

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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	Elena Pimenova
Project title	Assessing Extinction Risk Associated with Climate Change for Endemic Vascular Plants of the Sikhote-Alin Mountain Range, Russian Far East
RSG reference	14786-1
Reporting period	May 2014 – May 2015
Amount of grant	£5380
Your email address	pimenova_garden@mail.ru
Date of this report	7 May 2015

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
<p>1) To map the distribution of the narrowly endemic plants in the Sikhote-Alin MR with indications of different characteristics of their habitats (ecological, phytocenological, climatic) in each point where endemic plants have been detected. To estimate the range of tolerance of each endemic species.</p>			+	<p>We collected information from herbarium collections (LE, VLA, VBGI, Sikhote-Alin Reserve) and created the database with ecological, phytocenological and climatic characteristics of seven endemic species. After our own field research we added to the database new data about endemic plant habitats. Each point, where endemic plants have been detected, has x, y, z coordinates. Then we established the range of tolerance of each endemic species based on 72 parameters of habitats. Combined these data to one field we obtained the map with the current pattern of endemic plant distribution and potential habitats.</p>
<p>2) To obtain information about structure, condition and capacity of populations of seven endemic species and knowledge about relationship between endemism and habitats which determine limited distribution of the endemic species in the area. To calculate the optimum of habitats conditions of the endemic species.</p>		+		<p>We described 13 populations of endemic species – two of <i>Leontopodium palibinianum</i>, one of <i>Leontopodium leontopodioides</i>, three of <i>Artemisia pannosa</i>, two of <i>Artemisia littorcola</i>, two of <i>Saussurea kolesnikovii</i>, two of <i>S. nakaiana</i> and one of <i>S. vyschinii</i>. We collected data about structure, condition and capacity of populations but we don't have enough information to determine the optimum of habitats conditions of the endemic species. The reason is studying group of species are taxonomically related species and besides these data we need to know genetic structure of populations. We collected data for molecular-genetic analysis (see point 4 in this table) and now we are focused on their processing.</p>
<p>3) To obtain additional information about morphology and biology of endemic species that will clarify their status, origin, condition and relationship with allied taxa.</p>			+	<p>Now we exactly have unique information about morphology and biology of endemic species which are very rare and there are a few samples of these species even in all herbarium collections. This information will combine with genetic data to clarify their taxonomic status.</p>

4) To collect samples of endemic species from different parts of their areas for molecular-genetic analysis to accomplish different questions of taxonomy, phylogeography and biodiversity conservation in perspective.			+	We have solved this objective in a full screen. We collected plant tissue samples of 13 populations of endemic species. We will use them for molecular-genetic analysis.
5) To add new species and specimens of rare endemic plants to the Botanical Garden collection for their study and conservation.			+	We replenished the collection of living plants of the Botanical Garden with new rare endemic plants. Most of them were successfully cultivated and we have young shoots this spring. Some of species were grown from the seeds. The introduction of these species will help to study their life cycle.
6) To prepare recommendation for the conservation of rare endemic species <i>in situ</i> and <i>ex situ</i> . To share success of our project with all interested sides.		+		During our project we collaborated with Sikhote-Alin Biosphere Reserve, Lazovsky Reserve, Land of the Leopard National Park and Zov Tigra National Park. We prepared our reports for these protected areas which gave information on rare and endemic plants. After a full analysis of the data we will prepare our recommendations for the conservation of rare endemic species <i>in situ</i> and <i>ex situ</i> .

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

Our main difficulties were:

- 1) Almost all endemic species that were selected for the study are mountain species. They have short period of blooming. All mountain tops where these species grow removed from each other and difficult to reach. And sometimes the bad weather did not allow access to the new point as we expected. We have not had the opportunity to visit all tops for one field season. But we did so many as it was possible.
- 2) Groups of species of *Saussurea*, *Artemisia* and *Leontopodium* genera are uncertain taxonomically. We expected to clarify their status and then determine the optimum of habitats only for confirmed species. But it is not enough only morphological data for that. We have to know the genetic differences. There is a fear that is now under a single plant species, we combine the samples belonging to different species. Now we do genetic analysis and we will be able to definite taxonomic status of our samples soon.

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

- 1) For the first time we described 13 populations of rare endemic plants in the Sikhote-Alin, created database for seven endemic species including information from four herbarium

collections where samples of these species are kept, our field data and climatic parameters, in total 72 characteristics.

- 2) We obtained the map of current and potential distribution of studying species and established the range of their tolerance. These data will help us to determine the optimal habitats conditions of endemic species and estimate the risk of their extinction due to climate change.
- 3) The unique material for the molecular-genetic analysis and endemic species cultivation were collected. Successful cultivation for the first time was carried out for the three endemic species of *Saussurea*.

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

- 1) The part of our project has been implemented in a sparsely populated and remote Terneysky region of Primorsky Krai. We involved in our field work participants from the ecological club "Uragus", schoolchildren and adults. It was a grand event – a joint expedition to the Central Sikhote-Alin. On the one hand we had good help from the "Uragus" for the realisation of our project, on the other hand club members have learned a lot of new information about local nature, rare and endemic plants. During our expedition local people from the Amgu village (Terneysky District) gave us a lot of help in the organisation of field research in the vicinity of the village. Children and adults were interested by our work, asked a lot of questions and they were very surprised when they learned how special plants grow in their area.
- 2) We had good cooperation with staff of reserves and national parks where we worked. We prepared reports for the four protected areas with the information about rare and endemic plants. They will use our data in their conservation activity.

5. Are there any plans to continue this work?

No doubt we will continue our work on the study of rare and endemic plants. The main tasks for the present time are: 1) to obtain data on genetic structure of described populations of endemic plants; 2) to combine these data with morphological and ecological characteristics of species and habitat conditions to assess the optimum of their existence; 3) to propose a model of population under different scenarios of climate change; and 4) share results of our work with all interested parties.

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

We shared our results with staff of Sikhote-Alin Biosphere Reserve, Lazovsky Reserve, Land of the Leopard National Park and Zov Tigra National Park and we did report and discussing of results and their importance with the participants of ecological club "Uragus".

We posted information on our work on the websites:

<http://сиалинь.рф/index/318-2014-09-14-22-22-47>

<http://botsad.ru/menu/aboutus/struktura-instituta/laboratorii/laboratoriya-prirodnoj-flory-dalnego-vostoka/ekspedicii/>

<http://leopard-land.ru/news/2251>

After completion of data analysis, we plan to make some scientific and popular publications.

The booklet what we planned to publish is under development by the designer.

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

The period of our project was from May of 2014 to May of 2015. This timescale was actual length to do groundwork, seasonal field researches, and partial data analysis. But that time is not enough to get the finished result and the relevance of the conclusions that can be presented to the public. We continue our work after the project time.

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
Travel expenses	2190	2290	-100	Preparing for our first expedition we assessed different ways of transportation and concluded that the best mean was off-road vehicle. In this case we were more mobile and independent, we could visit more places. Travel by helicopter or bus often depends from the weather and slows our work. So, the most part of travel expenses was spent on off-road vehicle rental. Contingency funds were spent for this most expensive part of budget.
off-road vehicle rental to trip to the removed field stations	1200	2143	-943	
tickets (bus, helicopter, plane) form Vladivostok City to the three districts (300-1100 km to one side)	990	147	+843	
Field expenses	2220	2220	0	We had free housing in almost all points of the work because local people were so welcoming and provided us with the place to stay. We used tents when we worked far from any settlements. So we did not spend part of accommodation funds. But it was taken more funds for fuel because we rented off-road vehicles.
fuel to and from study areas	120	611	-491	
field equipment	1050	1050	0	
accommodation during field researches	1050	559	+491	
Laboratory equipment	570	570	0	The computer and printer-scanner-copier were cheaper than we planned so we bought a digital camera for our field work. We used it during all our expeditions to take pictures with endemic plants, their habitats and working moments.
personal computer	370	250	+120	
printer/scanner/copier	200	117	+83	
digital camera	0	203	-203	
Consumables	200	200	0	Purchased as planned

Publishing expenses (printing booklet)	100	100	0	The layout of the booklet is currently under development by the designer.
Contingency	100	0	+100	Were spent for the off-road vehicle rental.
TOTAL	5380	5380	0	

Exchange rate was very unstable for the duration of the project; it ranged from 58 to 104 rubles.

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

On my opinion the next steps should be: 1) to finish work on study selected endemic species to have good result and base for the further research work; 2) to do the same work for next group of endemic species; 3) to publish the results; and 4) to share information with all layers of the population from local groups of people to governmental agencies.

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

Yes, we exactly used the RSGF logo in our presentation and publications and we will do this in our future work based on the materials obtained during the project. We used the name of Rufford Foundation in all our talks, discussing, presentations, and communications because it was so important to emphasise that the project is supported by this Foundation. We shared information about RSGF with our colleagues from other scientific and environmental organisations.

11. Any other comments?

All our team very grateful to the Rufford Foundation for your confidence in our project. It would be impossible to realise this project especially field researchers without such support. It was so pleasant to see the happy faces of participants of the project after each expedition. We were very tired, but were glad to have reached the intended results. Hope for the further collaboration.