

SIX NEWLY RECORDED SPECIES OF PLANT BUGS (HETEROPTERA: MIRIDAE) IN SERBIA

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Abstract

Heteropteran fauna of Serbia has increased by six newly recorded species: *Macrolophus costalis* Fieber, 1858, *Macrolophus rubi* Woodroffe, 1957, *Charagochilus spiralifer* Kerzhner 1988, *Maurodactylus albidus* Kolenati, 1845, *Phoenicocoris dissimilis* (Reuter, 1878), and *Plesiodema pinetella* (Zetterstedt, 1828). All of them belong to the family Miridae.

KEY WORDS: True bugs, Heteroptera, Miridae, new records, *Plesiodema pinetella* Zetterstedt, Serbia

Introduction

Six new species for the fauna of Serbia were identified during a review of the Study Collection of Heteroptera at the Natural History Museum in Belgrade of specimens collected in the recent past (1984-2019) at various localities in Serbia. The attached photographs show the main morphological characters necessary for identifying each species.

Materials and Methods

The studied specimens were collected at nine localities in Serbia:

Belgrade: Avala [DQ64]

Belgrade: Beli Potok [DQ65]

Belgrade: Topčidersko Groblje [DQ55]

Deliblatska Peščara [Deliblato Sand]: Devojački Bunar [DQ98]

Mt. Kosmaj 626 m [DQ62]

Mt. Rudnik, under Mali Šurac [DQ77]

Mt. Suva Planina: Mosor [EN88E]

Mt. Vardenik: foothills Veliki Strešer [FN02]

Topola: Banja (village) [DQ70]

Most of the material was collected using a sweeping net. *Macrolophus rubi* Woodroffe, 1957 was attracted to light. Dissection of male genitalia was performed to confirm the identity of *Plesiodema pinetella* Zetterstedt, 1828. The material is stored in the Study Collection of Heteroptera at the Natural History Museum in Belgrade.

Results

***Macrolophus costalis* Fieber, 1858**

Suva Planina, Mt: Mosor, 03.08.2006, 1 ♀, leg. Marjan Niketić, on *Kitaibelia vitifolia* Wild.

***Macrolophus rubi* Woodroffe, 1957**

Kosmaj, Mt., 18.07.1998, 1 ♀, leg. A. Stojanović

Avala, Mt., 14.06.2003, 1 ♀, leg. A. Stojanović

Rudnik, Mt.: under Mali Šurac, 23/24.06.2017, 1 ♂, leg. A. Stojanović

***Charagochilus spiralifer* Kerzhner, 1988**

Belgrade: Beli Potok, 16.08.1984, 1 ♀, leg. Lj. Protić

Topola: Banja (village), 01.08.2010, 1 ♀, leg. A. Stojanović

***Maurodactylus albidus* Kolenati, 1845**

Deliblato Sands: Devojački Bunar, 12.07.2008, 1 ♂, leg. A. Stojanović

***Phoenicocoris dissimilis* (Reuter, 1878)**

Vardenik, Mt.: foothills Veliki Strešer, 1,876 m a.s.l., 31.07.2019, 1 ♀, leg. A. Stojanović & Miroslav Jovanović

***Plesiodema pinetella* Zetterstedt, 1828**

Deliblato Sands: Devojački Bunar, 12.05.2007, 2 ♂♂, 1 ♀, leg. A. Stojanović

Discussion

Macrolophus costalis was collected by botanist Marjan Niketić on Mt. Suva Planina (Fig.1). This is the only known record for Serbia to this day. The Study Collection of Heteroptera includes specimens from Prilep (Northern Macedonia), collected by Vesna Krsteska at a tobacco plantation.

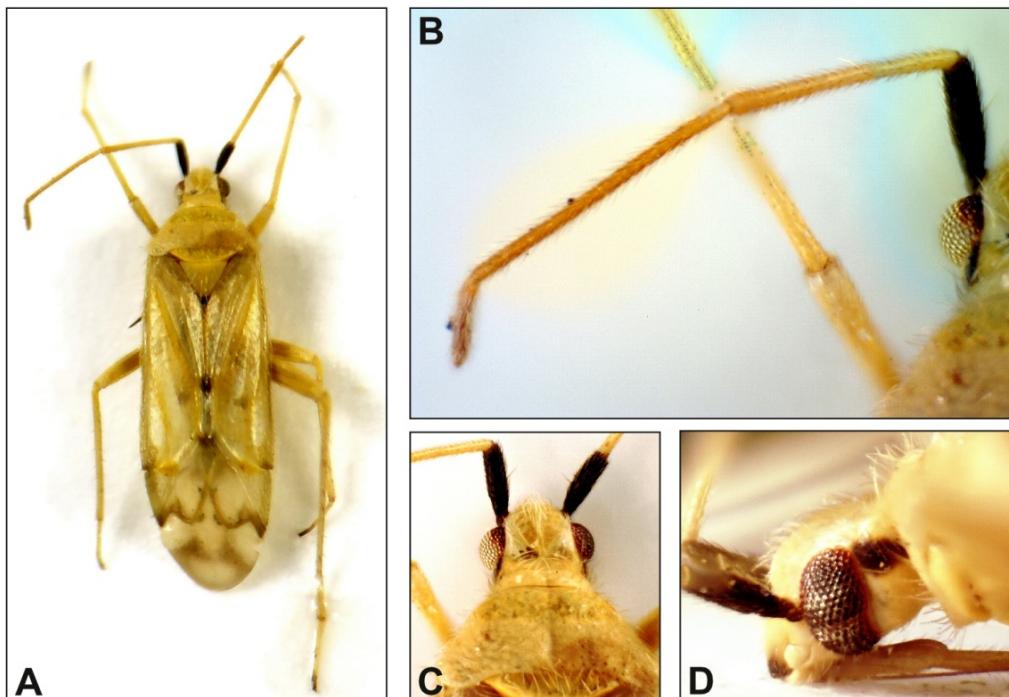


Figure 1. *Macrolophus costalis* Fieber, 1858 A – female orig. (3,6 mm); B – antenna; C - head (above); D – head (lateral).

This species is a predator of aphids and is particularly efficient in decreasing *Myzus persicae* (Sulzer) populations on tobacco plantations (Athanasou et al., 2005; Krsteska et al., 2005).

M. costalis is a Eurasian species that has been recorded in the Mediterranean area on a large number of plant species: *Mentha* sp., *Salvia* sp., *Stachys* spp. (Lamiaceae), *Echinops* sp., *Pulicaria* spp. (Asteraceae), *Cistus salviaefolius* L., (Cistaceae), *Nicotiana* sp. (Solanaceae) (Wagner, 1974; Putshkov, 1978).

Macrolophus rubi (Fig. 2) was initially described from Great Britain (Woodroffe, 1957). Later it was recorded in almost all European countries (Woodroffe, 1957, Allen, 1971, Putshkov, 1978, Cmoluchowa, 1982, Ehanno, 1983, Kerzhner & Josifov, 1999, Günther & Schuster 2000, Perdikis & Lykouressis, 2002; Kment et al., 2003, Gossner & Schuster, 2005, Aukema et al., 2007, Ribes et al., 2008, Aukema & Hermes, 2009; Kment & Baňar, 2012; Nelson et al., 2015; Brandner & Frieß, 2018; Gierlański et al., 2023; Trdan et al., 2023).

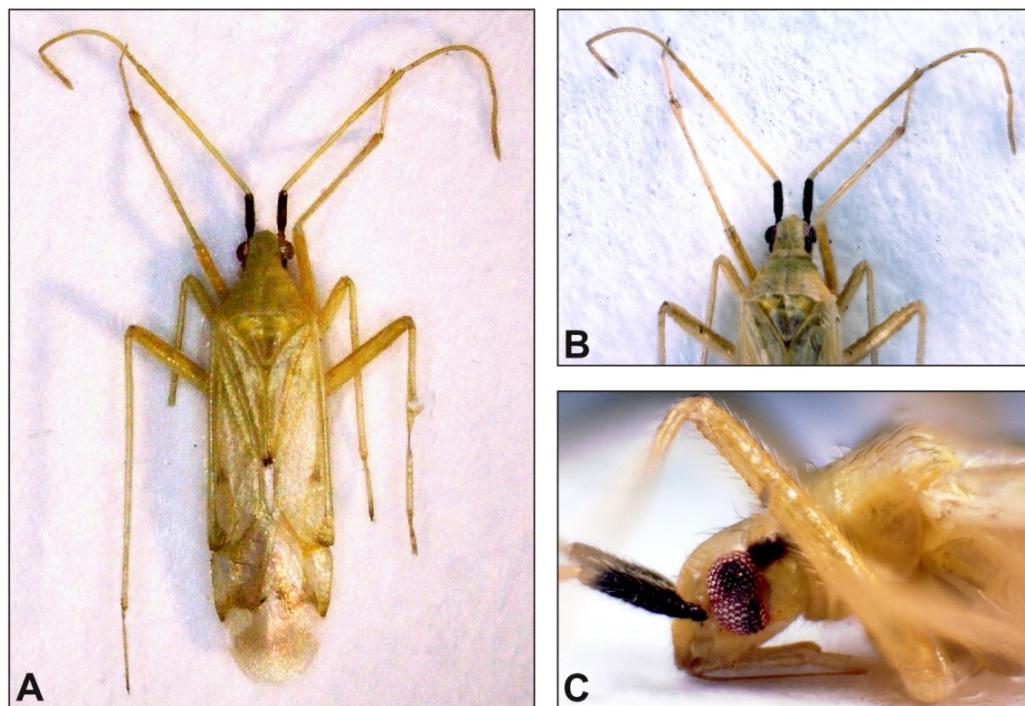


Figure 2. *Macrolophus rubi* Woodroffe, 1957 A – male orig. (3,7 mm); B – head, pronotum, scutellum (detail); C – head lateral).

Konstantinov & Neimorovets (2021) published some data from Caucasia (Chechen Republic, North Ossetia), and one male was also collected in the Lesser Caucasus mountain range in Georgia.

The existing records in Serbia are from three mountains in Šumadija: Avala, Kosmaj, and Rudnik. The specimen collected on Mt. Rudnik was attracted to light during a night-trapping event. Relatively small eyes characterize this species, so the distance between eyes is almost three times the width of the eye; the antennae are very long, especially segments II and III; males are larger than females (by nearly 4 mm); the black stripe at the side of the head is narrow, with almost parallel edges; specimens are light-colored but with pronounced brown markings on the hemelytra (in comparison to the primary light green color of the body).

According to literary references, it is commonly recorded on blackberry plants along forest edges (Aukema & Hermes, 2009).

Note: Josifov (1992) believed *M. rubi* was a synonym for *M. costalis*. However, Rieger & Strauss (1992) simplified the differentiation between these two species, and in the Catalogue of Palearctic Heteroptera, they are listed as two separate species. Perdikis & Lykouressis (2002) accepted Josifov's opinion (1992).

Charagochilus spiralifer (Fig. 3) was unknown in Europe for a long time, as it lives in sympatry with the morphologically very similar *Ch. gyllenhalii* (Fallén, 1807). In 2000, Helga Simon collected a specimen of *Charagochilus* in Germany that differed from the species *Ch. gyllenhalii* and *Ch. weberi*, which are well-known

in Europe (Simon, 2007). According to morphological characteristics, it matched *Ch. similis* Zheng, 1990 from northeastern China and Mongolia. However, Zheng (1995) later decided that *Ch. similis* was a synonym of *Ch. spiralifer*, which was previously described by Kerzhner in 1988 from specimens collected in the eastern part of Russia (Kerzhner, 1988).

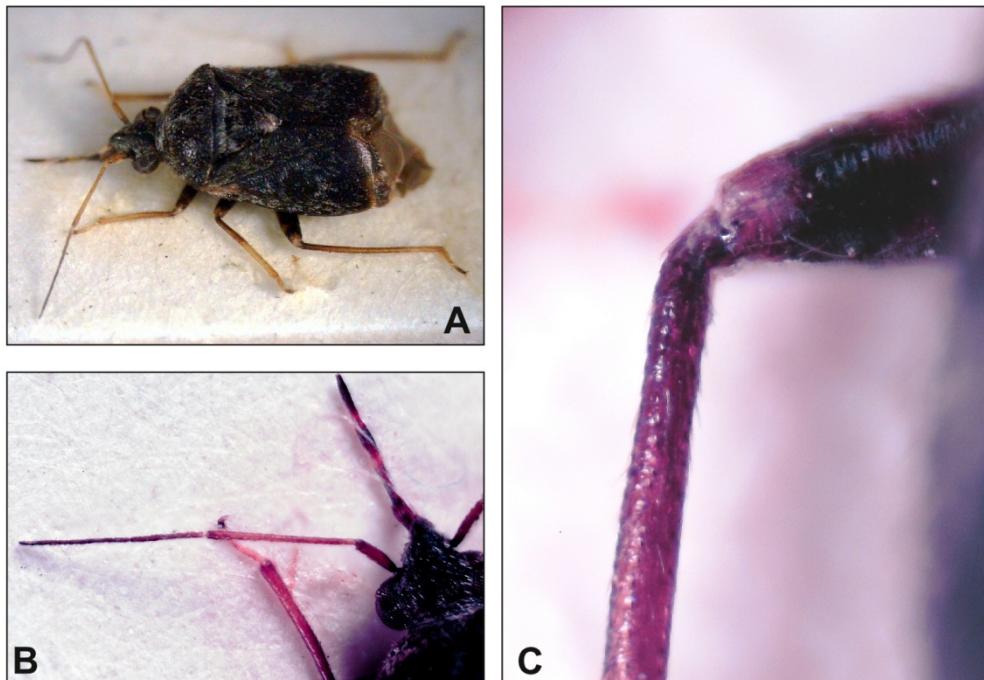


Figure 3. *Charagochilus spiralifer* Kerzhner 1988 A, B – female orig. (3,8 mm); C – antenna; D – metafemur.

In the years after the record was published in Germany (Simon, 2007), the species was recorded either in nature or in museum collections (where it was included in *Ch. gyllenhalii*) in several European countries: Austria (Rabitsch *et al.* 2009), Slovenia, Slovakia, Czech Republic (Stehlík, 1978; Gogala & Gogala, 1989; Kment & Baňař, 2012), France (Callot, 2018); Poland (Taszakowski & Gorczyca 2018); ?Italy (Norbiato *et al.* 2019).

In Serbia, it was recorded in the vicinity of Belgrade, in the Beli Potok village at the foothills of Mt. Avala, and the village of Banja near Topola.

At first glance, the three species *Ch. gyllenhalii*, *Ch. spiralifer* and *Ch. weberi* may look very similar. However, *Ch. spiralifer* is larger than the other two species. The IV segment of the antenna is very long (twice as long as segment III), while III+IV are clearly longer than segment II. There is a pronounced light-colored tip of the femur and the base of the tibia of the hind legs, while the dark stripe close to the tip of the femur is missing.

Maurodactylus albidus was collected at the locality Devojački Bunar at Deliblato Sands, which has a mixture of steppe and forest-steppe vegetation, characterized by a mosaic of grassland, scrubland, and forest habitat. It is a type of submediterranean habitat.

Data on the distribution of this species in Northern Macedonia, at the locality of Dojran, are presented in the paper by Kormilev (1943).

M. albidus is a small heteropteran bug, 2.6 mm in length. Monotonous in color, it has noticeably thickened I and II segments of the antennae. The second segment is strikingly short and almost equal in length to segment III. The antennae are pronouncedly dark but not entirely black. The morphological details are presented in the provided photographs (Fig. 4).

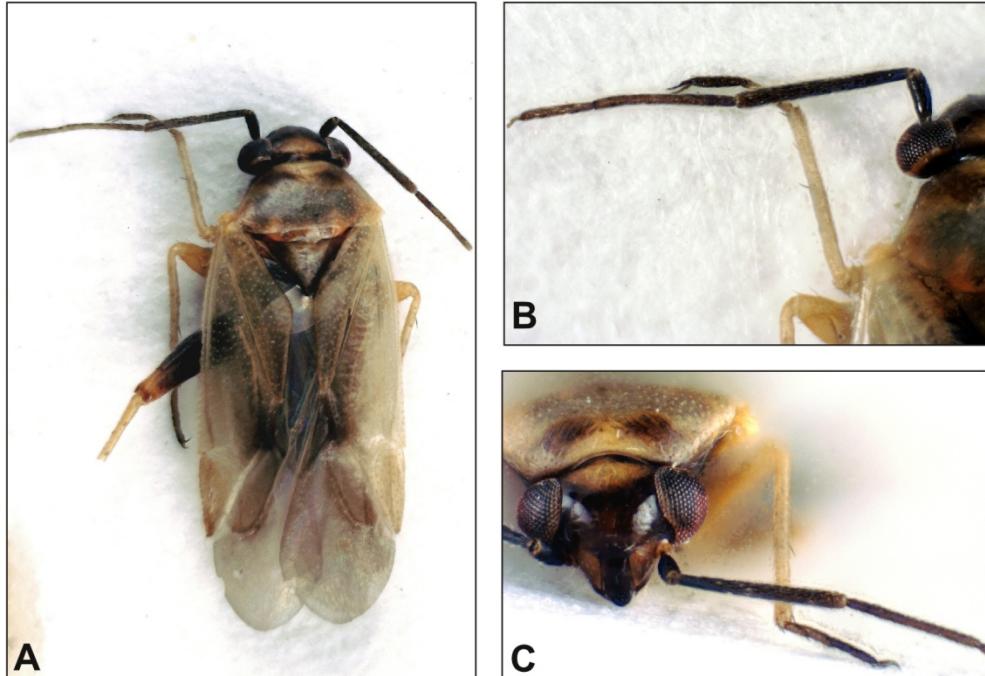


Figure 4. *Maurodactylus albidus* Kolenati, 1845 A – male orig. (2,6 mm); B – antenna; C – head (detail).

This oligophagous species is most commonly recorded on Asteraceae: *Artemisia* spp., Brassicaceae: *Sinapis arvensis*. Literature sources also cite *Poa bulbosa* var. *vivipara* (Koel.). All those species are present at Deliblato Sands. This heteropteran is attracted to light sources.

Euryvalent species occupy a geographic area named “Eremian”, which includes part of the Palearctic, with North Africa, northern Arabia, and desert regions of Asia (Linnauori, 2010; Bçerçi & Tezcan, (2021). It was first described from Azerbaijan, and subsequent records were from surrounding Asian countries: Astrakhan, Iran, Kazakhstan, Transcaspia, Türkiye (Kolenati, 1845; Kerzhner, 1997; Vinokurov & Golub, 2007; Ghahari & Chérot, 2014). In Europe, it was recorded in France, Lithuania, Malta, Moldova, Romania, Russia, North

Macedonia, Spain, Ukraine, Great Britain (Muminov, 1962; Kerzhner, 1996; Ribes et al., 1997; Jiménez et al., 2003; Aukema et al., 2013; Прокопенко & Мартынов, 2013).

Phoenicocoris dissimilis – one female was collected in Serbia, on Mt. Vardenik at the foothills of Veliki Strešer, around 1,800 m above sea level, on *Picea abies*.

Reuter described this species according to specimens from the Vosges mountain range in France [Massif des Vosges] (Reuter, 1878), and later it was also recorded in the Alps and Carpathians on *Abies* sp. and *Larix* sp. (Kerzhner, 1962).

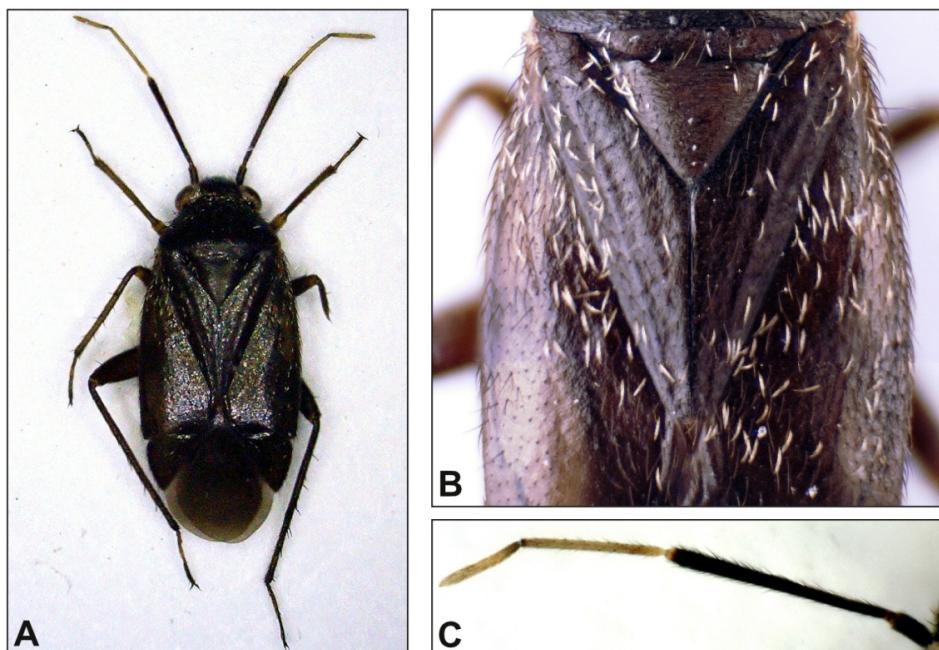


Figure 5. *Phoenicocoris dissimilis* (Reuter, 1878) A - female orig. (2,9 mm); B - metanotum (detail); C - antenna.

It is a Palearctic species (Kerzhner & Josifov, 1999), introduced to the USA - first collected specimens in York County in May 1973. (Henry & Wheeler, 1974).

In Europe, it was recorded in Denmark, France, Germany, Norway, Poland, Romania, Slovakia, Spain, and Ukraine (Kerzhner & Josifov, 1999; Hågvar, 1999; Carapezza, 2002; Goßner 2005).

The dorsal side of the body is covered in fine, thin setae and scales with the characteristic lanceolate shape, flattened and flaky. The legs are dark brown, while lighter-colored (tawny-brown) tips of the femurs and basal tarsal segments. The rostrum reaches the end of the mesosternum. The total size is 2.8 mm (Fig. 5).

The Study Collection also includes *Phoenicocoris obscurellus* (Fallén, 1829), collected from conifers at Deliblato Sands.

The genus *Plesiodema* is represented in the Palearctic by two species: *Plesiodema pinetella* Zetterstedt, 1828, and *Plesiodema stlaniki* Kerzhner, 1979. Only *P. pinetella* was recorded in Europe and the Balkan Peninsula (Kerzhner & Josifov, 1999; Schwartz, 2006).

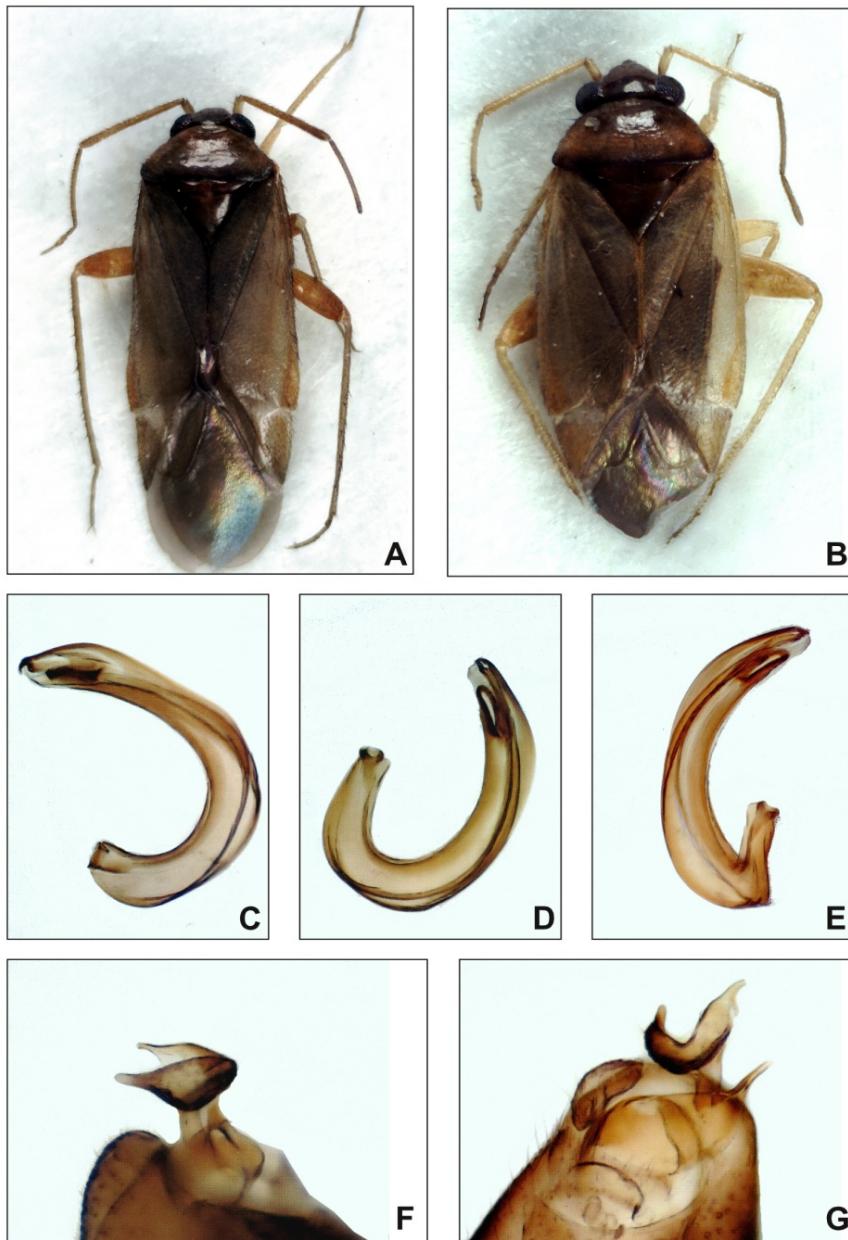


Figure 6. *Plesiodema pinetella* Zetterstedt, 1828 A – male orig. (3,4 mm); B – female orig. (2,9 mm); C, E – vesicae; F – left paramere; G – genital segment (dorsal).

P. pinetella is almost exclusively recorded on pine (*Pinus* spp.). The specimen from Serbia was collected on Black Pine Devojački Bunar in Deliblato Sands. It is a small heteropteran bug, inconspicuous in color, rarely noticed in collections, and sometimes sorted in the same box with other genera, for example, *Psallus*, as happened in our Study Collection. Only after dissection of the genital apparatus was it determined that the specimen belongs to the genus *Plesiodema* (Fig. 6).

In the Palearctic, *P. pinetella* occupies the forested zone of Central, Mediterranean, and Northern Europe to northern Asia and Japan, reaching southward to southern France, Spain, and North Africa (Schwartz, 2006).

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ШЕСТ НОВИХ ВРСТА СТЕНИЦА (НЕТЕРОПТЕРА: MIRIDAE) У СРБИЈИ

ЉИЉАНА ПРОТИЋ И АЛЕКСАНДАР СТОЈАНОВИЋ

Извод

Последњом ревизијом примерака у Студиској збирци Heteroptera у Природњачком музеју идентификовано је шест нових врста за фауну Србије: *Macrolophus costalis* Fieber, 1858, *Macrolophus rubi* Woodroffe, 1957, *Charagochilus spiralifer* Kerzhner 1988, *Maurodactylus albidus* Kolenati, 1845, *Phoenicocoris dissimilis* (Reuter, 1878) и *Plesiodema pinetella* (Zetterstedt, 1828).

Осим локалитета, са назначеним координатама UTM, на којима су врсте уловљене, описане су и илустроване битне морфолошке карактеристике, као и подаци о општем распрострањењу.

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