



57TH RUFFORD CONFERENCE
BOSNIA AND HERZEGOVINA, TURKEY, IRAN, GEORGIA

FINAL REPORT

NOVEMBER, 2020
SARAJEVO, BOSNIA AND HERZEGOVINA



RUFFORD SMALL GRANTS CONFERENCES

Title: RSG Bosnia and Herzegovina Conference 2020

Date: 10th October, 2020

Venue: Hotel “Colors Inn” Sarajevo

Country: Bosnia and Herzegovina

Organizing committee:

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The Rufford Small Grants Conference in Bosnia and Herzegovina „Balkan&East 2020“ was successfully held on 10th October, 2020 in Sarajevo. This is one of many RSG conferences held all over the world with the main reason to share our experience during the projects and to connect RSG winners. In the year 2020, Sarajevo was host of four countries (Bosnia and Herzegovina, Turkey, Iran and Georgia) with 22 researchers participating in the Rufford Small Grants Conference.

Due to COVID-19 pandemic worldwide, we were prevented from organising this conference in Beypazari - Ankara, Turkey where all participants would have been presenting their projects live. This half-live and half-online conference was a good back-up plan where participants from Bosnia and Herzegovina were presenting their projects live in the conference room and other presenters (from Turkey, Iran and Georgia) were presenting their projects via Zoom application in the comfort of their own home/workplace. At the beginning and during the whole conference, we politely asked all participants to be highly responsible and follow COVID-19 restrictions. Some of the COVID-19 restrictions were to use the protective face masks and disinfection gel (anti-bacterial gel) which were provided for every participant, to clean hands often and to keep a safe distance (1.5-2 meters). We put a distance between every seating place for participants (minimum distance of 1.5 meters) because COVID-19 spreads primarily from person to person. Also, the conference room was ventilated after every session and during the conference when it was necessary. Participants who were present in the conference room realised the potential danger of coming to the conference. They understood that attendance at this conference may have resulted in illness and/or death to them or others relating to or in connection with COVID-19.

Main aim of this conference was to gather most of Rufford Small Grant candidates (past and current) working in Bosnia and Herzegovina, Turkey, Iran and Georgia to improve networking amongst candidates and emphasize the importance of networking in a scientific world. The Conference was the joint of the East countries and Balkans. Idea was to connect participants from Turkey, Iran, Georgia and Bosnia and Herzegovina to share their experience and knowledge, be an inspiration to each other and help each other with suggestions and new methodologies.

Our main objectives during the conference were:

1. Sharing the results of the projects that were granted by RSG,
2. Sharing our experiences during the projects, discussing all issues and new ideas, ups and down during the realizations,
3. Creating functioning network for successful implementation of many activities in order to preserve nature,
4. Sharing information and promoting all researchers through public open lectures.

RUFFORD FUNDING HAS ENABLED DISPROPORTIONATELY LARGE AND TANGIBLE CONSERVATION IMPACTS!

The largest and tangible conservation impacts of many RSG projects are networking with local communities and other scientists from the field of conservation as well as creation of the conservation management plan. As a result of the Rufford project in one entity in Bosnia and Herzegovina, legal protection of a couple of dozens of rare and endangered species of fungi has been provided. Some of them have been recorded in the territories of already protected areas. Also, wondrous lynx population in Bosnia and Herzegovina has been protected in eastern part in National Park "Sutjeska" and the data collected during the lynx, and other Rufford projects (Ascomycota, Plantae, Amphibia, Reptilia, Insecta, Mammalia and other groups) has been used in implementation of national legislative of protected and strictly protected wild species, which came into force in July 2020.

Since velvet scoter (*Melanitta fusca* L.) is considered to be decreasing worldwide and is classified as a vulnerable species by the IUCN Red List, it was necessary to work on the conservation of this species. The Lake Tabatskuri in Georgia is home to the last geographically isolated breeding population of velvet scoter in Caucasus and this population has poor reproductive success. The biggest success resulting from this project is that eggs are no longer collected in collaboration with local fishermen. They also avoid fishing for three weeks in important areas. This is positively reflected and this year on this lake were 42 fledglings.

Regarding conservation of top predators in the North Aegean Sea, before implementation of the Rufford project, studies on the top predators inhabiting the Turkish waters basically consisted of first records or range expansion reports. This study was the first to subject top predators as one important element of the ecosystem. Through the project they have established the first database on the presence and abundance of these species in the Turkish waters, which can also be considered as a pioneer study for any further conservation or management plan. Without a database, one can not carry out a management or conservation plan. They also conducted the first Local Ecological Knowledge database throughout the project.

EXAMPLES OF LOCALLY DEVELOPED APPROACHES TO BIODIVERSITY MANAGEMENT.

In Turkey, Okan contribute through his project in a way that, now, three main forestry chief departments where the sweetgum forests are densely distributed, follow their Sweetgum Conservation Action Plan while they apply their forestry management plans there.

Bosnia and Herzegovina has several great examples where the projects impact the protection of certain species in protected areas, such as lynx in National park "Sutjeska". Projects contributed full level of understanding among local authorities/relevant institutions (Institute for Protection of Cultural, Historical and Natural Heritage of Republic of Srpska and Forestry Gorica, Šipovo) in the future protection of Ascomycotes.

RUFFORD SUPPORT HELPED EARLY CAREER CONSERVATIONISTS ACHIEVE THEIR GOALS.

RSG are definitely helping young scientists to build their careers. For example, Nedim Jukić (Bosnia) has discovered and published a lot of data so far through Rufford support and today his NGO has a solid fungal database that is registered in the New York Botanical Garden. Project of sweetgum conservation by Okan Ürker (Turkey) helped him to start his early career and succeed in the field of conservation through the project. Okan managed to successfully finish his first Rufford project and he also applied and got the second and third grant in the meantime. He also became a PhD and has a lot of scientific articles and books related with the sweetgum conservation. Thanks to the outputs of these projects, Okan was able to find his current job as a forest ecologist at the university. Many of them built strong relationships with other scientists, institutions, NGOs and important stakeholders. Rufford support is a great opportunity to develop themselves as young researchers. Some projects have helped them discover opportunities, abilities and disabilities and some of them could not conduct the field work and collect data for their PhD thesis without Rufford support.

RUFFORD FUNDING HAS HELPED SUPPORT WORK ON SPECIES AND ECOSYSTEMS THAT ARE TRADITIONALLY DIFFICULT TO FUNDRAISE FOR.

It is very difficult to get money to protect biodiversity and species, especially for species that are not popular or are not symbols of a particular area. Dragonflies, like many other groups of insects, have not been recognized and rated as species of concern in many countries on the Balkan Peninsula. Thanks to the Dejan Kulijer's projects about dragonfly distribution and conservation in Bosnia and Herzegovina, this country now has valuable new data which has helped to identify and map the diversity of dragonfly species and distribution in the county. The knowledge of dragonflies is important as they can be used as reliable indicators of freshwater habitat quality, for monitoring of habitat changes, climate change and also as ambassadors of freshwater habitat protection and awareness rising among the general public. Many young researchers have recognized the importance of species conservation and the importance of biodiversity. Various taxonomic categories such as algae, plants, fungi, dragonflies, spiders, fish, reptiles, birds and mammals were presented through the conference.

RUFFORD GRANTS HAVE PROVIDED SEED FUNDING TO BUILD CAPACITY, IDENTIFY CONSERVATION NEEDS AND DEVELOP REPLICABLE MODELS FOR FUTURE PROJECTS.

The role of previous Rufford grants for the future projects is significant. Some activities which were supposed to take place in the spring season could not be conducted due to the pandemic. However, people who were part of the recent projects did become more conscious on how ecologically important and vulnerable many species are.

Aylin Akkaya Baş with project members, have succeeded to reach the students and early career researchers who are interested to study marine mammals and build a long-lasting relationship. The project they started in Antalya, was also replicated in other sites such as Istanbul, Gökçeada Island, Dilek Peninsula and even in Montenegro. Also, they actively worked together with the project leaders of each project site to secure the data standardisation.

Regarding the wolves in Bosnia and Herzegovina, previous results helped Dragana and her team to understand which future activities should be planned. Currently, they are in the process of preparing the next project based on the knowledge from the previous projects.

Thanks to the funds provided by the Rufford Foundation, Emina Šunje gathered a small group of people and founded the Herpetological Association in Bosnia and Herzegovina: BH-HU: ATRA (www.bhhuatra.com) that is operating on a serious level on the research and protection of amphibians and reptiles in Bosnia and Herzegovina (capacity building). Hence, the Rufford Foundation changed the professional orientation of many people in this country.

Nowadays, foresters who do not have experience with maquis ecosystems have a whole different idea thanks to İrem Tüfekçioğlu and her project implementing in Turkey. They started to understand the value of maquis and the importance of conservation activities. Once they finish the project and share all the results with foresters, they will work on next steps to improve forest activities in maquis vegetation.

Conservation needs, methods and pipelines used during Leili's project about the cheetah population in Iran are useful tools to do similar studies for other species in country as well as in other parts of the world.

Nedim Jukić and his project members from Bosnia have managed to build solid capacity among their members and when technical aspects are considered as well. They are fully capable of identifying most relevant conservation needs in different areas/habitats and to provide detailed ecological and mycological studies. Due to this they will have full capacity and ability to conduct similar models in the years to come.

During the Raptors conservation action project in Turkey, scientists worked with all raptor species, but they have realised that some species are more vulnerable than others like long-legged buzzard (*Buteo rufinus* Cretzschmar) and common kestrel (*Falco tinnunculus* L.). Even though these species are not under threat according to national and international evaluations, they think that limited studies about the so-called wide-ranging species have a knowledge gap. Their plan is to work on this conservation action in future by focusing on these species and understand every aspect about them.

There is a long way to go regarding the conservation of velvet scoter in Georgia and there will be many setbacks along the way. Scientists are planning to do several things: (1) to continue monitoring on the brood and mark the important territories for velvet scoter at Lake Tabatskuri with buoys to prevent fishing activities and recreational boating in these key areas; (2) to use more (15-20) camera traps to get a real picture about the competitive interaction of the velvet scoters and other existent animals on the island during the incubation time; and (3) to evaluate the isolation level of the Caucasian population of velvet scoter from the northern population.

RUFFORD FUNDING HAS HELPED TRAIN A FUTURE GENERATION OF CONSERVATIONISTS, INDEED!

Every Rufford funding has something beautiful that came out from it, not only the species or habitats that became protected but also the new generation of conservationists came out from almost every Rufford project. Many project leaders had assistants on their field works who were from different faculties and departments (forester, biologist, ecologist, landscape architect, etc.). Students got the opportunity to be a part of a research team where they enhance their research and outreach skills. Some of them have also become part-time employees in NGOs and are currently capable of running their own surveys.

Throughout the Prenjensis project that started back in 2013, more than 30 students were engaged in the field work. These students were inspired by this project and some of them even dedicated their bachelor's and master's thesis on the alpine salamander under Emina's supervision. Most of these students are now active members of the Herpetological Association (www.bhhuatra.com) and in this way are still helping with other projects as well that aim to research and protect amphibians and reptiles in Bosnia and Herzegovina. This experience surely enriched their life. During the Turkey field work regarding the project about maquis, İrem worked with 10 students by turns. They really enjoyed being part of pre-fieldwork preparations, fieldworks, project management and developing results. İrem had very good feedback from them that they have learned a lot of plant species, ecosystem types, species richness etc. Also, students have shown great interest in bird watching and wanted to learn more details about the raptors. Some of them even created their own birding student clubs.

Through education and conferences many young individuals were encouraged to start with their own conservation careers, to write new projects and to become new conservation activists in their countries. Some of them are Ajla and Tea, biology students who were in the organizing committee of this conference. This was an excellent opportunity for them to hear something new about conservation biology and to learn the basics about organising a conference. Ajla and Tea said that this conference was very motivational and inspiring, that it encouraged them to think about endangered species and habitats in Bosnia and Herzegovina and to find solutions to their protection. One of the students that was helping Leili during the field work has started his Master's studies in conservation biology. Designers, NGOs, universities, local municipalities, governmental bodies and others who were not directly connected with biology were also part of all projects and they were encouraged to think more protective about nature and its beauties.

RUFFORD GRANTEES HAVE PUBLISHED IMPORTANT BIODIVERSITY INFORMATION.

From every Rufford grant several articles, books, movies and other forms of educational material have been published. Hereinafter you can see what participants said about what were the most important results from their projects. We kindly asked conference participants if they could send us all their references (from original scientific papers, books, popular science magazines, conference proceedings, etc.) that came out from their Rufford projects. The list is given in alphabetical order and it does not include all of our conference participants. Throughout the projects invaluable knowledge is gathered for the preservation of the species in the future. This knowledge is well documented in the below listed publications and the ones that are still in procedure to get published. These references show that Rufford grantees have published important biodiversity information and that they are most likely to continue with doing that in the future:

Aylin Akkaya Baş – *Previously Eastern Mediterranean Sea was known as the “blue desert” of the Mediterranean and cetacean presence was always disregarded from the area. Our continuous studies underlined that the reality was indeed different with year-round presence of important species, as in sperm whales and beaked whales, with nursing grounds in the Turkish waters of the Eastern Mediterranean Sea. Further, not only coastal species but also offshore species, presence were reported. However, the same waters also hold cumulative effects of human pressure ranging from habitat destruction to heavy seismic activities currently taking place. To understand the dimension of each threat and to develop effective mitigation strategies, we have produced informative guidelines for the sectors and trained the local MMO/PAMs who can monitor and minimise the impact of load and impulsive sounds on the threatened species. In addition to all the scientific achievements, I think our biggest success was our role to support independent and highly equipped researchers (prioritising women) where they are not only feeling appreciated but also, their involvement valued.*

Akkaya, A., Lyne, P., Schulz, X., Awbery, T., Capitain, S., Rosell, B. F., ... & van Walsum, L. (2020).

Preliminary results of cetacean sightings in the eastern Mediterranean Sea of Turkey. *Journal of the Black Sea/Mediterranean Environment*, 26(1).

Atchoi, E., **Bas, A.A.**, Lagoa, J. Live sightings of beaked whales from the Turkish Levantine Sea. 2nd WCA Conference, Faial, Azores, October 2015.

- Bas A.A.**, Bas E. Combining Research with Education for Cetacean Conservation in Fethiye-Göcek SEPA, Turkey. "Nature knows no boundaries" Rufford Small Grants Conference. p. 23. Bosnia and Herzegovina. March 2016.
- Bas A.A.** and Eleman A. (2016). Bottlenose dolphins (*Tursiops truncatus*) in the Turkish Levantine Sea: Individual identification, residency patterns and home range. Türkiye Deniz Bilimleri Konferansı 2016. ODTU Kültür ve Kongre Merkezi Ankara. 31 May-3 June 2016. pp. 77.
- Bas A. A.**, Erdogan M.A., Morris N.R.C., Yeoman K., Humphrey O., Gaggioli E., Roland C. (2017). Seasonal encounter rates and residency patterns of an unstudied population of bottlenose dolphin (*Tursiops truncatus*) in the northwestern Levantine Sea, Turkey. *Hyla: Herpetological bulletin*. No.1:11-13
- Baş A. A.**, Erdoğan M.A., Ulusoy E. , Aslan B.E., Kurt M., Port J., Basmacı M., Baş E. (2018). Marine Mammals of the North Levantine Sea 2016-2017. Marine Mammals Research Association Annual Report.
- Bas A.A.** and Gönülal O. (2017). First case of whalesucker, *Remora australis*, in association with delphinids in Antalya Bay, Turkey. *Mediterranean Marine Science*. vol.18, no.3, pp.410-410
- Bas A.A.**, Lagoa J.C., Atchoi E. (2016). New records of Cuvier's beaked whales (*Ziphius cavirostris*) from the Turkish Levantine Sea. *Turkish Journal of Zoology*. DOI: 10.3906/zoo-1509-19
- Bas A.A.**, Piludu N., Atchoi E., Lagoa J.C. (2016). Recent sightings of the critically endangered mediterranean monk seal *Monachus monachus* (Hermann 1779) in Antalya Bay, Turkey and implications for conservation. *Monachus Guardian*.

Salih Tora Benzeyen – *First of all, the project, as can be understood from its name, is an action more than a project. So, it is very critical to spread the objectives of the project to all across the country. We would like to create a communication network between all wildlife veterinary clinics in Turkey to learn the current status of injured raptors at national level. Secondly, we understood that some species are more vulnerable than others. It is not meaning their population trend but threats that are not known. As we observed from the clinic researchers, the long-legged buzzard (*Buteo rufinus*) is the main target species in the project area. It needs more detailed projects. Also we understood that destruction of the nests and re-location of the chicks in sub-urban areas are a new and unseen problem. There are several incidents that long-legged buzzard and common kestrel chicks moved to the clinic as all family. It needs more studies. Lastly, the involvement of children in conservation is the future of everything. It was the hardest part of the project to communicate with the adult people but explaining the status of the threatened species to children was more effective than all others. Does not matter which topic or species we work, we have to reach children for sustainable and realistic changes.*

Nedim Jukić – *Several published original scientific papers, two books (one more to come within this project), two documentaries (one more to come within this project) and the fact that for the first time several dozens of rare or highly endangered fungal species found their place on one official conservation document.*

Jukić N. (2017): Two rare and interesting species of Pezizales (Fungi) from Bosnia and Herzegovina – *Peziza montirivicola* and *Trichophaea flavobrunnea*. *Glasnik Šumarskog fakulteta Univerziteta u Banjoj Luci*. 27: 5-16.

Jukić N., Matočec N., Kušan I., Gašić R., Omerović N. & Tomić S. (2019): Diversity of Ascomycetous Fungi in the Territories of Protected Areas and in the Areas Evaluated for the Protection in Bosnia-Herzegovina – Establishing Important Fungus Areas (IFA). *Mikološko udruženje MycoBH – Sarajevo*. Str. 234.

Jukić N. & Omerović N. (2017): Gljive reda Pezizales u Bosni i Hercegovini – Ugroženost, ekologija i biogeografija. *Amatersko mikološko udruženje, Sarajevo*. Str. 206.

Jukić N. & Tomić S. (2018): Mycobiota of Mediteranetum Neum-Klek as important argument for area protection in Vaselek S., Popović M., Šeat J., Ćurić A. (eds.) (2018): Explore and protect the natural beauty of Balkans. International Rufford Small Grants Conference. 27th – 28th September, 2018, Silver Lake, Serbia. Abstract Book. 54 pp.

Jukić N., Tomić S., Sabovljević M. & Omerović N. (2018): Notes on some bryophilous Pezizales (Fungi) in the Mediterranean part of Bosnia and Herzegovina. *Glasnik Šumarskog fakulteta Univerziteta u Banjoj Luci*. 28: 71–83.

Matočec N., **Jukić N.,** Omerović N. & Kušan I. (2017): Importance of karst poljes for mycobiota of Dinarides. Second International Workshop on Dinaric Karst polje as wetlands of national and international importance. Tomislavgrad.

Matočec, N., **Jukić, N.,** Omerović, N. i Kušan, I. (2019): Dinaric karst poljes and their importance for mycobiota. In: Sackl, P., Ferger, S. W., Sarajlić, N., Kotrošan, D. & Topić, G. (eds): *Dinaric Karst Poljes – Nature Conservation and Rural Development*. Ornitološko društvo “Naše ptice”, Sarajevo, p.26-49.

Nur Bikem Kesici – *I would consider the establishment of MAPCON (Marine Apex Predator Conservation) as the most important result from our project. MAPCON was formed as an initiative and now it's been going towards becoming an association and it will be the only marine top predator related association in Turkey. Additionally, we have created an Instagram account and a youtube channel under the name of MAPCON, where we regularly post updates from our project as well as*

illustrations of target species with brief comments about their ecology, threats to their population and their protection status in the Mediterranean. It has reached over 200 followers already.

Leili Khalatbari – *Knowing that they are not (usually) preying on livestock and that the populations are still connected.*

Khalatbari, L. (2018) The world's most elusive cat: The Asiatic cheetah in the Dasht-e Kavir desert of Iran / World Wildlife Day 2018 - Big Cats: Predators under Threat. 3 March 2018, Bern, Switzerland. (Oral presentation).

Khalatbari, L., Abolghasemi, H., Ghadirian, T., Jowkar, H., Hakimi, E., Breitenmoser, U., Egeter, B., Brito, J.C. (2020). Assessing cheetah's population size, structure and diet in the central deserts of Iran with genetics. 4th Annual Meeting in Conservation Genetics – From Genomes to Application. 26-28 February 2020, Frankfurt, Germany. (Oral presentation).

Khalatbari, L., Egeter, B., Abolghasemi, H., Hakimi, H., Breitenmoser, U., Brito, J.C. (2019). Habitat connectivity of Asiatic cheetahs (*Acinonyx jubatus venaticus*) in central deserts of Iran. BIODIV annual meeting, Vairão, Porto. 2-4 May 2019 (Poster presentation).

Khalatbari, L., Yusefi, G.H., Martínez-Freiría, F., Jowkar, H., Brito, J.C., (2018). Availability of prey and natural habitats are related with temporal dynamics in range and habitat suitability for Asiatic Cheetah. *Hystrix*, 29: 145-151. (IF= 1.862)

Sopio Kiknavelidze – *During the study, we have found that: (1) the competitive interaction of the velvet scoters and other existent animals on the island during the incubation time did not have a big impact on the hatching success; (2) after the hatching period predation pressure by Armenian gulls was high; and (3) in combination with human disturbance and adverse weather fledgling success was extremely low.*

Ognjen Lukić – *Mapping of habitat type and completing data on Tilio-Acerion forests within two canyons in order to provide a database useful for proper assessment of threat status as well as for conservation of this habitat type. We aimed to raise awareness about the importance of the conservation of these habitats among the stakeholders such as the local community and forest enterprises. The project produced a solid scientific basis in promoting the conservation status and measures as support for the initiative against the construction of the mini hydroelectric power plants. The results of research suggest new and interesting findings of the endemic, endangered and rare vascular species. Our data and promotional materials helped continue efforts to educate the local community and all ecological NGOs on Tilio-Acerion forests conservation issues.*

Lukić O., Bilić S. (2020). *Tilio-Acerion* forests in the Crna Rijeka and Ugar canyon (Bosnia and Herzegovina) – research and promotion. Rufford Balkan and East Conference 2020. International Rufford Small Grants Conference. 10th October, 2020, Sarajevo, Bosnia and Herzegovina. Abstract Book. 37-38 pp.

Lukić O., Milanović Đ., Brujić J., Stupar V. (2019). Prilog poznavanju rasprostranjenja i ekologije crnjuše (*Erica carnea* L.) u Bosni i Hercegovini. Glasnik Šumarskog fakulteta Univerziteta u Banjoj Luci 29, 2019, 75-83.

Dragana Šnjegota – Achieving collaboration with (1) the local community – essential for maintaining and success of any project at the local level, and (2) scientists from the field of conservation – essential for understanding all our results.

Šnjegota D. 2016. Grey Wolf in Bosnia and Herzegovina. Book of Abstracts from Rufford Small Grants Conference in Bosnia and Herzegovina “Nature knows no boundaries”, March 21-22, Banja Luka, Bosnia and Herzegovina, p.60.

Šnjegota, D. 2018. Let’s make a better future for Grey Wolves in Bosnia & Herzegovina: Continuation of conservation activities. Book of Abstracts. Rufford Small Grants Conference “Conservation across the Caucasus”. Tbilisi, Georgia. 14p.

Šnjegota, D. 2020. Wolf-human co-existence in Bosnia Herzegovina – necessities for future activities. 57th Rufford Conference, Sarajevo, Bosnia and Herzegovina, p. 41

Šnjegota, D., Đan, M., Veličković, N., Stefanović, M., Trbojević, I., & Ćirović, D. 2016. Genetic variability and population structure of grey wolf (*Canis lupus*) from Bosnia&Herzegovina. *Balkan Journal of Wildlife Research*, 3(1), 7-11.

Šnjegota, D. & Stefanović, M. 2018. Grey wolf in Bosnia and Herzegovina - conservation activities conducted within the Rufford Small Grants. Abstract book of 27th Rufford Foundation Conference "From Mountains to Deep Seas: Research & Conservation Beyond Boundaries" February 3-6, Bar, Montenegro, p.33

Šnjegota, D., Stefanović, M., Veličković, N., Ćirović, D., & Djan, M. 2018. Genetic characterization of grey wolves (*Canis lupus* L. 1758) from Bosnia and Herzegovina: implications for conservation. *Conservation Genetics*, 19(3), 755-760.

Šnjegota, D., Stefanović, M., Veličković, N., Ćirović, D. & Đan, M., 2018. Population genetic studies of grey wolves (*Canis lupus* L. 1758) from Bosnia and Herzegovina. Poster presented at: The Final Conference of the LIFE WOLFALPS Project: Wolf- human coexistence in the Alps and in Europe. March, 18-20; Trento, Italy.

Šnjegota, D., Stefanović, M., Veličković, N., Ćirović, D. & Đan, M. 2019. Wolves in Bosnia and Herzegovina. Poster presented at: The 20th Student Conference on Conservation Science. March, 25-28; University of Cambridge, Cambridge, United Kingdom

Šnjegota, D., Stefanović, M., Veličković, N., Ćirović, D., & Djan, M. 2020. Genetic analyses and field monitoring of wolves from Bosnia and Herzegovina. 4th Annual meeting in Conservation Genetics, Frankfurt am Main, Germany, p.116

Emina Šunje – *The knowledge that we gathered throughout this work that is indispensable for the future preservation of the prenjensis and a prerequisite to undertake concrete conservation actions such as rewilding.*

Bonato, L., Corbetta, A., Giovine, G., Romanazzi, E., **Šunje, E.**, Vernsi, C., Crestanello, B. 2018. Diversity among peripheral populations: genetic and evolutionary differentiation of *Salamandra atra* at the southern edge of the Alps. *Journal of Zoological Systematics and Evolutionary Research*, 2018: 1–16.

Šunje E., Pasmans, F., Maksimovic, Z., Martel, A., Rifatbegovic, M. 2018. Recorded mortality in the vulnerable Alpine salamander, *Salamandra atra prenjensis* (Amphibia: Caudata), is not associated with the presence of known amphibian pathogens. *Salamandra*: 54(1): 75-79.

Šunje, E., Van Damme, R., Dušan, J., Mueller, M., Škrijelj, R., Helfer, V. 2019. Morphometric characteristics of Alpine salamanders; a support for subspecies validation and conservation? *Amphibia-Reptilia*, 40(1): 78-89.

Šunje E., Zuazu B. A., Van Damme R., Backeljau T., Pojskić N., Lukić Bilela I., Kalamujić Stroil B. : Genetic diversity and differentiation of alpine salamanders from the Dinarides – an evolutionary perspective with insights for species conservation. In press (accepted) for SALAMANDRA journal (probably published in the next number – February 2021).

Also, three other references are being prepared (1 - on the thermal and hydric biology of alpine salamanders from the Dinarides, 2 - feeding ecology of Dinaric alpine salamanders and 3 - environmental modelling to detected suitable areas for the survival of these animals taking into consideration ongoing climate change). We are still monitoring the population on Mt. Prenj and after 5 years of monitoring data (2022) we plan to publish these results considering the demographic characteristics of this population.

Tijana Trbojević – *The most important results from the project are (1) evidence of the permanent existence of a lynx that has not appeared in a particular area for a very long time; (2) proof of the existence of lynx on the territory of Montenegro; and (3) evidence of the spread of the lynx population,*

and the potential merger of the Dinaric lynx population with the critically endangered Balkan lynx population. Two papers will be published in the journal CAT News soon.

İrem Tüfekçioğlu – *The forestry law in Turkey doesn't count maquis ecosystems as part of forest land. Therefore forestry management plans do not consist of any approaches on maquis in terms of conservation. The most important result of our project was conducting field works and interviews with governmental institutions as Forest Management Units at the same time, so we can actually prove species richness in maquis vegetation and show the value of this type of vegetation to everyone working with maquis ecosystems.*

İrem's project hasn't been finished yet when we were writing this report, she was still working on it. For the publications from this project, stay tuned!

Nurbahar Usta Baykal – *The most important result was the realization of the complexity of the taxonomic position of the species. It created many barriers for us to emphasize the extinction risk status of the species. Also, we realized that the significant amount of effort is dedicated to increasing the economical profit from the species, rather than its conservation.*

Okan Ürker – *With the Sweetgum Conservation Action Plan, all results related to wildlife research and studies on environmental ethics, history and sociology are the most important results from our projects.*

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Ürker, O., 2016. Sweetgum Forests for Birds. Kuş Sesi/Bird Voices (Periodicals of Doğa Derneği/BirdLife Turkey), No. 3, May-August 2016, Pages. 30-34, Izmir-TURKEY.

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- Ürker, O.**, 2018. Ancient Communities of Anatolia: Sweetgum Forests. *Tabiat ve İnsan* (ISSN:1302-1001), Year:52, No: 201, March-2018, Pages: 32-37, Ankara-TURKEY.
- Ürker, O.**, Benzeyen, S.T., 2020. The Importance of Endangered Anatolian (Oriental) Sweetgum Forests for the Bird Species. Araştırma Makalesi. *International Journal of Nature and Life Science (IJNLS)*. 4(1), 14-25pp., Web link: <https://dergipark.org.tr/tr/pub/ijnls/issue/54485/677936>
- Ürker, O.**, Çobanoğlu, N., 2014. What Happened To Sweetgum Forests?. Second Edition of Inaugural International Conference on Education in Ethics, 21-23 May 2014, Abstract Book, Pages.85-86, Medicine Faculty of Ankara University, Ankara-TURKEY.
- Ürker, O.**, Çobanoğlu, N., 2017. Çevre Etiği Bağlamında Anadolu Sığla Ormanları (Anatolian Sweetgum Forests in Terms of Environmental Ethics). 204 Pages. ISBN: 978-3-659-94199-3. LAP -Lambert Academic Publishing, Germany, 2017.
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- Ürker, O.**, İlemin, Y., Bulut, Ş., Ada, E., 2015. An Up-to-Date Evaluation of the Bio-Ecology of Anatolian Sweetgum Forests (*Liquidambar orientalis*) and Wildlife Characteristics in These Forests.12th National Congress of Ecology and Environment, Muğla Sıtkı Koçman University, Abstract Book, Pages.87-89. 14-17 September 2015, Muğla-TURKEY.
- Urker O.**, İlemin Y., Yorulmaz T., Benzeyen T., Elverici M., Kunt K.B., Ada E., Yalçın, S., Parlar Urker Ö., 2020. Utilization Processes From Wildlife Studies In Preparation Of Action Plan For Conservation Of Anatolian Sweetgum Forests In Southwestern Turkey. Rufford Balkan&East2020 Conference, 10 October 2020. Bosnia&Herzegovina.
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Ürker O., Yorulmaz T., İlemin Y., 2018. The Conservation of the Anatolian Sweetgum Forests with The Help of Forest Bats / Turkey. Rufford Grant Recipients Conference, Ukraine 2018, 23-25 April 2018 Ukraine, Kharkiv, Karazin University

Also, we kindly asked conference participants if they could send us links, movies, advertisements or anything else associated with their Rufford projects. Different forms of educational materials are listed in the table below (Tab. 1).

Table 1. List of links, movies, advertisements and other forms of educational materials associated with participants' Rufford project/projects

No.	Name	Links, movies, advertisements and others
1	Aylin Akkaya Baş	<ol style="list-style-type: none"> 1. https://www.bbc.com/turkce/haberler-turkiye-47750787 2. https://ozgurdenizli.com/tag/deniz-memelileri-arastirma-dernegi/ 3. https://www.sozcu.com.tr/hayatim/yasam-haberleri/cocuklari-yunuslarla-bulusturan-muthis-proje/ 4. https://ajanimo.com/yunus-ve-balinalari-inceleyen-uzmanlar-marmariste/ 5. https://www.haberturk.com/mugla-haberleri/70678792-marmaris-uluslararası-bilim-calistayina-ev-sahipligi-yapiyor 6. http://www.dmad.org.tr/cetacean-strandings-in-turkey 7. http://www.dmad.org.tr/tuerkiye-de-yunus-oeluemleri 8. http://www.dmad.org.tr/sakarya-da-3-tirtak-oelue-bulundu 9. http://www.dmad.org.tr/duenya-balina-haftasi-2020-balinalari-bilim-ile-kurtar 10. https://www.youtube.com/watch?v=PAZnAAORx2k&fbclid=IwAR0jD2Ag4pVN6iU_IJYQMWN5ZrQhakQyefRAWFyPLYa_42dCKclweB_1tYU 11. https://www.youtube.com/watch?v=7STcdFWbboU&fbclid=IwAR2W8vgD5gfXjrCBE8h6WizO2oQSa7R_iCAmwX5kPjSbMFbX73qcadzEzYC
2	Salih Tora Benzeyen	<ol style="list-style-type: none"> 1. https://raptorsconservation.wordpress.com/

3	Nedim Jukić	<ol style="list-style-type: none"> 1. Trailer for documentaries - https://www.youtube.com/watch?v=eIBMceH3e9c&t=4s 2. Mycological Society MycoBH Youtube channel - https://www.youtube.com/channel/UCc4ZnCjmtCxlEecx2g0AuQ?view_as=subscriber 3. International Mycological Workshop AscoBH 2018 report - http://www.mycobh.com/wp-content/uploads/2019/08/ASCOBH-2018.pdf 4. Brochure - http://www.mycobh.com/wp-content/uploads/2019/08/Brosura_Rufford2.pdf 5. Brochure - http://www.mycobh.com/wp-content/uploads/2016/05/Pezizales-Tri-fold-brochure.pdf
4	Nur Bikem Kesici	<ol style="list-style-type: none"> 1. https://www.instagram.com/mapconservation/ 2. https://www.youtube.com/channel/UCvfFsvxnnv2uHOxNOB6EeBQ?view_as=subscriber 3. https://biyoloji-fen.istanbul.edu.tr/tr/haber/gokceada-etrafindaki-top-predatorlerin-izleme-ve-kapasite-arttirma-yolu-ile-koru-330071004C0039007400580071007A0037005800440039007900700046006200610041004F003200370077003200
5	Sopio Kiknavelidze	<ol style="list-style-type: none"> 1. https://www.facebook.com/imedisdila.ge/videos/666163854309422
6	Ognjen Lukić	<ol style="list-style-type: none"> 1. https://www.rufford.org/projects/ognjen_lukić 2. https://www.rufford.org/files/28037-1%20Promotional%20Materials_0.pdf 3. http://arbormagna.rs.ba/?p=1349&amp;script=lat 4. http://sf.unibl.org/index.php/cyr/aktuelno-2/vijesti/1535-rufford-tilio-acerion 5. https://www.facebook.com/CentarZaZivotnuSredinu/posts/2878842025478510 6. http://sf.unibl.org/index.php/lat/aktuelno/vijesti/1600-iucn-trening-za-procjenitelje-crvenih-listi
7	Dragana Šnjegota	<ol style="list-style-type: none"> 1. https://wolvesinbosnia.weebly.com/
8	Emina Šunje	<ol style="list-style-type: none"> 1. https://www.bhhuatra.com/en/partners 2. https://www.klix.ba/lifestyle/mural-posvecen-endemskoj-podvrsti-i-planini-prenj-osvanuo-u-jablanici/180426028
9	Nurbahar Usta Baykal	<ol style="list-style-type: none"> 1. https://www.instagram.com/kazdagigoknari/
10	Okan Ürker	<ol style="list-style-type: none"> 1. https://naturader.org/ 2. https://www.rufford.org/grant_recipients_conference_turkey2017 3. https://youtu.be/9KFNOigICsg

List of participants, conference schedule and abstracts

Table 2. List of participants

No.	Name	Country	Institution	Attendance
1	Admir Aladžuz	BA	Environment Department at Hydro-Engineering Institute Sarajevo, Bosnia and Herzegovina	At the conference room
2	Andrej Gajić	BA	Sharklab ADRIA: Center for marine and freshwater biology (Naxxar, Malta)	At the conference room
3	Ognjen Lukić	BA	Arbor Magna – Natural heritage protection society, Stepe Stepanovića 75A, 78000 Banja Luka, Bosnia and Herzegovina	At the conference room
4	Amela Sarajlić (Ermin Mašić)	BA	University of Sarajevo, Faculty of science, Department of biology, Zmaja od Bosne 33-35, 71000 Sarajevo, Bosnia and Herzegovina	At the conference room
5	Dragana Šnjegota	BA	Faculty of Natural Sciences and Mathematics, University in Banja Luka, Mladena Stojanovića 2, Republic of Srpska, Bosnia and Herzegovina	At the conference room
6	Nedim Jukić	BA	Mycological Society MycoBH Sarajevo, Trg Zlatnih ljljana 34, 71000 Sarajevo, Bosnia and Herzegovina	At the conference room
7	Boris Davidov	BA	Society for research and protection of biodiversity, Bosnia and Herzegovina	At the conference room
8	Tijana Trbojević	BA	Ecology and Research Association, Dr. Mladena Stojanovića 2, 78000 Banja Luka, Bosnia and Herzegovina;	At the conference room
9	Emina Šunje	BA	Herpetological Association in Bosnia and Herzegovina ATRA; Faculty of science and mathematics, University of Sarajevo, Zmaja od Bosne 33-35, 71000 Sarajevo, Bosnia and Herzegovina	At the conference room

10	Dejan Kulijer	BA	BioLogger, Bosnia and Herzegovina; The National Museum of Bosnia and Herzegovina	At the conference room
11	Okan Ürker	TR	CANKIRI KARATEKIN UNIVERSITY, 2NATURA The Society For The Conservation of Nature&Culture - Turkiye	Online
12	Nur Bikem Kesici	TR	Istanbul University	Online
13	Mert Elverici	TR	Erzincan Binali Yıldırım University (EBYU)	Online
14	Salih Tora Benzeyen	TR		Online
15	Nurbahar Usta Baykal	TR	Hacettepe University	Online
16	İrem Tüfekçioğlu	TR	Hacettepe University Department Of Biology Division Of Ecology	Online
17	Aylin Akkaya	TR	DMAD-Marine Mammals Research Association	Online
18	Leili Khalatbari	IR	CIBIO - Centro de Investigação em Biodiversidade e Recursos Genéticos, Portugal	Online
19	Barbod Safaei-Mahroo	IR		Online
20	Kave Hobeali	IR	Future4Leopards	Online
21	Pouyan Behnoud	IR	Future4leopards Foundation	Online
22	Sopio Kiknavelidze	GR	Ilia State University	Online

Total number of conference participants was 27. Twenty-two of them presented their Rufford projects - with ten participants from Bosnia and Herzegovina presenting their projects at the hotel, and twelve participants from Turkey, Iran and Georgia presenting online via Zoom application (Tab. 2). Other five participants were part of the organizing committee. Due to global pandemic (COVID-19) this Rufford Conference was interestingly different than it was originally planned. From the chart (Fig. 1) you can see how East countries and Balkans are represented by the number of participants.

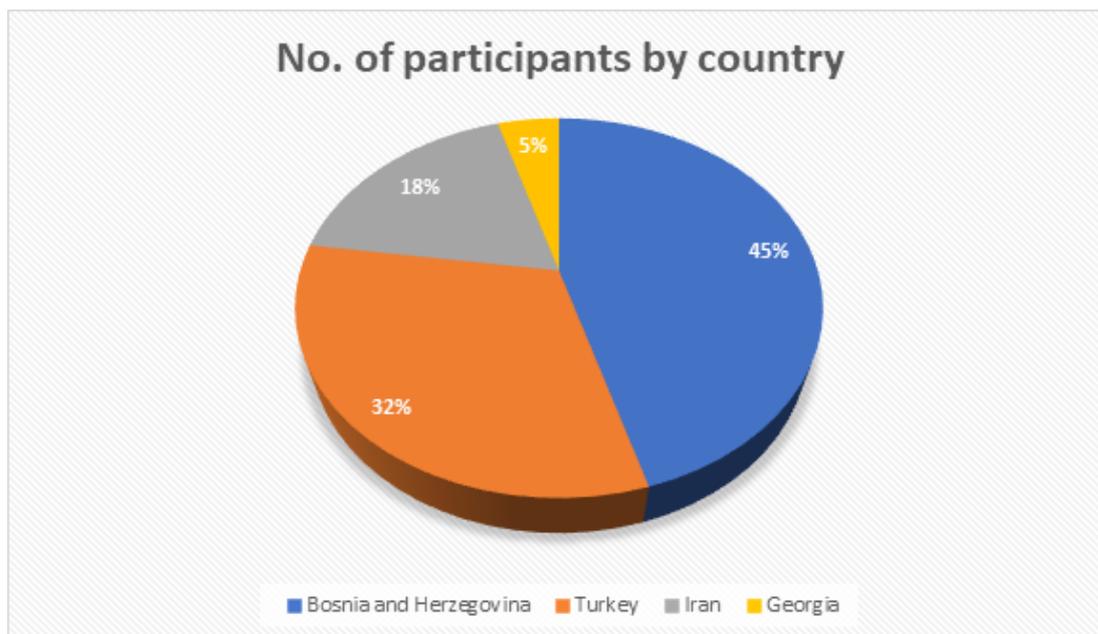


Figure 1. Percentage of participants by countries at the conference

All participants presented their work orally and some of the participants who were presenting their projects live at the conference brought their project promo materials (such as t-shirts, badges, leaflets and brochures and other types of promo materials) and publications.

Participants fulfilled ten Poll questions at the conference via their devices and we also sent to participants a short questionnaire to fulfill via e-mail. Participants rated the 57th Conference in Bosnia and Herzegovina 2020 very positively. They were satisfied with the organisation and they liked hearing new information and seeing colleagues from other countries. Also, they were thankful for safe distance participation due to COVID-19 pandemic. The participants said that the topics/projects were innovative and some of them provided ideas and motivation for the next projects. The participants were delighted with the movie they have watched: *Una – The One*, the river in Bosnia and Herzegovina that needs to be protected and not allowed to disturb its biodiversity (<https://www.youtube.com/watch?v=VZmOZL5Vo4Q>).

As it's shown at the graph (Fig. 2) most of the projects presented at the conference were based on mammal research, followed by plants. Considering that mammal research is very neglected in the world, especially in Balkan countries with a few experts for wild beasts, this data shows potential and gives hope for the future research of this taxonomic group. Scientists have collected an unenviable amount of data about their ecology, biology, behaviour and most importantly - exact conservation status so far. Biodiversity is declining globally causing harm to nature and people. Statistics for mammals indicate that 26 % of mammal species are threatened with extinction so we are glad that participants chose this group for research and presenting at the conference.

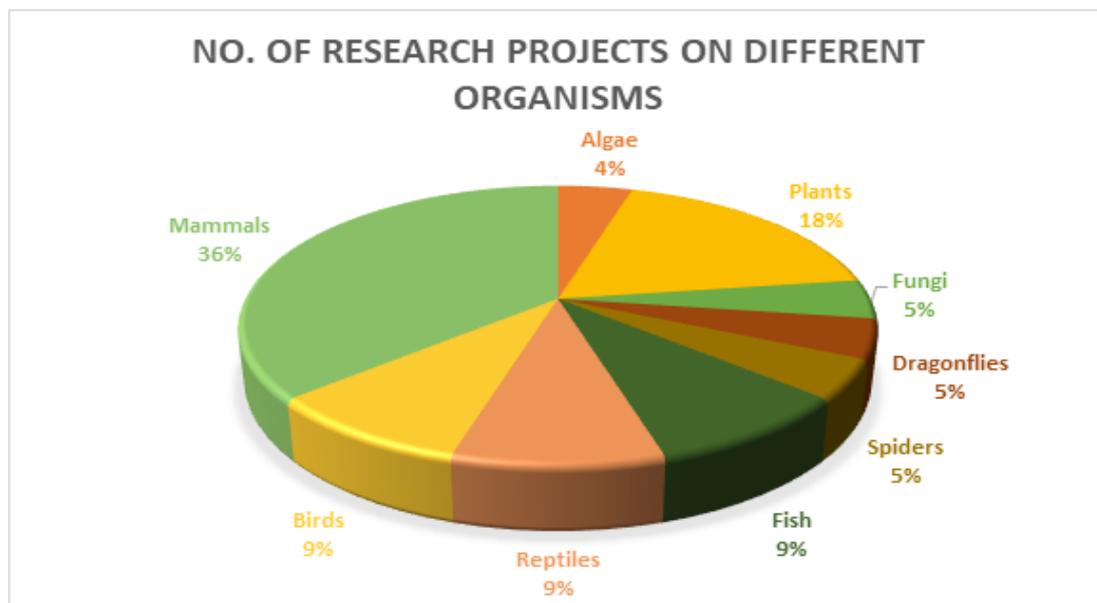


Figure 2. Percentage of taxonomic groups presented through 22 projects at the conference

On average, a conference participants had 2 projects (Fig. 3). Obviously, all 22 participants had applied for the first Rufford Small Grant, and the percentage of the participants that have one (first grant) and three (third grant) projects gained is almost equal. Participants who gained their second RS Grant were in the minority, which is great since we may say that most of the projects are valuable and project leaders had an opportunity to continue their great work. Additionally, most participants are experienced presenters regarding the number of conferences where they have presented their projects, but also some of the participants are new grantees of the RSG and this conference was the first international scientific meeting in which they participated. We are delighted that this conference was their first experience and according to the feedback, it was very positive. Considering this, we concluded that this conference was very valuable for education and training of young scientists where they heard something new about other interesting projects and shared their experiences. And at the same time we are sorry for the global situation and been restricted with other activities and time for workshops and field trip.

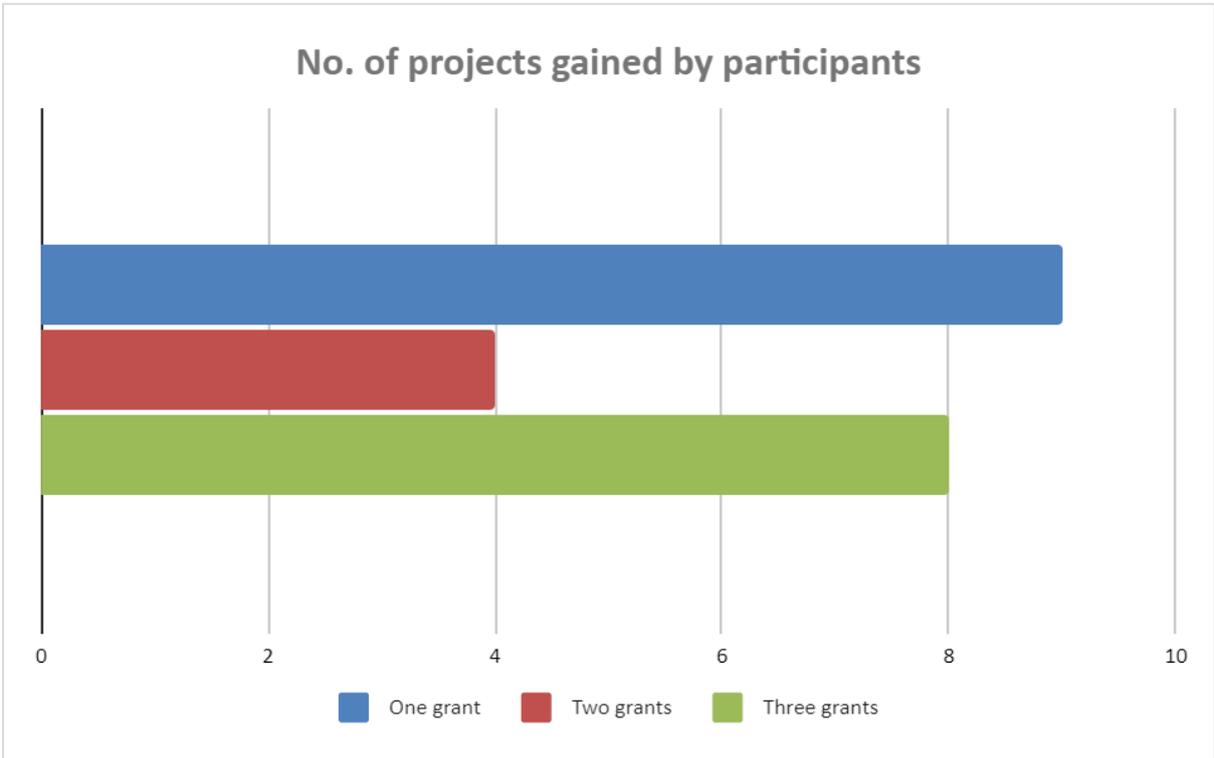


Figure 3. Total number of projects (21) separated in three groups – grants, gained so far by the participants at the conference

In addition, you can see the total number of gained projects per category at the conference. Most of the projects were based on mammal research (Fig. 4).

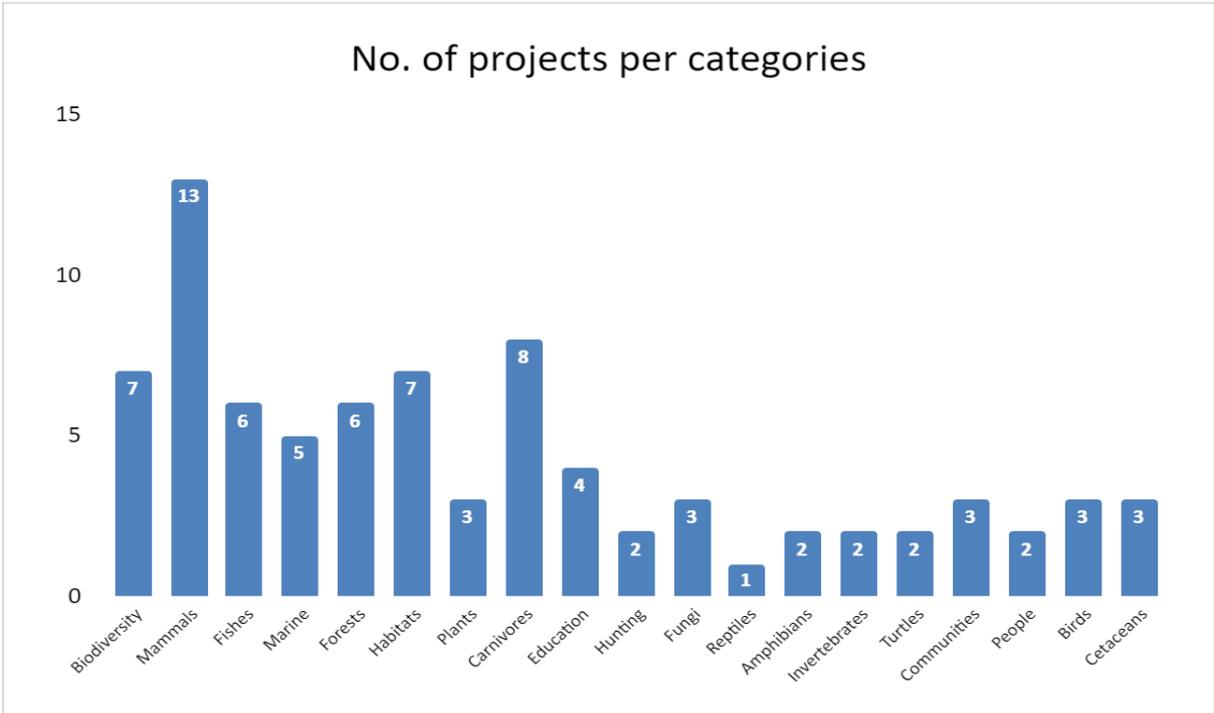


Figure 4. Total number of projects per categories gained so far by the participants at the Rufford conference Balkan and East 2020

POSITIVE AND NEGATIVE EXPERIENCES THROUGH IMPLEMENTATION OF THE PROJECTS

We collected data on participants positive and negative experiences whether with the state, local population, students and others who were part of their Rufford projects. Every single one of them had positive experiences, but some of them also had negative experiences. Positive experiences are usually the same when it comes to good experiences with students (who have showed great interests for the topics and were included in the field research, etc.), interest of local community in working with project leaders in achieving their project aims as well as all produced and published results that came out from the projects.

In many projects local populations were very interested in the studies, so they started to pay attention to the importance of conservation. They were very helpful and eager to help project leaders. For instance, in Turkey foresters started to pay attention to maquis conservation and fishermen now do care about the dolphins and understand the marine ecosystem point of view a little more. Aylin Akkaya Baş and her project members now have a really good mutually respectful relationship with the fishermen up to a point that they can place GPS trackers to fishermen's boats to follow their fishing pressure and to get frequent sighting reports from them. In Bosnia and Herzegovina there is an excellent example where many locals showed their interest for the alpine salamander after depicting the [mural of the animal](#) in the city of Jablanica (Bosnia). The Prenjensis project brought an incredible and unique experience that changed Emina's life and the course of her professional orientation. Throughout the promotional activities they managed to animate the local communities to engage themselves in the protection of the habitat of alpine salamanders. Local population were proud about having this rare creature in the mountains of Bosnia and Herzegovina and showed clear interest for its protection and the protection of its beautiful habitat.

Local community is interested in the issue that Ognjen Lukić has presented through his project which is a big motivation for his further work. The involvement of local communities helped Nur Bikem Kisici and her project members a lot during the tough weather as well as during the COVID-19 pandemic. They were continuously in contact with them and had the opportunity to record every target species occurrence just as if they were there.

Nedim Jukić and his project members had a lot of positive experience and feedback from different stakeholders and groups. They have successfully managed to evoke interests for mycology and mycological field studies among a couple of students. Most of the people do not know about the majority of these small while still very astonishing organisms. Most important positive feedback they

have received is from several local authorities where they have managed to update relevant official list of endangered or threatened fungal species and provide proposals of adequate conservation measures to managing authorities (Institute for Protection of Cultural, Historical and Natural Heritage of Republic of Srpska and Forestry Gorica, Šipovo, Bosnia and Herzegovina). They will continue to update and revise the official list through implementation of the current Rufford project and even after the project is being implemented. At the same time one of the most significant outcomes is the update and proposal of modified IFA methodology (Important Fungal Areas) presented within their second Rufford book which should be used on different institutional levels and by various local authorities.

Local states were very collaborative in many cases. Like Emina said, a very solid network has been created with people working in the Ministry for nature protection that are in charge of the biodiversity sector. Leili Khalatbari said that local state was very happy by the potential data that can be produced during her project which has implications for cheetah management.

Nurbahar Usta Baykal had very positive feedback from local NGOs working in the Kazdağları area where her project took place. Also, she made several future connections with local forest managers. Okan Ürker and his group members have published and started to implement a Sweetgum Conservation Action Plan with different kinds of stakeholders (other NGOs, forestry departments, local universities, local municipalities, district governors, governmental bodies such as water affairs, agriculture & rural development, tourism, health, national parks etc.).

Many conference participants believe that further projects will be much easier to be conducted since they have built a strong relationship with students, local population, stakeholders, NGOs and others and gained their trust. Many of them are very proud to say that they haven't had any negative experience with any of the above mentioned people and/or institutions, therefore the list of negative experiences is much smaller than the one of positive experiences.

Some had an experience during the second half of the fieldwork in 2020, due to COVID-19 pandemic İrem Tüfekçioğlu and others had to continue their fieldwork very privately. They couldn't visit any governmental institutions, local population, NGOs etc. - they were very careful about their health conditions.

While Aylin Akkaya Baş and her group members believed that the majority of their capacity building and community involvement activities succeeded, they weren't as successful as they desired with the related Ministries. The responsible governmental departments on marine protection is not well-organised and there is complication on the diffusion of the responsibilities of marine protection, let

alone marine mammal protection. Unfortunately, the responsible staff of international agreement is not fully informed about the necessities of its role and the economic sector always has a stronger hand on the decision process.

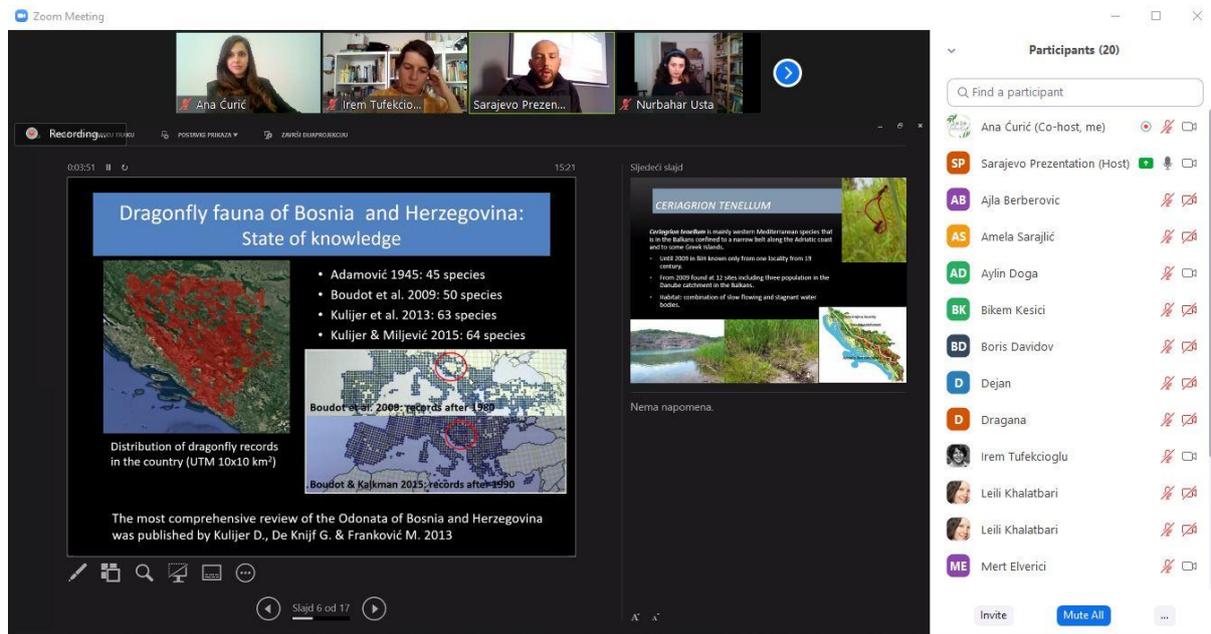
The main difficulty that members of the Raptors conservation action had to deal with, was the communication with local population during the field trips. They were expecting to meet with local leaders and hunting clubs in villages and rural areas. But the reality was totally different than they had planned. Unfortunately, most villages were almost empty. They said it was very hard to reach them and try to explain the project. To tackle this problem, they visited the larger towns instead of the villages. But this time, another problem emerged: the locals did not want to talk about the illegal hunting against raptors or they did not have any information regarding this problem. Because of all these communication problems, they could not do the healthy surveying.

Emina Šunje had negative experiences with the people who did not respect many aspects of the agreement and did not do the job properly. However, with her group members she successfully fixed this problem by an overload of work. Considering the delicate political situation characteristic to Bosnia and Herzegovina, it is not an easy task to undertake concrete actions to legalize the protection of the habitat of the alpine salamander and unfortunately this is out of their jurisdiction. Nevertheless, they will keep mild and constant pressure. Negative experience is expressed through the government's disinterest in understanding the results in creating conservation management plan for wolves in Bosnia and Herzegovina, too.

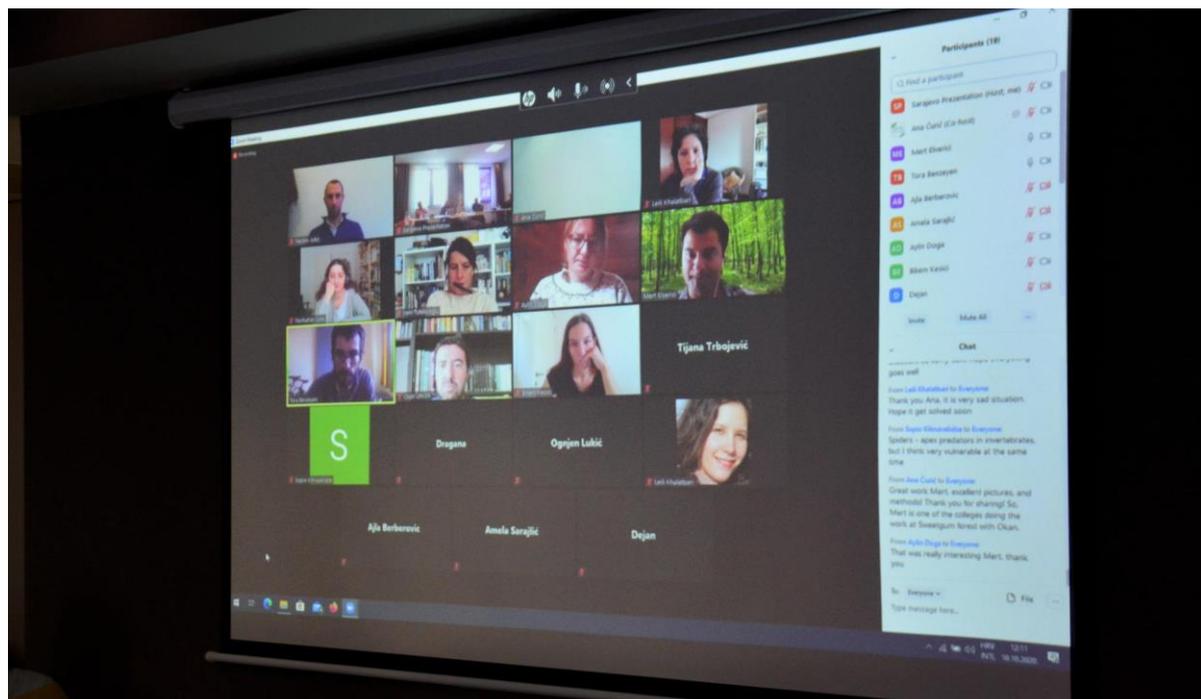
Most negative experiences that Nedim Jukić had are lack of interests for mycology among biology students and lack of understanding among some of the local authorities. They have found that, especially in the Federation of Bosnia and Herzegovina, there is no particular interest or motive for updating and revising current official Red List and for reconsidering conservation measures for specific protected areas. But this will not stop them, they will strive to achieve better results even harder in the future.

AT THE CONFERENCE

Below you can see some of the photographs taken at the 57th RSG Conference in Sarajevo, Bosnia and Herzegovina.



These two pictures show how this conference was organized. In the first picture, above, you can see Dejan Kulijer presenting his project about dragonflies live at the conference room and sharing his presentation via Zoom application so participants from Turkey, Iran and Georgia could see it, too. In the second picture, below, you can see some of the participants who turned their cameras on via Zoom application.





Picture above shows that participants and members of the organizing committee followed COVID-19 restrictions in the indoor public places: they were using face masks and disinfection gels, which were provided for every participant by the organizer. Behind their backs are the participants who turned their cameras on so we could take this photograph of almost every participant at the conference. Below is the picture of the participants from Bosnia and Herzegovina and the organizing committee. Although wearing face masks in the outdoor public places in Sarajevo and other parts of Bosnia and Herzegovina in October were not one of the COVID-19 restrictions, our participants did follow this measure, as well as, keeping a safe distance (1,5 - 2 meters).



Table 3. Detailed conference schedule

FRIDAY, 9TH OCTOBER 2020	
14:00	Check in at the Hotel Colors Inn
19:00	Welcome dinner at Druga Kuća
SATURDAY, 10TH OCTOBER 2020	
07:00-08:30	Breakfast
SESSION I 08:30 – 10:30 FLORA	
08:30-09:00	Introduction
09:00-09:15	1. Mašić E., Sarajlić A., Likić N. VRANICA MOUNTAIN – „SOURCE OF ALGAL DIVERSITY“
09:15-09:30	2. Urker O., İlemin Y., Yorulmaz T., Benzeyen T., Elverici M., Kunt K.B., Ada E., Yalçın, S.1, Parlar Urker Ö. UTILIZATION PROCESSES FROM WILDLIFE STUDIES IN PREPARATION OF ACTION PLAN FOR CONSERVATION OF ANATOLIAN SWEETGUM FORESTS IN SOUTHWESTERN TURKEY
09:30-09:45	3. Usta Baykal N. CAPACITY BUILDING TO CONNECT SEVERELY FRAGMENTED POPULATIONS OF KAZDAGI FIR, AN ENDEMIC SUBSPECIES IN TURKEY
09:45-10:00	4. Lukić O., Bilić S. TILIO-ACERION FORESTS IN THE CRNA RIJEKA AND UGAR CANYON (BOSNIA AND HERZEGOVINA) – RESEARCH AND PROMOTION
10:00-10:15	5. Akkaya A., İlkilinc C., Yıldırım B., Ulusoy E., Schulz X., Awbery T., Lyne P. FROM THE UNKNOWN TO KNOWN: SELECTING THE CRITICAL HABITATS OF DELPHINIDAE SPECIES, SPERM WHALES AND CUVIER’S BEAKED WHALES IN THE TURKISH LEVANTINE SEA
10:15-10:30	6. Tüfekcioğlu I., Tavşanoğlu Ç. IDENTIFYING CONSERVATION IMPORTANCE OF MAQUIS HABITATS AND INTEGRATING MAQUIS VEGETATION TO FOREST MANAGEMENT PLANS IN TURKEY: STUDY AIMS AND SAMPLING
COFFEE BREAK 10:30 – 11:15	
SESSION II 11:15 – 14:00 FAUNA	
11:15-11:30	7. Šnjegota D. WOLF-HUMAN CO-EXISTENCE IN BOSNIA HERZEGOVINA – NECESSITIES FOR FUTURE ACTIVITIES
11:30-11:45	8. Khalatbari L., Abolghasemi H., Hakimi H., Egeter B., Breitenmoser U., Brito J.C. ASSESSING ASIATIC CHEETAH’S POPULATION SIZE AND STRUCTURE AND THEIR DIET IN CENTRAL DESERTS OF IRAN
11:45-12:00	9. Elverici M., Kunt K.B., Ürker O. ASSESSING SPIDER BIODIVERSITY (ARANEAE) IN ANATOLIAN SWEETGUM FORESTS
12:00-12:15	10. Benzeyen S.T., Okur O. RAPTORS CONSERVATION ACTION
12:15-12:30	11. Kesici N.B., Dalyan C., Akkaya A., Gönülal O. CONSERVATION OF TOP PREDATORS THROUGH MONITORING AND CAPACITY BUILDING IN THE GÖKÇEADA ISLAND (NORTH AEGEAN SEA)
12:30-12:45	12. Paposhvili N., Melikishvili N., Budagashvili N., Kiknavelidze S. SUPPORTING THE CONSERVATION OF VELVET SCOTER AT LAKE TABATSKURI BY DETERMINING THE DIRECT CAUSES OF THE SCOTERS’ POOR REPRODUCTIVE SUCCESS
12:45-13:00	13. Aladžuz A.
13:00-13:15	14. Moghadas P., Behnoud P., Hosseini-Zavarei F., Farhadinia M. DISAPPEARING LARGE MAMMALS IN A CASPIAN FOREST REFUGIUM OF NORTHERN IRAN
13:15-13:30	15. Trbojević T., Trbojević I., Sekulić Ž., Napotnik I., Stevanović O., Dekić R., Perović A. LYNX IN THE DINARIC MOUNTAINS OF BOSNIA AND HERZEGOVINA AND WESTERN MONTENEGRO

13:30-13:45	16. Hobeali K., Moghadas P., Behnoud P., Hoseini F., Farhadinia M.S. PERSIAN LEOPARDS AND PEOPLE IN NORTH-EASTERN IRAN: PATTERNS OF INTERACTION AND IMPLICATION FOR CONSERVATION
LUNCH 14:00 – 15:00	
SESSION III 15:00 – 17:00 FAUNA AND FUNGI	
15:00-15:15	17. Gajić A. A. CREATING A BETTER FUTURE FOR SHARKS, SKATES AND RAYS IN THE EASTERN ADRIATIC SEA: TOWARDS THE UNIQUE REGIONAL PROTECTION
15:15-15:30	18. Kulijer D. DISTRIBUTION AND CONSERVATION OF DRAGONFLIES (ODONATA) IN BOSNIA AND HERZEGOVINA
15:30-15:45	19. Jukić N., Omerović N., Tomić S. DISCOVERING THE DIVERSITY OF THE ALPINE ASCOMYCETOUS FUNGI IN SEVERELY VULNERABLE ECOSYSTEMS OF GLACIAL AND OTHER MOUNTAINOUS LAKES IN BOSNIA AND HERZEGOVINA
15:45-16:00	20. Ghaffari H., Safaei-Mahroo B. LESSONS LEARNED FROM EUPHRATES SOFTSHELL TURTLE (<i>Rafetus euphraticus</i>) COMMUNITY-BASED CONSERVATION IN KHUZESTAN PROVINCE, IRAN
16:00-16:15	21. Šunje E. THE PRENJENSIS PROJECT: REVIEW AND FUTURE PERSPECTIVES
16:15-16:30	22. Davidov B. DANUBE SALMON OF UNA RIVER: RESEARCH AND CONSERVATION PROJECTS
16:30-17:00	Presentation of " Una - The One " - A Fly Fishing and Conservation Film
20:00	Evening gathering
SUNDAY, 11TH OCTOBER 2020	
07:00-10:00	Breakfast
12:00	Check out at the Hotel Colors Inn

ABSTRACT BOOK



57TH RUFFORD CONFERENCE

BOSNIA AND HERZEGOVINA, TURKEY, IRAN,
GEORGIA

ABSTRACT BOOK

10TH OCTOBER 2020

SARAJEVO, BOSNIA AND HERZEGOVINA

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Presentation schedule

SATURDAY, 10TH OCTOBER 2020

SESSION I 08:30 – 10:30

08:30-09:00	Introduction
09:00-09:15	1. Ermin Mašić
09:15-09:30	2. Okan Ürker
09:30-09:45	3. Nurbahar Usta Baykal
09:45-10:00	4. Ognjen Lukić
10:00-10:15	5. Aylin Akkaya
10:15-10:30	6. İrem Tüfekçioğlu

SESSION II 11:15 – 14:00

11:15-11:30	7. Dragana Šnjegota
11:30-11:45	8. Leili Khalatbari
11:45-12:00	9. Mert Elverici
12:00-12:15	10. Onur Okur
12:15-12:30	11. Nur Bikem Kesici
12:30-12:45	12. Sopio Kiknavelidze
12:45-13:00	13. Admir Aladžuz
13:00-13:15	14. Pouyan Behnoud
13:15-13:30	15. Tijana Trbojević
13:30-13:45	16. Kave Hobeali

SESSION III 15:00 – 17:00

15:00-15:15	17. Andrej A. Gajić
15:15-15:30	18. Dejan Kulijer
15:30-15:45	19. Nedim Jukić
15:45-16:00	20. Hanyeh Ghaffari
16:00-16:15	21. Emina Šunje
16:15-16:30	22. Boris Davidov
16:30-17:00	Presentation of "Una - The One" - A Fly Fishing and Conservation Film

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About the conference

The 57th Rufford “Balkan and East 2020” conference provides an ideal scientific platform for researchers to present their latest research findings, to develop new scientific and academic liaisons, to build a network among the likeminded people and most importantly to provide an opportunity to share knowledge and experience in the nature conservation practices. Our aim regarding this specific conference is to gather all recipients working in Bosnia and Herzegovina, Georgia, Iran and Turkey, in order to improve networking among grantees and emphasize importance of collaboration in scientific world and nature conservation. Also, the conference is open for wide public, and we are providing a platform to exchange ideas and experience on nature conservation among all interested parties.

Through organizing Rufford conferences we realized that the aim of connecting researchers had a great impact on their connecting and working together on similar ideas with the main aim of their researches - nature conservation. Today, we are proud to say that all our goals are achieved, thanks to all our colleges who organised conferences in Armenia 2012, Bosnia and Herzegovina 2016, Georgia 2018, Montenegro 2018, Serbia 2018 and Turkey 2017. In this way, we connected two continents and established new friendships and collaborations.

The conference will host 22 grant recipients from four countries: Bosnia and Herzegovina, Georgia, Iran and Turkey. Due to pandemic caused by virus COVID-19 in 2020, this will be the first online conference gathering over 30 participants. The conference will be hosted in Sarajevo, Bosnia and Herzegovina, with the online meeting on Zoom platform. This way we assured maximal safety among all our participants.

Conference Organizing Team

Conference organizing team

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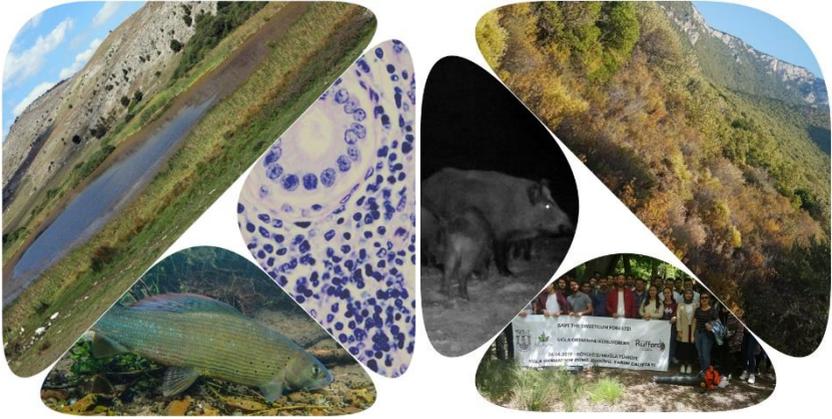
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ABSTRACTS



UTILIZATION PROCESSES FROM WILDLIFE STUDIES IN PREPARATION OF ACTION PLAN FOR CONSERVATION OF ANATOLIAN SWEETGUM FORESTS IN SOUTHWESTERN TURKEY

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The oriental sweetgum, *Liquidambar orientalis* is a medium-sized deciduous tree and tertiary relict endemic species with a natural range limited to the south-western part of Turkey, partly on the Island of Rhodes and Cyprus and is found nowhere else in the world. Due to the changing urbanization and local agriculture policies paving the way for transformation of the living spaces by the locals and the emergence of the mass tourism, the forests are broken, fragmented and now on the brink of extinction. This species has Endangered status on IUCN Red List Categories, and EUFORGEN has listed to this species as protected tree on the scale of European Continent. The result is a scattered, fragmented family of threatened sweetgum groves. As a result, re-establishment of forest corridors and re-unification of the fragmented groves are of paramount importance.

The Köyceğiz-Dalyan Specially Protected Area which is the study area constitutes their greatest unbroken expanse, and the best chance to establish a healthy sweetgum forest area. Therefore, Köyceğiz has a special importance in the protection of these trees and their ecosystem. Different kind of

conservation strategies such as from afforestation to environmental ethics approach, from wildlife research to public awareness issues have been applied to stop the fragmentation since 2012 that we'd awarded our first Rufford Small Grant.

But as cumulatively, the most important conservation approach of all these efforts was to prepare an action plan which will be collected to all conservation efforts and goodwill. Briefly, NATURA is one of the strongest partners/stakeholders of Sweetgum Working Group for nearly 3 years. The group has nearly 30 different stakeholders (Government Bodies, NGOs, City Councils, Municipalities, Universities etc.). Now NATURA is one executive committee member of this group. The group has prepared an action plan for between 2019 and 2023. The plan has 20 different application targets and 60 activities and sub-activities. NATURA will be responsible for 10 activities and sub-activities directly or as supervisory which are generally related with the conservation biology, wildlife researches, private land-ownership, environmental sociology and local history, art for nature and nature education programmes. Throughout this study, the contribution of wildlife surveys (big-sized mammals, bats, birds, forest spiders etc.) carried out within 7 years' time period to the conservation of these forests will be explained. Another important part of this study is the process of transforming the results of wildlife researches into action plan.

Key words: Anatolian Sweetgum Forests, *Liquidambar orientalis* Mill., Action Plan, Wildlife, Forest Ecology.

FROM THE UNKNOWN TO KNOWN: SELECTING THE CRITICAL HABITATS OF DELPHINIDAE SPECIES, SPERM WHALES AND CUVIER'S BEAKED WHALES IN THE TURKISH LEVANTINE SEA

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The current study forms the first seasonal survey effort employing both visual and acoustic data collection protocols within the territorial and offshore waters of Turkish within the Mediterranean. It aims to collect the long-missing scientific data on cetacean distribution and habitat preferences for in-situ conservation and management actions. A total of 4384.76 km in 49 days (680:44 min) between a period of 14.04.2018. and 26.07.2019. were covered. Cetaceans were sighted in 35 days, with an encounter number of 146. Delphinidae species formed the majority of the sightings, sperm whales were detected in 23 occasions and beaked whales were only once. While cetacean presence was recorded in each season, spring and summer encounters were covered 83 % of the total sightings. While the distribution range covers from the coastal waters up until to 4000 m depth contours for Delphinidae species, sperm whales were detected mainly on the 1000 m contour and a beaked whale was detected on 1500 m contour line. Additionally, sea turtles were also detected in 26 occasions with the deepest record on the 2500 m depth. The collected data serves as the stepping stone for delineating the cetacean critical habitats within the northern Levantine Sea, an area that suffers from irregular and uncontrolled human activities, from fishing practices to the seismic surveys.

Key words: cetaceans, Eastern Mediterranean Sea, spatio-temporal distribution, human pressure, mitigation strategies.

RAPTORS CONSERVATION ACTION

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The Raptors Conservation Action is inspired by the high numbers of raptor cases in the wildlife clinic of Ankara University Veterinary Faculty that located in Ankara province and host several injured raptors that carried from the neighbouring provinces Bolu and Eskisehir. Very diverse species like Long-legged Buzzard (*Buteo rufinus*), Common Buzzard (*Buteo buteo*), Common Kestrel (*Falco tinnunculus*), Eurasian Sparrowhawk (*Accipiter nisus*), Imperial Eagle (*Aquila heliaca*), Black Vulture (*Aegypius monachus*), Little Owl (*Athene noctua*) and Long-eared Owl (*Asio otus*) that are injured mostly because of human activities are treating in the clinic. Since 2014, number of cases and the diversity of species increased regularly due irregular clinic records and personal observations.

The project had been carried out between April 2017 and June 2018. In total 27 days had been spent in the field and 120 villages had been visited. Totally 94 individuals from 17 species had been analysed in the clinic. While 60 of them were dead or amputee, 34 of them released back to nature after the treatment and rehabilitation. Majority of the cases were Long-legged Buzzard (*Buteo rufinus*) and Common Buzzard (*Buteo buteo*), but also includes threatened species Imperial Eagle (*Aquila heliaca*) and Black Vulture (*Aegypius monachus*). According to case record system, firearms and car hit incidents are the main threats against the raptors in the project area. In addition to clinical studies, 17 bird watching events had been organized with participation of 320 children from the local schools and rural workshops. Two of these schools created their own birding student clubs. The project will be continued in the following year to determine the post-release survival success of entreated/rehabilitated individuals.

Key words: Raptor Conservation, Human-related Threats to Raptors, Veterinary Treatment of Raptors.

CONSERVATION OF TOP PREDATORS THROUGH MONITORING AND CAPACITY BUILDING IN THE GÖKÇEADA ISLAND (NORTH AEGEAN SEA)

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The Aegean Sea is home to a diverse assemblage of different large predators. The Gökçeada Island, located in the North Aegean Sea, harbours a wide range of biodiverse ecosystems and offers a variety of habitats for many of these top predators: Chondrichthyes that are categorized as Vulnerable (VU) according to the IUCN like the great white shark (*Carcharodon carcharias*), shortfin mako (*Isurus oxyrinchus*), porbeagle (*Lamna nasus*), basking shark (*Cetorhinus maximus*) and thresher (*Alopias superciliosus*) and (*Alopias vulpinus*); two very important teleosts such as swordfish (*Xiphias gladius*) categorized as Least Concern (LC) and the endangered (EN) Atlantic bluefin tuna (*Thunnus thynnus*); cetaceans (*Delphinus delphis*, *Stenella coeruleoalba*, *Tursiops truncatus* *Physeter macrocephalus* and *Ziphius cavirostris*) of which their Mediterranean subpopulations categorized as either endangered or vulnerable and lastly, the endangered Mediterranean monk seal (*Monachus monachus*). These aforementioned large marine animals are important components of marine ecosystems. However, lack of available information on the local biodiversity is a major obstacle in conservation planning of the target area. Therefore, the main goal of this project was to perform the systematic top predators' survey to gain knowledge on the distribution and abundance of these species since there wasn't any comprehensive data except from a few individual efforts.

Until now, boat surveys and land observations were conducted during summer and autumn of 2019. Three Atlantic bluefin tuna and one swordfish were sighted during the summer survey in the north-west of the island, near the

coast. Predetermined transects were followed during the autumn survey and over twenty acoustic detection were made including a possible beaked whale, while common dolphins were visually sighted in a group of twenty. Also, during the land survey, a group of bottlenose dolphin were recorded close to the coast. Another intention of the project was to involve the students and key stakeholders by merging them into the citizen science. The environmental awareness of the people of the island was aimed to increase by cooperating with them, but especially the children. For this reason, questionnaires with 15 local fishermen were conducted mainly aiming to gain information on the incident of the species and bycatches including their approaches. A presentation was made to the primary school students emphasizing the importance of the important habitats and species so that the rising generation of the island could take a greater interest in conservation actions.

Key words: Top predators, Marine conservation, North Aegean.

IDENTIFYING CONSERVATION IMPORTANCE OF MAQUIS HABITATS AND INTEGRATING MAQUIS VEGETATION TO FOREST MANAGEMENT PLANS IN TURKEY: STUDY AIMS AND SAMPLING

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Maquis vegetation is a Mediterranean shrub land type that expands across the south and west of Turkey, and composes its own habitat type as well as grows in Turkish red pine (*Pinus brutia*) forests as understory. Maquis habitat occupies about 6 million hectares, nearly 30 % of the Turkey's woodlands. Since the forestry law in Turkey does not consider maquis habitats as part of forest land, forestry management plans do not consist of any forestry implementation on maquis vegetation in terms of conservation.

We studied woody plant diversity of different types of maquis habitats in Muđla Regional Forestry Directory, south-western Turkey, an area which has one of the highest forest and shrub land coverage in Turkey. As a first step, forest management plans of Muđla region were compiled in printed and electronic form. These management plans were thoroughly reviewed and elaborated with reference to maquis ecosystem properties. In such forest management plans, maquis areas are designated as "maquis" label, but "degraded maquis", "degraded red pine", "red pine forests with low density" and "forest soil without tree" codes can also contain healthy maquis habitats. When it is applied, the most common forestry practice implemented for those areas is the clear-cut all the shrubs and subsequently plant red pine trees.

The fieldwork was conducted in Data and Kyeđiz Forest Management Units within the Forestry Directory area. In each management unit, we sampled sites located at areas of 5 forest codes mentioned above. We performed sampling within 3 belt transects 40 × 10 m in size, in each site and on each transect; (1)

all woody plant species were identified (in some cases, in the herbarium), (2) distance of each woody plant individual to transect center line was measured, and (3) the height and coverage of individuals were determined. Until today, we sampled 17 sites (10 in Datça, 7 in Köyceğiz), and the total fieldwork lasted for 40 days.

The aim of the fieldwork was to determine the woody plant diversity in each area and to reclassify the vegetation classes used in forest management plans within a more detailed classification framework including phrygana, garrigue, and high maquis. Thus, the output of this work will be to compare woody plant biodiversity between different maquis habitat classes and to understand their value for conservation in Mediterranean ecosystems.

Key words: conservation, maquis, habitat, vegetation, forest management plan.

PERSIAN LEOPARDS AND PEOPLE IN NORTH-EASTERN IRAN: PATTERNS OF INTERACTION AND IMPLICATION FOR CONSERVATION

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Mammalian carnivores often cause problems for people by preying on domestic animal. Exploring the factors that affect people's attitudes to predators, in particular the circumstances when some degree of loss is tolerated, is needed for developing predator management plans. When more than one species of predator is involved, there may be unexpected interactive effects in shaping people tolerance. A semi-structured questionnaire survey of herders residing around Tandoureh, Salouk and Sarigol National park, north-eastern Iran was carried out. The Kopet Dagh and Aladogh Mountains in north-eastern Iran host a number of montane reserves, including Tandoureh, Salouk and Sarigol National Parks, lying at the eastern extreme of the Irano-Anatolian Biodiversity hotspot. These areas also support a diverse carnivore community, including Persian leopard and grey wolf, among others. From August 2013 to September 2014, we conducted a semi-structured questionnaire survey with selective open-ended question, to obtain data on people attitudes, perception and interaction with large carnivores. We interviewed shepherds from 91 herds, representing 302 household living around the three reserves. Each herder was interviewed 1 and 3 times. Accordingly, 72 herder's data were entered into the analysis, representing 79,1 % of our initial target population. Respondents were on average 43,6 years old and relied primarily on stock breeding as well as farming. Our survey covered herders with a total of 34,019 of domestic ungulate grazing within the study area. Each herd was accompanied by a shepherd as well as an average of 3,6 herding dog. Only 16,9 of interviewed herders had complete or partial insurance for their livestock. Almost all respondents were able to identify wolf and leopard based on photographs. Approximately half of (40,3 %) herders experience stock loss perceived to be due to leopards, whereas 93,1 % of herders reported wolfs

attack during the previous years. Herders reported that they lost fewer animals per herd to leopards compared to wolves, yielding a ratio of 1:5,7 annual livestock loss to leopard and wolves, respectively. Attitude toward wolves were generally negative, regardless of occurrence and intensity of livestock loss mediated by predator. The fact that leopards are responsible for many more attacks on human doesn't seem to be outweigh this which appears unexpected. Conflict with wolves was the main determinant of people's attitudes toward leopards. People experiencing more loss to wolves tended to have more negative attitude toward leopards.

Key words: Persian leopard, predator guild, conflict, attitude, depredation, Iran

SUPPORTING THE CONSERVATION OF VELVET SCOTER AT LAKE TABATSKURI BY DETERMING THE DIRECT CAUSES OF THE SCOTERS' POOR REPRODUCTIVE SUCCESS

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Velvet Scoter (*Melanitta fusca*), is consider to be decreasing worldwide and is classify as Vulnerable by IUCN red list. Two distinct populations are recognized, large - in the north/northwest Europe and small, geographically isolated population in the Caucasus. According to the latest study breeding Velvet Scoter is considered to be extinct in Armenia and Turkey where BirdLife International have recorded breeding Velvet Scoter in historical time. This suggests that Lake Tabatskuri in Georgia holds the last geographically isolated breeding population of Velvet Scoter in the Caucasus.

The previous project revealed that 25-35 pairs are present only at Lake Tabatskuri in Georgia, but the substantially fewer pairs actually nest at the lake, and the overall reproductive success was quite poor. Competition over nesting sites and predation on Velvet Scoter ducklings by gulls, disturbance and removal of eggs by fishermen, and drowning of ducklings inactive or abandoned fishing nets, could be contributing to poor overall reproductive success. Conservation actions to ameliorate some of these factors have already been initiated, but long-term research, monitoring and conservation is needed to safeguard the Scoters' future. Now, we are trying to determine the direct causes of the Velvet Scoters' poor reproductive success by in-depth detailed studies (studying the competitive interaction of the Velvet Scoters and other existent animals; systematic monitoring on the ducklings to determine threats that affects them). Also, we are raising awareness of the local residents about the species, biodiversity and conservation, designing a long-term action plan based on in-depth detailed studies for the conservation

of Velvet Scoter at Lake Tabatskuri to safeguard future generations of this small disjunct population at its last location in the Caucasus.

Key words: conservation, habitat use, hatching success, nesting success, Tabatskuri Lake.

DISAPPEARING LARGE MAMMALS IN A CASPIAN FOREST REFUGIUM OF NORTHERN IRAN

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Expanding from Iran into the Lesser Caucasus, the Caspian Hyrcanian forests in northern Iran are home to high diversity of fauna, particularly some of the rarest large mammals such as Persian leopard, Syrian brown bear, roe deer, and Caspian red deer. Dohezar-Sehezar, a biodiversity rich area – a part of the larger Caspian forests, has been neglected for decades without enough conservation efforts. It suffers from intensive poaching and weak conservation efforts. Deer species are widely hunted by local hunters while Persian leopards are occasionally targeted for retaliation of conflict. Brown bears are also hunted, for their organs to be used in traditional medicine or to prevent damage to people’s croplands and vineyards. The heavy human-caused pressure leaves no doubt that an emergency action is needed to establish conservation in the area. We aim to enhance conservation status with active engagement of local hunters and rangers as two key groups. We first established a network of local hunters and rangers (the latter from adjoining reserves, there is no active ranger in our project site) to develop the project jointly. We enhanced the conservation capacity of rangers through training and motivational plans while we increase local hunters’ awareness for better collaboration with rangers. The network was engaged in conducting baseline surveys using systematic camera trapping to explore presence and occupancy of target mammalian species. We also interviewed local cattle herders to understand their interaction with large carnivores, particularly Persian leopards. Thus, we employed two indigenous and hunter-gatherers of the

area to initiate “Leopard Guardian” program in partnership with Department of Environment. All rangers were equipped with field uniforms, binoculars, GPS, cameras and camera traps. One 4WD vehicle, three trail motorbikes and two horses were also procured for the anti-poaching units. As a result, a total of 150 of illegal activities, such as poaching, fishing and logging were deterred, a number were submitted to the court for judiciary processes. Currently, we are expanding our work to cover another part of the area, in order to enforce law and protect biodiversity with engagement of local communities.

Key words: Hyrcanian forest, Persian leopard, human-wildlife conflict, Iran.

ASSESSING ASIATIC CHEETAH'S POPULATION SIZE AND STRUCTURE AND THEIR DIET IN CENTRAL DESERTS OF IRAN

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Cheetah populations have undergone a huge range reduction over the past century both in Africa and in Asia. The decline was extreme in Asia and currently only a single meta-population persists in the central deserts of Iran. Despite being the most threatened felid, our knowledge on status and ecology of Asiatic cheetah (*Acinonyx jubatus venaticus*) is very scarce. We know they are divided to different sub-populations, but it is not clear if they are fragmented or not. In this project we aimed to assess population size and structure, gene flow dynamics among these sub-populations and finally cheetah's diet.

We collected scat samples across their current known distribution (N=382). Samples were extracted using non-invasive methods. Primarily we used mitochondrial DNA sequencing to identify scat depositors, those belonging to cheetahs (N=139) were genotyped using 22 microsatellite loci to identify possible individuals. Genetic diversity and structure were assessed using these microsatellites. We used a DNA metabarcoding approach to identify prey items.

In total we identified 15 individuals (11 males and 4 females). The population is structured into three subpopulations: northern (Touran), southern (Yazd) and eastern (Naybandan). Northern and Southern populations are separated, however they can be connected indirectly through the eastern population.

Cheetahs are feeding mainly on Capra and Ovis, future analysis is needed to assess whether these are domestic or wild sheep and goat.

Given that the population is not totally fragmented, restoration of current habitats along with safeguarding corridor habitats and stepping stone habitats are recommended to recover the populations, allowing them to expand their population and save the species from extinction.

Key words: Conservation; Large carnivores; Population genetics.

LESSONS LEARNED FROM EUPHRATES SOFTSHELL TURTLE (*Rafetus euphraticus*) COMMUNITY-BASED CONSERVATION IN KHUZESTAN PROVINCE, IRAN

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Conservation of endangered reptile species is very challenging especially when the target creature is frightened, attacks humans, damages property or hunt fish. Consequently, mitigating human-reptile conflict is extremely complicated and intractable. Euphrates softshell turtle (*Rafetus euphraticus*) inhabits in the Euphrates and Tigris rivers and their tributaries in south-western Iran, Turkey, Iraq, and Syria. Habitat fragmentation, alteration, and destruction and also fishermen-turtle conflict are the main threats to the species in Iran. *Rafetus euphraticus* listed as Endangered by the IUCN Red List of Threatened Species and added to CITES Appendix II. Euphrates softshell turtle community-based conservation program in the northern Khuzestan Province of Iran was begun by Pars Herpetologists Institute NGO in 2009 and the first and second phases of the project successfully finished in 2016. We intend to apply the lessons learned from these two participatory conservation phases to the south of Khuzestan, and this paper aims to share key lessons learned from the implementation of the community-based conservation program for effectively resolving fishermen-softshell turtle conflict. Local communities are key partners and play an important role in the Euphrates softshell turtle conservation. Furthermore, acquire local knowledge is critical for its effective conservation. Supporting sustained public awareness activities and education, active collaboration among policymakers, conservationists, local people, and local NGOs, also supporting highly skilled locals are fundamental steps towards achieving long-term Euphrates softshell turtle conservation. Moreover,

engaging a broad public interest in participatory conservation is a major element of a successful program and helps the team to achieve increased community participation. Most importantly, sustained community-based conservation requires long-term funding, which is difficult to achieve.

Key words: conservation, human-turtle conflict, conflict resolution, local participation

ASSESSING SPIDER BIODIVERSITY (ARANEAE) IN ANATOLIAN SWEETGUM FORESTS

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We have designed and initiated a brief sampling program to measure and compare spider diversity and community composition in sweetgum forests around Köyceğiz (Muğla, Turkey). The study is planned to be preliminary and focuses on spider biodiversity assessment in these threatened forests, covering both alpha and beta components. Sampling locations were chosen among the five largest and most intact forest patches remaining around Köyceğiz, located in the following districts or villages: Çörüş, Dalaman, Karabatak, Kavakarası, and Toparlar. Sampling performed by using two distinct devices, aiming to sample spiders from a variety of microhabitats: pitfall traps for soil surface and a vacuum sampler for vegetation levels. Sampling took place in winter and spring periods of 2019, yielding > 200 pitfall traps and 45 vacuum samples, including > 2000 spider specimens. All were transferred to the laboratory, sorted and fixed as museum materials, and deposited in the personal collection of the first author for ongoing species-level identification and enumeration process for diversity analyses. A preliminary checklist of spiders based on identified material “so far” includes 29 taxa. These include rare and narrowly distributed “Aegean endemics”: *Megalephyphantes lydiae* Wunderlich, 1994, *Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013, *Zodariion samos* Bosmans, 2009. A possible record of *Asagena brignolii* (Knoflach, 1996) and two new taxon candidates need confirmation by comparing to related voucher material. Taxonomic analyses and enumeration are still ongoing prior to diversity analyses. By the maturation of this study, we

hope to be able to contribute to the conservation of the threatened sweetgum forest habitat by using spiders as surrogate taxa.

Key words: Arachnology, Arthropod, Terrestrial, Community, Ecology, Conservation.

CAPACITY BUILDING TO CONNECT SEVERELY FRAGMENTED POPULATIONS OF KAZDAGI FIR, AN ENDEMIC SUBSPECIES IN TURKEY

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The ongoing project named “Capacity Building to Connect Severely Fragmented Populations of Kazdagi Fir, an Endemic Subspecies in Turkey” aims to detect potential forest corridor routes between 4 isolated populations of Kazdagi fir (*Abies nordmanniana* subsp. *equi-torjani*). The species is classified as Endangered on IUCN (International Union of narrowly distributed on Kazdağı (Mt. Ida) and there are several factors threatening the species such as mining activities, forest managements, climate change, etc... By designing and building corridor between populations we try to increase the gene exchange, the resistance and the population size.

Since the construction of a forest corridor is not solely based on ecological research, we first started with the promotion of the project to the General Directorate of Forestry and 3 different Local Forest Management Areas covering the populations of Kazdağı fir and responsible from the management of 4 different populations of the species. The fact that the management of the species belonging 3 different centres, creates a different levels of pressure on the populations. For example; while in Çan, there is a Gene Management Zone for Kazdagi fir which is management-free, the populations in Kalkım are harvested.

On the other hand, according to our preliminary survey results, the species is perceived as an “invasive species” among the foresters while there is not yet an ecological research supporting the idea. Also, since the bark of fir is relatively cheaper than the other species in its habitat such as *Quercus* sp. and *Pinus* sp., the forestation practices are mostly in favour of them.

The first foundlings of our study revealed that deeper knowledge about the species’ taxonomy, forestry practices of 3 different local forest managements covering the species’ populations and the attitudes of local people to the species are needed. The first GIS results, show several potential corridors

between populations. The final results will include the selected forest corridor and calculations of the needed conservation effort (e.g. budget, number of trees to plant). Also, there will be a Seedling – Carriers network formed by distributing the seeds of the species.

Key words: *Abies nordmanniana* subsp. *equi-trojani*, kazdağı göknarı, trojan fir, forest corridor, forest conservation.

DISCOVERING THE DIVERSITY OF THE ALPINE ASCOMYCETOUS FUNGI IN SEVERELY VULNERABLE ECOSYSTEMS OF GLACIAL AND OTHER MOUNTAINOUS LAKES IN BOSNIA AND HERZEGOVINA

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Mountains cover large areas of the territory in Bosnia and Herzegovina. With mean altitude of 625 meters ASL and numerous peaks above 2.000 meters ASL it is one of the highest countries in the Southeast Europe. Most of Bosnian-Herzegovinian mountains belongs to the Dinaric Alps system that stretches in the northwest-southeast direction through several other countries as well. These mountains are built from different geological components and are home to scattered and various types of freshwater ecosystems many of which are well preserved and isolated primarily thanks to their remoteness and unapproachability.

Glacial and other mountainous lakes are one of the most important freshwater habitat types in this harsh environment well characterized by sub-alpine to alpine climate.

Biodiversity of these lakes as one of the most endangered ecosystems and refuges worldwide are insufficiently known and studied. There are a significant number of mountainous lakes that mostly originate from glacial activity in the high mountains of Bosnia and Herzegovina, whilst at the same time mycobiota of these refugia is poorly understood in general. So far only scarce data about several ascomycetous fungal species inhabiting one glacial lake (Lake Lokvanjsko on Mt. Bjelašnica) exists in the private mycological database and fungarium of Mycological Society MycoBH.

Nevertheless, these specific habitat types could be one of the last well-preserved alpine reservoirs for some extremely rare and stenovalent fungal species. Our intention is to discover as much fungal species inhabiting these unique natural phenomena as possible and to publish the results with

adequate launch of sustainable conservation program for their long-term protection.

In the same time this study implies usage of earlier defined IFA methodology and criteria proposed with aim to integrate remediation and conservation of all adequate lakes within this recently updated concept.

Mountainous lakes are at great risk due to the unstoppable natural processes of eutrophication, plant overgrowing, and erosion/deposition processes, which might lead to their complete disappearance and possible extinction of some still undiscovered fungal species in the near future. At the same time, these processes are accelerated by antropogenic activities, due to proximity of some mountainous lakes to urban centres and/or their accessibility through improved road infrastructure leading to them, which is reflected in severe degradation of the shores of these lakes.

Long-term conservation of alpine lakes ecosystems and hypersensitive fungal species or any other stenovalent living organisms together with continuous intensive monitoring of these fragile habitats should be most important priority in the years to come.

Key words: alpine, conservation, freshwater ecosystems, fungal diversity, refugia.

TILIO-ACERION FORESTS IN THE CRNA RIJEKA AND UGAR CANYON (BOSNIA AND HERZEGOVINA) – RESEARCH AND PROMOTION

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Bosnia and Herzegovina has a particularly rich biodiversity and diversity of habitats. Vegetation in canyons is often relict, as canyons are known as glacial refugia. This study deals with the *Tilio-Acerion* forests in two tributaries of the Vrbas River which are located in western part of the country. The main reason is insufficient level of exploration of this habitat type, as well as canyon forest vegetation as a whole, in Bosnia and Herzegovina. Currently, canyons of Ugar and Crna Rijeka are included on the List of potential Natura 2000 sites with pSCI status (potential Sites of Community Importance) (Proposal of potential network of Natura 2000 sites in B&H). These forests of slopes, screes and ravines is recognized as priority habitat type following the EU Habitats Directive-Anex I. The RSG project aimed mainly on collecting data-phytosociological relevés of (9180*) Natura habitat type, so the research produce solid scientific basis in promoting the conservation status and measures as support for the initiative against the construction of the mini hydroelectric power plants. Preliminary results suggest the existence of the new and interesting findings of the endemic, endangered and rare vascular species. In addition, this habitat type should get the status of the „high conservation value forest“. In this way, in the future, we can hope that they will be managed better and expect to raise awareness about ecological importance of *Tilio-Acerion* forests and the need for their conservation among the local population, NGOs and relevant public sectors which are related to utilisation of natural resources.

Key words: canyon, Crna Rijeka, *Tilio-Acerion*, Bosnia and Herzegovina, forest vegetation, Natura 2000, Rufford, habitat, Ugar.

CREATING A BETTER FUTURE FOR SHARKS, SKATES AND RAYS IN THE EASTERN ADRIATIC SEA: TOWARDS THE UNIQUE REGIONAL PROTECTION

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According to the latest regional assessment, 51 % percent of the elasmobranchs within the Mediterranean basin are in the risk of extinction. It's worrisome that over 26 % of the species is considered as critically endangered (CR), while there is no assessment of 21 % of the total diversity of the studied taxa. Uncontrolled overfishing, unselective fishing tools, slow reproduction rate and long generation periods further contribute to dramatic declines in certain population(s). Furthermore, in the era of plastics, our seas face daily excessive pollution, thus many species are being affected, resulting in dramatic declines in certain populations and specific, so far unknown, disease development. Besides, massive quantities of chemical warfare agents (CWAs) comprising both munition and storing chemicals were dumped into the Adriatic sea in the years following the World War II. Up to date, minor attention was given to the assessments of the negative effects of pollution and war waste on the tangible marine ecosystems and charismatic megafauna species – elasmobranchs. For the past three years, we are conducting extensive field expeditions, fisheries analysis, laboratory studies, stakeholder engagements and wider public education/raising awareness. At the fields, we are combining technical research diving with ROVs (Remotely operated underwater vehicles) in order to understand patterns in the chosen populations, map the areal and potential nursery grounds. At the laboratories we are combining unique approach in the histopathology, immunohistochemistry and axial tomography

in order to understand mechanisms of disease outbreak and development caused by pollution. Together with our observations from the fisheries, gathered results are used to develop the species-specific unique regional measures for the revitalization and the establishment of the long-term in-situ conservation of the affected species. Such measures were discussed at the EEA (European Environmental Agency) meeting in Copenhagen and are currently supported by the ministries of Slovenia, Croatia and Bosnia and Herzegovina – which present a firm step toward the unique regional protection of those highly threatened and misunderstood creatures.

Key words: sharks, skates, ray, Adriatic, research, conservation.

WOLF-HUMAN CO-EXISTENCE IN BOSNIA HERZEGOVINA – NECESSITIES FOR FUTURE ACTIVITIES

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Activities conducted within the previous RSG projects helped us to understand the major factors threatening wolves in Bosnia Herzegovina (BH) and to direct further activities in their conservation. Results from the field, obtained via photo traps, showed a mainly sporadic presence of wolves throughout the monitored locations, with the exception of one recorded pack. Genetic analyses revealed the structure in the BH wolf population, as well as within the overall Dinaric-Balkan wolf population. According to both field and genetic results, we can assume that wolves from BH are in the process of reconnecting with those from surrounding subpopulations belonging to the Dinaric-Balkan wolf population as a whole. Such wolves reconnection and recovery, after centuries of persecution, have been recorded worldwide, and especially in Europe. Consequently, interactions and encounters with humans are on the rise, often leading to so-called human-wolf conflicts, especially in cases where wolves attack livestock. A similar effect was observed for wolves from BH, in many cases living in close proximity to human settlements, and without any legal protection. There is, therefore, an overwhelming need for the comprehensive study and establishment of measures to facilitate and foster wolf-human co-existence and to show that harmonious living with wolves is possible.

Key words: Bosnia Herzegovina, co-existence, reconnection, wolves.

LYNX IN THE DINARIC MOUNTAINS OF BOSNIA AND HERZEGOVINA AND WESTERN MONTENEGRO

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Over the years, distribution of Eurasian lynx (*Lynx lynx* L. 1758) has been shown differently, which is understandable due to the mobility of the species, but also because of the methodology in gathering evidence of presence. According to the available literature data for the territory of Bosnia and Herzegovina (B&H), the lynx covered an area of 3500 to 11800 km² from 1980 to 2018. There is very little data on the lynx in Montenegro and they are mainly related to the eastern and south-eastern part of the country (border areas with Kosovo and Albania). In the western part of the Montenegro (border area with B&H) a possible presence is mentioned, but without evidence. The new spatial distribution of lynx in B&H obtained for the period 2015-2019 by systematically conducting questionnaire surveys of hunting ground managers from 2017-2018 (n = 94) and with fieldwork research from November 2017 to January 2020. The results of this work show that the Area of Occupancy (AOO) is 416 km² and the Extent of Occurrence (EOO) is 19.112 km² (by GeoCat program). Data on mortality of individuals (n = 54) were collected from 1980 to 2019. Most individuals were registered as killed in illegal hunting (43 %), followed by legal hunting (41 %), traffic (13 %) and disease (4 %). By sex, most

were dead males (n = 32 or 59 %), followed by females (n = 18 or 33 %), and the unknown sex was for four individuals (8 %). During the research, there were indications for another 14 more cases of poaching, but due to lack of adequate evidence, these data were not taken into account. Basic morphological data not regularly recorded in casualties. The weight of the individuals varied from 11-26.8 kg.

In the period from 2018-2020, a special research was done in the area of the Sutjeska National Park (south-east of B&H) and western Montenegro (mountains Maglić and Volujak), in order to find signs of the constant presence of lynx. This area is of special interest because two subpopulations of the Eurasian lynx (Balkan lynx from the south and Carpathian lynx from the northwest) could merge in this area. The results so far have shown that the lynx is constantly present in the NPS, and in 2019, footprints were also found in Montenegro (the slopes of Mount Maglić). In 2020, lynx footprints were found right on the border of B&H and Montenegro. In the continuation of the research, winter monitoring of individuals and the collection of genetic materials will be carried out to determine the subpopulation affiliation of individuals.

Key words: Bosnia and Herzegovina, distribution, Eurasian lynx, mortality, footprint, western Montenegro.

VRANICA MOUNTAIN – „SOURCE OF ALGAL DIVERSITY“

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Vranica Mountain is characterized by an extremely high degree of oligotrophic freshwater habitats. Due to global climate change and intense anthropogenic activities, reduction and threatening of these types of habitats in the area of Vranica are increasing each day. In order to protect these habitat types and high diversity of species, it is necessary to assess their condition. In order to assess diversity of algae on this area five habitat types were studied as follows: spring, creeks, streams, lake and peatlands. Taking into account all groups of algae during the investigated period, a total of 272 taxa were recorded. The highest number of taxa was identified within the class *Bacillariophyceae*, *Chlorophyceae*, *Conjugatophyceae*, while taxa of other classes occurred with a smaller numerical value. The largest number of taxa was found in the lake (121 species or 27,10 %), while the smallest number of taxa were recorded in the stream (61 species or 13,62 %). In all studied habitat types, algae from class *Bacillariophyceae* were the most dominant. The largest number of species was found in springs (82 species or 24,70 %), while the smallest number of species was found in Prokoško Lake (52 species or 15,66 %). A total of 174 taxa belonging to 57 genera were determined in the collected material. Genera with the highest number of species were *Eunotia* (22), *Gomphonema* (14), *Pinnularia* (12), *Encyonema* (7), *Stauroneis* (6), *Cocconeis* (5), *Cymbopleura* (5), *Navicula* (5), *Neidium* (5) and *Nitzschia* (5). Altogether 169 diatom taxa mostly belonging to pennate diatoms were found and five centric diatoms. The most common centric diatoms were *Aulacoseira crenulata*, *Orthoseira roeseana*, *Aulacoseira alpigena*, *Ellerbeckia arenaria* and *Melosira varians*. The largest number of rare and endangered diatom taxa was determined in mountain peatlands (44 taxa or 59,45 %), while the smallest number was determined in

mountain creeks (16 taxa) and mountain lake (16 taxa). Ecological values of diatom taxa have confirmed the oligotrophic state of mountain spring, creeks, streams and peatlands, while the ecological state of Prokoško Lake has been changed. Unfortunately, due to entering of organic matter, but also because of the process of natural eutrophication there was overgrowing of coastal part of the lake with macrophytes vegetation. As a result of this overgrowing, total surface of Prokoško Lake is decreasing. Based on the conducted research it can be concluded that the freshwater oligotrophic habitats on Vranica Mountain are in good ecological state and that they represent a “*valuable source of algal diversity*”. The studied freshwater habitats are under strong anthropogenic influences. From that point of view, it is important to notice that Prokoško Lake and mountain peatlands which cover only a small part of Vranica Mountain are the most fragile and the most sensitive habitat types in this area. It is very important to notice that other habitat types should not be excluded. Because of the very unique diversity in these habitat types, in the future, it is necessary to pay special attention, especially in regard to their restoration and enhancement of protection measures.

Key words: algae, diatoms, diversity, freshwater habitats, conservation, biomonitoring.

DANUBE SALMON OF UNA RIVER: RESEARCH AND CONSERVATION PROJECTS

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There is one river in Europe that stands out with her beauty and charm than any other river inside the continent. The river that got its name during the old Roman Empire. When they first saw her and her beauty they were so enchanted by its beauty that they gave her name Una which means The Only One or One. River Una is a real jewel with crystal clean water, beautiful waterfalls and underwater structures that make her so specific and unique.

On the other side this river is famous for her unique wildlife. She has 38 fish species which are all unique. One of those species is one of the most enigmatic and majestic animals in Europe called Danube salmon or lately hucho as they like to call it. Una represents one of the last habitats for the Danube salmon in its entire range. The species in the river ranges from the upper parts from the area of city of Bihac and all the way where Una runs into Sava river. The prime habitat by all factors which include abundance of prey, size of the river and available spawning grounds starts from the area where Una exits the canyon at Bosanska Krupa to the area of the city of Kostajnica.

Once adult, the fishes are highly territorial and although in most occasions if there is good number of prey items, they will school up, in this habitat you either find couple or just one since the most off the range is heavily overfished. Our first project for research of the population passed in 2016 and it was the first time that a team would research population of Danube salmon in one big river system in Bosnia. Our focus was to gather as much data on the abundance of this amazing and mystique fish and we started catching them throughout the seasons. We started gathering information that included length, weight, location of the caught fish and individual ID for each specimen. One of the main parts of the project was also a unique individual identification

method that we are using to distinguish individuals that we caught. For years it has bothered me to find adequate method that is not invasive since the species is highly endangered and every individual to us was more precious than gold. In the end we found very simple and unique way to tell the difference between individuals. Each fish that is caught has a distinctive pattern of black spots on the head. The pattern includes number, shape and size and it is different in each individual just like the stripe pattern on zebra, tiger or spot pattern of a leopard or cheetah. In this way each of our specimens can be recognized if caught again without any invasive tracking method. By this day we have caught in total 93 individuals with their distinctive ID's.

Conservation part included lectures, workshops, photography and videography of released fishes. With the help of the institutions most of the habitat is now the protected area but there is still a gigantic effort to be made regarding practical conservation of not just Danube salmon but all other species that these fish depend on.

Key words: Una River, morphology, Danube salmon, research, conservation.

THE PRENJENSIS PROJECT: REVIEW AND FUTURE PERSPECTIVES

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The prenjensis project studies the fragmented population of alpine salamanders in the Dinarides (*Salamanca atra prenjensis*) with the final aim to set up the most appropriate conservation measures for its long-term preservation. The project was first awarded by the Rufford Foundation in 2013, following 2015 and 2017. During seven years of research, we gathered substantial knowledge on the study system: We unveiled the evolutionary history of alpine salamanders in the Dinarides and found morphological characters that discriminate them from the nominal population - *S. atra atra* - in the Alps; we evaluated the genetic health of most population fragments and also tested them for the deadly infectious fungus - Bd - exterminating amphibians worldwide. As these salamanders are “sky” island populations that inhabit different environments in the Northern, Central and Southern Dinarides, we also studied processes of local adaptation in chosen isolates. Since 2018, we are actively monitoring one subpopulation on mt. Prenj (Podotič, Bosnia and Herzegovina) using Capture Mark Recapture data and bio-chipping (Pit tag insertion). We are currently working on the identification of suitable areas for the survival of populations under the ongoing climate change using environmental niche modelling. The recent discovery of a new population fragment of alpine salamanders on mt. Orjen in Montenegro (Cikovac and Ljubisavljević 2020) confirms doubts that there are still undiscovered fragments in the Dinarides (Klewen 1991). Let’s find them and protect before they disappear.

Key words: alpine salamanders, Dinarides, research, conservation, monitoring.

DISTRIBUTION AND CONSERVATION OF DRAGONFLIES (ODONATA) IN BOSNIA AND HERZEGOVINA

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The dragonfly fauna of Bosnia and Herzegovina is one of the least known in Europe and the majority of existing records were very old. This gap does not allow proper conservation of threatened dragonfly species and their habitats. The results of two projects supported by the Rufford Foundation will be presented. Within these projects special focus was given to the species of European conservation concern and their habitats in Bosnia and Herzegovina, particularly species inhabiting karst freshwater habitats in the Mediterranean region of the country. The projects contributed with valuable new data that helped in identification and mapping of dragonfly species diversity and distribution in the county. Data on species of conservation concern were used for assessing species status and conservation priorities at national and regional level. The knowledge of Odonata is important as they can be used as reliable indicators of freshwater habitat quality, for monitoring of habitat changes, climate change and also as ambassadors of freshwater habitat protection and awareness rising among general public. Public awareness activities were also one of the main activities of the project.

Key words: Odonata, dragonflies, species distribution, species conservation, insects, threatened species, biodiversity, fauna.

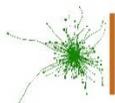
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- title should be typed in BOLD CAPITAL LETTERS, no more than 20 words,
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