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# INTERNATIONAL SCIENTIFIC CONFERENCE ON RESTORATION OF CONSERVATION-RELIANT SPECIES AND HABITATS

6<sup>TH</sup> NOVEMBER 2020



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**INTERNATIONAL SCIENTIFIC CONFERENCE  
ON RESTORATION OF  
CONSERVATION-RELIANT SPECIES AND HABITATS  
6<sup>th</sup> November 2020, Faculty of Biology**

**PROGRAMME SUMMARY**

Time	<b>ORAL PRESENTATIONS</b>
	<i>Host – Assist. Prof. Atanas Grozdanov</i>
10:00 – 10:20	<p><b><u>RICHARD ZINK</u><sup>1</sup>, Theresa Walter<sup>2</sup>, Elena Kmetova-Biro<sup>1</sup></b>  <i>1-Austrian Ornithological Centre / Fieldstation Seebarn, c/o Konrad Lorenz Institute of Ethology, University of Veterinary Medicine Vienna, Savoyenstraße 1, 1160 Vienna, AUSTRIA</i>  <i>2-Conservation Medicine Unit, Research Institute of Wildlife Ecology, University of Veterinary Medicine Vienna, Savoyenstraße 1, 1160 Vienna, AUSTRIA</i>  <b>THE SUCCESSFUL RESTORATION OF URAL OWL (STRIX URALENSIS) IN AUSTRIA</b></p>
10:20 – 10:40	<p><b><u>H.PESHEV</u><sup>1</sup>, Elena Kmetova-Biro<sup>2</sup>, Emilian Stoynov<sup>1</sup>, George Stoyanov<sup>3</sup>, Ivelin Ivanov<sup>4</sup>, Atanas Grozdanov<sup>5</sup></b>  <i>1-Fund for Wild Flora &amp; Fauna, 49 Ivan Mikhaylov Str., office 327, P.O.Box 78, 2700 Blagoevgrad, BULGARIA, <a href="http://www.fwjff.org">www.fwjff.org</a>, <a href="mailto:pirin@fwjff.org">pirin@fwjff.org</a></i>  <i>2-Department of Environmental Sciences and Policy, Central European University, Nador u. 9. 1051 Budapest, Hungary, <a href="mailto:ekmetova@greenbalkans.org">ekmetova@greenbalkans.org</a></i>  <i>3-Birds of Prey Protection Society, 23 Golyam Bratan Str., 1618 Sofia, BULGARIA, <a href="http://www.bpps.org">www.bpps.org</a>, <a href="mailto:bpps@abr.bg">bpps@abr.bg</a></i>  <i>4-Green Balkans – Stara Zagora, 9 Stara Planina Str., 6000 Stara Zagora, BULGARIA, <a href="http://www.greenbalkans.org">www.greenbalkans.org</a>, <a href="mailto:officesz@greenbalkans.org">officesz@greenbalkans.org</a></i>  <i>5-Department of Zoology and anthropology, Faculty of Biology, Sofia University “St. Kliment Ohridski”, 8 Dragan Tsankov Blvd, 1164 Sofia, BULGARIA, <a href="mailto:atanas_grozdanov@biofac.uni-sofia.bg">atanas_grozdanov@biofac.uni-sofia.bg</a></i>  <b>ASSESSMENT OF THE RELATIVE SEASONAL AND SOJOURN USAGE OF THE GRIFFON VULTURE (GYPS FULVUS) LOCAL REINTRODUCTION SITES IN BULGARIA FROM BALKANS REGIONAL PERSPECTIVE</b></p>
10:40 – 11:00	<p><b><u>IVANKA LAZAROVA</u><sup>1,2</sup>, Ivailo Klisurov<sup>1</sup>, Rusko Petrov<sup>1</sup>, Yana Andonova<sup>1</sup>, Andrew Dixon<sup>1</sup></b>  <i>1-Green Balkans – Stara Zagora NGO, 9 Stara Planina Str., 6000 Stara Zagora, Bulgaria</i>  <i>2-Trakia University- Stara Zagora, Studentski grad, 6015 Stara Zagora”</i>  <b>REINTRODUCTION OF THE SAKER FALCON (FALCO CHERRUG) IN BULGARIA – RESULTS FROM THE ONGOING SECOND ESTABLISHMENT PHASE 2015-2020</b></p>

11:00 – 11:20	<p><b>IVELIN IVANOV<sup>1</sup>, Emilian Stoynov<sup>2</sup>, George Stoyanov<sup>3</sup>, Elena Kmetova- Biro<sup>1</sup>, Hristo Peshev<sup>2</sup>, Iliyan Stoev<sup>1</sup>, Luchezar Bonchev<sup>2</sup>, Simeon Marin<sup>1</sup>, Stamen Stanchev<sup>2</sup>, Zlatka Nikolova<sup>1</sup>, Jovan Andevski<sup>a</sup>, Franziska Lorcher<sup>a</sup>, Nadya Vangelova<sup>2</sup>, Atanas Grozdanov<sup>o</sup></b></p> <p>1- Green Balkans – Stara Zagora, 9 Stara Planina Str., 6000 Stara Zagora, BULGARIA, <a href="http://www.greenbalkans.org">www.greenbalkans.org</a>, <a href="mailto:officesz@greenbalkans.org">officesz@greenbalkans.org</a> 2- Fund for Wild Flora &amp; Fauna, 49 Ivan Mihaylov Str., office 327, P.O.Box 78, 2700 Blagoevgrad, BULGARIA, <a href="http://www.fwff.org">www.fwff.org</a>, <a href="mailto:pirin@fwff.org">pirin@fwff.org</a> 3- Birds of Prey Protection Society, 23 Golyam Bratan Str., 1618 Sofia, BULGARIA, <a href="http://www.bpps.org">www.bpps.org</a>, <a href="mailto:bpps@abv.bg">bpps@abv.bg</a> a – Culture Conservation Foundation, Wubstrasse 12, CH-8003 Zurich, SWITZERLAND, <a href="http://www.4vultures.org">www.4vultures.org</a>, <a href="mailto:j.andevski@4vultures.org">j.andevski@4vultures.org</a> o - Department of Zoology and anthropology, Faculty of Biology, Sofia University “St. Kliment Ohridski”, 8 Dragan Tsankov Blvd, 1164 Sofia, BULGARIA, <a href="mailto:zootribe@gmail.com">zootribe@gmail.com</a> * Corresponding author: <a href="mailto:iivanov@greenbalkans.org">iivanov@greenbalkans.org</a></p> <p>FIRST RESULTS FROM THE RELEASES OF CINEREOUS VULTURES (AEGYPIUS MONACHUS) AIMING AT REINTRODUCTION OF THE SPECIES IN BULGARIA – START OF THE ESTABLISHMENT PHASE 2018-2020</p>
11:20 – 11:40	<p><b>GRADIMIR GRADEV<sup>1,2</sup>, Simeon MARIN<sup>1</sup>, Svetla DALAKCHIEVA<sup>3</sup>, Tatyana BILEVA<sup>2</sup>, Yordanka VASILEVA<sup>4</sup>, Stilyana YANEVA<sup>1</sup></b></p> <p>1-Green Balkans – Stara Zagora NGO, 9 Stara Planina Str., 6000 Stara Zagora, Bulgaria 2-Agricultural University of Plovdiv, 12 Mendeleev blvd., 4000 Plovdiv, Bulgaria 3-University "Prof. D-r Asen Zlatarov" - Burgas, 1 "Prof. Yakimov" blvd, 8010 Burgas, Bulgaria 4-Wildlife Rehabilitation and Breeding Center - Green Balkans – Stara Zagora NGO, P. Box.: 27, 6006 Stara Zagora, Bulgaria</p> <p>THE NUMBERS AND DISTRIBUTION OF LESSER KESTREL (FALCO NAUMANNI, FLEISCHER, 1818) AFTER RESTORATION IN BULGARIA</p>
11:40 – 12:00	<p><b>Borislava Margaritova<sup>1,2</sup></b></p> <p>1-WWF-Bulgaria 2-Sofia University, “St. Kliment Ohridski”, Faculty of Biology, Department of General and Applied Hydrobiology</p> <p>RESTOCKING OF STURGEON SPECIES (PISCES: ACIPENSERIDAE): AN IMPORTANT TOOL IN CONSERVATION MANAGEMENT IN THE LOWER DANUBE RIVER</p>

12:00 – 12:20	<p><b><u>DIANA ZLATANOVA</u><sup>1</sup>, Elitsa Popova<sup>1</sup>, Kostadin Valchev<sup>2</sup>, Nikola Doykin<sup>3</sup>, Valentin Zlatanov<sup>4</sup></b>  <i>1-Department of Zoology and anthropology, Faculty of Biology, Sofia University “St. Kliment Ohridski”, bul. Dragan Tsankov” 8 , Sofia 1164 Bulgaria</i>  <i>2-Balkani Wildlife Society, Sofia, Bulgaria</i>  <i>3-Nature Park “Vitosha”, str. Antim I 17., 1303 Sofia, Bulgaria</i>  <i>4-Advanced Wildlife Technologies and Management, Sofia, Bulgari</i></p> <p>LONG-DISTANCE DISPERSAL OF BALKAN CHAMOIS              RUPICAPRA RUPICAPRA BALCANICA – IMPLICATIONS FOR RESTORATION PROJECTS</p>
<b>POSTERS</b>	
<b>RESTORATION OF SPECIES RS-1/RS-10</b>	
<b>RS-1</b>	<p><b><u>Hristo Peshev</u>, Emilian Stoynov, Nadya Vangelova, George Stoyanov, Ivelin Ivanov, Zlatka Nikolova, Atanas Grozdanov</b>              REINTRODUCTION OF THE GRIFFON VULTURE (GYPS FULVUS) IN KRESNA GORGE, SOUTHWEST BULGARIA – RESULTS FROM THE ONGOING ESTABLISHMENT PHASE 2010-2020</p>
<b>RS-2</b>	<p><b><u>Ivelin Ivanov</u>, Emilian Stoynov, Elena Kmetova- Biro, Luchezar Bonchev, Iliyan Stoev, Hristo Peshev, Simeon Marin, Zlatka Nikolova, Nadya Vangelova, Atanas Grozdanov</b>              REINTRODUCTION OF THE GRIFFON VULTURE (GYPS FULVUS) IN EASTERN BALKAN MOUNTAINS, BULGARIA – COMPLETION OF THE ESTABLISHMENT PHASE 2009-2020</p>
<b>RS-3</b>	<p><b><u>George Stoyanov</u>, Hristo Peshev, Elena Kmetova–Biro, Ivelin Ivanov, Nadya Vangelova, Zlatka Nikolova, Tamara Lazarova, Emilian Stoynov</b>              RESULTS OF THE REINTRODUCTION OF GRIFFON VULTURE (GYPS FULVUS) IN VRACHANSKI BALKAN NATURE PARK, NORTHWEST BULGARIA – COMPLETION OF THE ESTABLISHMENT PHASE 2010-2020</p>
<b>RS-4</b>	<p><b><u>Hristo Hristov</u>, Desislava Kostadinova</b>              EUROPEAN BISON REINTRODUCTION IN RHODOPE MOUNTAINS, BULGARIA</p>
<b>RS-5</b>	<p><b>Theresa Walter, Elena Kmetova-Biro, Richard Zink</b>              THE SAKER FALCON (FALCO CHERRUG) IN AUSTRIA: IN FAVOUR OF NEST BOXES?</p>
<b>RS-6</b>	<p><b><u>Yordan Koshev</u>, Maria Kachamakova, Svetoslav Spasov, Dimitra-Lida Rammou</b>              REINFORCEMENT OF THE KEY STONE SPECIES EUROPEAN GROUND SQUIRREL IN ZAPADNA STRANDZHA NATURA 2000 SITE, BULGARIA</p>

<b>RS-7</b>	<b><u>Ventseslav Delov, Yana Velina, Kiril Vulchev, Elena Tasheva</u></b> ASSESSMENT OF THE POSSIBILITIES FOR REINTRODUCTION OF A MEDITERRANEAN MONK SEAL ( <i>MONACHUS MONACHUS</i> ) BASED ON AN ANALYSIS OF THE CHANGES IN THE FACTORS THAT LED TO ITS EXTINCTION
<b>RS-8</b>	<b><u>Daniela Simeonovska-Nikolova, Venislava Spasova, Krastio Dimitrov, Katerina Zareva-Simeonova</u></b> IS THERE A FUTURE FOR THE ROMANIAN HAMSTER, <i>MESOCRICETUS NEWTONI</i> IN BULGARIA?
<b>RS-9</b>	<b><u>Boryanka Traykova, Marina Stanilova</u></b> MULTIPLICATION AND GROWTH ACCELERATION OF <i>LILIUM RHODOPAEUM</i> DELIP. USING IN VITRO AND HYDROPONIC TECHNOLOGIES
<b>RS-10</b>	<b><u>Ivan Traykov, Anita Tosheva</u></b> MACROPHYTE REINTRODUCTION IN A SMALL SANDPIT LAKE AFTER HABITAT RESTORATION
<b>RESTORATION OF HABITATS</b> <b>RH-1</b>	
<b>RH-1</b>	<b><u>Neli Doncheva and Kostadin Valchev</u></b> EXPERIENCE FROM RIPARIAN FORESTS RESTORATION PROJECTS IN BULGARIA

## ORAL PRESENTATIONS

### THE SUCCESSFUL RESTORATION OF URAL OWL (*STRIX URALENSIS*) IN AUSTRIA

RICHARD ZINK<sup>1</sup>, THERESA WALTER<sup>2</sup>, ELENA KMETOVA-BIRO<sup>1</sup>

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The team will present the successful story of Ural Owl (*Strix uralensis*) restoration in Austria, summing up the release methodology and most current results until September 2020. Ural Owl is among the biggest representatives of the *Strix* genus, a distinct forest owl. The species was a confirmed breeder in Austria, yet towards the mid-20th century it disappeared, mostly due to changes in forestry and nesting habitat loss. In the 19th-20th century Ural Owls from Slovenia occasionally settled and bred in Austria, yet the species has been officially considered extinct. Following a process of preliminary feasibility studies, expert meetings and discussions, it was finally decided to support the restoration of Ural Owl population in Austria through reintroduction of captive bred juvenile birds, installation of nest boxes and other activities. The first release of Ural Owls took place in 2009 in the Biosphere Reserve Wienerwald and Wilderness area D urrenstein. The releases follow a methodology developed by W. Scherzinger: approximately 80 day old birds are transferred to adaptation aviaries and released 2-4 weeks later. Birds are never hand reared or habituated to humans. They originate from a breeding network, currently comprising 49 breeding pairs, kept in 32 zoos and breeding centers in Austria and abroad. Birds are sexed, genetically fingerprinted, ringed and some are fitted with GPS-GSM transmitters. A total of 428 birds have been released at two release areas via seven different release facilities since the project start, 46 of them in 2020. Meantime, there are currently over 450 active nest boxes installed and monitored in six of the easternmost federal Austrian provinces. The first wild-born Ural Owl offspring was reported in 2011, just two years following the start of the releases in a nest box in Wienerwald. The first young Ural Owls hatched in a natural breeding site were reported in a European Beech (*Fagus sylvatica*) cavity near the Wilderness area D urrenstein in 2015. Since then a total of 7 natural breeding sites were found in both project areas. At present and due to the restoration and continued monitoring activities, there are above 30 occupied territories known in Biosphere Reserve Wienerwald and Wilderness area D urrenstein combined. In 2020 there were only five broods confirmed and only 2 chicks fledged from 2 different nests. The possible reason for the poor season is the limited food availability due to low mice and vole populations.

## **ORAL PRESENTATIONS**

### **ASSESSMENT OF THE RELATIVE SEASONAL AND SOJOURN USAGE OF THE GRIFFON VULTURE (GYPS FULVUS) LOCAL REINTRODUCTION SITES IN BULGARIA FROM BALKANS REGIONAL PERSPECTIVE**

H.PESHEV<sup>1</sup>, ELENA KMETOVA-BIRO<sup>2</sup>,  
EMILIAN STOYNOV<sup>1</sup>, GEORGE STOYANOV<sup>3</sup>,  
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We analyzed the GPS data from 23 Griffon Vultures (*Gyps fulvus*) equipped with satellite transmitters and tracked along the Balkans in the period 2012-2020 and assessed the relative importance in Balkans regional context of the local reintroduction sites of the species in Bulgaria. It appears that in about 30 to 50% of the time spent in the Balkans from all wild/native to Balkans immature birds that were tracked has been spent in one or more of the local reintroduction sites in Bulgaria. We comment on the conservation importance and potential of the strategic local reintroductions to manage this social scavenger appearance and abundance on regional level.

## **ORAL PRESENTATIONS**

### **REINTRODUCTION OF THE SAKER FALCON (FALCO CHERRUG) IN BULGARIA – RESULTS FROM THE ONGOING SECOND ESTABLISHMENT PHASE 2015-2020**

IVANKA LAZAROVA<sup>1,2</sup>, IVAILO KLISUROV<sup>1</sup>, RUSKO PETROV<sup>1</sup>,  
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Considered extinct in the early 2000s the Saker falcon was recovered as a breeding species in 2018 when the first active nest from the new history of the species in the country was discovered consisting of two of the reintroduced in 2015 birds. It is the only confirmed wild breeding pair in Bulgaria. This is report on the preliminary results and analysis of the ongoing second establishment phase of the reintroduction of the Saker Falcon (*Falco cherrug*) in Bulgaria for the period 2015-2020. It is the second phase of the started in 2011 reintroduction, in the current period conducted with standardized methodology and a unified approach. Studied, analyzed and presented are the breeding performance of the falcons, survival rate of the captive-bred and released individuals, methods for release site selection, conservation challenges and management techniques applied.

## **ORAL PRESENTATIONS**

### **FIRST RESULTS FROM THE RELEASES OF CINEREOUS VULTURES (AEGYPIUS MONACHUS) AIMING AT REINTRODUCTION OF THE SPECIES IN BULGARIA – START OF THE ESTABLISHMENT PHASE 2018-2020**

IVELIN IVANOV<sup>1</sup>, EMILIAN STOYNOV<sup>2</sup>, GEORGE STOYANOV<sup>3</sup>,  
ELENA KMETOVA- BIRO<sup>1</sup>, HRISTO PESHEV<sup>2</sup>, ILIYAN STOEVI<sup>1</sup>,  
LUCHEZAR BONCHEV<sup>2</sup>, SIMEON MARIN<sup>1</sup>, STAMEN STANCHEV<sup>2</sup>,  
ZLATKA NIKOLOVA<sup>1</sup>, JOVAN ANDEVSKI<sup>a</sup>, FRANZISKA  
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The current work presents the preliminary results of the Cinereous Vulture (*Aegypius monachus*) releases aiming its reintroduction in the Balkan Mountains in Bulgaria from the period 2018-2020. After the successful reintroduction of the Griffon vulture (*Gyps fulvus*) in the period 2010-2016, the first releases of Cinereous Vultures by two different methods started in Kotlenska Planina SPA near Kotel in 2018. Three juveniles were released by hacking through artificial nest, while 12 immatures were set in the acclimatization aviaries to wait for their release. In 2019, 11 immatures were released from aviaries in Kotel and Sinite Kamani Nature Park and another 4 juveniles were released by hacking from both sites. Ten more immatures were transferred from Spain to Bulgaria and set up in the aviary in Vrachanski Balkan Nature Park and were released in spring 2020. Here we report on the results of adaptation, survival, sojourn, migration, home-range based on GPS tracking.

## ORAL PRESENTATIONS

### THE NUMBERS AND DISTRIBUTION OF LESSER KESTREL (*FALCO NAUMANNI*, FLEISCHER, 1818) AFTER RESTORATION IN BULGARIA

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The Lesser Kestrel (*Falco naumanni*, Fleisher, 1818) is a small species of insectivorous falcon nesting colonially. In the past the species was widely distributed and numerous in Bulgaria, but by the end of 20th century its number decreases significantly. In early 21st century, there were no confirmed data on breeding in the country. In 2014 the nesting of the species was restored in Bulgaria by Green Balkans Federation, on the territory of "Sakar" SPA part of NATURA 2000. After 5 years of successful restoration of breeding Lesser Kestrel in Bulgaria, the national numbers are stable and it was estimated that about 30-40 pairs were formed in a minimum of four different nesting territories. During 2019 there are two nesting territories with Confirmed breeding ("Sakar" SPA - Lesser Kestrel Adaptation and Release Module, managed by Green Balkans in village of Levka and the other one is in Burgas region- technological facilities in the area of "Lukoil Neftochim Burgas" AD). There is one more place with a Probable breeding - "Sakar" SPA or adjacent area and the last territory with Possible breeding is in the vicinity of Stara Zagora town. In 2020 the nesting territories with Confirmed breeding are already three ("Sakar" SPA – LKARM in village of Levka, Burgas region - "Lukoil Neftochim Burgas" AD and the town of Stara Zagora – yard of Wildlife Rehabilitation and Breeding Center, managed by Green Balkans. During this year we recorded that about 20-25 pairs of the national population occupied manufactured artificial nest boxes, with special design for the Lesser Kestrel according to methodology of DEMA.

*This paper is in the frame of Project LIFE for Lesser Kestrel LIFE19 NAT/BG/001017, supported by Programme LIFE of the EU and EuroNatur. Key words: Falco naumanni; distribution; Lesser kestrel; reintroduction.*

## ORAL PRESENTATIONS

### RE STOCKING OF STURGEON SPECIES (PISCES: ACIPENSERIDAE): AN IMPORTANT TOOL IN CONSERVATION MANAGEMENT IN THE LOWER DANUBE RIVER

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**Keywords:** *Restocking, Sturgeon, Danube River, conservation management*

All sturgeon species in the Danube River are critically endangered due to river fragmentation, overfishing and habitat loss. To protect and restore sturgeon populations, Danube countries increase their efforts in conservation management. Between 2014 and 2020 more than 77,000 juvenile sturgeon specimens of proven Danube origin obtained by artificial breeding were released along the Bulgarian part of the river. Nearly all sturgeons were tagged with coded wire tags (CWT) for the purpose of subsequent monitoring of their survival, growth and movement along the river. 50,000 young of the year (YOY) Sterlets were released in 2014 and 2015. Eight specimens were recaptured within a month of restocking. During the annual monitoring activities in period 2017 - 2018 significant increase in number of YOY Sterlet specimens in catches were registered probably as a result of reproduction of the restocked individuals three years ago. Over 20,000 cultured small Russian sturgeons were released in 2019 in the Danube near Belene city. Between June and August in the same year near Vetren village 19 of the restocked Russian sturgeons were recaptured. Tagged specimens have been also found in catches at the Danube Delta (Ukraine, Romania) and the northern Bulgarian Black Sea coast. The calculated speed of their downstream movement ranges between 18.6 to 5.6 km per day and mean growth rate was 2.6 g per day. In 2020, restocking of one-summer old belugas (over 7,000) was carried out in the region of Belene city. Two specimens were registered 40 km downstream in the next two days after release. Tracking of the downstream migration was hampered by the sharp rise in the water level. It might be concluded that despite the relatively low amount of stocking material released into the river on an annual basis, specimens can be traced hundreds of kilometers down the river and even in the Black Sea. To improve released fish traceability an increasing of amount of restocked specimens and cooperation in terms of monitoring and data exchange between Danube countries is required. An increase in sturgeon stocks based on stocking with artificially produced offspring can only be expected by combining this measure with a long-term ban on fishing, conservation and restoration of their habitats.

**Acknowledgements:** *The funding for this study was provided by WWF-Bulgaria and the Sofia University Scientific Fund, Grant 80-10-136/2020*

## ORAL PRESENTATIONS

### LONG-DISTANCE DISPERSAL OF BALKAN CHAMOIS RUPICAPRA RUPICAPRA BALCANICA – IMPLICATIONS FOR RESTORATION PROJECTS

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The Balkan chamois *Rupicapra rupicapra balcanica* Bolckay, 1925 is a subspecies with mosaic distribution in the Balkans' mountains (in Bulgaria, Greece, North Macedonia, Serbia & Kosovo, Montenegro, and Bosnia), forming predominantly isolated patches. Most of the restoration projects for the species include translocations from other areas or mountains. However, the dispersal in relation to habitat availability, risk-taking, and mobility of the species after the translocation are still largely understudied. On the 23rd of August 2014 at 13:21 four camera trap photos registered the presence of a subadult chamois in the Gurlyano gorge of Osogovo Mtn, far outside its known distribution range in Bulgaria (about 50 km straight-line distance from the closest chamois registration), North Macedonia (about 100 km), Serbia (about 200 km) and Greece (about 170 km). The inquiry with the local forest structures, private game areas, and other local people confirmed that it is not an intentional release by humans but a natural dispersal. This record was within suitable habitat, as predicted by a habitat suitability model developed during a project for mapping and defining the conservation status of priority habitats and species in Natura 2000 zones. The analyses showed that this observation was about 60 km straight-line distance from the reintroduced population segment in Vitosha Mnt, about 50 km from the native population segment in Rila Mnt and about 67 km from the native population segment in Pirin Mnt. To both closest population segments in Vitosha and Rila Mnt, there are stepping stones of available habitats within a distance of 5 to 18 km from each other, while between the suitable habitats in Maleshevska and Pirin Mtns the distance through Kresna gorge is 13 km. Further, a least-cost path analysis was conducted, incorporating the forest cover (providing visibility) and slope (providing escape terrain) to explore the possible routes between Rila, Vitosha, and Pirin Mtn to the Osogovo Mnt record. Dispersal, the use of stepping-stones, and risk-taking during settling are very important issues to take into account when restoration projects are planned. Further GPS telemetry studies should be planned to investigate these important aspects.

**RS-1**

**POSTER SESSION**

## **BROMUS DIANDRUS ROTH (POACEAE), NEW SPECIES FOR THE BULGARIAN FLORA**

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The following research presents the results and analysis from the on-going establishment phase of the reintroduction of the Griffon Vulture (*Gyps fulvus*) in Kresna Gorge in southwestern part of Bulgaria in the period 2010-2020. The number, age and origin of the released birds, methods of release, survival rate, roosting and breeding sites selection, conservation challenges and management techniques applied, breeding performance and home-range's dynamics were studied, analyzed and presented. In 2020 the local population counts of about 40-80 individuals, 3-5 pairs in 2-3 colonies and frequently used roosting sites, but yet with relatively low breeding success raising 2-3 offspring. This local population is interconnected with the colonies in the establishment phase of the reintroduction of the species in this particular area is considered completed now.

## **REINTRODUCTION OF THE GRIFFON VULTURE (GYPS FULVUS) IN EASTERN BALKAN MOUNTAINS, BULGARIA – COMPLETION OF THE ESTABLISHMENT PHASE 2009-2020**

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LUCHEZAR BONCHEV<sup>2</sup>, ILIYAN STOEV<sup>1</sup>, HRISTO PESHEV<sup>2</sup>,  
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The current work presents and analyzes the results from the just completed 12 years establishment phase of the reintroduction of the Griffon Vulture (*Gyps fulvus*) in Kotlenska Planina SPA and Sinite Kamani Nature Park in the Eastern Balkan Mountains in Bulgaria that took place in the period 2009-2020. The number, age and origin of the released birds, methods of release, survival rate, roosting and breeding sites selection, conservation management techniques applied, breeding performance and home-range's dynamics were studied, analyzed and presented. Based on the success of the reintroduction project described here, since 2016 the Griffon Vulture started to reproduce again in Eastern Balkan Mountains after more than 40-50 years of the last known record. In 2020 the local population counts of about 80-115 individuals, 22-24 pairs in 4 different colonies and two more frequently used roosting sites, but yet with relatively low breeding success raising 6-10 offspring a year. The establishment phase of the reintroduction of the species in this particular area is considered completed now.

**RESULTS OF THE REINTRODUCTION OF GRIFFON VULTURE  
(GYPS FULVUS) IN VRACHANSKI BALKAN NATURE  
PARK, NORTHWEST BULGARIA – COMPLETION OF THE  
ESTABLISHMENT PHASE 2010-2020**

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ELENA KMETOVA-BIRO<sup>3</sup>, IVELIN IVANOV<sup>3</sup>,  
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Here we present and analyze the results from the just completed 11 years establishment phase of the reintroduction of the Griffon Vulture (*Gyps fulvus*) in Vrachanski Balkan Nature Park in the northwest of Bulgaria that took place in the period 2010-2020. The number, age and origin of the released birds, methods of release, survival rate, roosting and breeding sites selection, conservation management techniques applied, breeding performance and home-range's dynamics were studied, analyzed and presented. After the first successful breeding in 2015 the species is considered restored in the area after more than 60 years of absence as breeder. In 2020 the local population counts of about 50-80 individuals, 18-20 pairs in 3 different colonies and two more frequently used roosting sites, raising 12-14 offspring. The establishment phase of the reintroduction of the species in this particular area is considered completed now.

**RS-4**

**POSTER SESSION**

## **EUROPEAN BISON REINTRODUCTION IN RHODOPE MOUNTAINS, BULGARIA**

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In 2013 as part of the program for restoration of large herbivores in Eastern Rhodopes European bison were brought to the Studen Kladenets Game Reserve. In 2019 the animals were released in the wild. During the adaptation of the animals and after their release a new data was collected about the biology, food preferences, diseases and concomitant issues of acclimatization of the species, home range and occupation area.

## THE SAKER FALCON (*FALCO CHERRUG*) IN AUSTRIA: IN FAVOUR OF NEST BOXES?

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The Saker falcon (*Falco cherrug*) is a worldwide threatened species, which reaches its westernmost distribution limit in eastern Austria. While up to 10 pairs were still breeding in Austria at the end of the Second World War, the Saker falcon almost died out in Austria in the late 1960s. In 1970, only 2 breeding pairs could be proved. In the early 1990s the population began to recover very slowly. Since the Saker falcon doesn't build any nests itself, it is usually dependent on nests built by other species. However, these do not always represent safe breeding grounds, especially since this falcon species is very sensitive to disturbances during the breeding phase. At the beginning of the 2000s, a species conservation project was therefore started at the Vetmeduni Vienna to preserve the Austrian Saker Falcon population. The core of the species protection project consists of artificial nesting aids on high voltage power pylons. So far, two types of nesting aids have been used, which have proven to be particularly suitable elsewhere: Nesting platforms and nesting boxes. In addition, there are still natural breeding places, i.e. nests. We present results from the years 2012 to 2017, exploring and comparing the usage of the different types of nesting aids. The previous success controls show, that Sakers react positively to the nesting aids. An evaluation of the usage of different nesting aids serves to manage and optimize the existing nesting aid network in the best possible way and is therefore highly relevant for the applied professionalization of protective measures for the Saker falcon in Eastern Austria.

## REINFORCEMENT OF THE KEY STONE SPECIES EUROPEAN GROUND SQUIRREL IN ZAPADNA STRANDZHA NATURA 2000 SITE, BULGARIA

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According to the latest update of the IUCN Red List the European ground squirrel, *Spermophilus citellus* (known also as European Souslik) is an endangered mammal species. In Bulgaria it is assessed as vulnerable (Red Data Book of Bulgaria 2015), but only its habitats are protected under the Bulgarian legislation. All reports since 2008 show a decrease in the range and abundance of the species. Initial studies in the Natura 2000 site “Zapadna Strandzha” (BG0002066) confirmed that unfavourable trend on local level - the existence of the last local colony was threatened by the critically low number of individuals despite the optimal condition of the habitat. In order to prevent this extinction, urgent conservation actions were taken in the area to improve the ground squirrel status. These included reinforcement the Souslik’s colony within the protected area. The initial colony size was estimated on about 20 individuals with decreasing density and area. The land of the reinforced colony has been purchased by the Bulgarian Society for the Protection of Birds (BSPB) with the aim to ensure its long term protection. For the translocation action a new innovative method was applied – individual cages were placed every year for the release of the Sousliks. Artificial holes were made, feeding and guarding were provided. The conservation action was implemented in parallel with multidisciplinary study of the post-release adaptation process. For 3 years during the months June - July in total 211 Sousliks were transferred as follows: 2017 - 96, 2018 - 71 and 2019 - 44. As a result of the careful translocation, the success of the reinforcement has been established, with an increase in both number of

Sousliks and inhabited area. As a result of the Souslik's translocation activities an important conclusion has been made and a set of recommendations for future conservation actions have been developed.

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## ASSESSMENT OF THE POSSIBILITIES FOR REINTRODUCTION OF A MEDITERRANEAN MONK SEAL (*MONACHUS MONACHUS*) BASED ON AN ANALYSIS OF THE CHANGES IN THE FACTORS THAT LED TO ITS EXTINCTION

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The monk seal is a critically endangered species, whose world population currently numbers about 700 individuals. In the 18th century this species was still living on colonies inhabiting sandy beaches and later due to human persecution moved to caves. This represents a loss of valuable adaptive traditions. The drastic change in the breeding grounds for the young and the conditions in which they grow up have probably led to a reduction in survival and reproductive success. The application of conservation measures in the natural habitats of the species and its protection do not guarantee success for the survival of the species. Unforeseen events such as epidemics or mass poisonings can cause drastic damage to this species. For example, the mass mortality of the population in Cabo Blanco coast in 1997. This raises the issue of the formation of captive populations of this species in order to create a genetic resource for the support of the wild species populations. Over the last decade, due to complex conservation measures worldwide, some populations have stabilized and the number of the species is slowly increasing. The species is registered more and more often in new places. This raises the question of assessing the possibilities for reintroduction of the species in the Bulgarian waters. The presence of experience and a functioning rescue center that raises and restores young animals in a neighboring country such as Greece, as well as plans to reintroduce the species to Turkey is an important prerequisite for assessing these possibilities. In the past, the monk seal was widespread on the Bulgarian Black Sea Coast and sometimes entered the Danube River. The areas that the species has inhabited in the past are now covered almost entirely by NATURA 2000 protected areas, which is an important prerequisite for the potential recovery of the species. Moreover, in recent years in our country marine mammals and the attitude of the fishing community to them are the subject of intense research. This has led to the creation of significant scientific and expert potential in this field. In the Red Book of Bulgaria it is noted that reintroduction in appropriate places is the last opportunity for population resumption (natural resettlement is practically impossible).

RS-8

POSTER SESSION

## IS THERE A FUTURE FOR THE ROMANIAN HAMSTER, MESOCRICETUS NEWTONI IN BULGARIA?

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Universities with their scientific potential and zoos as centers for breeding of rare and endangered species have a key role in the process of biodiversity conservation, where knowledge of behaviour can play a significant role in conservation activities. The focus of this work is the Romanian hamster, *Mesocricetus newtoni* - an endemic species distributed in Bulgaria and Romania. Due to its key role in ecosystems, knowledge of the state of the population, as well as a better understanding of its behaviour are important prerequisites for the creation of a successful ex situ population, and further its reintroduction into the wild. In this regard, in May 2019 field research began on the state of the population of *M. newtoni*, and a specialised software EthoVision XT, Noldus IT for studying of behaviour was provided. Numerous field trips in agroecosystems in Northeastern Bulgaria were carried out using direct observations, camera traps and Sherman live traps. Despite the efforts and cooperation of local agronomists, the species was not captured, nor were any reliable traces of its activity found. The intensive treatment of agroecosystems with pesticides, as well as the observed changes in land use - large areas covered by monocultures, reduction of alfalfa areas are probably the main reasons for this result. This this allows us to suggest that the population of the Romanian hamster is critically declining in our country. Therefore, implementation of measures for its restoration is urgently needed. Key words: Cricetidae, field studies, biodiversity, conservation.

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## MULTIPLICATION AND GROWTH ACCELERATION OF LILIUM RHODOPAEUM DELIP. USING IN VITRO AND HYDROPONIC TECHNOLOGIES

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*Lilium rhodopaeum* Delip. (Liliaceae) is a Balkan endemic, with limited distribution in Bulgaria and Greece, in the Rhodopi Mts. The species is included in the Red Data Book of Bulgaria as critically endangered, and protected by the Biological Diversity Act. Its populations are fragmented, with low density of the individuals. Propagation and planting of bulbs in the populations would be a good measure for their strengthening. In vitro micropropagation of plants taken from the population near Sivino village was successfully applied starting from bulb half-scales, and an average of  $4.7 \pm 1.8$  bulblets per explant was obtained for 4 months. Some explants formed over 20 bulblets on the best nutrient medium (MS, supplemented with 0.1 mg/l kinetin and 0.5 mg/l NAA). However, bulblets' growth was very slow, also during the ex vitro adaptation to soil. Soilless cultivation was reported as a successful alternative for large-scale production of *Lilium* hybrids, the main advantages of hydroponics being rapid plant growth and development, and independence from seasons and soil type. The aim of the present study was to accelerate the growth of in vitro multiplied *L. rhodopaeum* bulblets using 2 different hydroponic systems and to compare their effectiveness. Growth of 75 uniform in vitro bulblets evenly distributed in 3 variants has been tested: on Flood & Drain hydroponic system (with perlite as substrate), Cutting Board hydroponic system (deep water culture system, peat cubes as substrate), and Control (soil substrate, wick system). Six months after the start of the experiment significant differences were noticed between variants concerning bulblets' survival and growth, and root development. Bulbs' growth was considerably accelerated on Flood & Drain hydroponic system owing to the favorable conditions for root system development. In this variant all bulblets

survived and are ready to be potted in soil mixture, and then gradually adapted to natural conditions. Roots of bulblets on Cutting Board hydroponic system were weak and bulblets hardly grew although almost all of them survived. Worst results were observed in the control variant where 45.8% of the bulblets died. As a result, Flood & Drain hydroponic system was chosen as the suitable one for growth acceleration of the in vitro obtained *L. rhodopaeum* bulblets.

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## MACROPHYTE REINTRODUCTION IN A SMALL SANDPIT LAKE AFTER HABITAT RESTORATION

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The study presents results of a four-year monitoring program on the macrophyte reintroduction success in a restored sandpit lake. The Small Negovan Lake is located on the remnants of the Negovan Swamp, which was drained in mid 30s of the 20th century. The swamp was part of an extensive wetland with high biodiversity and conservation value, situated at the confluence of Lesnovska River and Iskar River. The canalization and embankment of the rivers, in the 30s, resulted in hydrological cut-off and drying up of the swamp. Consequently, the territory was exploited for gravel and sand pit production, thus retaining water and providing refuge to a number of the original flora and fauna of the Negovan swamp. After the exploitation of bottom material was ended, the lake regained a semi natural appearance, partly due to a series of projects for improving the aesthetical appearance of abundant sandpit lakes through macrophyte reintroductions.

The most recent and complete restoration took part in the period 2013-2015 through a "Demonstration Project for restoration of priority habitat type wetlands and species of European importance along Lesnovska River (near the Negovan Village)", a project of the Sofia Municipality supported by EU funds (Operational Programme Environment, Priority axis 3: Preservation and restoration of biodiversity; Project № 5103020-C-013/2012). Since then, a monitoring program was launched to assess the results of the macrophyte reintroduction and to aid their development.

The reintroduction included macrophytes with high conservation value (*Aldrovanda vesiculosa*, *Nymphaea alba*, *Nuphar lutea*, *Nymphoides peltata*, *Hippuris vulgaris*, *Marsilea qualrifolia*, *Menyanthes trifoliata*), as well as some common species (*Lemna trisulca*, *Potamogeton lucens*, *Acorus calamus*, *Butomus umbellatus*, *Callitriche cophocarpa*, *Callitriche platycarpa*,

*Myriophyllum verticillatum*, *Ranunculus trichophyllus*). The monitoring also includes one of the most aggressive invasive species - *Elodea nuttallii*, and the development of tall-growing species *Phragmites australis* that modify habitat structure and thus influence associated organisms and impair recreational use. The expansion of the reeds poses strong pressure on the rooted floating-leaf type macrophytes (*Nymphoides peltata*, *Marsilea quadrifolia*), leading to their suppressed development and consequent disappearance from the community. The main problem of the Small Negovan Lake is the continuing drop in the water level due to the subsidence of the river bottom as a result of the periodical dredging of the Lesnovska River. This, as well as the prolonged drought, leads to a loss of the supra-littoral habitat and inwards expansion of the reeds.

## EXPERIENCE FROM RIPARIAN FORESTS RESTORATION PROJECTS IN BULGARIA

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The poster presents the experience and lessons learned from practical activities for reforestation of riparian forests in Bulgaria. The huge ecological importance of these forests, the damage they have already suffered, and the threats they face today call for immediate efforts for their restoration. Some of these are aimed at the creation of new riparian forests by means of reforestation activities using typical local species; others – to the improvement of the structure and functions of existing forests through the removal of invasive species. The poster presents the experience and lessons learned from six concrete reforestation sites along the Danube river. Aspects related to the reforestation methods used, the results, the current status of reforested areas, as well as reforestation costs are described.