



PROGRAMME



Budapest 7-10 June 2017

CONTACTS

In case of questions or emergency, please do not hesitate to contact us

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OVERVIEW OF THE PROGRAMME:

	WEDNESDAY 7 th JUNE JOINT DAY OF ISVLV & ISR (All sessions in the Hetzel Henrik lecture hall)	THURSDAY 8 th JUNE (All sessions in the Tolnay Sándor lecture hall)	FRIDAY 9 th JUNE (All sessions in the Tolnay Sándor lecture hall)	SATURDAY 10 th JUNE (TRIPS: Meeting at the University Campus)
8:00–8:15				
8:15–8:30	ISR Registration (Lobby)	Morning refreshments	Morning refreshments	
8:30–8:45				
8:45–9:00				
9:00–9:15	Opening of the ISR			
9:15–9:30				
9:30–9:45				
9:45–10:00	LARGE dsDNA VIRUSES 1	SURVEILLANCE AND ECOLOGY	ECOLOGY AND PATHOLOGY	
10:00–10:15				
10:15–10:30				
10:30–10:45				
10:45–11:00				
11:00–11:15	Coffee break	Coffee break	Coffee break	
11:15–11:30				
11:30–11:45				
11:45–12:00	LARGE dsDNA VIRUSES 2	IMMUNOLOGY	Jesse L. Brunner: WORKSHOP: The Global RanaVirus Reporting System (GRRS)	
12:00–12:15				
12:15–12:30				
12:30–12:45				
12:45–13:00				
13:00–13:15	Lunch (Equus Club)	Lunch (Equus Club)	Lunch (Equus Club)	
13:15–13:30				
13:30–13:45				
13:45–14:00				
14:00–14:15				
14:15–14:30				
14:30–14:45	RANAVIRUS EPIDEMIOLOGY	INFECTION AND DIAGNOSIS	Breakout discussions (Equus Club)	
14:45–15:00				
15:00–15:15				
15:15–15:30				
15:30–15:45				
15:45–16:00	Coffee break			
16:00–16:15				
16:15–16:30	IRIDOVIRIDAE: TAXONOMY	Regional meetings (location to be announced)	Joint presentation and discussion of breakout group topics	
16:30–16:45				
16:45–17:00				
17:00–17:15				
17:15–17:30			The state of the GRC, GRC general meeting	
17:30–17:45				
17:45–18:00				
18:00–18:15				
18:15–18:30				
18:30–18:45				
18:45–19:00		17:30 - 19:30: Poster session (Equus Club)	Guided tour in UNIVET campus	
19:00–19:15		18:30 - 21:00 Buffet reception		
19:15–19:30				
19:30–19:45	Joint ISVLV/ISR Banquet (Kossuth Museum Boat, Vén Hajó Restaurant, Széchenyi tér – Chain Bridge)			
19:45–20:00				
20:00–20:30				
20:30–21:00				
21:00–21:30			Optional 2-hour walking tour in the old town of Buda (in case of interest)	
21:30–22:00				
22:00–22:30	Ship-cruise on the Danube			
22:30–23:00				

Trip No.2.:

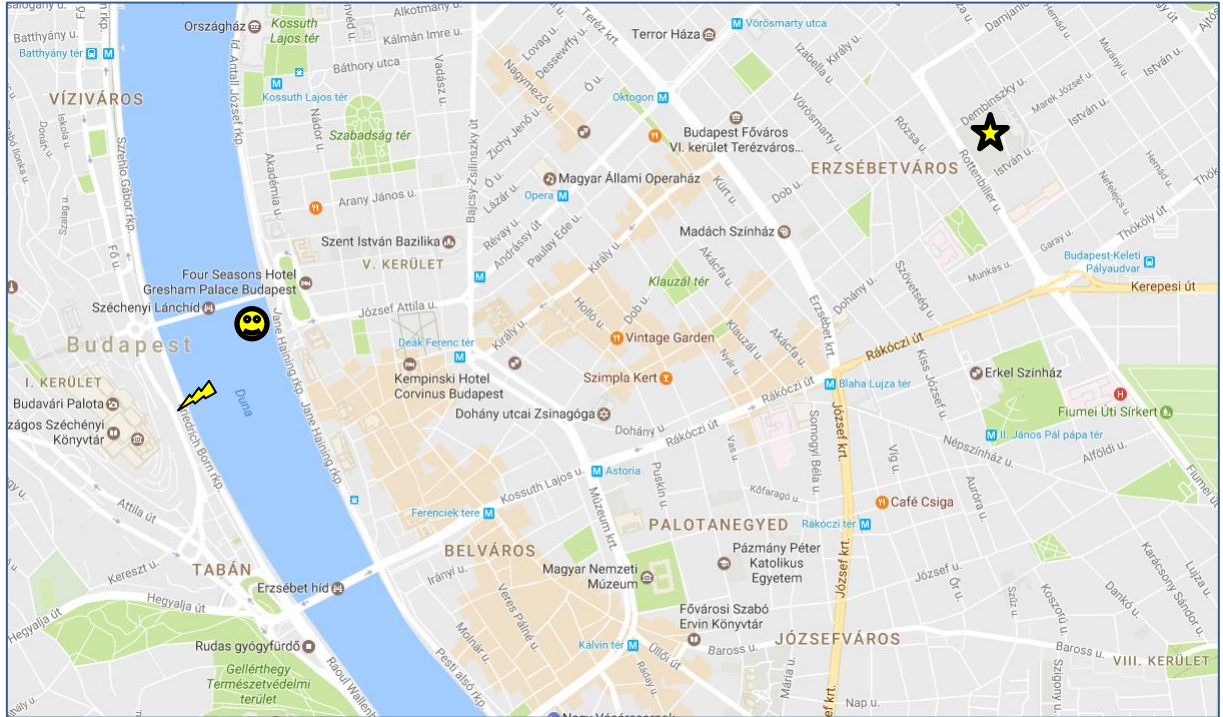
“The herpetofauna of the Buda hills”
Visiting the Sas-hill trail of the Duna-Ipoly National Park in Budapest and a salamander population in the city outskirts.

Trip No.1.:

A bus trip to the Meadow Viper Conservation Center in the Kiskunság National Park, incl. a lunch with „Pusztá Program” (horse-show) and visit to Apaj-pusztá „Duck-trail”.

MAPS

Budapest map:








- ★ - Conference location (István street 2, Budapest H-1078)
- 😊 - Kossuth Museum Boat, Vén Hajó Restaurant, at Széchenyi tér, Chain Bridge
- ⚡ - Starting point for the optional tour on Friday

wi-fi: univet, equus

password: Budapest

University campus map:



-  - Conference room (Tolnay Sándor)
-  - Conference room for the joint day, Wednesday (Hetzel Henrik)
-  - Lunch, Poster session(Equus club)
-  - Entrances of the campus
-  - Entrances of the auditoria

PROGRAMME AND

Oral Presentations

WEDNESDAY, June 7th

JOINT SESSIONS ISVLV AND ISR

(All session in the Hetzl Henrik lecture hall)

8:00-9:00: Registration (Lobby)

9:00-9:15: Welcome and Opening of the 4th International Symposium on Ranaviruses

9:15-11:00: **LARGE dsDNA VIRUSES I (Chair: Stephen J. Price)**

9:15-10:00: Thomas B. Waltzek: **Overview of the nucleo-cytoplasmic large DNA viruses (NCLDVs) (p. 23)**

10:00-10:15: Sharon Clouthier*, Rachel Breyta, Gael Kurath, Eric Anderson: **Sturgeon nucleo-cytoplasmic large DNA virus phylogeny (p. 24)**

10:15-10:30: Samantha A. Koda*, Kuttichantran Subramaniam, Ruth Francis-Floyd, Roy P. Yanong, Salvatore Frasca, Jr., Joseph M. Groff, Shipra Mohan, William A. Fraser, Annie Yan, Thomas B. Waltzek: **Phylogenomic characterization of a novel megalocytivirus lineage from archived ornamental fish samples (p. 25)**

10:30-10:45: Tibor Papp*, Rachel E. Marschang: **A member of the genus *Iridovirus* in reptiles and amphibians? (p. 26)**

10:45-11:00: Kuttichantran Subramaniam*, Thomas B. Waltzek, Nicole I. Stac², Claire Grosset, James F.X. Wellehan Jr.: **Phylogenomic characterization of squamate erythrocytic iridoviruses (p. 27)**

11:00-11:30: Coffee break

11:30-13:00: **LARGE dsDNA VIRUSES II (Chair: Ellen Ariel)**

11:30-11:45: Takafumi Ito*, Jun Kurita, Olga L. M. Haenen: **Spread of various strains of cyprinid herpesvirus 2 (CyHV-2) through global trade of goldfish (p. 28)**

11:45-12:00: Kyle A. Garver, Katja Leskisenoja, Laura M Hawley, Robert Macrae, Kuttichantran Subramaniam, Thomas B. Waltzek, Jon Richard, Caroline Josefsson, Rudolf Hoffmann, Theresia Fischer-Scherl, E. Tellervo Valtonen*: **Discovery of a novel herpesvirus infection of European perch (*Perca fluviatilis*) in Finland (p. 29)**

- 12:00-12:15:** Francesco C. Origgi*, Benedikt R. Schmidt, Petra Lohmann, Patricia Otten, Ezgi Akdesir, Veronique Gaschen, Lisandra Bultet-Aguilar, Thomas Wahli, Ursula Sattler, Michael H. Stoffel: **Ranid herpesvirus 3 (RHV3), a novel virus associated with a proliferative skin disease in free-ranging wild common frogs (*Rana temporaria*) (p. 30)**
- 12:15-12:30:** Mikolaj Adamek*, Anna Oschilewski, Peter Wohlsein, Verena Jung-Schroers, Felix Teitge, David Gela, Veronika Piackova, Martin Kocour, Jerzy Adamek, Sven M. Bergmann, Dieter Steinhagen: **Results from carp edema virus infections in differently susceptible common carp strains reveal differences in virulence between CEV genogroups (p. 31)**
- 12:30-12:45:** Mikolaj Adamek*, Felix Teitge, Martin Ganter, Ilka Baumann, Verena Jung-Schroers, David Gela, Veronika Piackova, Martin Kocour, Dieter Steinhagen: **“Koi sleepy disease” as a pathophysiological consequence of branchial infection of common carp with carp edema virus (p. 32)**
- 12:45-13:00:** Joseph M. Groff, Kuttichantran Subramaniam, Robert W. Nordhausen, Thomas B. Waltzek*: **Phylogenomic Characterization of a Novel Seahorse Poxvirus from Formalin-Fixed Paraffin-Embedded Tissues (p. 33)**
- 13:00-14:30: Lunch (in the Equus Club)**
- 14:30-15:45: RANAVIRUS EPIDEMIOLOGY (Chair: Jolianne M. Rijks)**
- 14:30-14:45:** Szilvia L. Farkas*, Enikő Fehér, Andor Doszpoly, Balázs Horváth, Szilvia Marton, Barbara Forró, Krisztian Bányai, Tamás Juhász: **Detection and complete genome analysis of ranaviruses causing mass mortality in brown bullheads (*Ameiurus nebulosus*) in Hungary (p. 34)**
- 14:45-15:00:** Stephen J. Price*, Alexandra Wadia, Owen Wright, Will Leung, Andrew A. Cunningham, Becki Lawson: **How ranavirus brought Britain closer to the EU – molecular screening of a long-term tissue archive from herpetofauna (p. 35)**
- 15:00-15:15:** Paul M Hick*, Kuttichantran Subramaniam, Patrick M Thompson, Thomas B Waltzek, Joy Becker, Richard J Whittington: **Molecular epidemiology of Epizootic haematopoietic necrosis virus (EHNV) (p. 36)**
- 15:15-15:30:** Bernardo Saucedo*, Joseph Hughes, Nicolas Suarez, Olga Haenen, Michal Voorbergen-Laarman Natasja Kruithof, Jolianne Rijks, Marc Schils, Annemarieke Spitzen, Maarten Gilbert, Andrea Gröne, Steven van Beurden: **Comparative genomics and spatiotemporal**

characterization of two strains of Common midwife toad virus in the Netherlands (p. 37)

15:30-15:45: Hannah E. B. Stagg*, Sigríður Guðmundsdóttir, Niccolò Vendramin, Neil Ruane, Heiða Sigurðardóttir, Debes H. Christiansen, Argelia Cuenca Navarro, Petra E. Petersen, Eann Munro, Niels Jørgen Olesen: **Isolation and characterisation of a new ranavirus isolated from lumpfish in the north Atlantic area (p. 38)**

15:45-16:15: Coffee break

16:15-17:00 IRIDOVIRIDAE: TAXONOMY: Panel discussion led by Thomas B. Waltzek

19:00-22:00: Joint ISVLV/ISR Banquet (location: Kossuth Museum Boat, Vén Hajó Restaurant, 1052 Budapest, Vigadó Square dock, pier 2 – near the Chain Bridge, Pest side, Széchenyi tér)

THURSDAY, June 8th

(All sessions in the Tolnay Sándor lecture hall)

9:00-10:45: SURVEILLANCE AND ECOLOGY (Chair: Maria Forzán)

9:00-9:45: Trenton W. J. Garner, Stephen J. Price, Ellen Ariel: **The European Ranaviruses (p. 39)**

9:45-10:00: Bernardo Saucedo*, Joseph Hughes, Nicolás Suárez, Olga Haenen, Michal Voorbergen-Laarman, Andrea Gröne, Marja J L Kik, Steven van Beurden: **Complete genome sequence of a Frog Virus 3-like ranavirus from an *Oophaga pumilio* frog imported from Nicaragua into the Netherlands (p. 40)**

10:00-10:15 Matthew J. Gray*, Jennifer A. Spatz, E. Davis Carter, Debra L. Miller: **Poor biosecurity could lead to ranavirus outbreaks in amphibian populations (p. 41)**

10:15-10:30: Rebecca H. Hardman*, William B. Sutton, Dale McGinnity, K. J. Irwin, Sherri Reinsch, Ben Fitzpatrick, Philip Colclough, Marcy Souza, Michael Freake, Matthew. J. Gray, Debra L. Miller: **Prevalence of ranavirus and Bd in hellbender polulations in Tennessee and Arkansas (p. 42)**

10:30-10:45: Emily M. Hall, Caren S. Goldberg, Erica J. Crespi, Jesse L. Brunner*: **Seasonal dynamics of ranavirus epidemics in wood frog populations (p. 43)**

10:45-11:15: Coffee break

11:15-12:45: IMMUNOLOGY (Chair: Leon Grayfer)

- 11:15-11:45:** Jacques Robert: **The interplay between ranavirus and the amphibian immune system (p. 44)**
- 11:45-12:00:** Qiwei Qin*, Yepin Yu, Youhua Huang, Xiaohong Huang: **Singapore grouper iridovirus (SGIV) TNFR homolog VP51 functions as a virulence factor by modulating cellular apoptosis and the host inflammatory response (p. 45)**
- 12:00-12:15:** Amulya Yaparla, Leon Grayfer*: **Differentiation-dependent antiviral capacities of amphibian (*Xenopus laevis*) macrophages (p. 46)**
- 12:15-12:30:** Jacques Robert*, Eva-Stina Edholm, Maureen Banach, Timothy Kwan, Jazz Sanchez, Leta Yi, Francisco De Jesús Andino: **Different antiviral T cell type immunity in tadpole and adult *Xenopus* (p. 47)**
- 12:30-12:45:** Lewis J. Campbell*, S. Austin Hammond, Stephen J. Price, Manmohan D. Sharma, Trenton W.J. Garner, Inanc Birol, Caren C. Helbing, Lena Wilfert, Angus Buckling, Amber G.F. Griffiths: **A novel approach to transcriptomics in wild animals provides evidence for disease mediated differential expression and changes to the microbiome in amphibian populations (p. 48)**
- 12:45-14:00:** Lunch (in the Equus Club)
- 14:00-15:30:** INFECTION AND DIAGNOSIS (Chair: Rachel E. Marschang)
- 14:00-14:15:** María J. Forzán*, Erica Sloma: **Increased detection of ranavirus in tissue using novel *in situ* hybridization technique (p. 49)**
- 14:15-14:30:** Alicia Maclaine*, Jennifer Scott, Wytamma Wirth, Narges Mashkour, Ellen Ariel: **Pathogenesis of Bohle iridovirus in juvenile Eastern water dragons, *Intellagama lesueurii lesueurii* (p. 50)**
- 14:30-14:45:** Jesse L. Brunner*, Anjulie Olson, Jeremy G. Rice, Mitchel J. Le Sage, Jennifer A. Cundiff, Caren S. Goldberg, Allan P. Pessier: **Performance of nonlethal methods of detecting ranavirus infections in captivity and trade (p. 51)**
- 14:45-15:00:** Debra L. Miller*, Ana Balseiro, Rosa Casais, Matthew J. Gray: **Immunohistochemistry of hellbenders exposed to an FV3-like ranavirus, alone or with one stressor (p. 52)**
- 15:00-15:15:** Wytamma Wirth*, Jennifer Scott, Ellen Ariel: **Dose-dependent morbidity of freshwater turtle hatchlings, *Emydura macquarii krefftii*, inoculated with Bohle iridovirus (*Ranavirus* sp, *Iridoviridae*) (p. 53)**

15:15-15:30: Natalie K. Steckler, Salvatore Frasca Jr., Kuttichantran Subramaniam, Kamonchai Imnoi, Lacey Hopper, Jeffrey Powell, James Colee, Thomas B. Waltzek*: **The effect of water temperature on *Frog virus 3* disease in young-of-the-year pallid sturgeon (*Scaphirhynchus albus*) (p. 54)**

15:30-16:00: Coffee break

16:00-17:30: Regional meetings (location to be announced)

17:30-19:30: Poster session (in the Equus Club)

18:30-21:00: Buffet reception (in the Equus Club)

FRIDAY, June 9th

(All morning sessions in the Tolnay Sándor lecture hall)

9:00-11:00: ECOLOGY AND PATHOLOGY (Chair: Jesse Brunner)

9:00-9:15: Matthew J. Gray: **The Global Ranavirus Consortium**

9:15-9:30: Siara C Claytor, Kuttichantran Subramaniam, V. Gregory Chinchar, Matthew Gray, Carla Mavian, Marco Salemi, Samantha Wisely, Thomas Waltzek*: **Ranavirus phylogenomics: Signatures of recombination and inversions among ranaculture isolates (p. 55)**

9:30-9:45: E. Davis Carter*, Matthew J. Gray, Jenny A. Spatz, Debra L. Miller: **Interaction of hydroperiod and ranavirus leading to possible amphibian population declines in the Great Smoky Mountains National Park (p. 56)**

9:45-10:00: Angela Peace, Suzanne M. O'Regan, Jennifer A. Spatz, Patrick N. Reilly, Rachel D. Hill, E. Davis Carter, Rebecca P. Wilkes, Debra L. Miller, Matt Gray*: **Importance of ranavirus transmission pathways mediated by density dependence (p. 57)**

10:00-10:15: Roberto Brenes*, Jason T. Hoverman, Debra L. Miller, Matthew J. Gray: **Presence of amplification hosts increases mortality of syntopic amphibians by ranaviral disease (p. 58)**

10:15-10:30: Xiaohong Huang, Youhua Huang, Shina Wei, Yepin Yu, Qiwei Qin*: **Comparative proteomic analysis show altered proteins regulated by ubiquitin proteasome system in fish iridovirus infection (p. 59)**

10:30-10:45: Joe-Felix Bienentreu, Samantha A. Grant, Chris J. Kyle, Craig R. Brunetti, Danna M. Schock, David Lesbarrères*: **Ranavirus in northern**

Canada: a low-diversity ecosystem for a better comprehension of disease dynamics? (p. 60)

10:45-11:00: Preeyanan Sriwanayos, Kuttichantran Subramaniam*, Natalie K. Steckler, Somkiat Kanchanakhan, Jaree Polchana, Thomas B. Waltzek: **Phylogenomic characterization of ranaviruses detected in fish and amphibians in Thailand (p. 61)**

11:00-11:30: Coffee break

11:30-13:00: Jesse L. Brunner: **WORKSHOP: The Global Ranavirus Reporting System (GRRS) (p.62)**

13:00-14:15: Lunch (in the Equus Club)

(Early afternoon session (14:15-15:30) in the Equus Club)

14:15-15:30: Breakout discussions (location: Equus Club):

- **Techniques for identification and classification of isolates**
- **Diagnosis, Treatment, and Management (moderator: Paul M. Hick)**
- **Epidemiology and Surveillance (moderator: David Lesbarrères)**

15:30-16:00: Coffee break

(Late afternoon session (16:00-18:00) in the Tolnay Sándor lecture hall)

16:00-17:00: Joint presentation and discussion of breakout group topics

17:00-18:00: The state of the GRC, GRC general meeting

Poster Presentations

(Exhibited in the Equus Club)

Sthefany R. Alfaia, Cinthia R. Oliveira, Fernanda L. Ikari, Diego Sales, Ricardo L. Moro, Claudia Maris Ferreira*: **Susceptibility of American bullfrog tadpoles (*Lithobates catesbeianus*) to experimental infection by Frog Virus 3 (FV3) (p. 64)**

Cinthia R. de Oliveira, Sthefany R. Alfaia, Fernanda L. Ikari, Patricia T. Coelho, Loiane S. Tavares, Ricardo L. Moro de Sousa, Claudia M. Ferreira*: **Screening and molecular characterization of a ranavirus (Frog Virus 3) obtained from bullfrogs (*Lithobates catesbeianus*) from commercial farms in Southeast Brazil (p. 65)**

Kateřina Matějíčková*, Stanislava Reschová, Pavel Kulich, Barbora Veselá, Tomáš Veselý: **Is the angelfish *Pterophyllum scalare* susceptible to ranaviruses? (p. 66)**

William T.M. Leung*, Laura Thomas-Walters, Trenton W.J. Garner¹, Francois Balloux³, Chris Durrant^{1†}, Stephen J. Price: **Robust viral load estimation in ranavirus-infected amphibian, reptile, and fish tissues and cell cultures (p. 67)**

Narges Mashkour*, Ellen Ariel: **Development of green sea turtle (*Chelonia mydas*) primary cells to propagate aquatic animal viruses including Bohle Iridovirus (p. 68)**

Jingguang Wei, Youhua Huang, Min Yang, Xiaohong Huang, Qiwei Qin*: **Isolation and identification of Singapore grouper iridovirus Hainan (SGIV-HN) isolate (p. 69)**

Augustino Alfred Chengula*, Christopher Kasanga, Stephen Mutoloki, Robinson Mdegela, Øystein Evensen: **Molecular characterization of ranaviruses detected in Nile Tilapia (*Oreochromis niloticus*) in Tanzania (p. 70)**

Sheng Zhou, Zhuxi Wang, Youhua Huang, Shaowen Wang, Xiaohong Huang, Qiwei Qin*: **Envelope protein VP088 of Singapore grouper iridovirus is involved in viral attachment and entry into host cells (p. 71)**

Lewis J. Campbell*, Trenton W.J. Garner, Giulia Tessa, Ben C. Scheele, Amber G.F. Griffiths, Lena Bayer-Wilfert, Xavier A. Harrison: **Ranavirus infection potentially alters the age structure of infected populations (p. 72)**

Marius von Essen, William T.M. Leung, Celia Serrano, Trenton W.J. Garner, Jaime Bosch, Cesar Ayres, Simon Pooley, Stephen J. Price*: **Host range and local distribution of Bosca's newt virus (p. 73)**

Shina Wei, Youhua Huang, Jingguang Wei, Xiaohong Huang, Qiwei Qin*: **Characterization of two novel cysteine protease inhibitors of cystatin B and cystatin C from grouper, *Epinephelus coioides* involved in SGIV infection (p. 74)**

Youhua Huang, Xiaohong Huang, Shaowen Wang, Yepin Yu, Qiwei Qin*: **Soft-shelled turtle iridovirus enters cells via cholesterol-dependent, clathrin-mediated endocytosis as well as macropinocytosis (p. 75)**

Yvonne Black*, Anna Meredith, Stephen J. Price: **Detection and reporting of ranavirus in amphibians: Evaluation of the roles of the World Organisation for Animal Health and the published literature (p. 76)**

Lauren V. Ash*, C. Brandon Ogbunugafor, James Andrews, Aswini Cherukuri, Nicholas J. Gotelli: **Detecting the emerging infectious disease ranavirus in amphibian communities of Vermont, USA (p. 77)**

Maarten Gilbert*, Annemarieke Spitzen-van der Sluijs, Frank Pasmans, Richard Struijk, Marc Schils, Pieter Doornbos, Fleur van der Sterren, Jolianne Rijks, Marja Kik, Bernardo Saucedo, Wilbert Bosman, An Martel: **Long-term monitoring of a recurrent *Ranavirus* outbreak in an isolated *Pelobates fuscus* population (p. 78)**

Eloy Becares, Matthew J. Gray, E. Davis Carter, Irena Fernandez, Ana Balseiro, Debra L. Miller*: **Negative qPCR for Ranavirus, *Bd*, and *Bsal* in surveillance samples from Castile and León Province, Spain (p. 79)**

FIELD TRIPS

SATURDAY, JUNE 10TH

1. Kiskunság National Park, Meadow Viper Conservation Centre, 30 EUR/person (including lunch), ca. 8:30 AM – 6 PM

Starting in Budapest, we will take an hour long bus ride to the Hungarian Meadow Viper Conservation Centre. You can learn more about this flagship EU Life Project via the following link: <http://www.rakosivipera.hu/en/>.

The morning program will take approx. 2hrs, and will be followed by a 20 min. ride to a local restaurant/resort for lunch. Before the 3 course menu, we will enjoy a local horse show. In the afternoon, we will travel on to the Upper-Kiskunság Plain (Felső-Kiskunsági Puszta), where we will do some bird watching, and also be able to see some traditional extensive animal husbandry with the typical ancient Hungarian domestic animals, including grey cattle and racka sheep. We will return to Budapest by around 6 PM in the evening.



2. Duna-Ipoly National Park, Sas-hegy (Eagles's hill) Protected Area, Buda hills Nature Reserve Area, 15 EUR/person (no meal included), ca. 9:00 AM – 1 PM

During this short field trip, you will stay within Budapest and learn about its natural habitats on its hilly Buda side. If you are lucky, you will be able to see/catch some representatives of the local herpetofauna. In the first 2 hours you will explore the Sas-hill nature trail. This enclosure within the city holds some unique flora and fauna elements on its dolomite slopes, and it offers a beautiful overview of the city. Later in the morning, in the forests of Buda outskirts, you will visit a hidden population of the fire salamander (*S. salamandra*). If the weather is rainy, then you can sample the adults for Bd with **Judit Vörös**. Otherwise, you will meet only the larvae.



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