ABSTRACT BOOK

Rufford Small Grants Conference

"Conservation across the Caucasus"

2 – 4 August, 2018
Kazbegi, Georgia

Conference Schedule

2 August

09:30 – 13:00	Arrivals
13:00 – 16:00	Check in Hotel
19:00	Welcome Dinner

3 August

09:00	Breakfast		
10:20	Check in Conference Room		
10:45	Prevention of introgression in populations of endemic honeybee Apis mellifera caucasica in Georgia requires multifaceted approach	Irakli Janashia	Agricultural University of Georgia
11:00	Conservation of Velvet Scoter on Tabatskuri Lake in Georgia	Nika Paposhvili	Ilia State University
11:15	Land snails diversity and conservation in Georgia – prospects, progress and obstacles	Levan Mumladze	Ilia State University
11:30	Effectiveness of protected area in example of Dilijan national park for terrestrial molluscs diversity and richness in Armenia	Meri Arzumanyan	Yerevan State University

11:45	Conservation of old-growth oak forests of Kyiv Polissya as habitats of Red List Species of Ukraine	Andrii Plyha	WWF Ukraine
12:00	Conservation of Old-growth Oak forests in the North-Eastern Ukraine	Yehor Yatsuk	Ukrainian Independent Ecology Institute
12:15	Study of the rare plants and habitats distribution in Desnyansky Biosphere Reserve and conducting environmental education measures on its territory	Viktoria Ivanets	National Antarctic Scientific Centre of Ukraine
12:30	Let's make better future for Grey Wolves in Bosnia&Herzegovina: Continuation of conservation activities	Dragana Snejgota	University of Banja Luka
12:45	Conservation of fungi and fungal habitats – a case study of *Pleurotus calyptratus* in Ukraine	Iryna Yatsiuk	V.N. Karazin Kharkiv National University– Ukraine
13:00	Lunch		
14:00	Cetacean research in the Georgian Black Sea	Davit Dekanoidze	Ilia State University
14:15	Conservation Actions for Cetaceans in the Georgian	Temur Shvelidze	Ilia State University

	Territorial Waters		
14:30	Conservation of the Egyptian Vulture (Neophron percnopterus) in Azerbaijan	Sevinc Saruxanova	Baku State University

14:45	Conservation of an Endemic Darevskia dryada in Charnali Gorge Area	Natia Barateli	Ilia State University
15:00	Coffee Break		
15:30	Conservation of Endangered and Endemic Vipera kaznakovi in Georgia	Mariam Gabelaia	Ilia State University
15:45	The Yelkouan Shearwater Puzzle: Movement of a Pelagic Seabird in Turkish Straits	Dilek Sahin	Bogazici University, Institute of Environmental Sciences
16:00	Statues and conservation of turtles at Montenegro	Ana Vujovic	Natural History Association of Montenegro
16:15	Cetacean distribution and their major threats in the Turkish coast of the Levantine Sea	Aylin Akkaya	Marine Mammals Research Association, Antalya, Turkey
16:30	The effects of pollution on elasmobranch health and specific disease development in wild populations	Andrej	National Geographic Explorers Center for marine and freshwater biology Sharklab

			ADRIA
17:00	Free time		
20:00	Dinner		

4 August

06:00	Breakfast		
06:45	Check in Outside the Hotel		
07:00	Field Trip to Yuro	Wildlife Watching	
11:30	Group Photo		
12:00	Check Out From the Hotel		

Abstracts

Irakli Janashia

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Prevention of introgression in populations of endemic honeybee *Apis mellifera caucasica* in Georgia requires multifaceted approach

Irakli Janashia, George Japoshvili, Giorgi Kirkitadze

Honeybee conservation project conducted by our team was helpful to reveal the following obstacles of *Apis mellifera caucasica* conservation in Georgia:

Lack of understanding of importance to prevent the introgression of native honeybee stocks among Georgian beekeepers;

Establishment of the new conservation regulation for native honeybees in Georgia still suffers from the lack of willingness among policy makers, as honeybee is regarded just as livestock animal notwithstanding being endangered honeybee race endemic for Georgia.

We propose to follow the backdoor approach developed by our team, suggesting beekeepers to "use hidden reserves of native honeybees to preserve them".

At this point, efficient solution would be to encourage the adoption of modern breeding practices, employed by western beekeepers, among Georgian ones. This approach is mainly focused on the improvement of existing native/endemic honeybee stocks through the breeding programs cohering principles of conservation. We propose creating local network of bee breeders to improve their breeding skills through proper education which is considered as a next step of conservation project. The integration of Georgian network to Pan-European bee-breeders' one (coordinated by SMARTBEES project) would ensure success of conservation program.

Proper use of native bees will reduce the number of attempts to import non-native honeybee races to Georgia.

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Conservation of Velvet Scoter on Tabatskuri Lake in Georgia

The populations of Velvet Scoter (Melanitta fusca) is decreasing worldwide and the species is classified as Vulnerable by IUCN. A geographically isolated population of Velvet Scoter breeds in the Caucasus between north-east Turkey and South Georgia, size of which was unknown prior to our study. Not long ago the breeding area of Velvet Scoter included several lakes of Javakheti highland (Georgia). However, due to direct habitat destruction, overfishing and illegal hunting breeding area of Velvet Scoter is critically reduced and currently, the species only remains on Tabatskuri Lake. Based on our observation there is no more than 15 pair of Velvet Scoter on Tabatskuri Lake. They are distributed in the northern part of the lake near the small island, which is used for breeding. Unfortunately, Armenian Gull represents strong competitor in breeding sites which is one of the limiting factors of increase of Velvet Scoter population. In addition, other threats facing Velvet Scoter population in Tabatskuri Lake are 1. Disturbance and nest distraction by human and Armenian Gulls; 2. Limited breeding ground; 3. Competition with Armenian Gull; 4. Abandoned fishing nets; 5. By-catch. For those reasons the breeding success is low, approaching maximum 2 ducklings from per nest. We have actively worked with the local community to raise the awareness on the Velvet Scoter and the threats facing its population.

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Land snails diversity and conservation in Georgia – prospects, progress and obstacles

Georgia shelters the most diverse land molluscs fauna in Europe and Middle Asia. Currently it counts more than 260 species of slugs and snails with about 25 % of Georgian endemics and up to 75% of Caucasian endemics. Many species have very narrow distributional range with size does not exceed few square kilometers. In addition to this, badly managed/regulated utilization of natural resources, drive many mollusk species to extinction treat. With help of the Roffor foundation, I started to develop science based conservation of most threatened molluscs species of Georgia. With this respect, based on available data I evaluated potentially most threatened species and areas with the highest conservation values. As a second stage, I collected data for several range-restricted and less-known species and with others - relatively well known species, I developed conservation statuses based on IUCN criteria. Unfortunately, both, local and global conservation authorities were and are still ignorant with these information. Creating legal bases locally or integration of local data/knowledge in international conservation information space seems to be a main difficulty in conservation of non-charismatic but otherwise vulnerable species.

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Effectiveness of protected area in example of Dilijan national park for terrestrial molluscs diversity and richness in Armenia

Arzumanyan M. V., Arakelyan M. S.

Protected areas are major instruments in nature conservation. Dilijan National Park (DNP) is one of the keystone protected areas in Armenia in case of diversity, but is it effective in relation to terrestrial molluscs diversity and species richness? The effectiveness of the DNP to represent species, populations, and areas with high species diversity/richness has not been properly evaluated especially last years when ecotourism takes place in the park very effectively. Such evaluations are fundamental to understand what is necessary to strengthen the protected areas and better protect biodiversity. We present a novel assessment of DNP effectiveness in protecting molluscs species. We selected 5 points inside and outside of the national park to compare molluscs species diversity and richness to assess the effectiveness of the national park. The research sites inside the DNP were chosen close to the ecotourism trails. According to our results, the diversity of molluscs species inside and outside the protected area wasn't high when species richness was significantly high inside the protected area.

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Conservation of old-growth oak forests of Kyiv Polissya as habitats of Red List Species of Ukraine

Natural oak forests are poorly represented among pine plantations of Kyiv Polissya and mostly belong to "exploitative" forests due to commercial value. Most of such forests will be clearly cut in a short run. However, old-growth oak woodlands are the habitat for species incorporated into The Red List of Ukraine. Ukrainian laws are able to protect areas with presence of such species, but no actual data on their presence are available. We are going to fill in this gap. Our goal is to ensure conservation of old oak forests through notification of forests enterprises about localization of protected species. During first stage team is looking for presence of Red List species of plants, birds, bats, fungi and insects. During second stage we revisit areas with identified species together with foresters with aim to show them species which they have to protect. After this we`ll send letter to forest authorities asking include data to forestry database. Third activity related to raising awareness about importance of oak forests and will represent by designing and distribution of poster for stakeholders. Including threatened species data to forestry database is key step that may ensure protection of oak forests from legal large scale clear cutting.

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Conservation of Old-growth Oak forests in the North-Eastern Ukraine

Yehor Yatsiuk, Stanislav Viter, Natalia Saidakhmedova, Serhiy Vlaschenko, Anton Vlaschenko

Oak forests in the North-Eastern part of Ukraine are located near the border of steppe zone. Due to historical reasons main deforestation occurred here later than in other temperate European forests: between XVIII and the beginning of XXth centuries. In the second half of XX century the intensity of clear cutting here was low, and a relatively high amount of natural old-growth stands remained here. During the last century Oak forests in the region have undergone gradual aridification, and in last 20 years logging intensity has decreased in the region. Clear cuttings are mostly confined to old-growth stands of natural seed or vegetative origin. Current network of protected territories doesn't guarantee protection of rare species and their habitats. Our work covers three directions: survey, protection and education. We search for locations of protected animal and plant species, inform forestry bodies about their presence and demand for ceasing of loggings there. On the longer term we propose inclusion of the most valuable patches to Emerald network. At the same time we search for species which could be indicators of valuable old-growth forests in the region, focusing on bats, raptors, woodpeckers, land snails and xylophagous beetles. The other

direction is education of people with the aim to ruin main myths about forests.

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Study of the rare plants and habitats distribution in Desnyansky Biosphere Reserve and conducting environmental education measures on its territory.

Biosphere Reserve is a valuable natural area that has received UNESCO certificate. In order to protect the nature on this territory effectively, it is necessary to carry out constant monitoring of the key components of biodiversity and to conduct educational activities with locals on the regular base. A key part of our project is a field research. We want to conduct a study of rare plant species and habitats distribution listed in Resolution №6 and №4 of Bern Convention and also Red book of Ukraine. The most of the area of the Desnyansky Biosphere Reserve territory is distributed among small land users with purpose for agriculture, mostly hay mowing and grazing, but many plots are currently not used in any way and remain in their natural state. The main threat for this nature territory is intensification of agriculture, especially plowing of new lands for the cultivation of agricultural crops. We see the possibility for a long-term nature conservation of this territory through the raising of awareness of the local people and understanding by them the natural value of their home region, and we think that the best way to raise this awareness through conducting educational activities with local schoolchildren.

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Let's make better future for grey wolves in Bosnia&Herzegovina: Continuation of Conservation activities

There is currently no official legislation regarding wolves in Bosnia and Herzegovina, despite the fact that the decline and structure of their population had been reported. Bearing in mind that the wolf population had not been previously researched in Bosnia and Herzegovina, we decided to initially undertake conservation efforts. Our activities, conducted throughout the current and previous RSG projects, included field monitoring, non-invasive sampling and genetic analyses, all of which are necessary for successfully planning a long-term conservation strategy. Up to the present time, wolves at six different locations have been monitored, via nine photo-traps and the use of non-invasive sampling. Genetic analyses were conducted by applying autosomal microsatellites and control region of mtDNA. Recent results regarding population structure of wolves from Bosnia and Herzegovina, based on a larger sample, confirmed a population structure of two genetic clusters, albeit with very low statistical support and moderately high genetic diversity based on heterozygosities. The weak signal for observed genetic differentiation may reflect broader structuring, considering the fact that wolves from Bosnia and Herzegovina are located centrally within the large Dinaric-Balkan population. The

combination of field and genetic monitoring will help us to genetically characterize wolves, and ultimately allow us to identify conservation management units.

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Conservation of fungi and fungal habitats – a case study of *Pleurotus calyptratus* in Ukraine

Iryna I. Yatsiuk, Oleh V. Prilutsky, Anton O.Savchenko

Fungi play crucial role in forest ecosystems. Among them there are indicator species, useful in identifying valuable sites. Despite that, fungi remain worldwide rarely considered in conservation actions and planning. Our project was focused on *Pleurotus calyptratus* – a fungus, red-listed in Western Europe, but unexpectedly common in Eastern Ukraine. This species is strictly associated with aspen, fruiting on wood of semiliving or recently died trees. We surveyed 2 old-growth aspen stands and mapped all *P. calyptratus* fruitbodies to reveal its fruitification dynamics. We discovered that the fungus fruitifies on certain aspen tree only for 1, rarely 2 years, meaning that the log becomes inappropriate for fruitification of *P.calyptratus* very quickly. Given that surveyed aspen stands are old-aged, it explains the commonness of *P.calyptratus* in studied area. Furthermore, as far as in these stands aspen is replaced by other tree species, we expect the significant decline of populations here in the near future. In that respect aspen stands are quite controversial: while young aspen groves obviously possess less fungal biodiversity than oak forests, the situation changes drastically when aspen stands become mature and senescent. Our project included public events

targeted to rising public awareness about role of deadwood and fungi in forest ecosystems.

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Conservation Actions of Cetaceans in the Georgian Territorial Waters

Black Sea Cetacean populations are represented by two species of dolphins and one species of porpoises. Black Sea Cetaceans are genetically differentiated from other populations in the Mediterranean and Atlantic. Therefore Common dolphin, Bottlenose dolphin and Harbor porpoise are classified as sub species and has red list categories Delphinus delphis ponticus ssp. as Vulnerable, Tursiops truncatus ponticus ssp. and Phocoena phocoena relicta ssp. as Endangered by IUCN. Based on the Ilia State University observations from 2012-2017 cetacean populations congregate in Georgian territorial waters. The estimated density for harbor porpoise example equals 1.5 individuals per square km, 25 times higher than other Black Sea area surveyed in winter.

The threats of cetaceans generally defined as by-catch, overfishing, water pollution including chemical and noise pollution, habitat degradation, viruses and infections. But the major threats are by-catch and overfishing. Around 60% percent of stranded carcasses found along the coast, the death reason identified as by-catch. Rest 40% of stranding reason could be viruses or infections.

Thus the cetacean population is under the heavy pressure of fisheries and the conservation actions are needed to protect cetaceans from by-catch. My project which is funded by Rufford foundation and Conservation Leadership Program aims to mitigate by-catch rate by 10% under a year project. And we are using acoustic warning systems to deploy inside fishing gill-nets to mitigate by-catch and test first time this new acoustic method using "Pinger"-devices.

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Conservation of the Egyptian Vulture (Neophron percnopterus) in Azerbaijan

The Egyptian Vulture (Neophron percnopterus) European breeding population is small (as few as 3.500 pairs), and declined substantially between 1970-1990. The IUCN classifies the raptor as an Endangered Globally Threatened species. It is mentioned as a priority species in many international conventions and lists. In Azerbaijan it is a nesting species. The population size is >100 – 300 (Bird in Europe, Birdlife, 2004), according to M. Patrikeev in the late 1980s/early 1990s, the species had around 80-100 pairs (Patrikeev, 2004). The Red Book of Azerbaijan reports 70 pairs (2013, second edition). The exact number of individuals for whole country is as of yet unknown.

My project has focused on the conservation of the Egyptian Vulture in Azerbaijan and was conducted in 2011. The Nakhchivan Autonomic Republic and Gobustan regions were selected for the project as the most likely places of key species distribution but the project also covered some parts in Western area of the Greater Caucasus. 51 nests of the Egyptian Vulture were found, with the current population in Azerbaijan being

approximately between 200-500 pairs. In order to raise awareness about this endangered species educational material were have been prepared and distributed among local populations.

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Conservation of endemic Darevskia dryada in Charnali Gorge area

Charnali gorge area is a home to Caucasus endemic and relict Charnali lizard – *Darevskia dryada*, which is currently categorized as critically endangered (CR) according to IUCN Red List. The project purpose is to support the conservation of *D. dryada* and its habitat by promoting the species status in local population and environmental agencies. We plan to achieve our goals by updating the information about populations' size; defining suitable habitat for conservation prioritization of *D. dryada* in Charnali gorge area; identifying threats facing the species; increasing awareness in locals. We plan to develop scientifically informed recommendations for the species conservation.

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Conservation of endangered and endemic Vipera kaznakovi in Georgia

Caucasian Viper (*Vipera kaznakovi* Nikolsky, 1909) is an endemic to the Caucasus and globally threatened species - Endangered according to IUCN Red List. At the same time it is ancient Colchic relict species that occurs mostly within the boundaries of the Colchic biogeographical region – in the eastern Black Sea catchment basin. In spite of the fact that Caucasian Viper is included in the Red List of Georgia as Endangered, very few special studies on the status of Caucasian viper's populations have been conducted in Georgia. During the last decade, number of large development projects and tourist currents, among them, within Colchic region and the Black Sea coast, are dramatically increased that could influence status of this fragile species. Within framework of the proposed project we plan: to identify the current status of this globally threatened species; to assess the threats affecting the population; to elaborate the protection tactics (which will be sent to Georgia's Protected Areas authorities); and to raise the awareness of the local population, especially its young segment that uses internet daily, by informing them regularly through social media (Youtube, Facebook).

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The Yelkouan Shearwater Puzzle: Movement of a Pelagic Seabird in Turkish Straits

The Yelkouan Shearwater is a globally threatened seabird species endemic to the Mediterranean, and its global status assessment is complicated by the fact that no information exists on the species from Turkey. Breeding Yelkouan shearwaters spend their non-breeding season in the Black Sea and non-breeding birds are assumed to use the same area during Bachelor years. The Turkish Strait System, the sole marine connection between the Mediterranean and the Black Seas, is of critical importance for the movements of Yelkouan shearwaters, as these birds do not fly over the land. To evaluate the activity of Yelkouan shearwaters in Turkish Strait System a monitoring study was conducted between 2012-2013. Land based counts in two narrow straits and ship-based counts in the Sea of Marmara were performed to collect data on the numbers and the movements of the species. The results of the simultaneous land based counts in two straits suggested that the Sea of Marmara is potentially an important area for Yelkouan shearwaters during chick rearing period. The bird activity in the Dardanelles was lower during the study period in comparison to the Bosporus but wider temporal coverage is needed in the Dardanelles to better compare the activity between both areas. This study contributed to the global population assessment effort for the species; led to propose new marine protected areas and confirmed the importance of Turkish Strait System for the conservation of this threatened species.

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Statues and conservation of turtles at Montenegro

Six species of turtles are present in Montenegro; terrestrial Hermann's tortoise (*Testudo hermanni boettgeri*), semi-aquatic European Pond Terrapin (*Emys orbicularis*) and Balkan Terrapin (*Mauremys rivulata*) and sea turtles – Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas*) and Leatherback Turtle (*Dermochelys coriacea*). Leatherback and Loggerhead Turtle are categorized as Vulnerable, Green Turtle as Endangered, European Pond Turtle and Hermann Tortoise are as at Near threatened and Balkan Terrapin as Low concern according to IUCN Red list. Even though they are legally protected at national and international level, turtles face with negative consequences of varies human impacts. Current research focus on the distribution of European pond turtle at Virpazar (Bar municipality) and Niksic municipality while simultaneously engages with awareness campaigns through education, promotion and meetings with stakeholders at southern and central part of Montenegro, where the dimension of negative impacts are unknown. Species habitat usage with the human activities in the area has been mapped to understand the major threats on the species. The results revealed that Hermann's turtle favors the rocky habitat and the vegetation cover consists mostly of scrub or pseudomacchia of both regions, and European pod turtle presence was recorded mostly at slowly moving river brench and lake in southern part of researched area (Virpazar), while fire, pollution, urbanisation, illegal collecting and road killing were formed the highest threat levels to the Hermann's tortoise, and urbanisation, pollution, electrofishing, fishing nets, lake traffic and road killing for the European Pond Turtle. However there is a need for future studies to understand the dimension of these threats on species level thus to propose accurate conservation implications in Montenegro.

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Cetacean distribution and their major threats in the Turkish coast of the Levantine Sea

Marine ecosystem is under heavy human pressure globally and cetaceans are not exception. Although it is known that cetaceans are the top predators and responsible on the balance of the species under their umbrella, almost all its species is either classified at risk or data deficient. One of the main barrier on the way to effective species protection is actually the existing knowledge gaps. The current project is developed to fill the knowledge gaps on cetacean presence and their major threats within the Turkish coast of Levantine Sea. Dedicated seasonal surveys were conducted within the coastal and offshore waters between Antalya and Marmaris. While visual surveys were carried out since 2015, acoustic surveys were embedded to the survey protocol since April 2018. Overall, 200 surveys were conducted and six cetaceans were encountered; bottlenose dolphin (*Tursiops truncatus*), striped dolphin (*Stenella coeruleoalba*), Cuvier's beaked whale (*Ziphius cavirostris*), Risso's dolphin (*Grampus griseus*), Humpback dolphin (*Sousa spp.*) and Sperm whales (*Physeter macrocephalus*). In addition to the dedicated surveys, false killer whale (*Pseudorca crassidens*), Cuvier's beaked whale,

striped and bottlenose dolphin sightings were recorded during the opportunistic surveys off the south coast of Cyprus. Additionally, fishing practices and marine traffic has been found to have a considerable negative role on bottlenose dolphins, sperm whales and beaked whales. Majority of the marine ecosystems of Levantine Sea isn't protected by law, despite the possible important habitats with nursing grounds, specifically for bottlenose dolphins, beaked whales and sperm whales, all are at risk. Therefore inter collaborated multi-year research effort within and between neighbouring countries, pose a critical importance in order to implement the necessary conservation provisions within the Levantine Sea.

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The effects of pollution on elasmobranch health and specific disease development in wild populations

Up to date, there is almost no data on the mechanisms of disease development in elasmobranch species, further associated with specific anthropogenic pressures on the environment. Through our pioneer research, we have adopted the multidisciplinary approach which relies on pathology (histopathology and immunoghistochemistry), ecology, radiology and molecular biology – together with the analysis of available data. Through so far studies, we have analyzed over 30 elasmobranch species from

the various habitats in the Mediterranean sea, primarily Adriatic sea. Though it is believed to have a highly developed immune system, elasmobranchs nevertheless suffer from various pathological changes: primary inflammatory/infectious, traumatic, cardiovascular and toxin-associated diseases and tumors. A bacterial infection often includes sepsis, dermatitis and enteritis; fungal infection include dermatitis, hepatitis and branchitis; while the suspected viral infections include papilomatosis, herpesvirus and adenovirus. Parasitic infection are not rare in elasmobranchs and include nematodiasis, myxozoanosis, amoebiasis, coccidiosis, ciliate infections and other. Different toxicoses include toxic gill disease fenbendazole, ammonia, chlorine, chloramine and gas bubble disease. Understanding the models of disease development is a basis for the establishment of long-term in-situ conservation of threatened species.