

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	Ana Golubović
Project title	Distribution and Conservation of European pond turtle (<i>Emys orbicularis</i>) in Serbia
RSG reference	16922-2
Reporting period	March 2015 – March 2016
Amount of grant	£ 5.000
Your email address	lunja975@yahoo.com
Date of this report	19. 03. 2016.

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
Acquisition of distribution data for <i>E. orbicularis</i> and <i>T. hermanni</i>				We mainly searched for previously unknown habitats alongside of large river flows in central Serbia. It was very successful. We managed to note presence of European pond turtle across 78 localities, i.e. 67 UTM squares 10 x 10 km, 38 of which were not previously known! Hermann's tortoises were noted at 23 localities, across 18 UTM squares, with 15 of UTM squares being new. These results include both field data and volunteer's notifications. Furthermore, with newly gathered data we modelled ecological niche and distribution of the species. It seems that we managed to cover most of their distribution, with only few potentially interesting regions which were not previously visited during field trips.
Acquisition of distribution data for other reptile species				We collected precise distribution data for all reptile species we came across. Data base reached 234 records for 11 species. These data are very valuable since we covered areas which were rarely explored by herpetologists.
Capture-mark-recapture population studies				Only one capture-mark-recapture population study was started, with 15 individuals marked. We have found one more very promising population of pond turtles in September 2015, but water level was low, animals were not very active, thus start of populations studies here was postponed. Additionally, previously established population study on Ludaš lake was continued.
Collecting DNA samples				We collected DNA samples from four geographically remote populations, which are distributed along different large rivers (thus the populations are

				not mixed by floods): Zapadna Morava (five samples), Velika Morava (five samples), Timok (four samples) and Mlava River (15 samples). In previous projects we gathered samples from very north and south of the country, thus newly gathered samples fill the known gaps, as planned. Although it was planned to sample blood, we took tip of the tail in most cases.
Documenting threatening factors				Several threat factors were noticed. Turtles were often caught on fishing hooks, and they are hard to take off. Illegal dumping places are very common beside ponds, both for chemical and hard waste. Human maintenance of river courses wipes out natural habitats of European pond turtles (e.g. oxbows ponds). Surprisingly it seems that water-filled abandoned gravel pits can be suitable habitats for them.
Collecting information on the red-slider turtle presence				Although it is known that viable populations already exist near big towns (e.g. several locations in Belgrade and Novi Sad), not a single red-slider turtle was seen during field surveys out of the urban areas! This could mean that it is not too late for education actions on this matter. Local inhabitants provided some info on red-slider observations, and offered help in spreading the word and promo-material.
Education of local inhabitants				We communicated with local inhabitants, fishermen and nature fans. They were glad to share experiences with us. Except for fishermen, most of people were not aware that turtles live nearby. Most of them have heard of red-sliders, thus we discussed of their hazardous effects on autochthonous habitats.

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

During 2015 activity season, very hot periods repeatedly switched with several cold rainy days, thus it was quite hard to plan field trips and find active turtles. End of summer was very dry with low water levels, thus many pond turtle habitats were dried out, with no active turtles to be seen. Nonetheless, we collected very valuable data, and mapped a lot of highly suitable potential habitats, which should be visited again.

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

Novel distribution data on *Emys orbicularis* – Distribution map modelled from the gathered data suggests that we indeed covered most of the species distribution. European pond turtle was recently assigned Data Deficient in Serbia, despite its conservation status across Europe. These data were urgently needed for the specie's proper reassessment and potential management.

DNA samples – Gathered from separate populations, samples will be useful in developing DNA database, and eventually for determination the origin of confiscated individuals.

Spreading the word of red-sliders – Adult specimens are still common pets in Serbia. Their possible effect on natural habitats in Serbia was not previously stressed out enough. This project urged on the pet owners to start acting more responsibly.

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

Students – project was presented to biology students of Belgrade University. They heard about European pond turtles, their secretive live stile and the problems they face in Serbia, with special emphasizing on introduction of red-sliders.

Fishermen – we exchanged knowledge and experiences about pond turtles. They learned about national and international levels of protection of the species, and turtle's valuable place in pond ecosystems.

Pet owners – we raised awareness of devastating effect of red-sliders on autochthonous ecosystems. We already had several cases when pet owners asked us for help to find a new home for their red-sliders, instead releasing them into nature.

5. Are there any plans to continue this work?

Yes, for both European pond turtle and Hermann's tortoise, precise distribution maps are only the beginning of effective conservation efforts. Established population studies should be continued, for monitoring population trends and acquisition of basic ecological parameters (growth rate, body condition index, maturation age, fecundity, spatial ecology etc.). Also good responses from pet owners encouraged me to continue spreading information on red-sliders effects on habitats in Europe. DNA samples of *E. orbicularis* and *T. hermanni* should be analysed to see if genetic variability among populations allow determination of the origin of illegally collected individuals, and implement this idea into custom officer's practice.

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

Results of this project are shared not only on website of Serbian Herpetological Society (www.shdmr.org) but also at two conferences, in Bulgaria and Montenegro. I will present results of this project again, along with my previous RSGF project on Hermann's tortoises, at RSGF conference in Banja Luka (Bosnia and Herzegovina) 20th – 22nd March 2016. Additionally, results of this project are included in paper "Quest for turtles – actual and potential distribution of the European Pond Turtle in Serbia" currently under review in Acta Zoologica Bulgarica.

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

According to plan, grant was used from March 2015 to March 2016.

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
Funnel traps (5 x 15 GBP)	80	120	- 40	We have found good quality and cheap handmade funnel traps, thus decided to buy more than planned. We bought 10 traps (12 GBP each) to be able to work in separate teams at the same time, for better efficiency.
First field trip	380	380	0	
Second field trip	350	260	+ 90	Due to sudden rainy period this field trip was shorter than planned
Third field trip	300	330	- 30	Some of the previously skipped localities were visited during this field trip.
Fourth field trip	380	380	0	
Road tolls	160	180	- 20	There were unpredicted changes in prices of road tolls
Daily allowances	2250	2250	0	
Preparation and printing of educational materials	1100	1100	0	Wanting to reach as many pet owners and fishermen as possible, I decided to print 1200 leaflets with posters on the other side, rather than planned 200 brochures.
Total	5000	5000	0	

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

Important step for conservation of European pond turtles and Hermann's tortoises is continuation of long term studies on ecology and population biology. This is especially true keeping in mind that basic population characteristics (population density, sex ratio, home range, nesting places, number of clutches and eggs per year, growth rate, maturation time, etc.) are completely unknown for this part of their distribution range, although they are crucial for good quality conservation and management.

Further efforts to draw attention of general public on effects of invasive species on habitats and species are needed. The fact that many owners of fully grown red-sliders are planning to release them in the wild (since no better solution is available) calls for education and help in finding accommodation for the turtles. It would be very important, if possible, to provide additional space for housing of these turtles, since capacities of ZOOs in Serbia are very limited.

I believe it would be very important to start population-ecology studies on both *Emys orbicularis* and *Trachemys scripta* in localities where they occur together in Serbia (surroundings of Belgrade and/or Novi Sad) in order to determine level of competition between them, and differences in their life history traits under similar habitat pressures specific for this region.

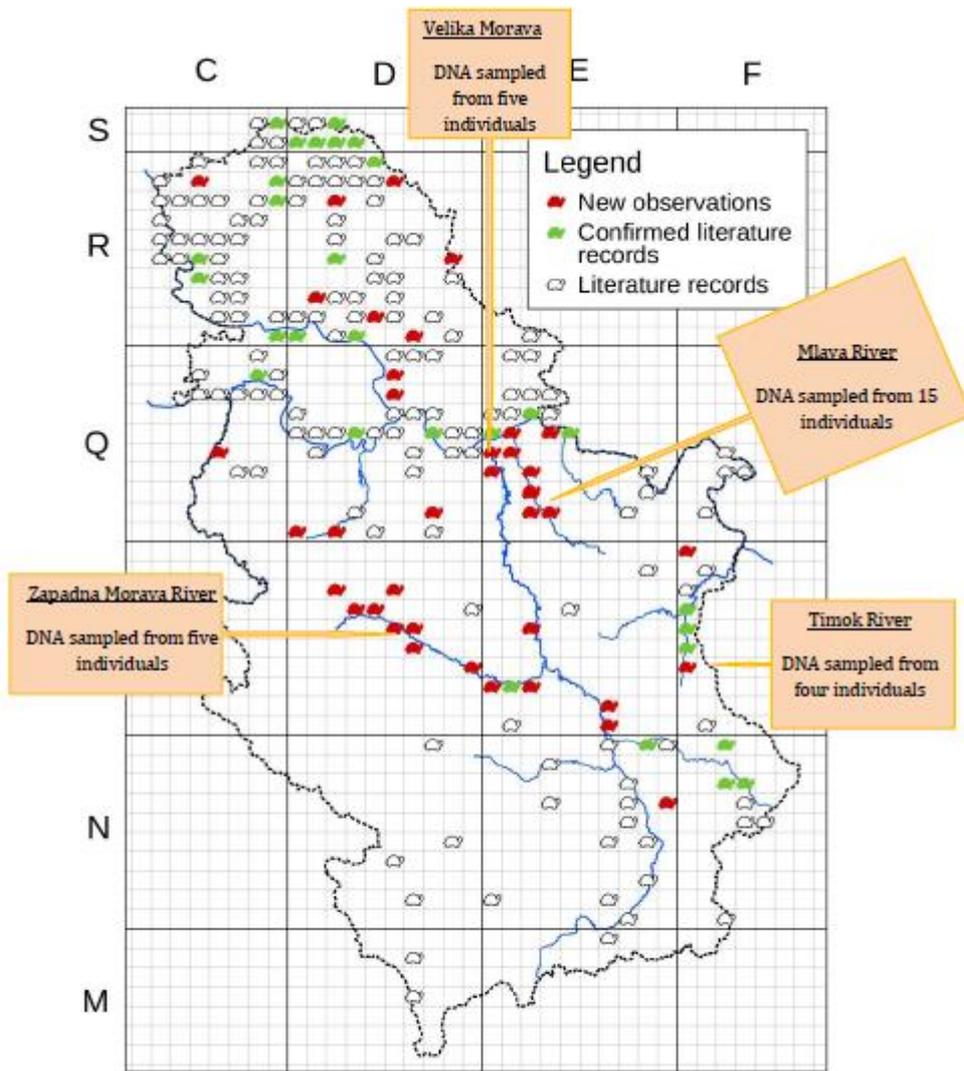
10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The RSGF logo was used on promo-material made for the project (t-shirts and pamphlets/posters). RSGF was also publicised on website with news considering the project (www.shdmr.org), and all promotional lectures in Serbia, Bulgaria and Montenegro. Furthermore, it was acknowledged in publication prepared from results of the project (under review in Acta Zoologica Bulgarica).

11. Any other comments?

I would like to thank Rufford Small Grant Foundation for financial support and the opportunity to work on this project. I have learned A LOT during project activities, which resulted in many new interesting ideas. I am very grateful to numerous amazing volunteers who helped spreading the word about conservation of turtles and their habitats. Hopefully results of this project will serve as the basis for future population ecology studies on these understudied species and, consequently, conservation of wild living and confiscated Balkan turtles and tortoises.

Annex 1



Map of Serbia with UTM (10x10 km) grid and recordings gathered during the project.