

## Final Evaluation Report

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Your Details	
Full Name	Ana Golubović
Project Title	European Pond Turtle in Serbia: final steps toward IUCN categorization at the national level
Application ID	38244-D
Date of this Report	November 15, 2024

**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
Gathering data on distribution of European Pond Turtle in Serbia			✓	<p>As a part of this project, we surveyed suitable habitats for European pond turtles around the Kolubara, Toplica and Moravica rivers, and in the regions: Srem, South Bačka, Šumadija and Podunavlje, which had not been well studied before.</p> <p>We found European pond turtles in 44 new habitats and also noted 62 potentially suitable habitats that appear promising, but where no turtles have been observed so far.</p> <p>In addition, we received 40 exact locations of wild European pond turtles from volunteers via the Biologer platform.</p> <p>This new data gives us a more accurate picture of the distribution of the species and their preferred habitats.</p>
Continuing long-term population studies at five localities in Serbia			✓	<p>During the field seasons of 2023 and 2024, we captured and processed 1422 European pond turtles: at Ludaš Lake (825 capture events, of which 636 individuals were recaptured), Kraljevac (74 capture events, of which 31 individuals were recaptured), Resnik (253 capture events, of which 111 individuals were recaptured), Malo Crniće (106 capture events, of which 78 individuals were recaptured) and Rudinje (164 capture events, of which 154 individuals were</p>

				recaptured).
Networking with colleagues			✓	<p>In collaboration with the managers of the Special Nature Reserve "Ludaš Lake", we organized an international meeting of researchers involved in the study of European pond turtles. We met with the colleagues from the region (Serbia, Montenegro and Hungary) at the end of July 2022. The conference included seven presentations, followed by lively constructive discussions with colleagues and turtle enthusiasts. We have started a collaboration with colleagues from the Faculty of Veterinary Medicine at the University of Belgrade to further investigate the reproductive traits of the turtle populations we are studying. During the reproductive season, we brought female turtles to the Department of Radiology and Radiation Hygiene to examine their reproductive status and clutch size. The collaboration with the managers of Special Nature Reserve "Kraljevac" and the Young researchers of Serbia will give us the opportunity to explore a new research topic for our team. With the money received through <a href="#">crowdfunding campaign "Kornjača Spornjača"</a>, we will purchase radio telemetry equipment to study the nesting routes of gravid females. These nesting routes will be designated as green corridors and integrated into the new boundaries of the Special Nature Reserve "Kraljevac".</p>

Education of young conservationists			✓	<p>17 students were involved in this project: They were encouraged to process the turtles, collect data, analyse the data, read relevant literature, write student papers on their chosen topic, and discuss it with colleagues.</p> <p>The participating students are at different academic levels, from undergraduates to doctoral students. For many of them, it was their first time participating in a field-based study, which gave them many new skills.</p> <p>Some of these students plan to join us in long-term population studies on European pond turtles in the coming years.</p>
Re-evaluation of national conservation status of European Pond Turtle in Serbia		✓		<p>We have collected the additional data, both the exact distribution data and the population-level data at five remote locations across Serbia. We are now closer than ever to making an informed proposal for a national conservation status for the European pond turtle in Serbia.</p> <p>We will analyse the collected data and publish our proposal. In the planned publications, the Rufford Small Grant Foundation will be properly acknowledged.</p>

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

- a) FIELD DATA: We have collected more detailed information on the distribution of European pond turtles, along with population-specific data from five locations. This data is a crucial step for the IUCN categorization and protection of the European pond turtle in Serbia and future conservation efforts.
- b) PUBLIC ATTENTION: European pond turtles were brought to the attention of the public. The project activities were presented via the project pages [Instagram](#) (231 followers) and [Facebook](#) (175 followers). In addition, by [crowdfunding project "Kornjača Spornjača"](#) we highlighted the importance

of protecting gravid females and the parts of the habitats they use during the nesting period, which was communicated in numerous television appearances (e.g. <https://www.youtube.com/watch?v=XY1tyjvBewk>, <https://www.youtube.com/watch?v=VWS636rYFRw>, <https://www.youtube.com/watch?v=8CgTx2ZFDNk>). At the end of the 77-day campaign, 208 donations had been received from individuals, groups of citizens, associations and companies to reach the target.

- c) **TRAINED STUDENTS:** Many students were directly involved in the project and collected data on populations and distribution. We very much hope that young conservationists will continue to study and protect this once neglected species and its habitats in the years to come.

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

Very hot and dry summers have had a negative impact on the activity of European pond turtles. Therefore, some of the potentially good habitats found during distribution related field work should be revisited. Additional visits, when European pond turtle activity is higher, should confirm whether the habitats are inhabited by European pond turtles.

The prices for gasoline and food have risen sharply in Serbia during the project, which has increased the cost of the planned field work.

### **4. Describe the involvement of local communities and how they have benefitted from the project.**

One of the factors that had a negative impact on the habitat and population of the European pond turtle in Malo Crniće was the illegal dump. From year to year the dumping site was expanding, backfilling one part of the oxbow lake, causing the turtles to leave the previously used parts of the habitat. In 2023, we brought this problem to the attention of the Malo Crniće municipality, which removed the dumping site at our suggestion. The report sent to us by the municipality officials to inform us about the removal of the dumping site is available in the additional document.

The managers of the "Kraljevac" nature reserve have teamed up with Young researchers of Serbia to help us obtain radio telemetry equipment for turtles. We will use these devices to identify the important reproductive migration routes (for egg laying and the return of hatchlings to the water) and expand the protected areas of the "Kraljevac" Special Nature Reserve accordingly.

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

Yes, there are many plans to continue the work on European pond turtles in Serbia:

1. **CONTINUATION OF LONG-TERM POPULATION MONITORING** at five localities: SNR "Ludaš Lake", SNR "Kraljevac", Resnik, Malo Crniće and Rudinje. Further studies

will provide us with more information on the population's specific growth patterns, survival, reproductive characteristics, habitat use, etc.

2. FURTHER EDUCATION OF BIOLOGY AND ECOLOGY STUDENTS at all levels of academic training. Two students will start collecting data on European pond turtles for their Master's thesis in the next academic year. Five new undergraduate students have already signed up to dedicate their student-research assignments to turtles in the next academic year.
3. EXPLORING THE NESTING MIGRATION ROUTS of females which inhabit Special Nature Reserve "Kraljevac". Based on this data the managers plan to extend the boundaries of the SNR, and additionally protect the green corridors used by gravid females and hatchling European pond turtles.
4. We plan to use the collected data to write several SCIENTIFIC PUBLICATIONS in peer-reviewed journals. In one of these planned papers, we will propose a new IUCN categorization at the national level based on the collected data. Some of these papers will be part of Marko Maričić's PhD thesis.

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

The results of our work will be primarily communicated to the scientific community (scientific publications and conferences) and to the managers of the Special Nature Reserves "Ludaš Lake" and "Kraljevac", as well as to community stakeholders.

During the field work in 2023 at Ludaš Lake, we collected data on the climbing abilities of adult European pond turtles. The results provide an indication of the maximum coastal slope that would be surmountable for most European pond turtles. This information should be taken into account in future coastal management throughout the species' distribution range. These results and guidelines are now published in the journal Ecological Engineering (<https://doi.org/10.1016/j.ecoleng.2024.107346>). The Rufford Small Grant Foundation is acknowledged for financial support.

The collected data on population characteristics at five localities in Serbia, as well as the newly obtained distribution data, will be used for the IUCN categorization of the European pond turtle at the national level. The rationale for the proposed categorization will be published in a peer-reviewed scientific journal. The Foundation will be appropriately acknowledged in this and other scientific papers based on the data collected as part of this project.

Some of this data will be presented at the European Herpetological Congress in 2025.

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

Important next steps are:

1. The publication of the new IUCN categorization of the European pond turtle in Serbia. This should also have an impact on national legislation.
2. Collection of data on the land corridors used by females and hatchlings that connect the aquatic part of their habitat with the nesting area, followed by an extension of the boundaries of the Special Nature Reserve "Kraljevac".
3. Continuation of long-term Capture-Mark-Recapture studies at the five localities across Serbia.
4. Continuous involvement of students in field work and encouragement to explore the filed data and relevant literature

**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, we have printed the promo material, which was then distributed to our collaborators, decision makers, volunteers and turtle enthusiasts. The promo T shirts with Rufford Foundation logo were also used in public appearances, during "Kornjača Spornjača" fundraising campaign (e.g. <https://www.youtube.com/watch?v=VWS636rYFRw>, <https://www.youtube.com/watch?v=ntbplFGrsow>).

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

**Ana Golubović** – I wrote the project, and coordinated the project team and the students. I supervised student research work. I was also involved in the Capture-Mark-Recapture studies in all of the localities.

**Marko Maričić** – He was involved and coordinated Capture-Mark-Recapture studies, and covered part of the distribution related field work. Marko managed Facebook page of the project, and took over most of the public appearances in behalf of our team, related to "Kornjača Spornjača" fundraising campaign.

**Vukašin Bjelica** – He was involved in some Capture-Mark-Recapture studies, and covered part of the distribution related field work. He managed Instagram page of the project.

**Miloš Popović** – He was involved in some field work. He started modelling the distribution of the species based on the gathered data. He will play an important role in analysing the data and IUCN categorization.

In addition to these core members of the project team, 17 students were involved, either in both field seasons: Sara Arsenijević, Jana Kovačević, and Tijana Tekić; or during one field season: Pavle Janićijević, Milica Marković, Mihailo Milićević, Lena Žunić, Stefana Đokić, Pavle Lukić, Ana Novak, Mateja Plavšić, Katarina Kolenc, Marina Ilić, Marko Đurić, Tanja Pilindavić, Katarina Đoković, Ilija Đorđević

#### **10. Any other comments?**

Personally, I am infinitely grateful to the Rufford Small Grant Foundation for their financial support for more than a decade (since 2013, project #12291-1). This period is also my first decade of work as a scientist and university teacher. The financial support gave me the independence I needed to choose my research interests. Financial support also allowed me to develop as a supervisor, as my Rufford projects funded the fieldwork of my many students, so our collaboration was not burdened by the financial aspects of fieldwork. And finally, my partner and I became a couple during the fieldwork for one of my Rufford projects nine years ago. My experiences and the scientific and teaching outcomes are the treasure I have gained from the financial support of the Rufford Small Grant Foundation and for which I am forever grateful.