

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	Nelli Barseghyan
Project title	The study of reproduction ecology of endangered endemic fish species Sevan Trout
RSG reference	16622-1
Reporting period	March2015-February2016
Amount of grant	£4627
Your email address	nelly.barseghyan@yahoo.com
Date of this report	19.02.2016

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
To reveal the ecological features of Sevan trout during spawning season.		X		Because during the field trips has been revealed that the situation is so critical that there is no spawning shoal of Sevan trout in the rivers, only few individuals carried out spawning migration have been studied which influences on significance of analyses.
To reveal the potential of natural reproduction			X	Using hydrochemical, hydrophysical and hydrobiological data collected within field trips the assessment of rivers potential as spawning areas has been done.
To reveal the factors which possibly constraining fish migration and based on that to prepare the recommendation package for habitat improvement			X	Detailed study of river channels allows us to reveal and categorise the obstacles of trout migration into three main categories: insurmountable obstacles, hard surmountable obstacles and surmountable obstacles. Based on that the recommendations on improvement of the habitats has been prepared and presented to local authorities.
To study rivers Bakhtak and Tsakqar as an environment providing natural reproduction of Sevan trout for the first time			X	Detailed studies of both rivers allow assessing their habitat conditions for Sevan trout for the first time.
To reveal the necessary bio-conditions for spawning of Sevan trout in studied rivers – water quality, feeding base, hydrophysical and hydrochemical conditions (ground type, oxygen regime, pH, temperature			X	All mentioned parameters have been studied by necessary intensity and analysed as well as water quality has been assessed by BMWP index based on benthic macroinvertebrate community of the rivers. Based on this some recommendations to local communities has been provided too.

regime and flow regime)				
To compare the current state of Sevan trout' reproduction ecology with the results of previous studies implemented in 80s.		X		Because the data of 80s based on higher amount of fish, the significance of comparisons is quite low. But achieved results have strong scientific significance in assessment of the current state of Sevan trout ecology.
To implement GIS based spatial analyses of collected data in studies of Sevan trout for the first time, to reveal geocological regularities of studied parameters.			X	Using GPS and ArcGIS 10.1 software spatial analyses of collected data has been done and couple of maps has been created to increase public awareness as well as the understanding of current problems in the basins of Lichq, Tsakqar and Bakhtak rivers.
To organise workshop at the end of the project to represent the results and discuss current problems		X		The only difference with the preliminary plans is the place of the workshop. Instead of Gegarqunik region the workshop were organised in Yerevan, because in the final phase of the project some meetings with local authorities of Gegarqunik province and communities of studied river basins have been already organised in situ and as a result financially it's became more effective to organise the event in Yerevan. Unfortunately, we don't think that the amount of brochures (300) would be enough to disseminate information to all interested sides, but anyhow we distribute them to local communities and authorities as it's been planned.

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

Some unforeseen difficulties has been met during May season field trips especially in collection of benthic macro-invertebrates from the downstream of the rivers as a result of prolonged snow melting at this year in the region and unusual high water velocity and turbidity. Also we've experienced some problems at the end of the project because of financial instability in Armenia and inflation which forced us to change the place of workshop. But in general the works has gone as it planned.

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

1. The current state of reproduction ecology of endangered endemic fish species Sevan trout has been revealed and their bio-ecological parameters has been compared with the data of previous studies which allow deeply understand the perspectives of conservation of this unique fish.
2. The potential of rivers Lichq, Tsakqar and Bakhtak to support natural reproduction of Sevan trout has been assessed based on hydrochemical, hydrophysical and hydrobiological studies. Such studies in rivers Tsakqar and Bakhtak has been implemented for the first time.
3. The specific constraints for Sevan trout natural reproduction in different parts of the rivers have been revealed and recommendations have been developed specifically for each site which was represented to local authorities and responsible organisations.

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

Even though local communities were not directly involved in project implementation, they are playing significant role in achievement of our main goal, to restore the population of Sevan trout. That's why we cooperate with them in some stages of our project. Particularly with the help of our partners from Gegharqunik regional administration we organised some working meetings with authorities and staff of local communities aimed at discussing the results of our works and represent the recommendations concerned to the improvement of habitats.

5. Are there any plans to continue this work?

Sure, as a result of this study we will continue our works in several directions. First of all, we are planning to continue such a studies and assessment of rivers potential to support natural reproduction of Sevan trout by the same methodology in other rivers of Lake Sevan basin, because there are some other rivers among 28 inflowing into Lake Sevan which can provide enough conditions for this endemic fish. Now we wish to find the most appropriate areas in the basin of Lake Sevan for further concentration of our forces in organisation of recovery of Sevan trout population. At the same time we are going to continue the monitoring of studied areas to recognise if the situation is improved after our meetings with local communities or there is a necessity of additional promotion of the problems. On the other hand we would look at the funding and opportunity to start the practical works on Sevan trout stock recovery.

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

In both local and global scales we have already undertake some steps to share the results with others. In local scale we represent the results of studies to local communities and authorities of Gegharqunik region as well as to specialists and authorities of Ministry of Nature protection, Scientific Center of Zoology and Hydroecology of NAS and some environmental NGOs. Remained brochures will be

also disseminated to the Aarhus Center of Armenia and far as possible to the universities interested in environmental studies.

In global scale two scientific papers with the results of studies has already been accepted by international conferences (1. IWA Young Water Professionals 8-th conference, Poland, with further opportunity to publish this material in the Journals of IWA with high ISI index. 2. IV international conference "Biodiversity: Global and regional processes", Russia).

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

The Rufford small grant was used during the period of end of February, 2015 - end of February, 2016. Duration of the project implementation was totally coincides with the anticipated length.

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
Petrol	448	380	68	Prices on petroleum decreased in Armenia
Expeditions	1632	1692	-60	Inflation lead some rise of prices on food
GPS	312	169	143	Actual price has been discounted as well as ratio £/AMD/\$ has been changed
Dissolved Oxygen Meter	290	324	-34	Additional taxes for shipping to Armenia
pH/ES/TDS meter	200	187	13	Ratio £/AMD/\$ has been changed
Fishfinder	65	107	-42	The model has been changed because the primary one has been totally sold
Camera	220	163	57	Actual price has been discounted as well as ratio £/AMD/\$ has been changed
Surber Sampler	250	240	10	Actual price has been discounted
Replacement Modified D-net	100	98	2	Actual price has been discounted

Binocular	300	177	123	Actual price has been discounted as well as ratio £/AMD/\$ has been changed
Laboratory supplies	260	260	0	
Organization seminars and workshops	300	300	0	
Brochures	250	543	-293	The quality of published brochures were changed as a result colourful pictures and design works as well as inflation lead some rise of prices
Total	4627	4640	-13	The rate of £/Armenian dram (AMD) was from 690 to 730 AMD/£

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

The results of studies have proved that currently Sevan trout population is under critical condition, because during the spawning migration only few individuals have been registered in the rivers. Thus, for us it's obvious that the next step has to be the artificial support of a brood stock in Lake Sevan by collection of eggs of mature individuals going to spawn for artificial incubation of them aimed at supporting the amount of fish in the rivers before the conditions of their natural spawning areas would be improved.

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?

According to the terms of use of The Rufford Foundation logo, it's been used in any material created under this project: brochures, reports, maps, presentations, scientific papers, and video.

11. Any other comments?

Thanks to RSG the current state of reproduction ecology of Sevan trout has been revealed as well as the potential of the rivers to support natural reproduction of this endemic fish species has been assessed for the first time which allowed creating more targeted action plan for conservation of Sevan trout.

Map of studied areas water quality assessed by BMWP index

