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. 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	Yelena Gambarova
Project title	Rare plant conservation in Azerbaijan: Monitoring threats and Education of Local Community
RSG reference	13255-2
Reporting period	May 2013 - May 2014
Amount of grant	£4100
Your email address	elenag@risk.az
Date of this report	March 2014

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
1. FIELD STUDY AND DATA COLLECTION Activities: Field Surveys and Data Recording			√	The field proforma recording structure contained six basic sections: • Scientific name of the species. • Vernacular name of the species. • Specify species type. • Site physical features. • Vegetation profile. • Plant functional types. Because GPS devices provided the coordinates for ground-reference data during fieldwork, the sample plots were accurately linked to SPOT4 imageries. Every plot was registered with GPS Garmin device to allow further integration with spatial data in GIS and image processing systems. Data from the field work will be entered into a database
2. ASSESS THREATS: Activities: Past and Present Distribution Maps:		√		In this study we outline the main threats facing to rare vegetation and their habitats.The project includes monitoring of existing threats to rare vegetation (global climate change, oil and gas exploration, overgrazing of winter and summer pastures by domestic sheep, goats and cattle, pollution, etc.).
a. Spatial representation of sources of threats;			√ √	a) We created a matrix of threats and identified the relationship of sources of threats to conservation focus areas and spatial representation of sources of threats. The matrix cites the spatial representation status for each source of threat. The identification and examination of those threats that the team could not map was still valuable. For example, for a source of threat that the team could not map, such as invasive species, knowing what rare vegetation types are susceptible to invasion may influence decision to protect

				parcels with certain types.
b. Classification of remotely sensed data;				b) We performed a supervised classification of SPOT4 scenes of the Gobustan National Park area using the maximum likelihood classifier and classification accuracy.
c. Data analysis				c) The data analysis has shown the spatial extent of vegetation after classification according to supervised classification for both images. This analysis indicated rare vegetation degradation in the sensitive area of Gobustan from 2007 to 2012 years
3. PRACTICAL, IN-DEPTH TRAINING: Activities: Training of Azerbaijani students and other groups interested in preserving their ecosystem.		√		
a. Presentation of books published by Esri Press about the science, application, and technology of Geographic Information Systems (GIS) and Remote Sensing (RS). b. Rare vegetation monitoring training scripts		√		a. We offer to trainees a broad spectrum of case studies (list of 11 top books) specifically acquired by us for conducting lectures on the application of GIS and RS technologies for rare vegetation monitoring under the project. Part of them was presented to participants. b. The document specially developed by Yelena Gambarova for project "rare plant conservation in Azerbaijan: monitoring threats and education of local community" describes the training programme which is related to teaching of students and stakeholder groups to advanced capabilities of GIS and RS technologies on rare vegetation monitoring in Azerbaijan. This document describes the step-by-step instructions of each phase of the training test scripts and their short description. The document includes overview of the each test script phase, prerequisites, any steps required and tester identification.

				Each field in the step script definitions has been explained. This document will be presented separately.
c) Remote Sensing and Monitoring Workshop, 2013				c) In collaboration with ………………… RS/GIS expert from our team conducted a workshop on rare vegetation monitoring using GIS and Remote Sensing Technologies at……….. After reviewing the workshop materials (i.e., presentations, tutorials and Rare vegetation monitoring training scripts) created by the team, RS/GIS Experts conducted the workshop in Azerbaijani. Training materials for the course were translated into Azerbaijani.

Indicator	Actual Performance
Output 1: Field study and Data Collection	The field proforma recording structure developed and established
1.1 Ground truth survey	The ground reference points were measured during the field visits to the study area
Output 2: An up-to-date geographic information system (GIS) database for Gobustan National Park for identification and map production of changes in rare vegetation over the past decade, current land uses, areas under particular threat or particularly vulnerable to disruption	GIS database established and used to identify, prioritise and provide a foundation for land-use planning and understanding the threats to rare vegetation
2.1 Spatial representation of sources of threats *2.1.1 Pasture maps*	The spatial representation status for each source of threat was established Pasture maps were established
2.2 GIS Database, vegetation analysis in the study area	GIS database developed and established
2.3 Satellite imageries (SPOT4 and SPOT5) integrated into classification process	Satellite images received and data integrated into database
2.4 Change detection demonstrating areas of greatest pressure	2004 – 2012 change detection completed for the study area
Output 3: Local staff trained to interpret satellite images, update and utilize the project and other GIS databases (query database, map production, etc.)	
3.1 Trained students	The students trained in GIS and introduction to Remote Sensing at University of Architecture and Construction
3.2 Trained staff	All staff trained in GIS and introduction to remote sensing

Output 4: Feedback and review of the effectiveness of the training	
4.1 The participants have been required to provide feedback through completing and returning the course evaluation questionnaire.	The questionnaire was submitted to all participants for the training course evaluation. Four participants completed the evaluation forms, and overwhelming reported that they had experienced the training event as being useful and having met their expectations.
4.2 The training questionnaire evaluation	Completed questionnaires from each of the participants were analysed by questionnaire development team after completion of the training course.
4.3 Azerbaijani staff using the data and producing maps and reports	Five staff using information within the project and their ministries producing maps and reports
Output 5: Increased local and international awareness of rare vegetation and its regional significance	Information developed and distributed to all interested and pertinent parties including Azerbaijani government agencies, NGOs etc.
5.1 Greater knowledge of the extent and condition of Gobustan's area and biodiversity	Information developed and ongoing
5.2 Products disseminated to all potential	Data distributed to Scientific Social Community, and many others data distributed to programme in Azerbaijan
5.3 International media broadcasting information generated from project	Project information highlighted, through various avenues, in international media such as United Nations Convention to Combat Desertification (UNCCD), Scientific Social Community, OMICS

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

One of key features of source of threats to rare vegetation is pipeline construction (Baku-Tbilisi-Ceyhan pipeline (BTC)). The desert communities in the Gobustan area are the most botanically important along the pipeline route. Plants research in this area was impossible because of that area is a military zone and the team lacked access to the military zone.

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

– The most important outcome is that rare vegetation monitoring using remote sensing approach gave significant results. During the project, detailed and updated information about rare vegetation communities was collected and presented, a database on the status of these species and their habitats in selected sites combined and the acquired data skillfully processed. The statistical analysis carried out on the NDVI values in different years show disappearance of rare vegetation.
– The data we are producing are crucial to design conservation and management strategies for rare vegetation, and also to identify sensitive areas for the spatial zoning scheme, particularly in the Gobustan National Park to be created in the short term.

- The recommendations which aim to reduce threats to rare vegetation and protect each species were determined.

1. A detailed and updated information about threats to rare vegetation from 2007 to 2012 years was collected and presented to stakeholder groups State Land Committee of Azerbaijan Republic.
2. Sustainability of monitoring activities in the project region was promoted by training and supporting young local researchers. During the workshop, participants learned practical skills and techniques that will enable them to incorporate remotely sensed imagery into their work. These skills were included: locating and downloading satellite imagery from DataBase (created by our team), learning to relate features in satellite images with observations on the ground, and using satellite imagery to monitor rare vegetation change over time.
3. We have shared the results with the broader local community through meeting presentations and publications that may be helpful to other conservation efforts in the region.

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

- In order to trace the dynamics of rare vegetation distribution over the period from 2007 to 2012, we need updated land use maps. These maps are being utilised by State Land Committee of Azerbaijan Republic. The data from land use maps that include information on pastures and infrastructure and satellite images we created a new geographical database consisting of relevant spatial data.
- Education of students: By supporting teachers and head school our team organised educational lessons for schoolchildren and students.

5. Are there any plans to continue this work?

<u>Role of education in conservation of natural resources: developing education programme in Azerbaijan</u>

For this project I developed a special training programme (training scripts) for students on the use of GIS and RS technologies for rare plants conservation. This programme has been approved by the persons and organisations that have been involved in the project. I would like to continue to develop such programs (manual, user guides, tutorial) taking into account the features of their applications at any proficiency level - for novices, intermediate and experts.

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

- Engaging with government authorities at various levels to enforce and strengthen conservation, and providing a voice for conservation in planning and decision-making.
- Continue the popular, ongoing public education campaign in schools and local communities.
- Engagement with local and international media to share images, video, and information about rare plant and it's with a wider audience; creating and distributing posters, brochures and other conservation materials in public places throughout Gobustan.
- Brochure/leaflets/posters: brochures/leaflets have been made and distributed to the public. These share information regarding: a) the importance of rare vegetation conservation; b)

information about direct threats to rare vegetation in protected area; c) the community response to the Project; d) our sponsors; and e) our future plans.

- Publications: our work is being summarised into publishable manuscripts for publishing in scientific and conservation journals.
- The monthly newsletter 'ASSA IRADA' news carried feature articles on a range of important and emerging topics of vegetation in Gobustan and nature interest.

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

The project period over which the RSG was used run from May 2013 to May 2014.

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
Medical Supplies/First Aid:1 Package – Adhesive Tape, 1/2" x 90" Roll; 1 Package – Antiseptic Wipes; Bandage Compress; snake-proof boots against snake bites)	200	200	0	Purchased as planned
Camping equipment: Camping Backpack; Camping Lantern; Compact binoculars; Tent	100	100	0	Purchased as planned
Satellite imagery of Gobustan Area	1000	0	+1000	This expense was covered from another grant awarded to the team. SPOT satellite imageries of Gobustan Area were provided by Planet Action initiative.
Digital camera	0	350	-350	Not contemplated in budget and covered with other costs saved.
Navigation GPS Receiver	0	400	-400	Not contemplated in budget and covered with other costs saved.
Geodetic Surveying Equipments	700	700	0	Purchased as planned
Seasonal expeditions: Car hire for field trips; Fuel Car rental: 10/day × 10 (trips)	800	800	0	Purchased as planned
Communications (Telephone/Internet)	200	225	-25	
Contracts with local guides in the Gobustan National Park	200	0	+200	Locals were significantly helpful and supportive to reduce the cost
Publication (conference proceedings, research papers, manuals, newsletters, etc)	100	250	-150	Publication expense was underestimated. Research article was not published free of charge.
Educational Materials and Brochures	200	350	-150	Number of participants was more than expected and the education materials (Training Test Scripts) were printed for each student.

Conservation campaign: Workshops, meetings and training sessions	600	750	-150	Number of participants was more than expected and the cost of refreshment was more than expected.
Total	**4100**	**4125**	-25	

Exchange rate: 1£ sterling = 1.269 AZM (Azerbaijani Manat)

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

The results presented in show that the participants were pleased with the quality of the training. Professionalism and responsiveness of trainers, usefulness of practical works were evaluated as very "Good". The participants have also indicated a good balance of theory and practical exercises.

On the other hand, the level of training materials and presentations slides were assessed as "Fair".

The participants remarked that the time for the training was too short and duration of the training should be extended. The volume of training documents was small because some of them (Tutorials, Training Scripts) have not been translated into Azerbaijani yet.

Recommendation for me:

1. Course duration should be longer – even more than 1 day - to enable more time to cover topics adequately.
2. The training documents: tutorials, training scripts etc. should be translated into Azeri and should be delivered among with students as soon as possible.
3. This programme must be submitted to teachers for them to implement it in their curriculum course. We should offer the course to high school and college biology teachers at various locations in Baku.
4. There is need for the project team to updated training materials and resources for the space technologies for rare plants conservation teaching of students.
5. Scientific staff needs to be involved in programme development and research and monitoring efforts. Data from this project and analysis need to be widely disseminated within and outside of local community to allow for its use in biodiversity and natural resources conservation efforts.

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?

I used the RSGF logo in presentation materials, training materials and training scripts, specially developed by me, for the training course "rare vegetation monitoring using GIS and Remote Sensing technologies". Also I used the RSGF logo in Information brochure "rare plant conservation in Azerbaijan: monitoring threats and education of local community".

11. Any other comments?

The project team very thankful for the support the RSGF which provided recourses for this research. Without the financial support gained from the grant the research would not be able to be done and completed. We hope to continue our relationship with Rufford as we move forward with the project.