

The Rufford Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Andrej A. GAJIĆ
Project title	The Next Step for the Establishment of the Long-Term In-Situ Conservation of Sharks, Skates and Rays in Bosnia and Herzegovina
RSG reference	24798-2
Reporting period	April 2018 to April 2019
Amount of grant	4,891 GBP
Your email address	agajic@sharklab-adria.org
Date of this report	3 rd of May 2019.

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Continuous inventory and spatial ecology of species				During the project period, we have confirmed all species of skates and catsharks which haven't been confirmed during the previous project.
Establish the initial biomonitoring of sharks, skates, rays				In tight cooperation with the local NGOs and government, we have managed to establish initial monitoring of species coordinated by Center Sharklab ADRIA.
Reveal the status of the most critically endangered sharks				Through exhaustive field studies (based on night dives and boat analysis) we have revealed the status of several unconfirmed species, with records from 1960s.
Developing measures to protect species/habitats				We have strengthened the measures in order to establish long-term in-situ conservation of all elasmobranchs that, permanently or temporarily, inhabit BH.
Adoption of Strategies for conservation				Government (Municipality and the Ministry) agreed to adopt all the proposed measures through this and previous project as soon as they define the governing body!
Book "Sharks, skates and rays of the Eastern Adriatic"				The book has exceeded all expectations! I have decided to write a 320 pages comprehensive view on the diversity, threats and protection measures for 31 species of sharks and 22 batoids in Bosnia-Herzegovina, Croatia, Slovenia, Monte Negro and Albania (internet reviews).
Educational exhibitions and workshops in BH				The interest for my lectures were far beyond expectations, thus I have decided to organise a series (not only three) of lectures and workshops both in Neum and in-land (Sarajevo, Donji Vakuf, Bugojno, Uskoplje/Gornji Vakuf and far more.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

There were no unforeseen difficulties. Given the far larger amount of activities, I was forced to change (delay) the original plan of activities and to re-schedule some activities in order to conduct them in the best possible way

3. Briefly describe the three most important outcomes of your project.

The book "Sharks, skated and rays of the eastern Adriatic" (ISBN: 978-9926-8360-0-9) with basic biology, degree of endangerment and protection measures was one of the most important outcomes. As a comprehensive, 321 pages, view it provides the most precise information on diversity and population status of 31 species of sharks and 22 species of skates and rays which, permanently or temporarily inhabits the eastern Adriatic Sea. Inspired by complete lack of the proper and correct literature about elasmobranchs I have covered far more than planned – I gave a full overview on diversity, populations, threats, current law regulations and future updates in Bosnia and Herzegovina, Slovenia, Croatia, Monte Negro an Albania. It is worth to emphasize that for the first time after the Breakup of Yugoslavia book seek and received the support of the governmental bodies in the eastern Adriatic states. PDF of the book (Fig. 1) is available to download at the [official project webpage](#).



Fig. 1: Book "Sharks, skates and rays of the eastern Adriatic", by: Andrej A. Gajić

Another, equally important outcome, is that I have joined forces with other projects related to the establishment of protected areas/MPAs, firstly "Establishment of the first MPAs in Bosnia" coordinated by Adla Kahrić and funded by Waitt Foundation and United Nations Environmental Plan and GEF in Bosnia. I was engaged by the UN project in order to adopt findings from both RSG project into a common strategy for species/habitats protection. Most importantly, the government of the municipality, canton and the Federation of Bosnia and Herzegovina agreed to all my proposals based on both Strategies for conservation and sustainable management of elasmobranchs in territorial waters, as soon as Canton and the Municipality resolve the issues about the authorities and governing bodies (which is usually a nightmare in our country, but still a gigantic success and impact made through previous and primarily this RSG project).

Last but not least, I have noted a huge impact I have on the broad community and thus I gave my best to inspire the future generation of conservationists, researchers, educators... which may be the greatest success of them all. I have to emphasise one particular event which surprised me the most. There was a high school student in DV, she was following my work for past 2 years (during both RSG project) and she gave me a unique present when I came to their school - a colour drawing of myself and a shark on A0 paper. She said that she is completely inspired by my work and couldn't believe that I am actually coming to their school. Seeing that you are an ideal for someone is the greatest achievement of them all, I believe. It's far biggest than all academic titles, all professional positions, and all biographical references.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

Local communities were highly involved in almost every part of the project. Stakeholders were represented by local NGOs (related to environmental protection, education, and (under)water activities), fisherman (small-scale local fisheries and spear fisherman), SCUBA divers, aquaculture facilities owners and wider public masses from the municipality of Neum, than the city of Sarajevo and various municipalities across the in-land Bosnia and Herzegovina.

We have educated key groups and wider masses (basic biology, ecology, and conservation, morphology special ichthyology) in order to establish a local team for on-site monitoring. Also, I have worked closely with the stakeholder towards amendments in the strategies developed within the previous project. In this way, we have secured probably the best future for elasmobranchs and for sustainable development. The key is that stakeholders understood and agreed that protecting the biodiversity is crucial for the wellbeing of tourism and fisheries in the territorial waters of Bosnia and Herzegovina. I aimed not to only force the legal changes, but to make stakeholders properly understand each of the proposed measures.

5. Are there any plans to continue this work?

This one and previous RSG projects I have (together with my team) encompass the assessment of the degree of exploration (spatial ecology, reproductive biology, pathology) and development of long-term in-situ conservation strategies for sharks,

skates and rays in the Neum bay, and the rest of territorial waters of Bosnia and Herzegovina. But! By writing the book, I have carefully analysed the existing legal documents on the protection of sharks skates and rays in other eastern Adriatic countries – in which I have noticed significant divergences and urgency for updates, Therefore, the 3rd Booster Grant will be based on similar studies, but this time covering far more area – in the Croatia, Bosnia and Herzegovina and Monte Negro (which is approx. 70% of the eastern Adriatic). Due to the extremely complicated political approach combined with the field and laboratory studies, and limited funds, I will not focus on Albania – which might be the focus of my 4th grant in future. Since both RSG projects have resulted in ongoing activities, I am continuing (with my team) to study the elasmobranchs in the eastern Adriatic and to ensure adoptions of all necessary legal reinforcements.

6. How do you plan to share the results of your work with others?

The book "Sharks, skated and rays of the eastern Adriatic" with support from the local authorities in all eastern Adriatic states speaking Serbian, Bosnian, Croatian and Montenegrin will be distributed for free across public libraries, institutions, agencies, and faculties. Also, the book is available in the PDF for anyone interested in the sharks, skates, and rays. It is the best way both to share the results of my work, raise the awareness and educate. Finding at the field will be published as two original scientific papers in the Supplements to Fauna of Bosnia and Herzegovina, issue 15, 2019. At the Rufford Conference in Stepansminda, Georgia (2018) I have presented papers which combine some results from both RSG projects titled: "The effects of pollution on elasmobranch health and specific disease development in wild populations".

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

Grant was used as planned, with minor deviations primary due to the extremely large amount of work to be done. Since I decided to write a book combining all the eastern Adriatic countries (which is over ten times more work than planned) I have asked the Rufford Foundation for the postpone of my Final report for a month in order to finalise the book. Workshops and lectures were organised all year round, due to the extreme interest of students and other key groups. Meetings with governmental bodies and stakeholder were organized a bit different than planned.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Honorarium	300	300		
Publishing a book (DTP and printing costs for 20 pcs)	1,400	2,160	+760	The difference appeared after I've decided to write about entire eastern Adriatic (at over 320 pages, which is far more than planned) and was covered by private donations and doesn't effected the project stream.
Issuing a CIP and ISBN number	37	37		
Canon EOS 650D + EF-S 18-135	803	800	-3	
Educative and promotive material print	430	430		
Boat rental and fuel	335	300	-35	
Field work costs (trips, accommodation and meals)	1,586	1,624		
TOTAL	4,891	5,651	+760	

Please note that all amounts are expressed in GBP.

9. Looking ahead, what do you feel are the important next steps?

The most important step definitely would be to broaden the same principles (conducted during my both RSG project) to the other eastern Adriatic countries. For the beginning, I would like to work combine work in the territorial waters of Croatia, Bosnia and Herzegovina and Montenegro. After I have decided to expand the book to all eastern Adriatic countries, I have sent the manuscript to all competent governmental bodies in all five countries. Most importantly I have received high scores, accomplishments, and support.

With 1,777 km (excluding islands) on coast, Croatia is protecting 23 species which is the best practice to save sharks, skates, and rays – but this list requires further updates as well. Albania and Montenegro own approx. 800 km of coast, but protecting ono more than four species. In the legal documents in Montenegro, there are several species stated which have never been recorded in the Adriatic, nor are there any possibility for them to enter such waters. Therefore there is a rapid need to establish appropriate legal protection based on the recent data (biological,

ecological) in the region. Thus, working on the regional level to strengthen the existing and develop new conservation strategies for elasmobranch is my goal.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did The Rufford Foundation receive any publicity during the course of your work?

Yes, the Logo of the Rufford Foundation was used in both educational and promotive material, as well as the posters and presentations. The logo is included after the impressum, with the full title of the project, in the book "Sharks, skates, and rays of the eastern Adriatic". The proper acknowledgment to the Rufford Foundation (without logo) is given in the official Impressum, and in the acknowledgment pages within the back matter of the book itself.

Rufford Foundation received publicity during my media (television, newspaper, and magazine) and social media engagements.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

The project team was slightly changed compared to the previous grant, while I have decided to include the student's volunteers who demonstrated most enthusiasm and interest within the activities from the previous project.

Full Name	Role in the project
Andrej A. GAJIĆ	Principal investigator and project coordinator responsible for the complete project management, quality of scientific research, author of the book, and organiser of the educational activities. Also, Andrej responsibilities was to partnership with ministry, municipality, stakeholders and other third parties in order to adopt protection measures given in previous and this RSG project.
Adla KAHRIĆ	Adla got engaged within the field studies as expert for skates and rays, as well as marine mammals. Her engagement extended to the educational workshops and lectures. She participated at vast majority of stakeholder and government meetings. Also, as a contributor Adla has provided important information for the book published during this project.
Suvad LELO	As advisor and contributor, Suvad was involved into the preparation of the book "Sharks, skates and rays of the eastern Adriatic". Also, he contributed with the clarification on the actual nomenclature and taxonomic approach on the fish-alike chordates.
Hajrudin BEŠIROVIĆ	Hajrudin was contributor for the book when it comes to the pathology and functional anatomy. Also, he was one of the project advisors and associates.
To Amer ALIĆ	Amer was contributor for the book when it comes to the pathology and functional anatomy.

Neira DEDIĆ	As an external associate, Neira was involved as advisor during the field studies and ecological assessments.
Dario ŠAKIĆ	Same as in previous project, Dario helped with the mapping of habitats and spawning sites which resulted from our field studies.
Mia MISIRLIĆ	Technical support and volunteer during the field studies and other organized activities.
Belma NAHIĆ	Technical support and volunteer during the field studies and other organized activities.
Dalila DELIĆ	Technical support and volunteer during the field studies and other organized activities.
Rijalda MEKIĆ	Technical support and volunteer during the field studies and other organized activities.

12. Any other comments?

Once again, I would like to express my exceptional gratitude to the Rufford Foundation: to Josh for well managing the team and quality advice for my work, to Jane for comfortable and easy communication and then to the Trustees for trusting in my work and approving my grant. As a project coordinator, it was my absolute pleasure and honour to work with the Rufford Foundation and to lead the team of enthusiastic persons working to protect one of the most threatened species. Through this project we have definitely created a solid fundament for all further scientific studies, long-term in-situ conservation and monitoring not only of the elasmobranch species but all other marine vertebrates in our country. **Thanks a lot!**

Enjoy some of the experiences from the field and in the classrooms in photos below.



Photo 1: Andrej (using technical configuration) and Adla preparing for a dusk dive in the Neum bay at the second field studies within the project. © E. Memišević.



Photo 2: Adla is always happy to Andrej to many different sites for his solo night dives in order to map the adult skates and rays across the Neum. ©A. Gajić.



Photo 3: Marbled electric rays collected during the by-catch analysis within the small-scale fisheries in the marine part of Bosni and Herzegovina. © A. Gajić



Photo 4: When you run out of gas at your vessel in the middle of the night, there is absolutely nothing you can do about it – but to paddle! Hajrudin, full professor at the Department for animal pathology (left) and Andrej, head scientist (right) are trying to take the team back home before the dawn.



Photo 5: Participants at one of the lectures organized for the high school students and teachers in the SBK/Z, photo: OSDV.