



**Univerzitet Crne Gore
Prirodno-matematički fakultet**

Džordža Vašingtona b.b.
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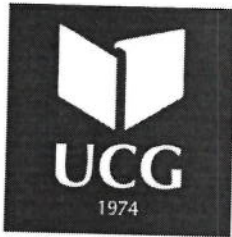
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Datum: 09.05.2022.god

UNIVERZITET CRNE GORE
SENATU
CENTAR ZA DOKTORSKE STUDIJE

U prilogu akta dostavljam Odluke sa LXXXI sjednice Vijeća Prirodno-matematičkog fakulteta održane 05.05.2022. godine.


D e k a n,
Prof. dr Predrag Miranović



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Na osnovu člana 64 Statuta Univerziteta Crne Gore, a u vezi sa članom 41 stav 1 Pravila doktorskih studija, na LXXXI sjednici Vijeća PMF-a od 05.05.2022.godine, donijeta je

ODLUKA

I

Utvrđuje se da su ispunjeni uslovi iz člana 38 Pravila doktorskih studija za doktoranda Milicu Jovanović.

II

Predlaže se Odboru za doktorske studije sastav komisije za ocjenu doktorske disertacije:

1. Prof. dr Drago Marić, redovni profesor Prirodno-matematički fakultet Univerziteta Crne Gore u penziji (naučna oblast: evolucija, ihtiologija, biogeografija);
2. Prof. dr Danka Caković, vanredni profesor Prirodno-matematičkog fakulteta Univerziteta Crne Gore (naučna oblast: fitoekologija, biogeografija);
3. Prof. dr Vladimir Pešić, redovni profesor Prirodno-matematičkog fakulteta Univerziteta Crne Gore (naučna oblast: zoologija, ekologija)
4. Prof. dr Marko Miliša, vanredni profesor Sveučilišta u Zagrebu, Prirodno-matematički fakultet (naučna oblast: zoologija, ekologija) i
5. Doc. dr Dejan Dmitrović, docent Univerziteta u Banja Luci, Prirodno-matematički fakultet (naučna oblast: ekologija, zaštita životne sredine).

III

Odluka se dostavlja Odboru za doktorske studije Univerziteta Crne Gore.



DEKAN

Predrag Miranović
Prof. dr Predrag Miranović

ISPUNJENOST USLOVA DOKTORANDA

OPŠTI PODACI O DOKTORANDU			
Titula, ime, ime roditelja, prezime	MSc Milica (Ratko) Jovanović		
Fakultet	Prirodno-matematički fakultet		
Studijski program	Biologija		
Broj indeksa	04/18		
NAZIV DOKTORSKE DISERTACIJE			
Na službenom jeziku	Filogenija, filogeografija i distribucija vrsta Glossiphoniidae (Hirudinea) i Hydrachnidia (Acari) na području sliva Skadarskog jezera		
Na engleskom jeziku	Phylogeny, philogeography and distribution of Glossiphoniidae (Hirudinea) and Hydrachnidia (Acari) in the Skadar Lake catchment area		
Naučna oblast	Zoologija		
MENTOR/MENTORI			
Prvi mentor	Prof. dr Vladimir Pešić, redovni profesor	Univerzitet Crne Gore, Prirodno-matematički fakultet, Crna Gora	Zoologija, ekologija
Drugi mentor			
KOMISIJA ZA PREGLED I OCJENU DOKTORSKE DISERTACIJE			
Prof. dr Drago Marić, redovni profesor	Univerzitet Crne Gore, Prirodno-matematički fakultet, Crna Gora	Evolucija, Ihtiologija	
Prof. dr Danka Caković, vanredni profesor	Univerzitet Crne Gore, Prirodno-matematički fakultet, Crna Gora	Fitoekologija, Biogeografija	
Prof. dr Vladimir Pešić, redovni profesor	Univerzitet Crne Gore, Prirodno-matematički fakultet, Crna Gora	Zoologija, Ekologija	
Prof. dr Marko Miliša, vanredni profesor	Sveučilište u Zagrebu, Prirodno-matematički fakultet, Hrvatska	Zoologija, Ekologija	
Doc dr Dejan Dmitrović, docent	Univerzitet u Banjoj Luci, Prirodno-matematički fakultet, Bosna i Hercegovina	Ekologija	

Datum značajni za ocjenu doktorske disertacije	
Sjednica Senata na kojoj je data saglasnost na ocjenu teme i kandidata	24.4.2020.
Dostavljanja doktorske disertacije organizacionoj jedinici i saglasnost mentora	4.5.2022.
Sjednica Vijeća organizacione jedinice na kojoj je dat prijedlog za imenovanje komisije za pregled i ocjenu doktorske disertacije	5.5.2022.

ISPUNJENOST USLOVA DOKTORANDA

U skladu sa članom 38 pravila doktorskih studija kandidat je cjelokupna ili dio sopstvenih istraživanja vezanih za doktorsku disertaciju publikovao u časopisu sa (SCI/SCIE)/(SSCI/A&HCD) liste kao prvi autor.

1. **Jovanović M**, Haring E, Sattmann H, Grosser C, Pešić V (2021) DNA barcoding for species delimitation of the freshwater leech genus *Glossiphonia* from the Western Balkan (Hirudinea, Glossiphoniidae). Biodiversity Data Journal 9: e66347. <https://doi.org/10.3897/BDJ.9.e66347>

Biodiversity Data Journal
 Scopus SCI
 CiteScore: Q2
 Impact Factor: 1.225
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Spisak radova doktoranda iz oblasti doktorskih studija koje je publikovao u časopisima sa (upisati odgovarajuću listu)

1. **Jovanović M.**, Pešić V. (2022) Recent progress in barcoding water mites (Acari, Hydrachnidia) of the Western Balkans, 3rd Dinaric Symposium on Subterranean Biology, Trebinje 9-10th April, 2022.
2. Marinković N., Paunović M., Raković M., **Jovanović M.**, Pešić V. (2022). Importance of Small Water Bodies for Diversity of Leeches (Hirudinea) of Western Balkan. In: Pešić, V., Milošević, D., Miliša, M. (eds) Small Water Bodies of the Western Balkans. Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-030-86478-1_12
3. Pešić V., **Jovanović M.**, Manović A, Karaouzas I, Smit H (2021). New records of water mites from the Balkans revealed by DNA barcoding (Acari, Hydrachnidia), *Ecologica Montenegrina*, Vol.49: 20-34. <https://doi.org/10.37828/em.2021.49.2>
4. Pešić V., Zawal A., Manović A., Bańkowska A., **Jovanović M.** (2021). A DNA barcode library for the water mites of Montenegro. Biodiversity Data Journal 9: e78311. <https://doi.org/10.3897/BDJ.9.e78311>
5. **Jovanović M**, Haring E, Sattmann H, Grosser C, Pešić V (2021) DNA barcoding for

species delimitation of the freshwater leech genus *Glossiphonia* from the Western Balkan (Hirudinea, Glossiphoniidae). *Biodiversity Data Journal* 9: e66347. <https://doi.org/10.3897/BDJ.9.e66347>

6. Pešić V., Jovanović M., Manović A., Zawal A., Bańkowska A., Lyubomirova L., Karaouzas I., Dabert M. (2020). Molecular evidence for two new species of the *Hygrobatas fluviatilis*-complex from the Balkan Peninsula (Acariformes, Hydrachnidia, Hygrobatidae), *Systematic & Applied Acarology*.
7. Pešić V., Zawal A., Bańkowska A., Jovanović M., Dabert M. (2020). A new crenobiotic water mite species of the genus *Atractides* Koch, 1837 from Montenegro and Bulgaria, based on morphological and molecular data (Acariformes, Hydrachnidia, Hygrobatidae), *Systematic & Applied Acarology*.
8. Pešić V., Saboori A., Jovanović M., Manović A., Bańkowska A., Zawal A. (2020). *Torrenticola dowlongi* sp. nov.: a new water mite from Iran based on morphometrical and molecular data (Acariformes, Hydrachnidia, Hygrobatidae), based on morphological and molecular evidence, *International Journal of Acarology*.
9. Pešić V., Jovanović M., Manović A., Zawal A., Bańkowska A., Łukasz B., Martin P., Dabert M. (2020). Two new species from the *Hygrobatas nigromaculatus*-complex (Acariformes, Hydrachnidia, Hygrobatidae), based on morphological and molecular evidence, *Acarologia*.

Obrazloženje mentora o korišćenju doktorske disertacije u publikovanim radovima

Doktorantkinja Milica Jovanović, kao prvi autor, dio rezultata sopstvenih istraživanja vezanih za doktorsku disertaciju objavila je u radu koji je publikovan u časopisu indeksiranom na SCI/SCIE listi.

Kao koautor, učestvovala je u publikovanju poglavlja u knjizi "Small Water Bodies of the Western Balkans", izdavača Springer Nature. Osim toga, koautor je 6 radova objavljenih u međunarodnim časopisima. Dio rezultata svoje doktorske disertacije prezentovala je i na međunarodnom kongresu "3. Dinarski simpozijum podzemne biologije", koji je organizovan 9-10. aprila 2022. u Trebinju, u saradnji predstavnika Univerziteta u Ljubljani (SubBioLab, Odsjek za Biologiju, Biotehnički fakultet) i Centra za Krš i speleologiju iz Sarajeva.

Kao prvi autor, publikovala je rad u časopisu *Biodiversity Data Journal*, pod naslovom "DNA barcoding for species delimitation of the freshwater leech genus *Glossiphonia* from the Western Balkan (Hirudinea, Glossiphoniidae)". Koautori rada su prof. dr Elisabeth Haring, Helmut Sattmann, Clemens Grosser i prof. dr Vladimir Pešić.

U ovom radu prikazala je rezultate primjene metode DNK barkodinga u razumijevanju filogenetskih odnosa na primjeru pijavica roda *Glossiphonia*. Pijavice su sakupljene na području zapadnog Balkana u cilju provjere podobnosti upotrebe fragmenata *COI* gena za identifikaciju i razdvajanje vrsta. U uvodnom dijelu dat je pregled dosadašnjih istraživanja i

naveden značaj sprovedenog istraživanja. U materijalima i metodama detaljno su navedeni svi koraci u sprovedenim morfološkim i molekularno-genetičkim analizama.

Rezultati su predstavljeni jasno i precizno, dok je u posljednjem poglavlju izvršeno poređenje sa dostupnim literaturnim podacima.

S obzirom da je kandidatkinja ispunila sve uslove propisane Statutom Univerziteta Crne Gore i Pravilima doktorskih studija, mentor je saglasan da se imenuje Komisija za pregled i ocjenu doktorske disertacije.

Datum i ovjera (pečat i potpis odgovorne osobe)

U Podgorici,



DEKAN

Prilog dokumenta sadrži:

1. Potvrdu o predaji doktorske disertacije organizacionoj jedinici
2. Odluku o imenovanju komisije za pregled i ocjenu doktorske disertacije
3. Kopiju rada publikovanog u časopisu sa odgovarajuće liste
4. Biografiju i bibliografiju kandidata
5. Biografiju i bibliografiju članova komisije za pregled i ocjenu doktorske disertacije sa potvrdom o izboru u odgovarajuće akademsko zvanje i potvrdom da barem jedan član komisije nije u radnom odnosu na Univerzitetu Crne Gore



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Datum: 04.05.2022.god

Na osnovu člana 33 Zakona o upravnom postupku, nakon uvida u službenu evidenciju, Prirodno-matematički fakultet izdaje

P O T V R D U

MSc Milica Jovanović, student doktorskih studija na Prirodno-matematičkom fakultetu u Podgorici, dana 04.05.2022. godine, dostavila je ovom fakultetu doktorsku disertaciju pod nazivom „**FILOGENIJA, FILOGEOGRAFIJA I DISTRUBUCIJA VRSTA GLOSSIPHONIIDAE (HIRUDINEA) I HYDRACHNIDIA (ACARI) NA PODRUČJU SLIVA SKADARSKOG JEZERA**“ na dalje postupanje.



Dekan,

Predrag Miranović
Prof. dr Predrag Miranović

UNIVERZITET CRNE GORE

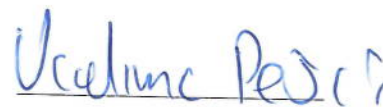
PRIRODNO-MATEMATIČKI FAKULTET

Na osnovu člana 37. Pravila doktorskih studija Univerziteta Crne Gore dajem sljedeću

SAGLASNOST

Rad pod nazivom "*Filogenija, filogeografija i distribucija vrsta Glossiphoniidae (Hirudinea) i Hydrachnidia (Acari) na području sliva Skadarskog jezera*" autorke MSc Milice Jovanović, zadovoljava kriterijume propisane Statutom Univerziteta Crne Gore i Pravilima doktorskih studija.

Mentor



Prof. dr Vladimir Pešić



Research Article

DNA barcoding for species delimitation of the freshwater leech genus *Glossiphonia* from the Western Balkan (Hirudinea, Glossiphoniidae)

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Abstract

Glossiphoniid leeches are a diverse group and sometimes abundant elements of the aquatic fauna inhabiting various types of freshwater habitats. In this study, we sampled leeches of the genus *Glossiphonia* from the Western Balkan in order to test the suitability of the mitochondrial cytochrome c oxidase subunit 1 (COI) marker sequence for species delimitation. Morphological analysis revealed the presence of four taxa, *G. complanata* with two subspecies, *G. c. complanata* and *G. c. maculosa*, the latter an endemic of Ohrid Lake, *G. nebulosa* and endemic *G. balcanica*. In total, 29 new barcodes of *Glossiphonia* were sequenced in the course of this study and compared with the available molecular dataset of the latter genus from GenBank/BOLD databases. The applied ASAP distance-based species delimitation method for the analysed dataset revealed an interspecific threshold between 4-8% K2P distance as suitable for species identification purposes of the Western Balkan *Glossiphonia* species. Our study revealed that morphologically identified taxa as *G. nebulosa* and *G. concolor* each consists of more than one clearly different phylogenetic clade. This study contributes to a better knowledge of the taxonomy of glossiphoniid

leeches and emphasises future work on the revision of this genus using a standard molecular COI marker in species identification.

Keywords

DNA barcoding, COI, freshwater leeches, Glossiphoniidae, phylogeny, species delimitation

Introduction

Species of the family Glossiphoniidae Vaillant, 1890 are generally small, dorsoventrally flattened leeches, distributed in freshwater ecosystems on all continents except Antarctica (Nesemann and Neubert 1999, Kaygorodova et al. 2020). Representatives of these leeches are normally found feeding on the blood of turtles or amphibians and, as vectors of apicomplexan blood parasites, they play an important role in aquatic ecosystems (Nesemann and Neubert 1999, Siddall et al. 2005, Chiangkul et al. 2021). Some species of the genera *Helobdella* Blanchard, 1896 and *Glossiphonia* Johnson, 1816 feed on the haemolymph of aquatic oligochaetes and snails (Siddall et al. 2005).

Distribution and species boundaries of the leeches of the genus *Glossiphonia*, the most diverse genus of the family, have been studied by several authors by means of the DNA barcode region of the mitochondrial cytochrome c oxidase subunit 1 gene (COI) as a genetic marker (e.g. Siddall et al. 2005, Oceguera-Figueroa and León-Règagnon 2014, Pérez-Flores et al. 2016, Mack and Kvist 2019, Kaygorodova et al. 2020). An integrative approach that combines morphological examination and molecular genetic data had helped to resolve the taxonomic status of some species (Mack and Kvist 2019, Kaygorodova et al. 2020). For example, the molecular studies, conducted by Siddall et al. (2005) and Mack and Kvist (2019) on North American populations previously assigned to *Glossiphonia complanata* (Linnaeus, 1758), reveal the presence of two well-defined species, with *Glossiphonia complanata* restricted to Europe and *Glossiphonia elegans* (Verrill, 1872) living in North America. However, the knowledge on diversity and species delimitation by applying a molecular genetic approach within this leech group is still poorly studied in many parts of their range, especially in the Dinaric Region of the Balkan Peninsula.

At present, all of the European members of the genus *Glossiphonia* have been reported to also inhabit the Western Balkans (Sket 1968, Nesemann and Neubert 1999, Utevsky et al. 2013, Grosser et al. 2015a, Grosser et al. 2015b, Dmitrović and Pešić 2020): the widespread Palearctic *G. complanata*, with two subspecies, the nominal one and *G. complanata maculosa* Sket, 1968 which is known only from Ohrid Lake, *G. concolor* (Apathy, 1988), *G. nebulosa* Kalbe, 1964, *G. paludosa* (Carena, 1824), *G. balcanica* Grosser & Pešić, 2016, a species recently described from Kosovo and Montenegro (Grosser et al. 2016) and *G. pulchella* Sket, 1968 an endemic species known only from the littoral of Lake Ohrid (Sket 1968).

In this study, we applied a standard DNA barcoding marker, a fragment of the COI gene, to analyse specimens of the genus *Glossiphonia* collected recently in various freshwater habitats (lakes, streams and springs) of the Western Balkans (Albania, Bosnia and Herzegovina, Kosovo, Montenegro and North Macedonia). In addition, we analysed the available museum material originating from other European localities, including loci typici of some selected species (e.g. *G. nebulosa*) to obtain reliably identified sequence data. Moreover, we used DNA barcode sequences in both BOLD and GenBank to compare with the sequences obtained in our study. As a result, a dataset, including COI sequences of 29 specimens of *Glossiphonia* spp. plus four sequences representing two other genera (*Helobdella*, *Placobdella* Blanchard, 1893), was generated in order to contribute to a reference dataset applicable for DNA barcoding studies of the genus *Glossiphonia* in general and, in particular, in the Western Balkans.

Material and Methods

Sample collection and morphological analysis

Glossiphoniid leeches were collected from twenty-two sites in seven countries: Albania, Austria, Bosnia and Herzegovina, Germany, Kosovo, Montenegro and North Macedonia (Fig. 1). Leeches were collected by tweezers from the underside of hard substratum (stones, wood) and on plants submerged in the water, on banks, as well as on the shore. Material was preserved in 96% ethanol for further morphological and molecular genetic analysis.

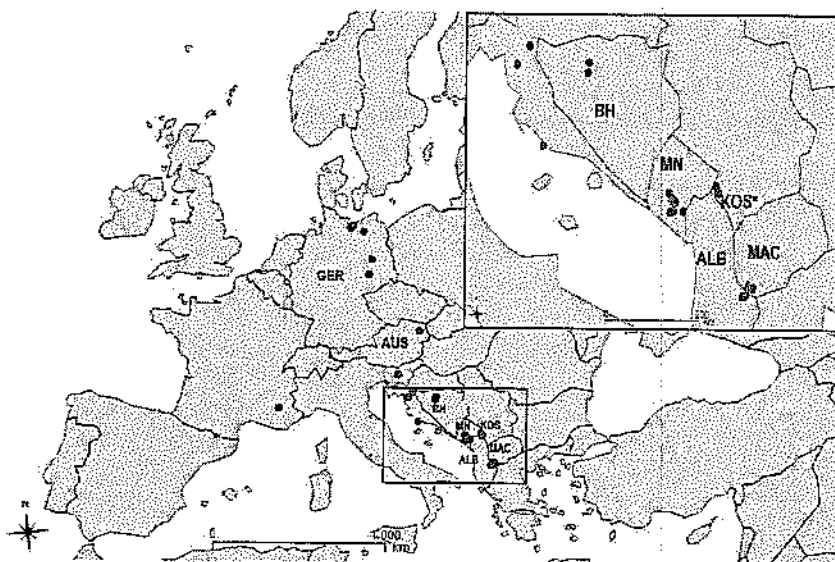


Figure 1. [doi](#)

Distribution map of localities where glossiphoniid leeches were collected. (red dots – present study records, blue dots – records from previous studies where coordinates are available). Note that each point may represent more than one species. Country codes of those countries, from which we had material, are indicated. The map was created using QGIS 2.8.11 software.

Morphological analysis of 33 individuals was performed using a stereomicroscope (Novex). Leeches were identified to species level according to Nesemann and Neubert (1999) and Grosser et al. (2016). Voucher specimens were deposited in the scientific collection of the Natural History Museum Vienna (NHM).

Molecular genetic analysis

DNA analysis was conducted in the Central Research Laboratories of the NHM. Leeches fixed in 96% ethanol were stored at 4°C. Tissue samples from individuals (approx. 2 × 2 × 2 mm) were separated using sterile scalpels and tweezers. DNA was extracted with the DNeasy Blood and Tissue Kit (Qiagen, Hilden, Germany) according to the manufacturer's protocol. The final volume of DNA solution was 40 µl.

The present study focused on the COI gene, which was amplified using a polymerase chain reaction (PCR). For all sampled leeches, a 708 bp section was amplified, which contains the standard DNA barcoding region. The universal primers LCO1490, 5'GGTCAACAAATCATAAAGATATTGG-3' and HCO2198, 5'TAAACTTCAGGGTGACC AAAAATCA-3' (Folmer et al. 1994) were used. The final alignment for the phylogenetic tree reconstructions included 33 sequences and had a length of 658 sites.

Each reaction consisted of 0.5 units of TopTaq DNA polymerase (Qiagen), 2.5 µl 10× TopTaq PCR Buffer, 10 mM of each dNTP, 50 µM of each primer and 1 µl DNA template in a total reaction volume of 25 µl. The PCR cycling protocol included an initial denaturation at 94°C for 3 min, followed by 35 cycles of denaturation at 94°C for 30 s, annealing for 30 s at 52°C and extension for 1 min at 72°C. The final step was an extension at 72°C for 10 min and a hold at 10°C.

The amplicons were checked by (1%) agarose gel electrophoresis. The QIAquick PCR Purification Kit (Qiagen) was employed to purify amplifications products. Sequencing was performed in both directions at Microsynth (Balgach, Switzerland) using the PCR primers.

Data analysis

Sequences (both strands) were checked and edited using BioEdit (Hall 1999). The search in GenBank for sequences similar to the sequences, generated from the studied specimens analysed in the present study, was performed through BLASTn search in the GenBank database (<https://blast.ncbi.nlm.nih.gov>). Subsequently, 19 published sequences, from representatives of the genus *Glossiphonia*, were downloaded from GenBank (<https://www.ncbi.nlm.nih.gov/genbank>) and were included for comparison (listed in Table 1). Differences between DNA sequences (p and K2P distances in %) were calculated with the MEGA X software, version 10.1.7 (Kumar et al. 2018). MEGA X was also used to calculate a Neighbour-Joining (NJ, Saitou and Nei 1987) tree (based on p distances) and Maximum Likelihood (ML) trees (model selected by the BIC criterion (Bayesian Information Criterion) implemented in MEGA X: TN93 + I+ G) with an initial NJ tree and using the Subtree-Pruning-Regrafting - Extensive heuristic search (SPR level 5). Bootstrapping was done with 500 replicates for NJ and ML trees. A Bayesian Inference (BI) tree was

calculated with MrBayes v.3.2.2 (Huelsenbeck and Ronquist 2001; Ronquist et al. 2012) with 10^6 generations (two runs each with four chains and one heated chain, sampling every hundredth tree). The first 25% of the trees were discarded as burn-in and a 50% majority rule consensus tree was calculated from the remaining trees.

Table 1.

Taxon names, locality information and accession numbers for the specimens used in phylogenetic analysis and distance estimations. Newly-sequenced taxa are shown in bold font. BOLD accession numbers are given for the sequences produced in the present study, while GenBank accession numbers are provided for published sequences.

Sample ID	Locality (Country/Exact site)	Coordinates	BOLD / GenBank ID	Source
<i>Glossiphonia verrucata</i>				
ROMIZ I11753	Unnamed river, Croatia (CRO)	43.574722°N, 15.818889°E	MK479263	Mack and Kvist (2019)
ROMIZ I11755	Unnamed river, Croatia (CRO)	43.574722°N, 15.818889°E	MK479264	Mack and Kvist (2019)
	Rio Saddle, Italy (IT)		AY962459	Siddall et al. (2005)
	Chechuy River, Russia (RUS)	58.194640°N, 109.294720°W	MH670857	Kaygorodova et al. (2020)
	Lake near Meget, Russia (RUS)	52.451440°N, 104.027120°W	MH670858	Kaygorodova et al. (2020)
<i>Glossiphonia complanata complanata</i>				
BH1_1	Krupa River near Vrbas, Bosnia and Hercegovina (BH)	44.616°N, 17.1495°E	LCHME001-20	This study
MN1_1	Karuč spring, Podgorica, Montenegro (MN)	42.3585°N, 19.1064°E	LCHME008-20	This study
MN1_2	Karuč spring, Podgorica, Montenegro (MN)	42.3585°N, 19.1064°E	LCHME009-20	This study
MN2_1	River Crnojevića, Cetinje, Montenegro (MN)	42.3546°N, 19.0178°E	LCHME010-20	This study
MN5_1	Vitoja spring pool, Podgorica, Montenegro (MN)	42.3251°N, 19.3634°E	LCHME013-20	This study
MN6_1	Dobro polje spring, Danilovgrad, Montenegro (MN)	42.6305°N, 19.0324°E	LCHME014-20	This study
MN7_1	Maréza spring, Podgorica, Montenegro (MN)	42.48°N, 19.1822°E	LCHME015-20	This study
MN8_1	Karuč spring, Podgorica, Montenegro (MN)	42.3585°N, 19.1064°E	LCHME016-20	This study
AUS_Hir 2_1	Kalte Wien, Vienna, Austria (AUS)	48.2934°N, 16.3915°E	LCHME027-20	This study
Gcomp1	Stream from the lake Barschsee, Mecklenburg-Vorpommern, Germany, type locality (GER)	53.9147°N, 11.2815°E	LCHME038-20	This study

Sample ID	Locality (Country/Exact site)	Coordinates	BOLD / GenBank ID	Source
Gcomp2	Stream from the lake Barschsee, Mecklenburg-Vorpommern, Germany, type locality (GER)	53.9147°N, 11.2815°E	LCHME039-20	This study
Gcomp3	Small stream near Jesewitz, Saxony, Germany (GER)	51.3812°N, 12.6733°E	LCHME040-20	This study
	Durance river, France (FR)		MF456715	Corse et al. (2017)
	Europe (EU)		AF003277	Siddall and Burreson (1998)
	Creek, Mecklenburg-Vorpommern, Nordwestmecklenburg district, Germany (GER)	53.81848°N, 10.92799°E	HM246608	Trajanovski et al. (2010)
	United Kingdom (UK)		AY047321	Light and Siddall (1999)
ROMIZ I11750	Korana river, Croatia (CRO)	45.117222°N, 15.592778°E	MK479280	Mack and Kvist (2019)
ROMIZ I11749	Korana river, Croatia (CRO)	45.117222°N, 15.592778°E	MK479279	Mack and Kvist (2019)
ROMIZ I11748	Korana river, Croatia (CRO)	45.117222°N, 15.592778°E	MK479278	Mack and Kvist (2019)
ROMIZ I11717	Sava river, Slovenia (SLO)	46.084444°N, 14.587222°E	MK479277	Mack and Kvist (2019)
ROMIZ I11743	Gacka river, Croatia (CRO)	44.851667°N, 15.233611°E	MK479262	Mack and Kvist (2019)
<i>Glossiphonia complanata maculosa</i>				
MAC1_1	St. Naum spring of Crni Drim, Ohrid Lake, North Macedonia (MAC) – type locality	40.9138°N, 20.7433°E	LCHME020-20	This study
MAC2_1	Lagadin, Ohrid Lake, North Macedonia (MAC)	41.0422°N, 20.8039°E	LCHME021-20	This study
MAC2_2	Lagadin, Ohrid Lake, North Macedonia (MAC)	41.0422°N, 20.8039°E	LCHME022-20	This study
MAC3_1	Peštani, Ohrid Lake, North Macedonia (MAC)	41.0095°N, 20.8059°E	LCHME023-20	This study
MAC4_1	Oteševo, Prespa Lake, North Macedonia (MAC)	40.9919°N, 20.9322°E	LCHME024-20	This study
ALB1a_d	Pogradec, Ohrid Lake, Albania (ALB)	40.9058°N, 20.6556°E	LCHME029-20	This study
ALB1a_1	Pogradec, Ohrid Lake, Albania (ALB)	40.9058°N, 20.6556°E	LCHME030-20	This study
ALB3b_2	Tushemisht, Ohrid Lake, Albania (ALB)	40.9035°N, 20.7172°E	LCHME035-20	This study
<i>Glossiphonia concolor</i>				
Gconc1	Krakower Obersee, Mecklenburg-Vorpommern, Germany (GER)	53.6074°N, 12.2976°E	LCHME041-20	This study

Sample ID	Locality (Country/Exact site)	Coordinates	BOLD / GenBank ID	Source
	Kila river, Sweden (SWE)		AY962458	Siddall et al. (2005)
	Ukraine (UKR)		KM095097	Kaygorodova and Mandzyak (2014)
<i>Glossiphonia balcanica</i>				
Gbalc1	Toplla spring, Dečani, Kosovo (KOS) - type locality	42.57194°N, 20.29056°E	LCHME036-20	This study
Gbalc2	Toplla spring, Dečani, Kosovo (KOS) - type locality	42.57194°N, 20.29056°E	LCHME037-20	This study
<i>Glossiphonia nebulosa</i>				
Gnebu4	Berliner Chaussee stream Nieplitz, Berlin, Germany -type locality	52.1348°N, 12.9449°E	LCHME044-20	This study
	Yamalo-Nenets Autonomous Okrug, Russia (RUS)		MN295412	Bolotov et al. (2019)
KOS1_1	Spring KS 40, Peje, Kosovo (KOS)	42.6283°N, 20.246°E	LCHME004-20	This study
KOS1_2	Spring KS 40, Peje, Kosovo (KOS)	42.6283°N, 20.246°E	LCHME005-20	This study
BH3_1	Banja Luka, Near castle, Bosnia & Herzegovina (BH)	44.7657°N, 17.193°E	LCHME002-20	This study
Gnebu1	Toplla spring, Dečani, Kosovo (KOS)	42.57194°N, 20.29056°E	LCHME042-20	This study
Gnebu3	Toplla spring, Dečani, Kosovo (KOS)	42.57194°N, 20.29056°E	LCHME043-20	This study
<i>Glossiphonia elegans</i>				
ROMIZ I11505	Unknown pond, Nopiming, Manitoba, Canada (CAN)	50.452222°N, 95.5125°W	MK479253	Mack and Kvist (2019)
	Lake Bemidji, Beltrami County, Minnesota, (USA)		JQ073869	Moser et al. (2012)
<i>Glossiphonia baicalensis</i>				
	Lake Baikal, Russia (RUS)		AY047329	Light and Siddall (1999)
Outgroups				
<i>Placobdella costata</i>				
MN4_1	Oraška jama spring, Danilovgrad, Montenegro (MN)	42.5309°N, 19.0921°E	LCHME012-20	This study
MN9_1	Crno oko spring, Podgorica, Montenegro (MN)	42.4844°N, 19.1542°E	LCHME017-20	This study
<i>Helobdella stagnalis</i>				
BH3_2	Near castle, Banja Luka, Bosnia & Herzegovina (BH)	44.7657°N, 17.193°E	LCHME003-20	This study
MAC4_2	Oteševo, Prespa Lake, North Macedonia (MAC)	40.9919°N, 20.9322°E	LCHME025-20	This study

In order to assess the genetic differentiation of species within our dataset of 47 *Glossiphonia* sequences, we used the ASAP procedure designated to a list of partitions of species hypotheses using genetic distances, calculated between DNA sequences and ranked by their ASAP-scores: the lower the score, the better the partition (Puillandre et al. 2021). The online ASAP version (<https://bioinfo.mnhn.fr/abi/public/asap/asapweb.html>) was used, with default settings and the K2P distance model. Besides the ASAP procedure, we also used the species delimitation approach of mPTP by Kapli et al. (2017), which is based on a single-locus coalescent-based method. All sequences, generated in course of the present study, were deposited in BOLD.

Results

Morphological characterisation of collected specimens

Morphological analysis of 29 specimens of the leech genus *Glossiphonia* from studied area of West Balkans revealed the presence of three species *G. complanata*, *G. balcanica* and *G. nebulosa* (Fig. 2), which could be differentiated morphologically by the following characters: the six-eyed leeches with prominent papillae only on annulus a2 of mid-body somites were assigned to the typical *G. complanata complanata*. Specimens from Lake Ohrid and Lake Prespa were identified as *G. complanata maculosa*. Representatives of this subspecies can be separated from the nominal subspecies by the lack of the prominent dorsal papillae, characteristic for *G. complanata complanata* and by the presence of a brown pigmentation forming an asymmetrical reticulate pattern, often covering completely the body surface (Nesemann and Neubert 1999). Although *G. c. maculosa* was so far known from Lake Ohrid only, the morphological determination of the specimens from Lake Prespa was straightforward.

Glossiphonia balcanica and *G. nebulosa* closely resemble one another and can be distinguished by the colour, which is bright brownish in *G. balcanica*, but more greyish in the specimens of *G. nebulosa* from the Balkans (see Grosser et al. 2016). Moreover, the dorsal surface of *G. balcanica* is covered by a few small irregularly arranged papillae and the prominent paramedian papillae located only on annulus a2. Finally, a difference between those two species can be found in the medial fold on the cranial sucker. This medial fold is lacking in *G. balcanica* specimens, but is prominent in the population of *G. cf. nebulosa* from Kosovo and only slightly developed in the populations of *G. nebulosa* from its type locality in Germany (see Grosser et al. 2016 for further discussion).

Molecular genetic analysis

The final alignment comprised 52 sequences and had a length of 658 nucleotide sites. Of the 33 COI sequences generated in the present study, all were included in the final dataset for the phylogenetic analysis.

Both the ML and NJ trees, based on COI sequences, were in agreement regarding the general topology. The ML tree is shown in Fig. 3 (NJ bootstrap values, as well as posterior

probability values of the BI analysis are also shown in Fig. 3). Although the BI tree was, in general, very weakly supported and had a slightly different topology (see below), several clades were consistent with the ML and NJ trees. The species of the genus *Glossiphonia* form a monophylum. *Placobdella* and *Helobdella*, which were included as outgroup, form separate sister clades (bootstrap support > 96%).

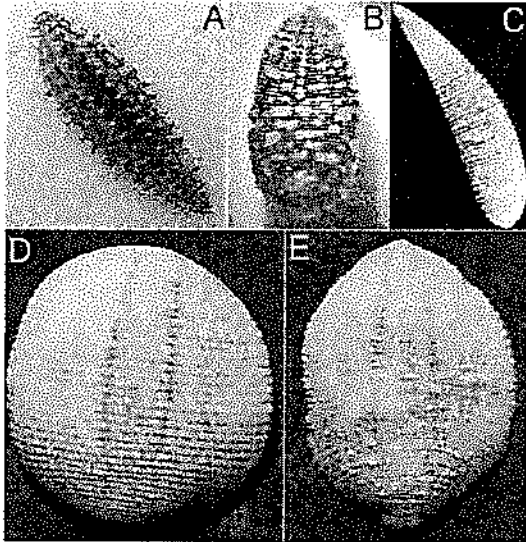



Figure 2. 

Photographs of selected leeches of *Glossiphonia*. A *G. c. complanata*, river Helme near Bennungen, Germany; B *G. c. maculosa*, Ohrid Lake, North Macedonia; C *G. nebulosa*, River Helme near Bennungen, Germany; D *G. balcanica*, Toplla spring near Dečani, Kosovo; E *G. cf. nebulosa*, Toplla spring near Dečani, Kosovo. Photos: C. Grosser (A, D-E), V. Pešić (B), J. Händel (C).

In both the NJ and ML trees, *Glossiphonia* COI sequences are clustered into eight clades (Fig. 3). The North American *G. elegans* forms the sister group to a clade comprising all European members of the genus analysed. Yet, the latter group is supported by low bootstrap support only (ML: 49%). In the BI analysis, this sister group relationship was not found and, in general, the relationships amongst clades were only weakly supported in the BI tree. In the following, the ML tree (Fig. 3) regarding European *Glossiphonia* is described. A large clade represents *Glossiphonia complanata*, which is subdivided into four subclades. *Glossiphonia c. maculosa* specimens collected from Ohrid Lake (from Albania and North Macedonia) are clustered together (supported by an ML bootstrap value of 97%) and are most closely related to two other *G. complanata* specimens, one *Glossiphonia c. complanata* (MK479262), collected from Gacka River, Otočac, Croatia and the other one, a specimen of *G. complanata maculosa* from Prespa Lake, North Macedonia (LCHME024-20). Thus, with the exception of the Croatian specimen, *G. c. maculosa* would be an (albeit very weakly supported) monophylum (Subclade 1 in Fig. 3). The range of K2P distances between *G. c. maculosa* from the Balkan lakes and *G. c. complanata* (excluding the individual MK479262 from Croatia) was $2.07 \pm 0.5\%$. The remaining (weakly to moderately supported) *G. complanata* subclades cluster to some extent in a geographic manner: the (predominately more western) Subclade 2 contains seven individuals collected

from Germany, France and the United Kingdom. Subclade 3 comprises individuals from Austria, Croatia and Slovenia and Subclade 4 contains individuals from Bosnia & Herzegovina, Croatia and Montenegro. Despite bad support values, the BI tree also revealed Subclades 1, 2 and 4.

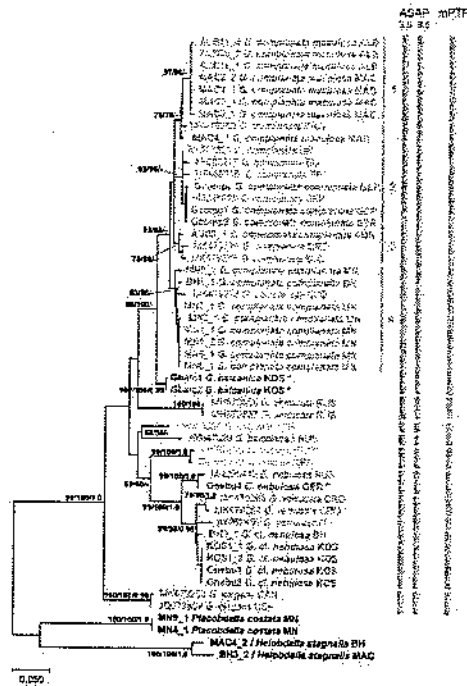


Figure 3. [doi](#)

Maximum Likelihood tree of Glossiphoniidae, obtained from 52 nucleotide COI sequences. Bootstrap values > 50% are provided at major nodes for both tree calculation methods (ML/NJ). In addition, posterior probability values ≥ 0.98 of the BI analysis are provided (third value). The results of species delimitation are indicated by vertical bars. Sequences generated in the course of the present study are given in bold. Country codes are the same as in Table 1. Asterisks mark specimens from the type locality.

Glossiphonia balcanica, in our tree represented by two specimens from Kosovo, is the sister clade of *G. complanata*. This sister group relationship was supported with high support values. The third species in our dataset is *G. concolor*, of which we had only one sample from Mecklenburg-Vorpommern, Germany (**LCHME041-20**). This sequence is very similar to the GenBank sequence of *G. concolor* from Sweden. In contrast, another published sequence (**KM095097**) from Ukraine is quite distantly related, clustering in the tree (albeit with no considerable support) with a published sequence of *G. baicalensis* (from Lake Baikal, Russia; **AY047329**). Another distinct lineage is formed by two GenBank sequences of *Glossiphonia verrucata* from Russia.

For the fourth species sequenced in the present study, *G. nebulosa*, we found two subclades, one formed by a specimen from the type locality in Germany (**LCHME044-20**), together with a specimen from Russia (**MN295412**). This clade is placed with high support (99%) as the sister group of a clade consisting of *G. nebulosa* specimens from Bosnia and

Herzegovina, as well as Kosovo (in the tree designated as *G. cf. nebulosa*). Moreover, this subclade contains published sequences assigned to *G. verrucata*, originating from Croatia (MK479263-64) and Italy (AY96245) and rendering *G. verrucata* paraphyletic. Due to the position of *G. verrucata* specimens within the *G. nebulosa* clade, this species also appears paraphyletic.

Species from the two genera, *Placobdella* and *Helobdella*, analysed in this study as outgroup species, formed separate clades with a bootstrap support of 99%. Two specimens of *P. costata* are identical (BOLD BIN: AEC5178), while the two specimens determined as *H. stagnalis* are separated by a *p*-distance of 4.1% and also have separate BINs in BOLD.

Genetic distances and delimitation of species

The mean K2P values between the morphologically determined species of *Glossiphonia* ranged from 3.17% to 12.69% (Suppl. material 1). The minimal mean K2P distance of $3.17 \pm 0.6\%$ was found between *G. balcanica* from Kosovo and the *G. complanata* clade. The maximum mean distance of $12.69 \pm 1.6\%$ was observed between *G. cf. nebulosa* clade and the Siberian *G. verrucata*. A mean distance of $5.07 \pm 0.8\%$ separates *G. nebulosa* (comprising one sequence from Germany and one from Russia) from a clade consisting of specimens from the Balkan Region (including specimens here provisionally assigned to *G. cf. nebulosa*).

The highest mean intraspecific distances were observed within *G. complanata* (1.64%, max. 3.0%) and *G. cf. nebulosa* (1.31%, max. 4.0%), respectively. The mean intraspecific distance within the clade, herein labelled as *G. nebulosa*, amounted to 0.9% (Suppl. material 1).

For the ASAP analysis, the sequences of *G. verrucata* from Italy (AY962459) were excluded from the further analysis because of having ambiguous nucleotides (see Kaygorodova et al. (2020) for a discussion). As a result of the ASAP analysis, a barcoding gap at about 4-8% was estimated. The applied ASAP procedure identified 7 MOTUs (hypothetical species) at the threshold distance of 5.46% (K2P) which has the best ASAP-score (3.50) within the available molecular data: *G. complanata* (merging *G. balcanica*), *G. concolor*, *G. concolor* from Ukraine, *G. baicalensis*, *G. elegans*, *G. nebulosa* and *G. verrucata*. At the threshold distance of 3.59% (K2P) (but with a poorer ASAP-score of 9.50), ASAP analysis retrieved one more *Glossiphonia* species (hereafter referred to as *G. cf. nebulosa*) from the Balkans, morphologically resembling *G. nebulosa*.

Finally, the mPTP analysis grouped the *Glossiphonia* COI sequences into six main species also combining *G. complanata* and *G. balcanica*. In contrast to the ASAP results, the highly diverged lineages of *G. baicalensis* and *G. concolor* were grouped into one species (Fig. 3).

Discussion

Morphological analysis of the examined leeches of the genus *Glossiphonia* from the Western Balkans revealed the presence of three species, *G. complanata*, *G. balcanica* and *G. nebulosa*. Using DNA barcodes, the present study has revealed inconsistency between the past understanding of the taxonomic diversity of the above-listed three species, based exclusively on morphological characters.

Glossiphonia complanata was the most abundant species in our study. In the studied area, it is known by two subspecies, the nominal one and *G. complanata maculosa*, known only from Lake Ohrid (Sket 1968). Surprisingly, the results of our study revealed that a published sequence of a specimen of *G. complanata* (MK479262) from Croatia is close to the *G. complanata maculosa* subclade from Ohrid Lake. The latter specimen, reported by Mack and Kvist (2019), was collected from the Gacka River in Otočac, Croatia. The authors emphasised the high genetic variation found between the specimen from Otočac and other specimens of *G. complanata* from Croatia, suggesting that Otočac's population represent a separately evolving lineage (Mack and Kvist 2019). Future morphological analysis of those specimens should allow us to test if morphology supports the genetic results.

In the course of the present study, only a single *Glossiphonia* specimen was found in Prespa Lake (MAC4_1; LCHME024-20) which was assigned to *G. complanata maculosa*, based on its characteristic colour pattern. Albrecht et al. (2008) emphasised a high degree of isolation of Lake Ohrid endemics with relatively little faunal overlap with the neighbouring Prespa Lake. The COI analysis revealed that the specimen from Lake Prespa clusters with the samples from Ohrid Lake, but is separated by 1.49% mean K2P distance from that *maculosa*-lineage, implying some level of genetic isolation of the populations from these two Balkan Lakes. Yet, more samples, including Croatian localities, should be needed to support this assumption and to assess morphological variation within this clade.

Our results suggest that some specimens, represented by published sequences in our dataset, were probably misidentified. Sequences of two samples from one unnamed river in Croatia (Mack and Kvist 2019) and a sequence from another sample from Rio Sadde, Italy (Siddall et al. 2005), all reported under the name *G. verrucata*, were found within the *G. cf. nebulosa* clade in our study. Already Kaygorodova et al. (2020) showed that the latter sample from Italy is genetically clearly separated from their Siberian leeches that morphologically match *G. verrucata*, a species recently re-described by Jueg and Michalik (2018). The latter species is distributed mainly in the northern Palaearctic (Jueg 2013) with a few records from Central Europe where it was found in the River Danube from Bavaria to Hungary (Nesemann 1997, Nesemann and Neubert 1999). The results of sequence-based species delimitation methods, conducted by Kaygorodova et al. (2020), revealed that specimens from Italy and Russia (Siberia), respectively, represent distinct species. Unfortunately, for the samples from Italy and Croatia, published under the name of *G. verrucata* by Siddall et al. (2005) and Mack and Kvist (2019), respectively, no information on their morphological features used for their identification were provided. The taxonomic

state of this clade (in the present study, summarised under *G. cf. nebulosa*) deserve further investigation.

Our study revealed that *G. nebulosa* consists of two phylogenetic clades questioning the status of the populations from Western Balkans. The mean K2P distance of about 4.9% was found between the north-central European clade of *G. nebulosa* containing a specimen from the type locality of this species in Germany (stream Nieplitz near Berlin) and the clade that encompasses specimens from the Balkans. This might suggest longstanding isolation between populations from north-central Europe and populations from south-eastern Europe. Grosser et al. (2016) had stressed the morphological differences between the populations of *G. nebulosa* from its type locality/and those from Kosovo. To clarify the taxonomical status of the latter populations from the West Balkans, further material should be sampled and studied to cover the distribution ranges of these taxa.

Concerning the species delimitation analyses, the different results of the approaches did not provide convincing conclusions. For example, the mPTP analysis combined *G. complanata* and *G. balcanica* into one species which is rather unlikely, comparing the distance between these two lineages (6.14% K2P) with other inter- and intraspecific distances in the genus. Another unexpected result relates to *G. complanata* and *G. balcanica*: mean K2P interspecific distance between *G. balcanica*, an endemic species recently described by Grosser et al. (2016) from Kosovo and the widely distributed *G. complanata*, amounted to 3.17%. The ASAP procedure, grouped the COI sequences of the latter two species together, which is not consistent with the morphological differences between these two species. Morphologically, *G. balcanica* is rather different from *G. complanata* and closely resembles *G. cf. nebulosa*, with which it lives syntopically at some localities (see Grosser et al. 2016). Phylogenetically, *G. balcanica* and *G. complanata* belong to different clades with high support values indicating that the interspecific threshold in ASAP analysis of our analysed dataset might be unrealistic, likely as a result of an underestimation of species diversity (Yu et al. 2017) or estimating a relatively large barcoding gap in species which diverged recently (Kvist et al. 2010). According to Puillandre et al. (2021) ASAP is most effective when species are represented by at least 3–5 sequences. It could be that only having two sequences of *G. balcanica* vs. the multitude of sequences for *G. complanata* could have resulted in a merging of the two species. In summary, as recently emphasised by Puillandre et al. (2021), other characters and not just threshold distances with the best score, should be used to select a final species partition, in the sense of integrative taxonomy.

The obtained barcode gaps of 4–8% K2P in our dataset of COI sequences is comparable to an interspecific threshold of 5–7% distance that Kaygorodova et al. (2020) accepted as suitable for species identification purposes of Siberian glossiphoniid leeches. The results of our study emphasised the importance of molecular genetic methods and of assessing genetic diversity of glossiphoniid leeches. Building of the DNA barcode reference library for this group will provide a handy system for better understanding of distribution and species boundaries of this genus in karstic regions of the Western Balkans.

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Ethics and security

No ethical principles were violated when providing this study.

Conflicts of interest

The authors declare no conflict of interests concerning this study.

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Supplementary material

Suppl. material 1: Table S1.

Authors: Milica Jovanović, Elisabeth Haring, Helmut Sattmann, Vladimir Pešić

Data type: Table

Brief description: Interspecific mean K2P distances (below diagonal) and mean *p*-distances (above diagonal) and the standard deviations. Diagonal: the ranges of intraspecific genetic divergence are marked in bold font (the mean values are given in parentheses; K2P and *p*-distance gave similar results). The number of specimens considered for each species is indicated in parentheses. In the group of *G. cf. nebulosa* (*n* = 8), the three *G. verrucata* sequences from Italy and Croatia were included for the calculations.

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15. Perović, A., Bushati, N., Nikčević, S., Pešić, V., Karaman, G., Keiter, S., Marić, D., Rastall, A., Erdinger, L. & Holleir, H. 2003. Integrative Assessment of sediments of the Lake Skadar/Shkodra using a Triad approach. 8. Conference "New Blood in Ecotoxicology" - Society of Environmental Toxicology and Chemistry. Heidelberg 21-23 septembar, 2003 (Germany).

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29. Buržanović, K., Marić, D., Milošević, D., Rakočević, J. Estimation of selectivity of fishing gears based on population structure of bleak (*Alburnus scoranza*) in Skadar Lake (MONTENEGRO). Abstract Book, VI International Symposium of the Ecologists in Montenegro (ISEM6), 15-18 October 2015, Ulcinj, pp. 46.

STRUČNI RAD

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Učešće u naučno-istraživačkim projektima

1. "Limnološka istraživanja akumulacionog jezera Piva" (1976-1980).
2. "Proučavanje mogućnosti razvoja ribarstva u akumulacijama Krupač i Slano i njihovom užem slivnom području" (1978-1980).
3. "Izačavanje mogućnosti razvoja i unapređenja ribolova na Skadarskom jezeru" (1977-1980).
4. Hematološka i parazitološka istraživanja riba Skadarskog jezera i Bokotorskog zaliva kao značajnih parametara za zaštitu životne sredine i "akvakulturu" (1979-1983). Međunarodni projekat, Univerzitet u Hamburgu.
5. "Hidrobiološke karakteristike rijeke Morače i njenog sliva" (1980-1983).
6. "Hidrobiološka, antropološka i genetička istraživanja u basenu Skadarskog jezera i problemi njegove zaštite" (1982-1984).
7. "Biološka proučavanja rijeke Tare s posebnim osvrtom na mogućnosti prirodnog i industrijskog zagađenja" (1981-1985).
8. "Biološka i ekonomska valorizacija hidroakumulacija i njihovog slivnog područja u Crnoj Gori" (1981-1985).
9. "Iskorišćavanje prirodnih potencijala Skadarskog jezera kao izvora hrane i vode za pje i problemi zagađenja i zaštite" (1981-1985).
10. "Biološka i hemijska proučavanja voda sliva ehoine s posebnim osvrtom na akumulaciju "Otišovići" u uslovima regionalne industrijalizacije" (1983-1987).
11. "Mogućnosti razvoja akvakulture na Skadarskom jezeru" (1984-1987). (Međunarodni projekat, USA-Univerzitet u Auburnu).
12. "Hidrobiološka proučavanja životnih zajednica i hidrohemijska istraživanja rijeke Tare i njenih pritoka" (1987-1990).
13. "Integralni sistem za kaveznu proizvodnju salmonidnih riba" (1990-1994).

4. Pomjiranje salmonidnih reprezentara za proizvodnju mlada autohtonih ribljih vrsta (2003).
5. "Ribarska osnova sliva rijeke Morača (rijeka Morača, Cijevna i Zeta)" (2004).
6. "Ribarska osnova sliva rijeke Lim (sa Plavskim jezerom i pritokama)" (2006).
7. "Biološko-ekološka istraživanja endemičnih i ugroženih vrsta salmonida u vodama Crne Gore" (2005-2007).
8. "Ribarska osnova sliva rijeke Čehotine" (2007).
9. "Ribarska osnova sliva rijeke Pive" (2008-2009).
10. Ribarska osnova za područje opštine Nikšić (2013).
11. Rinarska osnova za sliv gornjeg toka rijeke Tara (opštine Kolašin i Mojkovac), (2014)

Druge stručne aktivnosti:

- Davanje mišljenja i predloga vezanih za ribolov i ribarstvo u Crnoj Gori,
- Davanje mišljenja o zaštiti vodenih ekosistema,
- Učestvovao na izradi zakona o slatkovodnom ribarstvu
- Stručni konsultant kod Ministarstva poljoprivrede, šumarstva i vodoprivrede, Zavoda za zaštitu prirode, JP Nacionalni park "Skadarsko jezero" po pitanjima ribarstva i zaštite životne sredine,
- Radio na izradi tehničko-tehnoških projekata za uzgoj pastrmki, šaranaških i morskih vrsta riba.
- Radio na izradi više projektnih zadataka vezanih za iskorišavanje prirodnih resursa.
- Bio Predsjednik ili član komisija za ocjenu projekata za izdavanje koncesija, elaborata o uticaju na životnu sredinu i sl.
- Član komisije za ocjenu opravdanosti izgradnje hidroelektrane „Buk Bijela“ – 2004.
- Član većeg broja komisija za ocjenu studija o uticaju na životnu sredinu.
- Član komisije za inoviranje planova i programa na Studijskoj grupi za biologiju (bečelov, specijalističke, master i doktorske studije) po novom „Bolonjsko“ programu.
- Član komisije za akreditaciju postdiplomskih specijalističkih studija Zaštita životne sredine na metalurško-tehnoškom fakultetu u Podgorici.
- Ekspert – konsultant na Projektu: EAR Project in Montenegro QSimon02: Support to the Fishery Sector (2007/08)
- Član Odbora za faunu i floru CANU (1998-)
- Član redakcije časopisa "Natura Montenegrina" (2001 -)
- Recenzent u više naučnih radova u domaćim i međunarodnim časopisima
- Član naučnog savjeta JU NP Crne Gore (2007 -)
- Zvanični sudski vještak iz oblasti biologije (2008 -)
- Saradnik u više naučno-popularnih časopisa.
- Član komisije za ocjenu Studija o procjeni uticaja na životnu sredinu za izgradnju hidroelektrana „Buk Bijela“ i „Foča“ na rijeci Drini republika Srpska i hidroelektrana „Brođarevo 1“ i „Brođarevo 2“ na rijeci Limu republika Srbija – 2013. godina.
- Član stručne ekipe za izradu studije strateška procjena uticaja na životnu sredinu. DSL "Mihailovići" – Skadarsko jezero



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Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju („Službeni list Crne Gore“ br. 44/14, 47/15, 40/16, 42/17) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore na sjednici održanoj 16. oktobra 2017. godine, donio je

ODLUKU O IZBORU U ZVANJE

Dr Danka Caković bira se u akademsko zvanje vanredna profesorica za oblast Botanika i Ekologija biljaka na Prirodno-matematičkom fakultetu, na period od pet godina.

Senat Univerziteta Crne Gore
Predsjedavajući



Prof. dr Danilo Nikolić, v.f. rektora

Kratka biografija Danke Caković

Rođena sam 28.08.1977. godine u Titogradu, gdje sam završila osnovnu školu i gimnaziju. Školske 1996/97 godine upisala sam studije Biologije na Prirodno-matematičkom fakultetu u Podgorici. Diplomirala sam oktobra 2000. godine sa prosječnom ocjenom 9,48 i stekla zvanje diplomirani biolog. Dobitnik sam plakete Univerziteta Crne Gore za najboljeg studenta u oblasti prirodnih nauka, za školsku 1999/2000. godinu. Poslijediplomske studije, smjer Ekologija i geografija biljaka upisala sam školske 2000/01. godine na Biološkom fakultetu Univerziteta u Beogradu. Magistarsku tezu pod nazivom: "Floristička studija planine Sutorman" odbranila sam 05. 02. 2004. godine i stekla zvanje magistra bioloških nauka. Zvanje doktora bioloških nauka stekla sam na Prirodno-matematičkom fakultetu (Studijski program Biologija) Univerziteta Crne Gore, odbranom doktorske teze "Floristička i vegetacijska studija planinskog masiva Rumije" 17.10.2011.

Usavršavanje kroz posjete i saradnje sa međunarodnim institucijama:

Institut za botaniku, Innsbruck – 3 mjeseca (2014/2015/2016)
Institut za Botaniku, Graz – 1 mjesec (2010)
Univerzitet u Ljubljani, odsjek za Biologiju – 1 mjesec (2009)

Radno iskustvo:

2001. do 2012. – saradnik u nastavi na studijskom programu Biologija. U navedenom periodu bila sam angažovana na izvođenju nastave iz botaničke grupe predmeta (Ekologija biljaka, Anatomija i morfologija biljaka, Sistematika biljaka).

2005. do 2012. – saradnik u nastavi na Poljoprivrednom fakultetu smjer - Poljoprivredna proizvodnja, predmet Botanika.

2007. do 2012. – saradnik u nastavi na Farmaceutskom fakultetu, Botanika

2012. do 2017. – profesor (docent) na studijskom programu Biologija i na Farmaceutskom fakultetu

2017. do danas – vanredni profesor na studijskom programu Biologija i na Farmaceutskom fakultetu

2016. do danas – rukovodilac Studijskog programa Biologija

Stručni angazmani:

1. Flora i vegetacija šireg područja Podgorice
2. IPA (Important Plant Area) projekat
3. Biodiversity (habitats/vegetation) mapping for selected locations in the Coastal area of Montenegro
4. Studija biodiverziteta obalnog područja
5. Katalog Flore Crne Gore (I, II i III tom)
6. Monitoring biodiverziteta odabranih lokaliteta u Crnoj Gori
7. Unaprijeđenje ekološke baze za održivo šumarstvo u Crnoj Gori
8. Evolucija dvije grupe biljaka iz Crne Gore i susjednih regiona (Balkansko poluostrvo)
9. Studija "Prirodne vrijednosti poluostrva Vrmac"

10. Strateška procjena uticaja na Program razvoja lovstva
11. Studija zaštite planinskog masiva Sinjajevine
12. Procjene uticaja na životnu sredinu u različitim dijelovima Crne Gore
13. Prilog Studiji zaštite Šaskog jezera
14. Prostorni plan posebne namjene za Nacionalni park Skadarsko jezero, vođa biološkog tima
15. Prostorni plan posebne namjene za Nacionalni park Prokletije, vođa biološkog tima
16. Zaštita i održivo korištenje biodiverziteta Prespanskog, Ohridskog i Skadarskog jezera
"Hydromorphological and Shorezone Functionality Index (SFI) of Skadar lake"
17. Predsjednik Komisija za izradu programa za predmet Biologija – Opšta Gimnazija i Matematička gimnazija (predsjednica komisije)
18. Akcioni plan za biodiverzitet Podgorice
19. Upoznavanje sa ciljevima održivog razvoja u srednjoj škola u Jugo-istočnoj Evropi
20. Uspostavljanje NATURA 2000 mreže u Crnoj Gori – ekspert za staništa

Dodatne informacije:

2001. – dobitnik plakete "Najbolji student Univerziteta Crne Gore u oblasti prirodnih nauka"

Članstvo u profesionalnim grupama: IUCN Species Survival Commission
International Association for vegetation Science

Odabrane publikacije

- Petrović D. & Pulević V.: Botanical Exploration in Crmnica Area – Inheritance and Future. Compilation of Contributions to the Symposium held in Vir (12-13 July 2002). Vapazar, 2002.
- Petrović D.: Analyses of Mountain Sutorman Flora (Master's Thesis). Faculty of Biology, Belgrade, 2003.
- Petrović D.: *Chenopodium multifidum* & *Medicago Carstiensis*, two new species for the flora of Montenegro. Third International Balkan Botanical Congress (Sarajevo), 2003.
- Stasević D. & Petrović D.: Rare, Endangered and Protected Plants of Mountain Bjelasica. Depart. Biol. Univers. Monten. - Centre Biodivers. Montenegro. (Podgorica). Monogr. 1, 2003.
- Vuksanović S. & Petrović D.: In spite of Prevailing Opinion to the Contrary - *Kickxia cirrhosa* (L.) Fritsch Grows on the Balkan Peninsula. XI OPTIMA Meeting. (Belgrade) 2004.
- Petrović D.: A Contribution to Knowledge of the Mountain Sutorman Flora. 1st Symposium of Montenegrin Ecologists, (Tivat) 2004.
- Petrović D. & Vuksanović S.: A contribution to the Knowledge of District of Ulcinj Flora. 1st Symposium of Montenegrin Ecologists, (Tivat) 2004.
- Petrović, D.: IPAs in Montenegro. In: Anderson, S., Kušik, T., Radford, E. (Eds) Important Plant Areas in Central and Eastern Europe – Priority Sites for Plant Conservation, 74 – 75. Plantlife International, UK, 2005.
- Petrović D, Vuksanović S., Bozović M.: *Cypripedium calceolus* L. - New finding in Montenegro. II International Symposium of the Ecologists of the Republic of Montenegro, (Kotor) 2006.
- Petrović D, Ojdanić M, Malidžan D.: Biology for 8th grade of elementary school, 2007. Agency for books, Ministry of Education and Science.
- Malidžan, D., Petrović, D., Ojdanić, M.: Workbook for Biology for 8th grade of elementary school, 2007. Agency for books, Ministry of Education and Science.
- Petrović, D.: IPAs in Montenegro a progress report. 5th European Conference on the Conservation of Wild Plants in Europe. (Cluj Napoca) 2007: Romania.
- Vuksanović S, Petrović D.: The flora and vegetation of Salt works in Ulcinj. *Natura Montenegrina* 6, (Podgorica) 2007.
- Petrović D, Malidžan D.: Biology for 9th grade of elementary school, 2008. Agency for books, Ministry of Education and Science.
- Malidžan, D., Petrović, D.: Workbook for Biology for 9th grade of elementary school, 2008. Agency for books, Ministry of Education and Science.
- Petrović, D, Stasević, D, Vuksanović, S.: Materials for the Red Book of Montenegro. *Natura Montenegrina* 7, (Podgorica) 2008.
- Stasević, D., Petrović, D., Vuksanović, S., Buharija, N., Biberdžić, V.: Contribution to the vascular flora of Montenegro (Supplementum to the Material for vascular flora of Montenegro). *Natura Montenegrina* 7, (Podgorica) 2008.
- Petrović, D.: Important Plant Area country reports – Montenegro. In: Radford, E., Odé, B. (Eds.) Conserving Important plant Areas: Investing in the green gold of South East Europe, 55-62. Plantlife International, UK, 2008.
- Petrović, D. (ed): Važna biljna staništa u Crnoj Gori (IPA projekat): 1-80. Navladino udruženje "Zelena Gora", 2008.
- Petrović, D., Stasević, D.: Materials for the red book of vascular flora of Montenegro (second contribution). *Biologica Nyssana*, 1 (1-2), December 2010: 27 – 34. Niš.
- Petrović, D., Stasević, D.: Reports 151 – 153, pp.431 – 433 in: Vladimirov, V., Dane, F., Stevanović, V., Tari, K. (ed): New chorological data for the Balkans, 14. *Phytologia Balcanica* 18 (3): 415 – 445, Sofia, 2010.

Stešević, D., Petrović, D.: Preliminary list of plant invaders in Montenegro. *Biologica Nyssana*, 1 (1-2): 35-42, Niš, 2010.

Petrović, D.: Rosaceae (Rubus). - In: Kurto, A., Weber, H. E., Lampinen, R. & Sennikov, A. N. (eds.) *Atlas Florae Europaeae. Distribution of Vascular Plants in Europe*. 15 (Distribution of the vascular plants in Montenegro). Helsinki University Printing House, 2010, 362 pp.

Petrović, D., Stešević, D.: New data on the distribution of *Micromeria cristata* (Hampe) Griseb. and *Stephananthus tuberosus* (Jacq.) Grossh., moving of the westernmost limit of distribution area. *Acta Botanica Croatica* (ISSN 0355-0588), 70 (2): 250-267, Zagreb, 2011. (SCI)

Petrović, D., Hadžlablahović, S., Vuksanović, S., Mačić, V., Lakusić, D. (2012): Catalogue of habitat types of EU importance of Montenegro. Podgorica-Bеоград, 2012.

Čaković, D., Stešević, D., Ikočić, V., Knežević, M., Latinović, N.: Contribution to the knowledge of weed flora in Bjelopavlići plain. *Agriculture & Forestry*, Vol. 68, Issue 4: 25-41, Podgorica, 2012.

Stešević, D., Čaković, D. (2013): Towards the Catalogue of Vascular Plants of Montenegro. *Natura Montenegrina* 12(1): 231-240, Podgorica 2013.

Stešević, D., Čaković, D. (2013): Contribution to the alien flora of Montenegro and Supplementum to the Preliminary list of plant invaders. *Biologica Nyssana* 4 (1-2): 1-7, Niš, 2013.

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Stešević, D., Ristić, M., Nikolić, V., Nedović, M., Čaković, D., Savić, Z.: Chemotype diversity of indigenous Dalmatian Sage (*Salvia officinalis* L.) populations in Montenegro. *Chemistry & Biodiversity*, Vol. 11: 101-114, Zürich, 2014. (SCI)

Čaković, D., Stešević, D., Vuksanović, S., Kit, T.: *Colchicum cupanii* Guss. Subsp. *Glossophyllum* (Heldr.) Rouy, *Datura innoxia* Mill. and *Eclipta prostrata* (L.) L., new floristic records in Montenegro and western Balkan. *Acta Botanica Croatica*, 73, Zagreb, 2014. (SCI)

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Stešević, D., Čaković, D., Jovanović, S.: The Urban Flora of Podgorica (Montenegro, SE Europe): Annotated checklist, distribution atlas, habitats and life-forms, taxonomic, phylogeographical and ecological analysis. *Ecologica Montenegrina*: 1-171, Podgorica, 2014.

Čaković, D., Stešević, D., Schönswetter, P. & Frajman, B. (2016): How many taxa? Spatiotemporal evolution and taxonomy of Amphocarpos (Asteraceae, Carduoideae) on the Balkan Peninsula. *Organisms Diversity & Evolution* (ISSN 1430-8092) (SCI)

Gazdić, M., Pejović, S., Gazdić, J., Perović, M., Čaković, D.: Floristic composition and ecological analysis of the mixed forests (beech, fir, spruce) in the management unit "Bjelasica" (Bjelasica mt., Montenegro). *Agriculture & Forestry*, Vol. 62 (3): 207-221, Podgorica, 2016.

Šilo, U., Čaković, D., Kuzmić, F., Stešević, D.: Trampling impact of vegetation of embryonic and stabilised sand dunes in Montenegro. *Journal of coastal conservation* (published online, November 2016). (SCI)

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Barina, Z., Čaković, D., Pilko, D., Schönswetter, P., Somogyi, G. & Frajman, B. (2017): Phylogenetic relationships, biogeography and taxonomic revision of European taxa of *Gymnospermium* (Berberidaceae). *Botanical Journal of the Linnean Society*, 184: 298-311. (SCI)

Čaković, D., Stešević, D., Schönswetter, P. & Frajman, B. (2017): Long neglected diversity in the Accursed Mountains of northern Albania: *Cerastium hekurarvane* is genetically and morphologically divergent from *C. dimaricum*. *Plant Systematics and Evolution*, published online 30 August 2017. (SCI)

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Dragičević, S., Vulević, A., Čaković, D. (2017): A rare liverwort in the Mediterranean area, *Crossocalyx hellerianus* (Nees ex Lindb.) Meyl., newly recorded for Montenegro. *Cryptogamiae, Bryologie* 38 (3): 275-280. (SCI)

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Stešević, D., Luković, M., Čaković, D., Bubašnja, N., Ružić, N., Šilo, U. (2018): Alien species in sand dune plant communities on Velika plaža in Bečići (Montenegro). *Periodicum Biologorum* 110(4): 239-249. (SCI)

Šilo, U., Kuzmić, F., Čaković, D., Stešević, D. (2018): Beach filter along various sand dune habitats in the southern Adriatic (E Mediterranean). *Marine Pollution Bulletin* 128: 353-360. (SCI)

Š. Kolarčik, V. Kocová, D. Čaković, T. Kačmarová, J. Pivár, and P. Mártonfi (2018): Nuclear genome size variation in the allopolyploid *Onosma renana* - *O. pseudoarenaria* species group: methodological issues and revised data. *Botany*, 96: 397-410.

Šiljan Gazdić, Albert Reif, Milan Knežević, Danka Petrović, Marko Stojanović & Kijara Dolos (2018): Diversity and ecological differentiation of mixed forest in northern Montenegro (ML Bjelasica) with reference to European classification. *Tuexenia* 38: 135-154.

Čaković, D., Terzi, Nenad Jasprica, Danka Čaković. *Romeo di Pietro* (2018): Revision of the central Mediterranean xerothermic cliff vegetation. *Applied Vegetation Science*, 21(3): 514-532. (SCI)

Šiljan Gazdić, Danijela Stešević, Andrej Rozman, Danka Čaković, and Filip Kuzmić (2018): Alien Species and the Impact on Sand Dunes Along the E Adriatic Coast. C. Makowski, C. W. Finkl (eds.), *Impacts of Invasive Species on Coastal Environments*, Coastal Research Library 29.

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УНИВЕРЗИТЕТ ЦРНЕ ГОРЕ
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ббг: 1981
Цетинаска, 8100 г.

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Date: _____

Na osnovu člana 75 stav 2 Zakona o visokom obrazovanju (Sl.list RCG, br. 60/03 i Sl.list CG, br. 45/10 i 47/11) i člana 18 stav 1 tačka 3 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore, na sjednici održanoj 19.12.2013. godine, donio je

**ODLUKA
O IZBORU U ZVANJE**

Dr VLADIMIR PEŠIĆ bira se u akademsko zvanje redovni profesor Univerziteta Crne Gore za predmete: Invertebrata I, Invertebrata II i Ekologija životinja I, na Prirodno-matematičkom fakultetu.

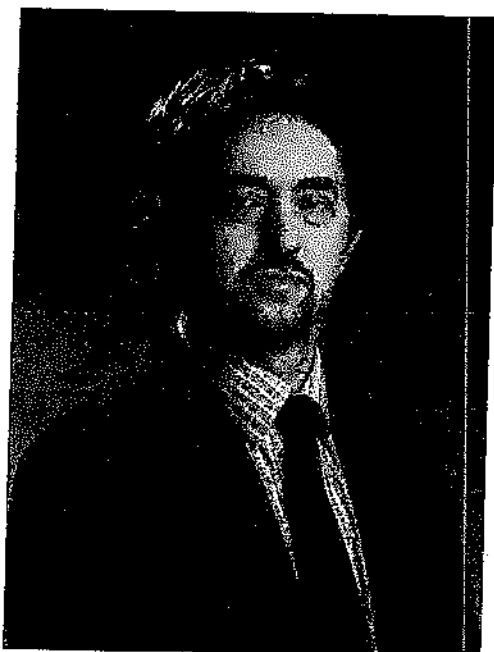


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CURRICULUM VITAE

EUROPEAN FORMAT



LIČNE INFORMACIJE

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Mjesto i datum rođenja: Podgorica, 06.09.1973

RADNO ISKUSTVO

Dates (from – to)

1980-1988 Primary school in Podgorica
1988-2002 Gymnasium "Slobodan Škerović" in Podgorica
2003-2008 Undergraduate studies from general biology at the Department of Biology, University of Montenegro
1998-2003 Work as Assistant at Department of Biology of the University of Montenegro in Podgorica
2001 Master thesis at the Faculty of Biology of the University of Belgrade, Serbia
2003 PhD thesis at the Faculty of Biology of the University of Belgrade, Serbia: "Taxonomical, ecological and zoogeographical study on water mites of the central part of Balkan Peninsula"
2004-2008 Work as Assistant Professor at Department of Biology of the

Add separate entries for each relevant post occupied, starting with the most recent.]

	2009–2013	University of Montenegro at the academic courses: "Zoology of Invertebrates" and "Ecology of Animals" and master courses: "Conservation Biology", "Principles of Sustainable Development" and "Crenobiology and Ecology of Groundwater".
	2007–2013	Work as Associate Professor at Department of Biology of the University of Montenegro
	Since 2013 – Cont.	Head of Department of Biology of the University of Montenegro
	2014–2017	Work as Full Professor at Department of Biology of the University of Montenegro
		President of Scientific Board of University of Montenegro
Name and address of employer	University of Montenegro	
Type of business or sector	Public	
Occupation or position held	Full Professor	

EDUCATION AND TRAINING

Dates (from -- to)	2003	PhD thesis at the Faculty of Biology of the University of Belgrade, Serbia
Add separate entries for each relevant course you have completed, starting with the most recent.	2001	Master thesis at the Faculty of Biology of the University of Belgrade, Serbia
	2003-2008	Undergraduate studies from general biology at the Department of Biology, University of Montenegro
Name and type of organisation providing education and training	University of Belgrade	
Principal subjects occupational skills covered	Ecology and Biodiversity Research	
Title of qualification awarded	PhD	
/ Level in National classification	Level VIII	

RESEARCH ACTIVITIES

Research sectors	<p>There are four avenues of research in which I am mainly interested and which are partly interlinked:</p> <ol style="list-style-type: none"> 1 Biodiversity, ecology, taxonomy and zoogeography of aquatic invertebrates, with special regard to water mites (Hydrachnidia) and freshwater gastropods; 2 Ecological research in springs ecosystem; 3 Ecology of Intermittent Rivers and Ephemeral Streams. 4 Environmental Monitoring
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**Europass
Radna biografija**



Lični podaci

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Datum rođenja **06.09.1973**
Pol **Muški**

Željeno zaposlenje / zanimanje **Profesor**

Radno iskustvo

Datumi	2004-2008	Docent na Studijskom Programu Biologija, PMF, UCG
	2009-2013	Vanredni Profesor na Studijskom Programu Biologija, PMF, UCG
	2007-2013	Rukovodilac Studijskog Programa Biologija, PMF, UCG
	Since 2013 – Cont.	Redovni Profesor na Studijskom Programu Biologija, PMF, UCG
	2014-2017	Predsjednik Naučnog Odbora UCG

Zanimanje ili radno mjesto **Redovni Profesor**
Glavni poslovi i odgovornosti **Profesor na Univerzitetu**
Ime i adresa poslodavca **Univerzitet Crne Gore**
Vrsta deltnosti ili sektor **Univerzitet**

Obrazovanje i osposobljavanje

Datumi	2003-2008 2009-2001 2001-2003	Osnovne studije na Studijskom Programu Biologija, PMF, UCG Postdiplomske studije na Biološkom Fakultetu Univerziteta Beogradu Doktorske studije na Biološkom Fakultetu Univerziteta u Beogradu
Naziv dodeljene kvalifikacije	PhD	
Glavni predmeti / stečene profesionalne veštine	PhD iz oblasti Bioloških Nauka	
Ime i vrsta organizacije obrazovne institucije	Univerzitet u Beogradu	
Nivo prema nacionalnoj ili međunarodnoj klasifikaciji		

I described more than 300 species new for science from all parts of the world.

List of articles available at: https://www.researchgate.net/profile/Vladimir_Pesic

Knjige i Radovi

Knjige

- Pešić, V., Karaman G., Kostianoy, A. (2018) (Eds.) Lake Skadar/Shkodra Environment. The Handbook of Environmental Chemistry, vol 80. **SPRINGER, Cham** 508 pp. ISBN 978-3-319-99249-5. DOI 10.1007/978-3-319-99250-1
- Gerecke, R., Gledhill, T., Pešić, V., Smit, H. (2016) Süßwasserfauna von Mitteleuropa, Bd. 7/2-3 Chelicerata. 429 pp. **SPRINGER Berlin Heidelberg**. ISBN:978-3-8274-1893-7
- Pešić, V. et al., (Eds) Rivers of Montenegro. The Handbook of Environmental Chemistry **SPRINGER, Cham**. In prep.

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- Smit, H. & Pešić, V. (2014) Water mites from Mount Kinabalu and the Crocker Range, Borneo, Malaysia (Acari: Hydrachnidia), with the description of 34 new species. **Monograph Zootaxa** 3876 (1): 1–71. Publisher: Magnolia Press (Auckland, New Zealand)
- Pešić, V. & Smit H. (2014) Torrenticolid water mites (Acari: Hydrachnidia: Torrenticolidae) from Malaysian Borneo. **Monograph Zootaxa**, 3840 (1): 1-72. Publisher: Magnolia Press (Auckland, New Zealand).
- Pešić, V. & Smit H. (2014) Torrenticolid water mites (Acari: Hydrachnidia: Torrenticolidae) from Ghana. **Monograph Zootaxa**, 3820 (1): 1-80. Publisher: Magnolia Press (Auckland, New Zealand).
- Pešić, V., Cook, D., Gerecke, R. & Smit H. (2013) The water mite family Mideopsidae (Acari: Hydrachnidia): a contribution to the diversity in the Afrotropical region and taxonomic changes above species level. **Monograph Zootaxa**, 3720 (1): 001–075. ISBN 978-1-77557-274-9 Publisher: Magnolia Press (Auckland, New Zealand)
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Poglavlja u međunarodnoj Monografiji

- Pešić V., Karaman G.S., Kostianoy A.G. (2018) Introduction. In: Pešić V., Karaman G., Kostianoy A. (eds) The Skadar/Shkodra Lake Environment. The Handbook of Environmental Chemistry, vol 80. Springer, Cham, pp.1-10
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2016

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2015

- Pešić, V. & Smit, H. (2015) Two new species of the genus *Atractides* Koch, 1837 (Acari: Hydrachnidia: Hygrobatidae) with an updated checklist of the water mites of Thailand. *Systematic and Applied Acarology*, 20(7), 782–788.
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Radovi objavljeni u međunarodnim časopisima koji se ne analze u SCI/SCIE bazi (u poslednjih 5 godina)

- Grosser C, Pešić V, Berljolli V, Gligorović B (2016) *Glossiphonia balcanica* n. sp. and *Dina*

- prokletijaca n. sp. (Hirudinida: Glossiphoniidae, Erpobdellidae) -two new leeches from Montenegro and Kosovo. *Ecol Montenegro* 8:17-26.
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- Ermilov, S., Yurtaev, A., Pešić V. (2015) Additions to the Tasmanian oribatid mites, with supplementary description of *Edwardzetes elongatus* Wallwork, 1966 (Acari, Oribatida). *Ecologica Montenegrina*, 2 (2), 98-108.
- Glöer, P., Pešić V. (2015) The morphological plasticity of *Theodoxus fluviatilis* (Linnaeus, 1758) (Mollusca: Gastropoda: Neritidae). *Ecologica Montenegrina*, 2 (2), 88-92.
- Grosser, C., Pešić, V., Gligorović B. (2015) A checklist of the leeches (Annelida: Hirudinea) of Montenegro. *Ecologica Montenegrina*, 2 (1), 20-28.
- Grosser, C., Pešić, V., Lazarević P. (2015) A checklist of the leeches (Annelida: Hirudinida) of Serbia, with new records. *Fauna Balkana*, 3, 71-86.

Projekti

- 2012–2015: Impact of climatic changes on Biodiversity of the freshwater ecosystems of Montenegro. Project financed by Ministry of Science of Montenegro. Leader of Project.
- 2015-2016: Meiofauna as an environmental bio-indicator in marine ecosystems of Montenegro and Turkey. University of Montenegro (Montenegro) and University of Sinop (Turkey). Leader of Montenegrin team.
- 2016-2018: The first study of ecology and biology of species the snail genus *Montenegrina* in Montenegro. Natural History Museum Vienna, Austria and University of Montenegro. Leader of Montenegrin team.
- 2019-2020: DNA barcode reference library as a tool for sustainable management of freshwater ecosystems in the highly threatened Lake Skadar Basin. Project financed by Ministry of Science of Montenegro. Project Leader.
- 2019: Monitoring of the Benthos of River Tara – Impact of Bar-Boljare highway. Project financed by Ministry of Sustainable Development and Tourism. Leader and Principal investigator.

Ostale Knjige

- Andrijašević, Ž., Vojvodić, R., Stanišić, P., Pešić, V. (2017) In Defense of Autonomy of the University of Montenegro. 93 days of combat. Why? DOO OKF, Cetinje ISBN: 978-9940-36-071-9

Mentorstvo na Doktoratima u poslednjih 5 godina

PhD Dissertation

1. Bogić Gligorović, Faunistička i ekološka studija izvora u slivu Skadarskog jezera, sa posebnim osvrtom na faunu Odonata i Hemiptera. *Prirodno-matematički fakultet*, 2019.

Urednik

Editor-in-Chief
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Članstvo u uređivačkim odborima časopisa

ZOOTAXA (Editor for Hydrachnidia)(SCIE)
 ZOOKEYS (Editor for Hydrachnidia)(SCIE)
 ACAROLOGIA (indexed by SCIE)
 ZOOLOGY OF THE MIDDLE EAST (SCIE)
 VESTNIK ZOOLOGII
 MARINE BIOLOGICAL JOURNAL
 EUROPEAN JOURNAL OF ENVIRONMENTAL SCIENCES
 EURASIAN JOURNAL OF BIOSCIENCES
 PERSIAN JOURNAL OF ACAROLOGY
 ECOLOGIA BALKANICA
 BIOLOGICA NYSSANA
 JOURNAL OF ECOSYSTEMS AND ECOLOGY SCIENCE
 NATURA MONTENEGRINA
 TURKISH JOURNAL OF ZOOLOGY (2010-2015, SCIE)

Urednik publikacija (u zadnjih 5 godina)

- Pešić, V. & Hadžiablahović, S. (Editori) The Book of Abstracts and Programme, VI International Symposium of Ecologists of Montenegro. Ulcinj, 15-18.10.2015, 81 ppr. ISBN: 978-86-908743-5-4.
- Pešić, V. & Hadžiablahović, S. (Eds) The Book of Abstracts and Programme, VII International Symposium of Ecologists of Montenegro. Sutomore, 4-7.10.2017, 81 ppr. ISBN: 978-86-908743-7-8
- The Book of Abstracts and Programme of 8th International Symposium of Ecologists of Montenegro – ISEM8, 2-5 October 2019, Budva. Montenegro. ISBN 978-86-908743-8-5, 207 pp.

Pešić, V. (Ed) The Proceedings of 8th International Symposium of Ecologists of Montenegro, 2-5 October 2019, Budva, Montenegro, 128 pp. ISBN 978-86-908743-9-

Nové vrste nazvane u moju čast

- Bithynia pesici* Glöer & Yildirim, 2006 (Turkey)
Lanzaia pesici Glöer, Grego, Eööss & Fehér, 2015 (Montenegro)
Gordius pesici Schmidt-Rhaesa, 2010 (Montenegro)
Galumna vladopesici Ermilov & Corpuz-Raros, 2015 (Philippines)
Arrenurus pesici Smit, 2010 (Australia)
Empitrombium pesici Saboori & Hakimitabar, 2009 (Iran)
Trachyropoda pesici Kotschan, 2011 (St. Lucia, Carribean Sea)
Hydraena pesici Skale & Jäch, 2011 (Iran)
Hydraena vladimiri Jäch & Diaz, 2016 (Greece)
Isoperla pesici Murányi, 2011 (Montenegro)
Atyaephyra vladoi Jahlonska et al. 2018 (Montenegro)

Popularni članci

- The New York Times
http://www.nytimes.com/2014/07/22/science/newly-found-mite-is-jenny-from-the-reef.html?_r=0
Discover Magazine
<http://discovermagazine.com/2015/jan-feb/101-new-species>
Science Daily
<https://www.sciencedaily.com/releases/2013/03/130329125101.htm>

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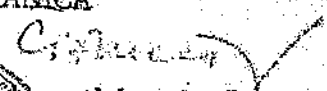
Na temelju članka 130. stavak 1. Zakona o radu (NN 93/14. i 127/17.), a na zahtjev izv. prof. dr. sc. Marka Miliša iz Zagreba, Manterovčak 20, izdaje se

POTVRDA

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Potvrda se izdaje u svrhu sudjelovanja u postupku ocjene doktorske disertacije na Univerzitetu Crne Gore.

DEKANICA


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OBRAZOVANJE

2007.: **Doktor znanosti** (polje: biologija, grana: ekologija) Prirodoslovno-matematički fakultet Sveučilišta u Zagrebu (PMF).
2002.-2007.: Poslijediplomski studij biologije na Biološkom odsjeku PMF-a.
2001.: Diplomirani inženjer biologije, smjer ekologija.
1996.-2001.: Studij biologije na Biološkom odsjeku PMF-a
1992.-1996.: Srednja škola: XV. Gimnazija, Zagreb.
1984.-1992.: Osnovna škola: Josip Kraš/Dugave, Zagreb.

RADNO ISKUSTVO

Zaposlenje:

Lipanj 2017., danas: Izvanredni profesor u Zoologijskom zavodu Biološkog odsjeka PMF-a.
Ožujak 2012., lipanj 2017.: Docent u Zoologijskom zavodu Biološkog odsjeka PMF-a.
Rujan 2001., ožujak 2012.: Znanstveni novak u Zoologijskom zavodu Biološkog odsjeka PMF-a.

Nastavna djelatnost (Biološki odsjek PMF-a, ako nije drugačije naznačeno).

Predavanja:

2011.-danas: Energetika ekosustava, Načela metodologije znanstvenog rada (na engleskom jeziku) i Načela i metodologija znanstvenog rada u znanostima o okolišu (diplomski studij)
2011.-danas: Stupanj trofije i protok energije u ekosustavu (poslijediplomski studij).

Praktična nastava:

2015.-danas: Ecological interactions - Field course (za Queen Mary University of London)
2010.-danas: Terenska nastava (preddiplomski studij)
2008.-danas: Energetika ekosustava (diplomski studij)
2001.-danas: Terenska nastava iz bioraznolikosti protista i invertebrata (preddiplomski studij)
2001-2013.: Invertebrata, Beskralježnjaci (preddiplomski studij)
2010.: Ecology, (Hašemitsko Sveučilište (Jordan))
2009.: Osnove biologije (Geološki odsjek PMF-a)
2007.-2008.: Usporedna anatomija (Medicinski fakultet)
2006.-2007.: Energetski koncept, biogeokemijski ciklusi i trofija ekosustava (poslijediplomski studij)
2006.: Limnologija, Primijenjena hidrobiologija (predbolonjski studij)
2001.-2002.: Metodika biologije (predbolonjski studij)

Suvoditeljstvo diplomskih i završnih radova: 20

Mentorstvo doktoranada: 4 u tijeku

RADNO ISKUSTVO (NASTAVAK)

Znanstvena djelatnost

Zarišta zanimanja i istraživačke djelatnosti u budućem djelovanju:

Ekološki procesi u akvatičkim ekosustavima

Biologije povremenih vodotoka

Transport i raspodjela organske tvari i energije u krškim akvatičkim sustavima i njihovom okolišu,

Funkcionalna i trofička organizacija zajednica slatkovodnog makrozoobentosa,

Procesi degradacije biljnog materijala u akvatičkim sustavima,

Reakcije makrozoobentosa na stres,

Biologija obalčara.

Znanstveni projekti:

2018. – danas: Izrada kriterija za određivanje stupnjeva trofije stajaćica i tekućica

2017. – danas: Analize bioloških metoda ocjene ekološkog stanja za fitobentos, makrofite i makrozoobentos u europskim interkalibracijskih tipovima rijeka Dinaridske ekoregije; analiza utjecaja okolišnih čimbenika i antropogenih opterećenja na biološke elemente kakvoće

2016. – danas: Science and Management of Intermittent Rivers and Ephemeral Streams (SMIRES) (COST European cooperation in science and technology action CA15113); član upravnog odbora i voditelj foruma mladih znanstvenika (FYR)

2015. – danas: Accumulation, Subcellular Mapping and Effects of Trace Metals in Aquatic Organisms (Marijana Erk)

2015.-2016. The 1000 intermittent rivers experiment (Datry T, Corti R, Foulquier A, Tockner K)

2015.-2016. CELLDEX, CELLulose Decomposition EXperiment in streams and riparian zones across the Earth's major biomes (Tegs S)

2013.-2015. Inventarizacija i uloga životinjske komponente u procesu taloženja sedre u Nacionalnom Parku Krka (Mihaljević Z)

2012.-2013. Preliminarno istraživanje faunističkih značajki i rasprostranjenosti vodenih muha plesačica (Diptera, Empididae) i tulara (Trichoptera) Parka prirode Papuk (Kerovec M)

2009. 2011. Testing of biological methods for ecological status assessment (Water framework directive 2000/60/EC) in representative river basins of the Pannonian and Dinaric ecoregions (Mihaljević Z)

2006.-2009. Ekološka istraživanja površinskih kopnenih voda u Hrvatskoj (Habdija I)

2007.-2014. Implementacija funkcionalnog ustroja akvatičkih zajednica u valorizaciji (Habdija I)

2002.-2007. Uloga brzine strujanja vode u funkcionalnom strukturiranju sedrotvornih cenoza (Habdija I)

2001.-2002. Funkcionalna organizacija biocenoza (Habdija I)

Međunarodna suradnja i usavršavanje:

2018. veljača-ožujak: Univerzitet u Nišu, Srbija, modeliranje neuralnim mrežama

2017. studeni: ICPDR - International Commission for the Protection of the Danube River, Beč, Austrija, biomonitoring i hidromorfologija

2017. listopad: Lomonosov Moscow State University, Rusija, metodologija znanstvenog rada

2017. ožujak: Macquarie University, Sydney, Australija, Klimatske promjene i rasprostranjenje kukaca

2017. ožujak: James Cook University, TESS - Centre for Tropical Environmental & Sustainability Science, Cairns, Australija, Održivo upravljanje okolišem

2015. travanj: Comenius University in Bratislava, Slovačka, energetika makrozoobentosa

2014. lipanj: Biološki fakultet, Beograd, Srbija, ekologija mahovina

2014. travanj: American University of Madaba, Jordan, subtropska limnologija

2013. listopad: Jagiellonsko sveučilište, Krakow, Poljska, embriologija obalčara

2010. ožujak-svibanj: Hashemite University, Zarqa, Jordan, subtropska limnologija

2009. lipanj-srpanj: Erken Laboratory-Limnological station of the University of Uppsala, Švedska, limnologija (Tempus (European Quality Standards in Lymnology Education); voditelj grupe)

Ostalo

Viši znanstveni suradnik odlukom Nacionalnog vijeća za znanost 12. 5. 2016.

Recenzent časopisi: Environmental Science & Technology (2018.), Science of the total environment (2017., 2018.), Chiang Mai Journal of Science (2016.), International review of hydrobiology (2013.), Aquatic ecology (2010.).

Recenzent skupovi: SEFS10, SOBS2, SEFS11, ISEM8, 7HKV

Recenzent projekti: COST, EFFS - 2nd Young Project

2016.-danas: Član upravnog odbora međunarodnog projekta COST akcije CA15113 Science and Management of Intermittent Rivers & Ephemeral Streams. Voditelj foruma mladih istraživača i član radne skupine 4: Community ecology and biomonitoring in IRES

2015.-danas: Mentor sekcije za kopnene vode pri udruzi studenata biologije – BIUS

2013-2014.: Član stručnog povjerenstva za prosudbu udžbenika iz biologije za srednje škole

Rad u tijelima fakulteta i odsjeka

2018. – danas: Povjerenstvo doktorskog studija biologije

2016. – danas: Povjerenstvo za komisijske ispite na Kemijskom odsjeku PMF-a (2 mandata)

2012.-2018: Stručno povjerenstvo za diplomske radove (3 saziva)

2012.-2016: Predsjednik Povjerenstva za dodjelu Nagrade Srećko Jelenić (2 mandata)

2012.: Koordinator Biološkog odsjeka za organizaciju Smotre Sveučilišta (nagrada za komunikativnost, susretljivost i pristupačnost)

2009. i 2012.: Organizacija popularno znanstvenog događaja Noć biologije, kao voditelj radionica iz tematike beskralježnjaka. (Rektorova nagrada)

2006.-2009.: Organizacija znanstvenih susreta mladih znanstvenika u cilju unapređenja njihovih istraživanja (Znanstveni i inii razgovori, ZID-znanstveno istraživačka druženja)

2009.: Organizacija 10. Hrvatskog biološkog kongresa (tehnička podrška),

2009.: Recenzent za dodjelu rektorove nagrade,

2008.: Organizacija i izrada izloga Biološkog odsjeka na Smotri Sveučilišta (nagrada za najbolji izlog).

ČLANSTVA U STRUKOVNIM ORGANIZACIJAMA I TIJELIMA

Član Znanstveno-stručnog odbora 7. hrvatske konferencije o vodama

Član stručnog povjerenstva za ocjenu projekta u European Cooperation in Science and Technology (COST) aktivnosti

Član znanstvenog odbora 8th International Symposium of Ecologists – ISEM8

Predsjednik organizacijskog odbora 11th European Symposium for Freshwater Sciences (SEFS11)

Član organizacijskog odbora 13. Hrvatskog biološkog kongresa

Član organizacijskog odbora 12. Hrvatskog biološkog kongresa

Član znanstvenog odbora 10th European Symposium for Freshwater Sciences (SEFS10)

Član znanstvenog odbora i organizacijskog odbora Drugog znanstvenog simpozija o biologiji slatkih voda

Član znanstveno-stručnog odbora 2. znanstveno-stručne konferencije s međunarodnim sudjelovanjem: Zaštitna voda u kršu

Član organizacijskog odbora Prvog znanstvenog simpozija o biologiji slatkih voda

Predsjednik Hrvatskog udruženja slatkovodnih ekologa (2014.-2017.); član upravnog odbora (2014. – danas)

Član Hrvatskog biološkog društva

Član National Geographic Society

Član studijskog odbora G3: Utjecaj elektro-energetskih sustava na okoliš, Hrvatskog ogranka međunarodnog vijeća za velike elektroenergetske sustave - Cigré (2013.-danas)

PUBLIKACIJE (POPIS U PRILOGU)

Sveučilišni udžbenici: 2

Znanstveni radovi: 34

21 u časopisima navedenim u bazi Current contents (6 prvi autor + 2 autor jednakog doprinosa kao prvi).

8 u časopisima s međunarodnom recenzijom (1 prvi autor)

Objavljena pozvana predavanja na skupovima (rad u punom obimu): 2 (1 domaći, 1 međunarodni)

Znanstveni radovi u punom obimu iz zbornika znanstvenih skupova s međunarodnom recenzijom: 2

Znanstveni radovi u punom obimu iz zbornika znanstvenih skupova s domaćom recenzijom: 1

Objavljena pozvana predavanja na skupovima (sažeci): 1 (međunarodni, pozvano plenarno)

Neobjavljena sudjelovanja na skupovima: 1 (domaći, pozvano predavanje)

Sažeci na znanstvenim skupovima: 31 (18 domaća recenzija; 13 strana recenzija)

Kongresno priopćenje (sažeci) u ostalim časopisima (međunarodna): 1

OSTALE VJEŠTINE

Vozačka dozvola (B kategorija),

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Popis publikacija:

Sveučilišni udžbenici:

1. Habdija, I; Primc-Habdija, B; Radanović, I; Špoljar, M; Matonićkin Kepčija, R; Vujčić, Karlo, S; Miliša, M; Ostojić, A; Sertić Perić, M. Protista-Protozoa - Metazoa-Invertebrata; Strukture i funkcije (2011) Alfa, Zagreb.
2. Habdija, I; Primc-Habdija, B; Radanović, I; Vidaković, J; Kućinić, M; Špoljar, M; Matonićkin, R; Miliša, M. Protista-Protozoa i Metazoa-Invertebrata funkcionalna građa i praktikum. (2004), Meridijani, Samobor.

Znanstveni radovi u časopisima navedenim u bazi Current contents:

1. Tieg, SD, ...; Miliša, M; ...; Zwart JA. Global patterns and drivers of ecosystem functioning in rivers and riparian zones. // Science Advances. 5 (2019), 1.
2. Čuk, R; Miliša, M; Atanacković, A; Dekić, S; Blažeković, L; Žganec, K. Biocontamination of benthic macroinvertebrate assemblages in Croatian major rivers and effects on ecological quality assessment. // Knowledge and Management of Aquatic Ecosystems. 420 (2019), 11; 1-14
3. Datry, T.; Foulquier, A.; Corti, R.; [...] Miliša, M.; [...] Zoppini, A. A global analysis of terrestrial plant litter dynamics in non-perennial waterways. // Nature Geoscience. 11 (2018) ; 497-503.
4. Sertić Perić, M; Matonićkin Kepčija, R; Miliša, M; Gottstein, S; Lajtner, J; Dragun, Z; Filipović Marijić, V; Krasnići, N; Ivanković, D; Erk, M. Benthos-drift relationships as proxies for the detection of the most suitable bioindicator taxa in flowing waters – a pilot-study within a Mediterranean karst river. // Ecotoxicology and environmental safety. 163 (2018) ; 125-135.
5. Stubbington, R; Chadd, R; Cid, N; Csabal, Z; Miliša, M; Morais, M; Munné, A; Pařil, P; Pešić, V; Tziortzis, I; Verdonchol, RCM; Datry, T. Biomonitoring of intermittent rivers and ephemeral streams in Europe: Current practice and priorities to enhance ecological status assessments. // Science of the total environment. 618 (2018) , 1; 1096-1113.
6. Miliša, M; Đikić, D; Mandić, T; Grozić, D; Čolić, I; Ostojić, A. Response of aquatic protists to electric field exposure. // International journal of radiation biology. 93 (2017), 8; 818-830.
7. Ivković, M; Miliša, M*; Baranov, V; Mihaljević, Z. Environmental drivers of biotic traits and phenology patterns of Diptera assemblages in karst springs: The role of canopy uncovered. Limnologica. 54 (2015); 44-57.
8. Michalik, A; Rościszewska, E; Miliša, M. The Structure and ultrastructure of the egg capsule of *Brachyptera nisi* (Plecoptera, Nemouroidea, Taeniopterygidae) with some remarks concerning choriogenesis. Microscopy research and technique. 78 (2015); 180-186.
9. Miliša, M; Ivković, M; Matonićkin Kepčija, R. Energy resources and feeding guild structure of macroinvertebrate assemblages in the hyporheic zone of calcite depositing lake outlets. Limnologica. 44 (2014); 66-71.
10. Ostojić, A; Rosado, J; Miliša, M; Morais, M; Tockner, K. Release of Nutrients and Organic Matter from River Floodplain Habitats: Simulating Seasonal Inundation Dynamics. Wetlands. 33 (2013); 1-13.
11. Ivković, M; Miliša, M*; Previšić, A; Popijač, A; Mihaljević, Z. Environmental control of emergence patterns: case study of changes in hourly and daily emergence of aquatic insects at constant and variable water temperatures. International review of hydrobiology. 98 (2013); 104-115.
12. Špoljar, M; Dražina, T; Ostojić, A; Miliša, M; Gligora-Udović, M; Štafa, D. Bryophyte communities and seston in a karst stream (Jankovac Stream, Papuk Nature Park, Croatia). Annales de Limnologie - International Journal of Limnology. 48 (2012) , 1; 125-138.
13. Matonićkin Kepčija, R; Miliša, M; Sertić Perić, M; Matijić Cvjetović, M; Primc-Habdija, B. Response of periphyton to nutrient addition in tufa-depositing environment. Aquatic microbial ecology. 65 (2011), 2; 183-195.
14. Sertić Perić, M; Miliša, M; Primc-Habdija, B; Habdija, I. Seasonal and fine-scale spatial patterns of drift and seston in a tufa-depositing barrage hydrosystem. Fundamental and applied limnology. 178 (2011), 2; 131-145.
15. Miliša, M; Belančić, A; Matonićkin Kepčija, R; Sertić-Perić, M; Ostojić, A; Habdija, I. Calcite deposition in karst waters is promoted by leaf litter breakdown and vice versa. Annales de Limnologie - International Journal of Limnology, 46 (2010); 225-232.
16. Miliša, M; Živković, V; Habdija, I. Destructive effect of quarry effluent on life in a mountain stream. Biologia (Bratislava). 65 (2010), 3; 520-526.

17. Belančić, A; Matonićkin Kepčija, R; Miliša, M; Plenković Moraj, A; Habdija, I. Flow Velocity Effect on Leaf Litter Breakdown in Tufa Depositing System (Plitvice Lakes, Croatia). *International Review of Hydrobiology*. 94 (2009); 391-398.
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19. Miliša, M; Matonićkin Kepčija, R; Radanović, I; Ostojić, A; Habdija, I. The impact of aquatic macrophyte (*Salix* sp. and *Cladium mariscus* (L.) Pohl.) removal on habitat conditions and macroinvertebrates of tufa barriers (Plitvice Lakes, Croatia). *Hydrobiologia*. 573 (2006); 183-197.
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21. Habdija, I; Primc-Habdija, B; Matonićkin, R; Kućinić, M; Radanović, I; Miliša, M; Mihaljević, Z. Current velocity and food supply as factors affecting the composition of macroinvertebrates in bryophyte habitats in karst running water. *Biologia (Bratislava)*. 59 (2004); 577-593.

*Autor jednakog doprinosa kao prvi autor

Znanstveni radovi u časopisima s međunarodnom recenzijom:

- Ridl, A; Vilenica, M; Ivković, M; Popijač, A; Sivec, I; Miliša, M; Mihaljević, Zlatko. Environmental drivers influencing stonefly assemblages along a longitudinal gradient in karst lotic habitats. // *Journal of Limnology*. 77 (2018), 3; 412-427
- Knezović, L; Miliša, M; Kalafatić, M; Rajević, N; Planinić, A. A key to the freshwater triclads (Platyhelminthes, Tricladida) of Herzegovina watercourses. *Periodicum biologorum*. 117 (2015); 43-51.
- Ivković, M; Mihaljević, Z; Miliša, M; Previšić, A. Aquatic dance flies fauna (Diptera, Empididae: Clinocerinae and Hemerodromiinae) of Montenegro. *Natura Croatica: periodicum Musei historiae naturalis Croatici*. 22 (2013), 2; 243-252.
- Previšić, A; Ivković, M; Miliša, M; Kerovec, M. Caddisfly (Insecta: Trichoptera) fauna of Papuk Nature Park, Croatia. *Natura Croatica: periodicum Musei historiae naturalis Croatici*. 22 (2013), 1; 1-13.
- Špoljar, M; Šneller, D; Miliša, M; Lajtner, J; Sertić Perić, M; Radanović, I. Entomofauna of submerged macrophyte stands in reservoirs (Park prirode Papuk). *Entomologia Croatica*. 16 (2012), 1-4; 7-20.
- Miliša, M; Živković, V; Matonićkin Kepčija, R; Habdija, I. Siltation disturbance in a mountain stream: aspect of functional composition of benthic community. *Periodicum biologorum*. 112 (2010), 2; 173-178.
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- Matonićkin Kepčija, R; Sertić Perić, M; Miliša, M; Špoljar, M; Mihaljević, Z; Radanović, I; Habdija, I; Primc-Habdija, B. Size-structure of aquatic insect larvae during colonization. *Natura Croatica: periodicum Musei historiae naturalis Croatici*. 19 (2010), 1; 121-131.

Objavljena pozvana predavanja na skupovima (rad u punom obimu):

- Miliša, M. Utjecaj hidroelektrana na živi svijet, hidroelektrane nisu bauk? 11. savjetovanje HRO CIGRÉ 11th HRO CIGRÉ Session REFERATI/PAPERS, Filipović-Gričić, Božidar (ur.). Zagreb: Hrvatski Ogranak Cigré, 2013. (domaća recenzija, pozvano predavanje).
- Miliša, M. Posebnosti ekoloških procesa i načini ublažavanja urbanih pritisaka u krškim vodotocima. Zaštita voda u kršu 2. znanstveno-stručna konferencija s međunarodnim sudjelovanjem Zbornik radova / 2nd scientific and expert conference with international participation Karst water Management and Protection PROCEEDINGS. Pilić, Z.; Škoblj, D. (ur.). Mostar: Fakultet prirodoslovno-matematičkih i odgojnih znanosti, 2015. 10-19 (međunarodna recenzija, plenarno predavanje).

Znanstveni radovi u punom obimu iz zbornika znanstvenih skupova s međunarodnom recenzijom:

- Habdija, I; Stillinović, B; Primc-Habdija, B; Matonićkin Kepčija, R; Špoljar, M; Miliša, M; Sertić Perić, M. Prilog poznavanju istraženosti faunističke i ekološke raznolikosti protozoa i invertebrata u akvatičkim staništima na

sedrenim barijerama i u jezerima NP Plitvička jezera. Znanstveno-stručni skup NP Plitvička jezera povodom 60 godina osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulture i prirodne baštine - Zbornik radova, JUNP Plitvička jezera. Kerschoffset Zagreb d.o.o., (2011); 295-309.

2. Matonićkin Kepčija, R; Habdija, I; Primc-Habdija, B; Miliša, M. The role of simuliid and trichopteran silk structures in tufa formation during the Holocene of the Plitvice Lakes (Croatia). Proceedings of 1st International Symposium on Travertine, Özkul, Yağiz, Jones (Eds). Ankara: Kozan Ofset Matbaacilik San. ve Tic., (2005); 96-101.

Znanstveni radovi u punom obimu iz zbornika znanstvenih skupova s domaćom recenzijom:

1. Miliša, M; Mandić, T; Đikić, D; Grozić, D; Čalić, I. Potencijal djelovanja elektroenergetske mreže na vodene ekosustave. 12. savjetovanje HRO CIGRE (Hrvatskog ogranka međunarodnog vijeća za velike elektroenergetske sustave) REFERATI / 12th HRO CIGRE Session PAPERS. Filipović Grčić, B. (ur.). Zagreb: HRO CIGRE, 2015. (usmeno, osobno prezentirao)

Objavljena pozvana predavanja na skupovima (sažeci):

1. Miliša, M. Tufa formation and detritus processing in Dinaridic karst. Brožura abstraktov. Jursky Šur: Slovenská limnologická spoločnosť / Slovak Limnological Society, 2015. (plenarno predavanje, međunarodni skup).

Neobjavljena sudjelovanja na skupovima

1. Miliša, M. Mjere očuvanja ekološkog integriteta eksploatiranih krških vodotoka u mijenjajućoj klimi. Prvi znanstveni simpozij o biologiji slatkih voda. Zagreb, 20. 2. 2015. (pozvano predavanje, domaći skup).

Sažeci u zbornicima znanstvenih skupova:

1. Maruna, M; Matonićkin Kepčija, R; Miliša, M. Analysis of the re-established macroinvertebrate community in restored habitats. Book of Abstracts. 3. simpozij o biologiji slatkih voda/3rd Symposium of Freshwater Biology. Ivković, Marija; Stanković, Igor; Matonićkin Kepčija, Renata; Gračan, Romana (ur.). Zagreb, 2019. 20-20.
2. Sarri, S; Miliša, M. Review of water dynamics in Europe due to climate change. Book of Abstracts. Ivković, Marija; Stanković, Igor; Matonićkin Kepčija, Renata; Gračan, Romana (ur.). Zagreb, 2019. 51-51.
3. Šumanović, M; Miliša, M. Reflection of hydromorphological features on the macroinvertebrate-based bioassessment of inland waters. Book of Abstracts. 3. simpozij o biologiji slatkih voda/3rd Symposium of Freshwater Biology. Ivković, Marija; Stanković, Igor; Matonićkin Kepčija, Renata; Gračan, Romana (ur.). Zagreb, 2019. 30-30.
4. Polović, L; Miliša, M; Dražina, T; Špoljar, M. The role of dragonflies as the peak predators and indicators of the health of the Mediterranean ponds. Book of Abstracts. 3. simpozij o biologiji slatkih voda/3rd Symposium of Freshwater Biology. Ivković, Marija; Stanković, Igor; Matonićkin Kepčija, Renata; Gračan, Romana (ur.). Zagreb, 2019. 26-26.
5. Pozojević, I; Pešić, V; Stubbington, R; Gottstein, S; Miliša, M; Detry, T. Challenges in intermittent river assessment: Prospects for an unexpected obscure animal group (Acari: Hydrachnidia) // World Conference on Ecology, 2018. 61-61.
6. Špoljar, M; Dražina, T; Fressl, J; Kahrmani, K; Sertić Perić, M; Miliša, M; Polović, L; Cvetnić, M. Comparison of zooplankton assemblage between Adriatic vs. inland ponds (Croatia). 8th European Pond Conservation Network. Torroella de Montgrí, Španjolska, 21.-25.05.2018/2018. 13-13.
7. Vučković, N; Mihaljević, Z; Vilenica, M; Miliša, M; Ternje I. Makrozoobentos akumulacija Dinaridske regije Hrvatske. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB) / Book of Abstracts. 2nd Symposium on Freshwater Biology. Gračan, Romana; Matonićkin Kepčija, Renata; Miliša, Marko; Ostojić, Ana (ur.). Zagreb: Hrvatsko udruženje slatkovodnih ekologa, 2017. 36-36 (domaća recenzija).
8. Kreber, D; Miliša, M. Veličinska struktura i sekundarna produkcija lišinki porodice Hydropsychidae (Insecta: Trichoptera) sedrenih barijera. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB)/Book of Abstracts. 2nd Symposium on Freshwater Biology. Gračan, Romana; Matonićkin Kepčija, Renata; Miliša, Marko; Ostojić, Ana (ur.). Zagreb: Hrvatsko udruženje slatkovodnih ekologa, 2017. 21 (domaća recenzija).
9. Telkov, M; Miliša, M. Obrasci kretanja makrozoobentosa i transport organske tvari u mahovinama sedrenih barijera. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB)/Book of Abstracts. 2nd Symposium on Freshwater Biology. Gračan, Romana; Matonićkin Kepčija, Renata; Miliša, Marko; Ostojić, Ana (ur.). Zagreb: Hrvatsko udruženje slatkovodnih ekologa, 2017. 34 (domaća recenzija).
10. Bućan, D; Miliša, M. Dinamika naseljavanja makrozoobentosa na izvorišnom području potoka Jankovac. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB)/Book of Abstracts. 2nd Symposium on Freshwater Biology. Gračan, Romana; Matonićkin Kepčija, Renata; Miliša, Marko; Ostojić, Ana (ur.). Zagreb: Hrvatsko udruženje slatkovodnih ekologa, 2017. 6-6 (domaća recenzija).
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12. Erk, M.; Dragun, Z.; Filipović Maričić, V.; Ivanković, D.; Krasnići, N.; Matonićkin Kepčija, R.; Gottstein, S.; Sertić Perić, M.; Lajtner, J.; Miliša, M.; Schaumlöffel, D.; Gontier, E.; Malherbe, J. Projekt AQUAMAPMET, Akumulacija, unutarstanično mapiranje i učinci metala u travovima u ekvaličkih organizama. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB/Book of Abstracts, 2nd Symposium on Freshwater Biology, Gračan, Romana ; Matonićkin Kepčija, Renata ; Miliša, Marko ; Ostojić, Ana (ur.). Zagreb : Hrvatsko udruženje slatkovodnih ekologa, 2017. 9-10 (domaća recenzija).
13. Šturina, T.; Miliša, M. Naseljavanje i kretanje makrozoobentosa u intersticiju sedrenih barijera. Knjiga sažetaka (Simpozij o biologiji slatkih voda, USB/Book of Abstracts, 2nd Symposium on Freshwater Biology, Gračan, Romana ; Matonićkin Kepčija, Renata ; Miliša, Marko ; Ostojić, Ana (ur.). Zagreb : Hrvatsko udruženje slatkovodnih ekologa, 2017. 52-52 (domaća recenzija).
14. Matonićkin Kepčija, R.; Mihaljević, Z.; Miliša, M.; Ivković, M.; Sertić Perić, M. First record of freshwater jellyfish *Craspedacusta sowerbii* in a Mediterranean karstic river Krka (Croatia) and a promising method for polyp detection. Book of abstracts and programme, 2nd Central European Symposium for Aquatic Macroinvertebrate Research (CESAMIR), Móra, Arnold; Csabai, Zoltán (ur.). Mohács, Pécs : Carpathes Nature Foundation, 2016. 69-69 (međunarodna recenzija).
15. Miliša, M.; Tetkov, M. Macroinvertebrate colonization and organic matter transport in moss mats at tufa barriers. Book of abstracts and programme, 2nd Central European Symposium for Aquatic Macroinvertebrate Research (CESAMIR), Móra, A.; Csabai, Z. (ur.). Mohács, Pécs : Carpathes Nature Foundation, 2016. 52 (međunarodna recenzija, usmeno, osobno prezentirao).
16. Žganec, K.; Čuk, R.; Dekić, S.; Miliša, M. Biocontamination of benthic macroinvertebrate communities of four major large rivers in Croatia. Book of abstracts and programme, 2nd Central European Symposium for Aquatic Macroinvertebrate Research (CESAMIR), Arnold, Móra ; Zoltán, Csabai (ur.). Pécs : Carpathes Nature Foundation, Mohács-Pécs, 2016. 123-123 (međunarodna recenzija).
17. Matonićkin Kepčija, R.; Miliša, M.; Ivković, M.; Mihaljević, Z. Utjecaj hidrološkog stresa na obraštaj u NP Krka. Zbornik sažetaka 12. Hrvatskog biološkog kongresa. Klobučar, G.; Kopjar, N.; Gligora Udovič, M.; Lukša, Ž.; Jelić, D. (ur.). Zagreb: Hrvatsko biološko društvo, 2015. 113-113. (domaća recenzija)
18. Ivković, M.; Miliša, M.; Baranov, V.; Mihaljević, Z. Zakrivenost vegetacijom kao glavni pokretač struktura zajednice izvorskih dvokrilaca. Zbornik sažetaka 12. Hrvatskog biološkog kongresa / Klobučar, Goran ; Kopjar, Nevenka ; Gligora Udovič, Marija ; Lukša, Željko ; Jelić, Dušan (ur.). Zagreb : Hrvatsko biološko društvo, 2015. 114-114. (domaća recenzija)
19. Matonićkin Kepčija, R.; Miliša, M.; Ivković, M.; Mihaljević, Z. Sezonska dinamika obraštanja na sedrenim barijerama NP "Krka". Vizija i izazovi upravljanja zaštićenim područjima prirode u Republici Hrvatskoj. Drago Marguš (ur.). Sibenik: JU "Nacionalni park Krka", 2015. 102-103. (domaća recenzija)
20. Miliša, M.; Đikić, D.; Čolić, I.; Grozić, D.; Mandić, T. Električna polja - urbani pritisak na organizme u kopnenim vodama. Zbornik sažetaka 12. Hrvatskog biološkog kongresa. Klobučar, G.; Kopjar, N.; Gligora Udovič, M.; Lukša, Ž.; Jelić, D. (ur.). Zagreb: Hrvatsko biološko društvo, 2015. 112-112. (domaća recenzija, usmeno, osobno prezentirao)
21. Matonićkin Kepčija, R.; Primc, B.; Miliša, M.; Sertić Perić, M.; Radanović, I.; Habdija I. The influence of tufa deposition on periphyton development. Abstract Book, Meyer, El (ur.). Münster: German Limnological Society, 2013. 249-249. (međunarodna recenzija)
22. Matonićkin Kepčija, R.; Miliša, M.; Sertić Perić, M.; Belančić, A.; Radanović, I.; Primc-Habdija, B. Effects of eutrophication on the development of periphyton. Proceedings/10th Croatian biological congress, 14.-20. September 2009, Osijek, Besendorfer, Višnja et al. (Ur.). Zagreb: Croatian Biological Society 1885, 2009. 24-24. (domaća recenzija)
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24. Sertić Perić, M.; Habdija, I.; Miliša, M.; Matonićkin Kepčija, R.; Primc-Habdija, B. Does tufa formation affect seasonal patterns of seston and drift in karst lotic habitats of the barrage system of Plitvice Lakes, Croatia?. Biology09, Abstract book of posters, Institute of Ecology and Evolution - University of Bern, Natural History Museum Bern, Bern, Schweiz: University of Bern and Natural History Museum Bern, 2009. 24-24. (međunarodna recenzija)
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- 2019.: Luka Polović. Makrozoobentos lokvi Dugog otoka. Završni rad.
- 2018.: Sara Šariri. Perspektiva dinamike voda u Europi uslijed klimatskih promjena. Završni rad.
- 2018.: Marina Šumanović. Sezonska uzrasna struktura zajednice obalčara (Insecta: Plecoptera) Plitvičkih jezera. Diplomski rad.
- 2017.: Daniela Kreber. Sekundarna produkcija ličinki porodice Hydropsychidae (Insecta: Trichoptera) sedrenih barijera. Završni rad.
- 2017.: Lucija Bardić. Makrozoobentos povremenih vodotoka. Završni rad.
- 2017.: Matea Čunović. Pretvorba energije u živim organizmima. Završni rad.
- 2016.: Denis Bučan. Naseljavanje makrozoobentosa na umjetne podloge na izvoru potoka Jankovac (Park prirode Papuk). Diplomski rad.
- 2016.: Davor Korman. Biocenološki i energetski sastav preljevnih voda sedrenih barijera rijeke Krke. Diplomski rad.
- 2016.: Monika Korša. Postanak nafte: je li nafta nekad bila živa? Završni rad.
- 2016.: Marina Tetkov. Naseljavanje makrozoobentosa u mahovinama sedrenih barijera. Diplomski rad.
- 2015.: Anja Orešković. Međuovisnost socijeekonomskog stanja i bioraznolikosti. Završni rad.
- 2015.: Biljana Pamučar. Odgovor organizama na izloženost elektromagnetskim poljima. Završni rad.
- 2014.: Sandra Lazarević. Makrozoobentos izvora rijeke Ljube. Diplomski rad.
- 2014.: Katarina Sabolić. Struktura makrozoobentosa na fitalu i litalu rijeke Konavočice. Diplomski rad.
- 2014.: Petra Čulig. Protok energije između vodenih i kopnenih ekosustava: leteća izmjena igrača. Završni rad.
- 2014.: Denis Bučan. Naseljavanje makrozoobentosa na prirodne i umjetne podloge. Završni rad.
- 2012.: Dino Grozle. Akvatičke ličinke kukaca kao pokazatelji kakvoće vode. Završni rad.
- 2011.: Denis Sneller. Makrozoobentos u sastojinama makrofitu u Parku prirode Papuk. Diplomski rad.
- 2010.: Maja Radić. Nitrati i fosfati u listincu tijekom razgradnje na sedrenim barijerama. Diplomski rad.
- 2007.: Vesna Živković. Djelovanje flotacijskog otpada iz kamenoloma dijabaza na potočnu zajednicu makrozoobentosa. Diplomski rad.

Република Српска
УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
Сенат Универзитета

Број: 02/04-3.2688-29/17
Дана, 28.09.2017. године

На основу члана 77., 83. и 94. Закона о високом образовању („Службени гласник Републике Српске“, број: 73/10, 104/11, 84/12, 108/13, 44/15 и 90/16) и члана 33. Статута Универзитета у Бањој Луци, Сенат Универзитета на 15. сједници од 28.09.2017. године,
д о н о с и

ОДЛУКУ

1. Др Дејан Дмитровић, бира се у звање доцента за ужу научну област Екологија, заштита биодиверзитета, на период од пет година.
2. Ова Одлука ступа на снагу даном доношења.

Образложење

Сенат Универзитета у Бањој Луци је, на приједлог Наставно-научног вијећа Природно-математичког факултета, дана 05.07.2017. године расписао јавни конкурс у дневном листу „Глас Српске“ за избор наставника за ужу научну област Екологија, заштита биодиверзитета.

На расписан Конкурс пријавио се један кандидат и то: др Дејан Дмитровић.

Након затварања јавног конкурса, Наставно-научно вијеће Природно-математичког факултета, на сједници одржаној 12.07.2017. године, формирало је Комисију за разматрање конкурсног материјала и писање извјештаја за избор наставника у одређено звање, у сљедећем саставу: проф. др Невенка Павловић, предсједник Комисије, проф. др Владимир Пешић, члан и проф. др Драгојла Голуб, члан. Именована Комисија је дана 21.07.2017. године преузела конкурсни материјал, припремила писани Извјештај у складу са одредбама из члана 7. Правилника о поступку и условима избора наставника и сарадника на Универзитету у Бањој Луци и поднијела га дана 21.08.2017. године секретаријату Природно-математичког факултета. У свом закључном мишљењу, Комисија је предложила да се изврши избор кандидата др Дејана Дмитровића у звање доцента за ужу научну област Екологија, заштита биодиверзитета, на период од пет година.

Наставно-научно вијеће Природно-математичког факултета је на својој 192. сједници од 13.09.2017. године разматрало предметни Извјештај Комисије и констатовало да је Комисија припремила Извјештај у складу са одредбама Закона о високом образовању, Статута Универзитета у Бањој Луци и Правилника о поступку и условима избора наставника и сарадника на Универзитету у Бањој Луци. Наставно-научно вијеће се такође сагласило са закључним мишљењем Комисије у којем се предлаже избор кандидата др Дејана Дмитровића у звање доцента за ужу научну област Екологија, заштита биодиверзитета како слиједи: Кандидат др Дејан Дмитровић је одбранио докторску дисертацију, доставио копије 16 научних радова публикованих у коауторству последице последњег избора у часописима и зборницима, а са рецензијом, од којих је 13 радова из уже научне области за коју се врши избор. Даље Комисија наводи да је максималан број бодова остварен и по основу вредновања наставничких способности кандидата добијених на основу података извјештаја о спроведеној анкети студената о квалитету наставе.

У складу са свим наведеним чињеницама, Наставно-научно вијеће Природно-математичког факултета је констатовало да предложени кандидат др Дејан Дмитровић у цјелости испуњава услове дефинисане Законом о високом образовању и утврдило Приједлог одлуке, број: 19/3.2464/17 да се др Дејан Дмитровић бира у звање доцента за ужу научну област Екологија, заштита биодиверзитета, на период од пет година и исти доставило Сенату Универзитета у Бањој Луци на даље поступање.

Сенат Универзитета је на својој 15. сједници, одржаној 28.09.2017. године, констатовао да су испуњени сви формално-правни услови за одлучивање, да је Приједлог одлуке Наставно-научног вијећа Природно-математичког факултета из претходног става довољно образложен и у складу са одредбама Закона о високом образовању, Статута Универзитета у Бањој Луци и Правилника о поступку и условима избора наставника и сарадника на Универзитету у Бањој Луци, те да је Наставно-научно вијеће правилно утврдило Приједлог одлуке за избор др Дејана Дмитровића у звање доцента за ужу научну област Екологија, заштита биодиверзитета, на период од пет година.

Сагласно члану 77. Закона о високом образовању, Сенат Универзитета у Бањој Луци одлучио је као у диспозитиву ове Одлуке.

ПОУКА О ПРАВНОМ ЛИЈЕКУ: Против ове Одлуке може се поднијети захтјев за преиспитивање Сенату Универзитета у Бањој Луци, у року од 15 дана од дана пријема исте.

Достављено:

1. Именованом,
2. Природно-математичком факултету,
3. Руководиоцу службе за стручне послове,
4. Досије радника,
5. а/а.



ПРЕДСЈЕДАВАЈУЋИ СЕНАТА
РЕКТОР
Проф. др Милан Матаруга

dr Dejan Dmitrović, docent
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Studijski program Ekologija i zaštita životne sredine
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BIOGRAFIJA SA BIBLIOGRAFIJOM

Rođen sam 26.7.1982. godine u Banjoj Luci, gdje sam završio osnovnu i srednju školu. Prirodno-matematički fakultet u Banjoj Luci, Odsjek Biologija – nastavni smjer, upisao sam 2001. godine, a dvije godine kasnije i opšti smjer na istom odsjeku. Diplomiranjem na nastavnom smjeru (prosječna ocjena 9,50) stekao sam zvanje Profesor biologije, a na opštem smjeru (prosječna ocjena 9,54) zvanje Diplomirani biolog. Školske 2008/2009. godine upisao sam postdiplomske (magistarske) studije na smjeru Ekologija Studijskog programa Biologija na Prirodno-matematičkom fakultetu Univerziteta u Banjoj Luci, koje sam završio sa prosječnom ocjenom 10,00. Odbranom magistarskog rada pod nazivom „Stanje taksona zoobentosa odabranih krenona desne strane srednjeg toka Vrbasa i lijeve strane donjeg toka Vrbanje“, 3.5.2012. godine, stekao sam zvanje Magistar bioloških nauka. Odbranom doktorske disertacije, 14.7.2017. godine, pod nazivom „Makrozoobentos odabranih krenona sliva rijeke Cvrčke“, stekao sam zvanje Doktor bioloških nauka na istom fakultetu.

Dobitnik sam nagrade predsjednika Republike Srpske, 2004. godine, povodom Dana Republike Srpske, a kao student sa najboljim prosjekom na Prirodno-matematičkom fakultetu u Banjoj Luci. Iste godine sam radio na poslovima DNK analitičara u DNK laboratoriji Međunarodne komisije za nestale osobe („ICMP“ – International Commission on Missing Persons) u Banjoj Luci, u trajanju od četiri mjeseca. Krajem 2007. godine sam u svojstvu profesora Biologije realizovao nastavu Biologije u Gimnaziji u Banjoj Luci, a početkom 2008. godine u Poljoprivrednoj školi u istom gradu.

Od aprila 2008. godine na Prirodno-matematičkom fakultetu Univerziteta u Banjoj Luci izvodim vježbe iz predmeta Opšta ekologija, Osnovi ekologije, Hidroekologija i zaštita kopnenih voda i Terenska nastava u svojstvu asistenta, a od marta 2013. godine u svojstvu višeg asistenta. Bio sam dugogodišnji izvođač praktične nastave i iz sljedećih predmeta: Ekologija i zaštita kopnenih voda, Ekologija i zaštita mora i okeana i Ekologija i zaštita voda. Privremeno, uglavnom u trajanju do godinu dana, bio sam zadužen i za vježbe iz predmeta: Biologija ćelije, Ekologija i raznovrsnost gljiva i lišajeva, Metodika nastave biologije I, Metodika nastave biologije II i Ekologija životinja sa zoogeografijom. Od 2017. godine, sa sticanjem zvanja docenta, zadužen sam nastavnik na predmetima: Opšta ekologija, Osnovi

ekologije, Hidroekologija i zaštita kopnenih voda, Ekologija i zaštita voda i Terenska nastava. Na istom fakultetu zaduženi sam nastavnik i na predmetima drugog ciklusa studija: Populaciona ekologija životinja, Biologija populacija i nauka o vrsti i Problemi očuvanja i zaštite akvatičnih ekosistema.

U nastavku su navedeni odabrani bibliografski podaci.

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Univerzitetski udžbenik:

- Škondrić, S., Dmitrović, D. (2022): Ljekovite biljke i životna sredina. Prirodno-matematički fakultet Univerziteta u Banjoj Luci, str. 247, ISBN 978-99976-86-01-5.

Učešće u odabranim naučnim projektima:

- "Biološka i ekološka proučavanja Republike Srpske" (koordinator: Prof. dr Boro Pavlović, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo nauke i tehnologije, Vlada Republike Srpske), 2007-2009.
- "Reproduktivne odlike i mogućnosti održavanja genofonda populacija endemičnih predstavnika Republike Srpske" (koordinator: Prof. dr Boro Pavlović i Prof. dr Stojko

Vidović, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo nauke i tehnologije, Vlada Republike Srpske), 2009-2011.

- "Ekosistemske, cenotičke i populacione osnove korištenja hidropotencijala krenonskih područja Republike Srpske" (koordinator Prof. dr Nevenka Pavlović, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo nauke i tehnologije, Vlada Republike Srpske), 2009-2011.
- "Valorizacija, potencijali i očuvanje močvarno-barskog ekosistema Gromiželj kod Bijeljine" (koordinator: Doc. dr Dragojla Golub, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Fond za zaštitu životne sredine Republike Srpske), 2009-2011.
- "Biodiverzitet ekotona akvatičnih i terestričnih biocenoza Crne Gore i Bosne i Hercegovine" (koordinator: Doc. dr Siniša Škondrić i Prof. dr Vladimir Pešić, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska, Ministarstvo nauke i tehnologije, Vlada Republike Srpske i Prirodno-matematički fakultet Univerziteta Crne Gore, Podgorica, Crna Gora, Ministarstvo nauke, Vlada Crne Gore), 2016-2018.
- "Makrozoobentos izvora Nacionalnog parka Kozara" (koordinator Doc. dr Dejan Dmitrović, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo za naučnotehnoški razvoj, visoko obrazovanje i informaciono društvo, Vlada Republike Srpske), 2018-2020.
- "Distribucija, ekologija i konzervacija zmija na području istočne Hercegovine" (koordinator Doc. dr Goran Šukalo, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo za naučnotehnoški razvoj, visoko obrazovanje i informaciono društvo, Vlada Republike Srpske), 2018-2020.
- "Natura 2000 vrste, kartiranje staništa i etnobotanička istraživanja Nevesinjskog polja" (koordinator Prof. dr Siniša Škondrić, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Ministarstvo za naučnotehnoški razvoj, visoko obrazovanje i informaciono društvo, Vlada Republike Srpske), 2020-.

Ostalo:

- Citiranost publikacija: preko 190 puta, od čega preko 70 čine „Web of Science“ citati naučnih radova
- Učešće na naučnim konferencijama u zemlji i inostranstvu sa preko 35 saopštenja
- Učešće u međunarodnom projektu: "Razvoj master kurikuluma iz ekološkog monitoringa i bioindikacija kopnenih voda na visokoškolskim ustanovama u regionu Zapadnog Balkana" (koordinator: Prof. dr Svjetlana Lolić, Prirodno-matematički fakultet Univerziteta Banja Luka, Republika Srpska; Evropska unija), 2020-.
- Učešće u izradi nekoliko stručnih studija
- Član organizacionog odbora četvrtog Simpozijum biologa i ekologa Republike Srpske „SBERS2020“ (Prirodno-matematički fakultet, Univerzitet u Banjoj Luci, 12-14. novembar 2020. godine, Banja Luka)
- Član redakcionog odbora naučnog časopisa „*Acta Scientifica Balcanica*“ (raniji naziv časopisa „*SKUP*“)
- Članstvo u stručnim i/ili naučnim organizacijama i udruženjima: "Društvo biologa u Republici Srpskoj" – Prirodno-matematički fakultet Univerziteta u Banjoj Luci, "Srpsko biološko društvo" – Biološki fakultet Univerziteta u Beogradu i "Srpsko društvo za zaštitu voda" – Beograd
- Mentorstva osam uspješno odbranih diplomskih radova i član Komisije za odbranu završnog rada na drugom ciklusu studija

- Akademski koordinator za međunarodnu razmjenu studenata i osoblja za Studijski program ekologija i zaštita životne sredine u četvorogodišnjem trajanju (do početka ove kalendarske godine)
- Polaznik obuke na Biološkom institutu i Departmanu za hidrobiologiju Biološkog i Hemijskog fakulteta Univerziteta u Bjalistoku u Poljskoj, 2018. godine, u komponenti kreditna razmjena ERASMUS+ programa međunarodne razmjene
- Učesnik Cost akcije „Science and Management of intermittent rivers and ephemeral streams“ - SMIRES (CA15113), koja je realizovana od 11.03.2016. do 10.03.2020. godine

U Banjoj Luci, 29.04.2022. godine



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