We analysed asymmetry in the common wall lizard (*Podarcis muralis*) and the Horvath's rock lizard (*Iberolacerta horvathi*) from 16 populations in Slovenia and Croatia to understand their connection with potential stress factors: altitude, urbanization and the presence of another species (interspecific competition). We also compared morphological body characteristics between the two species. We used geometric morphometric methods to create landmark coordinates in the photographs of lizards' heads. Modified ANOVAs and an asymmetry index were used to find the differences in four physical characteristics: shape and size of the head, body size and the number of supraciliar scales. We found fluctuating asymmetry in the number of supraciliar scales and the shape of the head in all of our samples. Both species had more asymmetric heads in the intermediate altitudes, which might be connected with lower availability of suitable habitats. Common wall lizards from urban environment did not have more asymmetries compared to those living in natural environments. Contrary to our expectations, we found more asymmetries in allotopic than syntopic populations, indicating limited effect of interspecific interactions. Horvath's rock lizards had more asymmetric heads, which suggests they might be exposed to greater environmental stress, although genetic effects are also possible, since directional asymmetry was also detected.

Keywords: lizards, *Podarcis muralis*, *Iberolacerta horvathi*, stress, asymmetry

O-3

TOWARDS THE END OF FACULTATIVE PAEDOMORPHOSIS IN BALKAN NEWTS? A FOCUS ON MONTENEGRIN POPULATIONS

M. Denoël[1,2], G.F. Ficetola[3], N. Sillero[4], I. Muhovic[5], V. Ikovic[5], M. L. Kalezić[6], G. Džukić[6], B. Lejeune[1]

[1]Laboratory of Fish and Amphibian Ethology, Behavioural Biology Group, FOCUS, University of Liege, 22 Quai van Beneden, 4020 Liege, Belgium (Mathieu.denoel@uliege.be), [2]F.R.S.-FNRS Senior Research Associate, [3]Department of Biosciences, Universita degli Studi di Milano, Italy, [4]Centro de Investigação em Ciências Geo-Espaciais, Faculdade de Ciências da Universidade do Porto, Portugal, [5]Montenegrin Ecologists Society, Podgorica, Montenegro, [6]Department of Evolutionary Biology, Institute for Biological Research, University of Belgrade, Belgrade, Serbia

Facultative paedomorphosis is a polyphenism that implies the development of two alternative adult phenotypes: the metamorphs that lose their gills at metamorphosis and the paedomorphs, which retain them. This process is much rarer than metamorphosis but in some areas (e.g. in Balkans) some important populations have been described. We aimed to determine whether both phenotypes were declining and what were the causes of decline in eco-cultural landscapes of Montenegro. High population losses were found in both ponds and lakes. The decline concerned first paedomorphs and then metamorphs. The situation is particularly catastrophic with almost all populations of paedomorphic newts now extinct. This includes all lake populations and endemic “paedomorphic” taxa. The main environmental driver of the decline was the presence of introduced fish. More recently, introductions of crayfish added a new pressure, contributing further to population declines. Based on Corine land cover, land use had no significant effect on population losses but care should also be taken to future changes of land use. Consequently, our results show that the status of biodiversity in Montenegrin small waterbodies is alarming with few sites remaining undisturbed. Despite their location in apparently pristine places, waterbodies of Montenegro follow the trends found in other parts of Europe. There is therefore an urgent need to preserve these habitats before their biodiversity belong to the past.

Keywords: amphibians, biodiversity, conservation, Montenegro, paedomorphosis

O-4

KEY HABITATS OF A COLD-ADAPTED SNAKE IN THE WARMING MEDITERRANEAN BASED ON HABITAT SUITABILITY, LAND USE AND CLIMATE CHANGE

E. Mizsei, M. Szabolcs, L. Szabó, Z. Boros, K. Mersini, S. A. Roussos, M. Dimaki, Y Ioannidis, Z. Végvári, S. Lengyel
Department of Tisza River Research, Danube Research Institute, Centre for Ecological Research, Hungarian Academy of Sciences, Bem tér 18/C, 4026, Debrecen, Hungary (edvardmizsei@gmail.com)

We mapped threats potentially affecting the long term survival of Greek Meadow Viper (*Vipera graeca*) populations to identify the high-importance habitats for the conservation of this species. We used nine variables of three focus points to assess conservation value of habitats: habitat quality (size of suitable habitat, occupancy, climate and vegetation suitability), climate change (persistence, altitudinal shift) and land use (disturbance, habitat degradation and loss). We applied Zonation, a systematic conservation planning algorithm to identify priority areas where the population survivorship and sustainability are at the highest potential. In the foreseeable future, 90% of current habitats occupied by this species will most likely become unsuitable and conservation actions need to be implemented to reduce extinction as this is already an endangered species. Spatial conservation planning tools can be applied to identify and map proposed area networks for the protection and preservation of single species, if threats are known and can be mapped and transformed into conservation value layers.

Keywords: climate change, habitat suitability, land use, spatial conservation planning, protected area

O-5

FOOD SPECTRUM OF THE VIVIPAROUS LIZARD *Zootoca vivipara* (LICHTENSTEIN, 1823) (REPTILIA: LACERTIDAE) FROM ITS SOUTHERN RANGE OF DISTRIBUTION

E. Vacheva
National Museum of Natural History, Bulgarian Academy of Sciences, 1 Tzar Osvoboditel Blvd, 1000 Sofia, Bulgaria

The Viviparous lizard is the reptile species with the widest distribution in Eurasia (from Ireland to Japan and from South Europe to north of the Arctic Circle). In the southern parts of its distribution range such as in Bulgaria, this species is a glacial relict, restricted to mountainous areas. In Bulgaria, *Zootoca vivipara* is known from isolated populations in the mountains of Stara Planina, Vitosha, Rila, Pirin, Osogovo and Western Rhodopes, where it inhabits open humid areas from 1200 to 2900 m a.s.l. In spite of its wide distribution, there is still lack of knowledge on its dietary habits, especially from the southern part of the range. The study area embaraced three sites in Bulgaria (Vitosha Mt, Rila Mt and Stara Planina Mt.). There were visited in 2016 and 2017 during the active season (May–September) and 343 Viviparous lizards were captured by hand. To investigate the food preferences faecal samples were used. A total of 166 faecal samples were collect that could be inidivually attached to specimen, age, sex and

Subota 22.09. / Saturday 22.09.

9:00	Dvorana / Hall „**Diamant I**“ Plenarno predavanje / Plenary lecture - Petra Pjevac “The microbial ecology of nitrification - on the discovery of new physiologies and their potential influence on our everyday life“ (PL-6) Predsjedavatelj / Chairperson: Petra Korać		
9:30	Plenarno predavanje / Plenary lecture - Igor Štagljar “New Precision Medicines in EGFR-mutated Non-Small Cell Lung Cancer“ (PL-7) Predsjedavatelj / Chairperson: Petra Korać		
10:30	Stanka za kavu, posteri / Coffee break, posters		
	Dvorana / Hall „**Diamant I**“ **2. Balkanski Herpetološki simpozij /** **2nd Balkan Herpetological Symposium** Predsjedavatelj / Chairperson: Dušan Jelić	Dvorana / Hall „**Magnolia**“ **2. Hrvatski simpozij biologa u zdravstvu /** **2nd Croatian Symposium of Biologists in Health Care** Predsjedavatelj / Chairperson: Petra Korać	Dvorana / Hall „**Ružmarin**“ **3. Simpozij edukacije biologije /** **3rd Biology Education Symposium** Predsjedavatelj / Chairperson: Žaklin Lukša
11:00	A. Zimić, A. Ćurić, E. Šunje, A. Vesnić, S. Lelo, D. Jelić (O-1) SINECOLOGY OF EUROPEAN COMMON SPADEFOOT TOAD, *Pelobates fuscus* (Laurenti 1768) (Amphibia: Anura: Pelobatidae), IN THE AGROECOSYSTEMS OF BOSNIA AND HERZEGOVINA	I. Rubelj, L. Nanić (O-21) ULOGA TELOMERA U KONTROLI STANIČNOG RASTA I KARCINOGENEZE THE ROLE OF TELOMERES IN CONTROL OF CELL GROWTH AND CARCINOGENESIS	B. Mitić (O-40) ODRŽATI SE POD SVAKU CIJENU – RAZMNOŽAVANJE BILJAKA SURVIVAL AT ALL COSTS – PROPAGATION OF PLANTS
11:15	A. Alagić, A. Žagar, M. Krofel, M. Lazić (O-2) EFFECT OF BIOTIC AND ABIOTIC FACTORS ON ASYMMETRY OF PHYSICAL CHARACTERISTICS IN COMMON WALL LIZARD (*Podarcis muralis*) AND HORVATH'S ROCK LIZARD (*Iberolacerta horvathi*)	I. Šamija (O-22) IMUNOLOŠKI SUSTAV I RAK: KAKO NAJBOLJE ISKORISTITI KOMPLICIRANU VEZU IMMUNE SYSTEM AND CANCER: HOW TO BENEFIT FROM A COMPLICATED RELATIONSHIP	KRATKO PREDSTAVLJANJE MEĐUNARODNIH NATJECANJA (PROF. DR. SC. BOŽENA MITIĆ; DR.SC. ANDREJA LUCIĆ)
11:30	M. Denoël, G.F. Ficetola, N. Sillero, I. Muhovic, V. Ikovic, M.L. Kalezić, G. Džukić, B. Lejeune (O-3) TOWARDS THE END OF FACULTATIVE PAEDOMORPHOSIS IN BALKAN NEWTS? A FOCUS ON MONTENEGRIN POPULATIONS	M. Katunarić (O-16) NGS U MOLEKULARNOJ DIJAGNOSTICI: PRIMJENE U DIFERENCIJALNOJ DIJAGNOSTICI, PRAĆENJU I PREDIKCIJI BOLESTI NGS IN MOLECULAR DIAGNOSTICS: DIFFERENTIAL DIAGNOSTICS , DISEASE PREDICTION AND PATIENT FOLLOW UP APPLICATION	M. Sertić Perić (O-39) OSVIJESTIMO NAŠE ISTRAŽIVAČKE MOGUĆNOSTI I POTAKNIMO NAŠU ISTRAŽIVAČKU KREATIVNOST RAISING AWARENESS OF OUR RESEARCH POSSIBILITIES AND ENCOURAGING OUR RESEARCH CREATIVITY
11:45	E. Mizsei, M. Szabolcs, L. Szabó, Z. Boros, K. Mersini, S. A. Roussos, M. Dimaki, Y Ioannidis, Z. Végvári, S. Lengyel (O-4) KEY HABITATS OF A COLD-ADAPTED SNAKE IN THE WARMING MEDITERRANEAN BASED ON HABITAT SUITABILITY, LAND USE AND CLIMATE CHANGE	S. Obranić (O-20) MOLEKULARNA DIJAGNOSTIKA ZARAZNIH BOLESTI U JAVNOM ZDRAVSTVU - PRIMJER IZ VARAŽDINSKE ŽUPANIJE MOLECULAR DIAGNOSIS OF INFECTIOUS DISEASES IN PUBLIC HEALTH - AN EXAMPLE FROM THE VARAZDIN COUNTY	A. Mojsović Ćuić, V. Bišćan, D. Arbanas, M. Kurilić (O-24) SPOLNO PRENOSIVE BOLESTI I KONTRACEPCIJA – ISPITIVANJE ZNANJA I STAVOVA STUDENTSKE POPULACIJE SEXUALLY TRANSMITTED DISEASES (STDS) AND BIRTH CONTROL – RESEARCH ON AWARENESS AND ATTITUDES AMONG THE STUDENT POPULATION
12:00	E. Vacheva (O-5) FOOD SPECTRUM OF THE VIVIPAROUS LIZARD *Zootoca vivipara* (LICHTENSTEIN, 1823) (REPTILIA: LACERTIDAE)		D. Domjanović Horvat, I. Labak, I. Radanović (O-25) USVOJENOST NASTAVNOG SADRŽAJA IZ PRIRODE I BIOLOGIJE U DVOJEZIČNIM RAZREDNIM ODJELIMA

Hrvatsko biološko društvo
SOCIETAS BIOLOGORUM CROATICA
Croatian Biological Society

13. HRVATSKI BIOLOŠKI KONGRES
s međunarodnim sudjelovanjem

13th CROATIAN BIOLOGICAL CONGRESS
with International Participation

Poreč, 19 - 23. 09. 2018.

13. Hrvatski biološki kongres

Poreč

ZBORNIK SAŽETAKA

BOOK OF ABSTRACTS