

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	Artyom Leostrin
Project title	Conservation of relictual rich fens in the Middle Russia (Kostroma Oblast)
RSG reference	20113-1
Reporting period	Aug 2016 – Dec 2017
Amount of grant	£5000
Your email address	artyom.leostrin@gmail.com
Date of this report	26 Dec 2017

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
original objectives				
1. Establishment of new protected areas				<p>We had collected the sufficient data needed for establishing a new protected area (in Soltsy mire complex) and we had prepared the all necessary materials. It has to be mentioned that the legalisation procedure is long-dated, so a new protected area will be created in 2018 only.</p> <p>Another mire complex (Slavnovo) which planned to be legally protected was not sufficiently investigated this year due to a lack of time.</p> <p>Thus only one protected area will be established.</p>
2. Monitoring of rare plant communities and plant species populations				<p>We performed about 60 vegetation plots in minerotrophic mire ecosystems in Kostroma Oblast. All plant communities described within the project are rare in Kostroma Oblast. The syntaxonomical position of some communities, like soft stem bulrush (<i>Scirpus tabernaemontani</i>) dominated ones, is poorly understood and needed to be clarified. Among the most interesting plant communities are orchid rich sites, habitats of marsh saxifrage (<i>Saxifraga hirculus</i>) and swamp sawgrass (<i>Cladium mariscus</i>) stands. Obtained data would serve as basis to future complex investigation of mire ecosystems in Kostroma Oblast. Populations of 52 rare plant species were observed in 2017. Big populations of some rare species, like <i>Cypripedium calceolus</i>, <i>Scirpus tabernaemontani</i>, <i>Saxifraga hirculus</i>,</p>

			<p><i>Herminium monorchis</i>, <i>Ligularia sibirica</i>, are characteristic of investigated unique mires.</p>
<p>3. Preparation of the second edition of the Red Book of Kostroma Oblast (2019)</p>			<p>About 300 records of vascular plants and mosses species of the Red Data Book of Kostroma Oblast were made in June-August 2017. Overall 42 rare vascular plant and three rare moss species were recorded. These data will be required for the second edition of the Red Book of Kostroma Oblast which probably will be published in 2019.</p> <p>Moreover we proposed 10 plant species to be included in second edition of the Red Book of Kostroma Oblast.</p>
<p>additional objectives</p>			
<p>1. Inventory of stoneworts species composition (<i>Chara</i> spp.)</p>			<p>Five species of genus <i>Chara</i> (<i>C. aculeolata</i>, <i>C. aspera</i>, <i>C. contraria</i>, <i>C. papillosa</i>, <i>C. tomentosa</i>) were found in water bodies in Soltsy mire. The habitat of these species is corresponding to "hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp." (Natura 2000 Code: 3140). All species were reported for Kostroma Oblast for the first time. This habitat is truly unique, both for Kostroma Oblast, and for the entire central part of European Russia. Data on these records were published in two articles.</p>
<p>2. Peat composition analysis</p>			<p>We had decided to perform a preliminary study of peat deposits in Soltsy mire. The plant species composition of 168 peat samples from eight boreholes was analysed. The average depth of peat is about 5 m. Sedges, brown mosses, tree bark, reed are characteristic components of peat in Soltsy mire. Remains of some presently absent aquatic plant species, like <i>Nymphaea alba</i> and <i>Najas minor</i>, were detected.</p>
<p>3. Study of ecological and chemical</p>			<p>A series of measurement of pH and conductivity of surface water was</p>

parameters of surface water			carried out in Soltsy mire. In addition a preliminary analysis of chemical composition of surface water (ponds and streams) was performed. The data show a high concentration of calcium ions and pH greater than 8.0 in water of mire ponds, a habitat of <i>Chara</i> spp.
-----------------------------	--	--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

N/A

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

The inventory of present localities of rare and threatened plant species and their habitat preferences in mire ecosystems in the Kostroma Oblast (European Russia).

Preparation of proposal for establishing of a new protected area (zakaznik) for the unique mire communities preservation.

Growth of awareness of local authorities and community on importance of mires and a need of conservation of rare species and their habitats.

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

Popular science booklet "Soltsy: the unique minerotrophic mire complex in Kostroma Oblast" (in Russian) is in press now (December 2017). It will be distributed in January-April 2018 among people who are interested in nature conservation particularly the young generation.

5. Are there any plans to continue this work?

Tentative results of our investigation inspire us to continue the work. There are a number of very valuable mires in Kostroma Oblast that still unprotected and even non-investigated in any rate. More attention on conservation value of mires has to be paid publicly in Russia.

Materials collected in 2017 had aroused some botanists' interest, so we hope to involve them into complex inventories of mire biota in Kostroma Oblast.

As to the Soltsy mire a monitoring of plant communities is planned.

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

Publications

Some results of our field work were published in the Russian scientific journals (full-texts are available on ResearchGate).

Romanov R., Zhakova L., Chemeris E., Konechnaya G., **Leostrin A., Efimova A., Biryukova O., Shestakova A., Anissimova O., Shilov M. 2017.** Synopsis of the Charophytes (Charophyceae) of the Upper Volga Region. Bot. Journ. (St. Petersburg). 102 (2): 147–162 [in Russian].

Leostrin A., Efimova A. 2017. Records of new and rare vascular plants in Kostroma province. Bulletin of Moscow society of naturalists. 3: 58–61 [in Russian].

Romanov R., Zhakova L., **Efimova A., Leostrin A. 2017.** *Chara aculeolata* (Charophyceae, Charales): first reliable record for Russia. Turczaninowia. 20 (4): 70–81 [in Russian].

Two more short communications with noteworthy floristic records are in press now.

A brief report about our most productive expedition to Soltsy mire had been published in IMCG (International Mire Conservation Group) Bulletin in August 2017 (http://www.imcg.net/media/2017/imcg_bulletin_1708.pdf).

In addition our team is going to write a scientific paper based on the results of the studies in Soltsy mire. The article will contain data on vascular plant species composition, mire vegetation, peat composition and the analysis of conservation value of the mire. Preparation of a manuscript will be performed in January-February 2018. We are going to submit this paper in "Mires and Peat" journal.

Participating in conferences

Some results of the project were presented at three conferences:

- "VIII meeting in memoriam of Ekaterina Alexeevna Galkina" (2nd-3rd Feb 2017, St. Petersburg),. The nature of Kostroma Oblast – current state and ecological monitoring (24th-25th March 2017, Kostroma).
- "XXIV all-Russian conference of young scientists – Topical problems of biology and ecology" (3rd-7th Apr 2017, Syktyvkar).

Other

Moreover, Artyom Leostrin had mentioned results of the project and financial support from the Rufford Foundation in two scientific seminars at the Herbarium Department in Komarov Botanical Institute Russian Academy of Sciences as a part of his scientific reports.

For the purpose of sharing our data we are planning to publish a dataset with vascular plant species occurrences in GBIF. There are almost no data from European Russia in GBIF, so we suggest that our investment would be needful.

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

Materials and equipments were purchased in February-April 2017 mainly.

Field works were conducted in June-August 2017.

Lab works, plant material processing, data analysis and peat analysis were carried out in September-December 2017.

Thus, main part of the foundation was used in February-December 2017.

Data analysis and preparation of the article are still in progress.

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
Train fare	200	188	13	Three round trips train tickets for three team members. Actual cost of train tickets appears a bit lower than we expect.
Local transportation (fuel included)	200	340	-140	The petrol cost in Russia had raised significantly in 2017 and had reached 40 rubles (ca 0.5 pounds) per litre. Total expenses on transportation are bigger than planned because we had made a bit more short local trips for reconnoitering purposes.
Vehicle lease	300		300	We had used a vehicle in 2017 one time only. Moreover there were now expenses because local forestries provide vehicle for us for free.
Lodging	1000	560	440	4 participants for 28 days by GBP 5/day. Actual period of lodging appears quite shorter than we planned.
Food	2000	740	1260	4 participants for 37 days by GBP 5/day. The estimation of expenses on food had appeared quite incorrect. In addition work period was shorter

				than planned (55 days) therefore we were able to keep money for other items.
Equipment – tents, sleeping bags, field clothing, rucksacks, etc.	300	662	-362	Saving money from other items allows us to buy two tents, two sleeping bags and one rucksack which were needed for our team members.
Field Supplies – GPS Garmin 64 ST, Haglof increment borer (40 cm), Hanna Combo pH/Conductivity tester – HI98130 (calibration solutions included), batteries, writing materials, flash memory, etc.	300	936	-636	Preliminary calculation of needed field supplies was quite incorrect. Our main need was a GPS navigator. In addition we decided to purchase the increment borer and pH/Conductivity tester to implement additional works in the Soltsy mire.
Assistants/Consultants	200	150	50	Costs of local assistants and guides were cheaper than we expect.
Peat analysis	0	480	-480	168 peat samples, ca GBP 2.86 per sample. This works was not planned but due to saving money from other items we decided to perform this analysis to.
Water chemistry analysis	0	135	-135	This works was not planned but due to saving money from other items we decided to perform this analysis to.
Lab equipment	100	100		Our main need for lab works (herbarium processing and plant identification) – LED lamp for microscope, herbarium driers.
Lab supplies	200	170	30	Herbarium paper
Lab Assistants /Consultants	100	80	20	Label and field work writing
Tests	100	35	65	Plant identification
Telephone/fax/postage	0	50	-50	Extra fee were paid for postage of plant specimens.
Printing booklet	0	375	-375	200 copies of A5 format, 20 pages with colour illustrations. We had not planned to print any popular materials at first. But during the course of the project we realised that booklet on minerotrophic mires would be in demand among local community mostly conservationists,

				students, etc. Thus we had prepared the booklet with great number of nice photos of mire vegetation and rare plant species. We guess it would serve for conservational purposes to.
TOTAL	5000	5000	0	1 GBP is approximately = 77.88 RUB (26 Dec 2017).

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

We are going to see to implementation of our proposal to establish a new protected area in Kostroma Oblast.

Further investigations of mires in Kostroma Oblast are required. We are interested in study in different aspects of mires, like plant diversity of mires, monitoring of rare plant populations, the dynamics of mire vegetation upon human impact, etc.

Conservation work in Russia is not easy at times. Local authorities are not always welcome to conservationists. So, not any worthy area might be legally protected. But we are going to continue our cooperation.

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

The Rufford Foundation logo was used in all presentations (at conferences and seminars) mentioned above.

It was printed on popular science booklet about Soltsy mire also.

Our publications acknowledge the financial support from The Rufford Foundation to.

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

Artyom Leostrin – leader of the project. Organizing and facilitating all steps of the project. Collecting plant materials, data analysis, preparing project updates, writing scientific articles, participating in conferences.

Olga Galanina – mire scientist, botanist. Olga helped with all work during the project. She provides some important data resources which were helpful for project implementation. Olga participates one of the field expeditions of our team where her experience as mire scientist were priceless. She made a description of a number of vegetation plots in mires investigated. Moreover her help with English text editing was very valuable. Olga helps to establish connections with two experts involved in our work – Dmitry Philippov and Viktor Denisenkov.

Anna Efimova – local researcher, botanist. Anna was regular participant of our field expeditions in Kostroma Oblast where she collected plant materials and helped in other field investigations. Anna provides communication with members of Kostroma branch of the Russian Geographical Society and local forestry specialists which helped us with transportation and general organizational tasks.

Petr Efimov – botanist, plant taxonomist. Petr has participating on early stages of the project only. He generally helped with project application writing and work planning. Petr had provided some plant determination also.

Other experts involved:

Dmitriy Philippov – mire scientist, botanist. Dmitriy has participated in our expedition in August 2017. His wide knowledge on mire ecosystems of Middle Russia was very valuable. Dmitriy helped with plant collecting, especially mosses. He performed peat coring in Soltsy mire.

Viktor Denisenkov – mire scientist, peat analyst. Viktor was involved on last stages of the project. He is excellent specialist in analysis of plant composition of peat. So, Viktor analysed the peat deposits from eight boreholes made in Soltsy mire.

Svetlana Nesterova – local forestry specialist. Svetlana had participated in our field expedition in June 2017 where she helped in vascular plant inventories especially in wet forests.

12. Any other comments?

All members of the team wish to express their sincere gratitude to the Rufford Foundation for financial support of this work.

I would like to thanks the Rufford Foundation for a good chance to perform my first conservational project and to get an experience as project leader. At once, that was the only opportunity to cooperate different people into one work.

This project drew attention to the problem of mire conservation in Kostroma Oblast, Russia. We believe that the project results would be helpful for local conservationists and they will support their activities.

