

Final Evaluation Report

Your Details	
Full Name	Ivana Trbojević
Project Title	Stoneworts in Labudovo Okno (Ramsar Site) and Karaš-Nera Protected Area: Present, Former and Potential for Diversity Revitalization
Application ID	34213-2
Date of this Report	5.6.2023

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
Comprehensive recognising of present and former stoneworts diversity in shallow habitats – parallel vegetation and sediments survey				Amazing results followed this goal as outcomes. Recent sediment surveys revealed rich and vital diaspore banks in almost all target sites. Both oospores and girogonites were found, and their morphometrics and subsequent analyses revealed more species than have ever been known in the study area - at least three species were discovered in the form of viable diaspores that have never been recorded in the vegetation. The parallel study of vegetation and sediments proved to be very useful and comprehensive.
Providing basis for recommendation of potential habitat restoration measures				The results of the diaspore bank analysis and field observations clearly indicated which sites should be selected for the application of restoration measures. These results and recommendations were presented to the protected area managers and will be further discussed during preparation of the next project application.
Local identification key (field guide), with detail description of species				A field guide was prepared based on the results of vegetation monitoring and includes a field map showing the distribution of stoneworts, as well as photographs and descriptions of each taxa. The PDF file is provided as supplementary material to this report.
Popularization and promotion of Charophytes as an important group of macrophyte algae, which is at the same time unknown not only to wider society, but also to protected area managers				We have successfully accomplished this task by participating in science fairs where we promoted our project and introduced stoneworts and their importance in shallow habitats to a wider audience. One of our main goals is to teach our youngest, because they are the ones who will

			<p>inherit nature from us. The presentation of the project results, a public lecture was also held for students and interested parties at the Faculty of Biology of the University of Belgrade. The public lecture was attended by our students, protected area managers and our colleagues from the Faculty of Biology. We successfully presented our project and shared our future plans with our friends, students and colleagues, inspiring them all to get involved in conservation. This event - our final presentation and popularisation of the project results - was attended by guests from the Serbian Ministry of Environmental Protection and the Serbian Institute for Nature Protection, in addition to those already mentioned.</p> <p>Photos from the events popularising and promoting the project are provided as a supplement to this report.</p>
Vanja Milovanović, PhD thesis, Faculty of Biology, University of Belgrade			<p>All field data and samples needed to conduct Vanja Milovanović's doctoral research were successfully collected as part of this project.</p>

2. Describe the three most important outcomes of your project.

a). Viable diaspore bank. Viable reproductive structures of charophytes were detected in almost all targeted localities, revealing great potential for diversity revitalisation. A specifically valuable result was presence of viable diaspores in sediments belonging to the species never detected in this area.

b). Girogenites and oospores of *Sphaerochara intricate* and *Sphaerochara prolifera* - delimited. From a taxonomic perspective, the results of our research in this project provided solid and comprehensive evidence for the taxonomic value of both oospores and girogenites in the diaspore bank for delineating many species, but of particular importance are *Sphaerochara intricate* and *Sphaerochara prolifera* (manuscript submitted for consideration in the journal *Biodiversity and Conservation*). Our study linked girogenite and oospore morphology data and confirmed that girogenite morphology follows differences in oospore membrane structure - this is the first time such evidence has been provided as a scientific result.

c). Education and involvement of students and protected area managers. Elementary school children that attended the science fair where we presented our

project are now familiar with stoneworts, what they are, where they live and why they are important for us. In this project period we actively involved biology students in stonewort research, in both the field and laboratory. Protected area managers were informed of stonewort presence in their nature reserves. A field guide for identification of stoneworts in the project area was made, presented to the interested parties at the final presentation and printed booklets, along with other printed material were shared with the guests and sent to the ones who couldn't attend in person.

The most important achievement of this work was the demonstration of the existence of viable diaspore banks in the area studied, where shallow waters were disappearing, and a considerable diversity of stonewort species seemed to be lost forever. The potential for habitat restoration and diversity recovery was confirmed, and that was our main goal in this project.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Most of the unforeseen difficulties occurred on the administrative side (the procurement and delivery of some equipment was delayed at the beginning of the project), but thanks to the support of the administrative and financial departments of our faculty, we were able to successfully overcome these problems. Later, the global economic crisis led to numerous price changes (on a weekly level) in all originally planned expenses, primarily fuel and advertising-related materials and services, so we had to adjust our options for fieldwork. Nevertheless, we managed to successfully bring our fieldwork to the planned end - mainly thanks to the not very fortunate circumstance that many places dried out last year, so we had less costs for water quality analyses and were thus able to transfer funds to fuel and other expenses.

4. Describe the involvement of local communities and how they have benefited from the project.

The elementary school students were educated about the existence and importance of stoneworts in shallow ecosystems, and thus we have at least encouraged the generation that will come after us to be aware of the importance for stoneworts to be protected and preserved in wetlands so that the future of these fragile and, above all, important habitats is assured.

Students from the Faculty of Biology and members of the Josif Pančić Biological Society were introduced to our activities and many expressed interests in joining us. Our final results were presented to the group of students, and they were encouraged to participate more actively in nature conservation.

Protected area managers were educated about the occurrence of stoneworts and their importance in maintaining balance in wetlands. We showed them how to identify and collect stoneworts and recommended basic measures to protect and conserve stoneworts in their habitats.

5. Are there any plans to continue this work?

Yes, based on the results of this work, we plan to prepare a proposal for a specific habitat restoration project to revitalise charophyte diversity at selected sites in the study area.

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

We promoted our results at public presentations, and we prepared (or preparing) scientific publications.

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

Based on the summary of the results, the next steps should be directed to the restoration of habitats and the revitalisation and conservation of charophyte diversity in the studied area.

8. 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?

Yes, the Rufford logo was used at every public presentation, including the final presentation and closing of the project on 1st June 2023. The Rufford logo was used on printed materials – the field guide (final product of the project), notebook, pens, pins, and bags. We participated in some public education events to promote our project and activities, always wearing t-shirts with the Rufford logo (printed as part of the previous project). Our project and preliminary results were presented at the science fair organised for the students of the Faculty of Biology. Vanja Milovanović presented there our project idea, goals and perspectives to attract students to get involved (for master's theses and undergraduate research projects). We also participated in the 14th Symposium on the Flora of Southeast Serbia and Neighbouring Regions in Kladovo, where the preliminary project results were presented, and the project was promoted. Colleagues from our country and neighbouring countries were acquainted with our work, perspectives were pointed out and cooperation was offered to all interested parties. Our project and related activities were presented at the science fair "Biologist for a Day" organised by the students of the Faculty of Biology, where Vanja Milovanović presented our project idea and stoneworts to wide audience and specifically children. I was also invited as a guest to a radio program on Radio Belgrade 2, where I spoke about The Rufford Foundation and Rufford Small Grants, amongst other topics, promoting our successful collaboration and the importance of nature conservation. The podcast is available at this link (the conversation is in Serbian) <https://www.rts.rs/lat/radio/radio-beograd-2/5162024/alge-u-biotehnologiji.html>

Recently, Vanja also participated in the webinar series of webinars "Amplifying Voices" organized by the prestigious organisation ASLO (The Association for the Sciences of Limnology and Oceanography), presenting her PhD activities supported by The Rufford Foundation (the video will be available on this list

https://www.youtube.com/playlist?list=PLgP6ugCKy2c6U748eNjL4w-X-dZ2wyl_I as soon as the moderators upload it).

9. Provide a full list of all the members of your team and their role in the project.

People involved in this project are assigned in three working groups (field team, laboratory team, education/promotion team) based on their qualifications and competences, and we also have a team of advisors.

Trbojević Ivana, Research Associate at Faculty of Biology, University of Belgrade, Serbia. Project leader and manager, active member of each team.

Milovanović Vanja, PhD student at Faculty of Biology, University of Belgrade, Serbia. Active member of each team.

Predojević Dragana, Assistant professor at Faculty of Biology, University of Belgrade. She is experienced in field research and specifically familiar with shallow ecosystems. Member of education/promotion team.

Ržaničanin Ana, PhD student at Faculty of Biology, University of Belgrade. She participated in our previous project RSG ID 25789-1. Member of education/promotion team.

Jakovljević Olga, Research Associate at Faculty of Biology, University of Belgrade, Serbia. Member of education/promotion team.

Dušanka Cvijanović, Assistant professor at Faculty of Science, University of Novi Sad. Data analysis (statistics).

Marković Aleksandra, Assistant Research Professor at the University of Belgrade, Institute of Chemistry, Technology and Metallurgy, specialized in ecology of macrophytes, particularly in charophyte ecology. Member of the field and laboratory team.

Maršalkin Vladimir, Experienced driver and field assistant; he is licenced diver and has active licence for steering a boat.

Jasmina Šinžar Sekulić, Active in the field team and advisory, also data analysis (statistics).

Gordana Subakov Simić, Associate professor at Faculty of Biology, University of Belgrade. Advisory.

Hendrik Schubert, Full Professor, University of Rostock, Rostock, Germany. Advisory.

10. Any other comments?

I would like to sincerely thank The Rufford Foundation for giving me the opportunity to realise my idea and accomplish such amazing results. I have learned a lot during

this project period, I am more experienced and better shaped as the project leader and, at the first place more experienced charophytologist and conservationist.

I hope that we will continue our successful and fruitful cooperation.





















