UNIVERSITETI I PRISHTINËS "HASAN PRISHTINA"
FAKULTETI I SHKENCAVE MATEMATIKE-NATYRORE
DEPARTAMENTI I BIOLOGJISË

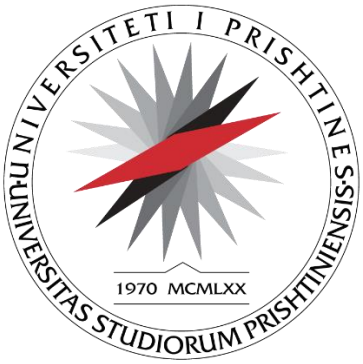
DONARD GECI

VEÇORITË FAUNISTIKE, EKOLOGJIKE DHE BIOGJEOGRAFIKE TË FAUNËS SË MERIMANGAVE (ARACHNIDA: ARANEAE) TË KOSOVËS

PUNIMI I DOKTORATËS

Prishtinë, 2023

UNIVERSITY OF PRISHTINA “HASAN PRISHTINA”
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF BIOLOGY



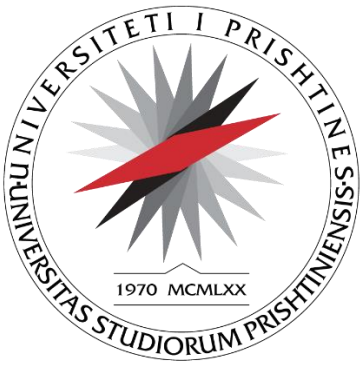
DONARD GECI

FAUNISTIC, ECOLOGICAL, AND BIOGEOGRAPHIC FEATURES OF SPIDER FAUNA (ARACHNIDA: ARANEAE) OF KOSOVO

DOCTORAL THESIS

Prishtinë, 2023

UNIVERSITETI I PRISHTINËS “HASAN PRISHTINA”
FAKULTETI I SHKENCAVE MATEMATIKE-NATYRORE
DEPARTAMENTI I BIOLOGJISË



DONARD GECI

VEÇORITË FAUNISTIKE, EKOLOGJIKE DHE BIOGJEOGRAFIKE TË FAUNËS SË MERIMANGAVE (ARACHNIDA: ARANEAE) TË KOSOVËS

PUNIMI I DOKTORATËS

Mentorët: Dr.sc. Linda Grapci-Kotorri, Prof.
Dr.sc. Maria Numova, Prof. asoc.

Prishtinë, 2023

Rezyme

Në këtë punim për herë të parë paraqiten të dhëna rreth veçorive ekologjike, taksonomike dhe biogjeografike të merimangave në Kosovë. Ky hulumtim është realizuar në periudhën korrik 2020-korrik 2022 në 50 lokalitete kryesore, të cilat janë mostruar nga një herë në dy muaj, dhe në disa lokaliteteve tjera shtesë, të cilat janë mostruar vetëm disa herë. Gjithashtu është bërë edhe identifikimi i materialit të mbledhur më herët, të deponuar në Departamentin e Biologjisë. Lokalitetet në të cilat është mbledhur materiali faunistik janë të përbëra nga tipe të ndryshme të habitateve dhe gjenden në lartësi mbidetare prej 426 m deri 2066 m, gjë që tregon për distribuimin e llojeve në lartësi e habitate të ndryshme dhe ndikimin e faktorëve ekologjikë dhe antropogjenë në përhapjen e tyre.

Gjithsej(së bashku me mostrat e mbledhura më herët) janë mbledhur 2185 individë, 1454 ♀ dhe 731 ♂, që iu përkasin 295 llojeve. Mostrimi është bërë me anë të rrjetave entomologjike, kurthave të tokës, rrjetave të stelës dhe me anë të duarve. 227 lloje, 86 gjini dhe 13 familje janë gjetje të reja për Kosovën.

Gjatë këtij hulumtimi, është hasur në gjinin *Eratigena* Bolzern, Burckhardt & Hänggi, 2013 e mbledhur në Lokalitetin L35a, përkatësisht afër fshatit Panorc të cilat pas analizimit morfologjik dhe molekular duke e krahasuar me llojin e afërt *E. agrestis* (Walckenaer, 1802), mund të konstatohet se ka dallime të konsiderushme dhe është lloj i ri për shkencën.

Analizat statistikore dhe llogaritjet e indeksave të ndryshëm sugjerojnë vlera të larta të diversitetit në zonën në të cilën është bërë ky hulumtim. Lokaliteti me diversitet më të lartë për rendet e merimangave të hulumtuara është: L29.

Ky punim është hulumtimi i parë sistematik mbi diversitetin e llojeve të faunës së merimangave në gjithë territorin e Kosovës, përcaktimin e përhapjes së tyre dhe karakteristikave të caktuara ekologjike në këtë zonë. Rezultatet nga ky hulumtim do të mundësojnë të krijohet një listë e llojeve të merimangave, e cila ka munguar më herët, si dhe kontribuon në zgjidhjen e problemeve taksonomike. Lloji *Neoscona byzanthina* (Pavesi, 1876) e ka qenë pak e njohur nga Ballkani, pas analizimit është ripërshkuar dhe tashmë është më e lehtë të dallohet nga lloji *N. adianta* (Walckenaer, 1802)

Fjalë kyçe: *merimangat, veçoritë ekologjike, taksonomike dhe biogjeografike, diversisteti.*

Summary

In this paper, for the first time, data are presented about the ecological, taxonomic and biogeographic features of spiders in Kosovo. This research was carried out in the period July 2020-July 2022 in 50 main localities, which were sampled once every two months, and in some other additional localities, which were sampled only a few times. The material collected earlier, deposited in the Department of Biology, was also identified. The localities in which the faunal material was collected are composed of different types of habitats and are found at altitudes of 426 m to 2066 m above sea level, which indicates the distribution of species at different altitudes and habitats and the influence of ecological and anthropogenic factors on their spread.

In total (together with the samples collected earlier) 2185 individuals, 1454 ♀ and 731 ♂, belonging to 295 species were collected. Sampling was done using entomological nets, ground traps, stele nets and by hand. 227 species, 86 genera and 13 families are new findings for Kosovo.

During this research, the genus *Eratigena* Bolzern, Burckhardt & Hänggi, 2013 was found collected in Locality L35a, namely near the village of Panorc, which after morphological and molecular analysis comparing it with the nearby species *E. agrestis* (Walckenaer, 1802), can to find that there are significant differences and it is a new species for science.

Statistical analyzes and calculations of various indices suggest high values of diversity in the area in which this research was done. The locality with the highest diversity for the investigated spider orders is: L29.

This paper is the first systematic research on the diversity of species of spider fauna throughout the territory of Kosovo, the determination of their distribution and certain ecological characteristics in this area. The results from this research will enable to create a list of spider species, which was missing earlier, as well as contribute to solving taxonomic problems. The species *Neoscona byzanthina* (Pavesi, 1876) was little known from the Balkans, after analysis it was re-examined and it is now easier to distinguish it from the species *N. adianta* (Walckenaer, 1802)

Keywords: *spiders, ecological, taxonomic and biogeographic features, diversity*.

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KËRKESË

Për: Departametin e Biologjisë

Këshillin e Studimeve të Doktoratës

Këshillin e Fakultetit të Shkencave Matematike-Natyrore

Lënda: Formimin e Komisionit për Versimin e dorëshkrimit të punimit të doktoratës

Duke u bazuar në Rregulloren Nr.1/96, për studime të doktoratës, kërkoj nga organet e cekuar më lartë të FSHMN-së të formojnë Komisionin për vlerësimin e dorëshkrimit të punimit të doktoratës me titull: **"Veçoritë Faunistike, Ekologjike Dhe Biogjeografike Të Faunës Së Merimangave (Arachnida: Araneae) Të Kosovës"**

Kërkesës i bashkangjesë:

1. Publikimet shkencore;
2. Dëshmi për pjesëmarrje në konferenca shkencore
3. Kopjen e dorëshkrimit
4. Pelqimin e mentorit
5. F6

Prishtinë
05.04.2023
Kandidati:

Msc. Donard Geci

Geci

UNIVERSITETI I PRISHTINËS "HASAN PRISHTINA"
FAKULTETI I SHKENCAVE MATEMATIKE-NATYRORE
PRISHTINË

Pranuar me: 05.04.2023

Nr. org.	Numër	Sasia	Vlera
01	1531	4	—

Universiteti i Prishtinës "Hasan Prishtina"
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Për: Departametin e Biologjisë

Këshillin e Studimeve të Doktoratës

Këshillin e Fakultetit të Shkencave Matematike-Natyrore

Lënda: Pëlqim nga Mentori për dorëzimin e doreshkrimit të temës së doktoratës me titull: **"Veçoritë Faunistike, Ekologjike Dhe Biogjeografike Të Faunës Së Merimangave (Arachnida: Araneae) Të Kosovës"** të kandidatit **MSc. Donard Geci**

Mendim:

Kandidati MSc. Donard ka ofruar të dhëna të reja për merimangat në Kosovë përmes tezës së doktoratës, e cila përfshin informacione për karakteristikat e tyre ekologjike, taksonomike dhe biogjeografike. Ka mbledhur mostra nga 50 lokalitete dhe lokacione shtesë gjatë dy viteve dhe janë identifikuar gjithsej 295 lloje, me 227 lloje, 13 familje dhe 89 gjini janë të raportime të reja për Kosovën,. Përveç kësaj, një lloji i ri për shkencën i gjinisë *Eratigena* . Analizat statistikore treguan vlera të larta të diversitetit në zonën e anketuar, ku lokaliteti L29 ka diversitetin më të lartë për rendet e merimangave të anketuara. Ky studim është hulumtimi i parë sistematik i diversitetit të merimangave në Kosovë dhe do të ndihmojë në krijimin e një liste të llojeve të merimangave dhe adresimin e çështjeve taksonomike, Kandidati Msc. Donard ka botuar tre punime të indeksuar në Scopus dhe ka marrë pjesë në tre konferenca, duke paraqitur gjithsej katër prezentime.

Artikujt shkencor të botuar:

Grapci-Kotori, L., Geci, D., Naumova, M., Ibrahimi, H., Bilalli, A., Musliu, M. Kasmuaj, E. Gashi, A. (2022) Spiders from Sharr mountain – new faunistic data (Arachnida: Araneae). Natura Croatica 39. 2

Geci, D., Naumova, M. (2021a): The Spotted Orb-weaver Neoscona byzanthina (Pavesi, 1876) - An Enigmatic but Common Species on the Balkans (Araneae: Araneidae). Ecologia Balkanica. Special Edition 4: 1-9.

Geci, D., Naumova, M. (2021b): A Preliminary Checklist of the Spiders of Kosovo (Arachnida: Araneae). Ecologia Balkanica. Special Edition 4. 11-28.

Pjesëmarrja në konferenca:

Geci, D., Naumova, M., Ibrahimi, H., Grapci-Kotori, L., Gashi, A., Bilalli, A., Musliu, M. Gashi, A. (2021): On the alien-invasive spiders from Republic of Kosovo (Arachnida, Araneae), 33rd European Congress of Arachnology, At:3-9 September, Greifswald Germany.

Geci, D., Naumova, M., Ibrahimi, H., Grapci-Kotori, L., Gashi, A., Bilalli, A., Musliu, M. (2021): A contribution to the spider fauna (Arachnida: Araneae) from Bjeshkët e Nemuna mountains (Kosovo). 32nd European Congress of Arachnology.

Geci, D., Naumova, M (2021): The spotted orb-weaver Neoscona byzanthina (Pavesi, 1876) – an enigmatic but a common species within the Balkans (Araneae: Araneidae), 5th Balkan Scientific Conference on Biology, 2021 At: , Plovdiv, Bulgari, Prill

Geci, D. Naumova, M. (2021): A preliminary checklist of the spiders of Kosovo (Arachnida: Araneae), 5th Balkan Scientific Conference on Biology, 2021 At: , Plovdiv, Bulgari, prill.

Andaj, nga ajo qe u tha më lartë kandidati MSc. Donard Geci ka përmbushur të gjitha kushtet për dorzimin e temës së doktoratës.

Prishtinë

05.04.2023

Prof. Dr. Linda Grapci-Kotori

PARAQITJA E PUNIMIT TË DOKTORATËS[1]	
TË DHËNAT E PËRGJITHSHME	
Doktoranti:	Donard Geci
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Emërtimi i studimit:	Biologji e organizmave dhe ekologji
Udhëheqësi i studimit:	
TË DHËNAT PËR PUNIMIN E DOKTORATËS	
Titulli në gjuhën shqipe	VEÇORITË FAUNISTIKE, EKOLOGJIKE DHE BIOGJEOGRAFIKE TË FAUNËS SË MERIMANGAVE (ARACHNIDA: ARANEAE) TË KOSOVËS
Titulli në gjuhën angleze	FAUNISTIC, ECOLOGICAL, AND BIOGEOGRAPHIC FEATURES OF SPIDER FAUNA (ARACHNIDA: ARANEAE) OF KOSOVO
Fusha e hulumtimit	Zoologji
DEKLARATA E MENTORIT	

[1] Lutei që ta plotësoni formularin dhe ta dërgoni të nënshkruar me postë elektronike.

Kandidati MSc. Donard Geci në doreshkrimin e temës së doktoratës ka ofruar të dhëna të reja për faunën e merimangave të Kosovës, ku përfshihen të dhëna për karakteristikat ekologjike, taksonomike dhe biogjeografike. Për realizimin e këtij punimi është mbledhur materiali faunistik në 50 lokalitete gjatë dy viteve (2020 – 2022) gjithashtu gjatë kësaj periudhe është mbledhur material edhe në disa lokalitetet tjera shtesë me qëllim të krahasimit të të dhënave. Nga materiali i mbledhur janë identifikuar gjithsej 295 lloje, prej të cilave raportohen gjetje të reja për faunën e merimangave të Kosovës 227 lloje, 13 familje dhe 89 gjini. Nga rezultatet e kësaj teme është zbuluar një lloji i ri për shkencën i gjinisë *Eratigena* bazuar në analiza molekulare dhe morfologjike (punimi është në fazë të publikimit). Indeksat e diversiteti të llogaritur në këtë draft të temës sugjerojnë vlera të larta të diversitetit në lokalitetet hulumtuara, ku lokaliteti L29 ka diversitetin më të lartë të faunës së merimangave.

Ky studim është hulumtimi i parë sistematik i diversitetit të merimangave në Kosovë dhe do të ndihmojë në krijimin e një liste të llojeve të merimangave dhe adresimin e çështjeve taksonomike, ekologjik dhe biogjeografike të këtij rendit në kontekstin ballkanik dhe rajonal. Në bazë të njohurive të fituara, poashtu do të avancohet tutje baza e të dhënave e cila mundëson trajtimin ligjor të llojeve të rralla dhe të rrezikuara të këtij rendi.

Kandidati Msc. Donard Geci ka botuar tre punime nga rezultatet e temës së doktoratës të indeksuar në Scopus dhe ka marrë pjesë në tre konferenca ndërkombëtarë, duke paraqitur gjithsej katër prezantime.

Artikujt shkencor të botuar:

Grapci-Kotori, L., **Geci, D.**, Naumova, M., Ibrahimi, H., Bilalli, A., Musliu, M. Kasmuaj, E. Gashi, A. (2022) Spiders from Sharr mountain – new faunistic data (Arachnida: Araneae). *Natura Croatica* **39. 2**

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Geci, D., Naumova, M. (2021b): A Preliminary Checklist of the Spiders of Kosovo (Arachnida: Araneae). *Ecologia Balkanica*. **Special Edition 4.** 11-28.

Pjesëmarrja në konferenca:

Geci, D., Naumova, M., Ibrahimi, H., Grapci-Kotori, L., Gashi, A., Bilalli, A., Musliu, M. Gashi, A. (2021): On the alien-invasive spiders from Republic of Kosovo (Arachnida, Araneae), *33rd European Congress of Arachnology*, At:3-9 September, Greifswald Germany.

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Geci, D. Naumova, M. (2021): A preliminary checklist of the spiders of Kosovo (Arachnida: Araneae), 5th Balkan Scientific Conference on Biology, 2021 At: , Plovdiv, Bulgari, prill.

Vendi, data dhe nënshkrimi

Në Prishtinë, 05.04.2023 Nënshkrimi

Linda Grapci-Kotori

(Emri e mbiemri i mentorit)

V.V.

UNIVERSITETI I PRISHTINËS "HASAN PRISHTINA"
FAKULTETI I SHKENCAVE MATEMATIKE-NATYRORE
PRISHTINË

Pranuar me: 05.04.2023			
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3

ECOLOGIA BALKANICA
2021, Special Edition 4 pp. 11-28

A Preliminary Checklist of the Spiders of Kosovo (Arachnida: Araneae)

Donard Geci[1], *Maria Naumova*[2*]

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2 - Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 1 Tsar Osvoboditel Blvd., 1000 Sofia, BULGARIA
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Abstract. The Republic of Kosovo is the territory with the least known spider fauna within the Balkans. The present list of spiders is based on all published records available to the authors and also includes original unpublished data. The checklist comprises only 159 species belonging to 29 families and 108 genera. This low number is due to different reasons but mostly because the spiders herein has never been studied in their entirety and because we excluded all the records from the "Balkans", "Yugoslavia", "Serbia", and the border mountain "Kopaonik", for which cannot certainly be argued that relate to Kosovo, so we worked only with reports, containing reliable data on the spider fauna from there. The aim of this study is to presents annotated preliminary checklist of the spiders of Kosovo with additional faunistic data.

Key words: Balkans, catalogue, fauna, former Yugoslavia, Jugoslavia, Serbia.

Introduction

The Republic of Kosovo is a small country in the Western part of the Balkans and has a total area of 10,908 km² with an altitude range from 265 m to 2656 m. The mountains of Kosovo belong to the Dinarides range with two major mountain massifs, Sharr (Šar) and Bjeshkët e Nemuna (Prokletije). They round the lowlands Rrafshi i Kosovës (Kosovo Polje plain) and Dukagjin, separated from the chain of mountain Carralevë.

The spider fauna of Kosovo has never been studied in its entirety, and remains one of the least explored in Europe. Our knowledge of this fauna originates from the beginning of 20th century when Bresjančeva (1907) lists 9 species from 6 families for the territory of today's Kosovo (at that time still a part of the Ottoman Empire). Twenty two years later, in his extensive work on Serbian spiders, Stojićević (1929) provides 47 species that correspond to the current territory of Kosovo, 44 of which were first reports. In the following years, the list increased due to the papers of Kratochvíl (1935) with four species; Kolosvary (1938, 1940) with eleven more; Šilhavý (1944) with three; Deeleman-Reinhold (1974, 1986) with two; Wunderlich (1984) with one and Grimm (1985) with two more species. In the only recent work, Vrenozi & Jager (2013) added 19 more species and listed 106 spiders for Kosovo. One more species is under review (Geci &

Material and Methods

The spider material was collected by hand picking and also includes some observations documented by digital images. Specimens were examined and measured using Wild M5A stereomicroscope. Digital images were taken by Canon EOS1300D digital camera, attached to a Carl Zeiss Stemi 2000-c stereomicroscope and with Canon EOS1100D attached to a Carl Zeiss Amplival microscope. The final processing of the figures was done in Adobe Photoshop CS6. The specimens are preserved in 70-80% ethanol and deposited in the Institute of Biodiversity and Ecosystem Research (IBER) and Laboratory of Zoology, University of Prishtina (UP). The geographical coordinates are given in decimal degrees and the altitudes are given in metres above sea level. Country codes are according to ISO 3166-2 (www.iso.org). Maps visualization: projection coordinate system "WGS 84 UTM 35N". All measurements are in millimetres.

Results

A total of 44 specimens (3 ♂♂, 18 ♀♀, 5 imm♂♂, 13 imm♀♀, 5 jj) of *Neoscona byzanthina* were collected or observed in 15 localities within the Balkans (Fig. 1).

Araneidae Clerck, 1757
Neoscona Simon, 1864
Neoscona byzanthina (Pavesi, 1876)

Epeira byzanthina Pavesi, 1876: 59.
Epeira turcica Simon, 1879: 36.
Epeira byzanthina Simon 1884: 328.
Neoscona adianta forma *byzanthina* Simon (1929): 693.
Neoscona byzanthina Ledoux, 2008: 49.

Material: ALBANIA: 1 ♀ (deposited in IBER), Krongji, near Syri i Kaltër (Blue Eye spring) (Fig. 1: 1), N 39.9180˚, E 20.1855˚, 151 m, 05.10.2019, lgt. M. Naumova; BULGARIA: 1 ♀ (deposited in IBER), Plovdiv, Yagodovo village (Fig. 1: 5), N 42.1284˚, E 24.8556˚, 152 m, 28.09.2018, lgt. V. Genchev, backyard; 1 ♀ (deposited in IBER), the same locality and legator, 03.10.2018; 1 ♂ (deposited in IBER), Plovdiv, Yagodovo village (Fig. 1: 5), N 42.1145˚, E 24.8284˚, 158 m, 14.08.2019, lgt. V. Genchev; 1 ♀, S Black Sea coast, Aheloy (Fig. 1: 2), N 42.6431˚, E 27.6456˚, 8 m, 11.09.2018, 1 ♀, 16.09.2018 (observed and photographed by I. Yanev); 1 ♀, S Black Sea coast, Burgas (Fig. 1: 3), N 42.4804˚, E 27.4150˚, 5 m, 23.09.2018 (observed and photographed by I. Yanev); 1 ♀, N Black Sea coast, Shabla (Fig. 1: 7), N 43.5678˚, E 28.5604˚, 2 m, 03.08.2016 (observed and photographed by Z. Barzov); 1 imm♀, Varna, Beloslav village (Fig. 1: 9), N 43.1931˚, E 27.7214˚, 2 m, 26.07.2018; 1 ♀, Ruse, Batin village (Fig. 1: 6), N 43.6692˚, E 25.6798˚, 18 m, 06.10.2019 (observed and photographed by I. Angelova); 1 imm♀, Svilengrad (Fig. 1: 8), N 41.7704˚, E 26.1948˚, 50 m, (observed and photographed by H. Hristov); 1 ♀, Haskovo (Fig. 1: 4), N 41.9595˚, E 25.5287˚, 205 m, 08.10.2019 (observed and photographed by E. Nankova); 1 ♀, Sashtinska Sredna Gora Mts., Zmeyovo village (Fig. 1: 10), N 42.5075˚, E 25.6069˚, 440 m, 29.09.2020 (observed and photographed by V. Ilieva); KOSOVO: 1 ♀, 5 imm♂♂, 6 imm♀♀, 3 jj (deposited in UP), Prilep village near Deçan (Fig. 1: 11), N 42.4955˚, E 20.3087˚, 547 m, 14.07.2018, lgt. D. Geci; 2 ♂♂, 3 ♀♀ (deposited in UP) the same locality, 30.07.2020, lgt. D. Geci; 3 ♀ (deposit in UP), Vaganicë village (Fig. 1: 14), Mitrovicë Municipality, N 42.8489˚, E 20.8624˚, 621 m, 24.08.2020, lgt. D. Geci; 3 ♀♀ (deposited in UP) the same locality and legator. 17.10.2020; 1 ♀ (deposited in UP), Henc wetland (Fig. 1: 12), N 42.5822˚, E 21.0486˚, 538 m, 02.09.2020, lgt. D. Geci; 2 jj (deposited in UP) Deiq village, Klinë Municipality (Fig. 1: 13), N 42.6121˚ E 20.5592˚, 383m, 26.07.2020, lgt. D. Geci; 1 ♀ (deposited in UP), the same locality and legator 30.08.2020; 3 imm♀ (deposited in UP), Dollc village, Klinë Municipality (Fig. 1: 13), N 42.5947˚ E 20.5923˚, 394m, 26.07.2020, lgt. D. Geci; 1 ♀ (deposited in UP), the same locality and legator, 30.08.2020. 2 imm♀♀ (deposited in UP), Zajm village, Klinë Municipality (Fig. 1: 13), N 42.5930˚ E 20.5552˚, 411m, 26.07.2020, lgt. D. Geci; NORTH MACEDONIA: 1 ♀ (deposited in IBER), Skopie, Stajkovsko Ezero lake (Fig. 1: 15), N 42.0240˚, 21.4942˚, 266 m, 14.09.2019, lgt. G. Dimovski.

Comparative material examined: N. adianta: 3 ♂♂, 1 ♀ (deposited in IBER), N Black Sea coast, Kranevo village, N 43.3470˚, E 28.0627˚, 8 m,

11.08.2015, lgt. M. Naumova; 2 ♀♀ (deposited in IBER), Plovdiv, Yagodovo village, N 42.1284˚, E 24.8556˚, 152 m, 10.07.2018, lgt. V. Genchev.

Description: General appearance: relatively large (7.0-13.0 mm) araneid spiders with ovoid opisthosoma without tubercles and appendages. Carapace: yellowish to pale brown with dark longitudinal median and lateral stripes; regularly covered with short grey hairs. Sternum: dark brown to black. Legs: light to medium yellow-brownish, distally dark on femora, patellae and tibiae. Femora with grey lateral stripes. Opisthosoma: dorsally coloured in yellow with brown reticulate pattern and 6-8 pairs of black dots or short horizontal stripes, the posterior ones converging. White/light median part, formed from ovoid spots, at an angle with the symmetry axis present in most specimens but may be reduced. Continuous wavy black longitudinal bands are never present (Figs 2-3). Ventrally coloured in black with two bright longitudinal stripes between the epigastric furrow and spinnerets, 2 pairs of bright spots and one curved stripe surround the spinnerets (Fig. 3).

Males (n=3): total length 7.0-8.0; prosoma: length 2.5-3.0, width 2.0-3.5; opisthosoma length 4.0-5.5, width 4.3-4.5. Tibia II strongly armed as Fig. 4A. Palpal organ as in Fig. 4B-C.

Females (n=10): total length 10.0-13.2; prosoma length 3.0-5.0, width 2.0-4.0; opisthosoma length 5.5-8.0, width 4.0-7.0. Colouration as in males, slightly lighter. Epigyne as in Fig. 5A-C. Scape with shape of elongated rounded triangle, longer than wide, wider at its base, reaching distinctly beyond epigyne; easily distinguished from N. adianta (Fig. 5D-F) especially in lateral view (Fig. 5B, E).

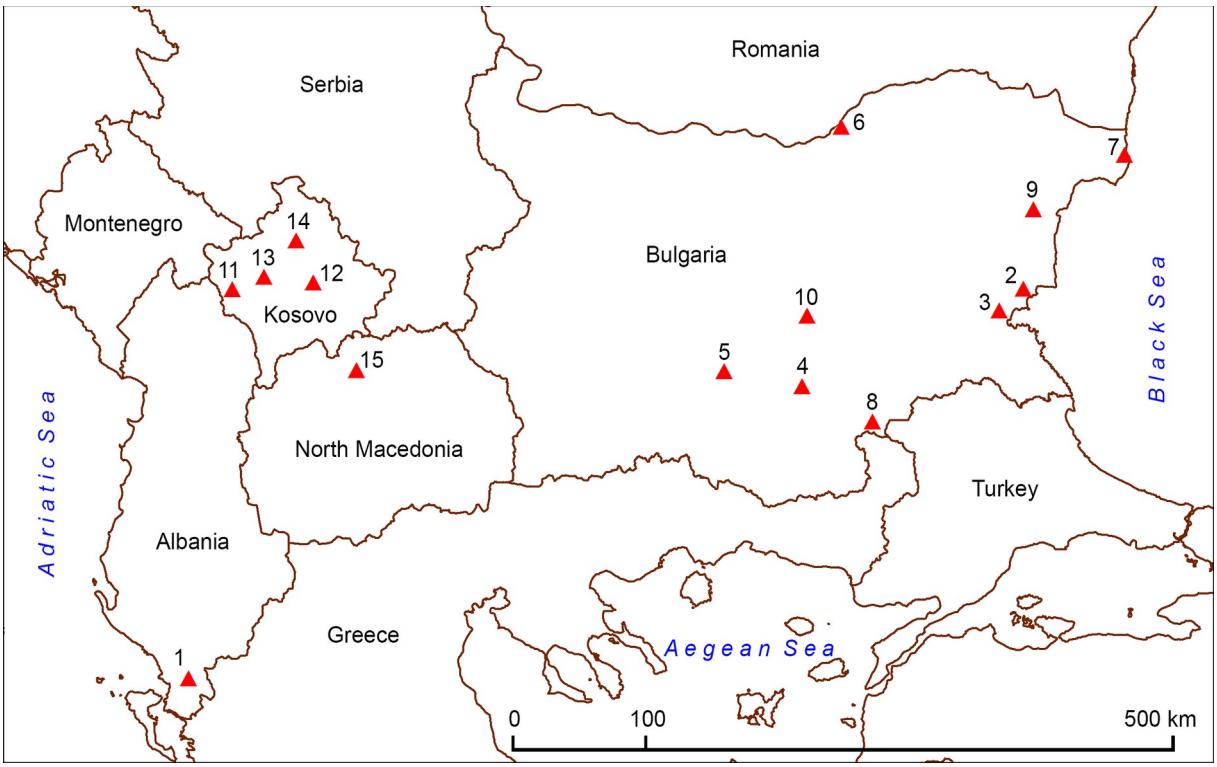

Fig. 1. Map with the new localities of *Neoscona byzanthina* in Albania (1 = Syri i Kaltër), Bulgaria (2 = Aheloy, 3 = Burgas, 4 = Haskovo, 5 = Plovdiv, 6 = Ruse, 7 = Shabla, 8 = Svilengrad, 9 = Varna, 10 = Zmeyovo), Kosovo (11 = Deçan, 12 = Henc wetland, 13 = Klinë, 14 = Vaganicë) and North Macedonia (15 = Skopie).

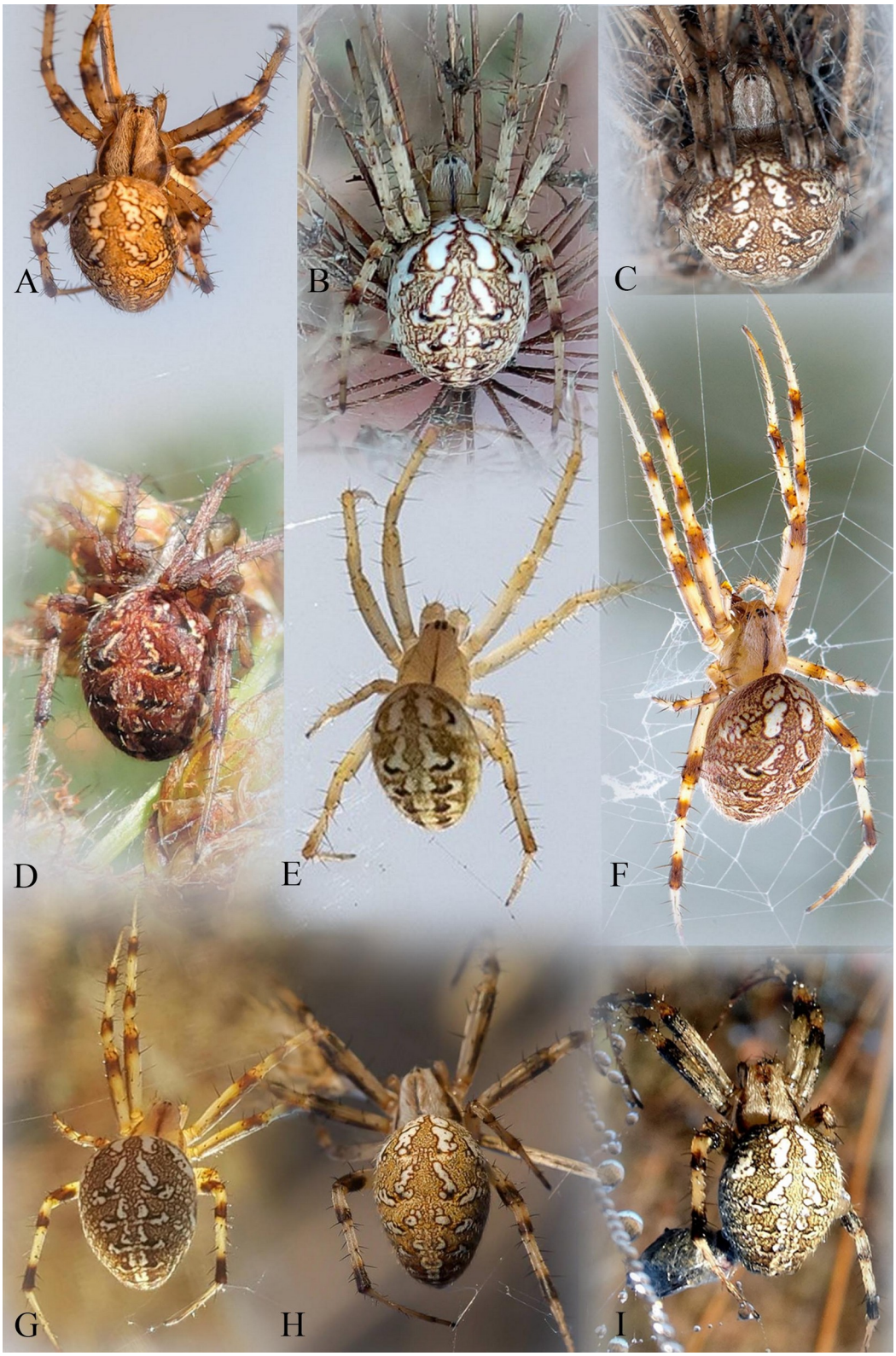

Fig. 2. Variations of colouration and opisthosomal patterns of *Neoscona byzanthina.* Adult females and immature specimens from Bulgaria and Kosovo, dorsal view.

Fig. 3. Variations of opisthosomal patterns of *Neoscona byzanthina*: dorsolateral (A), lateral (B-D), caudal (E-F) and ventral (G-I) views.

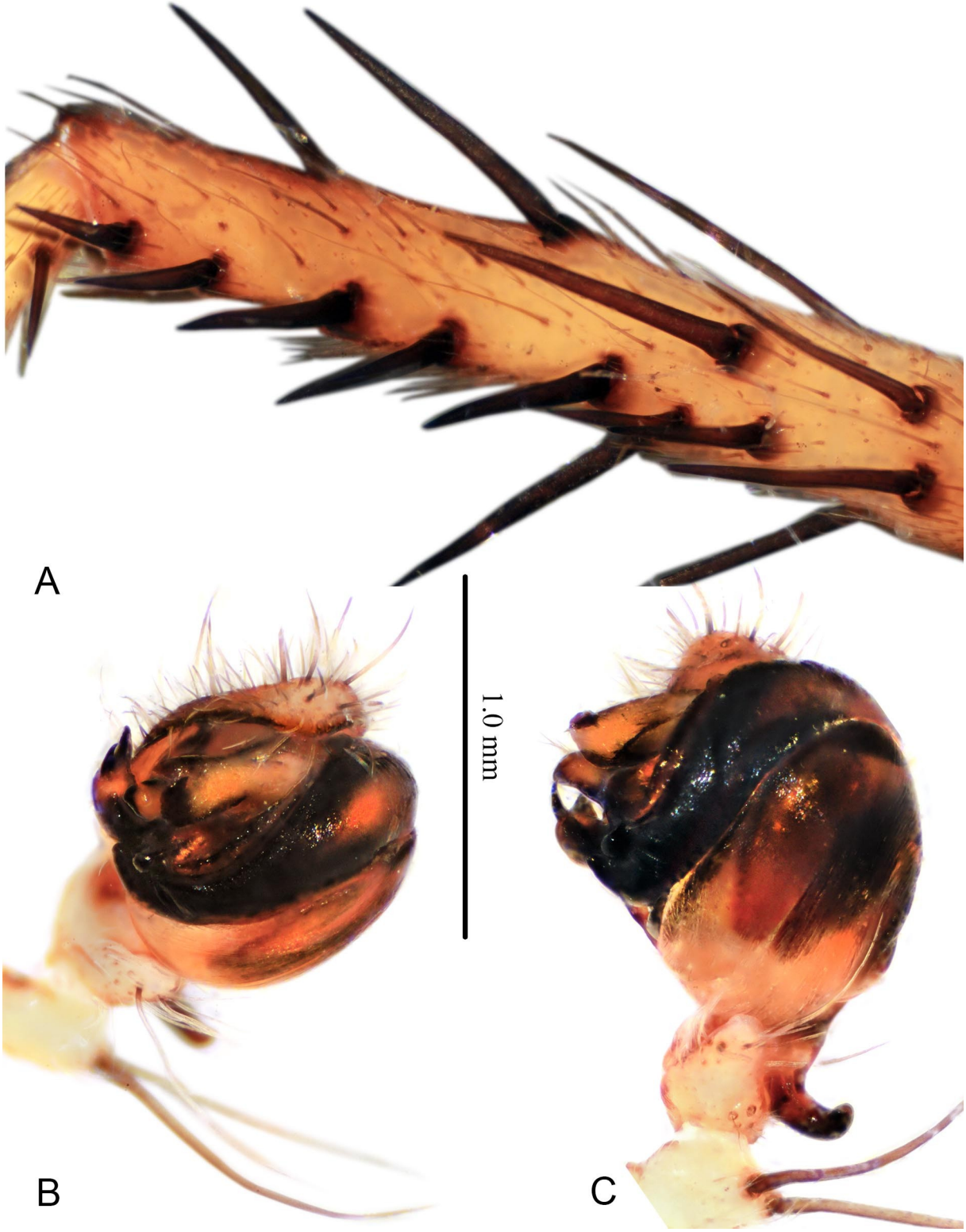

Fig. 4. *Neoscona byzanthina*, male: right tibia II (A) and left pedipalp (B-C), prolateral (A), apical (B) and ventral (C) views.

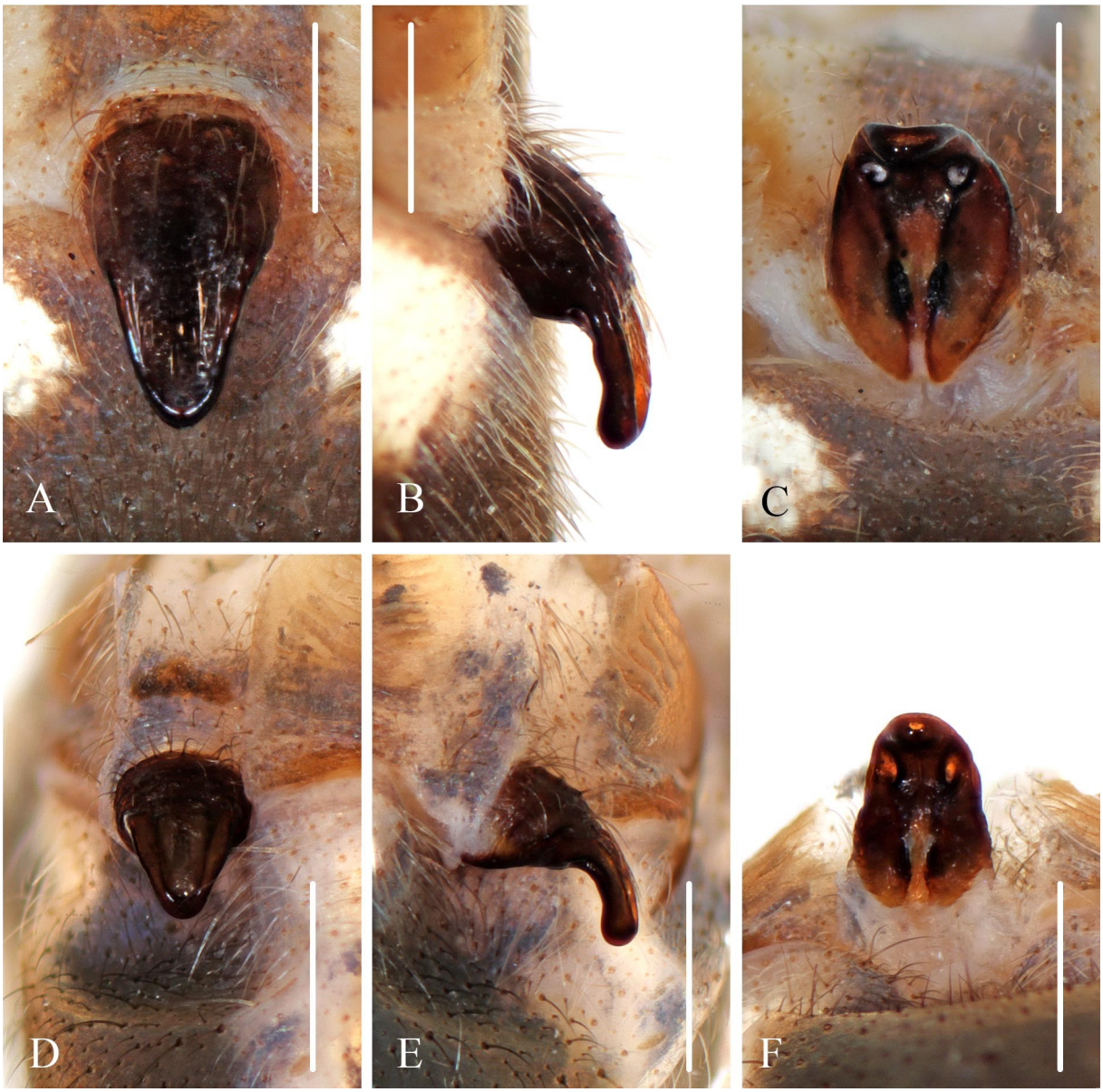

Fig. 5. *Neoscona* sp. female, scape of epigyne: *N. byzanthina* (A-C) and *N. adianta* (D-F), ventral (A, D), lateral (B, E) and posterior views. Scales: 0.5 mm. Both specimens are almost equal in body size.

Discussion

The large and attractive orb web spider *Neoscona byzanthina* was "invisible" until 12 years ago, because it was erroneously synonymized with the frequent congener *N. adianta*, which is abundant in the Holarctic region. In this study *N. byzanthina* is reported for the first time from Albania, Bulgaria, Kosovo and North Macedonia. The mature specimens were found from mid-July to mid-October. All observations were in humid areas (a variety of wetlands and mesophilous grasslands near lakes, swamps, bogs or river shores) in altitudes between 2 and 621 m. The Balkan population, compared with the relatively well-studied population in France (Ledoux, 2008) shows no differences in individual body measurements, variety of body patterns, distally darker femora, habitat preferences and phenology.

The long period during which *Neoscona byzanthina* was assigned as *N. adianta* requires

revision of the historical records, so earlier citations of *N. adianta* should all be reviewed. The males of both species are hard to distinguish based on their copulatory organs but easier to distinguish on the base of the opisthosomal patterns (discussed above) and also on the body size and armament of tibia II, as males *N. byzanthina* are obviously larger and more strongly armed. The females of both species are easier to identify both by the somatic and the genital aspects; the body sizes overlapping insignificantly and *N. byzanthina* being obviously larger. The current range of *N. byzanthina* is shown in the Fig. 6. Until now, the known localities in the literature are in Western Europe (France, Italy and Spain), South-eastern Europe (Greece and Turkey) and Asia Minor (Turkey) (Bolognin et al., 2021, Ledoux, 2008, Mora-Rubio et al., 2019, Pavesi, 1876, Simon, 1879, 1884). The new records partially fill the range gaps and hint at a wider distribution in Europe and the Western Palearctic.

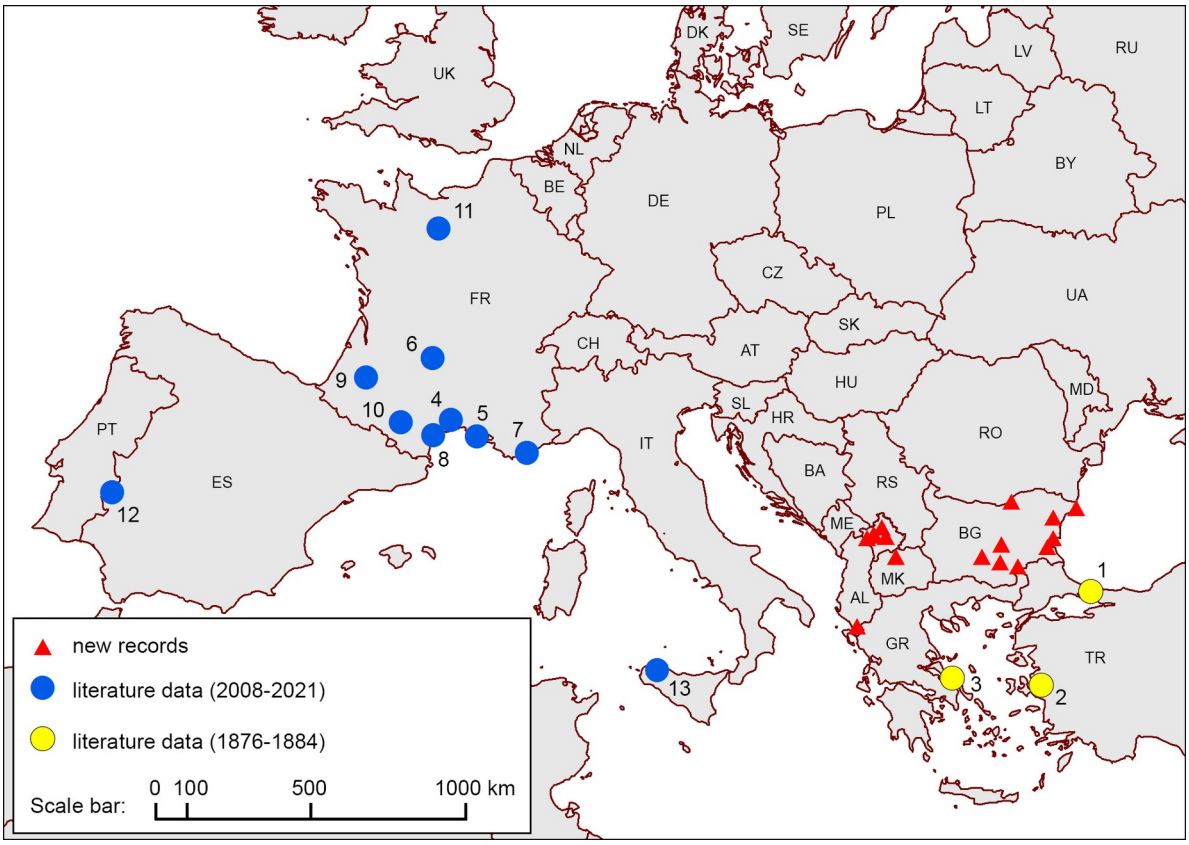

Fig. 6. Currently established global range of *Neoscona byzanthina*. Historical records (circles, numbered chronologically) in France (4 = Aramon, 5 = Bouches-du-Rhône, 6 = Corrèze, 7 = Fréjus, 8 = Galargues, 9 = Lot-et-Garonne, 10 = Monclar de Quercy, 11 = Sainte-Opportune-la-Mare), Greece (3 = Steni Dirfyos, Euboea isle), Italy (13 = Palermo, Sicily isle), Spain (12 = Extremadura: Badajoz) and Turkey (1 = Istanbul, 2 = Izmir) and new records (triangles, for details see Fig. 1).

Acknowledgements

Thanks to Vasil Genchev, Zhivko Barzov, George Dimovski, Evtim Bachev, Elena Nankova, Iskra Angelova, Ivan Yanev, Hristo Hristov and Valentina Ilieva for providing us with spider material, data and photos. Many thanks, to the anonymous reviewers for their helpful comments.

References

Bolognin, L., Moretto E., Devincenzo, U. & Guariento L.A. (2021). First record of

Neoscona byzanthina (Pavesi, 1876) (Arachnida Araneae) from Italy. *Biodiversity Journal, 12,* 17-19. doi: 10.31396/Biodiv.Jour.2021.12.1.17.19.

Bonnet, P. (1955). *Bibliographia araneorum. Analyse méthodique de toute la littérature aranéologique jusqu'en 1939. Tome II. Systématique des araignées (Étude par ordre alphabétique) [1re partie: A-B]*. Douladoure Toulouse, 918 p.

Ledoux, J.-C. (2008). Réhabilitation de *Neoscona byzanthina* (Pavesi, 1876) espèce voisine de *Neoscona adianta* (Araneae, Araneidae). *Revue Arachnologique*, *17,* 49-53.

Ledoux J.-C. & Canard, A. (1981). *Initiation à l'étude systématique des araignées*. Ledoux, Domazan, 56 p.

Mora-Rubio, C., Morano, E. & Pérez-Bote, J.L. (2019). First record of *Neoscona byzanthina* (Pavesi, 1876) (Araneae, Araneidae) from the Iberian Peninsula. *Graellsia*, *75*(e092), 1-3.

Pavesi, P. (1876). Gli aracnidi Turchi. *Atti della Società Italiana di Scienze Naturali*, *19,* 1-27.

Roewer, C.F. (1955). *Katalog der Araneae von 1758 bis 1940, bzw. 1954. 2. Band, Abt. a (Lycosaeformia, Dionycha [excl. Salticiformia]). 2. Band, Abt. b (Salticiformia, Cribellata) (Synonyma-Verzeichnis, Gesamtindex)*. Institut royal des Sciences naturelles de Belgique Bruxelles, 1751 p.

Simon, E. (1879). Liste d'arachnides de Constantinople et description d'une espèce nouvelle *Epeira turcica*. *Annales de la Société Entomologique de France*, (5) *9*(Bull.), 36-37.

Simon, E. (1884). Etudes arachnologiques. 16e Mémoire. XXIII. Matériaux pour servir à la faune des arachnides de la Grèce. *Annales de la Société Entomologique de France*, (6)*4*, 305-356.

Simon, E. (1929). *Les arachnides de France*. *Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae*. Tome VI. 3e partie. Roret Paris, pp. 533-772.

Spagnolini, A. (1877). Di alcune libellule raccolte nei dintomi di Constantinopoli. *Bollettino della Società entomologica italiana, 9,* 302-310.

Received: 31.03.2021
Accepted: 30.05.2021

NAT. CROAT. | VOL. 31 | No 2 | 335-350 | ZAGREB | December 30, 2022

original scientific paper / izvorni znanstveni rad
DOI 10.20302/NC.2022.31.24

SPIDERS FROM SHARR MOUNTAIN – NEW FAUNISTIC DATA (ARACHNIDA: ARANEAE)

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Grapci-Kotori, L., Geci, D., Naumova, M., Ibrahimi, H., Bilalli, A., Musliu, M., Gashi, A. & Kasumaj, E.: Spiders from Sharr Mountain - new faunistic data (Arachnida: Araneae). Nat. Croat., Vol. 31, No. 2., 335-350, Zagreb, 2022.

In this paper, we present new faunistic data of the spider fauna from the Sharr Mountains (Kosovo), one of the least investigated areas in the Balkans.

Previously only 27 species of spiders were known from the Kosovo part of the Sharr Mountains but with this investigation, the number has increased to 74. Pictures of rare and interesting species are provided. We also include a new record from the North Macedonian part of the Sharr Mountains.

In total we report fifty species, eight of which are first records for Sharr Mountains, twenty-eight are first records for Kosovo, and one species is reported for the first time for North Macedonia. Species recorded for the first time from the Sharr Mountains belong to the following genera: *Histopona, Clubio-*

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na, Zelotes, Ceratinella, Mughiphantes, Robertus and *Ozyptila*. We also provide a checklist of spider species for the Sharr Mountains in Kosovo.

Keywords: Kosovo, North Macedonia, endemism, diversity

Grapci-Kotori, L., Geci, D., Naumova, M., Ibrahimi, H., Bilalli, A., Musliu, M., Gashi, A. & Kasumaj, E.: Pauci Šar-planine – novi faunistički podaci (Arachnida: Araneae). Nat. Croat., Vol. 31, No. 2., 335-350, Zagreb, 2022.

U ovom radu predstavljamo nove faunističke podatke o paucima Šar-planine (Kosovo), jednog od najmanje istraženih područja na Balkanu.

Prethodno je iz kosovskog dijela Šar-planine bilo poznato samo 27 vrsta pauka, no s ovim istraživanjem broj se povećao na 74. Priložene su slike rijetkih i zanimljivih vrsta. U rad smo uključili i novi nalaz s makedonskog dijela Šar-planine.

Ukupno donosimo 50 vrsta, od kojih su osam prvi nalazi za Šar-planinu, 28 su prvi nalazi za Kosovo, a jedna vrsta je prvi puta zabilježena za Sjevernu Makedoniju. Vrste zabilježene po prvi puta za Šar-planinu pripadaju sljedećim rodovima: *Histopona, Clubiona, Zelotes, Ceratinella, Mughiphantes, Robertus* i *Ozyptila*. Također donosimo popis vrsta pauka za Šar-planinu na Kosovu.

Ključne riječi: Kosovo, Sjeverna Makedonija, endemi, raznolikost

INTRODUCTION

The Sharr Mountains are located at the border area of three countries: Kosovo, North Macedonia, and Albania. The area is situated in the northwestern part of Macedonia, the southern part of Kosovo and the northeastern part of Albania. Sharr Mountains National Park in Kosovo has an area of 53.469 ha and lies in the territory of the following municipalities: Kaçanik, Shtërpce, Suharekë, Prizren and Dragash. This area is known for the high rates of endemism of all groups due to the topographic complexity, geological events that happened in the past, unique microhabitats and long-term stable environmental parameters. This region is characterized by substantial forest ecosystems, and diverse geomorphological and hydrological features.

The spider fauna of this area is, however, poorly investigated. Spider fauna from the Sharr Mountains in Kosovo has been studied by Bresjančeva (1907) with nine species recorded , Kratochvíl (1935) with five species recorded, Drensky (1935, 1936) with five species recorded, Šilhavý (1944) with five species recorded, Deltshev *et al.* (2003) with six species recorded, Vrenozi & Jäger (2013) with five species recorded, and Geci & Naumova (2021b) with ten species recorded. When it comes to spiders Kosovo`s Sharr studies are fragmentary and include only small areas and data based on occasional short-term field trips.

The aim of this study was to investigate the composition of spider fauna from the Sharr Mountains (Kosovo).

MATERIALS AND METHODS

In this paper, we provide data from 22 sites in the Sharr Mountains from 690-2232m above sea level. Except for site S12, which belongs to North Macedonia, all the other sites are located in the Kosovo part of the Sharr Mountains. Sites S1-S14 are from current research while the others are from the literature (Table 1). Spiders were collected with different methods, such are sieving net, entomological net, beating bushes and handpicking. Samples were preserved in 70% alcohol and identified to the species level by using Olympus Stereomicroscope and photographed with a GXCAPTURE camera,

in the Laboratory of Zoology of the University of Prishtina by using the online identification key (Nentwig *et al*., 2022). Maps were made with the use of QGIS (Fig. 1). The nomenclature follows the World Spider Catalog (2022) and the taxa are listed alphabetically. Species are represented by the number of specimens, date and he place where they are found.

The newly recorded species are marked:

* the first record of species for Kosovo

** the first record of genera and species for Kosovo

● the first record of species for North Macedonia

■ the first record of species for Sharr

■■ the first record of genera and species for Sharr

Specimens are deposited at the University of Prishtina, Faculty of Mathematics and Natural Sciences, Department of Biology.

Tab. 1. Locality data for the fourteen sampling sites from Sharr Mountains

Code	Sampling Site	Latitude °N	Longitude °E	Altitude m
Localities from the current investigation				
S1	Brezovicë1	42.1847744	21.043387	1889
S2	Brezovicë2	42.184609	21.04773	1984
S3	Brezovicë3	42.184239	21.046723	1934
S4	Brezovicë4	42.182848	21.038382	1781
S5	Brezovicë5	42.18818	21.003503	1377
S6	Prevallë1	42.174846	20.975118	1405
S7	Prevallë2	42.166731	20.963175	1631
S8	Prevallë3	42.15928	20.960144	1896
S9	Reselicë1	41.92226	20.643631	1820
S10	Reselicë2	41.8584121	20.62171	1626
S11	Restelicë3	41.962404	20.647994	1245
S12	North Macedonia	41.857296	20.625278	1564
S13	Luboten1	42.211765	21.135465	1768
S14	Luboten2	42.205927	21.131744	1935
Localities from literature				
S15	Brezovicë6	42.2058	20.9532	1090
S16	Firajë	42.2485	21.0383	690
S17	Gotovushë	42.2344	21.0767	1140
S18	Livadhi Lake	42.2084	21.1153	2232
S19	Luboten3	42.2084	21.1153	2230
S20	Plavë	42.0959	20.6477	950
S21	Lubiqevë	42.1523	20.7386	730
S22	Sredskë	42.1721	20.8561	740

Fig. 1. Sampling sites in the Sharr Mountains (S1-11, S13-22 in Kosovo and S12 in North Macedonia) S13-S22 - Sites for which data are extracted from the literature.

RESULTS

Overall, 558 specimens were collected, and from them, 267 were adults that were identified to the species level. From the total number of adult specimens, 195 were females and 72 males.

Digital images of the essential taxonomic features were added for some rare species and some other species, which are difficult to identify: *Inermocoelotes karlinskii* (Fig. 2), *Inermocoelotes melovskii* (Fig. 3), *Histopona laeta* (Fig. 4), *Clubiona comta* (Fig. 5), *Clubiona pseudoneglecta* (Fig. 6), *Cybaeus balkanus* (Fig. 7), *Zelotes olympi* (Fig. 8), Ceratinella brevis (Fig. 9) and Linyphia *hortensis* (Fig. 10).

The highest number of the found genera belongs to the family Araneidae with 11 genera, followed by Linyphiidae with 7 genera and Theridiidae with 6 genera. The highest number of species comes from the family Araneidae 13 followed by Thomisidae with 9, Theridiidae 8, Lycosidae 8, and Linyphiidae 7. The highest number of specimens belongs to the following species: *Metellina segmentata* (47), *Metellina mengei* (37) and *Araneus quadratus* (34). Species with a single specimen captured are: *Inermocoelotes karlinskii*, *Amaurobius fenestrali*, *Histopona laeta*, *Araneus angulatus*, *Cyclosa conica*, *Clubiona comta*, *Dysderocrates silvestris*, *Dysderocrates storkani*, *Zelotes oblongus*, *Zelotes similis*, *Ceratinella brevis*, *Centromerus sylvaticus*, *Linyphia hortensis*, *Microlinyphia pusilla*, *Alopecosa accentuata, Philodromus dispar*, *Euophrys frontalis*,*Steatoda bipunctata*, *Steatoda paykulliana* and *Ozyptila trux*.

List of species

AGELENIDAE

1.* *Inermocoelotes karlinskii* (Kulczyński, 1906) (Fig. 2)

New data: S5 (1♂, 15. IX. 2021).

The images of the male presented (Fig. 2) correspond well with the drawings of Wang *et al*., 2010

Overall distribution: Carpatho-Balkanic

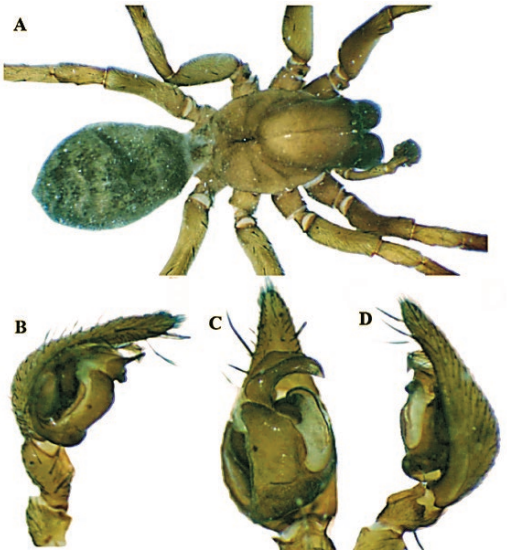

Fig. 2. A - Habitus, B - Palp prolateral, C - Palp ventral, D - Palp retrolateral

2. **Inermocoelotes melovskii* Komnenov, 2017 (Fig. 3)

New data: S9 (1♀, 08. V. 2018, 1♂, 26.V. 2021).

The images of the male and female presented (Fig. 3) correspond well with the drawings and images in the description (Komnenov, 2017)

Overall distribution: Balkan

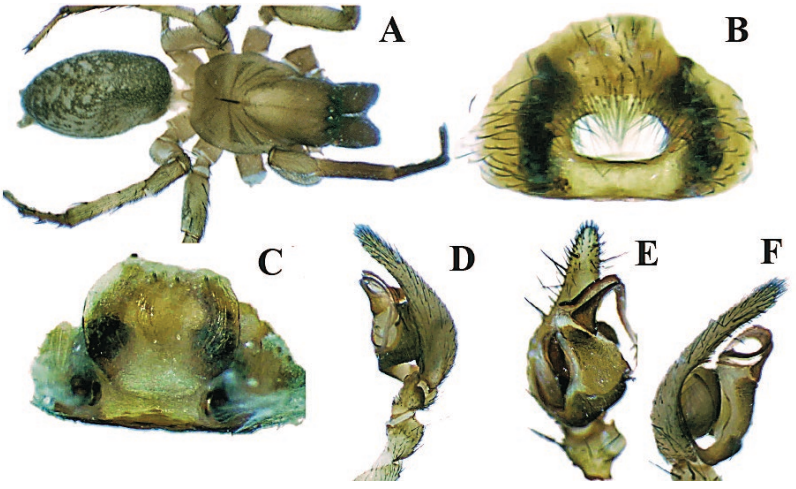

Fig. 3. *Inermocoelotes melovskii*, A - Habitus, B - Epigyne ventral, C - Epigyne dorsal, D - Palp retrolateral, E - Palp ventral, F - Palp prolateral

3. * ■ *Histopona laeta* (Kulczyński, 1897) (Fig. 4)

New data: S6 (1♀, 16. IX. 2021).

The images of the female presented (Fig. 4) correspond well with the drawings of Weiss & Rusdea, 1998

Overall distribution: Balkan

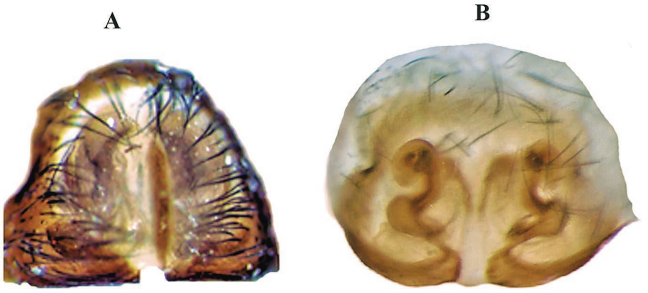

Fig. 4. *Histopona laeta*; Epigyne: A - ventral, B - dorsal

AMAUROBIIDAE

4. *Amaurobius fenestralis* (Ström, 1768)

New data: S11 (1♀, 26. IX. 2021).

Overall distribution: Euro-Central Asian

ARANEIDAE

5. *Aculepeira ceropegia* (Walckenaer, 1802)

New data: S2 (3♀♀ 1♂, 11. VII. 2021, 1♀, 24. VII. 2021), S6 (2♀♀ 1♂, 16. VII. 2021).

Overall distribution: Euro-Caucasian

6. Agalenatea redii (Scopoli, 1763)

Literature data: S16 (Geci & Naumova, 2021b).

Overall distribution: Palearctic

7. *Araneus angulatus* Clerck, 1757

New data: S10 (1♂, 26.IX.2021).

Overall distribution: Palearctic

8. **Araneus diadematus* Clerck, 1757

New data: S3 (1♀, 15. IX. 2021), S5 (2♀♀, 15. IX. 2021), S6 (2♀♀, 16. IX. 2021), S7 (2♀♀, 16. IX. 2021), S8 (1♀, 16. IX. 2021).

Overall distribution: Holartic

9. *Araneus quadratus* Clerck, 1757

New data: S1 (1♀, 11. VII. 2021, 4♀♀, 24. VII. 2021), S2 (1♀, 11. VII. 2021, 3♀♀, 24. VII. 2021), S3 (1♀, 15. IX. 2021), S5 (1♀, 15. IX. 2021), S6 (2♀♀, 16. IX. 2021), S7 (1♀ 1♂,16. IX. 2021), S8 (2♀♀, 16. IX. 2021), S9 (4♀ 1♂, 26. IX. 2021), S10 (6♀♀ 3♂♂, 26. IX. 2021), S12 (2♀♀ 1♂, 26. IX.2021), S13 (1♀, 11. V. 2018).

Overall distribution: Euro-Siberian

10. *Araniella cucurbitina* (Clerck, 1757)

Literature data: S21 (Bresjančeva, 1907).

Overall distribution: Paleartic

11. *Araniella opisthographa* (Kulczyński, 1905)

New data: S4 (2♀♀ 1♂, 11.VII.2021).

Overall distribution: Euro-Central Asian

12. *Cyclosa conica* (Pallas, 1772)

New data: S13 (1♀, 11.V.2018).

Overall distribution: Palearctic

13. *Gibbaranea bituberculata* (Walckenaer, 1802)

New data: S13 (1♀ 1♂, 11.V.2018).

Overall distribution: Palearctic

14. *Larinioides patagiatus* (Clerck, 1757)

New data: S1 (13♀♀ 2♂, 11. VII. 2021).

Overall distribution: Holarctic

15. *Nuctenea umbratica* (Clerck, 1757)

Literature data: S16 (Geci & Naumova, 2021b).

Overall distribution: Euro-Central Asian

16. *Singa hamata* (Clerck, 1757)

Literature data: S21 (Bresjančeva, 1907; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013)

Overall distribution: Palearctic

17. *Zilla diodia* (Walckenaer, 1802).

Literature data: S16 (Geci & Naumova, 2021b).

Overall distribution: Palearctic

CLUBIONIDAE

18. * ■ *Clubiona comta* C. L. Koch, 1839 (Fig. 5)

New data: S1 (1♀, 15. IX. 2021).

The images of the female presented (Fig. 5) correspond well with images made by Bosmans *et al*., 2017.

Overall distribution: Euro-Caucasian

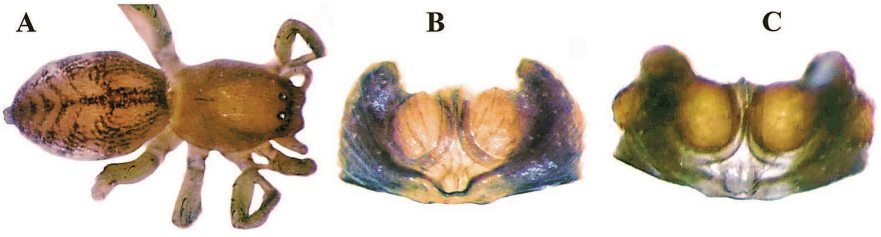

Fig. 5. *Clubiona comta*, A - Habitus, B - Epigyne Ventral, C - Epigyne Dorsal

19. * ■ *Clubiona pseudoneglecta* Wunderlich, 1994 (Fig. 6)

New data: S7 (1♀, 16. IX. 2021), S9 (1♀, 26. IX. 2021), S10 (1♀, 26. IX. 2021).

The images of the female presented (Fig. 6) correspond well with images made by Bosmans *et al.*, 2017.

Overall distribution: Euro-Central Asian

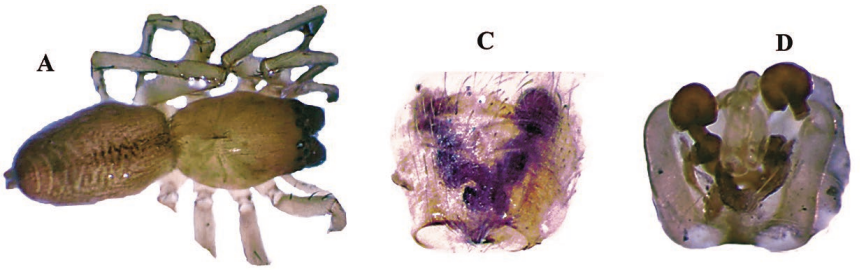

Fig. 6. *Clubiona pseudoneglecta,* A - Habitus, B - Epigyne ventral, C - Epigyne dorsal

CYBAEIDAE

20. ** *Cybaeus balkanus* Deltshev, 1997 (Fig. 7)

New data: S3 (1♂, 11. VII. 2021).

The images of the male (Fig. 7) correspond well with the drawings in the description (Deltshev, 1997).

Overall distribution: Balkan

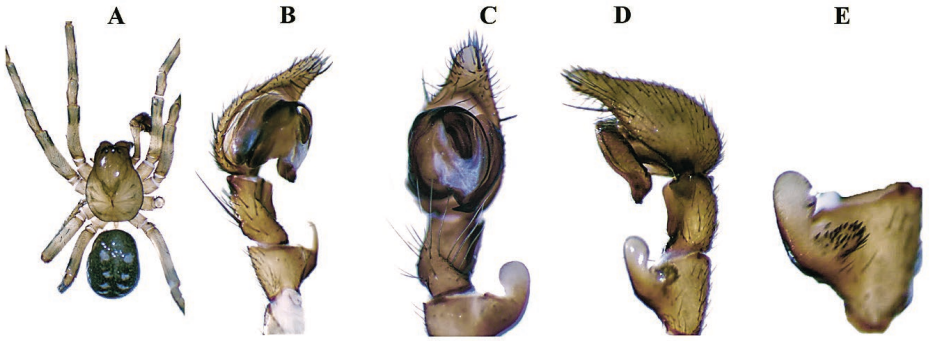

Fig. 7. *Cybaeus balkanus,* A - Habitus, B - Palp retrolateral, C - Palp prolateral, D - Palp ventral, E - Palp dorsal, F - patellar apophasis

DYSDERIDAE

21. * *Dysderocrates silvestris* Dieleman-Reinhold, 1988

New data: S3 (1♂, 24. VII. 2021).

Overall distribution: Balkan

22. *Dysderocrates storkani* (Kratochvíl, 1935)

Literature data: S18 (Kratochvíl, 1935)

New data: S14 (1♀, 11. V. 2018).

Overall distribution: Balkan

GNAPHOSIDAE

23. *Drassodes lapidosus* (Walckenaer, 1802)

New data: S2 (2♀♀, 24. VII. 2021), S3 (1♀ 1♂, 24. VII. 2021).

Overall distribution: Palearctic

24. * *Zelotes oblongus* (C. L. Koch, 1833)

New data: S9 (1♀, 08. V. 2018).

Overall distribution: South-European

25. *●■ *Zelotes olympi* (Kulczyński, 1903) (Fig. 8)

New data: S10 (1♀ 2♂♂, 26. IX. 2021), S12 (1♀ 2♂♂, 26. IX. 2021).

The presented images of the male (Fig. 8) fit well with the drawings of Kovblyuk, 2005.

Overall distribution: Euro-Caucasian

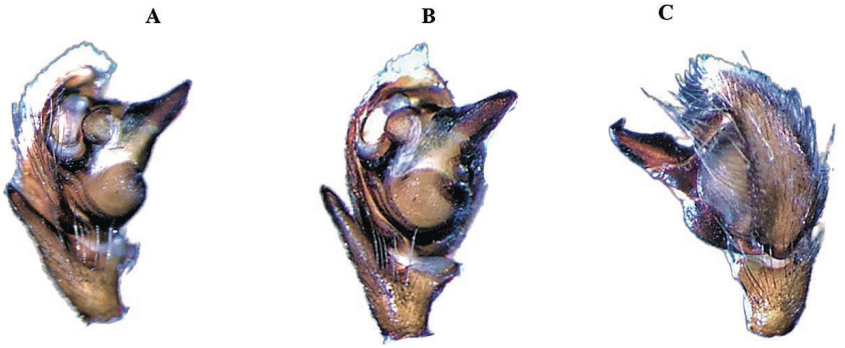

Fig. 8. *Zelotes olympi*, A - Palp retrolateral, B - Palp ventral, C - Palp prolateral

26. * *Zelotes similis* (Kulczyński, 1887)

New data: L14 (1♀, 11. V. 2018).

Overall distribution: Euro-Central Asian

LINYPHIIDAE

27. ** *Bolyphantes alticeps* (Sundevall, 1833)

New data: S1 (1♂, 15. IX. 2021), S7 (1♂, 16. IX. 2021), S9 (1♂, 26. IX. 2021).

Overall distribution: Euro-Asian

28. **■■ *Ceratinella brevis* (Wider, 1834) (Fig. 9)

New data: S4 (1♂, 15. IX. 2021).

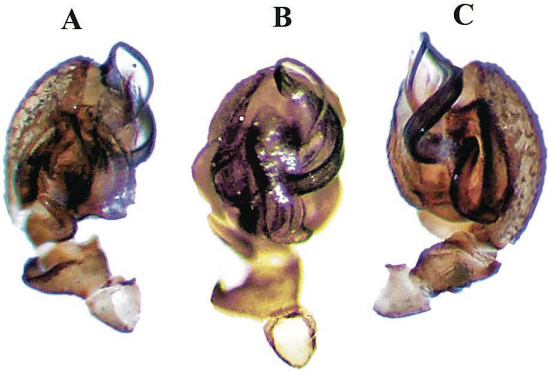

Fig. 9. *Ceratinella bervis,* A - Palp pretrolateral, B - ventral, C - prolateral

The images of the male presented (Fig. 9) fit well with the images of Coşar (2021).

Overall distribution: Euro-Asian

29. ** *Centromerus sylvaticus* (Blackwall, 1841)

New data: S5 (1♂, 15. IX. 2021).

Overall distribution: Holarctic

30. * *Linyphia hortensis* Sundevall, 1830 (Fig. 10)

New data: S6 (1♂, 30. X. 2010).

The images of the male presented (Fig. 10) fit well with the drawing made by Roberts (1998).

Overall distribution: Palearctic

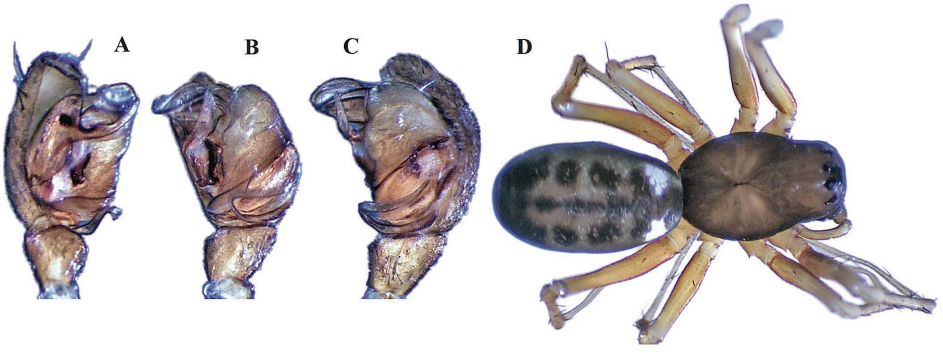

Fig. 10. *Linyphia hortensis,* A - Palp pretrolateral, B - vetral , C - prolateral, D - habitus

31. *Neriene montana* (Clerck, 1757)

Literature data: S16 (Geci & Naumova, 2021b)

Overall distribution: Euro-Asian

32. *Microlinyphia pusilla* (Sundevall, 1830) *
New data: S2 (1♂, 11. VII. 2021).
Overall distribution: Euro-Siberian.
33. ***Mughiphantes* sp.
New data: S5 (1♂, 15. IX. 2021), S6 (2♂♂, 16. IX. 2021)
Overall distribution: Balkan
34. *Tenuiphantes tenebricola* (Wider, 1834)
New data: S5 (2♀♀ 1♂, 11. VII. 2021).
Overall distribution: Euro-Siberian

LYCOSIDAE
35. * *Alopecosa accentuata* (Latreille, 1817)
New data: S13 (1♂, 11. V. 2018).
Overall distribution: Euro-Central Asian
36. *Alopecosa cuneata* (Clerck, 1757)
New data: S9 (3♂♂, 08. V. 2018)
Overall distribution: Euro-Siberian.
37. *Alopecosa trabalis* (Clerck, 1757)
Literature data: S22 (Deltshev *et al.*, 2003; Vrenozi & Jäger, 2013)
Overall distribution: European
38. *Pardosa fulvipes* (Collett, 1876)
Literature data: S17 (Kratochvíl, 1935)
Overall distribution: Euro-Siberian
39. *Pardosa lugubris* (Walckenaer, 1802)
Literature data: S16 (Geci & Naumova, 2021b).
Overall distribution: Palearctic
40. *Pardosa mixta* (Kulczyński, 1887)
Literature data: S18, S19 (Kratochvíl, 1935)
Overall distribution: European
41. **Pardosa monticola* (Clerck, 1757)
New data: S13 (2♀♀ 1♂, 11. V. 2021).
Overall distribution: European
42. *Pardosa saltuaria* (L. Koch, 1870)
Literature data: S19 (Kratochvíl, 1935)
New data: S1 (2♀♀, 11. VII. 2021), S3 (11♀♀ 1♂, 11. VII. 2021, 4♀♀ 2♂, 24. VII. 2021).
Overall distribution: Euro-Caucasian
43. *Trochosa robusta* (Simon, 1876)
Literature data: S18 (Kratochvíl, 1935)
New data: S14 (2♀♀, 11. V. 2018)
Overall distribution: Euro-Siberian

OXYOPIDAE

44. *Oxyopes ramosus* (Martini & Goeze, 1778)

Literature data: S21 (Bresjančeva, 1907; Drensky, 1936; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013)

Overall distribution: Euro-Siberian

PHILODROMIDAE

45. **Philodromus dispar* Walckenaer, 1826

New data: S9 (1♀, 08.V.2018).

Overall distribution: Euro-Caucasian

46. * *Tibellus oblongus* (Walckenaer, 1802)

New data: S1 (1♂, 11. VII. 2021), S2 (4♀♀, 1♂, 11. VII. 2021)

Overall distribution: Holarctic

PISAURIDAE

47. *Pisaura mirabilis* (Clerck, 1757)

Literature data: S15, S21 (Geci & Naumova, 2021b; Bresjančeva, 1907; Drensky, 1936; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013)

New data: S1 (2♀♀, 24.VII.2021), S12 (2♀♀, 3♂♂, 26.IX.2021), S13 (1♂, 11. V. 2018).

Overall distribution: Palearctic

SALTICIDAE

48. ** *Euophrys frontalis* (Walckenaer, 1802)

New data: S5 (1♀, 11.V.2021)

Overall distribution: Palearctic

49. **Neon reticulatus* (Blackwall, 1853)

New data: S6 (2♀♀, 16. IX. 2021)

Overall distribution: Holartic

50. *Marpissa muscosa* (Clerck, 1757)

Literature data: S15, S16 (Geci & Naumova, 2021b)

Overall distribution: Euro-Siberian

51. *Pellenes seriatus* (Thorell, 1875)

Literature data: S15 (Geci & Naumova, 2021b)

Overall distribution: Euro-Central Asian

SEGESTRIIDAE

52. *Segestria senoculata* (Linnaeus, 1758)

Literature data: S15 (Geci & Naumova, 2021b)

New data: S2 (2♀♀, 11. VII. 2021), S9 (1♀ 1♂, 26.IX.2021).

Overall distribution: Palearctic

SPARASSIDAE

53. *Micrommata virescens* (Clerck, 1757)

Literature data: S21 (Bresjančeva, 1907; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013).

Overall distribution: Palearctic

TETRAGNATHIDAE

54.* *Metellina mengei* (Blackwall, 1869)

New data: S6 (5♀♀, 30. X. 2010, 24♀♀ 8♂, 16. IX. 2021)

Overall distribution: Euro-Caucasian

55. *Metellina merianae* (Scopoli, 1763)

Literature data: S20 (Vrenozi & Jäger 2013)

Overall distribution: Euro-Central Asian

56. *Metellina segmentata* (Clerck, 1757)

New data: S3 (8♀♀ 2♂♂, 15. IX. 2021), S4 (4♀♀, 15. IX. 2021), S10 (22♀♀ 9♂♂, 26. IX. 2021), S12 (2♀♀, 26. IX. 2021)

Overall distribution: Holarctic

THERIDIIDAE

57. *Enoplognatha ovata* (Clerck, 1757)

Literature data: S21 (Bresjančeva 1907; Drensky 1936)

Overall distribution: Holartic

58. *Crustulina guttata* (Wider, 1834)

Literature data: S16 (Geci & Naumova, 2021b)

Overall distribution: Euro-Asian

59. *Phylloneta sisyphia* (Clerck, 1757)

Literature data: S21 (Bresjančeva, 1907; Drensky, 1936)

New data: S4 (3♀♀, 15. IX. 2021), S6 (2♀♀, 16. IX. 2021)

Overall distribution: Palearctic

60. * *Platnickina tincta* (Walckenaer, 1802)

New data: S1 (3♀♀, 11.VII.2021, 1♀, 24.VII.2021), S2 (1♀, 24.VII.2021)

Overall distribution: Euro-Siberian

61. *■ *Robertus lividus* (Blackwall, 1836)

New data: S6 (1♂, 30. X. 2010)

Overall distribution: Euro-Asian

62. *Steatoda albomaculata* (De Geer, 1778)

New data: S10 (2♀♀ 1♂, 26. IX. 2021), S12 (3♀, 2♂, 26. IX. 2021).

Overall distribution: Holarctic

63. **Steatoda bipunctata* (Linnaeus, 1758)

New data: S8 (1♀, 16. IX. 2021)

Overall distribution: Euro-Asian

64. *Steatoda paykulliana* (Walckenaer, 1806)

New data: S10 (1♀, 26. IX. 2021).

Overall distribution: Mediterranean-Central Asian

THOMISIDAE

65. *Runcinia grammica* (C. L. Koch, 1837)

Literature data: S21 (Bresjančeva, 1907)

Overall distribution: Euro-Siberian

66. *■ *Ozyptila trux* (Blackwall, 1846)

New data: S11 (1♂, 26. IX. 2021)

Overall distribution: Euro-Caucasian

67. *Psammitis sabulosus* (Hahn, 1832)

Literature data: S19 (Šilhavý, 1944)

Overall distribution: European

68. *Thomisus onustus* Walckenaer, 1805

Literature data: S21 (Bresjančeva, 1907; Drensky, 1936; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013).

Overall distribution: Palearctic

69. *Xysticus audax* (Schrank, 1803)

New data: S2 (1♀, 11. VII. 2021, 1♀, 24. VII. 2021).

Overall distribution: Palearctic

70. *Xysticus cristatus* (Clerck, 1757)

Literature data: S17, S18 (Šilhavý, 1944).

Overall distribution: Euro-Siberian

71. *Xysticus erraticus* (Blackwall, 1834)

Literature data: S17 (Šilhavý, 1944)

New data: S13 (1♀, 11. V. 2018).

Overall distribution: European

72. *Xysticus ferrugineus* Menge, 1876

Literature data: S19 (Šilhavý, 1944).

Overall distribution: Euro-Asian

73. *Xysticus kochi* Thorell, 1872

Literature data: S19 (Šilhavý, 1944).

Overall distribution: Palearctic

74. *Xysticus lanio* C. L. Koch, 1835

Literature data: S19 (Šilhavý, 1944).

Overall distribution: Palearctic

DISCUSSION

According to literature data and current data, in the Kosovo part of the Sharr Mountains there are 74 species of spider, belonging to 51 genera and 18 families.

Inermocoelotes melovskii was previously known only from the North Macedonian part of Sharr (Komnenov, 2017) but now is found in Kosovo as well.

Spider species included in this research belong to 11 zoogeographic areas, with the majority of the species belonging to the Palearctic region, in total 25.6% of the total number of species (19), followed by Euro-Siberian species with 14.86% (11), Euro-Central Asian and Holarctic species, that share the same percentage of 10.81% (8), Euro-Caucasian and Euro-Asian, each with 9.46% (7), Balkan endemic species with 8.10%, European species 6.75% (5), Carpatho-Balkanic, South European and Mediterranean-Central Asian make 1.35% of the total number of the species each.

The knowledge of spiders in Kosovo was neglected for a long time but lately it has been slowly increasing (Geci & Naumova, 2021a, 2021b).

ACKNOWLEDGEMENTS

This research is financed by the Ministry of Education, Science and Technology of the Republic of Kosovo as part of the project: Biodiversity research in alpine lakes in the Sharr Mountains and surrounding ecosystems. We want to thank two peer reviewers for their comments that helped improving this paper.

Received October 6, 2022

REFERENCES

Bosmans, R., Henrard, A., Benhalima, S. & Kherbouche-Abrous, O., 2017: The genus Clubiona Latreille, 1904 (Araneae: Clubionidae) in the Maghreb, with notes on the genevensis group and new records from the Mediterranean Region. Zootaxa **4353**, 1-28.

Bresjančeva, J., 1907: Prilog za poznavanje srpske aranejske faune. Travaux Faitsau Laboratoire de Zoologie à l'Université de Belgrade, **1**(2-3), 1–16. (In Serbian).

Coşar, İ., 2021: A new record of *Ceratinella* Emerton, 1882 (Araneae: Linyphiidae) from Turkey. Caucasian Entomological Bulletin **27**, 395-399.

Deltshev, C., 1997: A new species of Cybaeidae: *Cybaeus balkanus* spec. nov. from the mountains of Balkan peninsula (Arachnida: Araneae). Reichenbachia **32**, 1-4.

Deltshev, C., Ćurčić, B.P.M. & Blagoev, G., 2003: The spiders of Serbia. Committee for Karst and Speleology – Serbian Academy of Sciences and Arts; Institute of Zoology-Bulgarian Academy of Sciences; Institute of Zoology - Faculty of Biology -University of Belgrade; Institute for Biological Research "Siniša Stanković" (co-publishers), Belgrade – Sofia. 833 p.

Drensky, P., 1935: Paiatsi (Araneae) sabirani ot Dr Stanko Karaman v Jougoslavia i osobeno v Makedonia. Izvestiya na Tsarskite Prirodonauchni Instituti v Sofia, **8**, 97–110. (In Bulgarian).

Drensky, P., 1936: Katalog der echten Spinnen (Araneae) der Balkan halbinsel. Sbornik na Balgarskata akademia na naukite, **32**, 1–223.

Geci, D. & Naumova, M., 2021a: A preliminary checklist of the spiders of Kosovo (Arachnida: Araneae). Ecologia Balkanica, Special Edition **4**, 1-10.

Geci, D. & Naumova, M., 2021b: A preliminary checklist of the spiders of Kosovo (Arachnida: Araneae). Ecologia Balkanica, Special Edition **4**, 11-28.

Komnenov, M., 2017: New data on spider fauna (Araneae) of Shar Mountain, North-Western Macedonia. Proceedings of the 5th Congress of the Ecologists of Macedonia (Ohrid, 19th-22nd October 2016). Special issues of the Macedonian Ecological Society, 44-61.

Kovblyuk, M. M., 2005: Little-known species of the genus Zelotes (Aranei, Gnaphosidae) from Crimea. Vestnik Zoologii **39**, 3-14.

Kratochvíl, J., 1935: Araignées nouvelles ounon encore signalées en Yougoslavie. Première partie. Folia Zoologica et Hydrobiologica, Rigā, **8**, 10–25.

Nentwig, W., Blick, T., Bosmans, R., Gloor, D., Hänggi, A. & Kropf, C., 2022: Spiders of Europe. Version 14.01.2022. Online at https://www.araneae.nmbe.ch, accessed on 14.01.2022. https://doi.org/10.24436/1.

Roberts, M. J., 1998: Spinnengids. Tirion, Baarn, Netherlands, 397 pp.

Šilhavý, V., 1944: De Araneis familiae Thomisidae in Balcano occidentali viventibus. Sborník Klubu Přírodovědeckého v Brně, **25**, 90–95.

Vrenozi, B. & Jäger, P., 2013: Spiders (Araneae) from Albania and Kosovo in the collection of Carl Friedrich Roewer. Arachnologische Mitteilungen, **46**, 17–26.

Wang, X. P., Zhu, M. S. & Li, S. Q., 2010: A review of the coelotine genus *Eurocoelotes* (Araneae: Amaurobiidae). Journal of Arachnology **38**, 79-98.

Weiss, I. & Rusdea, E., 1998; Validierung der endemischen Trichterspinne Histopona laeta (Kulczynski, 1897) mit Erstbescheibung des Männchens (Arachnida: Araneae: Agelenidae. Mauritania (Altenburg) **16**, 515-520.

World Spider Catalog, 2022: World Spider Catalog. Version 22.5. Natural History Museum Bern, online at http://wsc.nmbe.ch (accessed on 14.01.2022). doi: 10.24436/2.

ECOLOGIA BALKANICA
2021, Special Edition 4 pp. 1-9

The Spotted Orb-weaver Neoscona byzanthina (Pavesi, 1876) – An Enigmatic but Common Species on the Balkans (Araneae: Araneidae)

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Abstract. The spotted orb-weaver spider *Neoscona byzanthina* was described from the south-eastern point of the Balkan Peninsula – the town Istanbul (Constantinople) in Turkey by Pavesi (1876) and herein is reported from Albania, Bulgaria, Kosovo and North Macedonia for the first time. Its taxonomy, ecology and general distribution are summarized and discussed.

Key words: Albania, Bulgaria, global distribution, Kosovo, North Macedonia, spider, taxonomic features.

Introduction

The spider *Neoscona byzanthina* was originally placed in a genus *Epeira* Walckenaer, 1805 (now considered a junior synonym of *Araneus* Clerck, 1757) and was described on the base of female specimens from European part of Istanbul (Constantinople) independently by Pavesi (1876) and Simon (1879), respectively as *Epeira byzanthina* and *E. turcica*, after specimens collected by Spagnolini (Spagnolini, 1877). Simon (1884) subsequently synonymized the two and much later (Simon, 1929) pointed out that *N. byzanthina* might be a local variety of *N. adianta* (Walckenaer, 1802). The species was accepted in the catalogue of Bonnet (1955), whereas in the catalogue of Roewer (1955) the author considered that *N. byzanthina* is synonymous with *N. adianta*. Since then, *N. byzanthina* was not cited (except in Ledoux & Canard (1981) under a single male palp drawing), until Ledoux (2008) differentiated it from *N. adianta*. Ledoux (2008) studied in detail and illustrated the species in France and concludes that: 1) the individuals of *N. byzanthina* are larger than those of *N. adianta* and the genitalia size follows that difference in size between the two species; 2) opisthosoma design is more variable in *N. byzanthina* than in *N. adianta* and the first elongations of the bands are a little bit larger in *N. adianta*. In addition 3) the apical ends of the femurs are usually darker in *N. byzanthina* (after Simon, 1929) and 4) the hook of the epigyne has a triangular form in *N. adianta*, whereas in *N. byzanthina* it is more elongated and rounded. Also, the phenology of both species is different, since adults of *N. adianta* are frequent on June and July and adults of *N. byzanthina* are frequent on August and September.

The aim of this work is to present new faunistic and taxonomic data of the Balkans population of *Neoscona byzanthina*.

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Naumova, 2021). Addition data can be found in few other papers (Drensky, 1936, Nikolić & Polenec, 1981, Knoflach, 1996, Deltshev *et al*., 2003, Rezac *et al*., 2014, Mammola *et al*., 2018, Naumova *et al*., 2019a, 2019b) and that seems to be the final list for the moment.

The aim of this study is to summarizes and presents all available data of the spiders of Kosovo, both from the literature and from original records by providing a preliminary checklist and an annotated catalogue of the spiders in Kosovo.

Material and Methods

The presented list of the spiders of Kosovo is based on the critical review of the existing literature records on the distribution of spiders in the studied area. We excluded all the records from `Serbia`, `Yugoslavia` and `Balkans` for which cannot certainly be argued that relate to Kosovo, so we worked only with reports, contained reliable data on the spider fauna from there. We also excluded all the records from mount Kapaonik originated from Stojićević, (1929) and their later citations in Drensky (1936), Nikolić & Polenec (1981), Deltshev *et al*. (2003) and Vrenozi & Jager (2013), because they refer to specific localities in Serbia (Jelak nr. Brus, Jošanička Banja nr. Baljevac, Kriva reka, Srebrnac, Suvo Rudište (Pančićev Vrh)). Only two species (*Erigone atra* Blackwall, 1833 and *Mansuphantes mansuetus* (Thorell, 1875)) have been listed from `Kopaonik` without precise locations, but there is no evidence that Stojićević worked with material on the Kosovo`s part of the mountain, so we exclude them as well. Other excluded records (actually refer to North Macedonia) are: Kaçanik (in Mammola *et al*., 2018 after Drensky, 1935: Kaçanik, cave in village Blace) and Gnjilane (in Drensky, 1936 after Stojićević, 1929: Končulj, nr. Gnjilane). Four other records (Šilhavý, 1944), may be located in both Kosovo and North Macedonia (`Sar – Bačila, 1700 m`, `Sar – Jezerska, 2000 m`, `Sar, Ljubotin` and `Sar – pod Ljubotinem u Nikolic`). They are included herein as very probable and are marked with question mark in parentheses in the list of localities. The species, erroneously reported from Kosovo are presented in Table 1.

The localities were mapped on the basis of exact (taken in with a GPS-receiver) or approximate (on the basis of the location of the settlements/geographic objects) geographic coordinates (decimal), rounded to 4 decimal places (Fig. 1). The list of localities (alphabetically by districts and municipalities) includes the sites with numbers 1 to 50 (mapped), followed by site 51 (Kosovo, without precise locality; not mapped). Mapping and visualization of the map were done by ArcGIS 10.1 (ESRI, Redlands, California, USA).

The nomenclature follows the World Spider Catalog (2021) and the taxa are listed alphabetically. The newly recorded species are marked with an asterisk. The literature sources are listed chronologically (except in cases where the authors have more than one cited publications – then the years are listed after the first mention). The general distribution of the species is provided mainly according to World Spider Catalog (2021) and Nentwig *et al*. (2021). The additional sources were cited. The names of the collectors are abbreviated: AZ=Alexey Zhalov, BP=Boyan Petrov, DG=Donard Geci, MN=Maria Naumova. The material is deposited in the National Museum of Natural History-Sofia (collected from AZ, BP), the University of Prishtina (collected from DG) and in the Institute of Biodiversity and Ecosystem Research (collected from MN). Other abbreviations used: j=juvenile, jj = juveniles.

Results

The preliminary spider checklist presented herein includes 159 species belonging to 108 genera and 29 families (Table 2). From them 63 species (marked with an asterisk), 42 genera and 9 families are newly discovered during this study.

Table 1. List of the localities (alphabetically per DISTRICTS and Municipalities: L1–L51 – numbers used in the Map (Fig. 1) and in the List of species. Arrangement: number; locality (alternative names and transliterations), Geographical object, coordinates (decimal), altitude (m)).

N	Locality	Object/area	Coordinates	Alt.
	FERIZAJ (Uroševac)			
	Ferizaj (Uroševac)			
L1	Nerodime (Nerodimlje)	Sharr (Šar) Mts.	N42.3605°, E21.0940°	690
L2a	Nerodime e Epërme (Gornje Nerodimlje) 1	Carralevë (Crnoljeva) Mts.	N42.3671°, E21.0329°	714
L2b	Nerodime e Epërme (Gornje Nerodimlje) 2	Carralevë (Crnoljeva) Mts.	N42.3637°, E21.0527°	666
L3	Sazli (Saslja, Saslija, Sazlija)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.4060°, E21.1876°	570
	Kaçanik (Kačanik)			
L4	Doganaj village	Rrafshi i Kosovës (Kosovo Polje plain)	N42.2667°, E21.1822°	590
L5a	Kaçanik (Kačanik, Kachanik)	Karadak (Skopska Crna Gora) Mts	N42.2257°, E21.2674°	580
L5b	Kaçanik gorge (Kačaniska Klisura, Gryka e Kaçanikut)	Karadak (Skopska Crna Gora) Mts	N42.2102°, E21.2491°	480
	Shtërpcë (Štrpce)			
L6	Brezovicë	Sharr (Šar) Mts.	N42.2058°, E20.9532°	1090
L7	Firajë	Sharr (Šar) Mts.	N42.2485°, E21.0383°	690
L8	Gotovuse (Gotovuša) village, Ropotski Potok river	Sharr (Šar) Mts.	N42.2344°, E21.0767°	1140
L9	Livadh Lake (Strbacko Jezero, Liqeni i Malit Sharr "Gjoli")	Sharr (Šar) Mts.	N42.1909°, E21.0734°	200
L10a	(?) Luboten1 (`Sar, N Shar Mts, Ljubotin`)	Sharr (Šar) Mts.	N42.2084°, E21.1153°	245
L10b	(?) Luboten2 (`Sar - pod Ljubotinem u Nikolic`)	Sharr (Šar) Mts.	N42.2084°, E21.1153°	245
L11	Shtërpcë (Štrpce)	Carralevë (Crnoljeva) Mts.	N42.2257°, E21.0092°	891
	Shtime (Štimlje)			
L12	Carralevë (Crnoljeva) village	(Crnoljeva) Mts.	N42.4574°, E20.9818°	640
L13	Petrove village, cave Shpella Devetakut	Carralevë (Crnoljeva) Mts.	N42.3973°, E20.9722°	791
	GJILAN (Gnjilane)			
	Gjilan (Gnjilane)			
L14	Gjilan (Gnjilane)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.4994°, E21.4605°	600
	Viti (Vitina)			
L15	Pozharan	Rrafshi i Kosovës (Kosovo Polje plain)	N42.3496°, E21.3496°	715
	MITROVICË (Mitrovica)			
	Mitrovicë (Mitrovica)			
L16a	Mitrovicë (Kosovska Mitrovica) 1	Rrafshi i Kosovës (Kosovo Polje plain)	N42.8913°, E20.8858°	540
L16b	Mitrovicë (Kosovska Mitrovica) 2	Rrafshi i Kosovës (Kosovo Polje plain)	N42.8687°, E20.8593°	548
L16c	Mitrovicë (Kosovska Mitrovica) 3	Rrafshi i Kosovës (Kosovo Polje plain)	N42.8698°, E20.8828°	503
L17	Vaganicë village	Rrafshi i Kosovës (Kosovo Polje plain)	N42.8489°, E20.8624°	621
L18	Zasellë	Kopaonik Mts.	N42.8854°, E20.8988°	671
	Zveçan (Zvečan)			
L19	Bajskë (Banjska, Banska)	Rogozna Mts.	N42.9700°, E20.7849°	590
L20	Zveçan (Zvečan, Zvechan)	Rogozna Mts.	N42.9076°, E20.8307°	535
	PEJË (Peć)			
	Deçan (Dečani)			
L21a	Deçan (Dečani)	Dukagjin	N42.5372°, E20.2849°	620
L21b	Manastiri i Deçanit (Visoki Dečani Monastery)	Bjeshket e Nemuna (Prokletije)	N42.54805°, E20.2663°	650

L22	Prilep village Istog (Istok)	Dukagjin	N42.4955°, E20.3087°	547
L23	Istog (Istok)	Mokna (Mokra Gora) Mts.	N42.7908°, E20.4740°	700
L24	Veriq village Klinë (Klina)	Dukagjin	N42.7511°, E20.5518°	505
L25	Deiq village	Dukagjin	N42.6121°, E20.5592°	383
L26	Dollc village	Dukagjin	N42.5947°, E20.5923°	394
L27	Ujëvarët e Mirushës (Mirusha Waterfalls , Slapovi Miruše)	Dukagjin	N42.5241°, E20.5999°	455
L28	Zajm village Pejë (Peć)	Dukagjin	N42.5930°, E20.5552°	411
L29	Bellopojë	Dukagjin	N42.6409°, E20.2891°	514
L30	Kopranik (Koprivnik) Mts	Bjeshket e Nemuna (Prokletije)	N42.6367°, E20.2552°	1140
L31	Novosellë (Novo selo)	Dukagjin	N42.7311°, E20.3381°	505
L32	Pejë (Peć, Pech, Pedgh, Ipek)	Dukagjin	N42.6551°, E20.2859°	535
L33a	Peje: Rugova Canyon: cave Gryka e Madhe (Great Canyon cave)	Bjeshket e Nemuna (Prokletije)	N42.6647°, E20.2025°	637
L33b	Peje: Rugova Canyon: cave Shpella e Karamakazit (cave Karamakis, Black Scissors cave)	Bjeshket e Nemuna (Prokletije)	N42.6661°, E20.2001°	830
L34a	Shpella e Drinit Bardhë cave(Radaci Cave, Sleeping Beauty cave; Bukuroshja e Fjetur; Shpella Radacit-Cave, Radove (Radovac) cave)	Bjeshket e Nemuna (Prokletije): Zhleb Mt.	N42.7370°, E20.3066°	627
L34b	White Drin falls (Drini i Bardhë)	Bjeshket e Nemuna (Prokletije): Zhleb Mt.	N42.7390°, E20.3072°	585
L35	Zhleb (Zljeb, Zleb, Zljb) Mt PRISHTINË Fushë Kosovë (Kosovo Polje)	Bjeshket e Nemuna (Prokletije)	N42.7148°, E20.2653°	1480
L36	Henc wetland Lipjan (Lipljan)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.5822°, E21.0486°	538
L37	Konjuh	Rrafshi i Kosovës (Kosovo Polje plain)	N42.5388°, E21.1407°	562
L38	Ribar i Vogël village Prishtinë (Priština)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.5144°, E21.0679°	573
L39	Gazimestan	Rrafshi i Kosovës (Kosovo Polje plain)	N42.6906°, E21.1237°	652
L40a	Germia Protected landsacape	Gollak (Goljak) Mts.	N42.6760°, E21.2028°	773
L40b	Gollakë (Gollaku, Malësinë e Gollakut)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.6853°, E21.1809°	617
L41	Lebane (Labjani)	Gollak (Goljak) Mts.	N42.7425°, E21.1523°	630
L42	Prishtinë PRIZEREN (Prizren) Dragash (Dragaš)	Rrafshi i Kosovës (Kosovo Polje plain)	N42.6381°, E21.1334°	561
L43	(?) Bačila (`Sharr-Bačila Staletovičova, most N Shar Mts, 1700 m`)	Sharr (Šar) Mts.	N42.2966°, E21.0408°	1650
L44	(?) Jezerska (`Sar – Jezerska, 2000 m`)	Sharr (Šar) Mts.	N42.0978°, E20.7878°	2000
L45	Plavë (Plave, Plava, Plavenica) village Prizeren (Prizren)	Sharr (Šar) Mts.	N42.0959°, E20.6477°	950
L46	Lubiqevë (Ljubičevo, Ljubichevo)	Sharr (Šar) Mts.	N42.1523°, E20.7386°	730
L47	Prizeren (Prizren)	Dukagjin	N42.2162°, E20.7370°	541
L48	Sredskë (Sredska, Sretska) Suharekë (Suva reka)	Sharr (Šar) Mts.	N42.1721°, E20.8561°	740

L49	Carralevë (Mali i Carralevës) 1	Carralevë (Crnoljeva) Mts	N42.4275°, E20.9036°	795
L50a	Carralevë (Mali i Carralevës) 2	Carralevë (Crnoljeva) Mts	N42.4446°, E20.9157°	759
L50b	Carralevë (Mali i Carralevës) 3	Carralevë (Crnoljeva) Mts	N42.4416°, E20.9165°	720
	Without precise locality			
L51	Kosovo (Kossovo, Kossowo)			

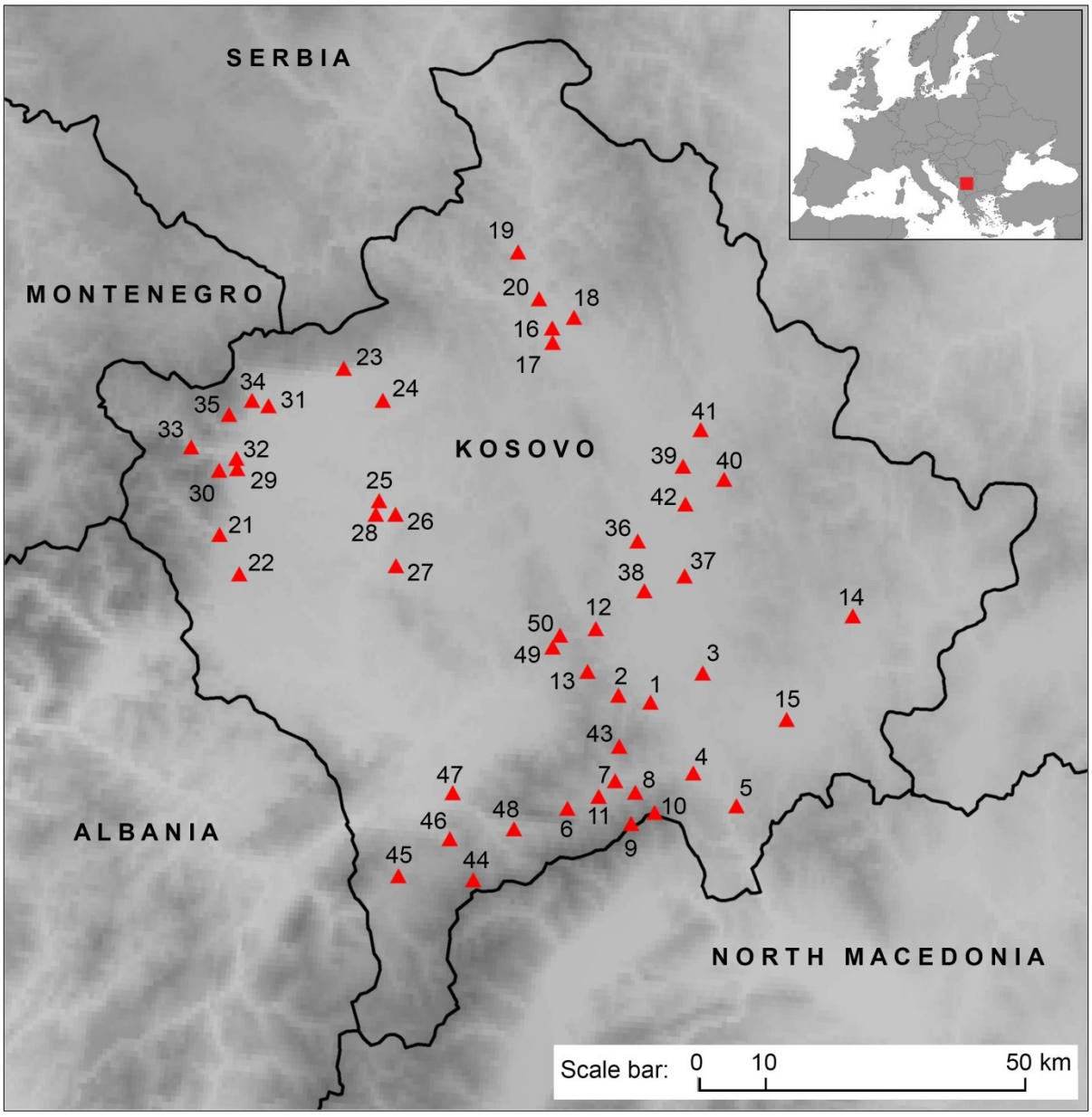

Fig. 1. Map with localities of the spiders in Kosovo. For details, see List of localities.

Annotated list & catalogue of the spiders in Kosovo:

AGELENIDAE
**Eratigena agrestis* (Walckenaer, 1802)
New data: L16 (1 ♂, 29.VII.2020, DG).
Global distribution: Palearctic, introduced to USA and Canada.

**Histopona torpida* (C. L. Koch, 1837)
New data: L37 (2♂, 24.V.2019, DG).
Global distribution: West Palearctic.

Inermocoelotes falciger (Kulczyński, 1897)
Literary data: L31 (sub *Coelotes f.*: Kolosvary 1940), L32 (sub *Coelotes f.*: Kolosvary 1938, Deltshev *et al.*, 2003, sub *Inermocoelotes f.*: Vrenozi & Jäger, 2013).
New data: L40a (5♂, 1♀, 27.IV.2019, DG).
Global distribution: Balkans, Hungary, Romania, Ukraine.

Inermocoelotes inermis (L. Koch, 1855)
Literary data: L30 (sub *Coelotes i.*: Kolosvary, 1938, Deltshev *et al.*, 2003, sub *Inermocoelotes i.*: Vrenozi & Jäger, 2013), L32 (sub *Coelotes i.*: Kolosvary, 1940, Deltshev *et al.*, 2003, sub *Inermocoelotes i.*: Vrenozi & Jäger, 2013).
Global distribution: Europe.

**Inermocoelotes kulczynskii* (Drensky, 1915)
New data: L2b (2♂, 1♀, 15.V.2019, DG).
Global distribution: Balkan endemic known from Bulgaria and North Macedonia.

Lycosoides coarctata (Dufour, 1831)
Literary data: L35 (Vrenozi & Jäger, 2013).
Global distribution: Mediterranean.

**Tegenaria bosnica* Kratochvíl & Miller, 1940
New data: L33a (2♀, 27-29.I.2008, BP).
Global distribution: Balkan endemic, known from Albania, Bosnia and Herzegovina, Croatia, Montenegro and North Macedonia.

**Tegenaria campestris* (C. L. Koch, 1834)
New data: L15 (7♂, 3♀, 06.VI.2019, DG).
Global distribution: Western Palearctic.

**Tegenaria domestica* (Clerck, 1757)
New data: L16b (1♀, 29.VII.2020, DG; 1♀, 18.X.2020, DG), L24 (1♂, 10.X.2020, DG), L27(1♂, 1♀, 25.VII.2020, DG), L34a (1♂, 2♀, 27.VIII.2020, DG).
Global distribution: Palearctic, introduced to Australia, New Zealand, North and South America.

AMAUROBIIDAE
**Amaurobius phaeacus* Thaler & Knoflach, 1998
New data: L40a (2♂, 27.IV.2019, DG).
Global distribution: Balkan endemic, known from Albania, Greece and North Macedonia.

ANYPHAENIDAE
**Anyphaena accentuata* (Walckenaer, 1802)
New data: L40a (2♀, 18.V.2019, DG).
Global distribution: Palearctic.

ARANEIDAE
Aculepeira ceropegia (Walckenaer, 1802)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Agalenatea redii (Scopoli, 1763)
Literary data: L16a (sub *Araneus r.*: Kolosvary, 1938, 1940, sub *Agalenatea r.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L7 (1♂, 7♀, 27.V.2019, DG), L15 (4♀, 27.V.2019, DG), L17 (9♂, 35♀, 04.X-06.XI.2020, DG), L23 (1♀, 04.XI.2018, MN), L40a, (3♀, 09.V.2018, DG).
Global distribution: Palearctic.

Araneus angulatus Clerck, 1757
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Araneus circe (Audouin, 1826)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Araneus quadratus Clerck, 1757
New data: L17 (4♀, 17.X.2020, DG), L47 (1♀, 04.X.2019, MN).
Global distribution: Palearctic.

Araniella cucurbitina (Clerck, 1757)
Literary data: L1 (sub *Aranea c.*: Stojićević, 1929), L5a (Stojićević, 1929), L32 (Vrenozi & Jäger, 2013), L46 (sub *Epeira c.*: Bresjančeva, 1907).
Global distribution: Palearctic.

Araniella opisthographa (Kulczyński, 1905)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Cyclosa conica (Pallas, 1772)

Literary data: L5a (Stojićević, 1929, Vrenozi & Jäger, 2013), L20 (Stojićević, 1929).
New data: L40a (1♀, 14.IV.2019, DG).
Global distribution: Holarctic.

**Gibbaranea bituberculata* (Walckenaer, 1802)
New data: L40a (1♀, 18.V.2019, DG).
Global distribution: Palearctic.

Hypsosinga albovittata (Westring, 1851)
Literary data: L3 (sub *Singa a.*: Stojićević, 1929, sub *Hypsosinga a.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Hypsosinga pygmaea (Sundevall, 1831)
Literary data: L14 (sub *Singa p.*: Stojićević, 1929, sub *Hypsosinga p.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Holarctic.

Hypsosinga sanguinea (C. L. Koch, 1844)
Literary data: L3 (sub *Singa s.*: Stojićević, 1929, sub *Hypsosinga s.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L51 (sub *Singa s.*: Drensky, 1936).
Global distribution: Palearctic.

**Larinioides patagiatus* (Clerck, 1757)
New data: L11 (1♂, 2♀, 27.V.2019, DG).
Global distribution: Holarctic.

**Larinioides suspicax* (O. P.-Cambridge, 1876)
New data: L49 (1♂, 3♀, 06.VI.2019, DG).
Global distribution: Palearctic.

**Leviellus thorelli* (Ausserer, 1871)
New data: L16b (1♀, 18.IX.2020, DG).
Global distribution: Europe.

Mangora acalypha (Walckenaer, 1802)
Literary data: L1 (Stojićević, 1929, Vrenozi & Jäger, 2013), L14 (Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L2a (2♂, 5♀, 06.VI.2019, DG), L40a (4♀, 18.V.2019, DG).
Global distribution: Palearctic.

Neoscona byzanthina (Pavesi, 1876)
Literary data: L17, L22, L25, L26, L28, L36 (Geci & Naumova, 2021).
Global distribution: Western Palearctic.

**Nuctenea umbratica* (Clerck, 1757)
New data: L6 (2♀, 27.V.2019, DG), L7 (1♀, 27.V.2019, DG), L16b (2♂, 1♀, 29.VII.2020, DG), L18 (1j, 02.VIII.2020, DG), L40a (1♀, 27.IV.2019, DG).
Global distribution: Palearctic.

Singa hamata (Clerck, 1757)
Literary data: L1 (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L46 (Bresjančeva, 1907, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L2a (1♀, 06.VI.2019, DG), L49 (2♀, 06.VI.2019, DG).
Global distribution: Palearctic.

**Zilla diodia* (Walckenaer, 1802)
New data: L4 (2♀, 27.V.2019, DG), L7 (1♂, 16.VI.2019, DG), L40a (1♂, 18.V.2019, DG).
Global distribution: Palearctic.

Zygiella keyserlingi (Ausserer, 1871)
Literary data: L32 (Kolosvary, 1938, 1940, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

ATYPIDAE
Atypus piceus (Sulzer, 1776)
Literary data: L47 (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic and Iran.

CHEIRACANTHIIDAE
Cheiracanthium elegans Thorell, 1875
Literary data: L47 (sub *Chiracanthium e.*: Stojićević, 1929, sub *Cheiracanthium e.*: Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

CLUBIONIDAE
Clubiona stagnatilis Kulczyński, 1897
Literary data: L32 (Vrenozi & Jäger, 2013).

Global distribution: Palearctic.

**Clubiona terrestris* Westring, 1851
New data: L50b (2♂, 1♀, 16.VI.2019, DG).
Global distribution: Western Palearctic.

**Porrhoclubiona genevensis* (L. Koch, 1866)
New data: L11 (1♂, 2♀, 06.VI.2019, DG).
Global distribution: Palearctic.

DICTYNIDAE
**Brigittea latens* (Fabricius, 1775)
New data: L2a (6♂, 7♀, 24.VI.2019, DG), L15 (1♂, 3♀, 24.VI.2019, DG).
Global distribution: Palearctic.

Dictyna uncinata Thorell, 1856
Literary data: L5a (Stojićević, 1929).
Global distribution: Palearctic.

**Nigma flavescens* (Walckenaer, 1830)
New data: L32 (1♂, 01.X.2019, MN).
Global distribution: Palearctic.

DYSDERIDAE
**Dysdera crocata* C. L. Koch, 1838
New data: L2a (2♂, 24.VI.2019, DG), LL49 (3♂, 27.V.2019, DG), L50a (1♂, 27.V.2019, DG), L50b (2♂, 27.V.2019, DG).
Global distribution: Western Palearctic, introduced to North America, Chile, Brazil, South Africa, Australia, New Zealand and Hawaii.

Dysdera longirostris Doblika, 1853
Literary data: L35 (Vrenozi & Jäger, 2013).
Global distribution: Central to Eastern Europe, Turkey, Caucasus.

Dysderocrates storkani (Kratochvíl, 1935)
Literary data: L9 (sub *Harpactocrates s.*: Kratochvíl, 1935).
Global distribution: Balkan endemic, known from Albania, Croatia, Montenegro, North Macedonia and Serbia.

**Harpactea hombergi* (Scopoli, 1763)
New data: L15 (4♂, 27.V.2019, DG), L40a (5♂, 2♀, 14.IV.2019, DG), L49 (2♂, 27.V.2019, DG), L50a (3♂, 27.V.2019, DG), L50b (1♂, 06.VI.2019, DG).
Global distribution: Europe.

**Harpactea nausicaae* Brignoli, 1976
New data: L34b (1♀, 01.X.2019, MN).
Global distribution: Balkan endemic, known from Albania, Greece and North Macedonia.

**Harpactea saeva* (Herman, 1879)
New data: L40a (4♂, 3♀, 27.IV.2019, DG), L50a (4♂, 18.VI.2019, DG).
Global distribution: Eastern Europe.

GNAPHOSIDAE
Berlandina plumalis (O. P.-Cambridge, 1872)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: West Africa, Mediterranean to Central Asia and Iran.

**Callilepis cretica* (Roewer, 1928)
New data: L40a (1♂, 13.V.2018, DG).
Global distribution: North-eastern Mediterranean and Azerbaijan.

**Drassodes cupreus* (Blackwall, 1834)
New data: L40a (1♀, 07.VII.2017, DG).
Global distribution: Palearctic.

Drassodes lapidosus (Walckenaer, 1802)
Literary data: L5a (Stojićević, 1929).
New data: L40a (2♂, 14.IV.2019, DG).
Global distribution: Palearctic.

**Drassyllus villicus* (Thorell, 1875)
New data: L15 (1♂, 3♀, 18.VI.2019, DG), L40a (3♂, 1♀, 24.V.2019, DG).
Global distribution: Western Palearctic.

Micaria pulicaria (Sundevall, 1831)
Literary data: L21a (Kolosvary, 1938, 1940), L21b (Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Holarctic.

Nomisia aussereri (L. Koch, 1872)
Literary data: L35 (Grimm, 1985).
Global distribution: Palearctic.

Scotophaeus blackwalli (Thorell, 1871)

Literary data: L39 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L51 (Drensky, 1936).
Global distribution: Palearctic, introduced to North America, Peru and Hawaii.

**Zelotes apricorum* (L. Koch, 1876)
New data: L15 (3♀, 27.V.2019, DG), L40a (1♀, 27.IV.2019, DG).
Global distribution: Palearctic.

Zelotes longipes (L. Koch, 1866)
Literary data: L20 (sub *Z. serotinus*: Stojićević, 1929, sub *Z. longipes*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Zelotes oblongus (C. L. Koch, 1833)
Literary data: L5a (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003), L39 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

Zelotes similis (Kulczyński, 1887)
Literary data: L32 (Grimm, 1985, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

HAHNIIDAE
**Hahnia pusilla* C. L. Koch, 1841
New data: L49 (1♂, 27.V.2019, DG).
Global distribution: Palearctic.

LINYPHIIDAE
Agyneta fuscipalpa (C.L. Koch, 1836)
Literary data: L3 (sub *Micryphantes fuscipalpus*: Stojićević, 1929, Drensky, 1936, sub *Meioneta f.*: Deltshev *et al.*, 2003, sub *Agyneta f.*: Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Erigone dentipalpis (Wider, 1834)
Literary data: L3 (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic, introduced to North America (Buckle *et al.*, 2001, Jennings & Graham, 2007).

Fageiella ensigera Deeleman-Reinhold, 1974
Literary data: L34a (Deeleman-Reinhold, 1974, Vrenozi & Jäger, 2013), L51 (Naumova *et al.*, 2019b).
New data: L34a (1♀, 30.I.2008, BP).
Global distribution: Balkan endemic, known from Kosovo, Montenegro and Serbia.

**Frontinellina frutetorum* (C. L. Koch, 1835)
New data: L40a (1♀, 24.V.2019, DG).
Global distribution: Palearctic.

**Linyphia triangularis* (Clerck, 1757)
New data: L16b (1♀, 08.XI.2020, DG), L18 (1♀, 02.II.2020, DG), L34b (3♀, 01.X.2019, MN).
Global distribution: Palearctic, introduced to Canada and USA.

**Neriene montana* (Clerck, 1757)
New data: L7 (2♂, 3♀, 06.06.2019, DG).
Global distribution: Palearctic, introduced to North America (Paquin & Dupérré, 2003).

Oedothorax gibbosus (Blackwall, 1841)
Literary data: L14 (sub *Stylothorax tuberosa*, Stojićević, 1929, sub *O. tuberosus*: Drensky, 1936, sub *Oedothorax g.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Palliduphantes trnovensis (Drensky, 1931)
Literary data: L33b (Deeleman-Reinhold, 1986, Deltshev *et al.*, 1996, Vrenozi & Jäger, 2013).
Global distribution: Balkan endemic, known from Albania, Bulgaria, Kosovo, Montenegro, North Macedonia and Serbia.

Porrhomma pygmaeum (Blackwall, 1834)
Literary data: L3 (Stojićević 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Styloctetor compar (Westring, 1861)
Literary data: L3 (sub *Lophomma stativum*, Stojićević, 1929, sub *Anacotyle stativa*, Nikolić & Polenec, 1981, sub *S. stativus*, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).

Global distribution: Holarctic.

**Tenuiphantes tenebricola* (Wider, 1834).
New data: L32 (4♀, 01.X.2019, MN).
Global distribution: Palearctic.

Trichoncus affinis Kulczyński, 1894
Literary data: L3 (Stojićević 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L51 (Nikolić & Polenec, 1981, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

LIOCRANIDAE
**Apostenus fuscus* Westring, 1851
New data: L15 (3♂, 06.VI.2019, DG), L40a (1♂, 27.IV.2019, DG).
Global distribution: Europe.

Sagana rutilans Thorell, 1875
Literary data: L30, (sub *Liocranum r.*: Kolosvary, 1940, Deltshev *et al.*, 2003, sub *Sagana r.*: Vrenozi & Jäger, 2013), L32, (sub *Liocranum r.*: Kolosvary, 1938, Deltshev *et al.*, 2003, sub *Sagana r.*: Vrenozi & Jäger, 2013).
New data: L40a (1♂, 24.V.2019, DG).
Global distribution: Western Palearctic.

LYCOSIDAE
Alopecosa aculeata (Clerck, 1757)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Holarctic.

Alopecosa albofasciata (Brullé, 1832)
Literary data: L5b (Stojićević, 1929).
Global distribution: Mediterranean to Central Asia.

**Alopecosa cuneata* (Clerck, 1757)
New data: L49 (2♂, 06.VI.2019, DG).
Global distribution: Palearctic.

Alopecosa trabalis (Clerck, 1757)
Literary data: L41 (sub *Tarentula t.*: Stojićević, 1929, sub *Alopecosa t.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L42, L47 (sub *Tarentula t.*: Drensky, 1936), L48 (sub *Tarentula t.*: Stojićević, 1929, sub *Alopecosa t.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Arctosa cinerea (Fabricius, 1777)
Literary data: L14 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L42 (Drensky, 1936).
Global distribution: Palearctic, Kongo.

Arctosa leopardus (Sundevall, 1833)
Literary data: L3 (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Hogna radiata (Latreille, 1817)
Literary data: L31 (sub *Tarentula r.*: Kolosvary, 1940), L32 (sub *Tarentula r.*: Kolosvary, 1938, sub *Hogna r.*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L16b (1♀, 29.VII.2020, DG, 1♀, 08.XI.2020, DG), L18 (1♀, 02.VII.2020, DG).
Global distribution: Palearctic.

Pardosa agrestis (Westring, 1861)
Literary data: L3 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L14 (Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa alacris (C. L. Koch, 1833)
Literary data: L32 (sub *P. pseudolugubris*: Wunderlich, 1984, Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

Pardosa amentata (Clerck, 1757)
Literary data: L30 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa fulvipes (Collett, 1876)
Literary data: L8 (Kratochvíl, 1935).
Global distribution: Palearctic.

Pardosa hortensis (Thorell, 1872)
Literary data: L1 (sub *Lycosa h.* & *L. saccata*: Stojićević, 1929), L1 (Deltshev, 2003), L5a, (sub *Lycosa h.* & *L. saccata*: Stojićević, 1929), L14 (Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).

Global distribution: Palearctic.

Pardosa lugubris (Walckenaer, 1802)
Literary data: L5a (sub *Lycosa chelata*: Stojićević, 1929), L32 (Wunderlich, 1984).
New data: L7 (4♂, 2♀, 24.V.2019, DG), L15 (3♀, 27.V.2019, DG), L40a (8♂, 27.IV.2019, DG).
Global distribution: Palearctic.

Pardosa mixta (Kulczyński, 1887)
Literary data: L9, L10a, L43, L44 (sub *Lycosa m.*: Kratochvíl, 1935).
Global distribution: Western Palearctic.

Pardosa morosa (L. Koch, 1870)
Literary data: L21a (sub *Lycosa furva*: Kolosvary, 1938, 1940), L21b (Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa paludicola (Clerck, 1757)
Literary data: L3 (Stojićević, 1929, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa prativaga (L. Koch, 1870)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa pullata (Clerck, 1757)
Literary data: L1, L14 (sub *Lycosa p.*: Stojićević, 1929), L14 (Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Pardosa riparia (C. L. Koch, 1833)
Literary data: L5a (sub *Lycosa r.*: Stojićević, 1929)
Global distribution: Palearctic.

Pardosa saltuaria (L. Koch, 1870)
Literary data: L9, L10a (sub *Lycosa s.*: Kratochvíl, 1935).
Global distribution: Western Palearctic.

Pirata piscatorius (Clerck, 1757)
Literary data: L14 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

**Trochosa robusta* (Simon, 1876)
New data: L2a (4♀, 18.VI.2019, DG).
Global distribution: Palearctic.

**Trochosa ruricola* (De Geer, 1778)
New data: L15 (2♀, 18.VI.2019, DG).
Global distribution: Palearctic, introduced to North America, Cuba, Puerto Rico and Bermuda.

Xerolycosa miniata (C. L. Koch, 1834)
Literary data: L39 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L50 (Drensky, 1936).
Global distribution: Palearctic.

**Xerolycosa nemoralis* (Westring, 1861)
New data: L12 (2♂, 2♀, 18.VI.2019, DG), L50a (3♀, 18.VI.2019, DG).
Global distribution: Palearctic.

*MITURGIDAE
**Zora manicata* Simon, 1878
New data: L2b (3♂, 18.VI.2019, DG), L12 (4♂, 2♀, 18.VI.2019, DG), L15 (2♀, 18.VI.2019, DG), L40a (1♀, 14.IV.2019, DG), L50b (1♂, 18.VI.2019, DG).
Global distribution: Western Palearctic.

**Zora silvestris* Kulczyński, 1897
New data: L15 (4♂, 3♀, 06.VI.2019, DG).
Global distribution: Western Palearctic.

*NESTICIDAE
**Nesticus cellulanus* (Clerck, 1757)
New data: L34a (1♀, 30.I.2008, BP).
Global distribution: Western Palearctic, introduced to North America.

OXYOPIDAE
Oxyopes ramosus (Martini & Goeze, 1778)
Literary data: L46 (Bresjančeva, 1907, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

*PHILODROMIDAE
**Rhysodromus histrio* (Latreille, 1819)

New data: L17 (2♀, 17.X.2020, DG).
Global distribution: Holarctic.

*PHOLCIDAE
**Holocnemus pluchei* (Scopoli, 1763)
New data: L32 (1♂, 1♀, 2jj, 01.X.2019, MN).
Global distribution: Western Palearctic, introduced to USA, Argentina and Australia.

**Pholcus opilionoides* (Schrank, 1781)
New data: L40a (1♂, 18.V.2019, DG).
Global distribution: Palearctic.

**Pholcus phalangioides* (Fuesslin, 1775)
New data: L16b (1♂, 2♀, 29.VII.2020, DG), L24 (1♂, 2♀, 11.VII.2020, DG), L38 (1♂, 1♀, 02.VII.2020, DG).
Global distribution: Western Asia, but almost cosmopolitan due to human activity.

*PHRUROLITHIDAE
**Phrurolithus szilyi* Herman, 1879
New data: L15 (1♂, 3♀, 27.V.2019, DG).
Global distribution: Europe.

PISAURIDAE
Pisaura mirabilis (Clerck, 1757)
Literary data: L1, L3 (sub *P. listeri* Stojićević, 1929, sub *P. mirabilis*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L5a (sub *P. listeri* Stojićević, 1929, sub *P. mirabilis*: Deltshev *et al*., 2003), L21a (sub *P. listeri* Kolosvary, 1938, 1940), L21b (Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L46 (Bresjančeva, 1907, Drensky, 1936, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L51 (Drensky, 1936).
New data: L4 (3♀, 27.V.2019, DG), L6 (2♂, 2♀, 27.V.2019, DG), L15 (2♂, 27.V.2019, DG), L40a (3♀, 18.V.2019, DG), L49 (7♀, 27.V.2019, DG), L50a (3♀, 27.V.2019, DG).
Global distribution: Palearctic.

SALTICIDAE
**Attulus floricola* (C. L. Koch, 1837)
New data: L49 (1♂, 19.VI.2019, DG).
Global distribution: Holarctic.

Attulus pubescens (Fabricius, 1775)
Literary data: L1 (sub *Sitticus p*.: Stojićević 1929, Deltshev *et al*., 2003, sub *Attulus p.*: Vrenozi & Jäger, 2013), L5a (sub *Sitticus p*.: Stojićević 1929), L29, L32 (sub *Sitticus p*.: Vrenozi & Jäger, 2013), L51 (Drensky, 1936).
Global distribution: Western Palearctic, introduced to USA and Canada.

**Carrhotus xanthogramma* (Latreille, 1819)
New data: L15 (7♂, 2♀, 27.V.2019, DG).
Global distribution: Palearctic.

Dendryphantes rudis (Sundevall, 1833)
Literary data: L41 (Stojićević, 1929; Deltshev *et al*., 2003; Vrenozi & Jäger, 2013), L42 (Drensky, 1936).
Global distribution: Palearctic.

Evarcha falcata (Clerck, 1757)
Literary data: L47 (sub *E. blancardi*: Stojićević, 1929, sub *E. falcata:* Deltshev *et al*., 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Heliophanus auratus C.L. Koch, 1835
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Heliophanus cupreus (Walckenaer, 1802)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

**Heliophanus dampfi* Schenkel, 1923
New data: L15 (2♂, 06.VI.2019, DG).
Global distribution: Palearctic.

Heliophanus flavipes (Hahn, 1832)
Literary data: L3, L5a (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L32 (Vrenozi & Jäger, 2013), L51 (Drensky, 1936).
Global distribution: Palearctic.

**Marpissa muscosa* (Clerck, 1757)
New data: L7 (3♀, 27.V.2019, DG).
Global distribution: Palearctic.

**Neon levis* (Simon, 1871)
New data: L40a (1♀, 24.V.2019, DG).
Global distribution: Palearctic.

Pellenes nigrociliatus (Simon, 1875)

Literary data: L47 (Stojićević 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L40a (5♂, 14.IV.2019, DG).
Global distribution: Palearctic.

**Pellenes seriatus* (Thorell, 1875)
New data: L6 (3♂, 1♀, 06.VI.2019, DG).
Global distribution: Palearctic.

Philaeus chrysops (Poda, 1761)
Literary data: L5a (Stojićević, 1929).
Global distribution: Palearctic.

Phlegra fasciata (Hahn, 1826)
Literary data: L29 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Salticus cingulatus (Panzer, 1797)
Literary data: L5a (Stojićević, 1929).
Global distribution: Palearctic.

**Sibianor aurocinctus* (Ohlert, 1865)
New data: L50a (2♂, 24.V.2019, DG).
Global distribution: Palearctic.

Synageles dalmaticus (Keyserling, 1863)
Literary data: L29 (Vrenozi & Jäger, 2013).
Global distribution: Western Palearctic.

*Scytodidae
**Scytodes thoracica* (Latreille, 1802)
New data: (1♀, 29.VII.2020, DG).
Global distribution: Palearctic, introduced to North America, Argentina, South Africa, India, Australia and New Zealand.

*Segestriidae
**Segestria senoculata* (Linnaeus, 1758)
New data: L6 (2♀, 24.V.2019, DG).
Global distribution: Western Palearctic.

SPARASSIDAE
Micrommata virescens (Clerck, 1757)
Literary data: L32 (sub *M. viridissima*: Kolosvary 1938, 1940, sub *M. virescens*: Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L46 (Bresjančeva 1907, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
New data: L15 (1♀, 06.VI.2019, DG), L50a (1♂, 2♀, 18.VI.2019, DG).
Global distribution: Palearctic.

TETRAGNATHIDAE
**Meta menardi* (Latreille, 1804)
New data: L13 (2jj, 18.IV.2018, AZ), L34a (1♀, 1j, 30.I.2008, BP).
Global distribution: Western Palearctic.

Metellina merianae (Scopoli, 1763)
Literary data: L45 (Vrenozi & Jäger, 2013).
New data: L40a (1♀, 14.IV.2019, DG).
Global distribution: Palearctic.

Metellina segmentata (Clerck, 1757)
Literary data: L19 (sub *Meta s.*: Kolosvary, 1940, Deltshev *et al.*, 2003, sub *Metellina s.*: Vrenozi & Jäger, 2013).
Global distribution: Palearctic, introduced to Canada.

Pachygnatha degeeri Sundevall, 1830
Literary data: L5a (Stojićević, 1929).
Global distribution: Palearctic.

Tetragnatha extensa (Linnaeus, 1758)
Literary data: L14 (Stojićević, 1929, Vrenozi & Jäger, 2013).
Global distribution: Holarctic.

THERIDIIDAE
**Asagena meridionalis* Kulczyński, 1894
New data: L40a (2♂, 27.IV.2019, DG).
Global distribution: Western Palearctic.

Asagena phalerata (Panzer, 1801)
Literary data: L3 (sub *Asagena p.*: Stojićević, 1929, Drensky, 1936, sub *Steatoda p.*: Deltshev *et al.*, 2003), L35 (Knoflach, 1996).
New data: L40a (1♂, 27.IV.2019, DG).
Global distribution: Palearctic.

Crustulina guttata (Wider, 1834)
Literary data: L3 (Stojićević, 1929, Deltshev *et al.*, 2003), L51 (Drensky, 1936).
New data: L7 (1♀, 18.VI.2019, DG), L40a (1♂, 3♀, 18.VI.2019, DG), L49 (1♀, 14.IV.2019, DG).
Global distribution: Palearctic.

Enoplognatha ovata (Clerck, 1757)

Literary data: L46 (sub *Phyllonethis lineata*: Bresjančeva, 1907, Drensky, 1936).
Global distribution: Palearctic, introduced to North America.

Phylloneta sisyphia (Clerck, 1757)
Literary data: L46 (sub *Theridium sisiphum*: Bresjančeva, 1907, Drensky, 1936).
Global distribution: Palearctic.

**Platnickina nigropunctata* (Lucas, 1846)
New data: L40a (2♀, 16.VI.2019, DG).
Global distribution: Mediterranean.

Robertus arundineti (O. P.-Cambridge, 1871)
Literary data: L1 (Stojićević, 1929, Deltshev *et al*., 2003), L51 (Drensky, 1936, Nikolić & Polenec, 1981).
Global distribution: Palearctic.

**Steatoda triangulosa* (Walckenaer, 1802)
New data: L16b (3♀, 29.VII.2020, DG), L37 (1♂, 2♀, 12.VII.2020, DG).
Global distribution: Palearctic, introduced to Canada, USA and Canary Is.

Theridion pictum (Walckenaer, 1802)
Literary data: L32 (Vrenozi & Jäger, 2013).
Global distribution: Holarctic.

THOMISIDAE
Diaea livens Simon, 1876
New data: L40a (1♂, 24.V.2019, DG), L40b (1♂, 03.X.2019, MN).
Global distribution: Western Palearctic, introduced to USA.

Ebrechtella tricuspidata (Fabricius, 1775)
Literary data: L1 (sub *Misumena t*.: Stojićević 1929, sub *Misumenops t*.: Deltshev *et al*., 2003, sub *Ebrechtella t*.: Vrenozi & Jäger, 2013), L32 (sub *Misumena t*.: Kolosvary 1938, 1940, sub *Misumenops t*.: Deltshev *et al*., 2003, sub *Ebrechtella t*.: Vrenozi & Jäger, 2013), L51 (sub *Misumena t*.: Drensky, 1936).
New data: L15 (1♀, 06.VI.2019, DG), L16c (1♀, 02.VIII.2020, DG).
Global distribution: Palearctic.

Misumena vatia (Clerck, 1757)
New data: L47 (1♀, 04.X.2019, MN).
Global distribution: Holarctic.

Ozyptila praticola (C. L. Koch, 1837)
Literary data: L21b (Kolosvary 1938, 1940, Deltshev *et al*., 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic, introduced to Canada, USA and Argentina.

Psammitis sabulosus (Hahn, 1832)
Literary data: L10a (sub *Xysticus s*.: Šilhavý, 1944).
Global distribution: Palearctic.

Runcinia grammica (C. L. Koch, 1837)
Literary data: L46 (sub *R. lateralis*: Bresjančeva 1907).
New data: L17 (1♀, 06.XI.2020, DG).
Global distribution: Palearctic, introduced to South Africa and St. Helena.

Synema globosum (Fabricius, 1775)
Literary data: L32 (Vrenozi & Jäger, 2013)
New data: L2a (3♀, 06.VI.2019, DG), L12 (2♀, 27.V.2019, DG), L16b (1♀, 06.XI.2020, DG), L40a (1♀, 14.IV.2019, DG).
Global distribution: Palearctic.

Thomisus onustus Walckenaer, 1805
Literary data: L32 (Vrenozi & Jäger, 2013), L46 (sub *T. albus*: Bresjančeva, 1907, Drensky, 1936, sub *T. onustus*: Deltshev *et al*., 2003, Vrenozi & Jäger, 2013).
New data: L16b (2♀, 18.X.2020, DG), L40a (1♀, 21.IV.2018, DG).
Global distribution: Palearctic.

Tmarus piger (Walckenaer, 1802)
Literary data: L32 (Vrenozi & Jäger, 2013).
New data: L2a (2♂, 06.VI.2019, DG).
Global distribution: Palearctic.

**Xysticus acerbus* Thorell, 1872
New data: L12 (1♂, 27.V.2019, DG).
Global distribution: Palearctic.

Xysticus audax (Schrank, 1803)
Literary data: L32 (Vrenozi & Jäger, 2013)
Global distribution: Palearctic.

Xysticus cristatus (Clerck, 1757)
Literary data: L8, L9 (Šilhavý, 1944), L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic, introduced to Canada and USA.

Xysticus ferrugineus Menge, 1876
Literary data: L10 (Šilhavý, 1944), L31 (Kolosvary 1940), L32 (Kolosvary, 1938, Nikolić & Polenec, 1981, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Xysticus kochi Thorell, 1872
Literary data: L3, L20 (Stojićević, 1929, Deltshev *et al.*, 2003, Vrenozi & Jäger, 2013), L10a (Šilhavý, 1944), L32 (Vrenozi & Jäger, 2013).
Global distribution: Palearctic.

Xysticus lanio C. L. Koch, 1835
Literary data: L10b (Šilhavý, 1944).
Global distribution: Palearctic.

*TRACHELIDAE
**Paratrachelas maculatus* (Thorell, 1875)
New data: L16b (1♀, 18.X.2020, DG).
Global distribution: Western Palearctic.

Table 2. A taxonomic count of the spiders in Kosovo.

Family	Genus	Species	Family	Genus	Species
Agelenidae	5	9	Nesticidae	1	1
Amaurobiidae	1	1	Oxyopidae	1	1
Anyphaenidae	1	1	Philodromidae	1	1
Araneidae	15	21	Pholcidae	2	3
Atypidae	1	1	Phrurolithidae	1	1
Cheiracanthiidae	1	1	Pisauridae	1	1
Clubionidae	2	3	Salticidae	13	18
Dictynidae	3	3	Scytodidae	1	1
Dysderidae	3	6	Segestriidae	1	1
Gnaphosidae	8	12	Sparassidae	1	1
Hahniidae	1	1	Tetragnathidae	4	5
Linyphiidae	12	12	Theridiidae	8	9
Liocranidae	2	2	Thomisidae	10	15
Lycosidae	7	25	Trachelidae	1	1
Miturgidae	1	2	**29**	**108**	**159**

Table 3. Species, excluded from the checklist due to the erroneous interpretation of their localities.

Family/Species: reference	Actually refers to	Reference for designation: page
Araneidae		
Araneus diadematus Clerck, 1757: Drensky, 1936	Serbia	Stojićević (1929): 19, present paper
Dysderidae		
Dasumia kusceri (Kratochvíl, 1935): Nikolić & Polenec, 1981	North Macedonia	Naumova *et al.*, (2019a): 471
Dysdera ninnii Canestrini, 1868: Nikolić & Polenec, 1981	*rejected	Rezac *et al.* (2014): 464
Linyphiidae		

Bathyphantes approximatus (O. P.-Cambridge, 1871): Nikolić & Polenec 1981	Serbia	Stojićević (1929): 22, present paper
Erigone atra Blackwall, 1833: Stojićević, 1929	Serbia	present paper
Macrargus rufus (Wider, 1834): Nikolić & Polenec, 1981	Serbia	Stojićević (1929): 26, present paper
Mansuphantes mansuetus (Thorell, 1875): Stojićević, 1929	Serbia	present paper
Oedothorax gibbosus (Blackwall, 1841): Drensky, 1936	Serbia	present paper
Troglohyphantes kratochvili Drensky, 1935: Mammola *et al*., 2018 (supl.)	North Macedonia	Drensky (1935): 101, present paper
Lycosidae		
Xerolycosa nemoralis (Westring, 1861): Drensky, 1936	North Macedonia	Stojićević (1929): 50, present paper
Theridiidae		
Steatoda bipunctata (Linnaeus, 1758): Drensky, 1936	Serbia	Stojićević (1929): 14, present paper
Steatoda castanea (Clerck, 1757): Drensky, 1936	Serbia	Stojićević (1929): 14, present paper
Zodariidae		
Zodarion aculeatum Chyzer, 1897: Drensky, 1936	Serbia	Stojićević (1929): 41, Bosmans (2009): 226

* Distribution range of *Dysdera ninnii* is restricted to north-eastern Italy, Slovenia, western Croatia and Switzerland, according to Rezac *et al*. (2014).

Discussion

According to the results of the present study, the spider fauna of Kosovo is the least investigated in the Balkans. An original faunistic data can be found in barely eleven literary sources and the total numbers of published species is only 96. Even in Bosnia & Herzegovina (179 species), Montenegro (289 species), European Turkey (313 species) and Albania (571 species), which are also still in their early stage of researches, spider faunas are more species-rich (Helsdingen, 2013, 2020, Kůrka *et al*., 2020, Naumova *et al*,, 2016, 2019b, Nentwig *et al*., 2021, Stanković & Ćurčić, 2020). Most of the species in the current checklist of Kosovo have Palearctic distribution. Only seven species (*Amaurobius phaeacus*, *Dysderocrates storkani*, *Fageiella ensigera*, *Harpactea nausicaae*, *Inermocoelotes kulczynskii*, *Palliduphantes trnovensis* and *Tegenaria bosnica*) can be defined as endemics for the Balkans. As a landlocked territory with a complex historical and recent political environment, Kosovo was not the most appetizing destination for either vacation or work trips, and until recently there was no arachnologist born and working there, but that is slowly changing. The provided comprehensive national checklist is the first purposeful study of the spiders in Kosovo. The established number of 159 spider species is just the beginning, considering the geographical position in the Balkans `biodiversity hotspot` (Griffits *et al*., 2004, Cuttelod *et al*., 2008), the diverse relief and climate and especially given the complete lack of study of the cave systems.

Acknowledgements

We are especially grateful to Alexey Zhalov and to the late Boyan Petrov for the spider material provided. Thanks to Astrit Bilalli, Milaim Musliu, Edison Kasumaj and Liridon Hoxha for the field work support and to the anonymous reviewers for their helpful recommendations.

References

Bosmans, R. (2009). Revision of the genus *Zodarion* Walckenaer, 1833, part III.

South East Europe and Turkey (Araneae: Zodariidae). *Contributions to Natural History, 12,* 211–295.

Bresjančeva, J. (1907). Prilog za poznavanje srpske aranejske faune. *Travaux Faits au Laboratoire de Zoologie à l'Université de Belgrade, 1*(2-3), 1–16. (In Serbian).

Buckle, D.J., Carroll, D., Crawford, R.L. & Roth, V.D. (2001). Linyphiidae and Pimoidae of America north of Mexico: checklists, synonymy, and literature. Part 2. In: P. Paquin & D.J. Buckle (Eds.) Contributions à la connaissance des Araignées (Arachnida) d'Amérique du Nord. *Fabreries, Supplément 10,* 89–191.

Cuttelod, A., Garcia, N., Abdul Malak, D., Temple, H. & Katariya, V. (2008). The Mediterranean: a biodiversity hot spot under threat. In: J-C. Vie, C. Hilton-Taylor & S.N. Stuart (Eds): *The 2008 Review of The IUCN Red List of Threatened Species*. – Gland: IUCN.

Deeleman-Reinhold, C.L. (1974). The cave spider fauna of Montenegro (Araneae). *Glasnik Republickog Zavoda za Zastitu Prirode i Prirodnjackog Muzeja Titogradu, 6,* 9–33.

Deeleman-Reinhold, C.L. (1986). Contribution à la connaissance des *Lepthyphantes* du groupe *pallidus* (Araneae, Linyphiidae) de Yougoslavie, Grece et Chypre. *Mémoires de Biospéologie, 12*(for 1985), 37–50. [publ. in April 1986]

Deltshev, C., Ćurčić, B.P.M., Dimitrijević, R., Makarov, S. & Lučić, L. (1996). Further report on cave- and litter-dwelling spiders (Araneae, Arachnida) from Serbia, Yugoslavia. *Archives of Biological Sciences, 48*(3-4), 25–26.

Deltshev, C., Ćurčić, B.P.M. & Blagoev, G. (2003). *The spiders of Serbia*. Committee for Karst and Speleology – Serbian Academy of Sciences and Arts; Institute of Zoology -Bulgarian Academy of Sciences; Institute of Zoology - Faculty of Biology - University of Belgrade; Institute for Biological Research "Siniša Stanković" (co-publishers), Belgrade – Sofia. 833 p.

Drensky, P. (1935). Paiatsi (Araneae) sabirani ot Dr Stanko Karaman v Jougoslavia i osobeno v Makedonia. *Izvestiya na Tsarskite Prirodonauchni Instituti v Sofia, 8,* 97–110. (In Bulgarian).

Drensky P. (1936). Katalog der echten Spinnen (Araneae) der Balkanhalbinsel. *Sbornik na Balgarskata akademia na naukite, 32,* 1–223.

Geci, D. & Naumova, M. (2021). The spotted orb-weaver *Neoscona byzanthina* (Pavesi, 1876) – an enigmatic but common species on the Balkans (Araneae: Araneidae). *Ecologia Balkanica,* Special Edition 4, 1-9.

Griffiths, H.I., Kryštufek, B. & Reed, J.M. (Eds.) (2004). *Balkan Biodiversity - Pattern and Process in the European Hotspot*. Springer. doi: 10.1007/978-1-4020-2854-0

Grimm, U. (1985). Die Gnaphosidae Mitteleuropas (Arachnida, Araneae). *Abhandlungen des Naturwissenschaftlichen Vereins in Hamburg (NF), 26,* 1–318.

Helsdingen, P.J. van. (2013). A quick scan of the spider fauna of the European part of Turkey. *Nieuwsbrief SPINED, 33,* 29–38.

Helsdingen, P.J. van. (2020). Spiders (Araneae). In: *Fauna Europaea*. (Version 2020). Retrieved from europeanarachnology.org.

Jennings, D.T. & Graham, F. (2007). *Spiders (Arachnida: Araneae) of Milbridge, Washington County, Maine*. 204 p. doi: 10.2737/NRS-GTR-16.

Knoflach, B. (1996). Die Arten der *Steatoda phalerata*-Gruppe in Europa (Arachnida: Araneae, Theridiidae). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft, 69*(3-4), 377–404. doi: 10.5169/seals-402640.

Kolosvary, G. (1938). Sulla Fauna Arachnologica della Jugoslavia. *Rassegna Faunistica, 16*(3-4), 3–23.

Kolosváry, G. (1940). Explorationes zoologicae ab E. Csiki in Albania peractae. *A Magyar Tudományos Akadémia Balkán–Kutatásainak*

Tudományos Eredményei. Budapest I (XIX), 330–332.

Kratochvíl, J. (1935). Araignées nouvelles ou non encore signalées en Yougoslavie. Première partie. *Folia Zoologica et Hydrobiologica, Rigā, 8,* 10–25.

Kůrka, A., Naumova, M., Indzhov, S. & Deltshev, C. (2020). New faunistic and taxonomic data on the spider fauna of Albania (Arachnida: Araneae). *Arachnologische Mitteilungen, 59,* 8–21.

Mammola, S., Cardoso, P., Ribera, C., Pavlek, M. & Isaia, M. (2018). A synthesis on cave-dwelling spiders in Europe. *Journal of Zoological Systematics and Evolutionary Research; 56*(2): 301–316. doi: 10.1111/jzs.12201.

Naumova, M.V., Lazarov, S., Petrov, B. & Deltshev, C. (2016). New faunistic data on the cave-dwelling spiders in the Balkan Peninsula (Araneae). *Ecologia Montenegrina, 7,* 425–438.

Naumova, M., Indzhov, S., Dimitrov, D. & Deltshev, C. (2019a). Redescription of *Dasumia kusceri* (Kratochvíl, 1935), with the first description of the female and notes on the genus *Dasumia* Thorell, 1875 (Araneae: Dysderidae) in Bulgaria. *Acta zoologica bulgarica, 71,* 467–472.

Naumova, M., Lazarov, S. & Deltshev, C. (2019b). Faunistic diversity of the spiders in Montenegro (Arachnida: Araneae). *Ecologica Montenegrina, 22,* 50–89.

Nentwig, W., Blick, T., Bosmans, R., Gloor, D., Hänggi, A. & Kropf, C. (2021). *Spiders of Europe*. Version {1}.2021. Retrieved from araneae.nmbe.ch, accessed on {31 January 2021}. doi: 10.24436/1.

Nikolić, F. & Polenec, A. (1981). *Catalogus Faunae Jugoslaviae*. Ljubljana. *3*(4), 1–135.

Paquin, P. & Dupérré, N. (2003). Guide d'identification des araignées de Québec. *Fabreries, Supplement 11,* 1–251.

Řezáč, M., Gasparo, F., Král, J. & Heneberg, P. (2014). Integrative taxonomy and evolutionary history of a newly revealed spider *Dysdera ninnii* complex (Araneae: Dysderidae). *Zoological Journal of the Linnean Society, 172*(2), 451–474. doi: 10.1111/zoj.12177.

Šilhavý, V. (1944). De Araneis familiae Thomisidae in Balcano occidentali viventibus. *Sborník Klubu Přírodovědeckého v Brně, 25,* 90–95.

Stanković, M. & Ćurčić, M. (2020). New species in the arachnofauna of Bosnia and Herzegovina from the protected habitat of Gromiţelj, Velino Selo. *Archives for Technical Sciences, 22,* 67–78.

Stojićević, D. (1929). [Les araignées de Serbie. Araneae Sund.]. *Glasnevin Museum de Historia Natural, Beograd, 19,* 1–65.

Vrenozi, B. & Jager, P. (2013). Spiders (Araneae) from Albania and Kosovo in the collection of Carl Friedrich Roewer. *Arachnologische Mitteilungen, 46,* 17–26.

World Spider Catalog. (2021). *World Spider Catalog*. Version 22.0. Natural History Museum Bern, Retrieved from wsc.nmbe.ch, accessed on {31 January 2021 }. doi: 10.24436/2.

Wunderlich, J. (1984). Beschreibung der Wolfsspinne *Pardosa pseudolugubris* n. sp. und Revision der *Pardosa amentata*-Gruppe, zugleich ein Beitrag zur Kenntnis der innerartlichen Variabilität bei Spinnen (Arachnida: Araneae: Lycosidae). *Neue Entomologische Nachrichten, 10,* 1–15.

Received: 31.03.2021
Accepted: 30.05.2021

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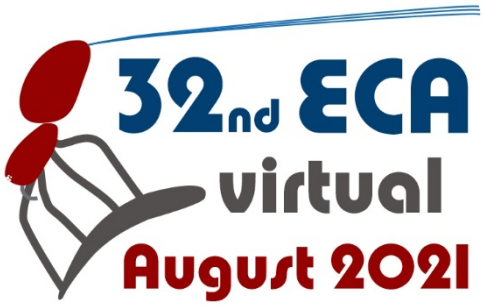

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