

ARADIDAE (HETEROPTERA) IN THE ENTOMOLOGICAL COLLECTION OF THE NATURAL HISTORY MUSEUM IN BELGRADE

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Abstract

The Entomological Collection of the Natural History Museum contains specimens from 19 species of the family Aradidae from the Palearctic region and 14 species from the Neotropical and Oriental regions. There are 16 species documented in Serbia, 14 of which are found in the collection. This paper presents three new species for Serbia: *Aradus betulinus* Fallén, 1807, *Aradus brenskei* Reuter, 1884, and *Aradus somcheticus* Kiritshenko, 1913. *Aneurus laevis* (Fabricius, 1775) was recorded on Mt. Cer after a hiatus of 100 years of being recorded in Serbia.

KEY WORDS: Heteroptera, Aradidae, Natural History Museum in Belgrade.

Introduction

This paper presents the first review of all specimens of species of the family Aradidae deposited in the Entomological Collection of the Natural History Museum in Belgrade (NHMBEO). Data on Aradidae species from Serbia and the former Yugoslavia were published as single records in several papers: Kormilev (1936, 1938, 1939, 1943); Novak & Wagner (1951); Protić (1984, 1986, 1993/1994, 2001, 2005, 2011, 2016); Protić *et al.* (2017, 2017a).

Following a thorough examination and identification of all specimens in the Entomological Collection of the NHMBEO, it was established that there is evidence of three new species in the Serbian fauna, and the existing material was reviewed carefully.

Materials and methods

The Entomological Collection includes 340 specimens (296 adults and 44 larvae) from the family Aradidae belonging to the following genera: *Aneurus*, *Aradus*, *Brachyrhynchus*, *Daulocoris*, *Dysodius*, *Mezira*, and *Neuroctenus*.

Most of the Aradidae specimens presented in this paper were collected in Serbia. The remaining specimens primarily came from other republics of the former Yugoslavia (Bosnia & Herzegovina, Croatia, North Macedonia, Slovenia), along with a few specimens from Austria and Germany, obtained through exchanges with other researchers (Kormilev, Novak).

This paper provides a list of Aradidae species found in the collection assembled by Nicholas Kormilev, which he donated to the NHMBO in 1980. This collection includes 26 specimens from 16 species of Aradidae collected in North America (United States of America: California, Florida), Central and South America (Bolivia, Cuba, Mexico, Peru, Puerto Rico, Republic of Surinam), Africa (Madagascar), and Asia (India, Indonesia, Sri Lanka, Thailand). In addition to the donated Aradidae collection, there are also several specimens from other families of Heteroptera, such as single specimens of the following species: *Phloea corticata* Drury, 1773 (Phloeidae); *Macrocephalus stali* Handlirsch, 1897, *Macrocephalus notatus* (Westwood, 1841), and *Lophoscutus lepidus* (Stål, 1862) (Reduviidae). Kormilev's donation is very important to our museum as the donor was one of the leading heteropterologists of the 20th century (Kormilev & Froeschner, 1987; Heiss, 1999; Protić, 2011).

Within the Entomological Collection, representatives of Aradidae are distributed in several collections or parts of collections:

[NK] Collection of Heteroptera by Nicholas A. Kormilev

[NK*] Collection of Heteroptera by Nicholas A. Kormilev, section - present from Nicholas Kormilev

[LjJ] Collection of Coleoptera by Ljubodrag Janković

[PN] Collection of Insects by Petar Novak

[IPPE] Collection of Insects of the Institute for Plant Protection and Environment

[SZ] Study Collections of Heteroptera

[JŠ] Study Collections of Heteroptera, section – present from Jelena Šeat

[EB] Exhibition box 3 at the Permanent Museum Exhibit (1946-1952), prepared by curators Dr. Živko Adamović and Dr. Boris Petrov.

The studied material in this overview includes several specimens with incomplete (fragmentary) data, such as only the name of the location where they were collected, absence of the collector's name, or lacking a complete collecting date. Some specimen labels include references that list the species from Serbia or species that have other significant implications for a better understanding of our fauna.

The order of species follows the Catalogues of the Heteroptera of the Palearctic Region (Aukema & Rieger, 2001; Aukema *et al.*, 2013). Species were identified using identification keys from the following papers: Stichel, 1962; Putshkov, 1974; Heiss & Péricart, 2007; Wachmann *et al.*, 2007. Localities for each species are listed chronologically according to the date and year of specimen collection.

The Results section also includes the list of Aradidae species recorded in Serbia but not present in our Entomological Collection, such as *Aradus aterrimus* Fieber, 1864, from the collection by Ernst Heiss.

Results

Aradidae Brullé, 1836

Aneurinae Douglas & Scott, 1865

***Aneurus (Aneurodes) avenius* (Dufour, 1833)**

Serbia: Mt. Avala 25.03.1984. 1 ♂ leg. A. Četković det. E. Heiss 1989 [SZ]

Serbia: Mt. Jastrebac: Ravnište 16.10.1988. 5 ♂♂, 5 ♀♀ leg. G. Mesaroš det. J. Šeat [JŠ]

Serbia: Belgrade: Veliki Mokri Lug 11.05.1997. 1 ♂; 16.02.2014. 1 ♂ leg. A. Stojanović [SZ]

Serbia: Mt. Fruška Gora: Iriški Venac 08.06.2012. 2 ♀♀ (preserved in alcohol) leg. D. Savić [SZ]

Slovenia: Podčetrtek 30.06.1930. 2 ♂♂, 1 ♀ leg. Dr. E. Jaeger [NK]

Montenegro: Kanjon Mrtvice: Međurečje 05.05.1988. 1 ♀ leg. M. Živković [SZ]

Germany: Rohrbach bei Neuburg an der Donau 2 ♂♂, 6 ♀♀ leg. Karl Ruile [PN]

Germany: Spessart 08.06.1932. 1 ♀ leg. Dr. Singer [NK]

Ref. Protić, 2001

***Aneurus greeni* Distant, 1905**

Sri Lanka: Amp. dist. Ekgal Aru Tank 04-07.07.1978. 1 ♀ det. N. Kormilev 1980. [NK*]

Sri Lanka: K. V. Krombein, P. B. Karunaratne 1 ♂ legs. T. Wijesinhe & L. Jayawickrama det. N. Kormilev 1980. [NK*]

***Aneurus (Aneurus) laevis* (Fabricius, 1775)**

Serbia: Mt. Cer 19.09.2012. 1 ♀ legs. A. Stojanović & M. Jovanović [SZ]

Bosnia and Herzegovina: Zenica: Mt. Lisac 1,303 m 17.04.1938. 1 ♀ [NK]

Bosnia and Herzegovina: Sarajevo 1 ♂ leg. V. Aphelbeck [NK]

Germany: Hamburg-Humelsbüttel 14.05.1932. 1 ♀, 1 ♂; 17.05.1932. 1 ♂; 04.11.1932. 1 ♀ oak bark [Eichenrinde] leg. Wagner det. E. Wagner [NK]

Germany: Grande 11.04.1937. 1 ♂ leg. Bollmann det. N. Kormilev [NK], [EB]

Ref. Horváth, 1911 (Vrdnik); Horváth, 1918. (Kačanik); Csiki, 1940. (Žljeb Mt. 1917.); Protić, 2001.

Aradinae Brullé, 1836

***Aradus aterrimus* Fieber, 1864**

Serbia: Mt. Kopaonik, 29.04.1953. Collection Ernst Heiss, Innsbruck [CEHI]

Ref. Heiss (2006)

***Aradus betulae* (Linnaeus, 1758)**

Serbia: Leskovac 07.12.1930. 1 ♂, 3 larvae leg. N. Kormilev (as *A. depressus*) det. Vásárhelyi [NK]

Serbia: Leskovac 08.12.1930. 1 ♂ leg. N. Kormilev det. N. Kormilev [NK]

Serbia: Zemun 22.05.1948. 1 ♂ leg. Stanković [IPPE]

Serbia: Mt. Kopaonik: Gobelja 17.09.1952. 6 larvae leg. J. Janković [LjJ]

Serbia: Mt. Kopaonik: Pančičev Vrh [Milanov Vrh] 27.07.1953. 1 larva leg. J. Janković [LjJ]

Serbia: Kopaonik: Gobelja (by entomological net-catcher) 01.08.1953. 1 larva leg. Lj. Janković [LjJ]

Serbia: Mt. Kopaonik: Ječmište 06.09.1954. 1 ♂; 26.09.1954. 1 ♂ leg. J. Janković [LjJ]

Serbia: Veliko Gradište 28.03.1954. 1 ♂ leg. J. Stančić det. E. Wagner [IPPE]

- Serbia: Šid: Višnjićevo 26.04.1993. 1♂ on *Viscum album* leg. M. Milenković [SZ]
 Serbia: Aleksinac: Vakup 30.04.1996. 1♀ under the bark of *Ulmus* sp. leg. Č. Marković [SZ]
 Serbia: Belgrade: Ada Ciganlija 04.05.1996. 1♂, 1♀ leg. A. Stojanović [SZ]
 Serbia: Belgrade: Košutnjak 09.03.2002. 4♂♂, 5♀♀ under the bark of *Quercus robur* leg. A. Stojanović [SZ]
 Serbia: Deliblatska Peščara: Devojački Bunar 07.06. 2003. 1♂, 5♀♀; 09.08.2003. 4♂♂, 4♀♀ leg. A. Stojanović [SZ]
 Serbia: Deliblatska Peščara: Devojački Bunar 28.05.2005. 4♂♂ 4♀♀ leg. A. Stojanović - 5 specimens are deposited in the entomological box 120 within the exhibition "Kroz svet insekata Srbije"/"Through the Realm of Insects of Serbia" [SZ]
 Serbia: Mt. Fruška Gora: Iriški Venac 03.04.2010. 1♂ (preserved in alcohol) leg. & photo D. Savić [SZ]
 Serbia: Kikinda 31.08.2011. 3♂♂, 1♀ on *Fomes fomentarius* leg. A. Stojanović & M. Jovanović [SZ]
 Serbia: Mt. Cer 19.09.2012. 1 larva leg. A. Stojanović & M. Jovanović [SZ]
 Bosnia and Herzegovina: Mt. Ivan 1♂, 1♀ leg. V. Apfelbeck (as *A. depressus*) det. Vásárhelyi [NK]
 North Macedonia: Skoplje 16.04.1939. 1♀ leg. N. Kormilev det. Vásárhelyi [NK]
 North Macedonia: Skopje: Zelenikovo, Taor 08.1936. 1 larva leg. J. Houška (as *A. depressus*) [NK]
 Poland: Silesian: Bytom [Beuthen] 01.08. 1♀ leg. H. Nowotny [PN]
 Ref. Horváth, 1897 (Haud rarus); Horváth, 1903. (Belgrade) (1903); Divac, 1907. (Kragujevac, Kopaonik); Kormilev, 1936. (Leskovac); Kormilev, 1943 (Predejane); Živojinović, 1950 (Majdanpek); Protić, 1986 (Veliko Gradište); Protić & Milenković, 1999. (Višnjićevo); Šeat, 2013 (Mt. Stara Planina: Temska: Tešlovac).

***Aradus betulinus* Fallén, 1807 (Fig. 1)**

New species for the fauna of Serbia.

- Serbia: Mt. Kopaonik: Crvena Reka 1710 m in spruce forest 27.05.1953. 1♂, 1♀, 1 larva leg. Lj. Janković (as *A. betulae*) [Lj]
 Montenegro: Durmitor: Sušičko Jezero (lake) 23.06.1988. 1♂ leg. G. Mesaroš det. E. Heiss 1989. [SZ]
 Austria: Nordtirol: Gschwandtkopf 1500 m.n.v. Larven V. 03.06.1968. / entw. 7+8 leg. E. Heiss 1♂ det. E. Heiss 1989 [SZ]
 Poland: Silesian: Bytom [Beuthen] 05.11.1932. 1♀ leg. H. Nowotny (Pingen – at the back side of the label) [PN]
 Poland: Silesia: Bytom [Beuthen O.S.] Stadtwald 15.06.1931. 1♀ leg. H. Nowotny [NK]
 Germany: Frankische Jura: Simmelsdorf 20.10.35. 4♀♀ leg. K. Schmidt det. Vásárhelyi [NK]

***Aradus bimaculatus* Reuter, 1872**

[*Aradus hahni* Reuter, 1884; *Aradus sordidus* Horváth, 1874]

- Austria: Linc: Zizlau 09.05.1937. 1♀ (damaged) leg. Wirthumer (as *A. hahni* Reuter, 1884) [NK]
 Ref. Pericart, 1989; Heiss, 1998a.

***Aradus brenskei* Reuter, 1884 (Fig. 1)**

New species for fauna of Serbia.

- Serbia: Sijarinska Banja 20.06.40. 5♂♂, 1♀ leg. N. Kormilev (as *Aradus betulae*) det. T. Vásárhelyi [NK]
 Croatia: Dalmacija: Mt. Velebit: Paklenica 07.07.1940. 2♂♂, 3♀♀ on *Fagus silvatica* leg. P. Novak [as *Aradus crenatus*] [PN]

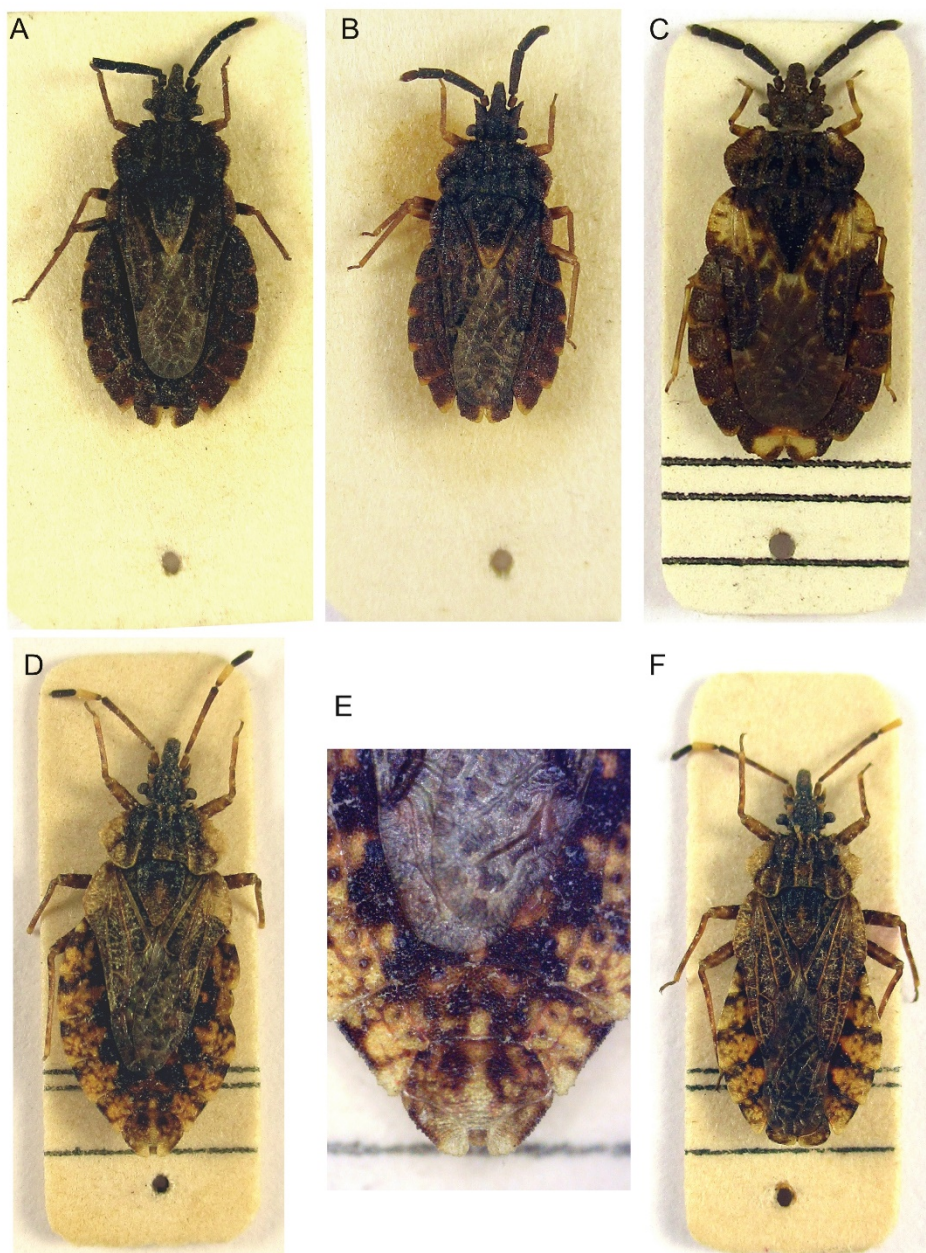


Figure 1. New Aradidae for Serbia A - *Aradus betulinus* Fallén, 1807 Mt. Kopaonik ♀; B - *A. betulinus* Mt. Kopaonik ♂; C - *Aradus somcheticus* Kiritshenko, 1913 Veliko Gradište ♀; D - *Aradus brenskei* Reuter, 1884 Sijarinska Banja ♀; E - *A. brenskei* Sijarinska Banja ♀ apex of abdomen; F - *A. brenskei* Sijarinska Banja ♂.

***Aradus cinnamomeus* Panzer, 1806**

- Serbia: Belgrade: Košutnjak 15.05.1935. 1♂, 2♀♀, 2 larve leg. N. Kormilev det. T. Vásárhelyi
 Serbia: Belgrade 10.09.1938. 1♂ leg. N. Kormilev (as *A. distinctus*)
 Serbia: Belgrade: Košutnjak 01.06.1941. 1♂ leg. & det. N. Kormilev. [NK]
 Serbia: Belgrade: Košutnjak 01.06.1941. 3 larve leg. N. Kormilev [NK], [EB]
 Serbia: Belgrade: Košutnjak 06.09.1941. 4♂♂ leg. N. Kormilev (in Kormilev, 1936 as *A. distinctus*)
 Serbia: Mt. Ozren, surroundings of the eye hospital 19.08.1994. 1♀ leg. Lj. Protić [SZ]
 Serbia: Mt. Stara Planina: Temska: Tešlovac 04.05.2012. L₅ leg. M. Šćiban [JŠ]
 North Macedonia: Kriva Palanka: Osogovo [Monastery St. Jakim Osogovski] 13.10.1934. 1♀ leg. N. Kormilev [NK]
 Germany: Halle 16.10.1914. 1♂, 1♀ leg. Döl Heidi [PN]
 Germany: Fürth Bay 24.01.1932. 2♀♀ leg. K. Schmidt [PN]

***Aradus conspicuus* Herrich-Schaeffer, 1835**

Aradus crenatus (non Say, 1832): auct. Misidentification (Heiss, 1980).

Aradus crenatus Say is a Nearctic species.

- Serbia: Vrla Reka 20.09.1940. 2♂♂ leg. N. Kormilev det. T. Vásárhelyi [NK]
 Serbia: Belgrade: Lipovica 06.06.1941. 1♀ leg. V. Lindtner det. N. Kormilev [NK]
 Serbia: Belgrade: Lipovica 06.07.1941. 1♀ (damaged) 1 larva leg. V. Lindtner [as *A. truncatus*] [SZ]
 Serbia: Veliko Gradište: Rečica 20.10.1954. 1♂ leg. J. Stančić det. E. Wagner [as *A. crenatus*] [IPPE]
 Serbia: Kopaonik 1500 m a.s.l. 22.07.1956. 1♀ leg. J. Stančić [IPPE]
 Serbia: Mt. Stol 06.05.1988. 1♂ leg. G. Mesaroš [SZ]
 Serbia: Mt. Šarplanina: Ošljak 24.06.1988. 3♀♀ leg. Lj. Protić det. E. Heiss 1989 [SZ]
 Serbia: Mt. Divčibare 12.08.1993. 1♀ leg. Lj. Protić [SZ]
 Serbia: Mt. Goč 23.05.1994. 1♀ leg. A. Stojanović [SZ]
 Serbia: Mt. Šar-Planina: Čop 19.07.1995. 1♀ leg. G. Mesaroš det. J. Šeat [JŠ]
 Serbia: Mt. Kosmaj 08.08.1996. 1♂, 1♀ leg. Lj. Protić [SZ]
 Serbia: Belgrade: Mt. Avala 09.03.1997. 2 larvae; 27.02.1999. 1♀ leg. A. Stojanović [SZ]
 Serbia: Zasavica: Batar 24.08.2005. 1♀ leg. M. Stanković [SZ]
 Serbia: Mt. Fruška Gora: Iriški Venac 05.04.2011, Andrejvlje 11.05.2011. larvae (preserved in alcohol) leg. & photo D. Savić
 Serbia: Bor, Borsko Jezero (lake), Tilva Njagra (sparse forest) 2 L₅ (preserved in alcohol) 10.06.2014. leg. M. Stanković [SZ]
 Serbia: Zasavica: Nočaj Preseka, the edge of the forest, 19.06.2014. 1♀ (preserved in alcohol) leg. M. Stanković [SZ]
 Serbia: Ovčarsko-Kablarska Klisura: Čvrkići 11.05.2015. 1♀ leg. J. Šeat & B. Nadaždin det. J. Šeat [JŠ]
 Serbia: Mt. Fruška Gora: Glavica 16.04.2016. 1♂ leg. M. Vujić det. J. Šeat [JŠ]
 Serbia: Lazarevac: Stubički Vis 04.03.2017. 2♀♀ leg. A. Stojanović [SZ]
 Serbia: Lazarevac: Barzilovica forest 29.03.2024. 1♂ on *Trametes versicolor* leg. A. Stojanović [SZ]
 Bosnia and Herzegovina: Sarajevo 1♀ leg. Dr. Feige [as *A. crenatus*] [PN]
 Bosnia and Herzegovina: Mostar, Mostarsko Blato 1♀ leg. V. Apfelbeck [NK]
 North Macedonia: Skopska Crna Gora 1300 m 04.09.1936. 1♀ leg. N. Kormilev det. T. Vásárhelyi [NK]
 Slovenia: Podčetrtek 06.1933. 1♂ leg. Dr. E. Jaeger [NK]
 Patria ignota? On the label only "15. V 35. – P" 1♀ + 1♂ [as *Aradus crenatus*] [NK]
 Ref. Horváth, 1903 (Negotin); Kormilev, 1943 (Vlasina: Okruglica); Živojinović, 1950 (Majdanpek under the bark of *Fagus* sp., and *Carpinus* sp.); Protić *et al.*, 2017. (Fruška Gora); Protić *et al.*, 2017a. (Zasavica); <http://www.naturefg.com> (Fruška Gora: Ravne)

***Aradus corticalis* Linnaeus, 1758**

Germany: Wippertal 29.05.1920. 1 ♀ leg. Gg. Müller [NK]

Germany: Dessau 04.09.1934. 1 ♀ leg. E. Heidenreich [PN]

Patria ignota? Illegible label "Morigh. H." 24.07.1913. 1 ♂ (Collection of Insects by Petar Novak, box N 72) [PN]

Patria ignota? Illegible label "Scoran"? 1 ♀ (Collection of Insects by Petar Novak, box N 72) [PN]

Ref. Horváth, 1903. (Negotin); Divac, 1907. (Kopaonik)

***Aradus depressus depressus* (Fabricius, 1794)**

Serbia: Zasavica Noćaj Preseka, the edge of the forest 19.06.2014. larva (preserved in alcohol) leg. M. Stanković [SZ]

Bosnia and Herzegovina: Jahorina 10.1935. 1 ♂ leg. Winneguth det. T. Vásárhelyi [NK]

Bosnia and Herzegovina: Višegrad: Dobrun 10.1935. 1 ♂ Wst. [NK]

Bosnia and Herzegovina: Vrelo Bosne: 27.05.1983. 2 larvae leg. Lj. Protić [SZ]

Slovenia: Podčetrtek 30.06.1929. 3 ♂♂ leg. Dr. E. Jaeger [NK]

Germany: Regensburg: Schonhofen 01.08.1931. 1 ♀ leg. K. Schmidt [PN]

Germany: Regensburg 01.08.1931. 1 ♂ [PN] probably leg. K. Schmidt

Austria: Steyregg 07.05.1937. 2 ♂♂ leg. Wirthumer det. T. Vásárhelyi [NK]

Ref. Horváth, 1897. ("Per totum regnum passim occurrit"); Horváth, 1903. (Belgrade); Kormilev, 1936. (Kopaonik); Živojinović, 1950. (Majdanpek); Protić *et al.*, 2017a. (Zasavica)

***Aradus distinctus* Fieber, 1860**

Hungary: Máriabesnyő 16.10.1931 1 ♀ leg. G. (?) F. [NK]

Germany: Freyburg: Rödelplat 23.03.1936. 1 ♀ leg. Mihalk det. T. Vásárhelyi [NK]

Serbia: Veliko Gradište: Zatonje 25.09.1954. 1 ♂ leg. J. Stančić det. E. Wagner [IPPE]

Serbia: Palić 19.04.2013. 1 ♂ leg. G. Mesaroš det. J. Šeat [JŠ]

***Aradus erosus* Fallén, 1807**

Poland: Silesian: Bytom [Beuthen] 29.03.1934. 1 ♂ 1 ♀ leg. H. Nowotny (Pingen – at the back of the label) [PN]

Germany: Frankische, Jura 20.10.1939. 1 ♀ leg. K. Schmidt. [NK]

***Aradus flavicornis* Dalman, 1823**

Croatia: Dalmatia: Sućurac 08.1919. 1 ♂ leg. P. Novak [PN]

North Macedonia: Tetovo 12.08.1931. 1 ♂ leg. N. Kormilev det. Dr. T. Jaczewsky

North Macedonia: Dorjan 06.08.1936. 1 ♂ leg. N. Kormilev det. T. Vásárhelyi

***Aradus lugubris* Fallén, 1807**

Romania: Banat: Herculesbad 19.05.1938. 1 ♀ leg. Dorn. [NK]

United States of America: California: Rock Creek, 1 mi. SW. Tom's. Place Mono Co. 09.08.1961. 1 ♀ Collectors: C. D. Mac Neill, D. C. Rentz & M. R. Lundgren det. N. Kormilev 1979 [NK*]

Ref. Mancini, 1953. (Paštrik)

***Aradus pictellus* Kerzhner, 1972**

[*Aradus obtectus* Vásárhelyi, 1988]

Montenegro: Mt. Durmitor: Pitomine 27.08.1984. 8♂♂, 1♀, 1 larva leg. Z. Franulić
 Montenegro: Mt. Durmitor: Pitomine 27.08.1984. 5♂♂, 1♀, 3 larvae leg. Lj. Protić
 Ref. Vásárhelyi, 1988; Protić *et al.*, 1990; Protić, 2016; Heiss & Scudder, 2019.

***Aradus ribauti* Wagner, 1956**

Serbia: Deliblatska Peščara: Mala Tilva 19.04.1980. 4♂♂, 9♀♀ leg. M. Vuković det. E. Heiss 1989 [SZ]
 Serbia: Deliblatska Peščara: Mala Tilva 19.04.1980. 5♂♂, 4♀♀ under the bark of *Populus alba* leg. Lj. Protić
 det. T. Vásárhelyi [SZ]
 Serbia: Kopaonik: Bačište 09.07.1988. 1♂ leg. T. Trajkovski [SZ]
 Serbia: Belgrade: Ada Ciganlija 24.03.1996. 1♀; 04.05.1996. 7♂♂, 4♀♀ leg. A. Stojanović on poplar logs [SZ]
 Serbia: Podlužje: Boljevci: Crni Lug 07.07.1998. 1 larva; 16.09.2006. 1♀ leg. A. Stojanović [SZ]
 Serbia: Banat: Sakule 30.08.2003. 1♂, 4♀♀ leg. A. Stojanović [SZ]
 Serbia: Mt. Stara Planina: Temska, Tešalovac 04.05.2012. 1♀ leg. & det. J. Šeat (as *A. betulae*) [JŠ]
 Serbia: Belgrade: Brankov Most 17.04.2013. 1♀ leg. A. Stojanović [SZ]
 Serbia: Subotica: Tavankutska Šuma (forest) 26.04.2013. 1♂ leg. G. Mesaroš det. J. Šeat [JŠ]
 Serbia: Zasavica: Valjevac 12.04.2013. 2♂♂, 2♀♀ leg. M. Šćiban det. J. Šeat [JŠ]
 Serbia: Zasavica: Batar 28.02.2014. 2♀♀ leg. M. Šćiban det. J. Šeat [JŠ]
 Serbia: New Belgrade: Blok 29 06.07.2016. 1♀, 2 larvae on *Oxyporus populinus* leg. A. Stojanović [SZ]
 Serbia: New Belgrade: Blok 29 13.05.2018. 1♂, 2♀♀ leg. A. Stojanović [SZ]
 North Macedonia: Valandovo 1988. 1♀ leg. T. Trajkovski [SZ]
 Hungary: Monor 09.1975. 1♂ leg. & det. E. Heiss 1989. [SZ]
 Ref. Protić, 1984. (Deliblatski Pesak); Protić *et al.*, 2017a (Zasavica); <http://www.naturefg.com> (Petrovaradin)

***Aradus serbicus* Horváth, 1888**

Serbia: Kačanik 15.06.1934. 1♀ leg. Dr. S. Karaman [NK]
 Serbia: Belgrade: Mt. Avala 27.03.1984. 1♂ leg. A. Četković det. E. Heiss 1989 [SZ]
 Ref. Horváth, 1888, 1903 (Negotin - *Locus typicus*); Kormilev, 1939. (Kačanik); Sienkiewicz, 1964. (Mt. Stara
 Planina); Kormilev & Froeschner (1987).

***Aradus somcheticus* Kiritshenko, 1913 (Fig. 1)**

[*Aradus truncatus* Fieber, 1860]

New species for fauna of Serbia.

Serbia: Veliko Gradište: Zatonje 19.05.1954. 1♀ leg. J. Stančić det. E. Wagner (Protić, 1986 as *A. truncatus*)
 [IPPE] Ernst Heiss stated that this is *A. somcheticus* after all [in personal communication].
 North Macedonia: Gornje Kratovo 15.10.1934. 1 larva leg. N. Kormilev (as *A. truncatus*) [NK]

***Aradus versicolor* Herrich-Schaeffer, 1835**

Serbia: Mt. Jastrebac: Ravnište 16.10.1988. 2♂♂, 1♀ leg. G. Mesaroš det. J. Šeat [JŠ]
 Serbia: Mt. Kopaonik: Kokorovac 29.05.1986. 1♀ leg. G. Mesaroš [SZ]
 Serbia: Belgrade: Topčiderski Park 26.04.1997. 1♀ leg. A. Stojanović [SZ]
 Serbia: Divčibare 14.08.1999. 1 larva leg. Lj. Protić [SZ]
 Serbia: Grocka: Begaljica 24.04.2004. 1♀ leg. A. Stojanović [SZ]
 Serbia: Mt. Kosmaj 18.06.2005. 1♂, 1♀ leg. A. Stojanović [SZ]
 Serbia: Fruška Gora, Neradin 06.05.2011. 1♀ (preserved in alcohol) leg. D. Savić [SZ]
 Serbia: Stara Planina: Temska 29.04.2012. 1♂ leg. M. Šćiban det. J. Šeat [JŠ]

Serbia: Lazarevac: Stubički Vis 04.03.2017. 1 larva leg. A. Stojanović [SZ]
 Serbia: Lazarevac: Stubički Vis - Čibutkovića 30.04.2021. 1 ♀ leg. A. Stojanović [SZ]
 Serbia: Lazarevac: Barzilovića, forest 29.03.2024. 3 ♂ 1 ♀ on *Trametes versicolor* leg. A. Stojanović [SZ]
 Serbia: Mala Moštanica: Žuto Brdo 06.04.2024. L₂ on dry branches *Quercus cerris* leg. A. Stojanović
 Bosnia and Herzegovina: Jablanica: 01.12.1933. 1 ♂ leg. Winneguth [NK]
 Slovenia: Podčetrtek 30.05.1930. 3 ♂♂ 1 ♀ leg. Dr. E. Jaeger det. T. Vásárhelyi [NK]
 Slovenia: Podčetrtek 06.1933. 2 ♂♂, 1 ♀ leg. Dr. E. Jaeger [NK]
 Slovenia: Podčetrtek 05.1934. 1 ♂, 1 ♀ leg. Dr. E. Jaeger det. N. Kormilev [NK]
 Montenegro: Durmitor: Kanjon Tare 22.06.1986. 1 ♀ leg. M. Živković [SZ]

Mezirinae Oschanin, 1908 (1843)

***Brachyrhynchus madagascariensis* (Hoberlandt, 1957)**

[*Mezira madagascariensis* Hoberlandt, 1957]

Madagascar: Chutes de la Mort 10.11.1959. 1 ♂ 1 ♀ coll. E. S. Ross det. N. Kormilev 1979 [NK*]
 Ref. Hoberlandt, 1969; Kormilev & Froeschner, 1987; Kment *et al.*, 2015.

***Brachyrhynchus membranaceus* (Fabricius, 1798)**

Sri Lanka: Moneragala Dist. Angunakolapelessa, 100m 24-26.09.1977. Taken in Malaise trap 1 ♂ (damaged)
 Collectors: K.V.Krombein, P. B. Karunarathne, T. Wijesinhe & L. Jayawickrema det. N. Kormilev 1979 [NK*]

***Brachyrhynchus micronesicus* (Esaki & Matsuda, 1951)**

[*Mezira micronesica* Esaki and Matsuda, 1951]

Solomon Islands: Gaudalcanal 01-03.1945. 1 ♀ leg. J. R. Stuntz det. N. Kormilev 1979. [NK*]
 Ref. Kormilev, 1971. Mezirinae of the Oriental Region and South Pacific

***Daulocoris cornigerus* (Kormilev, 1953)**

Indonesia: NE Sumatra: Kaula Simpang, lowland forest 11.1954. 1 ♂ 1 ♀ leg. A. Sollaart det. N. Kormilev 1975.
 Deposited in the Museum Leiden [NK*]
 Ref. Kormilev, 1953; Kormilev & Froeschner, 1987

***Dysodius brevipes* Bergroth, 1894**

Puerto Rico: Icacos, Geo. 01-02.1945. 1 ♀ leg. Toeon & F. Bonet det. N. Kormilev 1975 [NK*]

***Dysodius equatorianus* Kormilev, 1975**

Republic Suriname: Brokopondo Distr., Brownsberg (Nature Park) 1 ♀ leg. P. H. van Doesburg 1936. det. N. Kormilev 20.07.1975. [NK*]
 Ref. Kormilev, 1975; Kormilev & Froeschner, 1987

***Dysodius lunatus* (Fabricius, 1794)**

Bolivia: Cochabamba, 17 km. E. Villa Tunari 21-25.07.1973. 1 ♂ legs. C. Porter, L. Stange & E. Demarest det. N. Kormilev 1979. [NK*]
 Peru: Aramango District, 320 m, río Marañón 11.04.1960. 1 ♀ leg. W. Weyrauch det. N. Kormilev & R. I. Sailer [NK*]

***Mezira emarginata* (Say, 1832)**

United States of America: Florida: *Suwannee River* 11.01.1940. 1♂ 1♀?? leg. E. C. Van Dyke det. N. Kormilev 1979. [NK*]

***Mezira hsiaoi* Blöte, 1965**

Thailand: Chiang Mai: slope Doi Suthep 1100-1200 m 15.07.1962. 1♀ (specimen damaged, without pronotum and thorax) 1♂? Collectors: E. S. Ross & D. Q. Cavagnaro det. N. Kormilev 1979. [NK*]

***Mezira pacifica* Usinger, 1936**

United States of America: California: Orinda, Contra Costa 17.03.1965. 1♀ 1♂ ?? leg. R. M. Brown det. N. Kormilev 1979. [NK*]

***Mezira tropicalis* Kormilev, 1972**

Mexico: San Cristóbal de Las Casas, 6 mi. E. Chiapas 07.07.1957. 1♀ (damaged) Collectors: J. A. Chemsak & R. J. Ramellis det. N. Kormilev 1979. [NK*]

Ref. Kormilev, 1972; Kormilev & Froeschner, 1987.

***Neuroctenus affinis* Distant, 1903**

India: Mysore, 8 mi. NE Mercara 1000 m 22.02.1962. 1♀ legs. E. S. Ross & D. Q. Cavagnaro det. N. Kormilev 1979. [NK*]

India: Uttarakhand, Udham Singh Nagar, Kichha 310 m 02.12.1961. Collectors: E. S. Ross & D. Q. Cavagnaro det. N. Kormilev 1979. [NK*]

***Neuroctenus simplex* (Uhler, 1876)**

Cuba: San Antonie 18.10.1942. 1♂ 1♀ leg. E. S. Ross det. N. Kormilev 1979. [NK*]

***Neuroctenus tenuicornis* (Signoret, 1860)**

Madagascar: 6 km. N. of Fanovano 12.11.959. 1♂ 1♀ leg. E. S. Ross det. N. Kormilev 1979. [NK*]

Table I. Species from the family Aradidae in the Entomological Collection of the NHMBEO.

No.	Species	Imago	Larvae
1.	<i>Aneurus (Aneurodes) avenius</i> (Dufour, 1833)*	28	
2.	<i>Aneurus (Aneurus) laevis</i> (Fabricius, 1775)*	7	
	<i>Aradus aterrimus</i> Fieber, 1864*	[CEHI] Heiss, 2006.	
3.	<i>Aradus betulae</i> (Linnaeus, 1758)*	50	13
4.	<i>Aradus betulinus</i> Fallén, 1807*	10	1
5.	<i>Aradus bimaculatus</i> Reuter, 1872	1	
6.	<i>Aradus brenskei</i> Reuter, 1884*	11	
7.	<i>Aradus cinnamomeus</i> Panzer, 1806*	14	6
8.	<i>Aradus conspicuus</i> Herrich-Schaeffer, 1835*	27	7
9.	<i>Aradus corticilis</i> Linnaeus, 1758	4	

Table I – continued

10.	<i>Aradus depressus depressus</i> (Fabricius, 1794)*	9	6
11.	<i>Aradus distinctus</i> Fieber, 1860*	4	
12.	<i>Aradus erosus</i> Fallén, 1807	3	
13.	<i>Aradus flavicornis</i> Dalman, 1823	3	
14.	<i>Aradus lugubris</i> Fallén, 1807	2	
15.	<i>Aradus pictellus</i> Kerzhner, 1972	15	4
16.	<i>Aradus ribauti</i> Wagner, 1956*	56	3
17.	<i>Aradus serbicus</i> Horváth, 1888*	2	
18.	<i>Aradus somcheticus</i> Kiritshenko, 1913*	1	1
19.	<i>Aradus versicolor</i> Herrich-Schaeffer, 1835*	27	3
20.	<i>Brachyrhynchus madagascariensis</i> (Hoberlandt, 1957)	2	
21.	<i>Brachyrhynchus membranaceus</i> (Fabricius, 1798)	1	
22.	<i>Brachyrhynchus micronesicus</i> (Esaki & Matsuda, 1951)	1	
23.	<i>Daulocoris cornigerus</i> (Kormilev, 1953)	2	
24.	<i>Dysodius brevipes</i> Bergroth, 1894	1	
25.	<i>Dysodius equatorianus</i> Kormilev, 1975	1	
26.	<i>Dysodius lunatus</i> (Fabricius, 1794)	2	
27.	<i>Mezira emarginata</i> (Say, 1832)	2	
28.	<i>Mezira hsiaoi</i> Blöte, 1965	2	
29.	<i>Mezira pacifica</i> Usinger, 1936	2	
30.	<i>Mezira tropicalis</i> Kormilev, 1972	1	
31.	<i>Neuroctenus affinis</i> Distant, 1903	1	
32.	<i>Neuroctenus simplex</i> (Uhler, 1876)	2	
33.	<i>Neuroctenus tenuicornis</i> (Signoret, 1860)	2	
Total:		296	44

*species recorded in Serbia.

Discussion and conclusions

The Entomological Collection of the NHMBEO comprises 33 species from the family Aradidae, distributed across several smaller collections. There are 14 species recorded in Serbia to date: *Aneurus (Aneurodes) avenius* (Dufour, 1833), *Aneurus (Aneurus) laevis* (Fabricius, 1775), *Aradus aterrimus* Fieber, 1864; *Aradus betulae* (Linnaeus, 1758); *Aradus betulinus* Fallén, 1807; *Aradus brenskei* Reuter, 1884; *Aradus cinnamomeus* Panzer, 1806; *Aradus conspicuus* Herrich-Schaeffer, 1835; *Aradus depressus depressus* (Fabricius, 1794); *Aradus distinctus* Fieber, 1860; *Aradus ribauti* Wagner, 1956; *Aradus serbicus* Horváth, 1888; *Aradus somcheticus* Kiritshenko, 1913, and *Aradus versicolor* Herrich-Schaeffer, 1835. There are also literature references for two additional species in Serbia: *Aradus lugubris* Fallén, 1807 - Paštrik (Mancini, 1953), and *Aradosyrtis salicis* Horváth, 1913 - Ruma (Horváth, 1913).

We believe that the number of species in Serbia is likely higher and that some species currently considered “potentially present” will be recorded in the future. One such potentially present species is *A. kuthyi* Horváth, mentioned by Heiss (2001, 2006) as present in Albania, Austria, Bosnia and Herzegovina, Czech Republic, Greece, Hungary, and Slovakia. Josifov (1986) lists *Aradus reuterianus* Puton, 1875 for “Yugoslavia”. Our research found only one record for the former Yugoslavia from the locality Senj in Croatia (Langhoffer, 1899; Horváth, 1897; Protić, 2001).

Another potentially present species is *Mezira tremulae tremulae* (Germar, 1822), 1822, with *locus typicus* in Banat (Heiss, 2001, 2006). This species is found in neighboring countries (Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Romania). In addition, Josifov (1986) references “Yugoslavia”, likely referring to data from Croatia (Horváth, 1897). There are also some specimens deposited in the National Museum of Bosnia and Herzegovina in Sarajevo (Protić, 2001, 2005).

Aradosyrtris salicis Horváth, 1913 is another rare species with a small number of records in Europe (Austria, Bulgaria, Greece, Serbia). *Locus typicus* is Ruma (Serbia: Srem). Andreas Hensch¹ collected a female in Ruma, on *Salix* sp. The male of this species was described from Syria (Horváth, 1913; Kormilev, 1958; Heiss & Rieger, 1997; Heiss, 1998; Heiss, 2023; Kormilev & Froeschner (1987). There are no later records of this species in Serbia.

The species *Aneurus laevis* (Fabricius, 1775) was rediscovered in Serbia after a century. Curators from the NHMBEO, Aleksandar Stojanović and Miroslav Jovanović, collected 1♀ on Mt. Cer in September 2012. Three previously known localities in Serbia are Vrdnik (Horváth, 1911), Kačanik (Horváth, 1918), and Mt. Žljeb (Csiki, 1940).

This paper introduces three new species to Serbia's fauna: *Aradus betulinus* Fallén, 1807; *Aradus brenskei* Reuter, 1884, and *Aradus somcheticus* Kiritshenko, 1913.

The review process included re-examination and re-identification of certain specimens. These changes are detailed for each species in the Results section.

The Entomological Collection contains only a single specimen of *A. somcheticus* from Serbia, collected at Ramsko-Golubačka Peščara, which was originally identified as *A. truncatus*. According to Heiss (2001), specimens from the Balkan Peninsula belong to *A. somcheticus*. Ernst Heiss confirmed that our specimen from Serbia belongs to *A. somcheticus*, although Eduard Wagner had initially identified it as *A. truncatus*.

In late March 2024, *A. versicolor* and *A. conspicuus* were recorded at the locality Barzilovica near Lazarevac, found on fruiting bodies of *Trametes versicolor* (L.) Lloyd 1920. All specimens were collected from the same tree stump alongside a small number of fresh and fully developed carpophores of this fungus. The imago specimens were observed both on the carpophores and between the tree stump and the carpophores. Due to the advanced decomposition of the tree stump, the tree species could not be identified.

Comparing the number of localities in Serbia where Aradidae have been recorded and the number of collected specimens has revealed that the most common species are: *A. ribauti*, documented with 56 specimens from 12 localities; *A. conspicuus*, with 28 specimens from 16 localities; and *A. versicolor*, represented by 19 specimens from 10 localities. The Catalogue (Protić, 2001) has only a single record of *A. versicolor* in Serbia. However, in recent years, specimens have been collected from approximately a dozen additional localities. Kiritshenko (1913) described a new form of *Aradus betulae* f. *meridionalis* based on the coloration of the third antennal segment, which features a dark area covering about two-thirds of its base. In specimens from Serbia, the third antennal segment typically exhibits a dark area covering only a third of its base (found in localities: Belgrade, Cer, Deliblatska Peščara, Kikinda, Kopaonik, Leskovac, Vakup, Veliko Gradište, Višnjičevo). However, the specimen from Zemun displays a dark area extending up to two-thirds of the segment length, a characteristic observed in specimens from the northern part of its distribution range. Kanyukova (1984) included this form as a synonym of *Aradus betulae* (Linnaeus, 1758).

¹ Andreas (also Andrija) Hensch (1857-1930), originally from Slovakia, was a military medical doctor and entomologist who traveled extensively within the Austro-Hungarian monarchy, with a significant period spent in Croatia. He was highly regarded as an authority on insects. His rich collection is deposited at the Faculty of Agriculture in Zagreb.

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References

- Aukema, B., & Rieger, Ch. (eds.) (2001). *Catalogue of the Heteroptera of the Palaearctic Region. IV. Pentatomomorpha I*. The Netherlands Entomological Society, Amsterdam, 346 pp.
- Aukema, B., Rieger, Ch., & Rabitsch, W. (eds.) (2013). *Catalogue of the Heteroptera of the Palaearctic Region. VI. Supplement*. The Netherlands Entomological Society, Amsterdam, 629 pp.
- Csiki, E. (1940). Féliszárnyúovarok. Hemipteren. Csiki Ernő állatani kutatásai Albániában. *Explorationes zoologicae ab E. Csiki in Albania peractae 17. A Magyar Tudományos Akadémia Balkán-kutatásainaktudományos Eredményei, Budapest 1*, 289-315.
- Divac, N. (1907). Prilog poznavanju srpske hemipterske faune. *Radovi iz zoološkog instituta u Univerzitetu, Beograd 1*, (1), 4-14.
- Heiss, E. (1980). Nomenklatorische Änderungen und Differenzierung von *Aradus crenarus* Say, 1831. und *Aradus cinnamomeus* Panzer, 1806, aus Europa und USA. (Insecta: Heteroptera. Aradidae). *Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck*, 67, 103-116.
- Heiss, E. (1998). Ergänzungen zur Aradidenfauna Griechenlands II. (Heteroptera, Aradidae). *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen*, 50, 17-20.
- Heiss, E. (1998a). Ober Typen palaearktischer Aradidae (Insecta: Heteroptera) van V.E. Jakovlev und A.N. Kiritschenko. *Annalen des Naturhistorischen Museums in Wien 100 (B)*, 69-75.
- Heiss, E. (1999). In Memoriam Nicholas A. Kormilev (1901-1998). *Zeitschrift der Arbeitsgemeinschaft österreichischer Entomologen*, 51, 47-58.
- Heiss, E. (2023). New taxonomic assignments for two Palaearctic *Calisiinae* genera (Heteroptera: Aradidae) with description of a new species from China. *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen*, 75, 110-120.
- Heiss, E., & Péricart, J. 2007: *Hémiptères Aradidae, Piesmatidae et Dipsocoromorphes euro-méditerranéens*. Faune de France 91, Paris, 509 pp.
- Heiss, E., & Rieger, Ch. (1997). *Calisius salicis* Horv., 1913, neu für Mitteleuropa (Heteroptera, Aradidae). *Zeitschrift der Arbeitsgemeinschaft österreichischer Entomologen*, 49 (1-2), 39-40.
- Heiss, E., & Scudder, G. G. E. (2019). Aradidae (Heteroptera) new to North America and Canada, with some additional provincial and state records for Canada and the USA. *Linzer biologische Beiträge*, 51(2), 821-829.
- Hoberlandt, L. (1969). Contributions à la connaissance de la faune entomologique de la Côte d'Ivoire (J. Decelle, 1961-1964). XLVIII. Heteroptera Aradidae. *Annales du Musée Royal du Congo Belge Tervuren., in-8°, Zoologie*, 175, 467-478.
- Horváth, G. (1888). Izlet u Podsused u Zagrebačkoj okolici. *Glasnik Hrvatskog naravoslovnog društva, Zagreb 3*, 267-274.
- Horváth, G. (1897). Fauna regni Hungariae. *Animalium Hungariaehucusque cogitorum enumeratio systematica 111*. Arthropoda Ordo: Hemiptera. Budapest, 72 pp.
- Horváth, G. (1903). Szerbia Hemiptera- faunája. *Annales Musei Nationalis Hungarici*, 1, 3-28.
- Horváth, G. (1913). Species Mundi Antiqui generis *Calisius*. *Annales Historico-Naturalis Musei Nationalis Hungarici*, 11, 623-634.

- Josifov, M. (1986). Verzeichnis der von der Balkanhalbinsel bekannten Heteropterenarten (Insecta, Heteroptera). *Faunistische Abhandlungen, Staatliches Museum für Tierkunde Dresden*, 14, 61-93.
- Kanyukova, E. V. (1984). Heteroptera of the *Aradus betulae* group in the USSR fauna. *Vestnik Zoologii* 4, 9-14 [in Russian].
- Kiritshenko, A.N. (1913). Dysodiidae i Aradidae. *Fauna Rossii (Insecta, Hemiptera)*, 6 (1), 301 pp. [in Russian, with Latin diagnoses].
- Kment, P., Kolínová, Z., & Heiss, E. (2015). Catalogue of the type specimens of true bugs (Hemiptera: Heteroptera) deposited in the National Museum, Prague, Czech Republic* Pentatomomorpha: Aradidae. *Acta Entomologica Musei Nationalis Pragae*, 55(1), 411-443.
- Kormilev, N. (1936). 1. prilog poznavanju Hemiptera- Heteroptera Jugoslavije (Južna Srbija i Srbija). *Glasnik skopskog naučnog društva*, 17, 5, 29-54.
- Kormilev, N. (1938). II. Beitrag zur Kenntnis der Verbreitung jugoslawischer Hemiptera- Heteroptera (Serbien und Südserbien). *Glasnik skopskog naučnog društva*, 18, 6, 167-172.
- Kormilev, N. (1939). III. Beitrag zur Kenntnis der Verbreitung jugoslavischer Hemiptera - Heteroptera (Serbien und Südserbien). *Annales musei Serbie Meridionalis*, 1, 2:21-29.
- Kormilev, N. (1943). V. Beitrag zur Kenntnis der Verbreitung balkanischer Hemiptera - Heteroptera (Serbien und Mazedonien). *Ohridski zbornik 35, Srpska kraljevska Akademija, posebna izdanja 86, Prirodnjački i matematički spisi 6*, 123-132.
- Kormilev, N. A. (1953). Notes on Aradidae from the Eastern Hemisphere. *Verhandlungen der Naturforschenden Gesellschaft in Basel*, 64, 333-346.
- Kormilev, N. A. (1958). Notes on Aradidae in the U.S. National Museum. 1. Subfamily *Calisiinae*. *Proceedings of the United States National Museum*, 109 (3413), 209-222.
- Kormilev, N. A. (1971). Mezirinae of the Oriental Region and South Pacific (Hemiptera: Heteroptera: Aradidae). *Pacific Insects Monograph* 26, 1-165.
- Kormilev, N. A. (1972). Two new species of North American flat bugs (Hemiptera: Aradidae). *Bulletin Southern California Academy of Sciences*, 71(2), 91-93.
- Kormilev, N. A. (1975). Neotropical Aradidae in the collections of the California Academy of Sciences, San Francisco (Hemiptera - Heteroptera). *Occasional Papers of the California Academy of Science*, 122, 1-28.
- Kormilev, N. A., & Froeschner, R. C. (1987). Flat Bugs of the World: A synonymic list (Heteroptera: Aradidae). *Entomography*, 5, 1-246.
- Langhoffer, A. (1899). Prilozi entomološkoj fauni Hrvatske. *Rad Jugoslavenske Akademije znanosti i umjetnosti*, 141, 11-26.
- Mancini, C. (1953). Contributo alla conoscenza degli Emitteri Eterotteri dell'Albania. *Annalen des Naturhistorischen Museums in Wien*, 59, 176-196.
- Novak, P., & Wagner, E. (1951). Prilog poznavanju faune Hemiptera Dalmacije (Hemiptera - Heteroptera). *Godišnjak Biološkog instituta u Sarajevu* 4, 1, 59-80.
- Péricart, J. (1989). Deux especes et un genre d' Aradidae nouveaux pour la France (Het.). *Bulletin de la Societe Entomologique de France*, 94, 79-81.
- Protić, Lj. (1984). *Aradus ribauti* Wagner, 1955, nova vrsta familije Aradidae (Hemiptera-Heteroptera). *Glasnik Prirodnjačkog muzeja, Belgrade, B*, 39, 41-44.
- Protić, Lj. (1986). Prilog poznavanju Hemiptera-Heteroptera Ramsko - Golubačke Peščare. *Glasnik Prirodnjačkog muzeja, Belgrade, B*, 41, 57-87.
- Protić, Lj. (1993/1994). Check List of the Heteroptera Fauna of Yugoslav countries. *Glasnik Prirodnjačkog muzeja, Belgrade, B*, 48, 33-61.
- Protić, Lj. (2001). *Catalogue of the Heteroptera fauna of Yugoslav countries*. Part two. Natural History Museum, Belgrade. Special issue 39, 1-272.

- Protić, Lj. (2005). Popis Heteroptera Bosne i Hercegovine. *Udruženje za inventarizaciju i zaštitu životinja, Kanton Sarajevo* 2005/2006, 1, 33-68.
- Protić, Lj. (2011). *Heteroptera*. Prirodnjački muzej, Posebna izdanja, 43, 1-259.
- Protić, Lj. (2016). Checklist of Heteroptera of Montenegro. *Ecologica Montenegrina*, 7, 350-393. The journal is available online at www.biotaxa.org/em
- Protić, Lj., Gogala, A., & Gogala, M. (1990). Heteroptera (Insecta) In: Nonveiller, G. (ed.): *Fauna Durmitora* 3, 279-313. Crnogorska Akademija nauka i umjetnosti, Posebna izdanja 23(14), Titograd.
- Protić, Lj., & Milenković, M. (1999). Stenice (Heteroptera) na imelama *Viscum album* i *Loranthus europaeus* Jacq. *Zaštita prirode*, 51 (2), 111-116.
- Protić, Lj., Savić, D., & Stojanović, A. (2017). Heteroptera of the Fruška Gora Mountain. *Invertebrates (Invertebrata) of the Fruška Gora Mountain, Matica srpska, Novi Sad*, V, 47-104.
- Protić, Lj., Šćiban, M., Šeat, J., & Stanković, M. (2017a). Fauna stenica (Insecta: Heteroptera) Specijalnog rezervata prirode "Zasavica", *Naučno-stručni skup o biodiverzitetu i drugim vrednostima rezervata Zasavica, "Zasavica 2017" sa međunarodnim učešćem. Pokret gorana Sremska Mitrovica*: 117-127
- Putshkov, V. G. (1974). Berytidae, Pyrrhocoridae, Piesmatidae, Aradidae and Tingidae. *Fauna Ukrainy* 21(4), 332 pp. [In Ukrainian].
- Savić, D. (2024). Nature Photography by Dragiša Savić, Internet stranica, <http://www.naturefg.com/pages/an-insecta-hemiptera2.htm> [Last visited 30.04.2024]
- Sienkiewicz, I. (1964). *The Catalogue of the "A. L. Montadon collection" of Palearctic Heteroptera preserved in the "Grigore Antipa" Museum of Natural History*, Bucharest, 146 pp.
- Stichel, W. (1962). *Illustrierte Bestimmungstabellen der Wanzen. II. Europa (Hemiptera Heteroptera Europae)*, Berlin-Hermsdorf, 4, 838 pp.
- Šeat, J. (2013). True bugs (Heteroptera) of the Stara Planina mountain: Serbia. *Acta Entomologica Serbica*, 18(1/2), 17-41.
- Vásárhelyi, T. (1988). New Palearctic *Aradus* species in the betulae-group (Heteroptera, Aradidae). *Annales Historico-Naturales Musei Nationalis Hungarici*, 80, 57-63.
- Wachmann, E., Melber, A., & Deckert, J. (2007). Wanzen. Band 3. Pentatomomorpha I. *Die Tierwelt Deutschlands und der angrenzenden Meeresteile*, 78. Goecke & Evers, Keltern, 272 pp.
- Živojinović, S. (1950). Fauna insekata šumske Domene Majdanpek. Entomološka monografija. *Srpska Akademija nauke i umetnosti, Institut za ekologiju i biogeografiju, Posebna izdanja* 160(2), 211-225.

ARADIDAE (HETEROPTERA) У ЕНТОМОЛОШЛОЈ ЗБИРЦИ ПРИРОДЊАЧКОГ МУЗЕЈА У БЕОГРАДУ

ЉИЉАНА ПРОТИЋ И АЛЕКСАНДАР СТОЈАНОВИЋ

Извод

У Ентомолошкој збирци Природњачког музеја у Београду налази се 19 врста фамилије Aradidae из Палеарктика и 14 врста из Неотропске и Оријенталне области. У Србији је нађено 16 врста, а у Ентомолошкој збирци је 14 врста из Србије. Идентификоване су три нове врсте за фауну Србије: *Aradus betulinus* Fallén, 1807; *Aradus brenskei* Reuter, 1884 и *Aradus somcheticus* Kiritshenko, 1913. *Aneurus laevis* (Fabricius, 1775) после 100 година поново је нађена у Србији на планини Цер.

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