

## Final Project Evaluation Report

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Your Details	
<b>Full Name</b>	Jelena Brnović
<b>Project Title</b>	Monitoring of the highly endangered eel in Montenegro due to the assessment of the state and potential changes to the law on fisheries in accordance with EU
<b>Application ID</b>	f3802f-1
<b>Grant Amount</b>	£4,993
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<b>Date of this Report</b>	30.03.2019

**1. 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
Identification of potential habitats of European eel in Skadar lake targeted by this project				<p>When you take into account ecological niche of eel together with its phenological aspects, our primary research locations will be Crnojevica River and Lake Skadar. When selecting the sampling sites, we were guided by the selection of points – sites that reflected different characteristics of certain parts of Skadar Lake with their various ecological characteristics. (Littoral, pelagial, river delta, sub-custral springs, inhabited places).</p> <p>While performing sampling, we specifically explained those sites with explaining different ecological factors that were found at each site, so that we could expect different sampling results on different locations.</p>
Visiting locations targeted by this project				<p>Our plan was to spend most days in the field in the spring period, so approximately 35 days of field work, and we have conducted 51 days of field work.</p> <p>With our project we planned to start field work in March 2018. Due to weather conditions in March (high water levels and floods in Montenegro), the fieldwork planned for this month was successfully started and held in days of April and May. With fieldwork we continued during April, May and June 2018 and when we caught the largest number of individuals.</p> <p>In August 2018 we found a significantly smaller number of specimens due to the low water level, what was also the same problem in September and October 2018. The areas where we had success in catching the eel are as follows: - left mouth of Moraca River, Malo blato, Veliko blato, River Crnojevica, Karuc, Dodos, Virpazar, and Vranjina.</p>

<p>Describing characteristics of habitat, and defining all threats</p>			<p>With the project we planned to describe every captured eel specimens and each location, which we successfully did. During the first terrain due to changing weather conditions and therefore the changes in water levels, we encountered fewer problems for the catching of the eel, which we successfully overcame, thanks to the fishermen who were upgrading our eel fishing nets so they could perform the better functions in selected locations that are more difficult to access due to high emerged and submerged plants and floating macrophytes and reeds plants, which otherwise represent the ideal habitats of the studied species of eel. Evident were also a problem due to changing weather conditions such as heavy rains, floods and droughts in Montenegro, strong winds. What we also experienced on the field work, which particularly disappointing us are the poachers who, despite placing the buoys above the eel nets with clear signs of the project, stole several of them. Considering that the problem of criminals is always difficult to solve, we made a plan to spend more time on the lake in our following field activities, and also the rangers of National Park of Skadar Lake had helped us in solving this problem a little bit. Despite these problems, our constant work on the field paid off and we managed to catch the eels.</p>
<p>Field work part (Sampling of eels, material and methods)</p>			<p>For field work part we used a passive methods of fishing. From passive methods we used eel fishing traps (pots). The captured individual specimens were measured (length - weight ratio (LWR) and a conditioning factor (K)), and photographed. All individuals were checked for any kind of abnormalities (injuries, ectoparasites and health status). All collected data and information are</p>

			<p>processed and compared with the eel populations from other researched locations.</p> <p>The length-weight relationship and conditioning factors helped us to describe the state of the eel population in the surveyed areas of Montenegro and can be a good parameters for a rough estimate of the conditions in which they live.</p>
Educational part of project (making promotional materials)			<p>With this project it is the first time that a promotional material about conservation of eel (<i>Anguilla anguilla</i> L.) has been made, we made a project Logo, and leaflets, which contain information about the project, the aim of the project and its relevance for the conservation of this highly endangered species and they were distributed during our lectures, workshops and visits to regional experts, fishermen and interested groups.</p> <p>T-shirts and sweatshirts were printed, with project logo and RSG logo and they were distributed during our field work and lectures in schools.</p> <p><a href="https://drive.google.com/open?id=1xdV-lqtGJ4-zfwxZxifNvqR1Y7YhRfSy">https://drive.google.com/open?id=1xdV-lqtGJ4-zfwxZxifNvqR1Y7YhRfSy</a></p> <p>Poster was made for school presentations and workshop.</p> <p>Our promotional material everyone can find on this link</p> <p><a href="https://drive.google.com/open?id=1v8OxzDnaxy8nXld9kKYGERY4sa3y_Ceq">https://drive.google.com/open?id=1v8OxzDnaxy8nXld9kKYGERY4sa3y_Ceq</a></p>
Participation on Rufford Small Grants Foundation conference in Serbia 2018			<p>We were honoured to be part of this gatherings in Silver Lake in Serbia, where we presented our project. Also it was opportunity to meet great people from region and hear about interesting projects and ideas.</p> <p><a href="https://drive.google.com/open?id=1abK_447KqG6OMulntUgHtN096JuZr4CQ">https://drive.google.com/open?id=1abK_447KqG6OMulntUgHtN096JuZr4CQ</a></p>
Participation in conference of students of biology, ecology and environmental			<p>It wasn't held this year.</p>

protection "EkoBioMorfa 2018" in Novi Sad by the Scientific Research Society of students of biology and ecology "Josif Pancic".			
Educational part of project (doing educational lectures in elementary and high schools, and presenting project to biology students at University of Montenegro)			<p>We have successfully finished our educational part of project regarding the plan of doing lectures in primary and high schools, lecture on faculty of science and mathematics, and educative workshops for locals, and fishermen us our primary target group because their education is essential for the conservation of eels, and thus improvement of fish resources.</p> <p>Educational lectures are done in six schools (primary and high schools), where our efforts to protect <i>A. anguilla</i> and Skadar Lake, River Crnojevic and are presented. We`ll also explain what every ordinary citizen can do to protect these habitats.</p> <p>School presentation educational workshops:  <a href="https://drive.google.com/open?id=1FoCMhNDu_Uyi5VqSDe27CZk7DpjOpJNf">https://drive.google.com/open?id=1FoCMhNDu_Uyi5VqSDe27CZk7DpjOpJNf</a></p>
Educational part of project (publications about Montenegro eel research project in newspaper and tv show)			<p>The newspaper reports and press clipping about our project  <a href="https://www.vijesti.me/vijesti/drustvo/odredivace-brojnosti-jegulje-u-skadarskom-jezeru">https://www.vijesti.me/vijesti/drustvo/odredivace-brojnosti-jegulje-u-skadarskom-jezeru</a></p> <p>This TV show was planned for this year, but it was not realised because of change of plans in TV schedule.</p>
Meetings with locals			<p>In Virpazar, Vranjina, River Crnojevic, Dodoši and Karuč, we organised meetings with local fishermen that are in contact with habitats where <i>Anguilla</i> were caught.</p> <p>We plan to do more meetings in future on other locations of Skadar Lake.</p>
Links we made with other institutions for our project			<p>For this project, our primary connection was the Faculty of Natural Sciences and Mathematics, Department of Biology where we have a lot of support from professors that are ichthyologists.</p>

				<p>Support to our project is also provided by the Natural History Museum of Montenegro and the Institute of Marine Biology, which are one of the most important institutions in the field of science in our country.</p> <p>As a bonus to our research, we also received the support from National Parks of Montenegro and Ministry of Agriculture and Rural Development of Montenegro.</p>
To present main results to scientific public				<p>Beside the presentation of our project results on scientific conferences to scientific public, the results of this project will be presented during final work of studies by one student (Miloš Džiknić) as contribution to this project work and monitoring, and also a part of main results from this project we hope that will be presented through the future master thesis of the student Miloš Džiknić.</p>
Workshop				<p>All invited lecturers took part in the workshop, including professor of University of Biology, colleague from the Natural History Museum of Montenegro, Director of the National Park Skadar Lake, as well as students of biology.</p> <p>They outlined the positive impressions of our work, with the hope that together we will succeed to solve the problems faced in the future.</p> <p>To our great satisfaction, a large number of participants were registered to participate in the seminar. Photos from workshop:  <a href="https://drive.google.com/open?id=17EaFC5S2G0Ijxd8l5qTTRCmsNeRYXrcw">https://drive.google.com/open?id=17EaFC5S2G0Ijxd8l5qTTRCmsNeRYXrcw</a></p>

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.**

- Unstable weather conditions (floods in Montenegro in March 2018) did not allow us to start with field work in March as planned, but we started in April 2018.
- The constant problems that followed us during the project in addition to the above weather conditions, were also heavy rains, droughts and strong winds in Montenegro and water snakes caught in our eel pots
- Difficulties with poachers who, despite placing the buoys above the eel traps (pots) with clear signs of the project, stole several of them, and few of our eel

traps. Considering that the problem of criminals is always difficult to solve, we made a plan to spend more time on the lake in our following field activities, and also the rangers of National Park of Skadar Lake had helped us in solving this problem a little bit.

- Because of the stealing, we did not label our eel traps any more with buoys, instead we label them with plastic bottles that were less noticeable, but enough for the experienced fishermen who came with us to know where we put them.
- Insufficiently raised awareness of fishermen about the endangered eel, lead to that eels are massively caught by fishermen (overfishing) in various illegal ways, so that besides eels other fish fund of Skadar Lake in Montenegro is being destroyed.

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

**a).** This research is one of the first contributions to the knowledge of the state of the eel population in Skadar Lake in Montenegro. This work will also be the basis for further research.

The Director of the National Park Skadar Lake is satisfied with our work and from that institution - The National Park of Skadar Lake that if we apply for Rufford for the second project, that institution will give us logistics support and also a help on our fieldwork research.

**b).** With a great pleasure we can say that with this project it is the first time that a promotional material about conservation of eel (*Anguilla anguilla*) has been made, which contained information about the project, the aims and its relevance for the conservation of this highly endangered species, with authentic photographs from fieldwork, *A. anguilla* and its habitats with description of its ecology, distribution in Montenegro, threats that *A. anguilla* (overfishing and illegal fishing) is facing and what can we do to eliminate those threats.

**c).** After sharing all useful information about European eel in Montenegro and our activities in presentations conservation events and newspaper, we have increased public awareness in Montenegro not only about critically endangered European eel species, but also about the whole fish fund in Skadar Lake which is now endangered.

Awareness is raised about the importance of preserving this species habitat, the river Crnojevici and Skadar Lake whose natural habitat and look is violated, has been intensifying in recent years, so that, apart from eels, it further threatens the native habitats of other species. With our educational workshops in schools, new young generations are introduced in advance with our natural habitat inhabited by this species, and with its significance for protection.

**4. Briefly describe the involvement of local communities and how they have benefited from the project.**

As we mentioned above in the objectives part “meeting with locals”, in localities such as Virpazar, Vranjina, River Crnojevic, Dodoši and Karuč, we organised meetings with locals fishermen that are in contact with habitats where *Anguilla anguilla* were caught.

In a conversation with local people from these old fishermen villages, we realised that these people live for hundreds of years from hunting and selling fish, including eels that are the most expensive on the market today. It was for this very reason that at the very beginning of our visits and conversations, it was very difficult for us to reach their awareness to stop with overfishing of this species because of its critical vulnerability. Over time, we managed to make a progress and an influence on their awareness of the importance of preserving not only the eel, but of the entire fish fund of the Skadar Lake.

So in the end we managed to make cooperation with many of them and to get on field information about where we can find more eel in those parts of Skadar Lake. Local fishermen benefited from our project with constant conversations and education on the importance of protecting this globally endangered species and its natural habitat. As well as the preservation of the entire fish fund in Skadar Lake, which is on the verge of survival.

**5. Are there any plans to continue this work?**

This research is one of the first contributions to the knowledge of the state of the eel population in Skadar Lake in Montenegro. Because of that this work will also be the basis for further research.

We look on this project as a start of first long-term study about European eel populations in Skadar Lake in Montenegro. We think that we achieved to initiate a good start for the plan of conservation of this species in Montenegro by making the first information about the population and health state of this species in Skadar Lake. Also recognising the fact that the public awareness for the protection of this species has been spread up to a specific level gave us encourage to keep our activities alive. What is necessary to reduce the eel overfishing in Montenegro is to expand research locations and thereby raise awareness in the coastal areas, especially Ulcinj due to the Sutorina River and Bojana where the eel fishing is also enormous. We will continue to make educative presentations in schools, and we hope that if we find the resources, we would like to continue our research activities and going to the next level of progression. The director of the National Park Skadar Lake is satisfied with our work and cooperation has been achieved that if we apply for Rufford for the second project, that institution will give us logistics support and help on fieldwork activities.



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

Our project, information material (leaflets, poster, t-shirts, presentations) are distributed to several primary and high schools, biology students of University of Montenegro, Ministry of Agriculture and Rural Development, National parks of Montenegro, and several NGOs, also fishermen and local communities.

Our promotional material everyone can find on this link

- [https://drive.google.com/open?id=1v8OxzDnaxy8nXld9kKYGERy4sq3y\\_Ceq](https://drive.google.com/open?id=1v8OxzDnaxy8nXld9kKYGERy4sq3y_Ceq)

School presentation educational workshops:

- [https://drive.google.com/open?id=1FoCMhNDu\\_Uyi5Vq\\$De27Czk7DpjOpJNf](https://drive.google.com/open?id=1FoCMhNDu_Uyi5Vq$De27Czk7DpjOpJNf)

Also, we presented our project in Silver Lake in Serbia, on Rufford Small Grants Foundation conference.

- [https://drive.google.com/open?id=1abK\\_447KqG6OMulntUgHtN096JuZr4CQ](https://drive.google.com/open?id=1abK_447KqG6OMulntUgHtN096JuZr4CQ)

We plan to keep sharing the ongoing activities by using social media tools such as Facebook pages and Instagram accounts and public awareness activities. This will enable us to promote the Montenegro eel project and Rufford Foundation to a wider community.

Also, newspaper reports and press clipping about our project

- <https://www.vijesti.me/vijesti/drustvo/odredivace-brojnosti-jegulje-u-skadarskom-jezeru>

And everyone can inform about our project on our NGO's Facebook page links

- <https://sr-rs.facebook.com/eumzelenicentar/>
- <https://sr-rs.facebook.com/CGDSB/>

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

Month	March 2018	April 2018	May 2018	June 2018	July 2018	August 2018	September 2018	October 2018	November 2018	December 2018	January 2019	February 2019	March 2019
<b>Making project logo</b>													
<b>Making design and printing leaflets , posters and shirts</b>													

Lap-top (data base of the project)																				
Fishing equipment ( renting boat, fishing traps (pots), receiving fishing nets, boots ,weight scales, ichtyometer, fish containers, lamps)																				
Daily allowance (food, drink, etc.) 4 persons x 10GBP per person x 35 days																				
Field trips travel fuel																				

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Making design and printing leaflets (1500 copies) , posters (around 20) and shirts	700	700		
Regional workshop	550	614	+64	We had more registered participants to attend the workshop and the costs were more than planned
Making project logo	180	180		
Lap-top (data base of the project)	313	330	+17	Lap-top was more expensive than we predicted.
Fishing equipment ( renting boat, fishing traps (pots), receiving fishing nets, boots ,weight scales,	1148	1552	+404	Because of the stealing of our equipment (eel pots and nets) by the poachers, we primarily had to buy new accessories and we had to more than once during the

ichtyometer, fish containers, lamps)				same day, to go with the boat on lake than we thought. Therefore, renting a boat and fuel is more expensive than we anticipated.
Daily allowance (food, drink, etc.) 4 persons x 10GBP per person x 35 days	1400	929	-471	Because of the less days of fieldtrips in winter months and droughts periods in summer, costs were lower. This saved money was used for other budget activities for the Fishing equipment and field trips when the weather was better for research.
First field trip (April, May , 2018) travel fuel	270	322	+52	Due to higher number of days on fieldtrip we spent more fuel than we expected.
Second field trip ( June, July 2018) travel fuel	110	150	+40	Due to higher number of days on fieldtrip we spent more fuel than we expected.
Third field trip (August, September, October 2018) travel fuel	142	50	-92	Due to smaller number of days on fieldtrip costs are lower. Because of droughts and low water level in Lake.
Fourth field trip (March, 2019) travel fuel	180	180	0	
<b>Total</b>	<b>4993</b>	<b>5007</b>	<b>+14</b>	The exchange rate <b>GBP 1 = EUR 1,0875926297</b> , which was the rate calculated based on approved project budget in GBP (4.993,00) and received amount in EUR (5.430,35) on 06.03.2018, was used.

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

- To write a new project proposal for the next stage so we can continue with the research and bring it to next level.
- To educate more students in order to provide bigger team for the next stage research.
- To share our results with other institutions and scientists in the neighbourhood countries, because European eel is critically endangered species on a global scale.
- To continue the research on new locations in Montenegro, especially river Bojana where is the next high overfishing of eel recorded.

- Continuing education of general population and local communities about the importance of protecting European eel and its habitats, and other fish fund in Skadar Lake.

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

The Rufford Foundation logo was used during the whole duration of the project. Logo is printed on the leaflets, posters and t-shirts, that were prepared during this project.

Rufford Foundation received publicity during this project in newspapers, during our fieldwork, lectures we have made on the Faculty of Mathematics and Natural Sciences – Department for Biology, several primary and high schools, meetings with locals, fishermen, local communities and researchers, workshop, and Institutions such as National Parks of Montenegro, History Museum of Montenegro and Ministry of Agricultural and Rural Development of Montenegro.

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

**Jelena Brnović:** Project Coordinator

**Drago Marić:** Professor at University of Montenegro; Ichtiologist; Consultant on the project

**Jelena Rakočević:** Professor at University of Montenegro, Faculty of natural sciences and mathematics, department of biolog; Project Supervisor

**Miloš Džiknić:** Project Assistant, biology student

**Vera Biberdžić:** Museum advisor at Natural History Museum of Montenegro; Project Supervisor

**Milenko Miranović:** Main fishermen consultant on the project

**Ivana Noković:** Biology student; volunteer

**Azemina Bektešević:** Biology student; volunteer

**Katarina Milikić:** Biology student; volunteer

**Ana Manović:** Biology student; volunteer

**Irena Vujović:** Biology student; volunteer

**Vuk Vučeraković:** Biology student; volunteer

And more than 15 volunteers from local communities on field works

**12. Any other comments?**

I am very thankful to the RF because it has recognised the problem of this kind. RF is one of the first foundations that funded the work on this problem in Montenegro. It helped a lot in collecting very valuable data, and also, it helped me and my team to develop our skills and improve our knowledge.

The data and samples we collected are unique and important for the future work for the protection of this critically endangered species of European eel in Montenegro.