

Final Project Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF 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 – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Complete the form in English and be as concise as you can. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Katarina Breka
Project Title	Detection of threatening factors and epizootic communities of green frogs (<i>Pelophylax synclepton esculenta</i> complex) in Serbia
Application ID	19434-1
Grant Amount	£4950
Email Address	Katarina.breka@gmail.com
Date of this Report	18 th September 2017

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
Evaluate epizootic communities that colonise the amphibian skin (especially the possible presence of invasive chytrid fungus <i>Batrachochytrium dendrobatidis</i> , the causative agent of the amphibian skin disease chytridiomycosis.)				
Investigate the possible relation between epizootic community and frog's fitness and/or other measure of individual performance				
Evaluate if there is a difference in epizootic communities among different species of <i>Pelophylax synclipton esculenta</i> complex.				
Evaluate whether the disturbance of epizootic communities facilitates skin colonization of fungus <i>Batrachochytrium dendrobatidis</i> .				We found no trace of <i>Batrachochytrium dendrobatidis</i> in assessed populations.
Determine the movement patterns and habitat corridors between localities in the southeastern part of the Panonian plain, in Banat.				We have marked frogs using electric tattooing technique. We have detected recaptures but only within the same locality. Therefore we have not identified any habitat corridors between localities. We assume that the distance was too far for frogs and/or conditions were adequate at current location and migration was not necessary
Describe in detail characteristics of their habitat. Examine and				We have not done software assessment of

determine patterns and preferences in micro- and macro- habitat utilisation			the habitat favourability because we did not have enough time between our last field trip and final report. We plan to finish that task in near future.
Publish research results in international journals and symposiums.			The results have been presented in form of poster presentation, and as an abstract in Book of Abstracts at 11th Central European Diatom meeting in Prague (March 22nd – 25th 2017). The results will be presented in form of oral presentation at 6th International Scientific Meeting: Mycology, Mycotoxicology, and Mycoses at Novi Sad, Serbia (September 27th – 29th) and will be published in Matica Srpska Proceedings for Natural Sciences (accepted, in press).
Give lectures and poster presentations in local schools about the importance of frogs in ecosystems, with a special focus on green frogs.			We carried out three lectures at schools of the studied area of South Banat. Two for students and teachers from Bela Crkva, and one for students and teachers from Kovin. Articles about our presentation were published on the school websites and in local newspapers. One lecture was held at Faculty of Biology, University of Belgrade for biology students and members of society for research into the biology “Josif Pančić”.
Establish connections with regional NGOs to build up future partnership in developing			We have established connection with NGOs in Bela Crkva.

conservation strategies for the green frogs, particularly related to frog exploitation.				Representatives from NGOs attended our lectures and presentations.
Raising the awareness of local and regional officials involved in quota and permit regulations for green frog exploitation on current threats and prospects.				We have sent a detailed report with the results hoping to be able to implement our findings in their management strategy for protection
Educating and raising awareness of the local community on green frogs and the need of protection of the species and their habitats				We have established good relations and effective communication with the local community.

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

We had to reschedule some field activities due to weather conditions. Due to erosion of the coast it was impossible to access lakes near village Kusić so we decided to work on nearby slow-moving river Jaruga. This did not create any significant impact on the overall pace of our work or its progress. We did not face any other difficulties during the realization of the project.

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

- a) We have successfully collected samples for analysis from frog's skin. Algological analysis confirmed the presence of c. 30 diatom genera. Mycological analysis confirmed the presence of dematiaceous hyphomycetes - *Fonsecaea* sp. that causes chromomycosis in amphibians. Although the identification of isolated fungi has not yet been complete, preliminary analysis has confirmed the presence of other dematiaceous fungi which suggests presence of other potential causes of chromomycosis. Large number of fungi that we consider transients from environment has been identified as well as aquatic fungi (oomycetes). Mycological analysis find no trace of *Batrachochytrium dendrobatidis*. We have also isolated bacteria dwelling on the frog's skin. All isolates are deposited in the collection of the Faculty of Biology in Belgrade and will be and will be identified in the near future.
- b) All habitats have been identified by using the document "Harmonization of national nomenclature in the classification of habitats with the standards of the international community". Within each of the habitats we have estimated frog activity during different parts of the day (presence/absence, density, position and movement patterns). We have recorded habitat conditions and found that human activities have great pressure on current status of selected habitats. Wild landfills and unsustainable farming practice near village Kusić contribute to eutrophication of the river Jaruga. DTD canal is artificial water

body but constant modification of the coast by swamping by the pebble sand, concreting the coast and mowing for easier access, facilities construction etc. contribute to habitat modification and habitat loss.

- c) The last but not the least important outcome is introducing certain project activities to local community especially children and young. Breaking phobia and taboos through lectures, workshops and live contact with animals contributed to the new interests in welfare and ecological importance not only of green frogs but of frogs in general.

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

We carried out three lectures at schools of the studied area of South Banat. Two for students and teachers from Bela Crkva, and one for students and teachers from Kovin. Articles about our presentation were published on the school websites and in local newspapers. One lecture was held at Faculty of Biology, University of Belgrade for biology students and members of society for research into the biology "Josif Pančić". These lectures served to raise awareness among the local population about the importance of frogs for ecosystems and threatening factors. Also to present our project and Rufford Foundation.

Before starting fieldwork, we have visited local and regional officials (Department of Environmental Protection of the Ministry of Agriculture and Environment, Institute for Nature Conservation of Vojvodina Province and Provincial Secretariat for Urban Planning, Construction and Environmental Protection, The Public Company for Forest Management "Vojvodinašume" who manage The Special Nature Reserve "Deliblatska Peščara" and officials at Bela Crkva municipality) and informed them about our work and future plans. At the end of the research, we have sent a detailed report with the results hoping to be able to implement our findings in their management strategy for protection.

5. Are there any plans to continue this work?

We plan to carry out further research on invasive diseases in frogs and their decline. We believe that our project has a great contribution to the knowledge of green frogs in Serbia where information on the status of these species is needed for their management and conservation.

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

The results have been presented in form of poster presentation and as an abstract in Book of Abstracts at 11th Central European Diatom meeting in Prague (March 22nd – 25th 2017). The results will be presented in form of oral presentation and as an abstract in Book of Abstracts at 6th International Scientific Meeting: Mycology, Mycotoxicology, and Mycoses at Novi Sad, Serbia (September 27th – 29th) and will be published in Matica Srpska Proceedings for Natural Sciences (accepted, in press).

We will have sent final report and results to local and regional officials.

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

The Rufford Foundation Grant was used as proposed for a period of 18 months. From April 2016 to October 2017. Since we received our grant at the end of April, we started to work in May 2016 and ended at the end of September.

Activity/Month	May- June 2016	July- Aug 2016	Sept- Oct 2016	Nov- Dec 2016	Jan- Marc h 2017	April- June 2017	July- Aug 2017	Sept- Oct 2017
Preparation for the field work and Procurement of the equipment and promotional material design and printing	√				√			
Spring field work	√					√		
Summer field work		√					√	
Autumn field work			√					√
Lectures and promotional material distribution		√	√	√				
Statistical processing of the collected data, manuscript writing				√	√	√	√	√

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
Travel expenses (fuel) for 8 field trips	250	342	+92	We proposed averaged costs of transportation, but we used different cars with different type of fuel Also, fuel prices changed

				over the duration of the project (the price increased)
Travel expenses (fuel) for lectures	20	16	-4	
Overnight accommodation for 7 persons during the 5 day field work, for 8 times (in Banatska Palanka)	2550	2459	-91	Two team members were absent for justified reasons during two field trips.
Brochure design, preparation, printing, qty 2000	100	176	+76	Instead of brochures, we decided to print t-shirts and badges as more attractive promotional material
Poster and labels design, preparation and printing	150	38	-112	We found more economical variant for printing. All promotional material was designed by team members
Tattooing equipment for animal marking (180 samples per season) (tattoo gun, needles, ink, clip cord, adapter)	530	530	0	
Skin sampling equipment (50 samples per season) (dip slides, cotton swabs, ATP swabs, substrate, chemicals)	1100	1100	0	
Consumables (flacons, latex gloves, microscope slides etc.)	100	93	-7	We found more affordable equipment
Field equipment (Fishing boots, nets, field torch, buckets etc.)	150	120	-30	We found more affordable equipment
Bank commission (fee)	0	165	+165	Unexpected expense. For unknown reason we received grant in EURO instead in GBP. A copy of the bank statement was sent in e mail.
Total	4950	5039	+89	The difference was covered with personal funds.

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

The most important step is changing quota for green frog exploitation. According to "Act on Controlling Exploitation and Trade of Protected Wild Plant and Animal Species" adult frogs between 9 cm and 15 cm and 50 g and 120 g would be suitable for exploitation. Our results have shown that only 8% of our sample would be

suitable by length and 31% would be suitable by weight. All other adult individuals were too small or with insufficient weight for exploitation according to criteria from "Act on Controlling Exploitation and Trade of Protected Wild Plant and Animal Species". We consider this to be an indicator of a strong pressure on green frog populations (in part by exploiting the largest individuals). Finding solution in case of disease outbreaks, especially within protected areas. Also, implementation of habitat improvement projects as one of important factors in maintaining healthy populations.

There are more aquatic habitats in this part of Serbia with different configuration but inhabited by these species and under some degree of protection or as part of larger protected complex. It would be interesting to compare our results with results from these habitats

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 received wide publicity during the project implementation period. The Rufford logo was used in all promotional material (t-shirts, badges, labels and posters) as well as on the presentations. Promotional material was distributed to students, local community and officials during the presentations of our work. Rufford Foundation is acknowledged in an abstract and poster presentation at 11th Central European Diatom meeting in Prague (March 22nd – 25th 2017), and scientific publication in Matica Srpska Proceedings for Natural Sciences (accepted, in press). The Rufford Foundation will be acknowledged in all further work with material and results received during this project.

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

12. Any other comments?

We would like to express our deep gratitude to the Rufford Foundation for kind support and recognising scientific and conservation value of our project. The Rufford grant enabled the setting up of our project and the collection of crucial data on green frogs, the first of its kind for Serbia.

