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Checklist of water mites from the Balkan Peninsula: second supplement, new DNA barcodes and description of a new species

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Abstract

Knowledge of the water mite fauna in the Balkans is still very heterogeneous and far from complete. A compilation of published data is considered the first step in creating an up-to-date comprehensive checklist of water mites of the Balkans. In this supplement, we list all species reported from the Balkans from November 2017 to date and provide an updated checklist of water mites that inhabit the Balkan countries. With the additions in this study, the number of water mite species inhabiting the Balkan Peninsula has increased to 426 species and subspecies. One species, *Sperchon balcanicus* Pešić, **sp. nov.** (Sperchontidae), is described as new to science. This study adds 299 new barcodes to the existing DNA barcode reference library that now includes 1032 COI DNA barcodes from the Balkans publicly available through the Barcode of Life Data Systems (BOLD). Still, only one-third of the currently known species of water mites in the Balkans now have reference barcodes in BOLD, indicating the need for future integrative research on the morphological and genetic diversity of Balkan water mites.

Introduction

The checklists published by Pešić *et al.* (2010, 2018) list 382 species, in 77 genera and 34 families of water mites for the Balkan Peninsula. The supplement published by Pešić *et al.* (2018) compiled all published data on water mites from 2010 to November 2017 and is considered as the first step in producing an up-to-date, comprehensive checklist of this group in the Balkans. Since 2017, a large amount of data has been accumulated, primarily through molecular analysis of the DNA barcode fragment of the mitochondrial cytochrome c oxidase subunit I gene (COI). DNA barcodes are shown by numerous studies to have a great potential for the identification and species delineation of water mites (e.g. Martin *et al.* 2010; Pešić *et al.* 2017, 2019a; Blattner *et al.* 2019). It should be pointed out, however, as emphasized by some authors (e.g. Pešić *et al.* 2025a), that the successful implementation of DNA barcoding in identification of water mites strongly depends on the morphological identification of vouchers for the barcode reference library. This requires expert taxonomists, whose number, especially in Europe, has been decreasing for years.

Knowledge of the water mite fauna of the Balkan region is still very heterogeneous and far from complete. Species lists facilitating access to previous data are important for successfully documenting diversity and understanding existing gaps and therefore helping better organization of future research (Pešić *et al.* 2014). Furthermore, detailed knowledge on the present fauna is the crucial basis for any study/documentation of faunal alteration due to climate change and other anthropogenic influences, as well as for any use of water mites as bioindicators (Goldschmidt 2016).

This study presents an updated list of water mites inhabiting the Balkan countries, including data from all publications published after November 2017. In addition, this study adds 300 new DNA barcodes to the existing reference library of DNA barcodes for water mite fauna of the Balkans. The latter library includes now nearly 1000 COI DNA barcodes from the Balkans which are publicly available through the Barcode of Life Data Systems (BOLD) database, providing a foundation for future taxonomic and biogeographical research on Balkan water mites. As a result of this research, we described one species new for science.

Material and methods

The systematic part of this paper includes data from all publications containing records of water mites from the Balkan Peninsula published since November 2017. Postgraduate theses and scientific meetings are not considered herein, as these are no formal (peer-reviewed) publications.

For each species, its general distribution is given. The distribution data are from Davids *et al.* (2007), Di Sabatino *et al.* (2010) and Gerecke *et al.* (2016) unless stated otherwise. Also, where possible, the BIN (Barcode Index Number) is given as well as its distribution based on data available in BOLD Systems Version 4 (v4.boldsystems.org).

Water mites were collected by hand netting and immediately preserved in 96% ethanol for the purpose of molecular analyses. After non-destructive DNA extraction, the specimen vouchers were stored in 96% ethanol and

morphologically examined. Some of these vouchers were dissected and slide mounted in Faure's medium, while the rest was transferred to Koenike's fluid. All voucher material, preserved in Koenike's fluid will be stored in Institute of Marine and Environmental Sciences, University of Szczecin, Poland.

The holotype of the new species will be deposited in Naturalis Biodiversity Center in Leiden (RMNH). The composition of the material is given as: males/females/deutonymphs or adults/deutonymphs. All measurements are given in μm .

Morphological nomenclature follows Gerecke *et al.* (2016). The following abbreviations are used: Ac = acetabula; Cx-I = first coxae; Dgl-3 = dorsoglandularia 3; dL = dorsal length; H = height; I-leg-4-6 = fourth to sixth segments of first leg; L = length; P-1-5 = palp segments 1 to 5; vL = ventral length; W = width.

Molecular and DNA barcode analyses

Part of the molecular analysis was conducted at the Institute of Biology, University of Szczecin (IoB-UoS), the Canadian Centre for DNA Barcoding (Guelph, Ontario, Canada (CCDB; <http://ccdb.ca/>), the University of Florence (UNIFI), Florence, Italy, and at the University of Lodz (UniLodz), Lodz, Poland. DNA was extracted using a non-destructive protocol as described in Pešić *et al.* (2025b). At UniLodz amplification, and DNA sequencing using Oxford Nanopore Technology was done according to the protocol in Pešić *et al.* (2025b). Raw reads were demultiplexed using the Pacific Biosciences SMRT Link software. Consensus sequences were generated with the PacBio Amplicon Analysis (pbaa) tool. Primer trimming, translation and stop codon checking were performed using Geneious Prime 2024.0.1. Consensus sequences were made available in the BOLD database (Ratnasingham & Hebert 2007), and the Barcode Index Numbers (BIN) for every sequence were retrieved and analyzed. Relevant voucher information, photos, and newly generated DNA barcodes are publicly accessible through the Dataset "DS-BALHYD DNA barcode reference library of Balkan water mites" (<https://portal.boldsystems.org/recordset/DS-BALHYD>).

Sequence alignments were performed using MUSCLE (Edgar 2004). Intra- and interspecific genetic distances were calculated based on the Kimura 2-parameter model (K2P; Kimura 1980) using MEGA11 (Tamura *et al.* 2021). Additionally, the sequence data were analyzed using the Assemble Species by Automatic Partitioning (ASAP) method (Puillandre *et al.* 2012). We used the online ASAP version (<https://spartexplorer.mnhn.fr/>) with default settings and K2P-distance model.

Barcoding results

In this study, a total of 299 water mite specimens from the Balkans were successfully sequenced (Table 1). As result the existing DNA barcode reference library of water mites now includes 1032 COI DNA barcodes from the Balkans publicly available through the Barcode of Life Data Systems (Doi: doi.org/10.5883/DS-BALHYD). The most sequence-rich family in the dataset is Hygrobatidae with 255 sequences, followed by Lebertiidae with 251, and Torrenticolidae with 147 sequences.

The majority of the water mite sequences (491) in BOLD came from Montenegro, followed by North Macedonia accounting for 346 of the sequences, most of them from specimens collected from the Ohrid Lake area (Królikowska *et al.* 2024; <https://portal.boldsystems.org/recordset/DS-OHHYD>). Other parts of the Balkans are still poorly covered.

The resulting sequences clustered into 198 BINs, 71 of them were represented by a single sequence. The Neighbour-Joining tree of all water mite species from the Balkan Peninsula based on Kimura 2-parameter distances is available in Pešić (2025, <https://data.mendeley.com/datasets/gk3tk53yv4/1>).

TABLE 1. Details on DNA barcoded specimens, including localities and coordinates of sampling sites, sample codes and the barcode index number codes. BOLD data presented here was last accessed on 20th May 2025.

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
Hydrodromidae					
<i>Hydrodroma torrenticola</i>	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K78_14	HYDMN634-24	BOLD:ACI2515
	Montenegro, Kovački potok near Budva	42.335° N, 18.771389° E	K68_12	HYDMN156-24	BOLD:AEF3799
Hydryphantidae					
<i>Hydryphantes armentarius</i>	Montenegro, Nikšić, Komarnica valley, helocrenic spring	42.988333° N, 19.068333° E	K73_38	HYDMN421-24	BOLD:ADL3822
			K73_39	HYDMN422-24	
			K73_40	HYDMN423-24	
<i>Paniscus michaeli</i>	Montenegro, Biogradska Gora National Park, Jangčarske rupe, spring	42.852955° N, 19.664686° E	CCDB_44300_C08	HYDOC032-22	BOLD:ADT7504
			CCDB_44300_C09	HYDOC033-22	
<i>Protzia invalvaris</i>	Montenegro, Cijevna River, lotic	42.406667° N, 19.436389° E	K73_35	HYDMN418-24	BOLD:AEI5749
<i>Protzia rugosa</i>	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K79_1	HYDMN669-24	BOLD:AEE0170
Lebertiidae					
<i>Lebertia algeriensis</i> - complex	Greece, East Macedonia and Thrace, Kosynthos River	41.102° N, 25.026° E	BGE_00247_B11	BSNTN1923-24	BOLD:AFC7652
	Greece, Glaukos River at Souli	38.20078° N, 21.790806° E	CCDB 38363 H09	SEPTA093-21	BOLD:AEJ1488
<i>Lebertia cuneifera</i>	Montenegro, Biogradska Gora National Park, Jangčarske rupe, spring	42.852955° N, 19.664686° E	CCDB_44300_C07	HYDOC031-22	BOLD:ADV4392
<i>Lebertia fimbriata</i>	Montenegro, Tuzi, Cijevna River	42.406667° N, 19.436389° E	K69_37	HYDMN229-24	BOLD:ADF5657
	Montenegro, Plužine, Vrbnica Stream	43.16198° N, 18.76055° E	CCDB 41823 H01	HYDME085-22	BOLD:AES5822

.....continued on the next page

TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Lebertia glabra</i> - complex	Montenegro, Nikšić, Vidrovan, headwater of Zeta River	42.8575° N, 18.941111° E	K77_46	HYDMN618-24	BOLD:AGH7455
			K77_47	HYDMN619-24	
			K77_48	HYDMN620-24	
			K78_5	HYDMN625-24	
			K78_6	HYDMN626-24	
			K78_37	HYDMN657-24	
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_36	HYDMN371-24	
	Greece, East Macedonia and Thrace, Streamdirorema Stream (Makropotamos)	41.131° N, 25.567° E	BGE_00247_H01	BSNTN1985-24	BOLD:ADP3144
	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K78_2	HYDMN622-24	BOLD:ACS0595
<i>Lebertia</i> <i>inaequalis</i> - complex	Montenegro, Plužine, Vrbnica Stream	43.16198° N, 18.76055° E	CCDB 41823 H04	HYDME088-22	BOLD:AEI2925
	Montenegro, Biogradska Gora National Park, Jangčarske rupe, spring	42.852955° N, 19.664686° E	CCDB_44300_ C06	HYDOC030-22	
	Greece, East Macedonia and Thrace, Nestos River near Stavropolis	41.192° N, 24.698° E	BGE_00247_A05	BSNTN1905-24	BOLD:ADF6223
	Greece, East Macedonia and Thrace, Kiria	41.072° N, 24.266° E	BGE_00247_C07 BGE_00247_D08 BGE_00247_D09	BSNTN1931-24 BSNTN1944-24 BSNTN1945-24	
<i>Lebertia maculosa</i>	Montenegro, Kolašin, stream near Monastir Morača	42.765833° N, 19.39° E	K66_12	HYDMN060-24	BOLD:AED9197
			K66_13	HYDMN061-24	BOLD:AED9718
			K66_14	HYDMN062-24	
	Montenegro, Kolašin, Opasanica Stream	42.679° N, 19.543167° E	K67_18	HYDMN114-24	

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Lebertia maglioi</i>	Montenegro, Durmitor, stream near Crno Jezero Lake	43.149167° N, 19.095° E	K78_10 K78_11	HYDMN630-24 HYDMN631-24	BOLD:AGG5207
	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_10	HYDMN393-24	BOLD:ADK0383
	Montenegro, Kolašin, Tara River near „Raj” restaurant, lotic	42.872222° N, 19.527778° E	K72_41 K72_42 K72_43	HYDMN376-24 HYDMN377-24 HYDMN378-24	
	Montenegro, Danilovgrad, Bandići, spring	42.480833° N, 19.145556° E	K76_16 K76_14	HYDMN543-24 HYDMN541-24	
	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K76_48 K78_3 K78_22 K78_35	HYDMN573-24 HYDMN623-24 HYDMN642-24 HYDMN655-24	
	Montenegro, Kolašin, Opasanica Stream	42.679° N, 19.543167° E	K67_7	HYDMN103-24	
	Montenegro, Nikšić, Vukovo Vrelo spring	42.857222° N, 18.9425° E	K74_18 K74_17 K74_19 K72_48	HYDMN449-24 HYDMN448-24 HYDMN450-24 HYDMN383-24	BOLD:ADT9218
	Montenegro, Nikšić, Vidrovan, headwater of Zeta River	42.8575° N, 18.941111° E	K79_8 K79_9 K79_10 K78_23 K78_24 K78_25	HYDMN676-24 HYDMN677-24 HYDMN678-24 HYDMN643-24 HYDMN644-24 HYDMN645-24	
	Croatia, Istria, Raša River at the Mutvica bridge	45.0954° N, 14.0241° E	CCDB 38362 G08	SEPTB080-21	BOLD:ACS0927
	Montenegro, Kolašin, Tara River, lentic	42.872222° N, 19.527778° E	K72_35 K72_37	HYDMN370-24 HYDMN372-24	BOLD:ADF6063
<i>Lebertia variolata</i>	Montenegro, Tuzi, Cijevna River, lotic	42.406667° N, 19.436389° E	K69_38	HYDMN230-24	
	Montenegro, Danilovgrad, stream in Martinići village	42.525833° N, 19.1925° E	K76_26	HYDMN553-24	BOLD:ADK0996

.....continued on the next page

TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN		
<i>Lebertia porosa</i> - complex	Montenegro, Kolašin, inflow to Bistrica Stream	42.805278° N 19.446667° E	K65_2	HYDMN002-24	BOLD:ACS0974		
	Greece, East Macedonia and Thrace, Nestos River near Stavropolis	41.192° N, 24.697° E	BGE_00247_E06 BGE_00247_E09	BSNTN1954-24 BSNTN1957-24			
	Montenegro, Bar, Spring near Tudjemili	42.128083° N, 19.14375° E	K70_35	HYDMN275-24			
	Montenegro, Plav, Lim River at Brezojevice	42.618889° N, 19.93525° E	K70_22 K70_24 K70_25 K72_17 K72_18	HYDMN262-24 HYDMN264-24 HYDMN265-24 HYDMN352-24 HYDMN353-24			
	Montenegro, Cetinje, Crnojevića River	42.354444° N, 19.020278° E	K68_41 K68_43	HYDMN185-24 HYDMN187-24			
	Montenegro, Bar, Bartula, Vruća rijeka	42.085167° N, 19.138222° E	K69_12	HYDMN204-24			
	Montenegro, Plužine, Vrbnica Stream	43.16198° N, 18.76055° E	CCDB 41823 H02	HYDME086-22			
	Bosnia and Herzegovina, Trebišnjica River	42.710278° N, 18.479722° E	K74_33 K74_34	HYDMN464-24 HYDMN465-24			
	Montenegro, Tuzi, Vitoja permanent pool	42.324722° N, 19.363056° E	K74_4	HYDMN435-24			
	Montenegro, Nikšić, Vidrovan, headwater of Zeta River	42.8575° N, 18.941111° E	K78_38	HYDMN658-24			
	Croatia, Papuk Mt., Jankovac spring	45.5183° N, 17.6866° E	CCDB_44300_ G01_ CCDB_44300_ G02	HYDOC073-22 HYDOC074-22			
	Sperchontidae						
	<i>Sperchon</i> <i>balcanicus</i> sp. nov.	Montenegro, Durmitor, Glava Bukovice	43.058611°N, 19.110556°E	K78_19 K78_20		HYDMN639-24 HYDMN640-24	BOLD:AED8428

.....continued on the next page

TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
	Bosnia and Herzegovina, Trebišnjica River near mouth of Jazine Stream	42.710278° N, 18.479722° E	K74_35	HYDMN466-24	
<i>Sperchon clupeiifer</i>	Montenegro, Tara River, lotic	42.872222° N, 19.527778° E	K72_38 K72_40 K72_39	HYDMN373-24 HYDMN375-24 HYDMN374-24	BOLD:ACS1100
	Montenegro, Kolašin, Opasanica Stream	42.679° N, 19.543167° E	K67_4	HYDMN100-24	
<i>Sperchon hibernicus</i>	Greece, East Macedonia and Thrace, Streamdirorema Stream (Makropotamos)	41.131° N, 25.567° E	BGE_00247_G08	BSNTN1980-24	BOLD:AEF3824
<i>Sperchon hispidus</i>	Montenegro, Tuzi, Cijevna River, Lotic	42.406667° N, 19.436389° E	K73_33	HYDMN416-24	BOLD:AGB7408
<i>Sperchon milisai</i>	Montenegro, Durmitor, Glava Bukovice	43.058611°N, 19.110556°E	K78_47 K78_48	HYDMN667-24 HYDMN668-24	BOLD:AEF3825
<i>Sperchon violaceus</i>	Montenegro, Kolašin, stream near Monastir Morača	42.765833°N, 19.39° E	K66_11	HYDMN059-24	BOLD:AAN0076
	Montenegro, Durmitor, stream near Crno Jezero	43.149167° N, 19.095° E	K78_43 K78_44 K77_43 K77_44 K77_45	HYDMN663-24 HYDMN664-24 HYDMN615-24 HYDMN616-24 HYDMN617-24	
<i>Sperchon papillosus</i>	Montenegro, Bar, stream in Godinje village	42.220556° N, 19.111667° E	K74_25	HYDMN456-24	BOLD:AED2134
<i>Sperchon squamosus</i>	Montenegro, Komarnica valley, helocrenic spring	42.988333° N, 19.068333° E	K73_41 K73_42	HYDMN424-24 HYDMN425-24	BOLD:AEB7886
<i>Sperchon setiger</i>	Montenegro, Bar Zupci, spring	42.112361° N, 19.119972° E	K69_27	HYDMN219-24	BOLD:ACR9610
<i>Sperchonopsis verrucosa</i>	Croatia, Papuk Mt., Velika, Veličanka Stream	45.4597° N, 17.6586° E	CCDB_44300_F11 CCDB_44300_F12	HYDOC071-22 HYDOC072-22	BOLD:ACS9705
Torrenticolidae					

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Monatractides aberratus</i>	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	BGE_00247_F04	BSNTN1964-24	BOLD:AGC9829
<i>Monatractides madritensis</i>	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_14 K73_15 K73_19 K73_23 K73_24 K73_29 K73_31	HYDMN397-24 HYDMN398-24 HYDMN402-24 HYDMN406-24 HYDMN407-24 HYDMN412-24 HYDMN414-24	BOLD:AED3803
	Montenegro, Danilovgrad, Rimanić Stream	42.525833° N, 19.1925° E	K76_25	HYDMN552-24	
<i>Monatractides latissimus</i>	Montenegro, Play, Lim River at Brezjojevice	42.618889° N, 19.93525° E	K70_27	HYDMN267-24	BOLD:AEY8127
<i>Monatractides stadleri</i> - complex	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_20 K73_21 K73_30	HYDMN403-24 HYDMN404-24 HYDMN413-24	BOLD:AED3802
	Montenegro, Bar, Skadar Lake area, stream near Donje Selo	42.309444° N, 19.051778° E	K66_2 K66_3	HYDMN050-24 HYDMN051-24	
	Montenegro, Kolašin, Opasanica Stream	42.679° N, 19.543167° E	K66_20	HYDMN068-24	
	Montenegro, Bar, Željeznica River	42.106667° N, 19.098333° E	K72_10 K72_11 K72_12 K72_22	HYDMN345-24 HYDMN346-24 HYDMN347-24 HYDMN357-24	
	Montenegro, spring near Tuđemili vill.	42.128083° N, 19.14375° E	K70_39	HYDMN279-24	
	Montenegro, Vladimir, stream near Draginje	42.0105° N, 19.343806° E	K68_47	HYDMN191-24	
	Montenegro, Kovački potok near Budva	42.335° N, 18.771389° E	K68_21	HYDMN165-24	
	Montenegro, Bar, Bartula, Vruća rijeka	42.085167° N, 19.138222° E	K69_23 K69_24	HYDMN215-24 HYDMN216-24	

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Torrenticola amplexa</i>	Greece, East Macedonia and Thrace, Nestos River near Stavropolis	41.192° N, 24.697° E	BGE_00247_E08	BSNTN1956-24	
	Greece, East Macedonia and Thrace, Kosynthos River	41.102° N, 25.026° E	BGE_00247_B09	BSNTN1921-24	BOLD:AGC6044
	Montenegro, Kovački potok near Budva	42.335° N, 18.771389° E	K68_18	HYDMN162-24	BOLD:ACR0665
	Croatia, Papuk Mt., Velika, Veličanka Stream	45.4597° N, 17.6586° E	CCDB_44300_G11	HYDOC083-22	
	Croatia, Papuk Mt., Orjava River	45.4249° N, 17.5059° E	CCDB_44300_G07	HYDOC079-22	
	Greece, East Macedonia and Thrace, River Aggitis	41.161° N, 23.945° E	BGE_00247_A09	BSNTN1909-24	
	Croatia, Istria, Pazinska Dubravica, Pazinciča canal	45.2473° N, 13.9663° E	CCDB 38362 G09	SEPTB081-21	BOLD:ACS0261
<i>Torrenticola anomala</i>	Montenegro, Lim River at Brezjojevica	42.618889° N, 19.93525° E	K70_29	HYDMN269-24	BOLD:ACI0434
			K70_30	HYDMN270-24	
			K70_31	HYDMN271-24	
<i>Torrenticola barsica</i>	Montenegro, Bar, Željeznica River	42.106667° N, 19.098333° E	K72_7	HYDMN342-24	BOLD:AEF1219
<i>Torrenticola brevirostris</i>	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_25	HYDMN408-24	BOLD:AED9586
	Montenegro, Bar, Željeznica River	42.106667° N, 19.098333° E	K72_4	HYDMN339-24	
			K72_6	HYDMN341-24	
			K72_24	HYDMN359-24	
<i>Torrenticola dudichi</i>	Montenegro, Bar, Bartula, Vruća rijeka	42.085167° N, 19.138222° E	K69_22	HYDMN214-24	
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_47	HYDMN382-24	BOLD:AED7520

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Trrenticola elliptica</i>	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K79_7	HYDMN675-24	BOLD:AEI9183
<i>Torrenticola laskai</i> - complex	Montenegro, Tuzi, Cijevna River, lotic	42.406667° N, 19.436389° E	K73_28	HYDMN411-24	BOLD:AED2306
	Montenegro, Kolašin, Opasanica Stream	42.679° N, 19.543167° E	K66_28	HYDMN076-24	
	Montenegro, Montenegro, Tuzi, Cijevna River, lotic	42.406667° N, 19.436389° E	K73_32	HYDMN415-24	BOLD:AEF5471
	Greece, East Macedonia and Thrace, Nestos River near Stavropolis	41.192° N, 24.697° E	BGE_00247_E10	BSNTN1958-24	BOLD:AER2560
<i>Torrenticola lukai</i>	Montenegro, Kolašin, inflow to Bistrica Stream	42.805278° N, 19.446667° E	K65_11 K65_12	HYDMN011-24 HYDMN012-24	BOLD:ACH9685
	Montenegro, Kolašin, Bistrica Stream near Crkvine	42.793083° N, 19.445708° E	K76_36	HYDMN563-24	
	Montenegro, Kovački potok near Budva	42.335° N, 18.771389° E	K68_19	HYDMN163-24	
	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K69_33 K73_16 K73_17 K73_18 K73_26	HYDMN225-24 HYDMN399-24 HYDMN400-24 HYDMN401-24 HYDMN409-24	
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_34	HYDMN369-24	
	Montenegro, Durmitor, Glava Bukovice	43.058611°N, 19.110556°E	K78_45	HYDMN665-24	
<i>Torrenticola meridionalis</i> - complex	Montenegro, Kolašin, inflow to Bistrica Stream	42.805278° N, 19.446667° E	K65_10 K65_13	HYDMN010-24 HYDMN013-24	BOLD:AED7519

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Torrenticola similis</i>	Montenegro, Kolašin, stream near Monastir Morača	42.765833° N, 19.39° E	K65_43	HYDMN043-24	
	Montenegro, Durmitor, Glava Bukovice	43.058611°N, 19.110556°E	K79_5 K79_6	HYDMN673-24 HYDMN674-24	
	Montenegro, Kolašin, inflow to Bistrica Stream	42.805278° N, 19.446667° E	K65_8 K65_9	HYDMN008-24 HYDMN009-24	BOLD:AEI3402
	Montenegro, Plužine, Vrbnica Stream	43.16198° N, 18.76055° E	CCDB 41823 H05	HYDME089-22	
	Montenegro, Andrijevisa, Kutska rijeka	42.6561° N, 19.7875° E	CCDB 41824 A02	HYDBH002-22	
	Montenegro, Kolašin, Bistrica Stream near Crkvine	42.805278° N, 19.446667° E	K76_37	HYDMN564-24	BOLD:AEK9661
	Montenegro, Bar, Vruća rijeka Stream	42.085167° N, 19.138222° E	K69_21	HYDMN213-24	BOLD:AED2307
	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_27	HYDMN410-24	BOLD:AFD1056
Oxidae					
<i>Oxus angustipositus</i>	Montenegro, Tuzi, Vitoja, permanent pool	42.324722° N 19.363889° E	K74_7 K74_8 K74_9	HYDMN438-24 HYDMN439-24 HYDMN440-24	BOLD:AEB9099
Limnesiidae					
<i>Limnesia walteri</i>	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	BGE_00247_F11	BSNTN1971-24	BOLD:AGC9828
	Greece, East Macedonia and Thrace, River Kosynthos	41.102° N, 25.026° E	BGE_00247_C02	BSNTN1926-24	
Hygrobatidae					
<i>Atractides acutirostris</i>	Croatia, Istria, Kanal Botonega	45.3558° N, 13.8624° E	CCDB 38362 G10	SEPTB082-21	BOLD:AEN8023
<i>Atractides fissus</i>	Montenegro, Andrijevisa, Mojanska River	42.6695° N, 19.6957° E	CCDB 41824 A05	HYDBH005-22	BOLD:AEI1811

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Atractides fluviatilis</i>	Montenegro, Tuzi, Cijevna River, lotic	42.406667° N, 19.436389° E	K73_37	HYDMN420-24	BOLD:AEF1143
	Croatia, Papuk Mt., Orłjava river	45.4249° N, 17.5059° E	CCDB_44300_G03	HYDOC075-22	
			CCDB_44300_G04	HYDOC076-22	
			CCDB_44300_G08	HYDOC080-22	
<i>Atractides gibberipalpis</i>	Montenegro, Andrijevisa, Kutska River	42.6561° N, 19.7875° E	CCDB 41824 A01	HYDBH001-22	BOLD:ADU2475
	Montenegro, Andrijevisa, Mojanska River	42.6695° N, 19.6957° E	CCDB 41824 A03	HYDBH003-22	BOLD:AFI2792
			CCDB 41824 A04	HYDBH004-22	BOLD:AEI3946
<i>Atractides inflatipes</i>	Montenegro, Tuzi, Cijevna River, lotic	42.406667° N, 19.436389° E	K73_36	HYDMN419-24	BOLD:AEF1144
<i>Atractides inflatus</i>	Greece, East Macedonia and Thrace, Streamdiorema stream (Makropotamos)	41.131° N, 25.567° E	BGE_00247_G07	BSNTN1979-24	BOLD:AFI9009
<i>Atractides nodipalpis</i>	Montenegro, Kolašin, Bistrice Stream near Crkvine	42.805278° N, 19.446667° E	K67_44	HYDMN140-24	BOLD:ACR0209
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_44	HYDMN379-24	
	Montenegro, Nikšić, Vidrovan, upper part of Zeta River (Boljašnica)	42.8575° N, 18.941111° E	K78_18	HYDMN638-24	
	Greece, East Macedonia and Thrace, Nestos River near Stavropolis	41.192° N, 24.697° E	BGE_00247_E05	BSNTN1953-24	
			BGE_00247_E07	BSNTN1955-24	
	Greece, East Macedonia and Thrace, Aggitis River	41.221° N, 23.893° E	BGE_00247_A01	BSNTN1901-24	

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Atractides ovalis</i>	Montenegro, Tuzi, Vitoja, permanent pool	42.324722° N, 19.363056° E	K74_5	HYDMN436-24	BOLD:AEC4631
<i>Atractides pennatus</i> - complex	Montenegro, Podgorica, Mareza springs - outflow	42.48° N, 19.181944° E	K65_24	HYDMN024-24	BOLD:ADF7007
	Montenegro, Nikšić, Vidrovan, headwater of Zeta River	42.8575° N, 18.941111° E	K74_10 K78_26 K78_27 K78_28 K78_32 K78_33 K78_34	HYDMN441-24 HYDMN646-24 HYDMN647-24 HYDMN648-24 HYDMN652-24 HYDMN653-24 HYDMN654-24	
	Montenegro, Mojkovac, Biogradska river	42.891667°N, 19.603333°E	K74_12	HYDMN443-24	BOLD:ADZ9348
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_45 K72_32	HYDMN380-24 HYDMN367-24	
	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	BGE_00247_G03	BSNTN1975-24	BOLD:AGC6045
	Montenegro, Durmitor, Glava Bukovice	43.058611° N, 19.110556° E	K78_8	HYDMN628-24	BOLD:AEL5782
			K78_9	HYDMN629-24	
<i>Hygrobates calliger</i> – Clade 2 sensu Pešić <i>et al.</i> 2022	Montenegro, Bar, Željeznica River	42.10671° N 19.09042° E	K72_19	HYDMN354-24	BOLD:ACB4846
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_31	HYDMN366-24	
	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_2	HYDMN385-24	
	Bosnia and Herzegovina, Trebinje, Trebišnjica River	42.710278° N, 18.479722° E	K74_38	HYDMN469-24	
	Croatia, Una River near spring Loskun	44.6968° N, 15.9557° E	CCDB 38362 G05	SEPTB077-21	

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Hygrobates lacrima</i>	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K69_36	HYDMN228-24	BOLD:AED2490
<i>Hygrobates limnocrenicus</i>	Montenegro, Tuzi, Vitoja, limnocrene spring	42.324722° N, 19.363056° E	K73_45	HYDMN428-24	BOLD:AED2489
<i>Hygrobates longipalpis</i>	Montenegro, Bandići, spring outflow	42.480833° N, 19.145556° E	K68_2	HYDMN146-24	BOLD:ACR9783
			K68_3	HYDMN147-24	
			K68_4	HYDMN148-24	
			K73_34	HYDMN417-24	
	Montenegro, Tuzi, Vitoja	42.324722° N, 19.363056° E	K73_48	HYDMN431-24	BOLD:AES0232
	Montenegro, Danilovgrad, Komani, pool near Lužnica	42.479472° N, 19.138583° E	K74_44	HYDMN475-24	
	Montenegro, Poseljani, limnocrene spring	42.305556° N, 19.053611° E	K76_1	HYDMN528-24	
	Montenegro, Danilovgrad, Modro Oko limnocrene	42.4825° N, 19.1275° E	K76_2	HYDMN529-24	
			K76_3	HYDMN530-24	
	Montenegro, Tuzi, Vitoja, permanent pool	42.324722° N, 19.363056° E	K76_42	HYDMN569-24	
<i>Hygrobates longiporus</i> - complex	Greece, East Macedonia and Thrace, Kiria	41.072° N, 24.266° E	BGE_00247_C08	BSNTN1932-24	BOLD:AEM7299
<i>Hygrobates mediterraneus</i>	Montenegro, Bojana River near Church of Sveti Đorđe	41.953333° N, 19.35025° E	BGE_00247_C10	BSNTN1934-24	BOLD:AED2190
			BGE_00247_D07	BSNTN1943-24	
			K69_46	HYDMN238-24	
			K70_43	HYDMN283-24	
<i>Hygrobates trigonicus</i> -complex	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	K69_17	HYDMN209-24	BOLD:AGT3762
			K69_15	HYDMN207-24	
			BGE_00247_F05	BSNTN1965-24	
			BGE_00247_F06	BSNTN1966-24	
<i>Mesobates forcipatus</i>	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	BGE_00247_F07	BSNTN1967-24	BOLD:ACT3796

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
Unionicolidae					
<i>Neumania limosa</i>	Montenegro, Tuzi, Vitoja, permanent pool	42.324722° N, 19.363889° E	K74_1	HYDMN432-24	BOLD:AEF5902
			K74_2	HYDMN433-24	
			K74_3	HYDMN434-24	
Pionidae					
<i>Forelia variegator</i>	Greece, East Macedonia and Thrace, Kosynthos River	41.102° N, 25.026° E	BGE_00247_C05	BSNTN1929-24	BOLD:ACS0537
			BGE_00247_C09	BSNTN1933-24	
			BGE_00247_C11	BSNTN1935-24	
<i>Piona damkoehleri</i>	Montenegro, Danilovgrad, Blatina pond	42.543007° N, 19.12282° E	CCDB_39397_C12	HYDAS036-22	BOLD:AEK5107
			CCDB_39398_H05	HYDAS184-22	
			CCDB_39398_H08	HYDAS187-22	
<i>Piona nodata</i>	Montenegro, Danilovgrad, Moromiš pool	42.531389° N 19.198611° E	K76_30	HYDMN557-24	BOLD:AGG4118
			K76_31	HYDMN558-24	
<i>Pionopsis lutescens</i>	Montenegro, Danilovgrad, Blatina pond	42.543007° N, 19.12282° E	CCDB_39398_H01	HYDAS180-22	BOLD:AET1848
			CCDB_39398_H02	HYDAS181-22	
			CCDB_39398_H07	HYDAS186-22	
	Greece, East Macedonia and Thrace, Nestos River near Chrisoupoli	40.989° N, 24.744° E	BGE_00247_A06	BSNTN1906-24	BOLD:AGE7285
Aturidae					
<i>Brachypoda versicolor</i>	Montenegro, Tuzi, Vitoja, permanent pool	42.324722° N 19.363889° E	K74_6	HYDMN437-24	BOLD:ACS0119
<i>Woolastookia rotundifrons</i>	Montenegro, Kolašin, inflow to Bistrica Stream	42.805278° N 19.446667° E	K65_5	HYDMN005-24	BOLD:AEE0289
	Montenegro, Durmitor, Glava Bukovice	43.058611°N, 19.110556°E	K78_40	HYDMN660-24	
			K78_42	HYDMN662-24	
Mideopsidae					

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
<i>Mideopsis milankovici</i>	Greece, East Macedonia and Thrace, Kompsatos River	41.139° N, 25.212° E	BGE_00247_F12	BSNTN1972-24	BOLD:AED2191
	Montenegro, Bar, Bartula, Vruća Rijeka stream	42.085167° N, 19.138222° E	K69_18	HYDMN210-24	BOLD:ACI1492
<i>Mideopsis roztoczensis</i>	Montenegro, Bar, Željeznica River	42.106667° N, 19.098333° E	K69_19 K69_20 K70_6 K70_7 K70_8 K70_13	HYDMN211-24 HYDMN212-24 HYDMN246-24 HYDMN247-24 HYDMN248-24 HYDMN253-24	
	Montenegro, Bojana River near Church of Sveti Đorđe	41.953333° N, 19.35025° E			
<i>Mideopsis roztoczensis</i>	Montenegro, Danilovgrad, Vrijesko Vrelo spring	42.480833° N, 19.145556° E	K70_21	HYDMN261-24	
	Montenegro, Bar, spring near Tudjemili	42.128083° N, 19.14375° E	K70_32 K70_33 K70_34	HYDMN272-24 HYDMN273-24 HYDMN274-24	
<i>Mideopsis roztoczensis</i>	Montenegro, Bar, Željeznica River	42.106667° N, 19.098333° E	K72_2	HYDMN337-24	
	Montenegro, Tuzi, Cijevna River, lentic	42.406667° N, 19.436389° E	K73_3 K73_4 K73_5 K73_6	HYDMN386-24 HYDMN387-24 HYDMN388-24 HYDMN389-24	
<i>Mideopsis roztoczensis</i>	Bosnia and Herzegovina, Trebinje, Trebišnjica River	42.710278° N, 18.479722° E	K74_39 K74_40 K74_41	HYDMN470-24 HYDMN471-24 HYDMN472-24	
	Montenegro, Podgorica, Zeta River near Vranjske Njive	42.468056° N, 19.258056° E	K76_21	HYDMN548-24	
<i>Mideopsis roztoczensis</i>	Greece, East Macedonia and Thrace, Streamdirorema Stream (Makropotamos)	41.131° N, 25.567° E	BGE_00247_H02	BSNTN1986-24	

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TABLE 1. (Continued)

Taxa	Locality	Coordinates	Specimen ID	Process ID	BIN
	Montenegro, Bar, stream in Godinje village	42.220556° N, 19.111667° E	K74_32	HYDMN463-24	BOLD:AEA2936
			K74_27	HYDMN458-24	
			K74_28	HYDMN459-24	
			K74_29	HYDMN460-24	
			K74_30	HYDMN461-24	
			K74_31	HYDMN462-24	
	Montenegro, Kolašin, Tara River near „Raj” restaurant	42.872222° N, 19.527778° E	K72_33	HYDMN368-24	
	Montenegro, Cetinje, stream in Poseljani village	42.309444° N, 19.051667° E	K79_16	HYDMN684-24	
			K79_17	HYDMN685-24	
			K79_18	HYDMN686-24	
			K79_19	HYDMN687-24	
			K79_20	HYDMN688-24	
	Montenegro, Cetinje, Crnojevića River	42.354444° N, 19.020278° E	K68_38	HYDMN182-24	
			K68_39	HYDMN183-24	
			K68_40	HYDMN184-24	
	Arrenuridae				
<i>Arrenurus batillifer</i>	Montenegro, Skadar Lake, Vitoja, pool	42.324722° N 19.363889° E	K73_43	HYDMN426-24	BOLD:AGB3614
	K73_44		HYDMN427-24		
<i>Arrenurus cylindratus</i>	Montenegro, Nikšić, Vidrovan, upper part of Zeta River	42.8575° N, 18.941111° E	K78_7	HYDMN627-24	BOLD:AED6864

Systematic Part

Superfamily Eylaoidea Leach, 1816

Family Limnocharidae Grube, 1859

Limnochares aquatica (Linnaeus, 1758)

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Holarctic.

BIN: BOLD:ACS0438.

BIN distribution: Netherlands, Norway, Italy, Montenegro.

Superfamily Hydryphantoidea Piersig, 1896

Family Hydrodromidae K. Viets, 1936

Hydrodroma despiciens (Müller, 1776)

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Europe, Asia Minor.

***Hydrodroma reinhardi* Pešić, 2002**

Published records: Croatia: Pozojević *et al.* (2019a, 2020); Montenegro: Pešić *et al.* (2021a).

Distribution: Central-Eastern Mediterranean (Gerecke 2017), Russia.

BIN: BOLD:AEF0798.

BIN distribution: Montenegro, Russia.

***Hydrodroma torrenticola* (Walter, 1908)**

Published records: Croatia: Pozojević *et al.* (2019a); Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a, 2019b).

Distribution: Central, Western and Southern Europe.

New barcode sequences: **Montenegro**: BOLD:ACI2515 (HYDMN634-24), BOLD:AEF3799 (HYDMN156-24).

BINs: BOLD:AEF3799, BOLD:ACI2515.

BIN distribution: BOLD:AEF3799 (Bosnia and Herzegovina, Montenegro), BOLD:ACI2515 (Montenegro).

Family Hydryphantidae Piersig, 1896

Subfamily Euthyadinae K. Viets, 1931

***Panisus michaeli* Koenike, 1896**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Western Palearctic.

New barcode sequences: **Montenegro**: HYDOC032-22, HYDOC033-22.

BIN: BOLD:ADT7504.

BIN distribution: Montenegro, Russia, Switzerland.

***Trichothyas jadranka* Pešić, 2018**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Montenegro.

BIN: BOLD:AEF1286.

BIN distribution: Montenegro.

Subfamily Hydryphantinae Piersig, 1896

***Hydryphantes armentarius* Gerecke, 1996**

Published records: Croatia: Pozojević *et al.* (2021); Serbia: “*Hydryphantes parmulus*” Jovanović *et al.* (2024).

Distribution: Central Mediterranean (Tyrrhenian Islands, Central Italy, Balkans, Pyrennes).

New barcode sequences: **Montenegro**: HYDMN421-24, HYDMN422-24, HYDMN423-24.

BIN: BOLD:ADL3822.

BIN distribution: the Netherlands, Spain, Serbia, Montenegro.

Remarks. Re-examination of the specimen published by Jovanović *et al.* (2024) under the name *Hydryphantes parmulus* Koenike, 1912 showed that this identification was erroneous, and the specimen belongs to *H. armentarius*. As noticed by Valdecasas *et al.* (2019) and Peláez *et al.* (2022), the available sequences of *H. armentarius* were paired with three *H. parmulus* sequences from the Netherlands available in the BOLD database. However, examination of the latter material from the Netherlands (H. Smit personal communication) reveals that it belongs to *H. parmulus*. Therefore, as suggested by H. Smit (personal communication), two possibilities arise: i) *Hydryphantes parmulus* and *H. armentarius* are synonyms; ii) The two species cannot be distinguished on the basis of COI. To this interesting question, further research is needed, ideally including both, mitochondrial and nuclear markers, within an integrative taxonomic framework.

This species was collected (together with *Sperchon squamosus* Kramer, 1879) in a helocrene spring (Fig. 1) located in the Komarnica valley in northern Montenegro which is threatened by permanent flooding due to a planned hydroelectric power plant. With these findings, we contribute to the recent call (<https://www.balkanrivers.net/en/news/scientists-across-europe-oppose-hydropower-komarnica-canyon>) that the scientific community and

environmental NGO's sent to the Montenegrin government to immediately halt plans to construct the "Komarnica" hydropower plant in the canyon of the same name. This is a new record for Montenegro.



FIGURE 1. Helocrenic spring located in the Komarnica valley in northern Montenegro (sampling site of *Hydryphantes armentarius* and *Sperchon squamosus*). Photo by V. Pešić (22 May 2023).

Subfamily Protziinae Koenike, 1909

***Partnunia angusta* (Koenike, 1893)**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Alps (Austria, Italy, Germany).

***Partnunia naprintua* Gerecke, 1996**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Balkan.

BIN: BOLD:AEL6734.

BIN distribution: Montenegro.

***Partnunia steinmanni* Walter, 1906**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Alps, Tatra, Central and Western European lower mountain ranges.

***Protzia* sp.**

Published records: North Macedonia: Królikowska *et al.* (2024).

BIN: BOLD:AFE5552.

BIN distribution: North Macedonia.

Remarks: In the phylogenetic tree, BOLD:AFE5552 is placed as a sister clade to BOLD:AEI5749, which cluster specimens of *P. invalvaris* from Serbia.

***Protzia eximia* (Protz, 1896)**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Holarctic?

***Protzia halberti* (Walter, 1920)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: British Isles, Central and Eastern Europe.

BIN: BOLD:AED9646.

BIN distribution: Montenegro, Romania.

***Protzia invalvaris* Piersig, 1898**

Published records: Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2021b).

Distribution: Palaearctic.

New barcode sequences: **Montenegro**: BOLD:AEI5749 (HYDMN418-24).

BINs: BOLD:AEI2833, BOLD:AEI5749.

BIN distribution: BOLD:AEI2833 (Montenegro); BOLD:AEI5749 (Serbia, North Macedonia, Montenegro),

Remarks: As mentioned by Di Sabatino *et al.* (2010) *P. invalvaris* probably represents a species complex. Therefore, the typical lineage of *P. invalvaris* must be redefined based on molecular analysis of material from the *locus typicus*.

***Protzia octopora* Lundblad, 1954**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Spain, France, Montenegro, Asia Minor.

BIN: BOLD:AEI5747.

BIN distribution: Montenegro.

***Protzia rotunda* Walter, 1908**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Southern Europe, Asia Minor, Caucasus.

BIN: BOLD:AED8976.

BIN distribution: Montenegro.

***Protzia rugosa* Walter, 1918**

Published records: Croatia: Pozojević *et al.* (2020); Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a).

Distribution: Central and Southeastern Europe.

New barcode sequences: **Montenegro**: HYDMN669-24.

BIN: BOLD:AEE0170.

BIN distribution: Bosnia and Herzegovina, Montenegro, Germany, Romania, Poland.

***Protzia squamosa squamosa* Walter, 1908**

Published records: Croatia: Pozojević *et al.* (2020); Bosnia and Herzegovina: Pešić *et al.* (2024a).

Distribution: Central and Eastern Europe.

BIN: BOLD:AEK4100.

BIN distribution: Bosnia and Herzegovina.

***Protzia squamosa paucipora* (K. Viets, 1955)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Italy, Balkan.

BIN: BOLD:AEL1015.

BIN distribution: Montenegro.

Remarks: The high genetic distance between populations keyed out to *P. squamosa squamosa* and *P. s. paucipora*, respectively, estimated at 15.5% p-distance, indicate a species status of these populations. Further research is needed to clarify taxonomic status of the Balkan lineages and relationship with other members of the *P. squamosa* complex.

Subfamily Tartarothyadinae K. Viets, 1934

***Tartarothyas romanica* Husiatinschi, 1937**

Published records: Croatia: Pozojević *et al.* (2021).

Distribution: Europe except South England, not recorded from France and the Iberian Peninsula.

Superfamily Lebertioidea Thor, 1900

Family Lebertiidae Thor, 1900

***Lebertia algeriensis* Lundblad, 1942 – complex (Fig. 8C)**

Published records: Greece: Pešić *et al.* (2021b).

Distribution: Western Mediterranean.

New barcode sequences: **Greece**: BOLD:AFC7652 (BSNTN1923-24).

BINs: BOLD:AFC7652, BOLD:AEJ1488.

BIN distribution: BOLD:AFC7652 (Greece, North Macedonia), BOLD:AEJ1488 (Greece, Slovakia, Madeira).

Remarks: Genetic data indicate that populations keying to *L. algeriensis* in Gerecke (2009) include several distinct clusters, indicating the need for molecular and morphological re-definition of this species. Recently, Pešić *et al.* (2025b) assumed that *L. algeriensis*, found to be common in the running waters of Madeira, colonized this island recently in the last eighty years, or even the last 15 years, suggesting that it may be the first species of water mite documented as potentially, if not invasive, thus non-indigenous in freshwater ecosystems of Macaronesia.

***Lebertia cuneifera* Walter, 1922**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Central and southern Europe, Carpathians.

New barcode sequences: **Montenegro**: HYDOC031-22.

BIN: BOLD:ADV4392.

BIN distribution: Montenegro, Austria, Germany.

***Lebertia glabra* Thor, 1897**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a); Serbia: Jovanović *et al.* (2024); North Macedonia: Pešić *et al.* (2021b).

Distribution: West Palaearctic.

New barcode sequences: **Montenegro**: BOLD:AEI2925 (HYDMN447-24, HYDME088-22, HYDOC030-22, HYDMN622-24), BOLD:ACS0595 (HYDMN622-24).

BINs: BOLD:ACS0595, BOLD:AEI2925.

BIN distribution: BOLD:ACS0595 (the Netherlands, Bulgaria, North Macedonia, Montenegro, Italy, Poland, Slovakia, Romania, Germany, Austria, Serbia, Norway, Türkiye, Bosnia and Herzegovina); BOLD:AEI2925 (Montenegro).

Remarks: Molecular data show that *L. glabra* consists of at least two distinctly diverging clusters indicating the need for molecular re-definition of this species including the species listed as synonyms in Gerecke (2009).

***Lebertia guttata* K. Viets, 1952**

Published records: Montenegro: Pešić *et al.* (2019b).

Distribution: French Alps, Montenegro.

***Lebertia maglioi* Thor, 1907**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: “*Lebertia jadrensis*” Pešić *et al.* (2021a).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: HYDMN393-24, HYDMN376-24, HYDMN377-24, HYDMN378-24, HYDMN543-24, HYDMN541-24, HYDMN573-24, HYDMN623-24, HYDMN642-24, HYDMN655-24, HYDMN103-24.

BIN: BOLD:ADK0383.

BIN distribution: Bosnia and Herzegovina, Montenegro, North Macedonia, Romania, France.

***Lebertia fimbriata* Thor, 1899**

Published records: North Macedonia: Pešić *et al.* (2021b), Królikowska *et al.* (2024).

Distribution: West Palaearctic.

New barcode sequences: **Montenegro**: BOLD:ADF5657 (HYDMN229-24), AES5822 (HYDME085-22, HYDMN618-24), BOLD:AGH7455 (HYDMN619-24, HYDMN620-24, HYDMN625-24, HYDMN626-24, HYDMN657-24, HYDMN371-24); **Greece**: BOLD:ADP3144 (BSNTN1985-24)

BINs: BOLD:AES5822, BOLD:AEI4632, BOLD:AGH7456, BOLD:AGH7455, BOLD:ADF5657, BOLD:ADP3144.

BIN distribution: BOLD:AES5822 (Montenegro), BOLD:AEI4632 (North Macedonia), BOLD:AGH7455 (Montenegro), BOLD:AGH7456 (Montenegro, Romania), BOLD:ADF5657 (the Netherlands, Germany, Italy, France, Montenegro), BOLD:ADP3144 (Norway, Austria, Germany Greece, Russia).

Remarks: As already mentioned by Gerecke *et al.* (2022), *L. fimbriata sensu* Gerecke (2009) includes at least three distinctly diverging clusters indicating the need for molecular and morphological re-definition of this species including numerous species listed as synonyms in Gerecke (2009).

***Lebertia inaequalis* (Koch, 1837) - complex**

Published records: Montenegro: Pešić *et al.* (2021a, 2019b), Zawal *et al.* (2020); North Macedonia: Pešić *et al.* (2021b), Królikowska *et al.* (2024).

Distribution: Palaearctic.

New barcode sequences: **Greece**: BOLD:ADF6223 (BSNTN1931-24, BSNTN1944-24, BSNTN1945-24, BSNTN1905-24).

BINs: BOLD:ADF6223, BOLD:AEF5683, BOLD:AEF2742.

BIN distribution: BOLD:ADF6223 (the Netherlands, Montenegro, Poland, Germany, Greece, Russia); BOLD:AEF5683 (North Macedonia), BOLD:AEF2742 (Montenegro).

Remarks. As already mentioned by Gerecke *et al.* (2022), *L. inaequalis* includes several distinctly diverging clusters, indicating the need for molecular and morphological re-definition of this species including numerous species listed as synonyms in Gerecke (2009) and Gerecke *et al.* (2022).

***Lebertia insignis* Neuman, 1880**

Published records: Montenegro: Pešić *et al.* (2021a)

Distribution: Central, western and northern Europe, rare in the Mediterranean area (Spain, Balkans).

BIN: BOLD:AEB9107.

BIN distribution: Norway, Montenegro, Poland, Slovakia, Portugal, Russia.

***Lebertia longiseta* Bader, 1955**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Northern Alps and prealps, the Netherlands.

***Lebertia maculosa* Koenike, 1902**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2021b); North Macedonia: Pešić *et al.* (2021b).

Distribution: Central, western and south-eastern Europe.

New barcode sequences: **Montenegro**: BOLD:AED9197 (HYDMN060-24, HYDMN061-24), BOLD:AED9718 (HYDMN062-24, HYDMN114-24), BOLD:AGG5207 (HYDMN630-24, HYDMN631-24).

BINs: BOLD:AED9197, BOLD:AED9718, BOLD:AGG5207.

BIN distribution: BOLD:AED9197 (Montenegro, Serbia, North Macedonia), BOLD:AED9718 (Montenegro, Bosnia and Herzegovina, North Macedonia), BOLD:AGG5207 (Montenegro).

***Lebertia natans* K. Viets, 1926**

Published records: Montenegro: Pešić *et al.* (2021a, 2019b).

Distribution: Central and northeastern European lowlands.

BIN: BOLD:AEF5684.

BIN distribution: Montenegro.

***Lebertia porosa* Thor, 1900 - complex**

Published records: Montenegro: Pešić *et al.* (2021a, 2019b), Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024); Serbia: Pešić *et al.* (2021b); Greece: Pešić *et al.* (2021b).

Distribution: Western Palaearctic

New barcode sequences: **Montenegro**: BOLD:ACS0974 (HYDME086-22, HYDMN352-24, HYDMN353-24, HYDMN275-24, HYDMN262-24, HYDMN264-24, HYDMN265-24, HYDMN185-24, HYDMN187-24, HYDMN204-24), BOLD:AED4662 (HYDMN464-24, HYDMN465-24, HYDMN435-24, HYDMN476-24, HYDMN658-24)

BINs: BOLD:ACS0974, BOLD:AED4662, BOLD:ACP5319.

BIN distribution: BOLD:ACS0974 (the Netherlands, France, Romania, Montenegro, Germany, UK, Bulgaria, Italy, Poland, Slovakia, Spain, Switzerland, Greece, Serbia, North Macedonia, Türkiye, Portugal); BOLD:AED4662 (Montenegro, Bosnia and Herzegovina), BOLD:ACP5319 (Norway, Germany, Portugal, Serbia).

Remarks: Recently, *L. porosa* has been redefined by Tyukosova *et al.* (2022) based on the specimens from the type locality that were shown to belong to BOLD:ACQ9049. The taxonomic status of other *L. porosa* like species including BOLD:ACP5319, provisionally assigned by Tyukosova *et al.* (2022) to *L. porosa* aggr. sp. A., and the widely distributed BOLD:ACS0974 needs to be clarified by resolving taxonomic status of numerous species listed as synonyms in Gerecke (2009).

***Lebertia reticulata* Koenike, 1919**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a).

Distribution: Alps and central European mountains.

New barcode sequences: **Montenegro**: HYDMN449-24, HYDMN448-24, HYDMN450-24, HYDMN383-24, HYDMN479-24, HYDMN676-24, HYDMN677-24, HYDMN678-24, HYDMN643-24, HYDMN644-24, HYDMN645-24

BIN: BOLD:ADT9218.

BIN distribution: Austria, Germany, Montenegro, Slovakia, Bosnia and Herzegovina.

***Lebertia rivulorum* K. Viets, 1933**

Published records: North Macedonia: Pešić *et al.* (2021b); Królikowska *et al.* (2024).

Distribution: Central, eastern and southern Europe.

New barcodes: **Croatia**: ACS0927 (SEPTB080-21).

BINs: BOLD:AED9196, BOLD:ACS0927.

BIN distribution: BOLD:ACS0927 (the Netherlands, Germany, Croatia), BOLD:AED9196 (North Macedonia).

Remarks: DNA barcode data show that there are at least two genetically divergent clusters in Europe, one (BOLD:ACS0927) of these probably includes typical *L. rivulorum* and the second one (BOLD:AED9196) from North Macedonia which probably represents a species new to science.

***Lebertia schechteli* Thor, 1913**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Western, central and southeastern Europe.

BIN: BOLD:AED9612.

BIN distribution: Montenegro, Slovakia.

***Lebertia sparsicapillata* Thor, 1905**

Distribution: Europe except for most northern and eastern parts.

New barcode sequences: **Montenegro**: HYDMN230-24, HYDMN370-24, HYDMN372-24.

BIN: BOLD:ADF6063.

BIN distribution: Germany, Portugal, Montenegro.

***Lebertia stigmatifera* Thor, 1900**

Published records: Serbia: Jovanović *et al.* (2024).

Distribution: Northern, western and central Europe, Pyrenees, Apennines and Balkans.

New barcode sequences: **Croatia**: HYDOC073-22, HYDOC074-22

BIN: BOLD:ACS0579.

BIN distribution: the Netherlands, Norway, Austria, Germany, Sweden Serbia, Croatia.

***Lebertia variolata* Gerecke, 2009** (Fig. 8D)

Published records: Montenegro: Pešić *et al.* (2021a); North Macedonia: Królikowska *et al.* (2024).

Distribution: West Mediterranean.

New barcode sequences: **Montenegro**: HYDMN002-24, HYDMN553-24; **Greece**: BSNTN1954-24, BSNTN1957-24.

BIN: BOLD:ADK0996.

BIN distribution: France, Montenegro, North Macedonia, Greece, Portugal, Türkiye.

Family Oxidae K. Viets, 1926

***Oxus angustipositus* K, Viets, 1908 - complex**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); North Macedonia: Pešić *et al.* (2021b); “*Oxus ovalis* (Müller, 1776)” Królikowska *et al.* (2024).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: HYDMN438-24, HYDMN439-24, HYDMN440-24.

BIN: BOLD:AEB9099.

BIN distribution: Norway, Montenegro, North Macedonia.

Remarks: Recently, the study of Pešić *et al.* (2023e) revealed the presence of at least two genetically different clusters of this species in Europe, indicating the need for revision of this complex.

***Oxus ovalis* (Müller, 1776)**

Published records: Montenegro: Zawal *et al.* (2020).

Distributions: Western Palaearctic.

***Oxus setosus* (Koenike, 1898)**

Published records: Croatia: Pozojević *et al.* (2018a); Montenegro: Zawal *et al.* (2020).

Distribution: Palaearctic.

Family Sperchontidae Thor, 1900

Sunfamily Sperchontinae Thor, 1900

***Sperchon* (*Hispidosperchon*) *balcanicus* Pešić sp. nov.**

<https://zoobank.org/urn:lsid:zoobank.org:act:F72A3586-3229-47DC-9F70-3E7A48DE38B9>

Figs 2–4

Sperchon denticulatus Koenike, 1895 - Pešić *et al.* (2021a, 2024a).

Material examined. Holotype ♂ (RMNH), dissected and slide mounted, Bosnia and Herzegovina, Republic of Srpska, Ribnik, spring Ribnik, 44.40379° N, 16.798382° E, 1 Sept. 2012, leg. Pešić. Paratypes: 2♂, 6♀, same data as holotype, one ♀ dissected and slide mounted (RMNH); same site as holotype, 19 Jun. 2024 leg. Pešić & Zawal, 1♂

[CCDB-48501-D10], 1 ♀ [CCDB 48501 D06] (sequenced), 1 ♂ dissected and slide mounted (stored in the collection of the first author).

Other material. **Bosnia and Herzegovina**, Republic of Srpska: Mrkonjić Grad, Sokočnica River, 1 Sept. 2012, leg. Pešić, 1 ♂, dissected and slide mounted (RMNH); Trebinje, Trebišnjica river near mouth of Jazine stream, 24 Jun. 2023 leg. Zawal & Pešić 1 ♀ (sequenced). **Montenegro**: Berane, spring near Monastery Djurdjevi Stupovi, 42.8527° N, 19.862° E, 12 Dec. 2019 leg. Pešić, Jovanović & Manović, 1 ♀ (sequenced); Durmitor, Glava Bukovice, limnocrene spring, 43.058611° N, 19.110556° E, 23 Jun. 2018 leg. Pešić & Zawal, 2 ♀ (sequenced).

Diagnosis. *Morphological*: Integument dorsally and ventrally reticulate. Male postgenital plate relatively large and elongated in longitudinally, L/W ratio >1.5; tip of anterior ramus of ejaculatory complex shallowly indented with laterally rounded, posteriorly slightly pointed extensions; distolateral extension of male IV-leg-5 present but short. *Molecular*: this lineage represented by a unique BIN (BOLD:AED8428) differs from *S. denticulatus* clade by 14.8% K2P for COI.

Description. Male (holotype; in parentheses measurements of specimen from Sokočnica River, n=1): Idiosoma ventrally L 900 (800), W 700. Dorsal shield present (Fig. 2B), L 894 (769), W 606 (506). Cx-I+II medially close to each other but not fused; Cx-III with a glandularium (Cxgl-4); Cx-field L 453 (397); Cx-III W 450 (403). Genital field with three pairs of acetabula, anterior and middle acetabula elongated, individual genital flaps L 234 (197), L Ac-1-3: 91 (69), 88 (72), 73 (50). Postgenital plate relatively large and elongated in longitudinally, distinctly longer than wide, length/width ratio 2.7 (1.9), may include excretory pore within posterior boundary.

Ejaculatory complex L 484 (450), with an elongate, rod-shaped anterior ramus, the tip shallowly indented with laterally rounded, posteriorly slightly pointed extensions (Figs. 3D-E).

Gnathosoma (Fig. 3B) ventrally L 266 (231); chelicera L 331 (275), basal segment L 234 (194), claw L 97 (81), L chelicera basal segment/claw ratio 2.4 (2.4). Palp stout; dL/H of palpal segments: P-1, 44/78 (34/81); P-2, 166/120 (159/128); P-3, 141/89 (141/101); P-4, 191/59 (183/59); P-5, 48/25 (42/19); P-2 anterior projection anterior length 38 (28) µm, P-2 dorsally longer than P-3, P-3 ventrally slightly concave, P-4 ventral setae close together (distance 22 µm), P-4 proximoventrally slightly concave forming a slight constriction. dL of I-leg-2-6: 97 (84), 106 (94), 147 (142), 161 (156), 181 (181); dL of IV-leg: 119 (115), 125 (115), 119 (111), 228 (213), 253 (222), 242 (225); distolateral extension of IV-leg-5 present but short (Fig. 3A).

Female (paratype): Similar to male except in the lack of a dorsal plate (Fig. 4B), postgenital area (Fig. 4A) and palp (Fig. 4C). Idiosoma ventrally L 810, W 620. Dorsum with two platelets without glandularia, postfrontalia on a relatively large platelet, postocularia free in integument; centrally with a large, paired platelet (Dc-4). Cx-field L 516; Cx-III W 516. Venter without platelets, excretory pore smooth. Genital flaps L 230-237, L Ac-1-3: 97-104, 98, 75.

Gnathosoma ventrally L 316; chelicera L 375, basal segment L 288, claw L 100, L chelicera basal segment/claw ratio 2.9. Palp slender; dL/H of palpal segments: P-1, 38/89; P-2, 209/159; P-3, 265/41; P-4, 276/59; P-5, 53/28; ventral margin of P-3 covered by fine denticulation (Fig. 4C). dL of I-leg: 78, 113, 141, 215, 206, 206; dL of IV-leg: 150, 178, 190, 364, 353, 297.

Etymology. The name refers to the geographical provenance (from Latin *balcanicus*) from where the new species is described.

Species delimitation using DNA-barcodes. The final alignment for species delimitation using COI sequence data comprised 669 nucleotide positions (nps) for 48 specimens of *Sperchon denticulatus*-complex (Table 2); *S. glandulosus* from Norway was used as outgroup to root the tree. Maximum Likelihood (ML) analysis clustered the COI sequences of the *Sperchon balcanicus* **sp. nov.** a sister clade (albeit with a low support of only 19% ML support) to all other species of *denticulatus*-complex from Europe.

The genetic distance between the COI sequences of *S. balcanicus* **sp. nov.** and its closest relative, *S. denticulatus*, was estimated at 14.8% K2P (Table 3). The mean K2P intraspecific distance within the clade, herein described as *S. balcanicus* **sp. nov.** was estimated at 0.35%.

The ASAP (assemble species by automatic partitioning) method observed a barcode gap of about 4-8% K2P distances (Fig. 6). The applied ASAP procedure identified seven MOTUs (hypothetical species) within the selected *Sperchon denticulatus*-complex dataset: (1) *S. violaceus*, (2) *S. denticulatus*, (3) *S. serapae* from Türkiye, (4), *S. vaginosus*, (5) *S. gr. denticulatus* from Corsica, France, (6) *S. hibernicus*, and (7) *S. balcanicus* **sp. nov.**

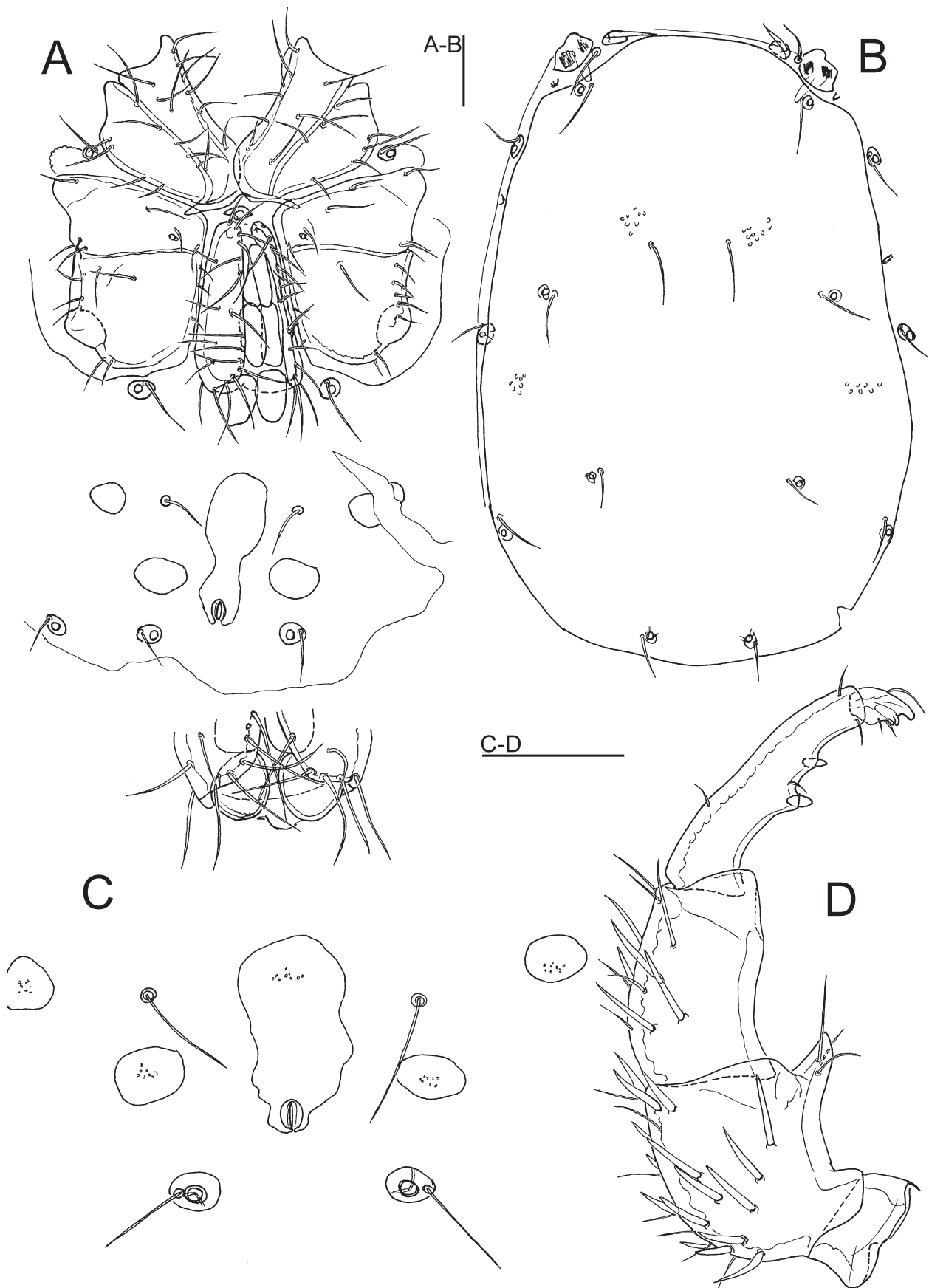


FIGURE 2. *Sperchon balcanicus* sp. nov., ♂ (A–B, C holotype, Ribnik spring, Bosnia and Herzegovina; C specimen from Sokočnica river, Bosnia and Herzegovina): A—venter; B—dorsal shield; C—posterior part of the venter; D—palp, lateral view. Scale bars = 100 μ m.

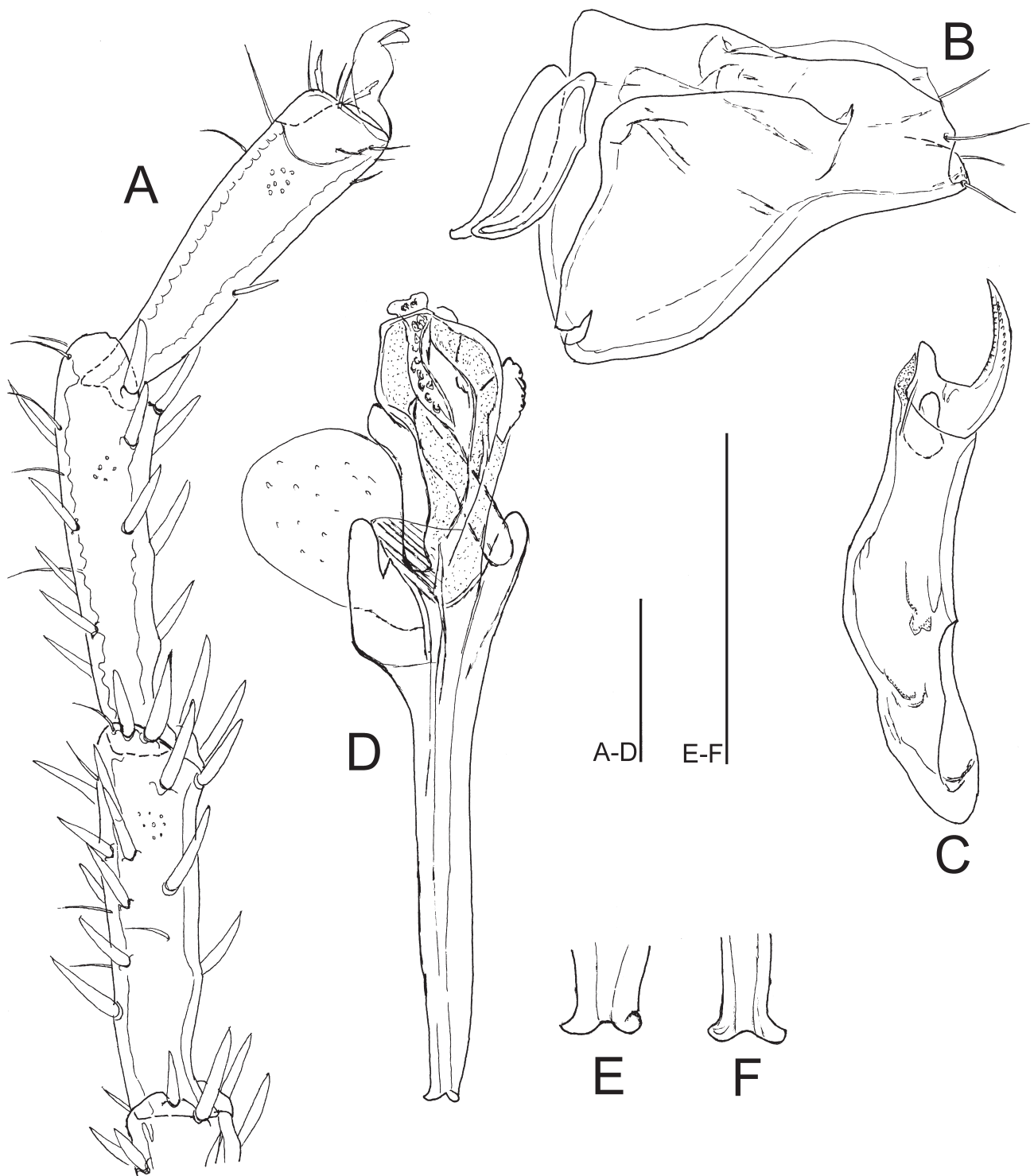


FIGURE 3. *Sperchon balcanicus* **sp. nov.**, ♂ (A–E, C holotype, Ribnik spring, Bosnia and Herzegovina; F specimen from Sokočnica river, Bosnia and Herzegovina): A—IV-leg-4-6; B—capitulum; C—chelicera; D—ejaculatory complex; E–F—tip of ejaculatory complex. Scale bars = 100 μ m.



FIGURE 4. *Sperchon balcanicus* sp. nov., ♀, Ribnik spring, Bosnia and Herzegovina: A—venter; B—dorsum (partially damaged); C—palp, lateral view. Scale bars = 100 µm.

Remarks. In regard to the shape of male ejaculatory complex (tip of anterior ramus indented with laterally rounded, posteriorly slightly pointed extensions), morphologically the new species closely resembles *Sperchon denticulatus* Koenike, 1895, a species with which it was previously probably confused. The latter species can easily be separate from *S. balcanicus* **sp. nov.** by differently shaped male postgenital plate (anteriorly rounded, posteriorly more-or-less straight, longitudinally distinctly wider than long, length/width < 1, see Di Sabatino *et al.* 2010 fig. 8-59b) and IV-leg-5 with prominent distolateral extension (see Lundblad 1956, fig. 39D). The phylogenetic analysis based on COI data proved the high genetic distance (COI 14.8% K2P) between the new species and *S. denticulatus* suggests a long independent history of these two species.

Habitat. The new species prefers strong karstic springs (such as Glava Bukovice in Montenegro and Ribnik spring in Bosnia and Herzegovina, Fig. 5).

Distribution: Bosnia and Herzegovina, Montenegro. Details of distribution are unknown due to the previous confusion with *S. denticulatus*, but the species is probably widespread in the Balkans. The former records of *S. denticulatus* from Bosnia and Herzegovina (Pešić *et al.* 2024a) and Montenegro (Pešić *et al.* 2021a) likely should be assigned to the new species.



FIGURE 5. Photograph of the type locality (Ribnik spring, Republic of Srpska, Bosnia and Herzegovina) of *Sperchon balcanicus* **sp. nov.** Photograph by V. Pešić (19 June 2024).

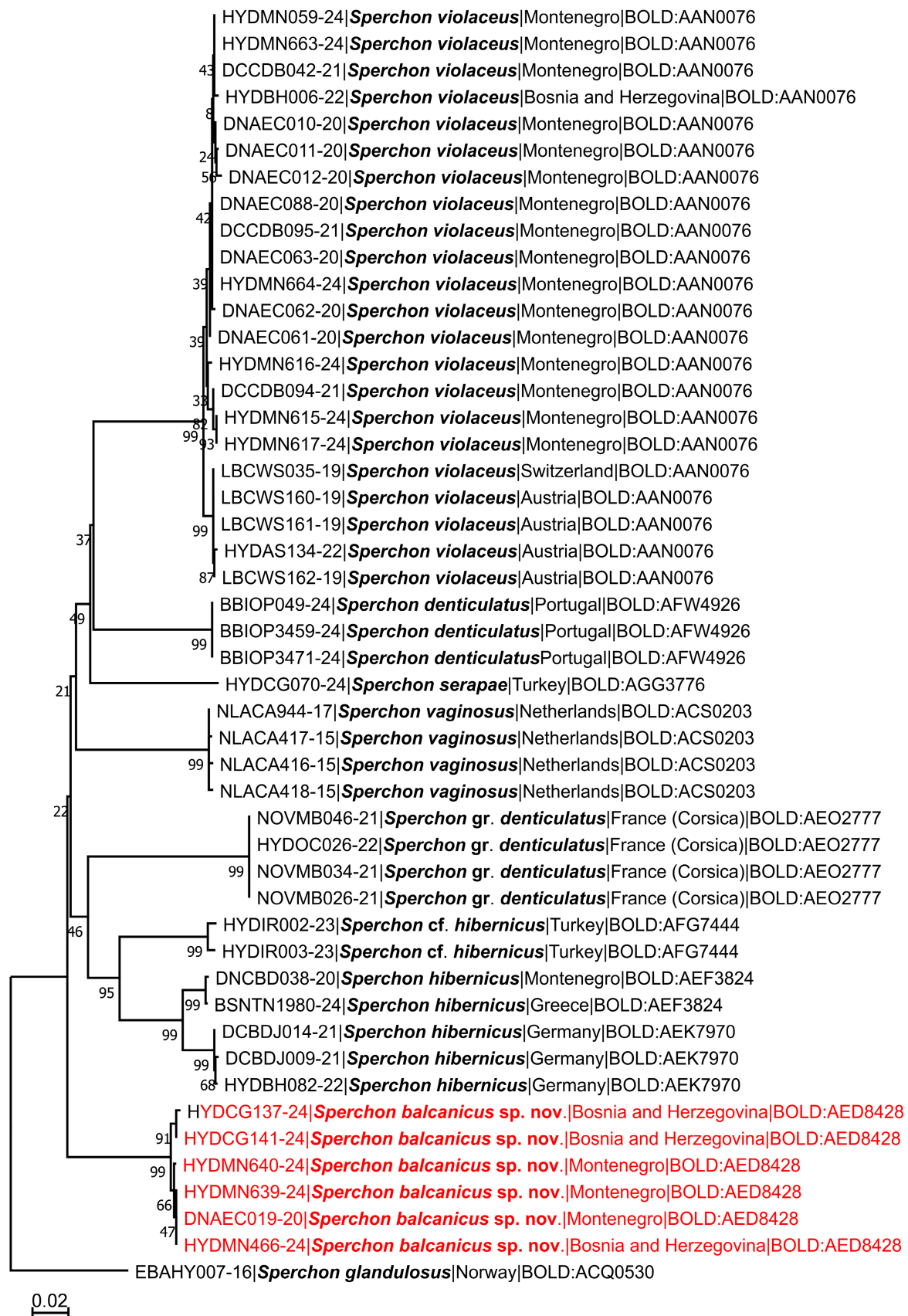


FIGURE 6. Neighbor-Joining tree of *Sperchon denticulatus* complex obtained from 49 nucleotide COI sequences listed in Table 2. There was a total of 669 positions in the final dataset. The results of species delimitation by ASAP procedure are indicated by vertical bars. Sequences of *S. balcanicus* sp. nov. are marked in red. BINs are based on the barcode analysis from 1 June 2025.

TABLE 2. List of *Sperchon* specimens used for building Fig. 7. For specimens from this study see Table 1.

Sample ID	Process ID	BIN	Country
<i>Sperchon balcanicus</i> sp. nov.			
CCDB-48501-D06	HYDCG137-24	BOLD:AED8428	Bosnia and Herzegovina
CCDB-48501-D10	HYDCG141-24		Bosnia and Herzegovina
10. CG2020 8 B8	DNAEC019-20		Montenegro
<i>Sperchon denticulatus</i>			
BGE 00109 E01	BBIOP049-24	BOLD:AFW4926	Portugal
BGE 00580 D03	BBIOP3459-24		Portugal
BGE 00580 E03	BBIOP3471-24		Portugal
<i>Sperchon</i> gr. <i>denticulatus</i> - Corsica			
CCDB 38559 D10	NOVMB046-21	BOLD:AEO2777	France (Corsica)
CCDB 38559 C10	NOVMB034-21		France (Corsica)
CCDB 38559 C02	NOVMB026-21		France (Corsica)
CCDB 44300 C02	HYDOC026-22		France (Corsica)
<i>Sperchon hibernicus</i>			
CCDB-3867-D02	DNCBD038-20	BOLD:AEF3824	Montenegro
BGE 00247 G08	BSNTN1980-24		Greece
CCDB 38392 B02	DCBDJ014-21	BOLD:AEK7970	Germany
CCDB 38392 A09	DCBDJ009-21		Germany
CCDB 41824 G10	HYDBH082-22		Germany
CCDB 39399 A02	HYDIR002-23	BOLD:AFG7444	Türkiye
CCDB 39399 A03	HYDIR003-23		Türkiye
<i>Sperchon serapae</i>			
CCDB-48498-F10	HYDCG070-24	BOLD:AGG3776	Türkiye
<i>Sperchon vaginosus</i>			
RMNH.5070702	NLACA944-17	BOLD:ACS0203	the Netherlands
RMNH.ACA.841	NLACA417-15		the Netherlands
RMNH.ACA.840	NLACA416-15		the Netherlands
RMNH.ACA.842	NLACA418-15		the Netherlands
<i>Sperchon violaceus</i>			
CCDB38233 D06	DCCDB042-21	BOLD:AAN0076	Montenegro
CCDB38233 H10	DCCDB094-21		Montenegro
CCDB38233 H11	DCCDB095-21		Montenegro
56. CG2020 1	DNAEC010-20		Montenegro
57. CG2020 8	DNAEC011-20		Montenegro
58. CG2020	DNAEC012-20		Montenegro
Hyd MN VP8	DNAEC088-20		Montenegro
DNAEC061-20	26. M19 16A 3 F4		Montenegro
27. M19 16A 3 F5	DNAEC062-20		Montenegro
28. M19 16A 3 F6	DNAEC063-20		Montenegro
CCDB 41824 A06	HYDBH006-22		Bosnia and Herzegovina
CrenoBarcode H112	LBCWS035-19		Switzerland
CrenoBarcode H388	LBCWS160-19		Austria
CrenoBarcode H389	LBCWS161-19		Austria
CrenoBarcode H390	LBCWS162-19		Austria
CCDB 39398 D03	HYDAS134-22		Austria
<i>Sperchon glandulosus</i> (Outgroup)			
EBAI-Hyd07	EBAHY007-16	BOLD:ACQ0530	Norway

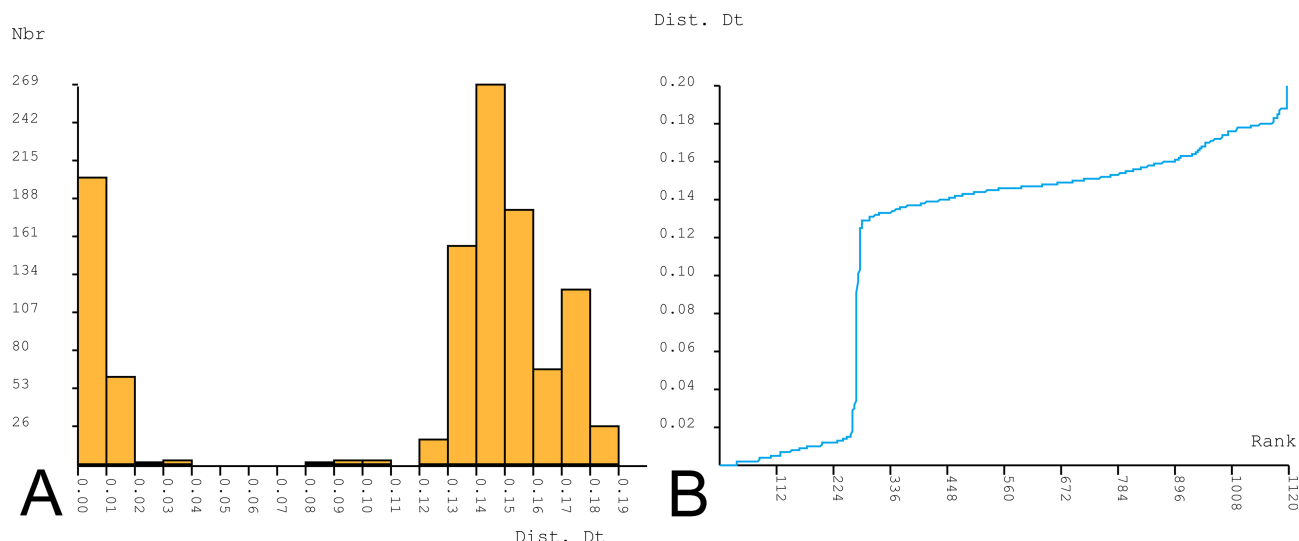


FIGURE 7. Results of ASAP analysis for COI sequences of the *Sperchon denticulatus*-complex dataset. (A) Distribution of pairwise differences, (B) Ranked pairwise differences.

TABLE 3. Estimates of average genetic distance (K2P) within and between clades examined species of the *Sperchon denticulatus*-complex sequence pairs in and between COI haplogroups are shown.

	Intragroup	Intergroup					
		(1)	(2)	(3)	(4)	(5)	(6)
(1) <i>Sperchon violeceus</i>	0.007						
(2) <i>Sperchon denticulatus</i>	0	0.133					
(3) <i>Sperchon serapae</i>	n/c	0.139	0.137				
(4) <i>Sperchon</i> gr. <i>denticulatus</i> (Corsica)	0	0.179	0.190	0.185			
(5) <i>Sperchon vaginosus</i>	0.0023	0.151	0.150	0.154	0.177		
(6) <i>Sperchon hibernicus</i>	0.0583	0.158	0.158	0.164	0.157	0.149	
(7) <i>Sperchon balcanicus</i> sp. nov.	0.0035	0.140	0.148	0.140	0.151	0.149	0.153

Sperchon brevirostris Koenike, 1895 - complex

Distribution: Europe, islands of Atlantic and norther seas.

Published records: Montenegro: Pešić *et al.* (2021a); North Macedonia: Pešić *et al.* (2021b)

BINs: BOLD:ACP6107, BOLD:AED3857.

BIN distribution: BOLD:AED3857 (Montenegro, North Macedonia); BOLD:AED3857 (Germany, Montenegro, Norway).

Remarks: Recently Pešić *et al.* (2025b) showed that *S. brevirostris* populations include several distinctly diverging clusters, indicating the need for molecular and morphological re-definition of this species.

Sperchon clupei Piersig, 1896

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); North Macedonia: Pešić *et al.* (2021b), Królikowska *et al.* (2024).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: BOLD:ACS1100 (HYDMN373-24, HYDMN375-24, HYDMN374-24, HYDMN100-24)

BINs: BOLD:ACS1100, BOLD:AEE4061.

BIN distribution: BOLD:ACS1100 (the Netherlands, Germany, Norway, North Macedonia, Montenegro, Russia, Serbia, Austria, Italy); BOLD:AEE4061 (Montenegro).

***Sperchon compactilis* (Koenike, 1911)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023).

Distribution: Central and southwestern Europe, Maghreb, Caucasus, Asia Minor.

***Sperchon hibernicus* Halbert, 1944**

Published records: Croatia: Pozojević *et al.* (2020); Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a).

New barcode sequences: **Greece**: BSNTN1980-24.

Distribution: British Isles, Central and southern Europe

BIN: BOLD:AEF3824.

BIN distribution: Montenegro, North Macedonia, Poland, Greece.

***Sperchon hispidus* Koenike, 1895**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a).

Distribution: Palaearctic.

New barcode sequences: **Montenegro**: AGB7408 (HYDMN416-24)

BINs: BOLD:AED3202, BOLD:AGB7408

BIN distribution: BOLD:AED3202 (Montenegro, Russia); BOLD:AGB7408 (Montenegro).

***Sperchon insignis* (Walter, 1906)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023).

Distribution: Europe.

***Sperchon milisai* Pešić, 2022**

Published records: Croatia: Pešić (2022); Bosnia and Herzegovina: Pešić *et al.* (2024a). Montenegro: Pešić (2022).

Distribution: Western Balkan.

New barcode sequences: **Montenegro**: HYDMN667-24, HYDMN668-24.

BIN: BOLD:AEF3825.

BIN distribution: Montenegro, Croatia, Albania, Bosnia and Herzegovina.

***Sperchon papillosus* Thor, 1901**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: HYDMN456-24.

BIN: BOLD:AED2134.

BIN distribution: Montenegro, North Macedonia.

***Sperchon setiger* Thor, 1898**

Published records: Greece: Pešić *et al.* (2021b).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: HYDMN219-24.

BIN: BOLD:ACR9610.

BIN distribution: the Netherlands, Germany, Greece, Italy, Montenegro, Russia.

Remarks. New for Montenegro.

***Sperchon squamosus* Kramer, 1879**

Published records: North Macedonia: Królikowska *et al.* (2024)

Distribution: Western Palaearctic

New barcode sequences: **Montenegro**: HYDMN424-24, HYDMN425-24.

BIN: BOLD:AEB7886.

BIN distribution: Norway, Montenegro, North Macedonia.

Remarks: New for Montenegro.

***Sperchon thienemanni* Koenike, 1907**

Published records: Croatia: Pozojević *et al.* (2020); Bosnia and Herzegovina: Pešić *et al.* (2025a); Montenegro: Pešić *et al.* (2021a).

Distribution: Europe, distribution unclear due to the earlier confusion with *S. glandulosus* Koenike, 1896.

BINs: BOLD:ADV4077, BOLD:AEI8945.

BIN distribution: BOLD:ADV4077 (Switzerland, Austria, Montenegro, Poland), BOLD:AEI8945 (Bosnia and Herzegovina).

***Sperchon denticulatus* - complex**

Published records: Croatia: Pozojević *et al.* (2020); Žeželj Vidoša *et al.* (2023).

***Sperchon vaginosus* Thor, 1902**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Europe, from United Kingdom to Sicily.

***Sperchon violaceus* Walter, 1944**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a).

Distribution: Alps, Pyrenees, Tatra, Carpathians.

New barcode sequences: **Montenegro**: HYDMN059-24, HYDMN663-24, HYDMN664-24, HYDMN615-24, HYDMN616-24, HYDMN617-24.

BIN: BOLD:AAN0076.

BIN distribution: Switzerland, Austria, Montenegro, Bosnia and Herzegovina.

***Sperchonopsis verrucosa* (Protz, 1896)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a); North Macedonia: Królikowska *et al.* (2024).

Distribution: Holarctic.

New barcode sequences: Croatia: ACS9705 (HYDOC071-22, HYDOC072-22).

BINs: BOLD:ACS9705, BOLD:AEK8297.

BIN distribution: BOLD:ACS9705 (Norway, Belgium, Italy, Montenegro, Croatia, North Macedonia), BOLD:AEK8297 (Romania, Montenegro, North Macedonia).

Remarks: As emphasized by Pešić *et al.* (2022b), genetic data indicate that European populations assigned to *S. verrucosa* include several distinct clusters, indicating the need for molecular and morphological re-definition of this species.

Family Teutoniidae Koenike, 1910

***Teutonia cometes* (Koch, 1837)**

Published records: Montenegro: Pešić *et al.* (2019b, 2021a), Zawal *et al.* (2020), Pešić & Smit (2022).

Distribution: Palearctic.

BIN: BOLD:ACH7884.

BIN distribution: Norway, Montenegro, Portugal.

Family Torrenticolidae Piersig, 1902

Subfamily Torrenticolinae

***Monatractides aberratus* (Lundblad, 1941)**

Distribution: Mediterranean, Türkiye, Iran.

New barcode sequences: **Greece**: BSNTN1964-24.

BIN: BOLD:AGC9829.

BIN distribution: Greece.

Remarks. The *p*-distance between the latter BIN and its nearest neighbour, BOLD:AEM6344, which includes specimens of *M. aberratus* from Türkiye, was estimated at 4.65%.

***Monatractides latissimus* (K. Viets, 1936)**

Published records: Croatia: Pešić & Smit (2023).

Distribution: Croatia, Bosnia, Southeastern Germany.

New barcode sequences: **Montenegro**: HYDMN267-24.

BIN: BOLD:AEY8127.

BIN distribution: Croatia, Montenegro.

Remarks. New for Montenegro.

***Monatractides madritensis* (K. Viets, 1930)**

Published records: Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2021b).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: HYDMN397-24, HYDMN398-24, HYDMN402-24, HYDMN406-24, HYDMN407-24, HYDMN412-24, HYDMN414-24, HYDMN552-24.

BIN: BOLD:AED3803.

BIN distribution: Montenegro, Serbia, Italy, Portugal.

***Monatractides stadleri* (Walter, 1921) – complex (Fig. 8A)**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); Greece: Pešić *et al.* (2021b).

Distribution: Western Palaearctic.

New barcode sequences: **Montenegro**: BOLD:AED3802 (HYDMN403-24, HYDMN404-24, HYDMN413-24, HYDMN050-24, HYDMN051-24, HYDMN068-24, HYDMN345-24, HYDMN346-24, HYDMN347-24, HYDMN357-24, HYDMN279-24, HYDMN191-24, HYDMN165-24, HYDMN215-24, HYDMN216-24). **Greece**: BOLD:AED3802 (BSNTN1956-24), BOLD:AGC6044 (BSNTN1921-24).

BINs: BOLD:AED3802, BOLD:AGC6044.

BIN distribution: BOLD:AED3802 (Montenegro, North Macedonia, Greece, Poland); BOLD:AGC6044 (Greece, Türkiye).

Remarks. As emphasized Pešić & Smit (2023), genetic data revealed that European populations assigned to *M. stadleri* includes several distinct clusters, indicating the need for molecular and morphological re-definition of this species.

***Torrenticola amplexa* (Koenike, 1908)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a, 2019b), Zawal *et al.* (2020).

Distribution: Palaearctic.

New barcode sequences: **Montenegro**: ACR0665 (HYDMN162-24, HYDOC083-22, HYDOC079-22), ACS0261 (SEPTB081-21). **Greece**: ACR0665 (BSNTN1909-24).

BIN: BOLD:BOLD:ACR0665, BOLD:ACS0261.

BIN distribution: BOLD:ACR0665 (Norway, Russia, Germany, Poland, Portugal, Montenegro, Croatia, Greece), BOLD:ACS0261 (the Netherlands, Croatia, Russia).

***Torrenticola anomala* (Koch, 1837)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a); Serbia: Pešić *et al.* (2021b)

Distribution: Holarctic.

New barcode sequences: **Montenegro**: HYDMN269-24, HYDMN270-24, HYDMN271-24.

BIN: BOLD:ACI0434.

BIN distribution: Montenegro, Serbia.

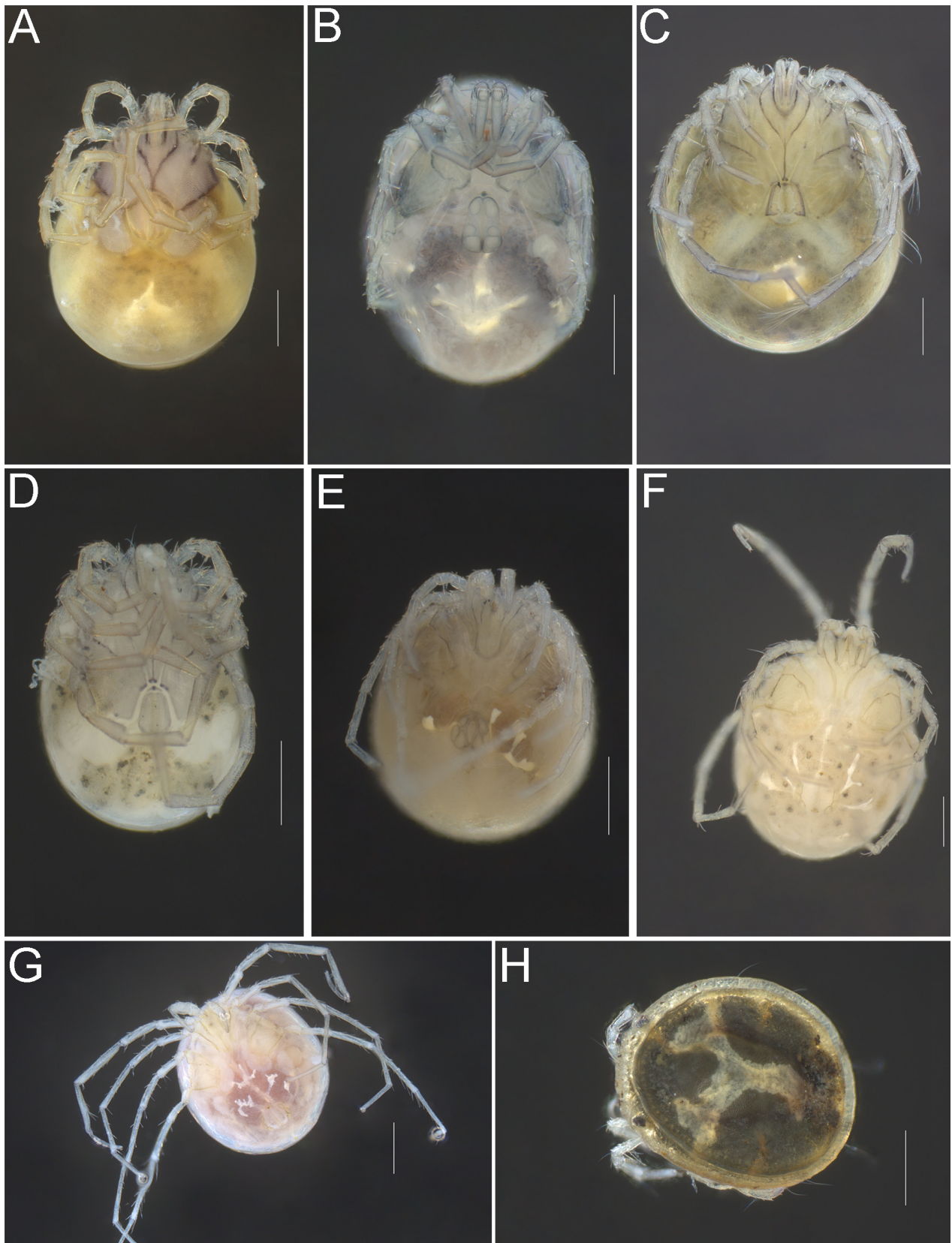


FIGURE 8. Photographs of selected water mite species. A—*Monatractides stadleri* ♀ [BGE_00247_E08]; B—*Limnesia walteri* ♀ [BGE_00247_F11]; C—*Lebertia algeriensis* ♀ [BGE_00247_B11]. D—*Lebertia variolata* ♀ [BGE_00247_E09]. E—*Hygrobatas* gr. *trigonicus* ♂ [BGE_00247_F05]. F—*Atractides* gr. *robustus* ♀ [BGE_00247_G03]. G—*Mesobates forcipatus* ♀, [BGE_00247_F07]. H—*Mideopsis milankovici* ♂ [BGE_00247_F12]. Scale bar 250 μm. Photos by Aina M. Aspaas, NTNU University Museum.

***Torrenticola barsica* (Szalay, 1933)**

Published records: Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2021b).

Distribution: Mediterranean, Middle East.

New barcode sequences: **Montenegro**: HYDMN342-24.

BIN: BOLD:AEF1219.

BIN distribution: Montenegro, Serbia, North Macedonia.

***Torrenticola brevisrostris* (Halbert, 1911)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Holarctic.

New barcode sequences: **Montenegro**: HYDMN408-24, HYDMN339-24, HYDMN341-24, HYDMN359-24, HYDMN214-24.

BIN: BOLD:AED9586.

BIN distribution: Norway, Russia, Montenegro, North Macedonia, Serbia.

***Torrenticola dudichi* (Szalay, 1933)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Southeastern Europe.

New barcode sequences: **Montenegro**: HYDMN382-24.

BIN: BOLD:AED7520.

BIN distribution: Montenegro

***Torrenticola elliptica* (Maglioi, 1909)**

Published records: Croatia: Pozojević *et al.* (2020); Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a); North Macedonia: Królikowska *et al.* (2024).

New barcode sequences: **Montenegro**: HYDMN675-24.

Distribution: Palaearctic.

BINs: BOLD:AEI9183, BOLD:AFB8572.

BIN distribution: BOLD:AEI9183 (Montenegro, Portugal), BOLD:AFB8572 (North Macedonia)

***Torrenticola hyporheica* Di Sabatino & Cicolani, 1993**

Published records: Croatia: Žeželj Vidoša *et al.* (2023).

Distribution: Sicily, French Pyrenees, Corsica (?).

***Torrenticola jeanneli* (Motaş & Tanasachi, 1947)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Central and southeastern Europe.

BIN: BOLD:AFB8977.

BIN distribution: Bosnia and Herzegovina.

***Torrenticola ischnophallus* Lundblad, 1956**

Published records: Croatia: Žeželj Vidoša *et al.* (2023)

Distribution: French Alps, Germany, Türkiye, Bulgaria.

***Torrenticola laskai* Di Sabatino, 2009 - complex**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2020b, 2021b); Greece: Pešić *et al.* (2021b).

Distribution: South and Southeastern Europe.

New barcode sequences: **Montenegro**: BOLD:AED2306 (HYDMN076-24, HYDMN411-24), BOLD:AEF5471 (HYDMN415-24). **Greece**: BOLD:AER2560 (BSNTN1958-24).

BINs: BOLD:AEF5471, BOLD:AED2306, BOLD:AER2560.

BIN distribution: BOLD:AEF5471 (Montenegro, North Macedonia, Greece), BOLD:AED2306 (Montenegro,

Serbia, Romania), BOLD:AER2560 (Greece, Romania).

Remarks: Recently the status of *T. laskai*, a species with the type locality in Corsica (Di Sabatino *et al.* 2009) but widely reported from the Mediterranean has been questioned by Pešić & Smit (2022a), who, based on molecular data, revealed that the latter species might be a complex of cryptic species. The latter authors barcoded specimens of *T. laskai* from Corsica and showed the presence of two highly supported clades. Considering the similarity in size and shape of the ejaculatory complex, Pešić & Smit (2022a) assumed that the clade grouping specimens of BINS BOLD:AET4248 and BOLD:AEO1170 corresponds with the nominal species. The second clade of BOLD:AEN8967, which, in addition to specimens from Corsica, includes two specimens from Asturias in Spain, probably represent an undescribed species. On the other hand, the COI sequences of *T. laskai* from Southeastern Europe together with a sequence of *T. dowlingi* Pešić, 2020 from Iran, forms the same MOTU indicating that populations from Southeastern Europe should be attributed to *T. dowlingi* (see Pešić *et al.* 2023c for discussion).

***Torrenticola lukai* Pešić, Valdecasas & Garcia-Jimenez, 2012**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a).

New barcode sequences: **Montenegro**: HYDMN011-24, HYDMN012-24, HYDMN563-24, HYDMN163-24, HYDMN225-24, HYDMN399-24, HYDMN400-24, HYDMN401-24, HYDMN409-24, HYDMN369-24, HYDMN665-24.

Distribution: Western Balkans.

BIN: BOLD:ACH9685.

BIN distribution: Montenegro, Bosnia and Herzegovina, Poland.

***Torrenticola meridionalis* Sabatino & Cicolani, 1990 - complex**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a); North Macedonia: Pešić *et al.* (2021b), Królikowska *et al.* (2024).

Distribution: South Italy, Balkan.

New barcode sequences: **Montenegro**: BOLD:AEI3402 (HYDME089-22, HYDBH002-22, HYDMN008-24, HYDMN009-24); BOLD:AED7519 (HYDMN010-24, HYDMN013-24, HYDMN043-24, HYDMN673-24, HYDMN674-24).

BINs: BOLD:AED7519, BOLD:AEI3402.

BIN distribution: BOLD:AED7519 (North Macedonia, Montenegro, Albania, Bosnia and Herzegovina, Poland), BOLD:AEI3402 (Austria, Poland, Romania, Montenegro).

Remarks: Pešić *et al.* (2021b) showed that populations keying out as *T. meridionalis* in Di Sabatino *et al.* (2016), a species originally described from Italy, include at least three divergent barcode clusters, one of which (BOLD:AEK9662) is restricted to populations from Italy and two other widely distributed haplogroups, BOLD:AED7519 and BOLD:AEI3402, respectively, which comprise populations from the Balkans.

***Torrenticola oraviensis* (Láska, 1953)**

Published records: Serbia: Pešić *et al.* (2021b).

Distribution: Central, Southern and Southeastern Europe.

***Torrenticola similis* (K. Viets, 1939)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Central and southern Europe.

New barcode sequences: Montenegro: HYDMN564-24.

BIN: BOLD:AEK9661.

BIN distribution: Montenegro.

***Torrenticola tenuirostris* (K. Viets, 1936)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Montenegro, Bosnia and Herzegovina.

BIN: BOLD:AFD0144.

BIN distribution: Bosnia and Herzegovina.

***Torrenticola ungeri* (Szalay, 1927)**

Distribution: Southern Europe, Asia Minor, Iran

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Montenegro: Pešić *et al.* (2021a); Serbia: Pešić *et al.* (2021b).

New barcode sequences: **Montenegro:** BOLD:AED2307 (HYDMN213-24), BOLD:AFD1056. (HYDMN410-24).

BINs: BOLD:AED2307, BOLD:AFD1056.

BIN distribution: BOLD:AED2307 (Montenegro, Serbia), BOLD:AFD1056 (Montenegro).

Remarks: The *p*-distance between the two BINs mentioned above was estimated at 5.77%, indicating the presence of possibly undescribed cryptic species within *T. ungeri* populations in the Balkans.

***Pseudotorrenticola rhynchota* Walter, 1906**

Published records: Croatia: Pozojević *et al.* (2018a, 2020); Montenegro: Pešić *et al.* (2021a).

Distribution: Western Palaearctic.

BIN: BOLD:AEF1632.

BIN distribution: Montenegro.

Superfamily Hygrobatoidae Koch, 1842

Family Aturidae Thor, 1900

Subfamily Aturinae Thor, 1900

***Aturus crinitus* Thor, 1902**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Europe except Fennoscandia.

BIN: BOLD:AEU5136.

BIN Distribution: Austria, Bosnia and Herzegovina.

***Aturus scaber* (Kramer, 1875)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023).

Distribution: Western Palaearctic.

Subfamily Axonopsinae K. Viets, 1929

***Brachypoda versicolor* (Müller, 1776)**

Published records: Croatia: Pozojević *et al.* (2019a); Montenegro: Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024).

Distribution: Palaearctic.

New barcode sequences: **Montenegro:** HYDMN437-24.

BIN: BOLD:ACS0119.

BIN Distribution: Norway, Germany, the Netherlands, North Macedonia, Russia.

***Erebaxonopsis brevipes* Motaş & Tanasachi, 1947**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Southwest Palaearctic.

***Hexaxonopsis romijni* (K. Viets, 1923)**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Western and central Europe.

***Hexaxonopsis serrata* (Walter, 1928)**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020).

Distribution: Southwest Palaearctic.

BIN: BOLD:AEN2897.

BIN Distribution: Montenegro.

***Ljanina macilenta* Koenike, 1908**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Palaearctic.

***Parabrachypoda montii* (Maglio, 1924)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Central and southern Europe.

BIN: BOLD:AED5455.

BIN Distribution: Montenegro.

***Paraxonopsis inferorum* (Motaş & Tanasachi, 1947)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Central, eastern and southern Europe.

BIN: BOLD:AFD4499.

BIN Distribution: Bosnia and Herzegovina.

***Paraxonopsis vietsi* (Motaş & Tanasachi, 1947)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Central and southern Europe.

BIN: BOLD:AFD4501.

BIN Distribution: Bosnia and Herzegovina.

***Woolastookia rotundifrons* (K. Viets, 1922)**

Published records: Croatia: Pozojević *et al.* (2018a, 2020); Montenegro: Pešić *et al.* (2021a).

Distribution: Central, eastern and southern Europe.

New barcode sequences: **Montenegro:** HYDMN005-24, HYDMN660-24, HYDMN662-24.

BIN: BOLD:AEE0289.

BIN Distribution: Montenegro.

Family Frontipodopsidae K. Viets, 1931

***Frontipodopsis reticulatifrons* Szalay, 1945 - complex**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Palaearctic.

BINs: BOLD:AFD5130, BOLD:AFC5028.

BIN Distribution: Bosnia and Herzegovina.

Remarks: Recently, Pešić *et al.* (2023a) who molecularly studied the specimens from the hyporheic interstitial of the upper Neretva River basin in Bosnia and Herzegovina, revealed the presence of two genetically different clusters with the genetic distance between these two lineages estimated at 19.51% K2P, indicating the presence of undescribed cryptic species within the *F. reticulatifrons* complex.

Family Hygrobatidae Koch, 1842

Subfamily Hygrobatinae Koch, 1842

***Atractides acutirostris* (Motaş & C. Angelier, 1927)**

Distribution: Central and southern Europe, British Isles, Middle East.

New barcode sequences: **Croatia**: SEPTB082-21.

BIN: BOLD:AEN8023.

BIN distribution: Croatia, Italy, Bulgaria, Albania.

***Atractides anae* Pešić, 2020**

Published records: Montenegro: Pešić *et al.* (2020a, 2021a); North Macedonia: Królikowska *et al.* (2024).

Distribution: Balkans.

BIN: BOLDAED1201.

BIN distribution: Montenegro, North Macedonia, Bulgaria.

***Atractides distans* (K. Viets, 1914)**

Published records: Croatia: Pozojević *et al.* (2019)

Distribution: Western Palearctic.

***Atractides fissus* (Walter, 1927)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Central Europe, Balkan, Poland?

New barcode sequences: **Montenegro**: HYDBH005-22.

BIN: BOLD:AEI1811.

BIN distribution: Montenegro, Italy.

***Atractides fluviatilis* (Szalay, 1929)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Hungary, Southern Europe, Asia Minor.

New barcode sequences: **Croatia**: HYDOC075-22, HYDOC076-22, HYDOC080-22. **Montenegro**: HYDMN420-24.

BIN: BOLD:AEF1143.

BIN Distribution: Montenegro, Croatia, Italy, Austria.

***Atractides fonticola* (K. Viets, 1920)**

Published records: Montenegro: Pešić *et al.* (2019b, 2021a).

Distribution: Western Palearctic, except British Isles and Sweden.

BIN: BOLD:AGH7558.

BIN distribution: Montenegro.

***Atractides gibberipalpis* Piersig, 1898**

Published records: Croatia: Pozojević *et al.* (2020); Montenegro: Pešić *et al.* (2021a).

Distribution: Palearctic, except Scandinavia.

New barcode sequences: **Montenegro**: BOLD:AEI3946 (HYDBH004-22), ADU2475 (HYDBH001-22), AFI2792 (HYDBH003-22).

BINs: BOLD:AEK7766, BOLD:AEI3946, BOLD:ADU2475, BOLD:AFI2792.

BIN distribution: BOLD:AEK7766 (Montenegro, Bulgaria), BOLD:AEI3946 (Montenegro), BOLD:ADU2475 (Germany, Romania, Montenegro, Switzerland, Italy, Bulgaria, Poland, Czechia, Türkiye), BOLD:AFI2792 (Montenegro)

***Atractides inflatipalpis* K. Viets, 1950**

Published records: Montenegro: Pešić *et al.* (2021a, 2025a).

Distribution: Balkan, Italy (Pešić *et al.* 2010).

BIN: BOLD:AEF1145.

BIN distribution: Montenegro, Bulgaria.

***Atractides inflatipes* Lundblad, 1956**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: French Pyrenees, Balkan (Montenegro).

New barcode sequences: **Montenegro**: HYDMN419-24.

BIN: BOLD:AEF1144.

BIN distribution: Montenegro, United Kingdom.

***Atractides inflatus* (Walter, 1925)**

Published records: Montenegro: Pešić *et al.* (2021a); Greece: Pešić *et al.* (2021b).

Distribution: Mediterranean, Minor Asia, Iran.

New barcode sequences: **Greece**: BOLD:AFI9009 (BSNTN1979-24).

BINs: BOLD:ACB4677, BOLD:AFI9009.

BIN distribution: BOLD:ACB4677 (Iran, Morocco, Montenegro, Türkiye, Greece, France, Italy, Portugal); BOLD: AFI9009 (Greece, Portugal).

***Atractides latipalpis* (Motaş & Tanasachi, 1946)**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Southeastern and central Europe

***Atractides latipes* (Szalay, 1935)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a); Montenegro: Pešić *et al.* (2021a).

Distribution: Eastern, southern and central Europe.

BIN: BOLD:AED4000.

BIN distribution: Switzerland, Italy, Montenegro.

***Atractides loricatus* (Piersig, 1898)**

Published records: Croatia: Pozojević *et al.* (2020); Žeželj Vidoša *et al.* (2023).

Distribution: The Tatras, the Alps and the Dinaric mountains

***Atractides nodipalpis* Thor, 1899**

Published records: Croatia: Pozojević *et al.* (2020); Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); Serbia: Pešić *et al.* (2021b).

Distribution: Palearctic.

New barcode sequences: **Montenegro**: HYDMN140-24, HYDMN379-24, HYDMN638-24. Greece: BSNTN1953-24, BSNTN1955-24, BSNTN1901-24.

BIN: BOLD:ACR0209.

BIN distribution: Greenland, Norway, the Netherlands, Belgium, Germany, Poland, Switzerland, Czechia, Austria, Italy, Romania, Bosnia and Herzegovina, Montenegro, Serbia, Bulgaria, Albania, Greece.

***Atractides milosevici* Pešić & Smit, 2023**

Published records: Montenegro: “*A. nodipalpis* [in part]” Pešić *et al.* (2021a), Pešić *et al.* (2023b).

Distribution: Originally described from Montenegro (Pešić *et al.* 2023b).

BIN: BOLD:AED3547.

BIN distribution: Norway, Poland, Italy, Montenegro.

***Atractides ovalis* Koenike, 1883**

Distribution: Northern and central Europe, southwest Palearctic (Italy, Montenegro, Asia Minor).

New barcode sequences: **Montenegro**: HYDMN436-24.

BIN: BOLD:AEC4631.

BIN distribution: Norway, Montenegro.

***Atractides pennatus* (K. Viets, 1920)**

Published records: Croatia: Pozojević *et al.* (2020); Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2019b, 2021a); North Macedonia: Królikowska *et al.* (2024).

Distribution: Europe except Scandinavia and Caucasus.

New barcode sequences: **Montenegro**: ADF7007 (HYDMN441-24, HYDMN024-24, HYDMN646-24, HYDMN647-24, HYDMN648-24, HYDMN652-24, HYDMN653-24, HYDMN654-24).

BINs: BOLD:ADF7007, BOLD:AES4768, BOLD:AGH5610, BOLD:AGH5611.

BIN distribution: BOLD:ADF7007 (the Netherlands, Germany, Poland, Italy, Montenegro, North Macedonia); BOLD:AES4768 (Austria, Germany, Bosnia and Herzegovina), BOLD:AGH5610 (Bosnia and Herzegovina), BOLD:AGH5611 (Bosnia and Herzegovina).

Remarks: European populations keying out as *A. pennatus* in Gerecke *et al.* (2016), clearly represent two divergent barcode clusters. The typical *A. pennatus* must be redefined and assigned to one of these clusters, the other genetic lineages likely represent a species new to science.

***Atractides pumilus* (Szalay, 1946)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Central and southern Europe.

BIN: BOLD:AFD7424.

BIN distribution: Bosnia and Herzegovina.

***Atractides robustus* (Sokolow, 1940) - complex (Fig. 8F)**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a).

Distribution: Central and southern Europe, Russia, Latvia, Caucasus, Türkiye, Iran.

New barcode sequences: **Montenegro**: ADZ9348 (HYDMN443-24, HYDMN380-24, HYDMN367-24). **Greece**: AGC6045 (BSNTN1975-24).

BINs: BOLD:ADZ9348, BOLD:AGC6045.

BIN distribution: BOLD:ADZ9348 (Germany, Austria, Italy, Bosnia and Herzegovina, Montenegro, Albania, Greece, Romania), BOLD:AGC6045 (Greece).

Remarks: Recently, Pešić *et al.* (2023b) showed that *A. robustus*, a species originally described from the Caucasus (the affluents of the Kuban River), consists of two distinct lineages. The first lineage cluster several BINs populations from eastern Türkiye and northern Iran, and is likely conspecific with *A. robustus*, while the second lineage, which includes *A. robustus*-like specimens from central and southern Europe (BIN:ADZ9348), possibly represents a cryptic species new to science.

***Atractides stankovici* Pešić & Gerecke, 2010**

Published records: Montenegro: Pešić *et al.* (2019b, 2021a); North Macedonia: Pešić *et al.* (2021b).

Distribution: Balkans.

BIN: BOLD:AED3550.

BIN distribution: Montenegro, North Macedonia, Poland.

***Atractides subasper* Koenike, 1902**

Published records: Serbia: Jovanović *et al.* (2024), Pešić *et al.* (2025a).

Distribution: Central and southern Europe, Caucasus.

BIN: BOLD:AEX4044.

BIN distribution: Serbia, Italy, Bulgaria, Albania, Switzerland.

Remarks: Pešić *et al.* (2025a) re-examined the specimen published by Jovanović *et al.* (2024) under the name *Atractides glandulosus* (Walter, 1918) and showed that this identification was erroneous, and the specimen belongs to *A. subasper*.

***Atractides walteri* (K. Viets, 1925)**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Alps, Carpathians.

***Hygrobat*s *balcanicus* Pešić, 2020**

Published records: Serbia: Jovanović *et al.* (2024); North Macedonia: Pešić *et al.* (2020d); Bulgaria: Pešić *et al.* (2020d); Greece: Pešić *et al.* (2020d).

Distribution: Balkans, Portugal (Pešić *et al.* 2024b).

BIN: BOLD:AEG3198.

BIN distribution: Bulgaria, Serbia, Portugal, Russia.

***Hygrobat*s *calliger* Piersig, 1896**

Published records: Montenegro: Croatia: Žeželj Vidoša *et al.* (2023); Pešić *et al.* (2021a); Greece: Pešić *et al.* (2021b).

Distribution: Palaearctic.

Remarks: Recently, using an integrative approach, Pešić *et al.* (2022a) showed that *H. calliger*-like species represent a species complex consisting of at least six distinct but previously overlooked lineages. Regarding the spatial pattern, some of these lineages (e.g., *H. calliger* Clade 1, -2 and -5 sensu Pešić *et al.* 2022) have a wider distribution, while other lineages (e.g., *H. calliger* Clade 3 from Calabria and *H. tyrrhenicus* Pešić & Smit, 2022 from Corsica) are apparently more restricted.

***Hygrobat*s *calliger* Clade 1 sensu Pešić *et al.* 2022**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2022a); Montenegro: Pešić *et al.* (2022a); Serbia: Pešić *et al.* (2022a); Greece: Pešić *et al.* (2022a).

BIN: BOLD:AEF4261.

BIN distribution: Montenegro, Norway, Greece, Germany, Bosnia and Herzegovina, Serbia, Bulgaria, Portugal, Switzerland, Austria, Italy, Poland, Romania, Albania, Slovakia, Slovenia.

***Hygrobat*s *calliger* Clade 2 sensu Pešić *et al.* 2022**

Published records: Montenegro: Pešić *et al.* (2022a).

New barcode sequences: **Montenegro:** HYDMN628-24, HYDMN629-24.

BIN: BOLD:AEL5782.

BIN distribution: Germany, Montenegro, Bulgaria, Austria, Switzerland, Italy, Poland, Czech Republic, Slovakia, Russia.

***Hygrobat*s *calliger* Clade 5 sensu Pešić *et al.* 2022**

Published records: Croatia: Pešić *et al.* (2022a).

BIN: BOLD:AEO5296.

BIN distribution: Germany, Croatia, Bulgaria, Poland, Italy, Montenegro, Slovakia.

***Hygrobat*s *fluviatilis* (Strøm, 1768)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Zawal *et al.* (2020); Serbia: Pešić *et al.* (2021b).

Distribution: Palaearctic.

New barcode sequences: **Croatia:** SEPTB077-21; **Bosnia and Herzegovina:** HYDMN469-24; **Montenegro:** HYDMN366-24, HYDMN385-24.

BIN: BOLD:ACB4846.

BIN distribution: the Netherlands, Norway, Germany, Sweden, Montenegro Romania, Serbia, Croatia, Bosnia and Herzegovina, Slovakia, Poland, Switzerland, Italy, Austria, Albania, Czechia, Slovenia, Portugal, Russia.

***Hygrobat*s *foreli* (Lebert, 1874)**

Published records: Croatia: Pozojević *et al.* (2019a); Montenegro: Pešić *et al.* (2021a).

Distribution: Palaearctic.

BIN: BOLD:AEE3281.

BIN distribution: Montenegro, Romania, Austria, Poland.

Remarks: Genetic data indicate that populations keying to *H. foreli* in Gerecke *et al.* (2016) includes two distinct clusters, represented by BOLD:AEE3281 and BOLD:AAM5295 (shared by Canada and Norway), respectively with a genetic distance estimated at 8.51% *p*-distance, indicating the need for molecular and morphological re-definition of this species.

***Hygrobates lacrima* Pešić, 2020**

Published records: Montenegro: Pešić *et al.* (2020c, 2021a).

Distribution: Originally described from Montenegro (Pešić *et al.* 2020c).

New barcode sequences: **Montenegro:** HYDMN228-24.

BIN: BOLD:AED2490.

BIN distribution: Montenegro, Switzerland, Germany, Italy, Austria.

***Hygrobates limnocrenicus* Pešić, 2020**

Published records: Montenegro: Pešić *et al.* (2020c, 2021a); North Macedonia: Pešić *et al.* (2021b), Królikowska *et al.* (2024).

Distribution: Montenegro, Germany, Russia (Klimov *et al.* 2022).

New barcode sequences: **Montenegro:** HYDMN428-24, HYDMN429-24.

BIN: BOLD:AED2489.

BIN distribution: Montenegro, North Macedonia, Albania, Germany, Norway, Switzerland, Poland, Russia.

***Hygrobates longipalpis* (Hermann, 1804)**

Published records: Montenegro: Pešić *et al.* (2021a, 2019a, b), Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024).

Distribution: Holarctic.

New barcode sequences: **Montenegro:** BOLD:ACR9783 (HYDMN146-24, HYDMN147-24, HYDMN148-24, HYDMN417-24, HYDMN431-24, HYDMN475-24, HYDMN528-24, HYDMN529-24, HYDMN530-24, HYDMN569-24); AES0232 (HYDMN430-24).

BINs: BOLD:ACR9783, BOLD:AES0232.

BIN Distribution: BOLD:ACR9783 (the Netherlands, Montenegro, Germany, Romania, North Macedonia, Poland, Norway, Greece, Albania, Bosnia and Herzegovina), BOLD:AES0232 (Montenegro, North Macedonia, Poland, Italy, Türkiye).

Remarks: The *p*-distance between the two BINs mentioned above was estimated at 3.86%.

***Hygrobates longiporus* Thor, 1898 - complex**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Serbia: Pešić *et al.* (2021b); Greece: Pešić *et al.* (2021b).

Distribution: Palearctic.

New barcode sequences: **Greece:** BOLD:AEM7299 (BSNTN1934-24, BSNTN1932-24, BSNTN1943-24).

BINs: BOLD:AEB8359, BOLD:AEM7299.

BIN Distribution: BOLD:AEB8359 (Norway, Bulgaria, Türkiye, Italy, Switzerland, Germany, Austria, Albania, Greece, Czechia, Montenegro, Slovakia, Russia); BOLD:AEM7299 (Serbia, Türkiye, Greece, Bulgaria, Albania).

Remarks: The taxonomic status of *H. longiporus* was recently questioned by Pešić *et al.* (2021b, 2022c, 2024b) who found that DNA barcodes of the specimens assigned to the latter species in Europe and Türkiye cluster within four distinct genetic lineages, indicating the need for a large-scale revision of this complex.

***Hygrobates marezaensis* Pešić & Dabert, 2017**

Published records: Croatia: Pešić *et al.* (2020d); Bosnia and Herzegovina: Pešić *et al.* (2020d); Montenegro: Pešić *et al.* (2019b); North Macedonia: Pešić *et al.* (2020d, 2021b), Królikowska *et al.* (2024).

BIN: BOLD:ADK0646.

Distribution: Balkans.

BIN distribution: Montenegro, North Macedonia, Italy, Poland, Switzerland, Germany, Austria, Slovakia.

***Hygrobates mediterraneus* Pešić, 2020**

Published records: Montenegro: Pešić *et al.* (2020d, 2021a); Greece: Pešić *et al.* (2021b).

Distribution: Balkans.

New barcode sequences: **Montenegro**: HYDMN238-24, HYDMN283-24, HYDMN209-24, HYDMN207-24.

BIN: BOLD:AED2190.

BIN Distribution: Montenegro, North Macedonia, Greece.

***Hygrobat*s nigromaculatus Lebert, 1879**

Published records: Croatia: Pozojević *et al.* (2019a); Montenegro: Zawal *et al.* (2020).

Distribution: Palaearctic.

***Hygrobat*s setosus Besseling, 1942**

Published records: Croatia: Pozojević *et al.* (2019); Montenegro: Pešić *et al.* (2019b), Zawal *et al.* (2020).

Distribution: Palaearctic.

***Hygrobat*s trigonicus Koenike, 1895 – complex (Fig. 8E)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023); Greece: Pešić *et al.* (2021b).

Distribution: Western Palaearctic.

New barcode sequences: **Greece**: BOLD:AEB5924 (BSNTN1965-24).

BINs: BOLD:AEN6851, BOLD:AEN7131, BOLD:AEB5924.

BIN Distribution: BOLD:AEN6851 (Albania, Greece), BOLD:AEN7131 (Greece), BOLD:AEB5924 (Greece).

Remarks: Recently, the study of Pešić *et al.* (2021b) revealed the presence of at least two genetically different clusters of this species in Europe, with the genetic distance beyond intraspecific level. As emphasized by Pešić & Esen (2022), the taxonomic status of European clades from Germany (possible conspecific with *H. trigonicus*) and Greece, respectively, should be clarified by resolving the taxonomic status of *H. properus* Láska, 1954. The latter species, originally described based on a female from the Orava River and its tributaries in Slovakia (Láska 1954) and later synonymized by Smit *et al.* (2015), has been reported from Bulgaria by Petrova (1976).

***Hygrobat*s turcicus Pešić, Esen & Dabert, 2017**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Bulgaria: Pešić *et al.* (2020d).

Distribution: Türkiye, Balkans.

BIN: BOLD:ADX1364.

BIN Distribution: Türkiye, Bulgaria, Greece, Bosnia and Herzegovina.

***Hygrobat*s norvegicus (Thor, 1897) - complex**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Central, southern and southeastern Europe

BIN: BOLD:ACH7323.

BIN Distribution: the Netherlands, Germany, Norway, Montenegro, Slovakia, Austria, Romania, Poland, Russia.

Remarks: Blattner *et al.* (2019) reported the presence of two distinct clades (“*Hygrobat*s cf. *norvegicus* A/B”) within European populations of *H. norvegicus*. Recently, Gerecke & Stur (2025) based on morphological and molecular analysis of material from Norway showed that “*H. cf. norvegicus* A” sensu Blattner *et al.* 2019 (BIN, BOLD:ACH7323) is genetically identical with *H. norvegicus*.

***Hygrobat*s zawali Pešić, 2015**

Published records: North Macedonia: Królikowska *et al.* (2024).

Distribution: Only known from the Lake Ohrid, Macedonia.

BINs: BOLD:AFC2681, BOLD:AFC3792.

BIN Distribution: North Macedonia.

***Mesobates forcipatus* Thor, 1901 (Fig. 8G)**

Distribution: Northern Europe, one site recorded from Greece.

New barcode sequences: **Greece**: BSNTN1966-24, BSNTN1967-24.

BIN: BOLD:ACT3796.

BIN Distribution: Norway, Greece.

Family Lethaxonidae Cook, Smith & Harvey, 2000

***Lethaxona cavifrons* Szalay, 1943**

Published records: Croatia: Pozojević *et al.* (2020).

Distribution: Central and southern Europe, England and Scotland.

***Lethaxona pygmaea* K. Viets, 1932**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Central and southern Europe.

BIN: BOLD:AFC5762.

BIN Distribution: Bosnia and Herzegovina.

Family Limnesiidae Thor, 1900

Subfamily Limnesiinae Thor, 1900

***Limnesia arevaloi* K. Viets, 1918**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Western part of the Mediterranean region: Iberian Peninsula, Canary Islands, southern France, Italy and north Africa.

***Limnesia connata* Koenike, 1895**

Published records: Croatia: Pozojević *et al.* (2018b).

Distribution: Palaearctic.

***Limnesia koenikei* Piersig, 1894**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Holarctic.

***Limnesia undulata* (Müller, 1776)**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024); Greece: Pešić *et al.* (2021b).

Distribution: Holarctic.

BINs: BOLD:AAX5286, BOLD:ACA9272.

BIN distribution: BOLD:AAX5286 (Canada, the Netherlands, Norway, Montenegro, North Macedonia, Georgia), BOLD:ACA9272 (Canada, United States, Greece).

***Limnesia undulatoides* Davids, 1997**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Probably Palaearctic.

***Limnesia walteri* Migot, 1926 (Fig. 8B)**

Distribution: Mediterranean, Russia, sub-Saharan Africa.

New barcode sequences: **Greece**: BSNTN1926-24, BSNTN1971-24.

BIN: BOLD:AGC9828.

BIN distribution: Greece.

Family Unionicolidae Oudemans, 1909

Subfamily Pionatacinae K. Viets, 1916

Neumania deltoides (Piersig, 1894)

Published records: Croatia: Pozojević *et al.* (2019a); Montenegro: Zawal *et al.* (2020).

Distribution: Palaearctic.

BIN: BOLD:ACR9513

BIN Distribution:

Remarks: The sequence OHHKK251-23 of the specimen from Ohrid Lake assigned by Królikowska *et al.* (2024) to *N. limosa* belongs to BOLD:ACR9513 which groups specimens of *N. deltoides* from the Netherlands and Türkiye. Therefore, the record of *N. limosa* from Ohrid Lake by Królikowska *et al.* (2024) should be rejected and assigned to *N. deltoides*.

Neumania imitata Koenike, 1908 - complex

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Western Palaearctic.

BIN: BOLD:AED4073.

BIN Distribution: Montenegro.

Remarks. Genetic data reveals that BIN:AES6460 which includes the sequence of *N. imitatata* from Montenegro forms a separate MOTU with a high genetic distance (8.59% *p*-distance) to the next closest BIN (BOLD:ADF7924) which groups specimens of *N. imitata* from the Netherlands, indicating that the population from Montenegro possible represents a cryptic species new to science.

Neumania limosa (Koch, 1836)

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024).

Distribution: Palaearctic.

New barcode sequences: **Montenegro:** HYDMN432-24, HYDMN433-24, HYDMN434-24.

BIN: BOLD:AEF5902.

BIN Distribution: Montenegro, Türkiye.

Remarks: See under *N. deltoides*.

Neumania vernalis (Müller, 1776)

Published records: Croatia: Pozojević *et al.* (2018b); North Macedonia: Królikowska *et al.* (2024).

Distribution: Palaearctic.

BIN: BOLD:ACS0012.

BIN Distribution: the Netherlands, Norway, North Macedonia, Russia.

Subfamily Unionicolinae Oudemans, 1909

Unionicola aculeata (Koenike, 1890)

Published records: North Macedonia: Królikowska *et al.* (2024); Montenegro: Zawal *et al.* (2020).

Distribution: Holarctic (?). Europe except the Iberian Peninsula.

BIN: BOLD:AFD5812.

BIN Distribution: North Macedonia.

Unionicola crassipes (Müller, 1776)

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Palaearctic.

***Unionicola figuralis* (Koch, 1836)**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Northern hemisphere and Africa (Ethiopia, Zimbabwe).

***Unionicola gracilipalpis* (K. Viets, 1908)**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Holarctic.

***Unionicola minor* (Soar, 1900) - complex**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024).

Distribution: Europe except Scandinavia.

BINs: BOLD:AAU0335, BOLD:AEF4865.

BIN Distribution: BOLD:AAU0335 (Sweden, the Netherlands, Montenegro, North Macedonia), BOLD:AEF4865 (Montenegro).

Remarks: DNA barcode data show that there are at least four genetically divergent clusters in Europe, two of which are found in Montenegro. Therefore, *U. minor* must be redefined from type material and at least one of the genetic groups from the Balkans represents a species new to science.

***Unionicola hankoi* Szalay, 1927**

Published records: Croatia: Pozojević *et al.* (2019a); North Macedonia: Królikowska *et al.* (2024).

Distribution: Eastern and southern Europe, Iran.

BIN: BOLD:AFD5812.

BIN Distribution: North Macedonia.

***Unionicola ypsilophora* (Bonz, 1783)**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Holarctic.

BIN: BOLD:AEN6889.

BIN Distribution: Montenegro

Family Pionidae Thor, 1900

Subfamily Foreliinae Thor, 1923

***Forelia liliacea* (Müller, 1776)**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Europe.

***Forelia spatulifera* (Marucci, 1907)**

Published records: Montenegro: Pešić *et al.* (2019b).

Distribution: Western Palaearctic.

***Forelia variegator* (Koch, 1837)**

Published records: Croatia: Pozojević *et al.* (2019); Montenegro: Zawal *et al.* (2020); North Macedonia: Królikowska *et al.* (2024).

Distribution: Palaearctic.

New barcode sequences: **Greece**: BSNTN1929-24, BSNTN1933-24, BSNTN1935-24.

BIN: BOLD:ACS0537.

BIN Distribution: the Netherlands, Greece, North Macedonia, Russia,

Subfamily Hydrochoreutinae K. Viets, 1942

***Hydrochoreutes krameri* Piersig, 1896**

Published records: Croatia: Pozojević *et al.* (2019); North Macedonia: Królikowska *et al.* (2024).

Distribution: Palaearctic.

BIN: BOLD:ACR9737

BIN Distribution: the Netherlands, Norway, Portugal, North Macedonia.

Subfamily Pioninae Thor, 1900

***Piona damkoehleri* K.Viets, 1930**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Mediterranean, Iran.

New barcode sequences: **Montenegro**: HYDAS036-22, HYDAS184-22, HYDAS187-22.

BIN: BOLD:AEK5107.

BIN Distribution: Montenegro.

***Piona carnea* (Koch, 1836)**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Holarctic.

***Piona clavicornis* (Müller, 1776)**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Holarctic.

***Piona coccinea* (Koch, 1836)**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Palaearctic.

***Piona disparilis* (Koenike, 1895)**

Published records: Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020).

Distribution: Western Palaearctic.

BIN: BOLD:AEE3977.

BIN Distribution: Montenegro.

***Piona imminuta* (Piersig, 1897)**

Published records: Montenegro: Zawal *et al.* (2020).

Distribution: Europe.

***Piona laminata* (Thor, 1901)**

Published records: Croatia: Pozojević *et al.* (2021); Montenegro: Pešić *et al.* (2021a)

Distribution: Probably Palaearctic.

BIN: BOLD:AEL3248.

BIN Distribution: Montenegro.

***Piona longipalpis* (Krendowsky, 1878)**

Published records: Croatia: Pozojević *et al.* (2018b).

Distribution: Palaearctic.

***Piona nodata* (Müller, 1776)**

Distribution: Holarctic.

New barcode sequences: **Montenegro**: HYDMN557-24, HYDMN558-24.

BIN: BOLD:AGG4118.
BIN Distribution: Montenegro.

***Piona pusilla* (Neuman, 1875)**

Published records: Montenegro: Zawal *et al.* (2020).
Distribution: Holarctic.

***Piona rotundoides* (Thor, 1897)**

Published records: Croatia: Pozojević *et al.* (2019a); Montenegro: Zawal *et al.* (2020).
Distribution: Palaearctic.

***Piona stjordalensis* (Thor, 1897)**

Published records: Montenegro: Zawal *et al.* (2020).
Distribution: Palaearctic.

Subfamily Tiphinae Oudemans, 1941

***Pionopsis lutescens* (Hermann, 1804)**

Published records: Montenegro: Zawal *et al.* (2020).
Distribution: Holarctic.
New barcode sequences: **Montenegro:** AET1848 (HYDAS180-22, HYDAS181-22, HYDAS186-22); **Greece:** AGE7285 (BSNTN1906-24).
BIN: BOLD:AET1848, AGE7285.
BIN Distribution: AET1848 (Montenegro), AGE7285 (Portugal, Greece).

***Tiphys ornatus* Koch, 1836**

Published records: Montenegro: Pešić *et al.* (2021a).
Distribution: Holarctic.
BIN: BOLD:ACS0401.
BIN Distribution: the Netherlands, Montenegro.

***Tiphys torris* (Müller, 1776)**

Published records: Montenegro: Pešić *et al.* (2021a).
Distribution: Palaearctic.
BIN: BOLD:ACS0401.
BIN Distribution: the Netherlands, Norway, Montenegro, Portugal.

Family Wettinidae Cook, 1956

***Wettina lacustris* Pešić & Smit, 2018**

Published records: Montenegro: Pešić & Smit (2018), Pešić *et al.* (2021a); North Macedonia: Pešić *et al.* (2021b).
Distribution: Montenegro, North Macedonia (Pešić *et al.* 2021b).
BIN: BOLD:ADL2726.
BIN Distribution: Montenegro, North Macedonia.

Superfamily Arrenuroidea Thor, 1900

Family Arrenuridae Thor, 1900

***Arrenurus abbreviator* Berlese, 1888**

Published records: Croatia: Pozojević *et al.* (2019a).
Distribution: Western Palaearctic.

***Arrenurus albator* (Müller, 1776)**

Published records: Montenegro: Pešić *et al.* (2020).
Distribution: Western Palaearctic.

***Arrenurus batillifer* Koenike, 1896**

Distribution: Palaearctic.
New barcode sequences: **Montenegro**: HYDMN426-24, HYDMN427-24
BIN: BOLD:AGB3614.
BIN Distribution. Montenegro.

***Arrenurus biscissus* Lebert, 1879**

Published records: North Macedonia: Królikowska *et al.* (2024).
Distribution: Europe.
BIN: BOLD:AFE6019.
BIN Distribution: North Macedonia.

***Arrenurus bruzelii* Koenike, 1885**

Published records: Serbia: Jovanović *et al.* (2024)
Distribution: Palaearctic.
BIN: BOLD:ACS0212.
BIN Distribution: the Netherlands, Norway, Serbia, Türkiye.

***Arrenurus buccinator* (Müller, 1776)**

Published records: Montenegro: Pešić *et al.* (2020).
Distribution: Western Palaearctic.

***Arrenurus conicus* Piersig, 1894**

Published records: Montenegro: Pešić *et al.* (2020).
Distribution: Northern and eastern Europe, few records from western Europe, in the Balkans known from Montenegro and Bosnia and Herzegovina.

***Arrenurus crassicaudatus* Kramer, 1875**

Published records: Croatia: Pozojević *et al.* (2019a).
Distribution: Palaearctic.

***Arrenurus cylindratus* Piersig, 1896**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2024a); Montenegro: Pešić *et al.* (2021a), Zawal *et al.* (2020).
Distribution: Western Palaearctic.
New barcode sequences: **Montenegro**: HYDMN627-24.
BIN: BOLD:AED6864.
BIN Distribution: Bosnia and Herzegovina: Montenegro, North Macedonia.
Remarks: Królikowska *et al.* (2024) reported *Arrenurus stjordalensis* under BOLD:AED6864 which groups sequences of *A. cylindratus* from Montenegro and Bosnia and Herzegovina.

***Arrenurus globator* (Müller, 1776)**

Published records: North Macedonia: Królikowska *et al.* (2024)
Distribution: Palaearctic.
BIN: BOLD:ACS0765.

BIN Distribution: the Netherlands, Norway, North Macedonia, Russia.

***Arrenurus octagonus* Halbert, 1906**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Western Palaearctic.

***Arrenurus refractarioulus* Biesiadka, 1978**

Published records: Montenegro: Pešić *et al.* (2021a).

Distribution: Poland, Sicily, Montenegro.

BIN: BOLD:AEN2842.

BIN Distribution: Montenegro, Romania.

***Arrenurus sinuator* (Müller, 1776)**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Palaearctic.

***Arrenurus stjordalensis* Thor, 1899**

Published records: Montenegro: Pešić *et al.* (2020).

Distribution: Western Palaearctic.

***Arrenurus virens* Neuman, 1880**

Published records: Serbia: Jovanović *et al.* (2024)

Distribution: Western Palaearctic.

BIN: BOLD:ACS0772.

BIN Distribution: the Netherlands, Serbia.

***Arrenurus zachariae* Koenike, 1886**

Published records: Croatia: Pozojević *et al.* (2019a).

Distribution: Europe.

Family Athienemanniidae K. Viets, 1922

***Mundamella germanica* K.Viets, 1913**

Published records: Montenegro: Pešić *et al.* (2019b, 2021a).

Distribution: Germany, the Netherlands, Ireland, France, Montenegro and Greece.

BIN: BOLD:AED6269.

BIN Distribution: Montenegro.

Family Hungarohydracaridae Motaş & Tanasachi, 1947

Subfamily Hungarohydracarinae Motaş & Tanasachi, 1959

***Hungarohydracarus subterraneus* Szalay, 1943 - complex**

Published records: Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Europe and North Africa.

BINs: BOLD:AFD4384, BOLD:AFC4651.

BIN Distribution: Bosnia and Herzegovina.

Remarks: Recently, Pešić *et al.* (2023a) molecularly studied the specimens from the hyporheic interstitial of the upper Neretva River basin in Bosnia and Herzegovina, and revealed the presence of two genetically different clusters, with the genetic distance estimated at 9.78% *p*-distance, indicating the presence of undescribed cryptic

species within *H. subterraneus* - complex.

Family Mideopsidae Koenike, 1910

Mideopsis crassipes Soar, 1904

Distribution: Holarctic. Widespread in Europe, but rare in the Mediterranean area.

BIN: BOLD:ACR9760.

Remarks: The sequence OHHKK135-23 of the specimen from Ohrid Lake assigned by Królikowska *et al.* (2024) to *M. roztozensis* belongs to BIN:ACR9760 which groups specimens of *M. crassipes* from the Netherlands, Norway, Russia and Poland (see Pešić *et al.* 2023d). Therefore, the record of *M. roztozensis* from Ohrid Lake should be rejected and assigned to *M. crassipes*, a species known from the latter lake.

Mideopsis milankovici Pešić & Smit, 2020 (Fig. 8H)

Published records: Montenegro: Pešić & Smit (2020), Pešić *et al.* (2021a).

Distribution: Montenegro.

New barcode sequences: **Greece**: BSNTN1972-24.

BIN: BOLD:AED2191.

BIN Distribution: Montenegro, Greece.

Mideopsis orbicularis (Muller, 1776)

Published records: Croatia: Pozojević *et al.* (2019a); Žeželj Vidoša *et al.* (2023).

Distribution: Holarctic.

Mideopsis roztozensis Biesiadka & Kowalik, 1979

Published records: Croatia: Pozojević *et al.* (2019a); Bosnia and Herzegovina: Pešić *et al.* (2023d); Montenegro: Pešić *et al.* (2019b, 2021a, 2023d), Zawal *et al.* (2020); Serbia: Pešić *et al.* (2021b).

Rejected records: North Macedonia: Królikowska *et al.* (2024).

New barcode sequences: **Bosnia and Herzegovina**: BOLD:ACI1492 (HYDMN470-24, HYDMN471-24, HYDMN472-24). **Montenegro**: BOLD:AEA2936 (HYDMN463-24, HYDMN458-24, HYDMN459-24, HYDMN460-24, HYDMN461-24, HYDMN462-24, HYDMN368-24, HYDMN684-24, HYDMN685-24, HYDMN686-24, HYDMN687-24, HYDMN688-24, HYDMN182-24, HYDMN183-24, HYDMN184-24), ACI1492 (HYDMN210-24, HYDMN211-24, HYDMN212-24, HYDMN246-24, HYDMN247-24, HYDMN248-24, HYDMN253-24, HYDMN261-24, HYDMN272-24, HYDMN273-24, HYDMN274-24, HYDMN337-24, HYDMN386-24, HYDMN387-24, HYDMN388-24, HYDMN389-24, HYDMN470-24, HYDMN471-24, HYDMN472-24, HYDMN548-24). **Greece**: BOLD:ACI1492 (BSNTN1986-24).

BINs: BOLD:ACI1492, BOLD:AEN6785, BOLD:AEA2936.

Distribution: Palaearctic.

Remarks: This highly variable species includes at least three BINS present in the Balkans: widely distributed BOLD:ACI1492, known from Montenegro, Norway, Russia, Bosnia and Herzegovina, Türkiye, Serbia and Cyprus, BOLD:AEN6785 known from Türkiye, Serbia, and Northern Europe (Norway), and BOLD:AEA2936, known from Serbia, Belgium and Montenegro (this study). Some BINs were found together at the same locality (e.g., BOLD:ACI1492 and BOLD:AEN6785 in Katušnica River in Serbia). Recently, Pešić *et al.* (2023d) who studied a species-level phylogeny of the genus *Mideopsis* in Europe and recognized *Mideopsis roztozensis* as a single species.

Family Momoniidae K. Viets, 1926

Stygomomonium latipes Szalay, 1943 - complex

Published records Bosnia and Herzegovina: Pešić *et al.* (2023a).

Distribution: Europe, except for Fennoscandia.

BIN: BOLD:AFC7061.

BIN Distribution: Bosnia and Herzegovina.

Remarks: Recently, the study of Pešić *et al.* (2023a) revealed the presence of at least two genetically different clusters of this species in Europe, with the genetic distance estimated at 13.42% K2P, indicating the need for revision of this complex.

Family Neoacaridae Motaş & Tanasachi, 1947

***Neoacarus hibernicus* (Halbert, 1944)**

Published records: Croatia: Žeželj Vidoša *et al.* (2023).

Distribution: Europe, except Fennoscandia.

Family Nudomideopsidae I.M. Smith, 1990

***Nudomideopsis latipalpis* E. Angelier, 1963**

Published records: Croatia: “*Nudomideopsis* cf. *motasi* (Petrova, 1966)” Žeželj Vidoša *et al.* (2023).

Distribution: Europe, only known from four sites in France, Croatia, Bulgaria and Montenegro.

Discussion

The last checklist of water mites of the Balkan countries was published by Pešić *et al.* (2018) and included 390 species known by November 2017. Since then, a number of further water mites have been recorded, including several newly described taxa. With these additions, the number of known water mite species from the Balkan Peninsula increased to 426 species and subspecies. An updated checklist of water mites in the Balkan countries is provided in Table 4. Several conclusions can be drawn from the obtained numbers:

(1) We found that less than one-third (31.9%, 136 spp.) of the water mite species with sequences collected in the Balkans are represented in the BOLD database. One of the goals of future research is to achieve comprehensive coverage of the water mite fauna using DNA barcoding, which will facilitate the generation of an updated and accurate species checklist.

(2) As evidenced in last years, the molecular analysis of species previously considered to be widely distributed often reveals their cryptic diversity and the presence of previously undiscovered species, indicating that future faunistic studies should involve the comprehensive analysis of all morphospecies using DNA barcoding approach. Since 2017, all new species from the Balkans have been discovered using an integrative taxonomic approach that included DNA barcoding. This approach should be applied to further taxa showing genetic divergence. Of the 136 species represented in the BOLD database with sequences collected in the Balkans, about one-fifth of them (28 spp.) were represented by multiple (two or more) BINs, indicating the need for further research to understand the taxonomic implications of these genetic divergences.

(3) The genetic assessment of water mites is best described as highly fragmented. While some genera, such as *Hygrobates* are very well represented in the BOLD database with sequences from the Balkans, there is a number of families and genera of water mites, especially from standing waters, which are poorly represented or entirely missing from barcode records. An existing DNA barcode reference library of water mites now includes more than 1000 COI DNA barcodes from the Balkans publicly available through the Barcode of Life Data Systems (BOLD), providing a foundation for future taxonomic, biogeographical and ecological research on Balkan water mites.

In summary, this study addresses a significant gap in faunal and genetic documentation of aquatic mite diversity in the Balkans, highlighting the need for intensified international collaboration in future faunal surveys and further expansion of sequencing efforts to include remaining species in existing reference DNA barcode libraries.

TABLE 4. An updated checklist of water mites from the Balkan countries. Country codes (alpha-2 code): AL = Albania, BA = Bosnia and Herzegovina, BG = Bulgaria, CR = Croatia, GR = Greece, ME = Montenegro, MK = North Macedonia, RS = Serbia. BIN BOLD data presented here was last accessed on 20th May 2025.

Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
Family Stygothrombiidae Thor, 1935									
1. <i>Stygothrombium armatum</i> (K.Viets, 1934)					+				
2. <i>Stygothrombium karamani</i> K.Viets, 1932					+				
Family Acherontacaridae Cook, 1967									
3. <i>Acherontacarus fonticolus</i> K.Viets, 1934			+						
4. <i>Acherontacarus halacaroides</i> K.Viets, 1932					+				
5. <i>Acherontacarus raphani</i> Gerecke & Benfatti, 2005								+	
<i>Acherontacarus halacaroides/fonticolus</i> ?				+	+				
Family Hydrovolziidae Thor, 1905									
6. <i>Hydrovolzia cancellata</i> Walter, 1906							+		
7. <i>Hydrovolzia placophora</i> (Monti, 1905)			+		+		+		
Family Limnocharidae Grube, 1859									
8. <i>Limnochares aquatica</i> (Linnaeus, 1758)	+		+	+			+	+	BOLD:ACS0438
Family Eylaidae Leach, 1815									
9. <i>Eylais bisinuosa</i> Piersig, 1899				+					
10. <i>Eylais bulgarensis</i> K.Viets, 1926							+		
11. <i>Eylais degenerata</i> Koenike, 1897			+	+	+				
12. <i>Eylais extendens</i> (Müller, 1776)					+		+	+	
13. <i>Eylais hamata</i> Koenike, 1897				+	+	+		+	
14. <i>Eylais infundibulifera</i> Koenike, 1897							+	+	
15. <i>Eylais mutila</i> Koenike, 1897				+				+	
16. <i>Eylais planipons</i> Walter, 1924			+	+				+	
17. <i>Eylais rimosa</i> Piersig, 1899							+		
18. <i>Eylais setosa</i> Koenike, 1897							+	+	
19. <i>Eylais tantilla</i> Koenike, 1897				+			+	+	
20. <i>Eylais triarcuata</i> Piersig, 1899							+		
Family Hydrachnidae Leach, 1815									
21. <i>Hydrachna bulgarensis</i> K.Viets, 1940							+		
22. <i>Hydrachna conjecta</i> Koenike, 1895							+	+	
23. <i>Hydrachna crassipalpis</i> Piersig, 1897				+					
24. <i>Hydrachna cruenta</i> Müller, 1776							+		
25. <i>Hydrachna geographica</i> Müller, 1776				+					
26. <i>Hydrachna globosa</i> (De Geer, 1778)	+		+	+	+	+	+	+	
27. <i>Hydrachna incisa</i> Halbert, 1903								+	
28. <i>Hydrachna skorikowi</i> (Piersig, 1900)					+		+	+	
Family Hydrodromidae K. Viets, 1936									
29. <i>Hydrodroma despiciens</i> (Müller, 1776)	+		+	+	+		+	+	
30. <i>Hydrodroma pilosa</i> Besseling, 1940			+		+	+	+		
31. <i>Hydrodroma reinhardi</i> Pešić, 2002	+		+		+			+	BOLD:AEF0798
32. <i>Hydrodroma cf. rheophila</i> Cook, 1967								+	
33. <i>Hydrodroma torrenticola</i> (Walter, 1908)	+	+	+	+	+		+	+	BOLD:AEF3799, BOLD:ACI2515
Family Hydryphantidae Piersig, 1896									

.....continued on the next page

TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
34.	<i>Georgella helvetica</i> (Haller, 1882)								+	
35.	<i>Hydryphantes armentarius</i> Gerecke, 1996		+	+	+	+		+	+	BOLD:ADL3822
36.	<i>Hydryphantes crassipalpis</i> Koenike, 1914							+		
37.	<i>Hydryphantes dispar</i> (Schaub, 1888)			+				+		
38.	<i>Hydryphantes parmulus</i> Koenike, 1912					+				
39.	<i>Hydryphantes placationis</i> Thon, 1899			+	+	+			+	
40.	<i>Hydryphantes planus</i> Thon, 1899			+						
41.	<i>Hydryphantes ruber</i> (Geer, 1778)				+				+	
42.	<i>Hydryphantes flexuosus</i> (Koenike, 1885)								+	
43.	<i>Hydryphantes octoporus</i> Koenike, 1896					+			+	
44.	<i>Panisellus thienemanni</i> (K.Viets, 1920)							+		
45.	<i>Panisopsis curvifrons</i> (Walter, 1907)					+				
46.	<i>Panisopsis setipes</i> (K.Viets, 1911)					+		+	+	
47.	<i>Panisopsis thori</i> (Walter, 1907)								+	
48.	<i>Paninus michaeli</i> Koenike, 1896	+	+	+				+		BOLD:ADT7504
49.	<i>Paninus torrenticolus</i> Piersig, 1898			+		+		+	+	
50.	<i>Thyasella mandibularis</i> (Lundblad, 1924)							+		
51.	<i>Thyopsis cancellata</i> (Protz, 1896)			+				+		
52.	<i>Parathyas barbiger</i> (K.Viets, 1908)		+	+				+		
53.	<i>Parathyas palustris</i> (Koenike, 1912)							+		
54.	<i>Trichothyas petrophila petrophila</i> (Michael, 1895)	+			+			+	+	
55.	<i>Trichothyas jadranae</i> Pešić, 2018			+						BOLD:AEF1286
56.	<i>Partnunia angusta</i> (Koenike, 1893)	+								
57.	<i>Partnunia naprintua</i> Gerecke, 1996			+	+			+		BOLD:AEL6734
58.	<i>Partnunia puritana</i> Gerecke, 1996			+					+	
59.	<i>Partnunia steinmanni</i> Walter, 1906	+	+							
60.	<i>Protzia eximia</i> (Protz, 1896)	+	+	+		+		+	+	
61.	<i>Protzia felix</i> Gerecke, 1996								+	
62.	<i>Protzia halberti</i> (Walter, 1920)		+	+				+		BOLD:AED9646
63.	<i>Protzia invalvaris</i> Piersig, 1898		+	+	+	+		+	+	BOLD:AEI2833, BOLD:AEI5749, BOLD:AGG4090
64.	<i>Protzia octopora</i> Lundblad, 1954									BOLD:AEI5747
65.	<i>Protzia rotunda</i> Walter, 1908			+		+		+	+	BOLD:AED8976
66.	<i>Protzia rugosa</i> Walter, 1918	+	+	+				+		BOLD:AEE0170
67.	<i>Protzia squamosa squamosa</i> Walter, 1908	+	+	+						BOLD:AEK4100
68.	<i>Protzia squamosa paucipora</i> (K. Viets, 1955)			+	+	+		+	+	BOLD:AEL1015
69.	<i>Tartarothyas micrommata</i> K.Viets, 1934			+						
70.	<i>Tartarothyas romanica</i> Husiatinski, 1937	+		+						
71.	<i>Wandesia somnambula</i> Gerecke, 1996		+							
72.	<i>Wandesia stygophila</i> Szalay, 1944							+		
73.	<i>Wandesia thori</i> Schechtel, 1912			+						
Family Sperchontidae Thor, 1900										
74.	<i>Sperchon balcanicus</i> sp. nov.		+	+						BOLD:AED8428

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
75.	<i>Sperchon brevirostris</i> Koenike, 1895 - complex		+	+	+	+		+	+	BOLD:ACP6107, BOLD:AED3857
765.	<i>Sperchon clupei</i> Piersig, 1896 - complex	+	+	+	+	+		+	+	BOLD:ACS1100, BOLD:AEE4061
77.	<i>Sperchon compactilis</i> (Koenike, 1911)	+								
	<i>Sperchon denticulatus</i> - complex	+	+	+	+	+		+	+	
78.	<i>Sperchon glandulosus</i> Koenike, 1886	+	+			+		+		
79.	<i>Sperchon hibernicus</i> Halbert, 1944	+		+				+		BOLD:AEF3824
80.	<i>Sperchon hispidus</i> Koenike, 1895	+		+	+	+		+	+	BOLD:AED3202 BOLD:AGB7408
81.	<i>Sperchon insignis</i> (Walter, 1906)	+								
82.	<i>Sperchon longissimus</i> K.Viets, 1920		+							
83.	<i>Sperchon milisai</i> Pešić, 2022	+	+	+						BOLD:AEF3825
84.	<i>Sperchon mutilus</i> Koenike, 1895			+		+		+	+	
85.	<i>Sperchon papillosus</i> Thor, 1901	+		+		+		+	+	BOLD:AED2134
86.	<i>Sperchon pelopeius</i> Pešić & Gerecke, 2010								+	
87.	<i>Sperchon setiger</i> Thor, 1898	+		+	+	+		+	+	BOLD:ACR9610
87.	<i>Sperchon squamosus</i> Kramer, 1879		+	+		+		+		BOLD:AEB7886
89.	<i>Sperchon thienemanni</i> Koenike, 1907	+		+		+		+	+	BOLD:ADV4077 BOLD:AEI8945
90.	<i>Sperchon vaginosus</i> Thor, 1902	+								
91.	<i>Sperchon vesnae</i> Pesic, 2003			+				+		
92.	<i>Sperchon violaceus</i> Walter, 1944	+		+						BOLD:AAN0076
93.	<i>Sperchonopsis procera</i> Láska, 1965			+						
94.	<i>Sperchonopsis verrucosa</i> (Protz, 1896) - complex	+	+	+	+	+		+	+	BOLD:ACS9705, BOLD:AEK8297
Family Teutoniidae Koenike, 1910										
95.	<i>Teutonia cometes</i> (Koch, 1837)		+	+						BOLD:ACH7884
Family Anisitsiellidae Koenike, 1910										
96.	<i>Bandakia concreta</i> Thor, 1913					+		+	+	
97.	<i>Bandakia speciosa</i> K.Viets, 1953					+		+		
98.	<i>Nilotonia borneri</i> (Walter, 1922)							+		
99.	<i>Nilotonia longipora</i> (Walter, 1925)	+				+		+	+	
100.	<i>Nilotonia tegulata</i> (K.Viets, 1951)								+	
Family Rutripalpidae Sokolow, 1934										
101.	<i>Rutripalpis limicola</i> Sokolow, 1934			+						
Family Lebertiidae Thor, 1900										
102.	<i>Lebertia algeriensis</i> Lundblad, 1942 - complex								+	
103.	<i>Lebertia aroania</i> Gerecke, 2009								+	
104.	<i>Lebertia bracteata</i> K.Viets, 1925			+				+		
105.	<i>Lebertia brigantina</i> K.Viets, 1933								+	
106.	<i>Lebertia bulgarensis</i> K.Viets, 1926			+				+		
107.	<i>Lebertia castalia</i> K.Viets, 1925							+		
108.	<i>Lebertia crenophila</i> K.Viets, 1920			+				+		
109.	<i>Lebertia cuneifera</i> Walter, 1922			+						BOLD:ADV4392

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
110.	<i>Lebertia dubia</i> Thor, 1899							+		
111.	<i>Lebertia fimbriata</i> Thor, 1899 - complex		+	+		+		+	+	BOLD:ADF5657, BOLD:AES5822, BOLD:AEI4632, BOLD:AGH7456, BOLD:AGH7455
112.	<i>Lebertia glabra</i> Thor, 1897 - complex	+	+	+	+	+		+	+	BOLD:ACS0595, BOLD:AEI2925
113.	<i>Lebertia guttata</i> K. Viets, 1952			+						
114.	<i>Lebertia holsatica</i> K.Viets, 1920					+			+	
115.	<i>Lebertia inaequalis</i> (Koch, 1837) - complex			+		+	+		+	BOLD:ADF6223, BOLD:AEF5683
116.	<i>Lebertia insignis</i> Neuman, 1880		+	+	+		+			BOLD:AEB9107
117.	<i>Lebertia jadrensis</i> K.Viets, 1936	+								
118.	<i>Lebertia longipalpis</i> K.Viets, 1936					+				
119.	<i>Lebertia longiseta</i> Bader, 1955			+		+	+			
120.	<i>Lebertia maculosa</i> Koenike, 1902		+	+	+	+		+		BOLD:AED9197, BOLD:AED9718, BOLD:AGG5207
121.	<i>Lebertia maglioi</i> Thor, 1907		+	+		+		+	+	BOLD:ADK0383
122.	<i>Lebertia mediterranea</i> Gerecke, 2009			+				+		
123.	<i>Lebertia minutipalpis</i> K. Viets, 1920							+		
124.	<i>Lebertia natans</i> K. Viets, 1926			+						BOLD:AEF5684
125.	<i>Lebertia porosa</i> Thor, 1900 - complex		+	+	+	+	+	+	+	BOLD:ACS0974, BOLD:AED4662
126.	<i>Lebertia pusilla</i> Koenike, 1911	+	+					+		
127.	<i>Lebertia reticulata</i> (Koenike, 1919)		+	+				+		BOLD:ADT9218
128.	<i>Lebertia rivulorum</i> K.Viets, 1933 - complex	+		+		+		+		BOLD:AED9196, BOLD:ACS0927
129.	<i>Lebertia rubella</i> K.Viets, 1926							+		
130.	<i>Lebertia salebrosa</i> Koenike, 1908			+				+		
131.	<i>Lebertia schechteli</i> Thor, 1913			+		+		+		BOLD:AED9612
133.	<i>Lebertia sefvei</i> Walter, 1911			+					+	
133.	<i>Lebertia semireticulata</i> K.Viets, 1925								+	
134.	<i>Lebertia separata</i> Lundblad, 1930			+				+		
135.	<i>Lebertia sparsicapillata</i> Thor, 1905			+				+		BOLD:ADF6063
136.	<i>Lebertia stigmatifera</i> Thor, 1900	+		+	+	+		+	+	BOLD:ACS0579
137.	<i>Lebertia variolata</i> Gerecke, 2009			+		+			+	BOLD:ADK0996
Family Oxidae K. Viets, 1926										
138.	<i>Oxus angustipositus</i> K. Viets, 1908	+		+		+				BOLD:AEB9099
139.	<i>Oxus longisetus</i> (Berlese, 1885)			+		+		+	+	
140.	<i>Oxus ovalis</i> (Müller, 1776)			+		+				
141.	<i>Oxus strigatus</i> (Müller, 1776)			+		+			+	
142.	<i>Oxus setosus</i> (Koenike, 1898)	+	+	+						
Family Torrenticolidae Piersig, 1902										

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
143.	<i>Monatractides aberratus</i> (Lundblad, 1941)								+	BOLD:AGC9829
144.	<i>Monatractides adoratus</i> Di Sabatino & Gerecke, 1996								+	
145.	<i>Monatractides fridericianus</i> Di Sabatino & Gerecke, 2003								+	
146.	<i>Monatractides latissimus</i> (K.Viets, 1936)	+	+	+				+		BOLD:AEY8127
147.	<i>Monatractides lusitanicus</i> (Lundblad, 1941)							+		
148.	<i>Monatractides madritensis</i> (K.Viets, 1930)	+	+	+	+	+		+		BOLD:AED3803
149.	<i>Monatractides stadleri</i> (Walter, 1921) - complex		+	+		+		+	+	BOLD:AED3802, BOLD:AGC6044
150.	<i>Pseudotorrenticola rhynchota</i> Walter, 1906	+	+	+		+				BOLD:AEF1632
151.	<i>Torrenticola amplexa</i> (Koenike, 1908)	+		+	+			+	+	BOLD:ACR0665
152.	<i>Torrenticola anomala</i> (Koch, 1837)	+	+	+	+	+		+	+	BOLD:ACI0434
153.	<i>Torrenticola barsica</i> (Szalay, 1933)		+	+	+	+		+	+	BOLD:AEF1219
154.	<i>Torrenticola brevirostris</i> (Halbert, 1911)		+	+	+	+		+	+	BOLD:AED9586
155.	<i>Torrenticola dudichi</i> (Szalay, 1933)		+	+		+		+		BOLD:AED7520
156.	<i>Torrenticola elliptica</i> (Maglio, 1909)	+	+	+		+		+		BOLD:AEI9183, BOLD:AFB8572
157.	<i>Torrenticola graecula</i> Di Sabatino & Gerecke, 2003								+	
158.	<i>Torrenticola hyporheica</i> (Di Sabatino & Cicolani, 1993)	+								
159.	<i>Torrenticola ischnophallus</i> Lundblad, 1956	+						+		
160.	<i>Torrenticola jeanneli</i> (Motaş et Tanasachi, 1947)		+					+		BOLD:AFB8977
161.	<i>Torrenticola laskai</i> Di Sabatino, 2009 - complex	+	+	+	+			+	+	BOLD:AEF5471, BOLD:AED2306
162.	<i>Torrenticola lesbica</i> Di Sabatino & Gerecke, 2003								+	
163.	<i>Torrenticola lukai</i> Pešić, Valdecasas & Garcia-Jimenez, 2012		+	+						BOLD:ACH9685
164.	<i>Torrenticola meridionalis</i> Di Sabatino & Cicolani, 1990		+	+	+	+		+	+	BOLD:AED7519, BOLD:AEI3402
165.	<i>Torrenticola oraviensis</i> (Láska, 1953)				+	+		+	+	
166.	<i>Torrenticola similis</i> (K.Viets, 1939)		+	+				+	+	BOLD:AEK9661
167.	<i>Torrenticola ungeri</i> (Szalay, 1927)	+		+	+				+	BOLD:AED2307
168.	<i>Torrenticola remyi</i> E.Angelier, 1954		+							
169.	<i>Torrenticola tenuirostris</i> K.Viets, 1936		+	+						BOLD:AFD0144
170.	<i>Torrenticola thori</i> (Halbert, 1944)	+							+	
Family Limnesiidae Thor, 1900										
171.	<i>Kawamuracarus vardaricolus</i> K.Viets, 1942					+		+		
172.	<i>Limnesia areavaloi</i> K. Viets	+								
173.	<i>Limnesia connata</i> Koenike, 1895	+								
174.	<i>Limnesia fulgida</i> Koch, 1836			+	+	+		+	+	
175.	<i>Limnesia koenikei</i> Piersig, 1894	+	+	+	+	+		+		
176.	<i>Limnesia maculata</i> (Müller, 1776)			+	+	+		+	+	
177.	<i>Limnesia polonica</i> Schechtel, 1910					+				
178.	<i>Limnesia undulata</i> (Müller, 1776)			+	+	+		+	+	BOLD:AAX5286, BOLD:ACA9272.

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
179.	<i>Limnesia undulatooides</i> Davids, 1997			+		+				
180.	<i>Limnesia walteri</i> Migot, 1926		+		+	+			+	BOLD:AGC9828
Family Pontarachnidae Koenike, 1910										
181.	<i>Pontarachna adriatica</i> Morselli, 1980	+								
182.	<i>Pontarachna valkanovi</i> Petrova, 1978							+		
183.	<i>Litarachna communis</i> Walter, 1925	+		+						
184.	<i>Litarachna duboscqi</i> Walter, 1925	+								
Family Hygrobatidae Koch, 1842										
185.	<i>Atractides acutirostris</i> (Motaş & C. Angelier, 1927)	+			+	+		+	+	
186.	<i>Atractides allgaier</i> Gerecke, 2003		+						+	
187.	<i>Atractides anae</i> Pešić, 2020			+		+				BOLD:AED1201
188.	<i>Atractides asticae</i> Petrova, 1968							+		
189.	<i>Atractides cisternarum</i> (K.Viets, 1935)					+		+		
190.	<i>Atractides denticulatus</i> (Walter, 1947)		+					+		
191.	<i>Atractides digitatus</i> Lundblad, 1954	+		+						
192.	<i>Atractides distans</i> (K.Viets, 1914)	+				+		+	+	
193.	<i>Atractides fonticolus</i> (K. Viets, 1920)	+		+		+		+	+	BOLD:AGH7558
194.	<i>Atractides fissus</i> (Walter, 1927)		+	+						BOLD:AEI1811
195.	<i>Atractides fluviatilis</i> (Szalay, 1929)	+		+	+	+		+		BOLD:AEF1143
196.	<i>Atractides gibberipalpis</i> Piersig, 1898 - complex	+		+	+	+		+	+	BOLD:AEK7766, BOLD:AEI3946, BOLD:ADU2475, BOLD:AFI2792
197.	<i>Atractides graecus</i> K.Viets, 1950			+				+	+	
198.	<i>Atractides inflatipalpis</i> K.Viets, 1950			+				+	+	BOLD:AEF1145
199.	<i>Atractides inflatipes</i> Lundblad, 1956			+						BOLD:AEF1144
200.	<i>Atractides inflatus</i> (Walter, 1925)			+		+			+	BOLD:ACB4677
201.	<i>Atractides lacustris</i> (Lundblad, 1925)								+	
202.	<i>Atractides latipalpis</i> (Motaş & Tanasachi, 1946)	+	+			+		+		
203.	<i>Atractides latipes</i> (Szalay, 1935)		+	+						BOLD:AED4000
204.	<i>Atractides longiporus</i> Petrova, 1968							+		
205.	<i>Atractides longisetus</i> Pešić, 2002			+						
206.	<i>Atractides loricatus</i> Piersig, 1898	+				+				
207.	<i>Atractides lunipes</i> Lundblad, 1956					+			+	
208.	<i>Atractides nodipalpis</i> Thor, 1899	+	+	+	+	+	+	+	+	BOLD:ACR0209
209.	<i>Atractides milosevici</i> Pešić & Smit, 2023			+						BOLD:AED3547
210.	<i>Atractides oblongus</i> (Walter, 1944)		+	+				+	+	
211.	<i>Atractides octoporus</i> Piersig, 1904	+								
212.	<i>Atractides orghidani</i> Motaş & Tanasachi, 1960			+					+	
213.	<i>Atractides ovalis</i> Koenike, 1883			+	+					BOLD:AEC4631
214.	<i>Atractides panniculatus</i> (K. Viets, 1925)								+	
215.	<i>Atractides pavesii</i> Maglio, 1905					+				

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TABLE 4. (Continued)

Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
216. <i>Atractides pennatus</i> (K. Viets, 1920) - complex	+	+	+	+	+				BOLD:ADF7007, BOLD:AGH5610, BOLD:AES4768, BOLD:AGH5611.
217. <i>Atractides phreaticus</i> (Motaş & Tanasachi, 1948)							+		
218. <i>Atractides polyporus</i> (K.Viets, 1922)							+		
219. <i>Atractides protendens</i> K.O.Viets, 1955			+	+	+			+	
220. <i>Atractides pumilus</i> (Szalay, 1946)		+	+				+		BOLD:AFD7424
221. <i>Atractides pygmaeus</i> (Motaş & Tanasachi, 1948)			+				+		
222. <i>Atractides remotus</i> Szalay, 1953			+				+		
223. <i>Atractides robustus</i> (Sokolow, 1940) - complex	+	+	+		+		+	+	BOLD:ADZ9348
224. <i>Atractides sokolowi</i> (Motaş & Tanasachi, 1948)							+		
225. <i>Atractides spinipes</i> Koch, 1837	+		+	+			+	+	
226. <i>Atractides stankovici</i> Pešić & Gerecke, 2010	+		+		+				BOLD:AED3550
227. <i>Atractides subasper</i> Koenike, 1902				+					BOLD:AEX4044
228. <i>Atractides subterraneus</i> (K.Viets, 1932)					+		+		
229. <i>Atractides tener</i> Thor, 1899		+	+		+		+	+	
230. <i>Atractides walteri</i> (K.Viets, 1925)	+						+		
231. <i>Atractides</i> sp. 1 <i>sensu</i> Pešić <i>et al.</i> 2010					+				
232. <i>Atractides</i> sp. 2 <i>sensu</i> Pešić <i>et al.</i> 2010								+	
233. <i>Atractides</i> sp. 3 <i>sensu</i> Pešić <i>et al.</i> 2010								+	
234. <i>Hygrobates balcanicus</i> Pešić, 2020				+	+		+	+	BOLD:AEG3198
<i>Hygrobates calliger</i> Piersig, 1896 - complex	+	+	+	+	+		+	+	
235. <i>Hygrobates calliger</i> Clade 1 <i>sensu</i> Pešić <i>et al.</i> 2022		+	+	+				+	BOLD:AEF4261
236. <i>Hygrobates calliger</i> Clade 2 <i>sensu</i> Pešić <i>et al.</i> 2022			+						BOLD:AEL5782
237. <i>Hygrobates calliger</i> Clade 5 <i>sensu</i> Pešić <i>et al.</i> 2022	+								BOLD:AEO5296
<i>Hygrobates fluviatilis</i> (Ström, 1768) - complex	+	+	+	+	+	+	+	+	
238. <i>Hygrobates fluviatilis</i> (Ström, 1768)	+	+	+	+					BOLD:ACB4846
239. <i>Hygrobates foreli</i> (Lebert, 1874)	+		+				+	+	BOLD:AEE3281
240. <i>Hygrobates lacrima</i> Pešić, 2020			+						BOLD:AED2490
241. <i>Hygrobates limnocrenicus</i> Pešić, 2020			+		+				BOLD:AED2489
242. <i>Hygrobates longipalpis</i> (Hermann, 1804) - complex		+	+	+	+		+	+	BOLD:ACR9783, BOLD:AES0232
243. <i>Hygrobates longiporus</i> Thor, 1898 - complex	+		+	+	+		+	+	BOLD:AEB8359, BOLD:AEM7299
244. <i>Hygrobates marezaensis</i> Pešić & Dabert, 2017	+	+	+		+				BOLD:ADK0646
245. <i>Hygrobates mediterraneus</i> Pešić, 2020			+					+	BOLD:AED2190
<i>Hygrobates nigromaculatus/setosus</i> - complex	+	+	+			+			
246. <i>Hygrobates norvegicus</i> (Thor, 1897) - complex			+		+		+		BOLD:ACH7323
247. <i>Hygrobates porrectus</i> Koenike, 1908							+		
248. <i>Hygrobates trigonicus</i> Koenike, 1895 - complex	+						+	+	BOLD:AEN6851, AEN7131
249. <i>Hygrobates turcicus</i> Pešić, Esen & Dabert, 2017		+					+		BOLD:ADX1364
250. <i>Hygrobates zawali</i> Pešić, 2015					+				BOLD:AFC2681, BOLD:AFC3792

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
251.	<i>Mesobates forcipatus</i> Thor, 1901								+	BOLD:ACT3796
252.	<i>Mixobates incurvatus</i> (Láska, 1954)								+	
Family Unionicolidae Oudemans, 1909										
253.	<i>Neumania deltoides</i> (Piersig, 1894)	+	+	+	+	+		+	+	BOLD:ACR9513
254.	<i>Neumania imitata</i> Koenike, 1908 - complex			+						BOLD:AED4073
255.	<i>Neumania limosa</i> (Koch, 1836)			+	+	+		+		BOLD:AEF5902
256.	<i>Neumania papillosa</i> (Soar, 1902)			+						
257.	<i>Neumania phreaticola</i> Motaş & Tanasachi, 1948		+					+		
258.	<i>Neumania spinipes</i> (Müller, 1776)				+					
259.	<i>Neumania uncinata</i> Walter, 1927		+	+				+	+	
260.	<i>Neumania vernalis</i> (Müller, 1776)	+		+	+	+		+		BOLD:ACS0012
261.	<i>Neumania verrucosa</i> (Koenike, 1895)				+					
262.	<i>Unionicola aculeata</i> (Koenike. 1890)			+		+				BOLD:AFD5812
263.	<i>Unionicola crassipes</i> (Müller, 1776)			+	+	+		+	+	
264.	<i>Unionicola figuralis</i> (Koch)	+								
265.	<i>Unionicola gracilipalpis</i> (K.Viets, 1908)			+		+				
266.	<i>Unionicola hankoi</i> Szalay, 1927	+				+				BOLD:AFD5812
267.	<i>Unionicola minor</i> (Soar, 1900) - complex	+		+		+	+	+		BOLD:AAU0335, BOLD:AEF4865.
268.	<i>Unionicola parvipora</i> Lundblad, 1920			+		+				
269.	<i>Unionicola ypsilophora</i> (Bonz, 1783)			+						BOLD:AEN6889
Family Wettinidae Cook, 1956										
270.	<i>Wettina lacustris</i> Pešić & Smit, 2018			+		+				BOLD:ADL2726
271.	<i>Wettina podagrica</i> (Koch, 1837)			+		+				
Family Pionidae Thor, 1900										
272.	<i>Forelia brevipes</i> (Neuman, 1880)					+				
273.	<i>Forelia cetrata</i> (Koenike, 1895)			+						
274.	<i>Forelia curvipalpis</i> K.Viets, 1930	+						+		
275.	<i>Forelia liliacea</i> (Müller, 1776)			+						
276.	<i>Forelia spatulifera</i> (Marucci, 1907)			+		+			+	
277.	<i>Forelia variegator</i> (Koch, 1837)	+		+		+	+	+		BOLD:ACS0537
278.	<i>Pseudofeltria scourfieldi</i> Soar, 1904							+		
279.	<i>Hydrochoreutes krameri</i> Piersig, 1896	+		+		+	+		+	BOLD:ACR9737
280.	<i>Hydrochoreutes unguatus</i> (Koch, 1836)				+					
281.	<i>Piona alpicola</i> (Neuman, 1880)			+	+	+		+	+	
282.	<i>Piona carnea</i> (Koch, 1836)	+		+		+		+		
283.	<i>Piona clavicornis</i> (Müller, 1776)	+								
284.	<i>Piona coccinea</i> (Koch, 1836)			+		+		+		
285.	<i>Piona coccinoides</i> (Thor, 1897)				+					
286.	<i>Piona conglobata</i> (Koch, 1836)				+	+				
287.	<i>Piona damkoehleri</i> K.Viets, 1930			+					+	BOLD:AEK5107
288.	<i>Piona disparilis</i> (Koenike, 1895)	+		+		+	+			BOLD:AEE3977
289.	<i>Piona extorris</i> K.Viets, 1926							+		
290.	<i>Piona imminuta</i> (Piersig, 1897)			+						

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
291.	<i>Piona laminata</i> (Thor, 1901)	+		+						BOLD:AEL3248
292.	<i>Piona longipalpis</i> (Krendowsky, 1878)	+			+	+				
293.	<i>Piona neumani</i> (Koenike, 1883)				+					
294.	<i>Piona nodata</i> (Müller, 1776) - complex			+	+	+		+	+	BOLD:AGG4118
295.	<i>Piona obturbans</i> (Piersig, 1896)				+	+	+		+	
296.	<i>Piona pusilla</i> (Neuman, 1875)			+	+	+		+	+	
297.	<i>Piona rotundoides</i> (Thor, 1897)	+		+		+	+			
298.	<i>Piona stjoerdalensis</i> (Thor, 1897)			+				+		
299.	<i>Piona variabilis</i> (Koch, 1836)				+	+		+		
300.	<i>Pionopsis lutescens</i> (Hermann, 1804)			+	+	+			+	BOLD:AET1848, BOLD:AGE7285.
301.	<i>Tiphys latipes</i> (Müller, 1776)					+		+		
302.	<i>Tiphys ornatus</i> Koch, 1836			+		+		+	+	BOLD:ACS0401
303.	<i>Tiphys torris</i> (Müller, 1776)			+				+		BOLD:ACS0401
Family Feltriidae K.Viets, 1926										
304.	<i>Azugofeltria mira</i> (Motaş et Tanasachi, 1948)							+		
305.	<i>Feltria armata</i> Koenike, 1902			+	+	+		+		
306.	<i>Feltria brevipes</i> Walter, 1907	+						+		
307.	<i>Feltria drilonensis</i> K.Viets, 1936				+	+				
308.	<i>Feltria cornuta cornuta</i> Walter, 1927	+	+					+		
309.	<i>Feltria cornuta paucipora</i> Szalay, 1946			+				+		
310.	<i>Feltria longispina</i> Motaş & Angelier, 1927					+				
311.	<i>Feltria minuta</i> Koenike, 1892							+		
312.	<i>Feltria rouxi</i> Walter, 1907	+		+		+				
313.	<i>Feltria rubra</i> Piersig, 1898	+	+	+		+				
314.	<i>Feltria zschokkei</i> Koenike, 1896			+	+	+				
Family Aturidae Thor, 1900										
315.	<i>Albaxona lundbladi</i> Motaş & Tanasachi, 1947		+	+	+			+		
316.	<i>Albaxona minuta</i> Szalay, 1944							+		
317.	<i>Aturus barbatulus</i> K.Viets, 1936					+				
318.	<i>Aturus brachypus</i> K.Viets, 1936					+				
319.	<i>Aturus crinitus</i> Thor, 1902	+	+	+	+	+		+	+	BOLD:AEU5136
320.	<i>Aturus gordani</i> Pešić, 2003		+							
321.	<i>Aturus fontinalis</i> Lundblad, 1920			+		+		+		
322.	<i>Aturus intermedius</i> Protz, 1900	+		+	+					
323.	<i>Aturus karamani</i> K.Viets, 1936	+			+					
324.	<i>Aturus natangensis</i> Protz, 1900							+		
325.	<i>Aturus paucisetus</i> Motaş & Tanasachi, 1946							+		
326.	<i>Aturus scaber</i> Kramer, 1875	+	+	+	+	+		+	+	
327.	<i>Aturus serratus</i> K.Viets, 1922	+		+						
328.	<i>Aturus spatulifer</i> Piersig, 1904							+		
329.	<i>Axonopsis complanata</i> (Müller, 1776)							+	+	
330.	<i>Barbaxonella angulata</i> (K.Viets, 1955)							+		
331.	<i>Brachypoda versicolor</i> (Müller, 1776)	+		+		+	+	+		BOLD:ACS0119

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
332.	<i>Brachypodopsis gracilis</i> Piersig, 1903	+	+	+	+	+		+		
333.	<i>Brachypodopsis</i> sp. nov. aff. <i>guadarramensis</i> Valdecasas, 1981								+	
334.	<i>Brachypodopsis orghidani</i> Petrova, 1968							+		
335.	<i>Erebaxonopsis brevipes</i> Motaş & Tanasachi, 1947		+							
336.	<i>Hexaxonopsis romijni</i> K.Viets, 1923								+	
337.	<i>Hexaxonopsis serrata</i> (Walter, 1928)	+		+				+	+	BOLD:AEN2897
338.	<i>Kongsbergia alata</i> Szalay, 1945							+		
339.	<i>Kongsbergia clypeata</i> Szalay, 1945			+				+		
340.	<i>Kongsbergia dentata</i> Walter, 1947		+	+				+		
341.	<i>Kongsbergia d-motasi</i> Motaş & Tanasachi, 1958							+		
342.	<i>Kongsbergia largaiollii</i> (Maglio, 1909)			+						
343.	<i>Kongsbergia lundbladi</i> Szalay, 1956							+		
344.	<i>Kongsbergia materna</i> Thor, 1899	+								
345.	<i>Kongsbergia pectinigera</i> Motaş & Tanasachi, 1946		+					+		
346.	<i>Kongsbergia ruttneri</i> Walter, 1930							+		
347.	<i>Kongsbergia cf. simillima</i> Viets, 1949		+							
348.	<i>Kongsbergia hansvietsi</i> K.Viets, 1949					+				
349.	<i>Ljania bipapillata</i> Thor, 1898	+	+	+				+	+	
350.	<i>Ljania macilentia</i> Koenike, 1908	+	+	+	+	+		+	+	
351.	<i>Parabrachypoda montii</i> Maglio, 1924			+					+	BOLD:AED5455
352.	<i>Parabrachypoda mutila</i> Walter, 1928			+					+	
353.	<i>Paraxonopsis inferorum</i> (Motaş & Tanasachi, 1947)			+				+		BOLD:AFD4499
354.	<i>Paraxonopsis vietsi</i> Motaş & Tanasachi, 1947			+				+		BOLD:AFD4501
355.	<i>Vicinaxonopsis bureschi</i> Petrova, 1976							+		
356.	<i>Woolastookia rotundifrons</i> (K.Viets, 1922)	+	+	+	+	+		+	+	BOLD:AEE0289
357.	<i>Woolastookia minuta</i> Pešić, Gerecke & Smit, 2010		+						+	
Family Frontipodopsidae K. Viets, 1931										
358.	<i>Frontipodopsis reticulatifrons</i> Szalay, 1945 - complex		+	+	+	+		+		BOLD:AFD5130, BOLD:AFC5028
Family Lethaxonidae Cook, Smith & Harvey, 2000										
359.	<i>Lethaxona cavifrons</i> Szalay, 1943	+								
360.	<i>Lethaxona pygmaea</i> K.Viets, 1932		+	+		+		+		BOLD:AFC5762
Family Momoniidae K.Viets, 1926										
361.	<i>Momonisia phreatica</i> Petrova, 1974							+		
362.	<i>Stygomomonina latipes</i> Szalay, 1943 - complex		+	+		+		+		BOLD:AFC7061
Family Mideopsidae Koenike, 1910										
363.	<i>Mideopsis crassipes</i> Soar, 1904	+				+				BOLD:ACR9760
364.	<i>Mideopsis milankovici</i> Pešić & Smit, 2020			+						BOLD:AED2191
365.	<i>Mideopsis orbicularis</i> (Müller, 1776)	+	+	+	+	+		+	+	
366.	<i>Mideopsis roztoczensis</i> Biesiadka & Kowalik, 1979	+	+	+	+	+		+	+	BOLD:ACI1492, BOLD:AEN6785, BOLD:AEA2936
Family Nudomideopsidae I. M. Smith, 1990										

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TABLE 4. (Continued)

Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
367. <i>Nudomideopsis latipalpis</i> (E. Angelier, 1963)	+		+				+		
Family Neoacaridae Motaş & Tanasachi, 1947									
368. <i>Neoacarus hibernicus</i> Halbert, 1944	+		+				+		
Family Bogatiidae Motaş & Tanasachi, 1948									
369. <i>Bogatia maxillaris</i> Motaş & Tanasachi, 1948					+				
Family Chappuisididae Motaş & Tanasachi, 1946									
370. <i>Chappuisides hungaricus</i> Szalay, 1943							+		
Family Athienemanniidae K. Viets, 1922									
371. <i>Mundamella germanica</i> K. Viets, 1913			+					+	BOLD:AED6269
372. <i>Phreatohydracarus graecus</i> Bader, 1983								+	
373. <i>Phreatohydracarus mosticus</i> Tanasachi & Orghidan, 1955							+		
374. <i>Stygohydracarus karanovici</i> Pesic, 2001			+						
375. <i>Stygohydracarus subterraneus</i> Walter, 1947			+						
376. <i>Stygohydracarus troglobius</i> K. Viets, 1932			+		+		+		
Family Hungarohydracaridae Motaş & Tanasachi, 1959									
378. <i>Hungarohydracarus subterraneus</i> Szalay, 1943 - complex		+					+		BOLD:AFD4384, BOLD:AFC4651
379. <i>Balcanohydracarus alveolatus</i> Motaş & Tanasachi, 1948		+					+	+	
Family Arrenuridae Thor, 1900									
380. <i>Arrenurus abbreviator</i> Berlese, 1888	+			+	+		+	+	
381. <i>Arrenurus albator</i> (Müller, 1776)	+	+	+	+				+	
382. <i>Arrenurus batillifer</i> Koenike, 1896					+				
383. <i>Arrenurus bicuspidator</i> Berlese, 1885			+				+	+	
384. <i>Arrenurus bifidicodulus</i> Piersig, 1897			+					+	
385. <i>Arrenurus biscissus</i> Lebert, 1879					+				BOLD:AFE6019
386. <i>Arrenurus bruzelii</i> Koenike, 1885				+	+		+	+	BOLD:ACS0212
387. <i>Arrenurus buccinator</i> (Müller, 1776)							+		
388. <i>Arrenurus claviger</i> Koenike, 1885			+		+		+		
389. <i>Arrenurus compactus</i> Piersig, 1894			+				+		
390. <i>Arrenurus conicus</i> Piersig, 1894		+			+				
391. <i>Arrenurus corsicus</i> (E. Angelier, 1951)							+		
392. <i>Arrenurus crassicaudatus</i> Kramer, 1875	+							+	
393. <i>Arrenurus cuspidator</i> (Müller, 1776)				+	+				
394. <i>Arrenurus cuspidifer</i> Piersig, 1894			+	+	+		+		
395. <i>Arrenurus cylindratus</i> Piersig, 1896		+	+	+	+				BOLD:AED6864
396. <i>Arrenurus distans</i> Walter, 1927					+				
397. <i>Arrenurus fimbriatus</i> Koenike, 1885								+	
398. <i>Arrenurus furcillatus</i> K. Viets, 1930								+	
399. <i>Arrenurus globator</i> (Müller, 1776)			+		+	+	+	+	BOLD:ACS0765
400. <i>Arrenurus haplurus</i> K. Viets, 1925			+				+		
401. <i>Arrenurus integrator</i> (Müller, 1776)					+			+	
402. <i>Arrenurus latigenitalis</i> Lundblad, 1956			+						
403. <i>Arrenurus latus</i> Barrois & Moniez, 1887					+				

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TABLE 4. (Continued)

	Species	CR	BA	ME	RS	MK	AL	BG	GR	BIN BOLD
404.	<i>Arrenurus longispinus</i> K.Viets, 1926							+		
405.	<i>Arrenurus maculator</i> (Müller, 1776)			+	+	+				
406.	<i>Arrenurus neumani</i> Piersig, 1895			+	+			+		
407.	<i>Arrenurus octagonus</i> Halbert, 1906	+				+				
408.	<i>Arrenurus ornatus graecus</i> Smit & Pesic, 2010								+	
409.	<i>Arrenurus papillator</i> (Müller, 1776)			+		+		+		
410.	<i>Arrenurus papillator bicolor</i> K.Viets, 1935							+		
411.	<i>Arrenurus perforatus</i> George, 1881			+		+				
412.	<i>Arrenurus radiatus</i> Piersig, 1894				+	+				
413.	<i>Arrenurus refractariolus</i> Biesiadka, 1978			+						BOLD:AEN2842
414.	<i>Arrenurus robustus</i> Koenike, 1894								+	
415.	<i>Arrenurus sinuator</i> (Müller, 1776)	+		+	+	+		+	+	
416.	<i>Arrenurus stecki</i> Koenike, 1894					+		+		
417.	<i>Arrenurus stjordalensis</i> Thor, 1899			+		+				
418.	<i>Arrenurus suecicus</i> Lundblad, 1917								+	
420.	<i>Arrenurus tricuspidator</i> (Müller, 1776)				+	+				
421.	<i>Arrenurus truncatellus</i> (Müller, 1776)				+				+	
422.	<i>Arrenurus virens</i> Neuman, 1880			+	+					BOLD:ACS0772
423.	<i>Arrenurus walkanoffi</i> K.Viets, 1926							+		
426.	<i>Arrenurus zachariae</i> Koenike, 1886	+								

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References

- Blattner, L., Gerecke, R. & von Fumetti, S. (2019) Hidden biodiversity revealed by integrated morphology and genetic species delimitation of spring dwelling water mite species (Acari, Parasitengona: Hydrachnidia). *Parasites Vectors*, 12, 492.
<https://doi.org/10.1186/s13071-019-3750-y>
- Davids, C., Di Sabatino, A., Gerecke, R., Gledhill, T., Smit, H. & Van der Hammen, H. (2007) Acari: Hydrachnidia I. In: Gerecke, R. (Ed.), *Süßwasserfauna von Mitteleuropa. Vol. 7*. Elsevier GmbH, Spektrum Akademischer Verlag, München, pp. 241–376.
https://doi.org/10.1007/978-3-662-55958-1_7
- Di Sabatino, A., Gerecke, R., Gledhill, T. & Smit, H. (2009) On the taxonomy of water mites (Acari: Hydrachnidia) described from the Palaearctic, part 2: Hydryphantoidea and Lebertioidea. *Zootaxa*, 2266 (1), 1–34.
<https://doi.org/10.11646/zootaxa.2266.1.1>

- Di Sabatino, A., Gerecke, R., Gledhill, T. & Smit, H. (2010) Acari: Hydrachnidia II. In: Gerecke, R. (Ed.), *Chelicerata: Acari II. Süßwasserfauna von Mitteleuropa. Vol. 7. 2-2*. Elsevier Spektrum Akademischer Verlag, Heidelberg, pp. 1–234.
https://doi.org/10.1007/978-3-8274-2266-8_1
- Edgar, R.C. (2004) MUSCLE: multiple sequence alignment with high accuracy and high 679 throughput. *Nucleic acids research*, 32 (5), 1792–1797.
<https://doi.org/10.1093/nar/gkh340>
- Gerecke, R. (2009) Revisional studies on the European species of the water mite genus *Lebertia* Neuman, 1880 (Acari: Hydrachnidia: Lebertiidae). *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 566, 1–144.
- Gerecke, R. (2017) The water mites of the genus *Hydrodroma* (Acari, Hydrachnidia, Hydrodromidae) in Europe and Africa. *Ecologica Montenegrina*, 13, 1–24.
<https://doi.org/10.37828/em.2017.13.1>
- Gerecke, R. & Stur, E. (2025) The water mite species *Hygrobates norvegicus* (Thor, 1897) (Acari, Hydrachnidia, Hygrobatidae) – a redescription. *Norwegian Journal of Entomology*, 72, 115–123.
<https://doi.org/10.61698/nje.v72n1.11>
- Gerecke, R., Gledhill, T., Pešić, V. & Smit, H. (2016) Chelicerata: Acari III. In: Gerecke, R. (Ed.), *Süßwasserfauna von Mitteleuropa. Bd. 7/2-3*. Springer-Verlag Berlin, Heidelberg, pp. 1–429.
<https://doi.org/10.1007/978-3-8274-2689-5>
- Gerecke, R., Kjørstad, G., Ekrem, T. & Stur, E. (2022) A faunistic study of water mites (Hydrachnidia and Halacaridae) from southern Norway. *Norwegian Journal of Entomology*, 69, 243–268.
- Goldschmidt, T. (2016) Water mites (Acari, Hydrachnidia): powerful but widely neglected bioindicators - a review. *Neotropical Biodiversity*, 2 (1), 12–25.
<https://doi.org/10.1080/23766808.2016.1144359>
- Jovanović, M., Manović, A. & Pešić, V. (2024) An updated checklist of water mites (Acari, Hydrachnidia) of Serbia with new records revealed by DNA barcodes. *Ecologica Montenegrina*, 74, 9–20.
<https://doi.org/10.37828/em.2024.74.2>
- Kimura, M. (1980) A simple method for estimating evolutionary rate of base substitutions through comparative studies of nucleotide sequences. *Journal of Molecular Evolution*, 16, 111–120.
<https://doi.org/10.1007/BF01731581>
- Klimov, P.B., Stolbov, V.A., Kazakov, D.V., Filimonova, M.O. & Sheykin, S.D. (2022) A DNA barcoding and photo-documentation resource of water mites (Acariformes, Hydrachnidia) of Siberia: Accurate species identification for global climate change monitoring programs. *Systematic & Applied Acarology*, 27 (12), 2493–2567.
<https://doi.org/10.11158/saa.27.12.8>
- Królikowska, K., Zawal, A., Grabowski, M., Wysocka, A., Janiszewska, A., Trajanovski, S., Sworobowicz, L., Bańkowska, A., Michoński, G., Zdraveski, K., Tończyk, G., Stojanovski, S. & Mamos, T. (2024) First DNA barcode reference library for water mites of the ancient Lake Ohrid reveals high diversity and lineage endemism. *Journal of Great Lakes Research*, 50 (3), 102344.
<https://doi.org/10.1016/j.jglr.2024.102344>
- Láska, F. (1954) Zwei neue *Hygrobates*-Arten (Hydrachnellae, Acari) aus der Slowakei. *Zoologischer Anzeiger*, 152 (1–2), 36–38.
- Lundblad, O. (1956) Zur Kenntnis süd- und mitteleuropäischer Hydrachnellen. *Arkiv för Zoologi*, 10, 1–306.
- Martin, P., Dabert, M. & Dabert, J. (2010) Molecular evidence for species separation in the water mite *Hygrobates nigromaculatus* Lebert, 1879 (Acari, Hydrachnidia): evolutionary consequences of the loss of larval parasitism. *Aquatic Science*, 72, 347–360.
<https://doi.org/10.1007/s00027-010-0135-x>
- Peláez, M.L., Horreo, J.L., García-Jiménez, R. & Valdecasas, A.G. (2022) An evaluation of errors in the mitochondrial COI sequences of Hydrachnidia (Acari, Parasitengona) in public databases. *Experimental and Applied Acarology*, 86 (3), 371–384.
<https://doi.org/10.1007/s10493-022-00703-0>
- Pešić, V. (2022) *Sperchon milisai* nov. sp., an overlooked new species of water mites (Acari, Hydrachnidia, Sperchontidae) from Montenegro and Croatia, based on morphological and DNA barcode evidence. *Ecologica Montenegrina*, 51, 81–92.
<https://doi.org/10.37828/em.2022.51.9>
- Pesic, V. (2025) BOLD TaxonID Tree of water mites from the Balkan peninsula (BOLD Dataset “DS-BALHYD”). Mendeley Data, V1.
<https://doi.org/10.17632/gk3tk53yv4.1>
- Pešić, V. & Smit, H. (2018) A second Palaearctic species of the genus *Wettina* Piersig, 1892 based on morphological and molecular data (Acari, Hydrachnidia: Wettinidae). *Systematic & Applied Acarology*, 23 (4), 724–732.
<https://doi.org/10.11158/saa.23.4.11>
- Pešić, V. & Smit, H. (2020) *Mideopsis milankovici* sp. nov. a new water mite from Montenegro based on morphological and molecular data (Acariformes, Hydrachnidia, Mideopsidae). *Acarologia*, 60 (3), 566–575.
<https://doi.org/10.24349/acarologia/20204387>
- Pešić, V. & Esen, Y. (2022) Integrative description of a new species of water mite genus *Hygrobates* (Acariformes, Hydrachnidia,

- Hygrobatidae) from Türkiye. *Ecologica Montenegrina*, 57, 98–108.
<https://doi.org/10.37828/em.2022.57.9>
- Pešić, V. & Smit, H. (2022a) Water mites of Corsica: DNA barcode and morphological evidences. *International Journal of Acarology*, 48, 418–428.
<https://doi.org/10.1080/01647954.2022.2086619>
- Pešić, V. & Smit, H. (2022b) A new water mite species of the genus *Teutonia* Koenike, 1889 from Corsica, France, based on morphological data and DNA barcodes (Acari, Hydrachnidia, Teutoniidae). *Acarologia*, 62, 465–473.
<https://doi.org/10.24349/8n5y-mw7l>
- Pešić, V. & Smit, H. (2023) Integrative taxonomy reveals a new species of the water mite genus *Monatractides* K. Viets, 1926 from Corsica (Acari, Hydrachnidia: Torrenticolidae). *International Journal of Acarology*, 49 (2), 87–94.
<https://doi.org/10.1080/01647954.2023.2194885>
- Pešić, V., Smit, H., Gerecke, R. & Di Sabatino, A. (2010) The water mites (Acari: Hydrachnidia) of the Balkan peninsula, a revised survey with new records and descriptions of five new taxa. *Zootaxa*, 2586 (1), 1–100.
<https://doi.org/10.11646/zootaxa.2586.1.1>
- Pešić, V., Smit, H. & Saboori, A. (2014) Checklist of the water mites (Acari, Hydrachnidia) of Iran: Second supplement and description of one new species. *Ecologica Montenegrina*, 1 (1), 30–48.
<https://doi.org/10.37828/em.2014.1.6>
- Pešić, V., Asadi, M., Cimpean, M., Dabert, M., Esen, Y., Gerecke, R., Martin, P., Savić, A., Smit, H. & Stur, E. (2017) Six species in one: Evidence of cryptic speciation in the *Hygrobatodes fluviatilis* complex (Acariformes, Hydrachnidia, Hygrobatidae). *Systematic & Applied Acarology*, 22, 1327–1377.
<https://doi.org/10.11158/saa.22.9.4>
- Pešić, V., Bańkowska, A., Goldschmidt, T., Grabowski, M., Michoński, G. & Zawal, A. (2018) Supplement to the checklist of water mites (Acari: Hydrachnidia) from the Balkan peninsula. *Zootaxa*, 4394 (2), 151–184.
<https://doi.org/10.11646/zootaxa.4394.2.1>
- Pešić, V., Broda, L., Dabert, M., Gerecke, R., Martin, P. & Smit, H. (2019a) Re-established after hundred years: Definition of *Hygrobatodes prosiliens* Koenike, 1915, based on molecular and morphological evidence, and redescription of *H. longipalpis* (Hermann, 1804) (Acariformes, Hydrachnidia, Hygrobatidae). *Systematic and Applied Acarology*, 24 (8), 1490–1511.
<https://doi.org/10.11158/saa.24.8.10>
- Pešić, V., Savić, A., Jabłońska, A., Michoński, G., Grabowski, M., Bańkowska, A. & Zawal, A. (2019b) Environmental factors affecting water mite assemblages along eucronon-hypocronon gradients in Mediterranean karstic springs. *Experimental and Applied Acarology*, 77 (4), 471–486.
<https://doi.org/10.1007/s10493-019-00360-w>
- Pešić, V., Zawal, A., Bańkowska, A., Jovanović, M. & Dabert, M. (2020a) A new crenobiontic water mite species of the genus *Atractides* Koch, 1837 from Montenegro and Bulgaria, based on morphological and molecular data (Acariformes, Hydrachnidia, Hygrobatidae). *Systematic and Applied Acarology*, 25 (10), 1889–1900.
<https://doi.org/10.11158/saa.25.10.12>
- Pešić, V., Saboori, A., Jovanović, M., Manović, A., Bańkowska, A. & Zawal, A. (2020b) *Torrenticola dowlingi* sp. nov. a new water mite from Iran based on morphometrical and molecular data (Acariformes, Hydrachnidia, Torrenticolidae). *International Journal of Acarology*, 46 (5), 298–303.
<https://doi.org/10.1080/01647954.2020.1802513>
- Pešić, V., Jovanović, M., Manović, A., Zawal, A., Bańkowska, A., Broda, L., Martin, P. & Dabert, M. (2020c) Two new species from the *Hygrobatodes nigromaculatus*-complex (Acariformes, Hydrachnidia, Hygrobatidae), based on morphological and molecular evidence. *Acarologia*, 60 (4), 753–768.
<https://doi.org/10.24349/acarologia/20204400>
- Pešić, V., Jovanović, M., Manović, A., Zawal, A., Bankowska, A., Ljubomirova, L., Karaouzas, Y. & Dabert, M. (2020d) Molecular evidence for two new species of the *Hygrobatodes fluviatilis* complex from the Balkan Peninsula (Acariformes, Hydrachnidia, Hygrobatidae). *Systematic and Applied Acarology*, 25 (9), 1702–1719.
<https://doi.org/10.11158/saa.25.9.15>
- Pešić, V., Zawal, A., Manović, A., Bańkowska, A. & Jovanović, M. (2021a) A DNA barcode library for the water mites of Montenegro. *Biodiversity Data Journal*, 9, e78311.
<https://doi.org/10.3897/BDJ.9.e78311>
- Pešić, V., Jovanović, M., Manović, A., Karaouzas, I. & Smit, H. (2021b) New records of water mites from the Balkans revealed by DNA barcoding (Acari, Hydrachnidia). *Ecologica Montenegrina*, 49, 20–34.
<https://doi.org/10.37828/em.2021.49.2>
- Pešić, V., Esen, Y., Gerecke, R., Goldschmidt, T., Mumladze, L., Smit, H. & Zawal, A. (2022a) Evidence of cryptic speciation in the *Hygrobatodes calliger* complex (Acariformes, Hydrachnidia, Hygrobatidae) with the description of two new species. *Ecologica Montenegrina*, 59, 101–122.
<https://doi.org/10.37828/em.2022.59.10>
- Pešić, V., Smit, H., Neha Sharma, N., Kamal Rana, K., Bahuguna, P. & Rayal, R. (2022b) First DNA barcodes of water mites from the Indian Himalayas with description of two new species (Acari, Hydrachnidia). *International Journal of Acarology*, 48 (6), 479–485.

<https://doi.org/10.1080/01647954.2022.2130424>

- Pešić, V., Esen, Y., Gölle, P., Zawal, A., Saboori, A., Jovanović, M., Bańkowska, A. & Smit, H. (2022c) New records of water mites from Turkey and Iran revealed by DNA barcoding, with the description of a new species (Acari, Hydrachnidia). *Systematic & Applied Acarology*, 27 (7), 1393–1407.
<https://doi.org/10.11158/saa.27.7.7>
- Pešić, V., Konopleva, E.S., Jovanović, M., Borko, Š., Premate, E., Rexhepi, B., Zagmajster, M. & Zawal, A. (2023a) First insight into molecular diversity of interstitial water mites (Acari: Hydrachnidia): a case study from the upper Neretva River in Bosnia and Herzegovina. *International Journal of Acarology*, 49 (5–6), 349–354.
<https://doi.org/10.1080/01647954.2023.2258137>
- Pešić, V., Smit, H. & Zawal, A. (2023b) A new species of the genus *Atractides* Koch, 1837 from Montenegro (Acari: Hydrachnidia: Hygrobatidae), separated from *A. nodipalpis* (Thor, 1899), one of the most common water mite species in running waters in Europe. *Systematic & Applied Acarology*, 28 (5), 852–863.
<https://doi.org/10.11158/saa.28.5.7>
- Pešić, V., Zawal, A., Saboori, A., Bańkowska, A., Cakmak, I. & Smit, H. (2023c) New records of water mites (Acari, Hydrachnidia) from Iran and Türkiye based on morphology and DNA barcodes with description of one new species. *Ecologica Montenegrina*, 66, 11–29.
<https://doi.org/10.37828/em.2023.66.2>
- Pešić, V., Bańkowska, A., Zawal, A., Rewicz, T. & Smit, H. (2023d) Molecular diversity and species delimitation in the genus *Mideopsis* Neuman, 1880 in Europe (Acari, Hydrachnidia, Mideopsidae). *Ecologica Montenegrina*, 70, 101–115.
<https://doi.org/10.37828/em.2023.70.12>
- Pešić, V., Jovanović, M., Espiridiao Oliveira, A., Pedro, A., Freira, M. & Morais, M.M. (2023e) New records of water mites (Acari, Hydrachnidia) from Portugal revealed by DNA barcoding, with the description of *Atractides marizae* sp.nov. *ZooKeys*, 1151, 205–222.
<https://doi.org/10.3897/zookeys.1151.100766>
- Pešić, V., Jovanović, M., Bańkowska, A., Dmitrović, D., Šukalo, G., Kijevčanin, E. & Zawal, A. (2024a) DNA Barcoding and New Records of Water Mites (Acari, Hydrachnidia) from Bosnia and Herzegovina. *Ecologica Montenegrina*, 74, 52–61.
<https://doi.org/10.37828/em.2024.74.8>
- Pešić, V., Zawal, A., Ferreira, S., Benitez-Bosco, L., Cruz-Oliveira, A., Girão, D., Padilha, A., Turaccio, P., Rossini, S., Ballini, L., Staffoni, G., Fratini, S., Ciofi, C., Iannucci, A., Ekrem, T. & Stur, E. (2024b) DNA barcode library of Portuguese water mites, with the descriptions of two new species (Acari, Hydrachnidia). *ZooKeys*, 1217, 119–171.
<https://doi.org/10.3897/zookeys.1217.131730>
- Pešić, V., Zawal, A., Gölle, P., Gölle, I., Jovanović, M., Bańkowska, A., Musielak, S. & Smit, H. (2025a) Water mite diversity from southwestern Türkiye through the lens of the DNA barcodes, with the description of one new species (Acari, Hydrachnidia). *ZooKeys*, 1232, 205–236.
<https://doi.org/10.3897/zookeys.1232.142699>
- Pešić, V., Zawal, A., Bańkowska, A., Araujo, R., Sługocki, Ł., Rewicz, T., Krakowiak, M., Michoński, G., Girão, D., Silva, L.P. d., Órfão, I., M. Raposeiro, P., Ballini, L., Stryjecki, R., Ekrem, T. & Ferreira, S. (2025b) Exploring the water mite fauna (Acari, Hydrachnidia) of the Madeira archipelago: DNA Barcoding reveals a remarkable species endemism. *Zootaxa*, 5621 (5), 501–513.
<https://doi.org/10.11646/zootaxa.5621.5.1>
- Petrova, A. (1976) Prinos km izučavane na vodnite akari (Hydrachnellae) v Bulgarija. *Acta Zoologica Bulgarica*, 4, 54–59.
- Pozojević, I., Brigić, A. & Gottstein, S. (2018a) Water mite (Acari: Hydrachnidia) diversity and distribution in undisturbed Dinaric karst springs. *Experimental and Applied Acarology*, 76, 123–138.
<https://doi.org/10.1007/s10493-018-0294-3>
- Pozojević, I., Ternjej, I., Mihaljević, Z., Gottstein, S., Vučković, N., Dorić, V. & Rumišek, M. (2018b) Prey Abundance Supporting Unusual Water Mite (Acari: Hydrachnidia) Community in a Sublacustrine Spring and Tributary River. *Acta Biologica*, 25, 69–75.
<https://doi.org/10.18276/ab.2018.25-06>
- Pozojević, I., Juršić, L., Vučković, N., Dorić, V., Gottstein, S., Ternjej, I. & Mihaljević, Z. (2019a) Is the spatial distribution of lentic water mite assemblages (Acari: Hydrachnidia) governed by prey availability? *Experimental and Applied Acarology*, 77 (4), 487–510.
<https://doi.org/10.1007/s10493-019-00362-8>
- Pozojević, I., Pešić, V. & Gottstein, S. (2019b) Two water mite species (Acari: Hydrachnidia) from karst springs new for the fauna of Croatia with notes on distribution and environmental preferences. *Natura Croatica*, 28 (2), 417–424.
<https://doi.org/10.20302/NC.2019.28.27>
- Pozojević, I., Pešić, V., Goldschmidt, T. & Gottstein, S. (2020) Crenal Habitats: Sources of Water Mite (Acari: Hydrachnidia) Diversity. *Diversity*, 12, 316.
<https://doi.org/10.3390/d12090316>
- Pozojević, I., Vučković, N., Dorić, V., Šumanović, M. & Ternjej, I. (2021) Contribution to the knowledge of the water mite (Acari: Hydrachnidia) fauna of Croatia—New data and records from a permanent pool in the Dinaric karst region. *Persian Journal of Acarology*, 10, 1–7.

- <https://doi.org/10.22073/pja.v10i1.62352>
- Puillandre, N., Lambert, A., Brouillet, S. & Achaz, G. (2012) ABGD, Automatic Barcode Gap Discovery for primary species delimitation. *Molecular Ecology*, 21 (8), 1864–1877.
<https://doi.org/10.1111/j.1365-294X.2011.05239.x>
- Ratnasingham, S. & Hebert, P.D.N. (2007) BOLD: The barcode of life data system. *Molecular Ecology Notes*, 7, 355–364.
<https://doi.org/10.1111/j.1471-8286.2007.01678.x>
- Smit, H., Gerecke, R., Pešić, V. & Gledhill, T. (2015) On the taxonomic state of water mite taxa (Acari: Hydrachnidia) described from the Palaearctic, part 3. Hygrobatoida and Arrenuroidea with new faunistic data. *Zootaxa*, 3981 (4), 542–552.
<https://doi.org/10.11646/zootaxa.3981.4.5>
- Tamura, K., Stecher, G. & Kumar, S. (2021) MEGA 11: Molecular Evolutionary Genetics Analysis Version 11. *Molecular Biology and Evolution*, 38 (7), 3022–3027.
<https://doi.org/10.1093/molbev/msab120>
- Tyukosova, V., Gerecke, R., Stur, E. & Ekrem, T. (2022) Disentangling the identity of *Lebertia porosa* Thor, 1900 using integrative taxonomy (Acari: Hydrachnidia). *European Journal of Taxonomy*, 836 (1), 131–169.
<https://doi.org/10.5852/ejt.2022.836.1921>
- Valdecasas, A.G., Garcia-Gimenez, R. & Marin, F. (2019) Sobre la presencia de dos especies raras de ácaros acuáticos (Parasitengona, Hydrachnidia) en la Península Ibérica. *Revista ibérica de aracnología*, 35, 33–37.
- Zawal, A., Bańkowska, A., Michoński, G., Grabowski, M., Szlauer-Lukaszewska, A., Czernicki, T. & Pešić, V. (2020) Environmental determinants of water mite (Acari: Hydrachnidia) distribution in the ancient Lake Skadar system. *Journal of Great Lakes Research*, 46 (5), 1090–1098.
<https://doi.org/10.1016/j.jglr.2019.06.002>
- Žeželj Vidoša, T., Pozojević, I., Vidaković Maoduš, I. & Mihaljević, Z. (2023) Longitudinal Changes in Diverse Assemblages of Water Mites (Hydrachnidia) along a Lowland River in Croatia. *Diversity*, 15, 139.
<https://doi.org/10.3390/d15020139>