934) used *Epitetranychus altheae* (von Hanstein, 1901); while Piontkovskii (1932) used *Epitetranychus bimaculatus* (Harvey, 1892). Apparently, under the influence of G. Reck's (1959) work, Uspenskii (1960), Polevshchikova (1965), Khodosevich (1965), as well as other researchers began to use the name *Tetranychus telarius* again. All these scientific names are now recognized as junior synonyms of *Tetranychus urticae* Koch, 1835 (Migeon and Dorkeld 2024). Subsequent studies have shown that the aforementioned species identifications turned out to be incorrect.

At first, A. Ugarov (1936) gave only a list of Latin names of spider mites on cotton from Central Asia without descriptions. Then, the landmark paper by Ugarov and Nikolskii (1937) was published. The authors investigated voluminous material (ca. 6,000 examples of spider mites) from Uzbekistan, Kyrgyzstan, Turkmenistan and Tajikistan (in Soviet literature, this territory is named

[1] Among other things, in a series of experiments, Vasiljev established the presence of arrhenotokous parthenogenesis in *T. telarius*. In Vasiljev's honor, G. Reck named the species *Bryobia vasiljevi* Reck, 1953.

[2] Now it is the Scientific Research Institute of Plant Quarantine and Protection of the Republic of Uzbekistan (Tashkent).

[3] The literature on this topic is numerous, a list of sources can be found in publications of Wainstein (1960), Uspenskii (1960, 1982) and Strunkova (1983).

"Middle Asia"). As a result, 6 new species and 4 new genera were described. Of these, the most widespread pest on cotton (on more than 99% of crops) was the species *Eotetranychus turkestani* Ugarov and Nikolskii, 1937[1]. Boris Wainstein (1958, 1960), who worked in the neighboring Kazakhstan in the 1950s, showed that this species belonged to the genus *Tetranychus* and had an independent status based on differences in the structure of the aedeagus. Subsequently, F. Uspenskii (1982) and Z. Strunkova (1983) confirmed the wide distribution of *Tetranychus turkestani* (Ugarov and Nikolskii 1937) in Central Asia as a major pest of cotton and other agricultural crops, putting an end to a lengthy discussion (Kopaneva 1987).

A few remarks should be made regarding the other species described by Ugarov and Nikolskii (1937). The situation with these species (as with *T. turkestani*) is complicated by the lack of the type material due to the use of temporary slides (in the original text, the authors do not provide any information about identifying types or type series). In addition, subsequently, one of the authors (Nikolskii 1947) has pointed out some important shortcomings of the above work concerning the unsatisfactory study of the morphological characters.

Pritchard and Baker (1955) considered *Apotetranychus longipenis* Ugarov and Nikolski, 1937 and *Eotetranychus scabrisetus* Ugarov and Nikolskii, 1937 synonyms of *Amphitetranychus viennensis* (Zacher, 1920) and *Tetranychus urticae* Koch, 1835, respectively. Reck (1959) generally agreed with this point of view, based on his conviction that the diagnosis of *Apotetranychus longipenis* also included a description of the males of *Eotetranychus populi* (Koch, 1838). Here, we also mention *Apotetranychus virginis* Ugarov, 1937[2], which was considered a synonym of *Amphitetranychus viennensis* (Migeon and Dorkeld 2024) by Wainstein (1960).

Eurytetranychus stenoperitrematus Ugarov and Nikolskii, 1937 was placed within the genus *Oligonychus* by Pritchard and Baker (1955), which was supported by Wainstein (1960). Subsequently, acarologists have repeatedly pointed out that the description of this species does not include important morphological information that would allow to differentiate it from other species (Pritchard and Baker 1955; Reck 1959; Wainstein 1960; Mushtaq *et al.* 2021). In the literature, there is a confusion regarding the type locality of *Oligonychus stenoperitrematus* and its distribution in Uzbekistan. Ugarov and Nikolskii (1937) indicated only the name of the settlement "Kurgan-Tyube" (now it is the city of Bokhtar in southwestern Tajikistan). Nikolskii (1947) clarified that this locality was situated in Tajikistan (this also corresponds to the official administrative maps of the 1930s). However, Pritchard and Baker (1955) noted that the species is "described probably from Tashkent (Uzbekistan)", which clearly contradicts the text of the original publication. Reck (1959) also erroneously indicated the distribution of the species as "Uzbekistan". Additionally, it should be noted that Strunkova (1970, 1972, 1975, 1978, 1985, 1988) and Mitrofanov *et al.* (1987) did not include *O. stenoperitrematus* in the list of Central Asian species, although they were familiar with the work of Ugarov and Nikolskii (1937).

We should also mention the publications of Gerschun (1949, 1951), devoted on the study of pests in the valley forests and the urban plantations of Uzbekistan. The results of the above study seem doubtful due to the mention of only a single species of spider mite, "*Eotetranychus turkestani*", on the trees and shrubs of *Populus*, *Ulmus*, *Robinia*, *Quercus*, *Fraxinus*, *Acer*, *Salix*, etc. Therefore, the above publications are not included in our analysis.

A study by Sinelnikova (1951) contains the record of one species of spider mite of the genus *Bryobia*—a pest of apple orchards in Uzbekistan. Its identification was carried out by G. Reck.

In the 1960s–1980s, studies of the spider mite fauna of Uzbekistan were conducted by acarologists Z. Strunkova and V. Mitrofanov, whose papers include the descriptions of 5 new species from the region (Mitrofanov 1968; Strunkova 1969, 1970, 1975, 1978; Strunkova and Mitrofanov 1982; Mitrofanov *et al.* 1987[3]). Here, it is necessary to make

[1] Subsequently, Nikolskii (1947) placed this species within the genus *Tetranychus*, thought as a junior synonym of *T. urticae* Koch, 1835. Independently, Reck (1947) came to the same conclusion. Initially, Wainstein (1954) agreed with them, but has subsequently revised his view (Wainstein 1958).

[2] Ugarov, A. A. 1937. Sredne-Aziatskii pautinnyi kleshch (vidovoi sostav) [Central Asian spider mite (species composition)]. *Sotsialisticheskaya nauka i tekhnika* (Tashkent), 9: 26–40. (We have not had the opportunity to review this article.)

[3] In that publication, the species descriptions sometimes only contain "Middle Asia" as location (which corresponds to "Central Asia", except for Kazakhstan), without further details. This does not allow us to automatically attribute these records to Uzbekistan.

a remark about the distribution of *Bryobia osterloffi* Reck, 1947. This species has been recorded in Tajikistan and Kyrgyzstan by Strunkova (1970, 1971, 1975, 1988). In some of the above papers by Strunkova (1971, 1975), as well as by Livshits and Mitrofanov (1971), the distribution of *B. osterloffi* is indicated as "Middle Asia" without specifying which records are from Uzbekistan. Most likely, for this reason, Mitrofanov *et al.*'s (1987) species description also contains "Middle Asia" without further details. Although the distribution of *B. osterloffi* in Uzbekistan is very likely, it is not confirmed by the documented records. Therefore, this species is not listed in our study.

Our paper summarizes data on the spider mite fauna of Uzbekistan, including new original records.

MATERIALS AND METHODS

The collections were carried out in 2022 and 2024 in northeastern Uzbekistan. The specimens were preserved in 70% ethanol. Slides were prepared using Hoyer's medium (Walter and Krantz 2009). Mites were identified by I.O. Kamayev using the ZEISS Axio Imager 2 and the Levenhuk MED D45T LCD phase-contrast microscopes. Identifications were based on the following literature sources (Reck 1959; Pritchard and Baker 1955; Wainstein 1960; Livshits and Mitrofanov 1971; Mitrofanov *et al*. 1975, 1987; Baker and Tuttle 1994; Ehara 1999; Marić *et al*. 2018; etc.).

The systematics of Tetranychidae, the host plants and the world distribution of each spider mite species are based on Migeon and Dorkeld (2024). The records of spider mite species from the countries of Central Asia are taken from the following sources: (Wainstein 1960; Strunkova 1969, 1970, 1971, 1972, 1975, 1978, 1985, 1988; Mitrofanov *et al*. 1987; Livshits *et al.* 2011). The scientific names of plants and their taxonomy are taken from the Catalogue of Life (Bánki *et al.* 2024).

Materials and slides are stored in the acarological cabinet of the All-Russian Plant Quarantine Centre (VNIIKR, Bykovo, Moskovskaya Oblast, Russia); the Scientific Research Institute of Plant Quarantine and Protection of the Republic of Uzbekistan (Tashkent, Uzbekistan); and partly in the personal collection (I. O. Kamayev, Moscow, Russia).

Transliteration of Russian-language sources was performed using the online resource CNSHB (2024).

SYSTEMATICS

Family **Tetranychidae Donnadieu, 1875**

Subfamily **Bryobiinae Berlese, 1913**

Tribe **Bryobiini Reck, 1952**

Genus ***Aplonobia* Womersley, 1940**

Type species: *Tetranycopsis histricina* Berlese, 1910

Aplonobia eurotiae (Mitrofanov and Strunkova, 1975)

Georgiobia eurotiae Mitrofanov and Strunkova, 1975: 132; Mitrofanov *et al.* 1987: 198
Georgiobia deina (Pritchard and Baker, 1955), Strunkova 1970: 40 [misidentification]
Aplonobia (*Aplonobia*) *eurotiae*, Mahdavi *et al.* 2024: 67

Host Plants. *Krascheninnikovia* sp. (Amaranthaceae), *Polygonum* sp. (Polygonaceae), *Cousinia* sp. (Asteraceae) and *Pinus* sp. (Pinaceae).

Distribution. Palearctic. This species is known from Central Asia: Uzbekistan and Kyrgyzstan.

Remarks. At first, this species from Uzbekistan was incorrectly identified as the North American *Georgiobia deina* (Strunkova 1970).

Genus ***Bryobia* Koch, 1836**

Type species: *Bryobia praetiosa* Koch, 1836

Bryobia bucharica Strunkova and Mitrofanov, 1983

B. bucharica Strunkova and Mitrofanov, 1983: 466; Mitrofanov *et al.* 1987: 168

Host Plants. This species has been recorded on *Astragalus* sp. (Fabaceae).

Distribution. *B. bucharica* is known only from Uzbekistan.

Bryobia praetiosa Koch, 1836

Material. 1 female, Tashkent Region, ornamental plantings area, 41.3904°N, 69.2946°E, on *Buxus* sp. (Buxaceae), 15 May 2024. 2 females, the suburbs of Tashkent, ornamental plantings area, 41.3687°N, 69.3505°E, on *Buxus* sp., 15 May 2024.

Host Plants. This species is polyphagous, it has been recorded on more than 300 plant species from 70 families.

Distribution. In Central Asia, this cosmopolitan species is reliably known from Kazakhstan.

Remarks. *Bryobia praetiosa* was recorded from Uzbekistan for the first time.

Bryobia rubrioculus (Scheuten, 1857)

B. redikorzevi Reck, 1947, Sinelnikova 1951: 8; Livshits 1960a: 39; Livshits *et al.* 2011: 146; Anorbaev and Rakhmonov 2021: 9

Host Plants. This species is polyphagous, it has been recorded on more than 100 plant species from 26 families.

Distribution. This cosmopolitan species is known from the countries of Central Asia, including Uzbekistan.

Remarks. In the paper by Sinelnikova (1951), the identification was carried out by G. Reck.

Bryobia strunkovae Mitrofanov, 1968

Bryobia strunkovae Mitrofanov, 1968: 8; Livshits and Mitrofanov 1971: 90; Strunkova 1975: 179

Host Plants. *Artemisia* sp. (Asteraceae).

Distribution. This species is known only from Central Asia: Uzbekistan, Tajikistan and Kyrgyzstan.

Genus *Eremobryobia* Strunkova and Mitrofanov, 1982

Type species: *Eremobryobia haloxyli* Strunkova and Mitrofanov, 1982, by original designation

Eremobryobia haloxyli Strunkova and Mitrofanov, 1982

Eremobryobia haloxyli Strunkova and Mitrofanov, 1982: 1909; Mitrofanov *et al.* 1987: 177

Host Plants. *Haloxylon* sp. (Amaranthaceae).

Distribution. This species is known only from Central Asia: Turkmenistan and Uzbekistan.

Genus *Neopetrobia* Wainstein, 1956

Type species: *Neopetrobia dubinini* Wainstein, 1956, by original designation

Neopetrobia batiashvilii Strunkova, 1969

Neopetrobia batiashvilii Strunkova, 1969: 71; Strunkova 1975: 182; Mitrofanov *et al.* 1987: 195

Host Plants. *Aeluropus littoralis* (Gouan) Parl. (Poaceae).

Distribution. This species is known only from Uzbekistan.

Neopetrobia dubinini Wainstein, 1956

Neopetrobia dubinini, Strunkova 1978: 27

Host Plants. Poaceae.

Distribution. This species is known only from Central Asia: Kazakhstan, Uzbekistan and Tajikistan.

Genus *Paraplonobia* Wainstein, 1960

Type species: *Aplonobia (Paraplonobia) echinopsili* Wainstein, 1960, by original designation

Paraplonobia herniariae (Bagdasarian, 1954)

Paraplonobia herniariae, Strunkova 1975: 181
Petrobia herniariae, Strunkova 1970: 41

Host Plants. *Herniaria incana* (Caryophyllaceae) and *Artemisia* sp. (Asteraceae) (Strunkova 1970, 1975).

Distribution. This species is known from the countries of Transcaucasia and Central Asia (Tajikistan and Uzbekistan).

Genus *Petrobia* Murray, 1877

Type species: *Trombidium lapidum* Hammer in Hermann, 1804=*Petrobia latens* (Müller, 1776)

Petrobia latens (Müller, 1776)

P. latens, Uspenskii 1982: 4

Host Plants. This species is polyphagous, it has been recorded on more than 100 plant species from 32 families.

Distribution. This cosmopolitan species is known from the countries of Central Asia: Kazakhstan, Uzbekistan, Kyrgyzstan and Tajikistan.

Subfamily Tetranychinae Berlese, 1913

Tribe Eurytetranychini Reck, 1950

Genus *Eurytetranychus* Oudemans, 1931

Type species: *Tetranychus latus* Oudemans, 1931 not Canestrini and Fanzago, 1876 (=*Neotetranychus buxi* Garman, 1935)

Eurytetranychus buxi (Garman, 1935)

Material. 1 male, 6 females, Tashkent Region, suburbs of Shurb, ornamental plantings area, 41.4239°N, 69.3319°E, on *Buxus* sp., 14 May 2024. 3 females, 2 deutonymphs, Tashkent Region, ornamental plantings area, 41.3904°N, 69.2946°E, on *Buxus* sp., 15 May 2024. 6 females, 2 deutonymphs, the suburbs of Tashkent, ornamental

plantings area, 41.3687°N, 69.3505°E, on *Buxus* sp., 15 May 2024.

Host Plants. This species has mainly been recorded on the *Buxus* species.

Distribution. Holarctic region.

Remarks. *Eurytetranychus buxi* has not previously been recorded from Central Asia. This species is recorded from Uzbekistan for the first time.

Genus ***Eurytetranychoides*** **Reck, 1950**

Type species: *Eurytetranychus thujae* Reck, 1947, by original designation

Eurytetranychoides thujae **(Reck, 1947)**

E. thujae, Mitrofanov *et al.* 1987: 76

Host Plants. This species has been recorded on the *Juniperus* species (Cupressaceae).

Distribution. Palearctic region. In Central Asia, this species is known from Kyrgyzstan, Tadjikistan and Uzbekistan.

Tribe **Tetranychini Reck, 1950**

Genus ***Amphitetranychus*** **Oudemans, 1931**

Type species: *Tetranychus viennensis* Zacher, 1920, by original designation

Amphitetranychus viennensis **(Zacher, 1920)**

Amphitetranychus viennensis, Livshits *et al.* 2011: 153

Apotetranychus longipenis Ugarov and Nikolskii, 1937: 34

Apotetranychus virginis Ugarov, 1937, Wainstein 1960: 164

Tetranychus viennensis Zacher, 1920, Pritchard and Baker 1955: 384; Livshits 1960b: 113; Strunkova 1975: 183; Anorbaev and Rakhmonov 2021: 9

Material. 1 male, 6 females, Tashkent region, apple orchard, 41.4264°N, 69.3192°E, on *Malus domestica* (Suckow) Borkh. (Rosaceae), 14 May 2024.

Host Plants. *Amphitetranychus viennensis* is polyphagous; this species is often recorded on the Rosaceae plant species.

Distribution. Palearctic and Oriental regions. This species is known from the countries of Central Asia, including Uzbekistan.

Genus ***Eotetranychus*** **Oudemans, 1931**

Type species: T*rombidium tiliarium* Hermann, 1804, by original designation (but erroneously referred to as *Acarus telarius* Linnaeus, 1758)

Eotetranychus libocedri **(McGregor, 1936)**

Material. 1 male, 7 females, the suburbs of Tashkent, ornamental plantings area, 41.3687°N, 69.3505°E, on *Thuja occidentalis* L. (Cupressaceae), 15 May 2024. 6 females, Tashkent, Dostlik Recreational Park, ornamental plantings area, 41.2883°N, 69.2540°E, on *Thuja occidentalis*, 3–5 August 2022. 7 females, Tashkent, Tashkent State Agrarian University, ornamental plantings area, 41.3674°N, 69.3390°E, on *T. occidentalis*, 14 May 2024. 2 females, Tashkent Region, ornamental plantings area, 41.3904°N, 69.2946°E, on *Juniperus* sp. (Cupressaceae), 15 May 2024. 8 females, Tashkent, ornamental plantings area, 41.3825°N, 69.2975°E, on *Juniperus* sp., 15 May 2024.

Host Plants. This species has been recorded on Cupressaceae, Pinaceae, Tamaricaceae, Celastraceae.

Distribution. Holarctic region. In Central Asia, this species has been recorded only from Kyrgyzstan.

Remarks. *Eotetranychus libocedri* was recorded from Uzbekistan for the first time.

Eotetranychus populi **(Koch, 1838)**

Schizotetranychus populi, Reck 1959: 54

Schizotetranychus (Eotetranychus) populi, Mitrofanov *et al.* 1987: 98

Host Plants. This species is polyphagous, preferring *Populus* and *Salix* species.

Distribution. Holarctic region. This species is known from Central Asia, including Uzbekistan.

Eotetranychus pruni **(Oudemans, 1931)**

Schizotetranychus pruni, Anorbaev and Rakhmonov 2021: 9

Host Plants. This species is polyphagous and is often a pest for Rosaceae.

Distribution. Holarctic and Oriental regions. In Central Asia, this species is known from Kazakhstan, Kyrgyzstan and Tajikistan.

Genus ***Oligonychus*** **Berlese, 1886**

Type species: *Heteronychus brevipodus* Targioni Tozzetti, 1878

Oligonychus brevipilosus **(Zacher, 1932)**

Material. 3 females, the suburbs of Tashkent, Dustlik, ornamental plantings area, 41.2579°N,

69.4286°E, on *Pinus sylvestris* L. (Pinaceae), 2 August 2022. 1 female, Tashkent Region, ornamental plantings area, 41.3907°N, 69.2944°E, on *Picea* sp. (Pinaceae), 15 May 2024.

Host Plants. This species has been recorded on the Pinaceae species.

Distribution. Palearctic region.

Remarks. *Oligonychus brevipilosus* has not previously been recorded from Central Asia. This species is listed for Uzbekistan for the first time.

Oligonychus longiclavatus (Reck, 1953)

Material. 2 males, 9 females, the suburbs of Tashkent, Dustlik, ornamental plantings area, 41.2579°N, 69.4286°E, on *Quercus* sp. (Fagaceae), 2 August 2022. 7 females, Tashkent Region, ornamental plantings area, 41.3907°N, 69.2928°E, on *Quercus* sp., 15 May 2024.

Host Plants. This species has mainly been recorded on the *Quercus* species.

Distribution. Palearctic region. In Central Asia, this species is reliably known from Kazakhstan and Kyrgyzstan.

Remarks. *Oligonychus longiclavatus* has not been recorded from Uzbekistan.

Oligonychus ununguis (Jacobi, 1905)

Material. 1 male, 13 females, the suburbs of Tashkent, Dustlik, ornamental plantings area, 41.2579°N, 69.4286°E, on *Juniperus* sp., 2 August 2022. 4 males, 48 females, Tashkent, Dostlik Recreational Park, ornamental plantings area, 41.2883°N, 69.2540°E, on *Thuja occidentalis*, *Juniperus* sp. and *Cupressus* sp. (Cupressaceae), 3 August 2022. 7 females, Tashkent Region, the suburbs of Shurb, ornamental plantings area, 41.4264°N, 69.3192°E, on *Juniperus* sp., 14 May 2024. 8 females, Tashkent, Tashkent State Agrarian University, ornamental plantings area, 41.3674°N, 69.3390°E, on *T. occidentalis*, 14 May 2024. 13 females, Tashkent Region, ornamental plantings area, 41.3907°N, 69.2944°E, on *Picea* sp. and *Juniperus* sp., 15 May 2024. 1 female, Tashkent, ornamental plantings area, 41.3825°N, 69.2975°E, on *Juniperus* sp., 15 May 2024. 2 males, 11 females, the suburbs of Tashkent, ornamental plantings area, 41.3680°N, 69.3500°E, on *Juniperus* sp., 15–16 May 2024.

Host Plants. This species is polyphagous, it has been recorded on more than 100 plant species from 12 families.

Distribution. In Central Asia, this cosmopolitan species is known from Kazakhstan, Tajikistan and Kyrgyzstan.

Remarks. *Oligonychus ununguis* was recorded from Uzbekistan for the first time.

Genus *Panonychus* Yokoyama, 1929

Type species: *Tetranychus ulmi* Koch, 1835

Panonychus ulmi (Koch, 1836)

Panonychus ulmi, Mitrofanov *et al.* 1987: 85; Anorbaev and Rakhmonov, 2021: 9
Peritetranychus glabrisetus Ugarov and Nikolskii 1937: 39, *syn. n.*
Peritetranychus tuberculatus Ugarov and Nikolskii 1937: 37, *syn. n.*
Schizotetranychus glabrisetus (Ugarov and Nikolskii, 1937), Pritchard and Baker 1955: 269
Schizotetranychus tuberculatus (Ugarov and Nikolskii, 1937), Pritchard and Baker 1955: 269

(Fig. 1)

Host Plants. This species is polyphagous, it has been recorded on more than 160 plant species from 39 families.

Distribution. This cosmopolitan species is known from the countries of Central Asia: Uzbekistan, Kyrgyzstan and Tajikistan.

Remarks. In 1937, Ugarov and Nikolskii described two new species—*Peritetranychus tuberculatus* and *P. glabrisetus*—from Uzbekistan, based on temporary slides of females (without designating types or examining males). We have analyzed the descriptions of these species.

The dorsal chaetome of *P. tuberculatus* in Ugarov and Nikolskii (1937; Fig. 1A) almost completely corresponds to *Panonychus ulmi* in size, in the placement relative to each other and in the thickening of the dorsal setae, located on obvious tubercles (Geijskes 1939; Pritchard and Baker 1955; Reck 1959; Mitrofanov *et al.* 1987; Baker and Pritchard 1994; Arabuli *et al.* 2016). In the authors' figure (Ugarov and Nikolskii 1937; Fig. 1A), some of the dorsal setae (*sc2* and *c2*) have been lost and only the tubercles are depicted; seta *c3* is not shown (in *Panonychus ulmi,* it is relatively small and located laterally on a not obvious tubercle; apparently it has also been lost); however, seta *h1* can be clearly observed. As in the case of *P. ulmi*, seta *f2* is obviously longer than *h1*. Earlier, Nikolskii (1947) and Reck (1947, 1959) have pointed out that the analysis of the

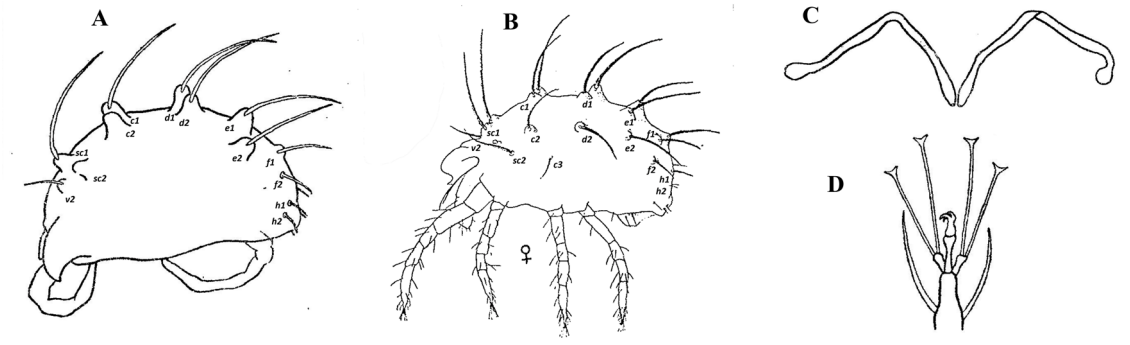

Fig. 1. Illustrations of some characters of *Peritetranychus tuberculatus* from Ugarov and Nikolskii (1937): A—lateral view *in habitus*, modified [with attribution of some setae]; B—for comparison, lateral view of *Panonychus ulmi* female *in habitus* from Geijskes (1939), modified [with attribution of some setae]; C—peritreme; D—empodium [without details].

dorsal chaetome of spider mites in the above paper suffered from a number of errors. In our opinion, this is explained by the fact that the material from the work by Ugarov and Nikolskii (1937) was clearly damaged and fixed in the solution of ethanol with glycerol for the subsequent preparation of temporary slides. These slides would be based on the same embedding medium (Wainstein 1960), without the dissolution of the soft tissue of mite bodies, and for this reason, some characters were poorly visible. In addition, the distal parts of the peritremes of *Peritetranychus tuberculatus* (Fig. 1C) also correspond in shape to those of *Panonychus ulmi*. The empodium in both cases is split into two claw-like formations; although Ugarov and Nikolskii (1937) note the absence of proximoventral hairs. Regarding the latter, we agree with the assumption of Wainstein (1960) that the authors did not recognize the structure of the empodium (Fig. 1D).

According to Ugarov and Nikolskii (1937), *Peritetranychus glabrisetus*, described from 1 specimen, differs from *P. tuberculatus* only in the absence of pubescence on dorsal setae. This cannot be considered a sufficient reason for its designation as an independent species. In Wainstein's (1960) opinion, it is most likely that a nymphal stage was examined.

The synonymy is also supported by the fact that Wainstein (1960), Strunkova (1970, 1971, 1972, 1975, 1978, 1988), Mitrofanov *et al.* (1987), Anorbaev and Rakhmonov (2021) and others did not record *Peritetranychus tuberculatus* and *P. glabrisetus* from Central Asia, including Uzbekistan, in contrast to *Panonychus ulmi*. Additionally, we note that Ugarov and Nikolskii (1937) collected *Peritetranychus tuberculatus* on *Morus* trees (from one locality—the Kokand District of Uzbekistan), while Strunkova (1975, 1988) found *Panonychus ulmi* several times on the above plants in Tajikistan and Kyrgyzstan.

Finally, it should be mentioned that Reck (1959) and Wainstein (1960) expressed a critical attitude towards the taxonomic studies of Ugarov and Nikolskii (1937), assuming, with a high probability, that an already known species, *Panonychus ulmi*, had been described.

Taking into account all the above, we consider *Peritetranychus tuberculatus* and *P. glabrisetus* synonyms of *Panonychus ulmi*. Consequently, the genus *Peritetranychus* Ugarov and Nikolskii, 1937 is a synonym of the genus *Panonychus* Yokoyama, 1929.

Genus ***Schizotetranychus*** **Trägårdh, 1915**

Type species: *Tetranychus schizopus* Zacher, 1913

Schizotetranychus ugarovi **Wainstein, 1960**

Schizotetranychus ugarovi, Strunkova 1972: 26; Strunkova 1975: 183; Strunkova 1978: 28

Host Plants. Mainly on *Alhagi* sp. (Fabaceae).

Distribution. This species is only known from Central Asia: Tajikistan and Uzbekistan.

Genus ***Tetranychus*** **Dufour, 1832**

Type species: *Tetranychus lintearius* Dufour, 1832

Tetranychus turkestani (Ugarov and Nikolskii, 1937)

Eotetranychus turkestani Ugarov and Nikolskii, 1937: 33
Tetranychus turkestani, Uspenskii 1982: 6; Strunkova 1983: 31; Anorbaev and Rakhmonov, 2021: 9

Material. 8 males, 8 females, Tashkent Region, the suburbs of Dustlik, ornamental plantings area, 41.2583°N, 69.4289°E, on *Gossypium* sp. (Malvaceae), 2 August 2022. 6 males, 26 females, Tashkent Region, suburbs of Koksaray, crop field, 41.3621°N, 69.1396°E, on *Cucumis melo* L. (Cucurbitaceae), 3 August 2022. 10 males, 6 females, Tashkent Region, suburbs of Dustlik, orchard, 41.2579°N, 69.4253°E, on *Malus domestica*, 4 August 2022. 17 males, 16 females, Tashkent Region, suburbs of Shampan, orchard, 41.2143°N, 69.7399°E, on *Pyrus* sp., *Alchemilla* sp. (Rosaceae), *Convolvulus* sp. (Convolvulaceae), *Solanum nigrum* L. (Solanaceae), Poaceae, 4 August 2022. 1 male, 1 female, Tashkent Region, suburbs of Shampan, orchard, 41.2206°N, 69.7303°E, on *Prunus persica* (L.) Stokes (Rosaceae), 4 August 2022.

Host Plants. This species is polyphagous, it has been recorded on more than 160 plant species from 39 families.

Distribution. This cosmopolitan species was described from Central Asia.

Remarks. Also see section "Introduction".

Tetranychus urticae Koch, 1835

Eotetranychus scabrisetus Ugarov and Nikolskii, 1937: 34; Pritchard and Baker 1955: 440
Tetranychus urticae, Anorbaev and Rakhmonov, 2021: 9

Material. 2 males, 9 females, Tashkent Region, Shurb, greenhouse, 41.4236°N, 69.3329°E, on *Citrus* × *limon* (L.) Osbeck (Rutaceae), 14 May 2024.

Host Plants. This species is polyphagous, it has been recorded on more than 1,500 plant species from 130 families.

Distribution. This cosmopolitan species is known from Central Asia.

CONCLUSION

Investigations of the spider mites of Central Asia were first carried out in Uzbekistan, but, paradoxically, the fauna of Tetranychidae in this region is still insufficiently studied. This is partly due to the fact that researchers pay attention only to those species of spider mites that area pests of agricultural crops.

As a result of our study, 23 spider mite species belonging to 14 genera were listed for Uzbekistan. Of these, 6 species are new to the fauna of this region. In comparison, Kyrgyzstan has 58 species of Tetranychidae, Tajikistan—52, and Kazakhstan—36 (Wainstein 1960; Mitrofanov *et al*. 1987; Strunkova 1988; Migeon and Dorkeld 2024).

Eotetranychus libocedri, *Eurytetranychus buxi*, *Oligonychus brevipilosus*, *O. longiclavatus* and *O. ununguis* are associated with ornamental plants that were introduced into urban areas from the outside. Therefore, it is highly likely that these are alien species to the fauna of Uzbekistan.

ACKNOWLEGEMENTS

This study was carried out within the framework of the agreements on scientific cooperation between the All-Russian Plant Quarantine Center (Russia) and the Scientific Research Institute of Plant Quarantine and Protection of the Republic of Uzbekistan.

The authors are grateful to S. Kurbatov (VNIIKR) for his valuable comments on the systematics and nomenclature.

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