

## 27<sup>th</sup> RUFFORD CONFERENCE IN MONTENEGRO

"Developing Transboundary Conservation Network from Mountains to Deep Seas"

3<sup>rd</sup> - 6<sup>th</sup> February, 2018

Report prepared: Montenegro Dolphin Project with the partnership of National History Association of Montenegro and Marine Mammals Research Association



The 27<sup>th</sup> Rufford Conference Montenegro was organized by Montenegro Dolphin partners at Bar Municipality by the: Marine Mammal Research Association (DMAD) – Aylin Akkaya Baş, Ersin Baş and Natural History Association of Montenegro (DPCG) – Ana Vujović, Nataša Nikpaljević.

## 1. Objectives

The RSG Montenegro Conference aimed to achieve:

1. To create a network between the researchers from terrestrial and marine ecosystems and to help sharing their experiences in research and conservation
2. To understand the problems that researchers had during the realisation of the RSG project
3. To make a bridge between the researchers and governmental bodies to strengthen the relationships for the purpose of conservation implications, both for terrestrial and marine ecosystems
4. To help to standardise the data collection protocols for accurate and transboundary research and conservation consequences
5. To increase the capacity building of researchers on online data sharing platforms.
6. To develop new friendships for the purpose of a stronger chain of cooperation which would be the best for the protection of animals and its habitats?

## 2. Impact of Rufford Funding

Through the help of Rufford Conference in Montenegro, we have observed several impacts both on the researchers and on its conservation strategies. The main impacts can be found below:

1. Through the grant that Rufford provided, early career researchers and students have joined to the conference which gave them a chance to enlarge their view on scientific and conservation researches to develop accurate conservation strategies. Further, they had the chance to listen the success and failure stories of each researcher which will eventually help them to develop their own researches in more effective grounds.
2. This year Rufford Conference gathered researchers both from terrestrial and marine research areas which provide a chance for both sides to understand the research coverage, emphasize the importance of both aspects and end up with building possible future researchers that will not only focus species level but also ecosystem level.

3. Each scientific publication emphasises the importance of data sharing, intelligent designs and online platforms. One of the goals of this year's conference was to bring a new way of looking to these aspects, understand the perspective of Rufford Conference researchers on these relatively new areas and encourage the use of intelligent designs and online platforms.

4. At the end of the Conference, new relationships, understanding and way of looking to science and conservation were built between the researchers that gave a raise to several future projects that has joint nature between the ecosystems.

5. Finally, for the first time we have built a website specifically designed for the Rufford Conference (<http://conference.montenegrodolphinproject.org/>), which helped us to spread the word of the conservation efforts of researchers.

We also get in touch with each researcher of the Conference and asked their opinion about Rufford Small Grant programme and importance for them and species they protect:

For **Dilara Arslan**, from Mediterranean Conservation Society, Rufford funding is important because the funds for nature conservation in Turkey generally support professional person who is expert like as prof. or co-financing is necessary etc. Tubitak sometimes supported undergraduate students but that time generally they funds more technical projects for companies etc. On the other hands Nature conservation is not a priority issue in our country. For Dilara, it is still hard to find grants for a kind of Marmaris Salamander projects. Marmaris salamander is an endangered and endemic species in Turkey. Besides there is lack of knowledge on ecology and population status / trends in Turkey and the locals are not aware of this value. Rufford grants supported her and her team to build a capacity for research and create awareness on that animal.

*“We have planned all your work with this view. Our project aims and steps can be repeatable for the other Lycian salamanders which are listed as endangered category by IUCN. We think that most effective activity is the Marmaris Salamander festival. We reach many local children and their family to introduce the Marmaris Salamander but also, we learned their idea /opinion of Marmaris Salamander. This kind of outputs will help us to figure out conservation practice. In our project, 20 volunteers worked and half of them biologist and the other half are artist /performer (like singers, theatre player) and public relations specialist. We shared all our experience with them. We wrote two articles. One of them submitted amphibians and reptile conservation which is about current distribution and we have yet to write the other which is about population parameters and ecology.”*

For **Prof. Andrej A. Gajić**, National Geographic Explorer, Head of the Department for ecology and conservation Sharklab ADRIA from Bosnia and Herzegovina, was very difficult to get both funds and support for entire marine fauna, because post-war government and public institutions, unfortunately do not pay almost any attention to this part of the country. His project has

significantly raised awareness in wider public masses - as evidenced by the fact that his team received numerous very good comments and acknowledgements.

The Rufford Foundation enabled Andrej and his team to conduct very first field expeditions and pioneering studies in pathology and radiology of elasmobranch fish. Besides, the foundation enabled him to educate the future generation of conservationist and to raise awareness among wider public masses in our country. He have allowed all interested students to participate in both field and laboratory analysis conducted through his project. In such way, all interested participants have gained significant experience which can be used for conservation of other threatened taxa in our country, as well as other parts of the Balkans. Conducted studies, both at the field and in the lab, have identified and prioritized all conservation need for elasmobranchs that permanently or temporarily inhabit the waters of Bosnia and Herzegovina.

*“Together with my team I have developed the strategy for long-term in-situ conservation in cooperation with the Municipality of Neum and Ministry of environment and tourism which present a linchpin in the government and civil engagement.*

*Most important tangible conservation impact is reflected in the Red List proposal, as well as the proposal for the initial Strategy for long-term in-situ conservation of elasmobranchs in Bosnia and Herzegovina. Although there is more work on this very important issue, we managed to set up the basics and to connect government and civil sector to work together on the species/habitat conservation.*

*Through grant I have organized workshops for the education of undergraduate students (primarily students of biology and ecology) which is necessary to support the future generation of conservationists. Besides, I always call students to join me in all the activities (both at the field and in the lab) in order both to educate them and encourage them to take the action and became the future conservationist. Our country is rich in threatened biodiversity, and we need much better quality conservationist than we have at the moment.*

*I chose to publish information in local zoological peer-review journals, primarily because of the fact that people in Bosni and Herzegovina often have difficulties in both understanding the English language and having access to specific journals. Besides, some results have been published in the international pathological congress organized by Adriatic Society of Pathologists and at the 27th Rufford Conference in Bar organized by Natural History Association of Montenegro and Marine Mammal Research Association.“*

In projects of **Dr Ana Golubović**, Assistant Professor at Faculty of Biology at Belgrade University, distribution of European Pond Turtle, which is strictly protected and Data Deficient on national level, was for the first time explored in central Serbia. Ecosystems which they inhabit are also conservation priority across Europe (Appendix II of the Bern Convention), but are purely

studied in Serbia. Additionally, public awareness was aimed from primary school pupils to wide public, about illegal trade on Chelonian species in Balkans and Serbia.

In projects of Ana Golubović many students and experienced researchers were included in field research. Some of the students showed exceptional interest in field work and Chelonians, and hopefully it will result in at least two master thesis - giving opportunity to young conservationists. Additionally, development of Biologer data base already attracted colleagues from neighboring countries, and additional cooperation concerning ideas and funding are expected very soon not only in NGO sector across Serbia, but also in the region. In projects of Ana Golubović distribution of chelonian species in Serbia was additionally explored, along with all other reptile species which were recorded in the field. These data on distribution were presented on dozen of scientific conferences, published as:

- ✓ Urošević A., Ljubisavljević K., Tomović L., Krizmanić I., Ajtić R., Simović A., Labus N., Jović D., Golubović A., Anđelković M., Džukić G. (2015) Contribution to the knowledge of distribution and diversity of lacertid lizards in Serbia. *Ecologica Montenegrina* 2 (3) pp. 197-227 ;
- ✓ Tomović L., Urošević A., Ajtić R., Krizmanić I., Simović A., Labus N., Jović D., Krstić M., Đorđević S., Anđelković M., Golubović A., Džukić G. (2015) Contribution to the knowledge of distribution of Colubrid snakes in Serbia. *Ecologica Montenegrina* 2 (3) pp. 162-186 ;
- ✓ Ljubisavljević K., Tomović L., Simović A., Krizmanić I., Ajtić R., Jović D., Urošević A., Labus N., Đorđević S., Golubović A., Anđelković M., Džukić G. (2015) Filling in the gaps in distribution data of the Snake-eyed skink *Ablepharus kitaibelii* Bibron and Bory, 1833 (Squamata: Scincidae) in Serbia. *Ecologica Montenegrina* 2 (3) pp. 247-254
- ✓ Krizmanić I., Urošević A., Simović A., Krstić M., Jović D., Ajtić R., Anđelković M., Slijepčević M., Đorđević S., Golubović A., Žikić V., Džukić G. (2015) Updated distribution of the European pond turtle *Emys orbicularis* (Linnaeus, 1758) and its conservation issues in Serbia. *Archives of Biological Sciences* 67(3), 1043-1053

These four papers, along with data gathered on *Testudo hermanni* and sent as a final rapport to The Rufford Foundation, served as a basic data for Red Book of Reptiles of Serbia (2015).

After this period one more paper was published:

- ✓ Golubović A., Grabovac D., Popović M. 2017 Actual and potential distribution of the European Pond Turtle (*Emys orbicularis*) in Serbia and conservation implications. *Acta Zoologica Bulgarica Supplement* 10: 49–56.

Two more are currently in preparation: on distribution of invasive Red-eared slider, and on distribution of Hermann's tortoise. In all of these papers and conference reports, The Rufford Foundation was acknowledged.

**Péter Villányi**, Kiskunság Society of Protection of Birds, with the help of Rufford grant was able to organize several bird banding expeditions, and could take steps forward to raise awareness. He could support a local association to develop their knowledge and experience about reedbeds and also could work out good relations with local people.

The Rufford grant helped his Association to involve a lot of enthusiastic researchers to be involved in the migration research of the moustached warbler. With his team he got clear about the actual threats of reedbeds in Albania and gave suggestions to local stakeholders to designate sites to Natura 2000. Peter with his team work together with the Albanian Ornithological Society which turned out to be a really active and dedicated partner. With the help of them they could reach a lot of youngsters in the country. They held several presentations about bird ringing and nature conservation. Data were shared with the Hungarian Bird Ringing Center, so it is available to everybody who needs it. Partner AOS also gets all the ringing data and biodiversity information

**Dr. Aylin Akkaya Baş**, Scientific Director of Marine Mammals Research Association (DMAD), through the Rufford grant, got a chance to carry on long term, systematic and dedicates surveys in the Levantine Sea, where suffered from lack of research. As a developing country, Turkey, has limited fund on the subject and The Rufford Foundation was the main donor on our projects. Through its help, Antalya Bay is now a candidate important marine mammal habitat (IMMA). Further, Aylin with her team carried on wide range of public awareness campaigns and undertake capacity building activities with over 50 students and researchers trained on the subject. Lastly, her organisation became the partner NGO of ACCOBAMS and contributed their data to their database. Additionally to another international platform (TursioMed) and widen our research to the sperm whales and beaked whales. Lastly, she with her team have developed an online data sharing platform (CETAZOOM) for photo identification of cetaceans and received several photographs from fishermen with rare species sightings.

*“Without the help of Rufford grant, we could never start up our survey efforts in the Levantine. Through our focused and hardworking nature, the project outcomes spreaded both to the scientific and public communities. Through Rufford support, we are one of the several NGOs which is actively contributing ACCOBAMS and also recently awarded with a grant from WWF to support our conservation effort. Lastly, we build up many Mediterranean wise international collaborations, ranging from University of Bari, Sn Andrews University and CIMA foundation. With the support of Rufford, we carried on scientific training courses for university students and successfully trained more than 50 students both from Turkey and abroad. Lastly, our results revealed several important marine mammal habitats for endangered species, from monk seals to beaked whales, in areas that has nothing none previously. The results are presented to the policy makers and we are in close relationship with them for priority areas.”*

Each month throughout the RSG project (24 months), Aylin have gathered students from all over the world, support their costs to the project sites and trained them on international data collection protocol and encourage them on their own publications.

With her team she have already published three manuscripts on international journals and presented poster in international conferences. Additionally, they have submitted one more this month pointing out the critical habitats in the Levantine Sea, with an emphasis of offshore waters of Cyprus. This last publication actually hold information gathered from CETAZOOM, that highlights the importance of data sharing between each stakeholders, starting from fishermen.

**Temur Shvelidze**, Assistant Researcher at Institute of Ecology, Ilia State University shared with us his opinion about importance of Rufford funding:

*“Georgia is located in the caucasus region. Ilia State University has been conducted dolphin survey in the south-eastern part of the Black Sea since 2014. The survey was granted by only Kolkheti national park foundation. Due to we have marine protected areas there is obligatory to monitor dolphin abundance in that area and also along the entire coast. This foundation has stopped granted survey in 2017. It is very hard to get foundation in conservation work via local grants. Actually there are only several local foundations who periodically change their targets of giving money. So, The Rufford Foundation gave us a big opportunity to pursue dolphin survey in 2017-2018. Besides, it was a first attempt of conservation actions of dolphins in Georgia. After 4 year survey data there was an urgent need of conservation of black sea dolphins especially harbour porpoises and bottlenose dolphins. Harbour porpoises are isolated population from Atlantic ones. We are happy to work with The Rufford Foundation and we have future plans with them. Our project has encouraged other research institutes and young researchers to apply for Rufford grants. “*

**Dr. Branko Anđić** from University of Montenegro, explain to us that pprotection of mosses in Montenegro is at a very uneven level. Prior to the projects supported by The Rufford Foundation, no project was concerned with the protection of mosses in Montenegro. Thus, the significance of these projects is very important to draw public attention to the protection of mosses and the protection of species that are globally or regionally endangered.

The entire material collected during the work on the projects is stored in the herbasar collection of the University of Montenegro, with the aim to be further used in the education of Biology students. Also, the first box with mosses in the Botanical Garden in Kolasin was set up with the aim of educating the wider public that visited the garden.

*“I consider that the greatest contribution of these projects is the registration of new types of moss for Montenegro and Albania because the results of the research have made a significant contribution to the knowledge of the flora of the breeding. Also very important influence is the installation of information boards that have attracted visitors to get information about mosses.*

*Projects have helped educate future generations through several phases:*

- 1. They are allowed to use herbasis.*

2. *Young people can inform informally when visiting the Botanical Gardens where they are installed with moss information boards.*
3. *Students and students received information materials in the form of brochures with information on the importance of moss.*
4. *During the lecture, young students learned in an interesting way about mosses.*

*During this Moss protection project data are published in international journal which are on SCI or Scopus list, in international conference for moss protection and conference on national level. Also the interesting data are published in national newspaper, in aim the information a Montenegrin society.”*

**Jasmin Pašić**, from Center for Environment, Bosnia and Herzegovina apply and have got his Rufford grant because the conservation status of bats in B&H is unknown.

*“State government does not enforce any specific legislation for protection of bats and their habitats. Bats are listed in the “Red List of Protected Fauna” but without conservation or vulnerability assessment. Recently some organisations voluntarily provided national reports to EUROBATS, which is recognized as one of the few activities in this field. So far, efforts spent to promote signature of the treaty by B&H government were unsuccessful. Projects, like this one supported by The Rufford Foundation, can be used in scientific purposes, but also for capacity building and as a promotion of importance and protection of bat fauna in B&H.”*

**Ilija Ćetković**, from Montenegrin Ecologists Society, found The Rufford Foundation’s grants as a very good tool for sharks promotion and protection, as his conservation work is based on them. Previously, there were no shark dedicated research, neither conservation activities in Montenegro.

*“RSGF has recognized the Blue shark conservation problem within our waters, as a critically endangered species in the Mediterranean and then continued to support protection of other pelagic sharks that are in the same situation. Grants have ensured production of first educational material, first lectures for community and finally first research actions on sharks. Due to these grants, Montenegrin wider community has got first positive interaction with Adriatic shark species that is not based on their killing, unnecessary fear and similar. National media have published documentaries and articles on their conservation need and these endangered species have gained first real and positive promotion in Montenegro. Scientific data will be published in Croatian journal “Acta Adriatica”, where the paper is on the review currently.*

*Beside the conservation of sharks, RSGF has provided improvement of knowledge and fieldwork practices of biology students as the early conservationists and local fishermen interested in nature protection. Even small fundraising for any kind of nature protection is very difficult from national sources, particularly for sharks as “dangerous” species. Montenegro doesn’t have enough funds*

*for such activities, neither professional capacities. RSGF funding has provided capacity building of early career biologists and conservationists that have got a chance to join such projects. For me personally, these grants are of great significance because they gave me a chance to implement real research and conservation, which my faculty and country resources couldn't provide. I started as a volunteer on a RSGF project about karst viper protection during studies and there I learned about conservation and got an idea and necessary help to develop my own projects.”*

**MSc Dragana Šnjegota**, Faculty of Sciences, University of Banja Luka, think that The Rufford Foundation is an excellent and very friendly organization which put enormous efforts for supporting the implementation of small conservation projects in developing countries with the aim to protect the biodiversity of specific territory. The Foundation has very conscious requirements from all projects and focused on endlessly important categories and aspects of the world flora and fauna.

*“Projects which my team conduct are of extreme importance for conservation of wolves in Bosnia and Herzegovina. The Rufford Foundation has a huge significance in our attempts to protect wolves at the mentioned territory, but along with that, other species in wolves' area as well. The financial support of this Foundation is very significant, and without it we wouldn't be able to perform any of our field activities. Our activities include field and genetic monitoring of grey wolf at the specific territories in Bosnia and Herzegovina, and only by combining these activities we are in possibility to observe the condition of wolves' population. Our further aim is to enlarge the territory of our activities, through further projects, and our final aim is collection and production of data, necessary for creating of conservation management plan for wolves at the territory of Bosnia and Herzegovina.”*

The Rufford Foundation has supported her activities through 2 RSG's and 1 Booster Grant:

1. [Monitoring of grey wolf population from Bosnia and Herzegovina with the aim to create conservation strategy](#) - RSG 1 - 2015
2. [The Grey Wolf Conservation in Bosnia & Herzegovina: The Next Step](#) - RSG 2 - 2016
3. [Let's make better future for grey wolves in Bosnia&Herzegovina: continuation of conservation activities](#) - Booster Grant - 2018,

The papers produced during collaboration between Dragana and The Rufford Foundation are:

- ✓ **Šnjegota, D.**, Stefanović, M. Grey Wolf in Bosnia and Herzegovina - Conservation Activities Conducted within the Rufford Small Grants. Abstract book from 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., Đan, M. [Genetic characterization of grey wolves \(\*Canis lupus\* L. 1758\) from Bosnia and Herzegovina: implications for conservation](https://doi.org/10.1007/s10592-017-1042-7). *Conserv Genet* (2017). <https://doi.org/10.1007/s10592-017-1042-7>
- ✓ **Šnjegota D.**, 2016. Grey Wolf in Bosnia and Herzegovina. Book of Abstracts from Rufford Conference in Bosnia and Herzegovina “Nature knows no boundaries”, March 21-22, Banja Luka, Bosnia and Herzegovina, p.60.
- ✓ **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.

**Assoc. Prof. Rigers Bakiu**, from Faculty of Agriculture and Environment, Agricultural University of Tirana said that in Albania, it is very difficult to obtain funds from the Government or Public Institutions for species conservation, due to high level of corruption and disproportions, but international organizations and foundations like The Rufford Foundation is one of those, which has helped him a lot on his work for conservation of species and for improving fisheries management and the coastal communities life quality. He have implemented a project about the conservation of Monk Seal and he hope to have another grant from Rufford in order to go further with conservation of this species in Albanian coasts. He did education and practical training of groups of young people for using and monitoring monk seal and also training of the young student from University of Vlore and Agricultural University of Tirana, involved fishermen. Also what was very important is creation of an alliance entitled “Protect the Mediterranean monk seal (*Monachus monachus*)”. And a paper that was published: Caterina, Stamouli & Akel, El & Azzurro, Ernesto & Bakiu, Rigers & Bař, Aylin & Bitar, Ghazi & Boyacı, Yunus & Cakalli, M & Corsini-Foka, Maria & Crocetta, Fabio & Dragičević, Branko & Jakov, Dulčić & Durucan, Furkan & El Zrelli, Radhouan & Erguden, Deniz & Filiz, Halit & Giardina, Fabio & Giovos, Ioannis & Gonulal, Onur & Zenetos, Argyro. (2017). New Mediterranean Biodiversity Records (December 2017). *Mediterranean Marine Science*. 18. 534-556.

**Dr Miloř Popović**, Research Assistant at University of Niř, said that because in Serbia is a lack of knowledge on distribution and even on presence of certain taxa, the nature conservation is only starting to emerge as an idea among younger generations.

*“As an example, just a few years ago we had no knowledge on presence of the scarce large blue butterfly in Serbia. Now, we know a lot about this butterfly population and work closely with the managers of the protected areas to conserve this species. The work is both practical (management plan), educational (working with kids) and scientific (one PhD was published on the subject). Rufford Small Grants enabled us to gather not only data about certain butterfly species, but also to make a solid team of butterfly experts working in the field and promoting butterflies both in public*

*and online. Mailing lists, Facebook groups, forum, biodiversity databases,... nothing of this would be possible without The Rufford Foundation.*

*With Rufford support a field guide of Serbian butterflies was made, followed by several scientific publications, one PhD and two online databases. The Alciphron database of Serbian insect has about 250.000 data, while the new Biologer has just started to collect data on butterflies, reptiles and amphibians.”*

For the **MSc Vernes Zagora**, from Montenegrin Ecologists Society, The Rufford Foundation was the biggest factor in his early career development. As a young and ambitious student, guided by the advice of his older colleagues, he recognized the importance of Karst viper (*Vipera ursinii macrops*) and with the help of Rufford Small Grant programme he started a career of a conservation biologist who dealt with both research work and advocacy policies that will influence the legal protection these endangered species as well as protection on the field.

*“By collecting the much-needed information about this endangered viper, we filled out the largest number of gaps in the distribution map of this species and provided the basis for its protection and further continuation of concrete research steps that would contribute to the adequate protection of Karst viper. Through projects funded by The Rufford Foundation it was created an extremely high-quality group of biologists interested in the protection of both this species and alpine meadows as fragile but crucial ecosystems for the survival of many endangered and endemic species.*

*In addition to the biologists with experience, these projects actively included students, who later continued their activities in the field of conservation biology.”*

**Tijana Čubrić**, PhD Student at University of Niš, The Rufford Foundation enabled to do her PhD thesis. In Serbia, there is a complete lack of financial support for PhD students and therefore without The Rufford Foundation she could not be able to start her PhD thesis.

*“The Rufford grant enabled me to grow my knowledge about conservation efforts through work with local communities where I learned a lot, particularly about approach methods regarding work with local farmers towards protection of the nose-horned viper. Population structure and dynamics of this species, generally important for conservation actions, is not well known in Serbia. Therefore, my work on nose-horned viper is crucial for its future active conservation. Conservation activities could not be possible without the Rufford Small Grants programme.”*

Her opinion is that in general, it is much easier to raise money for the charismatic mammal species where snakes (especially venomous) are not favoured among financiers. But, nose-horned viper is heavily harvested, the number of its habitats is polluted and fragmented and the species therefore needs conservation. Having in mind that this species may have important role in tropical web in

ecosystems as it feeds on wide spectrum of prey, it means that it also could be a regulatory factor for local populations of its prey species. Also, in semi-degraded habitats it could be one of the very few predators what means important role in local trophic webs. All these facts emphasize importance of further monitoring of the nose-horned viper populations and education of the local communities.

In the case of nose-horned viper there were none published population and ecological data so far. Her first Rufford grant enabled her to collect basic data about demography and habitat for the first time, and in the systematically way. Moreover, it enabled to design monitoring plan for this species in Serbia which we have started in the second grant. Further, as Tijana said, first grant enabled identification of main threats and therefore defining how to react in response to them, seek for solution and monitor their effect and future change. All our field work was done systematically and in a standardized, transparent way with methods that are easily applicable in any part of this viper's range. Therefore, it is very easy to merge our work with that of conservation biologists from other countries, in order to strengthen conservation activities in a largescale projects. Also, we have collected data about main threats and presented them to the authorities in Serbia to change the conservation status of the nose-horned viper. Very important impact is education activities which we have done in the field, as the main threat to this snake are local farmers. Therefore, our continuous interaction with them represents the most powerful conservation impact in the case of this species. Main aspect in conserving the species prosecuted by humans is integrating scientific research with local community involvement. Direct interaction in order to gather information about local perception of snakes, misunderstanding, concerns and approach in solving this threat are learned by experience and therefore the Rufford project enabled both me and my team to develop those important skills for this and any other future conservation project.

She have published one paper in the international peer-review journal *Herpetology Notes* and have presented results of their first project at the international 5<sup>th</sup> Biology of the Vipers Conference which was held in Morocco. Project results have been sent to the Institute for the nature protection in Serbia and they were also presented at state universities in Serbia.

**Nataša Nikpaljević**, from Natural History Association of Montenegro (DPCG), The Rufford Foundation has enabled resources for Montenegro Dolphin Project in March 2017. As Nataša said this resources helped her a lot, not only to start her career as a biologist, besides that, it helped her to start investigating about marine mammals in Montenegro in aim to protect those species, because marine mammals have a main role in marine ecosystem and protecting them we protect the Adriatic sea. It helped her to organize field work and to use proper equipment to collect data about dolphin species and that's why she is really thankful to The Rufford Foundation because they made that her idea become reality. Also, Nataša with her team wrote and published Annual report where we presented results which we had. She will continue with this kind of research and conservation efforts trying to involve as much people to gain more knowledge and better results about marine mammals species in Montenegrin waters.

To **MSc Ana Ćurić** from Herpetological Association in Bosnia and Hercegovina "Atra" Rufford Small Grants programme has been recommended as a first and great chance for realizing her research ideas as a student in process of learning and developing as a biologist.

*“It was a great motivation for my work and keeping enthusiasm in all good and bad stages of the first year of studying the most secretive frog in Bosnia and Herzegovina and wide, European common spadefoot toad. My motivation started after suggestions and realizing that the species has not been confirmed for Bosnia and Herzegovina, and the species southern distribution areal is along Sava River. Just by species ecology and distribution, the small idea of just confirming the species presence in Bosnia and gathering distribution, ecological and morphometric data has grown into new ideas of biological researches, gathering ecological data, education, collecting all necessary data for habitat and species conservation and for future evaluation through red lists and red books of Bosnia and Herzegovina, which is of great importance for global population which is declining by today's data. Rufford has helped me with my self education and has been support since 2014 when I've started with my first grant.”*

By today, she have presented her work on four conferences and published one paper, while other two are in preparation:

- ✓ Ćurić, A. (2018): Conservation of complex aquatic and terrestrial habitats preferred by extreme onthogenetic shapeshifter, European common spadefoot toad -*Pelobates fuscus* (Laurenti, 1768). 27th Rufford Conference "From Mountains to Deep Seas", 3 - 6 February, 2018, Bar, Montenegro, pp. 38.
- ✓ Ćurić, A., Zimić, A., Bogdanović, T., Jelić, D. (2017): New data and distribution of common spadefoot toad *Pelobates fuscus* (Laurenti, 1768) (Anura: Pelobatidae) in Western Balkans. North-Western Journal of Zoology (2017): e171504
- ✓ Ćurić, A. (2017): European common spadefoot toad *Pelobates fuscus* (Laurenti, 1768) in Bosnia and Herzegovina - First RSG project results and further research progress. The Rufford Foundation Mediterranean Conference in Turkey, 15th - 16th May, 2017, Koycegiz, Turkey, pp. 44.
- ✓ Ćurić, A. (2016): The PARADOX of metamorphosis in European common spadefoot toad *Pelobates fuscus* in Bosnia and Herzegovina. Nature knows no boundaries. Rufford Conference in Bosnia and Herzegovina, 21st – 22nd March, 2016, Banja Luka, Bosnia and Herzegovina, pp. 50.
- ✓ Ćurić, A., Zimić, A., Jelić, D. (2015): New data and distribution of common spadefoot toad *Pelobates fuscus* (Laurenti, 1768) in Western Balkans. 1st Balkan Herpetological Symposium within the 12th Croatian Biological Congress, 18th - 23rd September, 2015, Sv. Martin na Muri, Book of Abstract, pp. 68.

**Dr. Igor Trbojević** from University of Banja Luka who did research about Brown bears at Bosnia and Herzegovina and **Tijana Trbojević** from Independent University of Banja Luka who did research about Eurasian lynx have explained to us how is necessary to do more research and more conservation measures in order to protect this two charismatic and in danger species because of big pressure of hunting and other negative factors. Brown bears are protected by a closed season, but inaccurate counting, lack of data on death, abundance, damages, absence of Bear Management Plan, show that it is not properly managing with this species. Also, an accurate conservation and management action has to be urgently taken for Brown Bears, which has a strong tool on the protection of entire terrestrial fauna.

Tijana's project „Distribution of Euroasian lynx (*Lynx lynx* L., 1758) in Bosnia and Herzegovina“ is designed for the great need for knowledge about the species of *Lynx lynx* in B&H (spatial ecology of lynx).

*“The aim of this part of the project is to find out the new distribution, abundance and factors which affecting on ecology of lynx (quality of habitat, poaching and species management) in B&H by interviewing all hunting and forestry organizations who have (or had) lynx in their hunting grounds. The greatest risk for lynx habitat was defined as construction of infrastructure (roads, wood processing infrastructure and buildings), forest cutting, mines, and lack of natural prey.”*

For **MSc Ana Vujović**, president of Natural History Association of Montenegro (DPCG) Rufford played an important role. Because of this, two grants, she raised her team members, spread her knowledge educating a lot of children and students. Because of this important step she made collaborations with institutions and NGOs.

For the Turtles/tortoises in Montenegro she couldn't get a funds especially for field research, so Rufford give her that chance. During the work at the field she gained a valuable data and have got better picture what is going on with her species, and what is necessary to do in order to make Montenegro better place for their living.

### 3. Recommendations

For researchers and conservationist of natural heritage, it is necessary to cooperate as much as possible, so every one of participants saw the power of this kind of meetings. It refreshes our ideas, our mind and way of thinking. The Conference was successful and very important for biologists, ecologists and conservationists who need support. However it was also realized that data sharing platforms need to be encouraged more strongly to increase the accuracy of research and to increase the outcome of conservation strategies.

We recommend Rufford Small Grants programme to colleagues who are really interested in making a change in positive way in nature and who have great knowledge in the field that The Rufford Foundation support.

We promote Rufford Conference via all social media and at national television

<https://www.youtube.com/watch?v=9eA38qYSNrc>



#### 4. List of Participants

Around 30 researchers were joined to the Rufford Conference, of which 5 of them were early career students and 5 of them were experts on their field. Mainly, researchers came from Bosnia & Herzegovina, Serbia, Montenegro, Bulgaria, Turkey, Albania and Georgia.

Very important for us was presence of Mr. Josh Cole, the Grants Director of The Rufford Foundation who give us a chance to introduce ourselves personally as well as our work and plans for the future in research and conservation field.

PARTICIPANT	ORGANISATION
Ana Ćurić	Herpetological Association in Bosnia and Herzegovina
Ana Golubović	Univeristy of Belgrade
Ana Vujović	Natural History Association of Montenegro
Andrej A. Gajić	National Geographic Explorer
Aylin Akkaya Baş	Marine Mammals Research Association
Branko Anđić	University of Montenegro
Darja Ribarič	Society for Sustainable Development for the Sea
Dilara Arslan	Akdeniz Koruma Derneği
Dragana Šnjegota	University of Banja Luka
Flavio Affinito	Marine Mammals Research Association
Igor Trbojević	University of Banja Luka
Ilija Ćetković	Montenegrin Ecologists Society
İlke Ertem	Marine Mammals Research Association
Jasmin Pašić	University of Banja Luka
Marina C. Godin	Marine Mammals Research Association

Merve Kurt	Marine Mammals Research Association
Miloš Popović	University of Niš
Milena Batakovic	Independent University of Banja Luka
Nadia Frontier	Marine Mammals Research Association
Natasa Nikpaljevic	Natural History Association of Montenegro
Peter Villanyi	Kiskunság Society of Protection of Birds
Rosalia Maglietta	National Research Council, Italy
Richard George	Indigo Blue
Rigers Bakiu	Agricultural University of Tirana
Temur Shvelidze	Iliia State University
Tijana Čubrić	University of Niš
Tijana Trbojević	University of Banja Luka
Vernes Zagora	Montenegrin Ecologist Society
Vito Renò	National Research Council, Italy

## 5. PHOTOGRAPHS FROM THE CONFERENCE









## 6. Acknowledgement

**Huge thanks to Rufford Foundation for giving a chance to Montenegro Dolphin Project Team to organize this Conference!**

We are thankful to MSc Milena Bataković, senior adviser from Agency for Nature and Environment Protection of Montenegro and Vito Renò and Rosalia Maglietta from Institute of Intelligent Systems For Automation - National Research Council (CNR ISSIA). Also we are thankful to participants Ersin Baş, Director of Marine Mammals Research Association (DMAD), Richard Harrison-Cripps from Tortoise Institute of Montenegro and folklore ensemble “Rumija” from Bar.

Finally we would like to thank for Lasse Capel and Elisa Gaggioli to create the Conference website <http://conference.montenegrodolphinproject.org/>.

# 27<sup>th</sup> Rufford Small Grants Conference

"From Mountains to Deep Seas"

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3 – 6 February, 2018  
Bar, Montenegro

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## Conference Schedule

SESSION TIME		TITLE	SPEAKER	ORGANIZATION
<b>Day1 - February 3, 2018</b>				
12:00	16:30	Check-in to Hotel SIDRO		
16:30	17:00	Doors Open for Welcome Drinks		
17:00	19:00	Opening Remarks & Icebreaker	Aylin Akkaya Baş, Ana Vujovic	Montenegro Dolphin Project (MDP)
19:00	21:00	Dinner		
21:00	-	Drinks and Social Time		
<b>Day2 - February 4, 2018</b>				
07:00	08:30	Breakfast		
08:30	08:50	Doors Open for Conference		
08:50	09:00	Introduction	Aylin Akkaya Baş	Marine Mammals Research Association
09:00	09:25	Research of Fisheries Impact on Pelagic Sharks and Their Conservation in Montenegrin Coastal Sea	Ilija Cetkovic (20' + 5'Q&A)	Montenegrin Ecologists Society
09:25	09:50	Conservation Activities of Endangered Marmaris Salamander ( <i>Lyciasalamandra flavimembris</i> ) from Muğla, Turkey	Dilara Arslan (20' + 5'Q&A)	Mediterranean Conservation Society
09:50	10:15	Assessment of Degree of Exploration and Conservation Strategy of the Protection of Sharks, Skates and Rays in the Neum Bay	Andrej A. Gajić (20' + 5'Q&A)	National Geographic Explorer
10:15	10:40	Integrating Scientific Research with Community Education for Cetacean Conservation and Population Statuses in Montenegro	Natasa Nikpaljevic (20' + 5'Q&A)	Natural History Association of Montenegro
10:40	10:50	Preliminary Results of Critical Habitat Identification Utilised by Two Delphinidae Species in Montenegro	Nadia Frontier (5' + 2'Q&A)	Marine Mammals Research Association
10:50	11:20	Coffee Break		
11:20	11:45	Towards Eco-system Based Management of Marine Mammals in the Northwestern Levantine Sea	Aylin Akkaya Baş (20' + 5'Q&A)	Marine Mammals Research Association

11:45	12:00	Cutting-Edge Technologies and Synergies for Cetaceans' Large-Scale Studies, Knowledge Upgrading and Data Sharing	Vito Renò (10' + 5'Q&A)	Institute of Intelligent Systems For Automation - National Research Council-CNRISSIA
12:00	12:10	Conservation Actions of Cetaceans in the Georgian Territorial Waters	Temur Shvelidze (5' + 2'Q&A)	Ilia State University
12:10	12:20	Promote the Protection of Mediterranean Monk Seal ( <i>Monachus monachus</i> ) in Albanian Coastal Regions	Rigers Bakiu (5' +2'Q&A)	Agricultural University of Tirana
12:20	13:30	Lunch Break		
13:30	13:55	Distribution and Vulnerability of Highly Endangered Karst Viper ( <i>Vipera ursinii macrops</i> ) in Central and	Vernes Zagora (20' + 5'Q&A)	Montenegrin Ecologist Society
13:55	14:20	Conservation Implications for the Nose-Horned Viper ( <i>Vipera ammodytes</i> )	Tijana Cubric (20' + 5'Q&A)	University of Niš
14:20	14:45	Conservation of Complex Aquatic and Terrestrial Habitats Preferred by Extreme Ontogenetic Shapeshifter, European Common Spadefoot Toad- <i>Pelobates fuscus</i>	Ana Ćurić (20' +5'Q&A)	Herpetological Association in BIH
14:45	15:10	Conservation of the European Pond Turtle ( <i>Emys orbicularis</i> ) and Hermann's Tortoise ( <i>Testudo hermanni</i> ) in Montenegro	Ana Vujovic (20' +5'Q&A)	Natural History Association of Montenegro
15:10	15:40	Coffee Break		
15:40	16:05	Priorities and Challenges in Nature Conservation in accordance with Practice, the Goals of the National Biodiversity Strategy and EU Integration	Milena Bataković (20' + 5'Q&A)	Agency for Nature and Environment Protection of Montenegro
16:05	16:30	Diversity and Ecological Analysis of the Liverworts in the Cijevna River (Montenegro and Albania)	Branko Andjic (20'+ 5'Q&A)	University of Montenegro
16:30	16:40	Turtles of Serbia are Inviting Volunteers for a Photo Session: An Update on Mobile Application Development	Ana Golubovic (5' +2'Q&A)	Univeristy of Belgrade
16:40	16:50	From Field Data to the National Red List of Butterflies of Serbia	Milos Popovic (5' +2'Q&A)	University of Niš
16:50	17:00	Behavioural Patterns of the <i>Tursiops truncatus</i> and the Possible Influences of Climate Change; Looking at the Effects on the Species and Surrounding Environment in the Mediterranean Sea	Marina C. Godin (5' + 2'Q&A)	Marine Mammals Research Association

17:00	17:10	The Effects of Chemical Pollution to Marine Biodiversity and the Marine Pollution Act	Richard George (5'+ 2'Q&A)	Indigo Blue
17:10	17:20	On The Behaviour of an Under-Studied Population of Bottlenose Dolphins in the Adriatic Sea.	Flavio Affinito (5'+ 2'Q&A)	Marine Mammals Research Association
17:20	19:00	Posters and drinks		
19:00	-	Dinner		

### Day3 - February 5, 2018

07:00	08:30	Breakfast		
08:30	08:50	Doors Open for Conference		
08:50	09:00	Introduction		
09:00	09:25	Preliminary Study of Bat Fauna within Protected	Aylin Akkaya Baş Jasmin Pašić (20' + 5'Q&A)	Center for Environment
09:25	09:50	Conservation of Critical Habitats of Moustached Warbler in Albania	Peter Villanyi (20' + 5'Q&A)	Kiskunság Society of Protection of Birds
09:50	10:05	Distribution, Status and Management of Brown Bear ( <i>Ursus arctos</i> L., 1758) in Bosnia and Herzegovina	Igor Trbojević (10' + 5'Q&A)	University of Banja Luka
10:05	10:15	Grey Wolf in Bosnia and Herzegovina – Conservation Activities Conducted within the	Dragana Šnjegota (5' + 2'Q&A)	University of Banja Luka
10:15	10:25	Distribution of Eurasian Lynx ( <i>Lynx lynx</i> L., 1758) in Bosnia and Herzegovina. Survey of Hunting and Forestry Organizations	Tijana Trbojević (5' + 2'Q&A)	Independent University of Banja Luka
10:25	10:40	Importance of Data Sharing for Common Conservation Goals	Aylin Akkaya Baş (10' + 5'Q&A)	Marine Mammals Research Association
10:40	11:00	Coffee Break		
11:00	12:00	Explanation to Round Table Session	Vito Renò, Rosalia Maglietta	Institute of Intelligent Systems For Automation - National Research Council (CNR ISSIA)
12:00	13:00	Lunch		
13:00	15:00	Round Table Sessions		
15:00	15:30	Coffee Break		
15:30	17:00	Wrap up Round Table and Outcomes		
17:00	19:00	Drinks and Free Time		

19:00	-	Dinner		
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**Day4 - February 6, 2018**

06:00	09:00	Dolphin or Bird Watch Tour		
10:00	12:00	Check-out from Hotel		

## ABSTRACTS

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### **Research of Fisheries Impact on Pelagic Sharks and Their Conservation in Montenegrin**

#### **Coastal Sea**

Ilija Cetkovic

NGO Montenegrin Ecologists Society

The Rufford Foundation has been supporting first research dedicated to pelagic sharks in Montenegro for the past two years. It began with the research of the most widespread pelagic shark – the Blue shark. Aims of the first project were to determine its distribution in Montenegrin coastal waters, to find out the threatening factors and raise awareness about this species among stakeholders. We used questionnaires for fishermen and fieldwork chumming methods in order to realize project goals. During the 2016, its presence was confirmed on three localities (Barska seka, Lega and Zanjice) and all endangering factors, such as types of fishing gear and sea litter, were listed. As local community is aware of sharks, particular attention was given to reduction of this belief. Fishermen, biologists and coastal communities were informed about shark conservation importance and the project goals. After this project has been completed, the following one (2017) was dedicated to all pelagic sharks that inhabit the Adriatic Sea. The second project was used to examine tuna fisheries impact, as the most significant threatening factor to these species. On one side, pelagic longlining and recreational tuna fishing areas were mapped and the period of their activity was determined. On the other side, areas and seasons of the shark activity were observed, too. Goal of this research was to ensure scientific base for the reduction of shark by-catch in Montenegrin tuna fisheries. Data were presented to the government institutions, which are advised to establish better protection of these species.

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# **Conservation Activities of Endangered Marmaris Salamander (*Lyciasalamandra flavimembris*) from Muğla, Turkey**

Dilara Arslan

Akdeniz Koruma Derneği

Lycian salamanders are one of the groups that include endemic species in Mediterranean, Turkey and Greece. Among the species, Marmaris salamander (*Lyciasalamandra flavimembris*) is an endangered endemic species and found in Northwestern part of Muğla province. Within its naturally restricted range, the major potential threat to the species is habitat loss due to forest fires, urbanization and climate change. In this study, the aim is to provide a scientific resource for decision makers to use in future habitat management plans. Besides creating a scientific resource, another aim is to raise awareness among both the decision makers and the local community. The study area was divided in 10 km<sup>2</sup> grids and is visited to determine current distribution and habitat preferences in the activity season (November – February) of Marmaris salamanders. All the individuals are being marked with Visible Implant Elastomer (VIE) and capture-recapture method is being used to obtain data and estimate population size and density. Some ecological parameters (like as the moon phase, wind (Beaufort wind scale), weather (Sky codes) conditions, the pre- and post-release precipitation etc.) is being noted. These data will be used to link between environmental variables and presence and/or abundance of salamanders. The target awareness activities are finished and until February biological survey with analysis will be finished.

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# Assessment of Degree of Exploration and Conservation Strategy of the Protection of Sharks, Skates and Rays in the Neum Bay

Andrej A. Gajić

National Geographic Explorer, Head of the Department for ecology and conservation Sharklab

ADRIA: Bosnia and Herzegovina

With the maximum depth of 30 meters, Neum Bay is characterized by sandy and muddy bottoms with homogenous habitats. The current project identified a total seven species of selachians and five species of batoids within the classes Elasmobranchii (Bonaparte, 1838) that inhabits Neum bay. According to the available literature, ten more species of elasmobranchs are considered as possible or expected in the studied area, due to their preferred habitats, feeding ecology and reproductive biology. In addition, we have identified spawning sites for marbled electric ray, *Torpedo marmorata* (Risso, 1810) and *Myliobatis aquila* (Linnaeus, 1758), while there are signs of nursery of *Raja miraletus* (Linnaeus, 1758), shark species *Mustelus mustelus* (Linnaeus, 1758) and *Mustelus asterias* (Cloquet, 1821). Laboratory studies included patomorphology, histopathology, immunohistochemistry and radiology in order to diagnose specific diseases. Different tissue stainings, such as hematoxylin-eosin (HE), Sudan III and Periodic Acid-Schiff (PAS) were used. Samples from *Dasyatis pastinaca* (L.) from Neum Bay and *Scyliorhinus canicula* (L.) from the surrounding waters indicated a significant number of pathological changes in the liver, gallbladder, nidamental glands, brain, kidneys and pancreas. Mentioned changes included different lymphocytes liver inflammations, tissue degeneration and strokes with perivascular edema - which directly points to the sensitivity of the studied elasmobranchs to different pressures in the eastern Adriatic Sea. It is worth to mention the current study presents the very first histopathological studies of elasmobranch in the Adriatic Sea. Such studies present the necessary proves for further legal protection, revitalization and long-term in-situ conservation of study taxa.

**Key words:** sharks, pathology, conservation, Adriatic, marine

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# Integrating Scientific Research with Community Education for Cetacean Conservation and Population Statuses in Montenegro

Natasa Nikpaljevic<sup>1,2,3</sup>, Aylin Akkaya Bas<sup>1,2,3</sup>, Ana Vujovic<sup>1,2,3</sup>

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Adriatic Sea, with its high marine biodiversity is pinpointed as important cetacean habitat. Despite the cetacean studies started in early 1980s in the northern and central Adriatic, south Adriatic suffers from the lack of data, which leads to the current project. Both land and boat surveys have been conducted since September 2016. So far we have done 180 land surveys and

32 boat surveys. Two species of dolphins, bottlenose (*Tursiops truncatus*) and striped (*Stenella coeruleoalba*) have been encountered. Overall, we have encountered 86 groups of bottlenose dolphins and 16 groups of striped dolphins. The average group size for bottlenose dolphins and striped dolphins were four and nine, respectively. The overall encounter rate of bottlenose dolphins was estimated on average 3,5 groups and 9,2 individuals per 100km. Until now, we have catalogued 46 individuals of bottlenose dolphins, with a maximum re-sighting number of nine. The knowledge gained will be used to fill the scientific data gaps on the marine top predators which will form the main step on the implementation of management and conservation strategies within Montenegro.

**Key words:** cetaceans, sighting, conservation implications, bottlenose dolphins, striped dolphins, South Adriatic Sea

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## **Preliminary Results of Critical Habitat Identification Utilised by Two Delphinidae Species in Montenegro**

Nadia Frontier<sup>1,2</sup>, Cristóbal Olaya Meza<sup>1</sup>

<sup>1</sup>Marine Mammals Research Association, Kuskavagi Mah. 543 Sok. No.6/D, 07070 Antalya, Turkey.

<sup>2</sup>School of Biological & Marine Sciences, Plymouth University, Plymouth, PL4 8AA, UK.

Designing legislative measures to protect mobile species is of fundamental importance and at the forefront of Marine Protected Area planning. Specifically, Montenegro is in the process of ascension to the EU and must make significant progress in the way of creating a framework for designating future conservation areas under the Nature 2000 framework. Amongst other measures, the lack of networks of protected habitats and measures regarding sustainable boat traffic must be addressed. Although frequent inhabitants of Southern Adriatic waters, there is a deficiency of data regarding Mediterranean subspecies of bottlenose and striped dolphin, their residency patterns, territory use and behaviour. Here I present an annual study of habitat use in Montenegro by the dolphin species, listed as Vulnerable according to ICUN classification. An integration of continuous boat and land based surveys were conducted throughout the Montenegro territorial and offshore waters between 2016-2017 to identify critical habitats for important life functions. Positional data, together with behavioural information of dolphins is examined. Preliminary results, obtained with ArcGIS software, suggests high risk areas where travelling, diving, feeding and resting behaviours overlap with hotspot areas of vessel traffic. In an effort to mitigate the conflict between conservation policy and socio-economic interest, we recommend optimum critical habitats to be put forward for the implementation of protected zones.

**Key words:** critical habitats, hot spots, dolphins, density mapping, Montenegro

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# Towards Eco-system Based Management of Marine Mammals in the Northwestern Levantine Sea

Aylin Akkaya Başı<sup>1</sup>, Emine Ulusoy<sup>1,2</sup>, Berivan Elif Aslan<sup>1,2</sup>, Merve Kurt<sup>1</sup>

<sup>1</sup>Marine Mammals Research Association, Antalya, 07070, Turkey

<sup>2</sup>Marmara University, Istanbul, 34722, Turkey

The marine mammal fauna in the Levantine Sea is largely unknown, despite the existence direct or indirect obligations of coastal countries on marine environment protections. This insufficient scientific knowledge embodies one of the many barriers on marine protections in the Levantine Sea that holds important international and local shipping lines with great economic importance for tourism, transportation and fishery. Current study aims to report the results of multiyear annual surveys of northwestern Levantine Sea to contribute the marine mammal knowledge of the area and to propose viable conservation strategies. Current study revealed the presence of seven marine mammal species in the Levantine Sea, where they were previously considered rare. Bottlenose dolphins (*Tursiops truncatus*) were recorded both in the coastal and offshore waters, with concentrated distribution in the Antalya Bay, specifically in spring and summer months. Cuvier's beaked whale (*Ziphius cavirostris*) and Mediterranean monk seal (*Monachus monachus*) showed high area resilient with multi-year sightings. Whereas, striped dolphins (*Stenella coeruleoalba*) and Risso's dolphins (*Grampus griseus*) were sighted only in few occasions. In addition to all the above sightings of at risk species, sightings of false killer whales (*Pseudorca crassidens*) and humpback dolphins (*Sousa spp.*) underline the importance of Levantine Sea on species diversity, in oppose to the previous literature. This study has revealed that Antalya Bay forms one of the many marine mammal hotspots in the Levantine Sea. Inter collaborated, multi-year research effort is needed to map the entire marine mammal hotspots, in order to implement the necessary conservation provisions within the Levantine Sea.

**Keywords:** Mediterranean Sea, Levantine Sea, biodiversity, marine mammals, cetaceans, conservation.

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# Cutting-Edge Technologies and Synergies for Cetaceans' Large-Scale Studies, Knowledge Upgrading and Data Sharing

V. Renò<sup>1</sup>, R. Carlucci<sup>2</sup>, G. Cipriano<sup>2</sup>, P. Ricci<sup>2</sup>, E. Stella<sup>1</sup>, C. Fanizza<sup>3</sup>, R. Maglietta<sup>1</sup>

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(3) Jonian Dolphin Conservation, Viale Virgilio 102, 74121 Taranto, Italy

Can information technology (IT) effectively assist biology researchers carrying out their own activities, such as large-scale investigations on cetaceans' population distribution, habits and site-fidelity? Is it possible to define a multi-disciplinary framework in which biologists and computer scientists can work together and bring innovations? Knowledge and data management are becoming challenging problems due to the huge amount of data that it is possible to collect from multiple sensors in short periods of time, hence the need to promote positive synergies for overcoming the state of the art. As an example the photo identification of marine mammals – i.e. a non-invasive analysis protocol based on the exploitation of unique distinctive marks to discriminate an individual among a group – that has been always done manually by domain experts, can be now efficiently improved using image-processing techniques, with the aim of processing multiple images with high accuracy. In addition, three-dimensional signal processing techniques enable researchers to acquire more precise information from the data (if compared with empirical approaches), improving the accuracy, the robustness and the statistical relevance of the studies. Finally, proper strategies to collect, retrieve, exchange and exploit the information must be investigated to cope with the big data researchers are going to produce and analyse in the near future. In this paper, working examples of innovative techniques for the identification of *Grampus Griseus* Risso's dolphins will be presented, as well as contributions about smart database systems aimed to collect data from all over the world in a modular and scalable fashion.

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## Conservation Actions of Cetaceans in the Georgian Territorial Waters

Temur Shvelidze

Ilia State University

Black Sea Cetacean populations are represented by two species of dolphins and one species of porpoises. Black Sea Cetaceans are genetically differentiated from other populations in the Mediterranean and Atlantic. Therefore Common dolphin, Bottlenose dolphin and Harbor porpoise are classified as sub species and have red list categories *Delphinus delphis ponticus ssp.* as Vulnerable, *Tursiops truncatus ponticus ssp.* and *Phocoena phocoena relicta ssp.* as Endangered by IUCN. Based on the Ilia State University observations from 2012-2016 cetacean populations congregate in Georgian territorial waters. The estimated density for harbor porpoise example equals 1.5 individuals per square km, 25 times higher than other Black Sea area surveyed in winter. The threats of cetaceans generally defined as by-catch, overfishing, water pollution including chemical and noise pollution, habitat degradation, viruses and infections. According to Ilia State University survey data identified the major threats by-catch and overfishing of cetaceans in the Georgian waters. Around 60% percent of stranded carcasses found along the coast, the death reason identified as by-catch. Rest 40% of strandings reason could be viruses or infections. Thus the cetacean population is under the heavy pressure of fisheries and the conservation actions are needed to protect cetaceans from by-catch. My project which is funded by The Rufford Foundation and Conservation Leadership Program aims to mitigate by-catch rate by 10% under one year project. And we are using acoustic warning systems to deploy inside fishing gill-nets to mitigate by-catch and test first time this new acoustic method using “Pinger”-devices.

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## **Promote the Protection of Mediterranean Monk Seal (*Monachus monachus*) in Albanian Coastal Regions**

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The last 5 years, Mediterranean monk seal has been observed by divers and fishermen in the southern part of Albania: around Sazan island, near Karaburun peninsula and Himare (Gjipe Bay) and according to the literature, it can be observed near Karaburun peninsula and Sazani island. It is important to note that Karaburun Peninsula and Sazan Island were declared by the government as MPA in 2010 and it is the unique MPA in Albania. Considering the fact that there has never been a study or a project made on this species, the assessment of both possible habitats is rather important to forerun the illegal hunting and damage of the habitats and the rocky caves where it proliferates. Together with the directory of protected areas in Vlore (RAPAV), we realized advanced meetings and with the financial support of The Rufford Foundation on 5 July of

2016 we began the monitoring of Mediterranean monk seal by installing monitoring cameras, which captured on trigger photos for a time period of 11 months. Unfortunately, we had no photos from camera trapping, but the sensitizing and training workshops resulted to be successful, because the trained local fishers and students were able to photograph monk seal individuals during the project implementation. These camera traps were placed in different locations based on the suggestions of the fishermen and the local people. Soon, RAPAV will implement a similar project for improving the monitoring of the marine protected areas by using our methodology and we are going to assist them technically.

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**Distribution and Vulnerability of Highly Endangered Karst Viper (*Vipera ursinii macrops*)  
in Central and North Part of Montenegro**

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Karst Viper is a relict species that lives on alpine meadows, and its endemic to the Balkan Peninsula. The precise distribution of this viper is still not precisely defined in Montenegro. The regional scientists have been researching this species for over a decade, the whole distribution area of this taxon is spread over the mountainous regions of 6 countries, which makes regional cooperation even more necessary for the Karst Viper protection. Due to the known vulnerability of this species, isolation of its populations, their condition in regional countries it was realized that it was imperative to protect populations of Karst Viper. Furthermore, Montenegrin law does not recognize the Karst Viper as an endangered species. This study found three new localities of Karst viper in the north and one in the south of Montenegro as well as one reconfirmation after 30 years. Still, the distribution map has many more gaps and it still requires effort to be completed. Several main threats to this species were recorded. Failure to comply with the environmental protection measures during the execution of infrastructure projects affects the ecosystem, the absence of data only further affects the environmental impact assessment. Also, the frequent occurrence of long-lasting fires significantly degrades this species' habitat. Thus, it is necessary to harmonize laws with the needs of biodiversity protection. Also, continue the research in order to have a clear vision of the distribution map, ecology of the species, as well as all the factors that affect it.

**Key words:** Alpine meadows, Balkan, endemic, relict

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## Conservation Implications for the Nose-Horned Viper (*Vipera ammodytes*)

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*Vipera ammodytes* is protected on the territory of Serbia after its long term exploitation for the venom supply. Despite their protection statuses, both IUCN and European Commission confirmed population declining trend. Nevertheless, published data on biology and ecology of this viper are scarce. Namely, from 1980 to 2016, 43% of published papers deal with biology and ecology of this species and only in 16 papers *V. ammodytes* was direct object of research. Further, there are none published systematic population studies for this species. The current project aims to monitor the selected populations of this species, to collect population and habitat requirements data and to investigate the major threats in Serbia. While, the species have been monitored on five locations, main threats were confirmed: illegal harvesting for the venom supply at one locality and pollution with human waste, habitat fragmentation and deliberate killing at all localities. Additionally, preliminary questionnaire results showed that 34% of local villagers who live in areas inhabited by this species believe in local folklore about *V. ammodytes*; 16% admitted that they have killed specimens and 53% of them were afraid of this species. Therefore, education activities on importance of *V.ammodytes* which were organized in seven schools and five local communities were from direct benefit for this snake. Considering that this viper was object of harvesting in other countries within its range and the overall lack of population and ecology data, trans-boundary collection of harvesting data, trade patterns and population data can help in drawing population trend and possibly in evaluating conservation status of this species within overall distribution range.

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**Conservation of Complex Aquatic and Terrestrial Habitats Preferred by Extreme Ontogenetic Shapeshifter, European Common Spadefoot Toad - *Pelobates fuscus* (Laurenti, 1768)**

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While the first unclear data of *Pelobates fuscus* (Laurenti, 1768), were mentioned in 2008, today, Bosnia and Herzegovina has a clear picture of this species distribution along Posavina. In cooperation with Croatia scientists and researchers we published a paper with new and updated data that will have an impact on species categorisation regional Red lists and Red books. *Pelobates fuscus* is a wide – ranging European anuran species. Its distribution in Bosnia and Herzegovina represent the most southern border in distribution range and there is a presumption that the border could move further to the north if main conservation actions are not taken. Current project has collected data on species distribution, ecology, terrestrial and water habitats, physical parameters, predators, diet, morphometry and morphology of every amphibian stage and behavior. The project defined Posavina region as rich with amphibian and reptilian species and registered 25 amphibian and reptile species on sites along with *Pelobates fuscus*, which is almost half of the total herpetofauna number recorded in Bosnia and Herzegovina. Since there is a lack of natural habitats and species adapted to anthropogenic sites, one of the main steps in species conservation is to conserve remaining natural habitats. We will determine population age structure of chosen populations, record individual morphometric measurements, collect tadpole ecology, morphometric, meristic and morphology data, find possible new sites and check for unreliable literature data, educate and promote our work through different stakeholders, ranging from high school students to the public institutions in Bosnia and Herzegovina.

**Key words:** distribution, spadefoot toad, Posavina, conservation, tadpoles, Bosnia.

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# Conservation of the European Pond Turtle (*Emys orbicularis*) and Hermann's Tortoise (*Testudo hermanni*) in Montenegro

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Although the European Pond Turtle (*Emys orbicularis* Linnaeus, 1758) and Hermann's tortoise (*Testudo hermanni* Gmelin, 1789) are both formally protected in Montenegro and hold international protection status, they face a range of threats. Correspondingly, the project aims to delineate the distribution range of *Emys orbicularis*, and to augment a DNA database of the species in Montenegro via the collection of DNA tissue samples. This database will be used to assist in matching confiscated, illegally-collected turtles with their populations of origin, prior to subsequent re-release, and also to identify the degree of threat to the wild population. The project also set out to map *Trachemys scripta* populations and to relocate individuals away from native habitats in order to protect autochthonous turtle species in Montenegro. During the project we collected information on distribution and threats at Virpazar (Bar municipality) and Nikšić. An additional 16 conservation activities were carried out, ranging from school presentations to university lectures, in order to enhance understanding and empathy towards turtles and tortoises. Despite extensive time spent surveying potential *Emys orbicularis* habitat in Nikšić, no sightings were registered. We also recorded zero presence of *Trachemys scripta* in either region. Fieldwork within the Bar municipality revealed six *E. orbicularis* localities near the village of Virpazar, indicating that the region is favourable to this species.

**Key words:** *Emys orbicularis*, *Testudo hermanni*, distribution, threats, Montenegro.

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# **Priorities and Challenges in Nature Conservation in accordance with Practice, the Goals of the National Biodiversity Strategy and EU Integration**

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The main strategic framework regarding Biodiversity policy in Montenegro is defined by National Biodiversity Strategy with action plan and National approximation strategy for Chapter 27 in EU association process. The second National Biodiversity Strategy and Action Plan (NBSAP) 2016 – 2020 for Montenegro was adopted in January 2016 as the key strategic document for nature conservation. The NBSAP strongly emphasizes importance of biodiversity. Moreover, the need for education, communication and awareness raising and for more effective integration of biodiversity into other sectors is emphasized. National approximation strategy for Chapter 27 in EU association processes represents plan to transpose EU Directives into national legislation as well as measures to ensure appropriate implementation and establishment of mechanism for implementation of the nature Directives and Regulations. There are many challenges in practice regarding nature conservation such as existence of adequate level of data on status and distribution of habitats and species, resources to implement and defined appropriate measures for protection of species and habitats, lack in knowledge, integration of biodiversity measures in other policies.

**Key words:** Strategic framework, nature protection, priorities and challenges

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# Diversity and Ecological Analysis of the Liverworts in the Cijevna River (Montenegro and Albania)

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The Cijevna River springs on the mountain Prokletije in Albania, on 2694m and lie between Albania, with 26.5 km and Montenegro, with 32 km. Cijevna River Canyon is recognized as a potential Important Plant Area (IPA). Research of Liverworts biodiversity can contribute to better protection of this canyon and its proclamation for IPA area. During this research liverworts were collected at 17 locations in both countries. Twenty-eight liverworts were recorded, which are represented in 24 genera and 22 families. The families Lophocoleaceae have the highest number of representatives, with three species. The most frequent liverwort was found as *Radula complanata* and *Frullania dilatata*. Two species are registered for the first time in the bryoflora of Albania. The ecological analysis showed the most of the recorded liverworts species are mesophilous. Some of the registered species are on the National Red List in the both countries. Considering the sustainable management and conservation of the biological values of Cijevna river is only possible through public awareness, workshops with the pupils of secondary and primary schools, lecture at the university, and installation of information boards has been organized.

**Key words:** Liverworts, Montenegro, Albania, bryoflora.

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# Turtles of Serbia are Inviting Volunteers for a Photo Session: An Update on Mobile Application Development

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Despite of decades-long work of Serbian herpetologists, basic knowledge about some reptile species left much to be desired. Good examples are the Hermann's Tortoise (*Testudo hermanni*) and the European Pond Turtle (*Emys orbicularis*). Although both species enjoy high levels of protection by both national and international legislative, their spatial distribution across Serbia was not well explored. During our field work (Rufford Small Grant projects numbers 12291-1, 16922-2, and 20507-B) we have found 61 novel UTM 10 x 10 km squares for distribution of *Testudo hermanni* and 49 novel UTM squares for *Emys orbicularis*. Additionally, our experience from the field proves that people from Serbia love to show pictures and talk about their experiences with reptiles which are intriguing for general public, either in attractive or horrifying ways. Nonetheless, volunteers rarely have opportunity to share their findings with the scientific community. In the course of our projects, we made contacts with enlarging number of volunteers, which sent pictures and coordinates of turtles in their neighbourhood. These are very useful information particularly within the part of the range which was not covered by our field surveys. This led us to an idea to develop an interactive and educative mobile phone application, to serve as a bridge between volunteers from all around Serbia and herpetologists providing help with determination. We hope our new mobile phone application and accompanying website will come handy to curious volunteers interested not only for reptiles, but also amphibians and butterflies.

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## From Field Data to the National Red List of Butterflies of Serbia

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Collecting data on butterflies in Serbia started in the middle of 19<sup>th</sup> century, followed by a more systematic studies at the beginning of the next century. The first digital database on butterfly observations from the field started in 2005 involving more people in butterfly studies, creating a solid base of about 80,000 field observations up to 2017 and allowing more realistic estimates required for the Red List of Serbian butterflies. Excluding temporary migrants and species with old historical records, 191 butterfly species from the database could be used for preliminary redlisting. In order to calculate parameters required by IUCN criteria, R statistical software and its GIS extensions were used. Due to the lack of population data and species trends, the analysis was mostly restricted to criteria B of the IUCN. 24 butterfly species (12%) were classified as threatened (CR = 2, EN = 13, VU = 9). The remaining 28 species were Near Threatened, three were Data Deficient and one was not assessed. In comparison, Red Data Book of Serbian Butterflies from 2003 lists 71 species (37%) as Endangered or Vulnerable using the old IUCN categories due to lack of precise data. The next step towards the final Red List would involve digitization of literature data and updating the database software for easy input of faunistic data (ie. through smart phone devices). With more data collected and all the historical observations in the database it should be possible to get a rough perspective about the changes in the butterfly population over the years and to create even more objective estimates.

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# **Behavioural Patterns of the *Tursiops truncatus* and the Possible Influences of Climate Change; Looking at the Effects on the Species and Surrounding Environment in the Mediterranean Sea**

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Following recent increases in global temperatures recorded in both tropical and temperate regions, there has been a growing demand for research on the effect of anthropogenic climate change on worldwide cetacean populations. Unprecedented climatic fluctuations have an adverse effect on prey distributions and behaviour, indirectly affecting cetaceans and making them more vulnerable to anthropogenic pressure. Furthermore, following the recent surge in the global human population, a significant increase in species mortality has been observed in most higher taxa. Climatic variations recorded using the NAO and PDO revealed an effect of sea-surface temperature on Atlantic Bottlenose dolphins (*Tursiops truncatus*) and Pacific Killer whales (*Orcinus orca*), grouping patterns and social organisation via changes in local prey abundance. A review of past and present sea-surface temperatures and associated biodiversity changes in the Mediterranean basin is needed to assess the potential impact of these environmental changes on local cetacean populations. It is an established fact that species migrate to follow their thermal niche in marine ecosystems. Due to its geographical isolation, high salinity and variable sea-surface temperatures, the Mediterranean basin hosts a great diversity of marine species. However, this isolation could lead to entrapment of local marine species were temperatures to increase. Focusing on the response of local *T. truncatus* populations to climatic variation and how it compares to related sub-populations worldwide, the aim is to draw conclusions on the sensitivity of this species to climate change. In turn, these results will provide invaluable insight into the response of similar charismatic taxa in our rapidly changing oceans and enable better design of conservation planning and action with respect to climate change mitigation.

**Key words:** climate change, marine ecosystem, cetaceans, conservation

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# **The Effects of Chemical Pollution to Marine Biodiversity and the Marine Pollution Act**

Captain Richard George

Partner to the Montenegro Dolphin Project and DMAD

Unseen chemical pollution of the Sea has an adverse effect on marine biodiversity from plankton to Cetaceans. This talk highlights the risks to Cetacean populations by discharges from ships and how this can be reduced or avoided. Montenegro signed the Marine Pollution Act within the Mediterranean Special Area. Discharge of cleaning chemicals in ships wash water is permitted if not harmful to the marine environment. Yet, commonly used products do not comply with MARPOL. A common belief – vessel cleaning requires very high or low pH base solutions. However these usually kill the good bacteria and most phytoplankton and zooplankton. This in turn leads to a lowering of food sources for Cetaceans. Commonly used surfactant detergents decrease the breeding ability of marine organisms, destroy external mucus layers that protect fish from bacteria and parasites and cause fish to absorb more chemicals than normal. Concentrations around 5 ppm will kill fish eggs; 15 ppm is lethal to fish. However, there are ways to replace these harmful chemical. The use of some of the bacteria that are good for human health plus naturally derived plant extracts and surfactants or mild surfactants with good ecotoxicological and performance profiles is one option. This eco-friendly action assists Montenegro to meet the requirements of MARPOL. Knowing that chemical pollution is one of the strongest threats to marine ecosystems, the use of MARPOL compliant formulations would play a key role on maintaining a healthy marine environment not only for Cetacean populations but also for the whole marine ecosystem.

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# On The Behaviour of an Under-Studied Population of Bottlenose Dolphins in the Adriatic Sea

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Dolphin species throughout the world's oceans display great plasticity in behaviour and life history strategies. Perhaps the world's best known cetacean : the bottlenose dolphin (*Tursiops truncatus*), has been found to engage in a large variety of unique behaviours specific to local populations. Yet, despite this incredible plasticity, some environmental factors have been found to direct this species' behaviour. Using such environmental predictors, we aim to understand what variables can be used to predict the behaviour of a currently under-studied population of *T. truncatus*. Little to no research has been published on the bottlenose dolphins found in the South Adriatic Sea. Here, we present the first results of a year long study monitoring the behaviour of *T. truncatus* along the coastal waters of Montenegro. We look at the effect of bathymetry, seasonality and life history on the behavioural states we define as travelling, diving, socialising- resting and surface-feeding. Our results show that seasonality has the strongest effect on behaviour, with feeding and socialising increasing in the colder months of the year. Yet, we found no significant effect of depth, daybreak or group size on behaviour. We suggest that a combination of factors linking resource availability to seasonal temperatures may explain this change in behaviour. These results point to the necessity of increased research effort in the region to help understand how environmentally mediated biotic changes affect the complex patterns in behaviour of local populations.

**Key words:** group cohesion, behaviour, bottlenose dolphin, environmental conditions, anthropogenic factors

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## **Preliminary Study of Bat Fauna within Protected Area of National Park Kozara**

Jasmin Pašić

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The conservation status of bats in Bosnia and Herzegovina (B&H) is unknown. State government does not enforce any specific legislation for protection of bats and their habitats. Bats are listed in the “Red List of Protected Fauna” but without conservation or vulnerability assessment. During the last few years, some organizations voluntarily provided national reports to EUROBATS, which is recognized as one of the few activities in this field. Studies of bat fauna like this will be used to fill the legislation gaps but also in scientific purposes. This is even more important considering the activities that will need to happen soon in order to create Natura 2000 network in B&H. This project, implemented from June 2016 till June 2017, was focused on one of the protected areas in Bosnia and Herzegovina, National Park Kozara. Previously, there was no official research of bat fauna in this area. In the first year we were focused on the inventory of species and defining the “zero state” of bat fauna within the area of National Park Kozara. We provided a first assessing database, list of 11 identified species and 3 roosting and nursery sites. Hopefully, during following years, plan is to establish systematic monitoring of bat species within National Park. In the last year of the foreseen 5 years project we plan to create management plan for each species which will be registered during the research. Management plans will be presented to the management and employees of National Park, for proper, sustainable management of each bat species.

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## **Conservation of Critical Habitats of Moustached Warbler in Albania**

Ákos Németh, Péter Villányi

Kiskunság Society of Protection of Birds

The study aims to collect the baseline information on the number of reed beds in Albania and to evaluate their state and the potential threats to these habitats. In addition, we aim to start a systematic bird banding monitoring programme in Albania since it is likely that they are on the main route of the Carpathian Basin population wintering. It is crucial to prove this assumption for the protection of the Moustached warbler on the long run. We closely co-operate with the Albanian Ornithological Society (AOS), to exchange professional experiences and promote bird banding as an important monitoring method for conservation. Bird banding can be used for environmental education so the program would contribute to the widespread acceptance and understanding of the activities of conservation institutions, and the popularization of bird conservation. In 2017 the main point was to compare the remained reed beds considering the previously prepared habitat maps prepared in 2016, before the migration of the Moustached warbler started. From the four differently structured reed beds we were able to ring 2567 individuals of birds with a high number of 567 Moustached warblers. We recaptured 40 of the species from different countries such as Hungary, Austria and Croatia. In the mean time we have organized bird ringing presentations for local students. Within these activities hundreds of youngsters were able to get familiar with the bird ringing and the importance of nature conservation.

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# **Distribution, Status and Management of Brown Bear (*Ursus arctos* L., 1758) in Bosnia and Herzegovina**

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Brown bear (*Ursus arctos* L., 1758) is the largest wild animal that lives in Bosnia and Herzegovina. The purpose of this paper is to show the distribution, status and management problems of species. In Bosnia and Herzegovina, brown bear is recorded on the north, north-western, western, central, eastern and south-eastern hills and mountainous areas. Research conducted from 2011 to 2017, show that the brown bear in Bosnia and Herzegovina occupies about 17,600 km<sup>2</sup> (the land area of Bosnia and Herzegovina being 51,197 km<sup>2</sup>), so the brown bears inhabit 34.38% of the territory. Official data show that there are 1433 bears in Bosnia and Herzegovina, but research in some areas has shown that the number is considerably smaller than that shown by hunting associations. So, official data about the numbers of brown bears are most likely incorrect. On the other side, official data on hunting show that culling is mostly very small (174 bears for 10 years of hunting), which is due to a large lack of data. Brown bears are protected by a closed season, but inaccurate counting, lack of data on death, abundance, damage, absence of Bear Management Plan, show that it is not properly managing with this species. Accurate conservation and management actions have to be urgently taken for Brown Bears, which has a strong tool on the protection of entire terrestrial fauna.

**Key words:** abundance, Bosnia and Herzegovina, brown bear, distribution, management

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**Grey Wolf in Bosnia and Herzegovina - Conservation Activities Conducted within the  
Rufford Small Grants programme**

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Previous and current Rufford Small Grants implemented the first ever steps in grey wolf monitoring and non-invasive sampling across Bosnia and Herzegovina. During the project period field activities were performed at the five locations: Janj, Čemernica, Vlašić, Tisovac and Vitoroga. We managed to record wolves presence at each location, except the Vlašić. At the Čemernica and Tisovac two adult wolves were recorded at each location but equal number of wolves were shot afterward. At Janj we managed to record one pack with approximately seven individuals and at the Vitoroga we recorded the presence of presumably three individuals. Non-invasive sampling was conducted through collection of wolves hair and faeces. Genetic analyses of non-invasive samples were done, to date, for samples from Janj and Vitoroga. We managed to isolate DNA from hair and to detected presence of five individuals from both locations. The previous results of genetic analyses showed distribution of wolves from Bosnia and Herzegovina in the two genetic clusters. Thus, our efforts will be to continue genetic analyses on larger sample and wider sampling territory, both necessary for more accurate conclusions. The conservation outreach activities which were carried during the term of projects alongside with above mentioned activities are fundamental for creating a good conservation management plan for wolves from Bosnia and Herzegovina, as a part of larger, Dinaric - Balkan population.

**Key words:** grey wolf, monitoring, conservation activities, Bosnia and Herzegovina

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# Distribution of Eurasian Lynx (*Lynx lynx* L., 1758) in Bosnia and Herzegovina. Survey of Hunting and Forestry Organizations

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The aim of this project is to find out the new distribution, abundance and factors which affecting on ecology of lynx (quality of habitat, poaching and species management) in Bosnia and Herzegovina by interviewing all hunting organizations and forestry companies who have (or had) lynx in their hunting grounds. The interviews were conducted on 51 organizations from 11 to 15

September and 20 to 28 October 2017. In addition to the common questions about the presence of lynx, it was also used SCALP criteria to assess the reliability of the presence of lynx. The presence of lynx has been confirmed in 29 organizations. The results of the interviews showed that there are about 90 lynx and it inhabits the territory of about 9900 km<sup>2</sup>. 24 organization evaluated the quality of lynx habitat as safe to completely safe for lynx (i.e. to ensure all habitat conditions from food availability to peace in the habitat), three-less safe and two-risky by lynx. The greatest risk for lynx habitat was defined as construction of infrastructure (roads, wood processing infrastructure and buildings)-12 organizations, forest cutting-eight organizations, mines-three organizations and lack of natural prey-two organizations. 32 lynx were culled in the poaching in a last 10 years. By comparing these results with known data, it can be seen that the number of lynx is slightly increasing (28.57%), the poaching has decreased by about 27.30%, but its distribution range has been reduced (for 11.61%). All organizations confirmed the mandatory need for the creation of Lynx Management Plan.

**Key words:** abundance, Bosnia and Herzegovina, distribution, interviews, lynx, poaching, quality of habitat, species management.

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## First Abundance and Distribution Report of the Common Bottlenose Dolphins (*Tursiops truncatus*) Off West Istria, North-Eastern Adriatic Sea

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The bottlenose dolphin (*Tursiops truncatus* Montagu 1821) local population off west Istria in the North-Eastern Adriatic had no prior abundance and distribution study despite of habitat's relevance for the preservation of this key species for the marine ecosystem. The research area belongs in part to the NATURA 2000 network, which was predominantly established here for these dolphins. Official data regarding their status are currently marked as deficient. Thus, the aim of the study was to provide the first local dolphin population data. Boat-based survey work was carried-out from 2012 to 2015 inclusive in the 769km<sup>2</sup> area along the west Istrian coast, using mark-recapture photo-identification method. Since 2001, and prior to this study, a random data collection was taken into account for the distribution purpose. 143 bottlenose dolphins were photo-identified with the average group size of 9.27±6.53 (N=52; Me=7.5; Mo=4) animals. Mark-recapture closed and robust abundance models were used to predict between 47-142 animals using the west Istrian coast during this period and being present all year round. Few individuals were identified also in Slovenia, outside the study boundaries hinting to the home range of animals being bigger as was the study area. The west Istrian coast constitutes an important feeding and breeding ground and represents a passage in daily migration of the animals. As per objectives of NATURA 2000, the region should implement a sustainable plan to manage factors that are negatively influencing the dolphins. Therefore, the study is of relevance for the management directives for dolphins' proper conservation.

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