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NEW DATA ON *TUPONIA* REUTER, 1875 (HETEROPTERA: MIRIDAE) FROM THE COLLECTIONS OF THE NATURAL HISTORY MUSEUM IN BELGRADE, SERBIA

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Abstract

This paper summarizes data about plant bugs of the genus *Tuponia* Reuter, 1875, in the collections of the Natural History Museum in Belgrade, Serbia. The collections include: *Tuponia* (*Tuponia*) *elegans* (Jakovlev, 1867), *Tuponia* (*Tuponia*) *montandoni* Reuter, 1899, *Tuponia* (*Chlorotuponia*) *hippophaes* (Fieber, 1861), *Tuponia* (*Chlorotuponia) prasina* (Fieber, 1864), and *Tuponia* (*Tuponia*) *mixticolor* (A. Costa, 1862). *T. montandoni* and *T. elegans* are newly recorded species in the Serbian fauna.

KEY WORDS: plant bugs, Hemiptera, Miridae, new records, *Tuponia,* Serbia

Introduction

The daily work of entomologists and curators in the entomological collections is dynamic and engaging, as new faunistic data are often discovered while handling specimens. The taxonomic position of specimens may be revised, with new scientific papers serving as a basis for comparison, and shifts in the distribution ranges of certain species becoming evident. The majority of new data and re-identifications relate to specimens from the family Miridae. Plant bugs are the most diverse group within Heteroptera, and identification is often a true challenge. As an example, two species newly recorded in the fauna of Serbia, *Tuponia* (*Tuponia*) *montandoni* Reuter, 1899, and *Tuponia* (*Tuponia*) *elegans* (Jakovlev, 1867), were identified in the Collection of Heteroptera Study Collection at the Natural History Museum in Belgrade. Accurate identification of “problem” species often requires a series of preserved specimens collected from multiple localities.

The *Tuponia* species recorded in Serbia belong to two subgenera, *Tuponia* and *Chlorotuponia*, and were mostly collected on *Tamarix gallica* L., a species that is almost exclusively horticultural in the region. In Serbia, larvae begin developing in late April and early May, with adults appearing in the last week of May and continuing into June. In some Mediterranean countries, these species have also been recorded feeding on plants from families other than Tamaricaceae (Carapezza & Rădac, 2021).

Materials and Methods

All processed specimens are part of three collections of Heteroptera housed in the Natural History Museum in Belgrade. These include the Nicholas Kormilev Collection [NK], the Petar Novak Collection [PN], and the Heteroptera Study Collection [SZ]. The processed specimens cover the period from 1924 to 2025. To achieve more precise identification, dissection of the genital apparatus of *T. montandoni* was dissected (Fig. 1).

A total of 159 specimens were processed, comprising 80 females (♀♀) and 79 males (♂♂).
The literature consulted for specimen identification and general information includes following works: Wagner, 1955a,b, 1957, 1961, 1962, 1963, 1964, 1971, 1974, 1975; Wagner & Weber 1964; Drapolyuk, 1982; Josifov, 1986; Gorczyca, 1991; Linnavuori, 1995; Stănescu, 2001; Bryja & Kment 2002; Rabitsch, 2002; Kment, 2004; Wachmann *et al*. 2004, 2012; Konstantinov & Namyatova, 2008; Carapezza & Rădac, 2021; Gapon, 2024; Konstantinov, 2016.

Our paper was based on the re-identification of museum specimens, and we found the paper on the genus *Tuponia* in Romania (Carapezza & Rădac, 2021) to be particularly helpful.
Species of the genus *Tuponia* are highly polymorphic, exhibiting variations in key morphological characters important for identification, such as body length, ocular index, wing length, and color pattern. These are small insects, typically 2-3 mm long, although *T. montandoni* tends to be larger.

Results and Discussion

Tuponia (Tuponia) elegans (Jakovlev, 1867)
[as *Tuponia tamarisci* Perris in Kormilev, 1938]

Serbia: Požarevac [44°37'N 21°11'E] 07.1928. 1♂ leg. N. Kormilev [NK] (Fig. 1a)

New species in the fauna of Serbia.

This species was first described in Central Asia (Kazakhstan) and later recorded spreading southwest. It appeared in Hungary in 1968 (Benedek & Jaszai, 1968), 40 years after its first and, until then, only record in Serbia. Its expansion into Central Europe continued with records from the Czech Republic in 1971 (Bryja & Kment 2002) and Slovakia (Kment, 2004).

According to the Catalogue of Palearctic Heteroptera (Aukema & Rieger, 1999) its range in Europe included: Bulgaria, Croatia, Kazakhstan (European part), Hungary, Moldavia, Russia, and United Kingdom; while in Asia it included: Azerbaijan, Afghanistan, Kazakhstan (Asian part), Türkiye (Asian part), China (NO, NW), Iran, Kirgizia, Mongolia, Tadzhikistan, Turkmenistan, and Uzbekistan. In the Supplement of the Catalogue (Aukema *et al*. 2013), the species was also recorded in Europe from Austria, the Czech Republic, Slovakia, and in Asia from Armenia (Konstantinov & Namyatova, 2008).

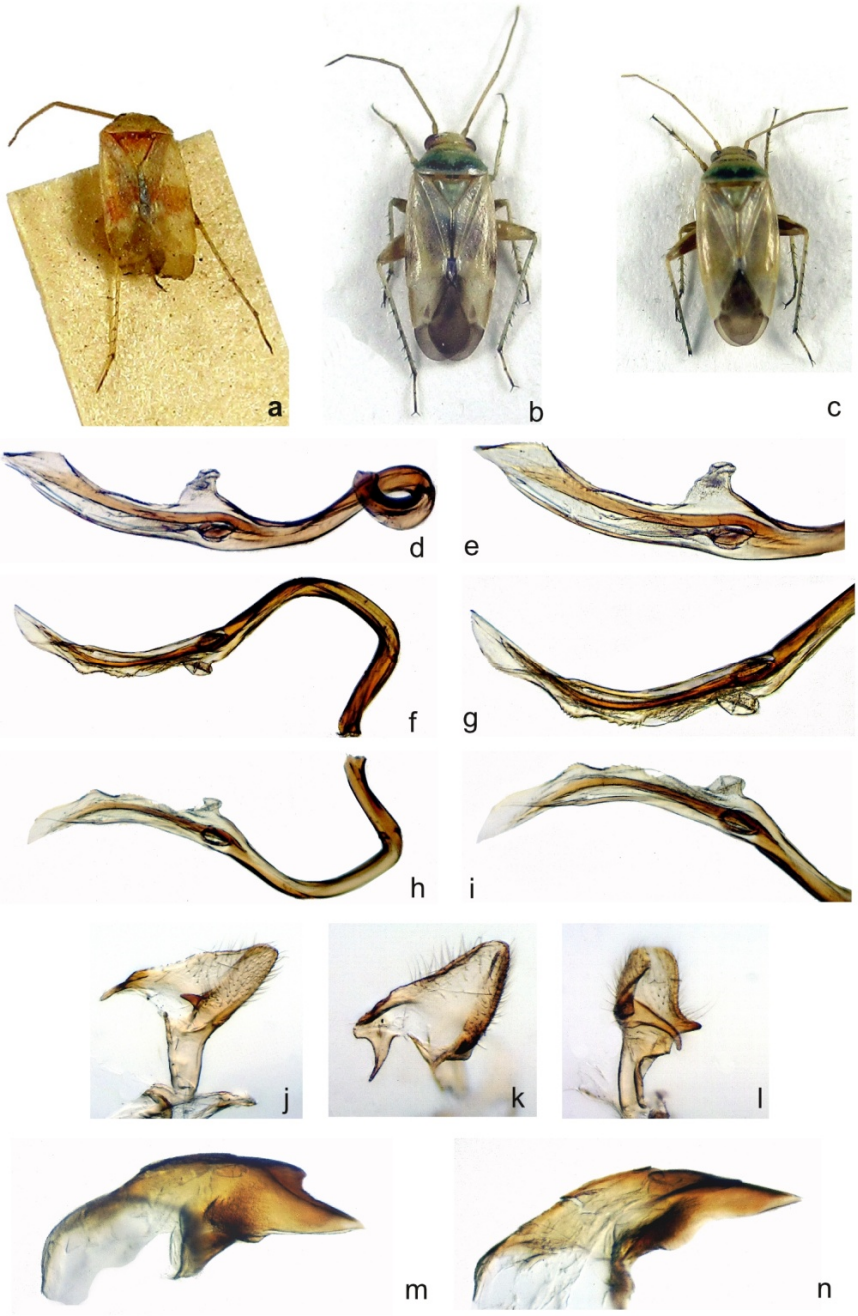

Figure 1. *Tuponia elegans* (Jakovlev, 1867): a - male; *Tuponia montandoni* Reuter, 1899: b - female; c - males; d, f, h - vesica; e, g - apex of vesica; j, k, l - left paramere; m, n - phallotheca.

The proper identification of the specimen from Serbia helps bridge the gap in the known range of this species, linking its presence from Asia through the Balkan Peninsula (Serbia) to Central Europe. The record from Serbia suggests that the species was probably already present in other parts of the Balkan Peninsula but may have been overlooked, possibly due to its association with a specific host, *Tamarix* spp. This is supported by more recent data (Carapezza & Rădac, 2021), which report its presence in Bulgaria, Croatia, Macedonia, Romania, and Ukraine.

Rabitsch (2008) includes *T. elegans* in the list of invasive species.

***Tuponia* (*Tuponia*) *mixticolor* (A. Costa, 1862)**

Croatia: Dalmatia: Podstrana [43°28'48" N, 16°34'48" E] 23.07.1940 on *Tamarix gallica* 1 ♂ leg. P. Novak [as *Tuponia tamarisci* (Perris, 1857) in Novak & Wagner 1951] [PN].
Croatia: Dalmatia: Split [43°30'32.25" N, 16°26'20.64" E / 43.5089583 N 16.4390667 E] 25.07.1943. on *Tamarix gallica* 5 ♀♀ + 1 ♂ leg. P. Novak [as *Tuponia tamarisci* (Perris, 1857) in Novak & Wagner 1951] [PN].
Croatia: Dalmatia: Opuzen [43°01'02" N, 17°33'51" E] 26.05.1937. 1♀ leg. P. Novak [as *Tuponia tamarisci* (Peris, 1857) Novak & Wagner 1951] [PN].

In the Balkan Peninsula, the species is distributed in the Mediterranean region: Croatia (Dalmatia), Bulgaria, and Greece, as well as on the Italian and Pyrenean Peninsulas. Its range has spread toward northern Europe, with records from the United Kingdom since 1979, and further into Asia and tropical Africa (Cabo Verde, Sudan) (Aukema & Rieger, 1999).

***Tuponia* (*Tuponia*) *montandoni* Reuter, 1899**

Serbia: Srem: Krušedol [45°06'29" N, 19° 56' 30" E] 23.05.2009. 5 ♀♀ + 5 ♂♂ leg. A. Stojanović on *Tamarix* sp. [SZ] (Fig. 1b, c).
Serbia: Novi Beograd: Sports Center "11 April" [44°48'57" N, 20°27'34" E] 24.05.2025. 5 ♀♀+ 5 ♂♂ leg. A. Stojanović. [SZ]. An abundant population, with only 10 prepared specimens. All the specimens are "very young", the first imago specimens of *T. montandoni* in the third decade of May 2025.

New species for the fauna of Serbia.

More than 10 specimens were collected at the locality Krušedol on the southern slopes of Fruška Gora Mt. All females measured 3.6 mm long in body length, while males ranged from 3.1 to 3.5 mm. Dissection of genitals was performed on male specimens (Fig. 1. d-i, vesica and apex of vesica; j-l, left paramere; m-n, phallotheca).

In Krušedol, *T. montandoni* was recorded together with *T. hippophaes*.

The collections by Nicholas Kormilev and Petar Novak include specimens originally labeled as *Tuponia* (*Tuponia*) *tamarisci* (Perris, 1857) from North Macedonia and Croatia. However, re-identification has confirmed that they actually belong to:

Tuponia (*Tuponia*) *montandoni* Reuter, 1899 [as *Tuponia tamarisci* Perris in Kormilev, 1938] North Macedonia: Skopje [41°59'53" N, 21°26'09" E] 19.06.1936. 2 ♀♀, 6 ♂♂ leg. N. Kormilev; Skopje 15.06.1935. 1 ♂; Skopje: Vardar, r. 13.06.1935. 1 ♂ leg. N. Kormilev

Tuponia (*Tuponia*) *montandoni* Reuter, 1899 [as *Tuponia tamarisci* Perris in Novak & Wagner 1951]
Croatia: Dalmatia: Sućurac [43°32'50" N, 16°25'36" E] 25.05.1924. 2 ♀♀ + 1 ♂ leg. P. Novak

***Tuponia* (*Chlorotuponia*) *hippophaes* (Fieber, 1861)**

Serbia: Beograd: Topčider [44°46'42" N, 20°26'39" E] 10.09.2002. 1 ♀ + 1 ♂ on *Tamarix* sp. leg. Lj. Protić [SZ].
Serbia: Novi Beograd: Blok 28 18.08.2002. 11 ♀♀ + 15 ♂♂ on *Tamarix gallica* L. leg. A. Stojanović [SZ].
Serbia: Srem: Krušedol 23.05.2009. 3 ♀♀ + 4 ♂♂ leg. A. Stojanović [SZ].
Serbia: Srem: Stari Slankamen - Koševac [45°08'20" N; 20°15'16" E] 28.06.2003. 3 ♀♀ + 1 ♂; 06.09.2008. 3 ♀♀ + 3 ♂♂; 03.06.2012. 3 ♀♀ + 2 ♂♂ leg. A. Stojanović [SZ].
Serbia: Srem: Maradik - Krušedol [45°06'05" N, 19°59'20" E] 14.07.2012. 3 ♀♀ + 3 ♂♂; 17.08.2013. 5 ♀♀ + 5 ♂♂ leg. A. Stojanović [SZ]
Serbia: Ralja: Babe (village) [44°31'28" N, 20°31'22" E] 22.06.2013. 1 ♀ leg. A. Stojanović [SZ].
Serbia: Novi Beograd: Blok 28 02.05.2025. 1 ♂ leg. A. Stojanović [SZ].
Serbia: Novi Beograd: Blok 30 (near the Genex tower) 11.05.2025, leg. A. Stojanović. 7 ♀♀+ 7 ♂♂ (high abundance at the site) leg. A. Stojanović. [SZ] The first imago specimens of *T. hippophaes* were recorded in Belgrade in early May.
Serbia: Novi Beograd: Sports Center "11 April" 24.05.2025. 5 ♀♀+ 5 ♂♂ (high abundance at the site) leg. A. Stojanović [SZ].

North Macedonia: Skopje 30.07.1933. 1 ♀; 15.06.1935. 1 ♂; 19.06.1938. leg. & det. N. Kormilev 2 ♂♂ 2 ♀♀ + one damaged specimen [NK].
North Macedonia: Udovo [41°20'35" N; 22°26'34" E] 06.10.1938. 2 ♀♀ + 3 ♂♂ leg. & det. N. Kormilev [NK].
North Macedonia: Skopje Vardar 07.06.1935. 1 ♀ + 1 ♂ leg. N. Kormilev [NK].
North Macedonia: Skopje 19.06.1938. leg. & det. N. Kormilev 1 ♀ [as *Tuponia prasina* (Fieber, 1864) in Kormilev, 1943] [NK].

Montenegro: Bar [42°05'51" N, 19°05'44" E] 25.08.1935. 1 ♀ + 2 ♂♂ leg. P. Novak [PN].

Croatia: Dalmatia: Split leg. P. Novak 19.10.1938. 2 ♀♀ + 1 ♂ + 1 damaged specimen [PN].
Croatia: Dalmatia: Split 28.08.1952. 1 ♀ leg. J. Stančić [PN].

Austria: Bludenz, Moosburger [47°08'00" N, 09°49'00" E] 25.07.1933. 3 ♀♀ [PN].

Analysis of all *Tuponia* specimens collected in Serbia revealed that the most abundant species is *T. hippophaes*. This invasive Mediterranean species has expanded its range northward over the past several decades, likely due to ongoing climate warming. Its spread is facilitated by its host plant, *Tamarix* spp., which has become increasingly common in parks and private gardens. In Serbia, it was first recorded in 2002 and has since been discovered at several localities, with abundant populations. Notably, it is often accompanied by *Tamarix* spp. by *T. elegans*.

Tuponia (Chlorotuponia) prasina (Fieber, 1864)

North Macedonia: Skoplje 26.06.1933. 1 ♂ leg. N. Kormilev [NK].

Our collections do not include any specimens from Serbia. However, Carapezza & Rădac (2021) list it as present in Serbia. We intend to continue monitoring bugs on *Tamarix gallica*, especially in Belgrade, and we believe that *T. prasina* will soon be collected.
This species has a Palearctic distribution and is considered a Euro-Central Asian element (Aukema & Rieger, 1999; Konstantinov, 2016).

During the field studies in Belgrade in late May, while collecting *T. hippophaes* on *Tamarix gallica,* we also recorded and collected several specimens of Tamarix Leafhopper, *Opsius stactogalus* (Fieber 1866), another invasive species (Zatezalo, 2014). Abundant larvae of were located at several localities in Belgrade throughout

May, and the first imago specimens were collected on May 24, 2025, at the Sports Center “11 April” in Novi Beograd.

Table I. List of *Tuponia* species in the Heteroptera collections of the Natural History Museum in Belgrade, sorted by country. SB – Serbia, NM – North Macedonia, CR – Croatia, MN – Montenegro, A – Austria

Species	SB	NM	CR	MN	A
Tuponia (Tuponia) elegans (Jakovlev, 1867)	+				
Tuponia (*Tuponia*) *mixticolor* (A. Costa, 1862)			+		
Tuponia (*Tuponia*) *montandoni* Reuter, 1899	+	+	+		
Tuponia (*Chlorotuponia*) *hippophaes* (Fieber, 1861)	+	+	+	+	+
Tuponia (*Chlorotuponia*) *prasina* (Fieber, 1864)		+			
Tuponia (*Tuponia*) *mixticolor* (A. Costa, 1862)			+		

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НОВИ ПОДАЦИ О *TUPONIA* (HETEROPTERA: MIRIDAE) У ЗБИРКАМА ПРИРОДЊАЧКОГ МУЗЕЈА У БЕОГРАДУ

ЉИЉАНА ПРОТИЋ И АЛЕКСАНДАР СТОЈАНОВИЋ

Извод

У Збиркама Heteroptera Природњачког музеја у Београду налазе се: *Tuponia* (*Tuponia*) *elegans* (Jakovlev, 1867), *Tuponia* (*Tuponia*) *montandoni* Reuter, 1899, *Tuponia* (*Chlorotuponia*) *hippophaes* (Fieber, 1861), *Tuponia* (*Chlorotuponia) prasina* (Fieber, 1864) и *Tuponia* (*Tuponia*) *mixticolor* (A. Costa, 1862). *T. montandoni* і *T. elegans* су нове за фауну Србије.

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