

## 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
<b>Your name</b>	Erna Karalija
<b>Project title</b>	Genofond conservation of endemic and endangered plant species from Mt. Ozren through establishment of the seed bank
<b>RSG reference</b>	12905-1
<b>Reporting period</b>	May 2013 – May 2014
<b>Amount of grant</b>	£ 5910
<b>Your email address</b>	<a href="mailto:Erna.karalija@gmail.com">Erna.karalija@gmail.com</a> ; <a href="mailto:erna.k@pmf.unsa.ba">erna.k@pmf.unsa.ba</a>
<b>Date of this report</b>	12. May 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
Field investigations			+	
Brochure preparation			+	
Workshops			+	
Local government meetings	+			Unfortunately political unrest turned violent and no government meetings were possible
NGO meetings			+	

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

Unfortunately political situation in our country escalated during February and March 2014 due to the protest against current government. Media coverage was lacking for our project since no media was interested for our subject due to violent protests in Sarajevo and other cities across Bosnia and Herzegovina.

The people asked for government resignation, everything turned violent, government resigned and peaceful protests are still being held. Due to such political situation no meetings with local government were held.

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

The most important project outcome, apart the assessment of biodiversity, was enrolment of students and their high interest in this subject. For further research of this area we would definitely plan a higher degree of student enrolment since they showed great response.

Seed bank was successfully established and seeds of endemic and endangered plant species from Mt Ozren were collected and stored. Students were also included in the process of collecting and storing the seeds.

Awareness was raised among biology and forestry students. Students were shock by the degree of devastation of natural populations of endangered species which they witnessed during the field trip. As a consequence each of the students that visited Mt Ozren acted as an ambassador by spreading the awareness to his family and friends, so the network of the people that were informed about the anthropogenic influences on populations of endemic species on Mt Ozren was huge.

The research produced list of endangered and endemic species for Mt Ozren with anthropogenic influence and population size assessment (File attached). Also I created a Facebook group “Plants of Bosnia and Herzegovina” and I plan to promote the plant life as well as conservation of plant species through this media. The group is still new, but I plan through promotion among students to achieve higher number of group members. Through this page I uploaded all important documents regarding Rufford project with logo of the Rufford organisation on all documents.

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

Unfortunately local communities were not included in this research since the political situation was not stable, also major of the city had medicinal problems and no meeting with the local government were possible.

The problem of political instability remains as a major problem for any research, and I think that future projects should be focused on NGOs and students while governmental support is not something that could be counted on.

**5. Are there any plans to continue this work?**

Field trip investigations gave us opportunity for seed collection but also served us as a great field laboratory for student education. We would like to continue our research in that direction. Education of students through field investigation in our research, apart the workshop, was the most successful part of the project.

We plant to do the same research for other surrounding Mountains since they suffer similar anthropogenic influence. The collection of seeds for seed bank is the essence to preserve the endemic plant genofond.

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

Our results were presented through lectures for biology and forestry students, workshop held for biology students, field trip with biology students.

All results were summarised in brochures and posters. Brochures were distributed to biology and forestry students, Mountaineering societies and NGOs. Also all documents are uploaded on Facebook page "Plants of Bosnia and Herzegovina".

**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 grant was used form May 2013 until the end of the April of 2014. There were enough founds for all planned activities but we also contributed with small amount of the money for student field trip. This field trip was not planned in our activities but students' interest was high and we did not wanted to waste such potential for project promotion so I covered Bus tickets and sandwiches from my own pocket.

**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
Field investigations	2800	2900	-100	Extra money for the bus tickets and sandwiches for students.
GPS	614	614	0	

Camera with macro objective	922	922	0	
Tubes	122	122	0	
Silica gel	156	156	0	
Location rent	300	300	0	
Promotional material	120	20	0	
Leaflet preparation and print	330	230		
Brochure preparation and print	546	546		
Archive preparation	0	350	-350	All necessary for aseptic germination of endemic seeds for germination test. When we were planning the project this could not be included in the Budget since then the amount would exceed 6 000 GBP.
Filter paper	0	100	-100	
Petri dishes	0	250	-250	
Agar	0	100	-100	
MS salts for plant culture	0	100	-100	
<b>Total</b>	5910	6810	-900	Exchange rate 1GBP=2,3BAM

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

Having in mind that conservation of the seeds (Germination tests showed that seeds are still viable after 6 months of storage at +4°C) in seed bank is desirable and successfully conducted in this project it is necessary to do the same for other localities and other endemic plant species from Bosnia and Herzegovina. This project in the future could be expanded to collect all endangered plant species' seeds for the seed bank. More equipment should be planned for the laboratory like computer for electronic data base; also an Access data base should be established for easier manipulation with the seed bank data. Also plans for micro-propagation and reintroduction of endangered and endemic plant species with low population abundance should be set as final goal of this research.

### 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?

The RSGF logo was used on all propagation material for the workshop; it was used for PPT presentations for the lectures for biology and forestry students, for the leaflets and for the brochures. Media coverage was limited due to harsh political unrest, but high degree of interest was raised among students.

### 11. Any other comments?

Local government support was lacking but in spite that and the riots, the project was successful, students are interested in continuation of this work and they should be definitely more included in the future research program as an ambassadors for the project.

LIST OF FOUND ANNUALS, BIANNUALS AND PERENNIAL PLANT SPECIES  
ON MT. OZREN

1. *Ajuga genevensis* L.,
2. *Ajuga reptans* L.,
3. *Alchemilla vulgaris* L.,
4. *Anthyllis vulneraria* L.
5. *Aremonia agrimonioides* (L.) Neck.,
6. *Asarum europaeum* L.,
7. *Bellis perennis* L.,
8. *Dactylorhiza sambucina* (L.) Soó,
9. *Dianthus carthusianorum* L., syn. *D. atrorubens* All.
10. *Dianthus petraeus* Waldst & Kit., subsp. *petraeus*,
11. *Erythronium dens-canis* L.,
12. *Filipendula hexapetala* Gilib.,
13. *Fragaria vesca* L.,
14. *Helleborus odoratus* W. K.,
15. *Hieracium pilosella* L.,
16. *Iris bosniaca* Beck,
17. *Iris graminea* L.
18. *Knautia sarajevensis* (Beck) Szabó,
19. *Lamium galeobdolon* (L.) Crantz,
20. *Lilium Bosniacum*
21. *Orchis mascula* (L.) L.
22. *Orchis ustulata* L.
23. *Polygala vulgaris* L.,
24. *Polygala comosa* Schk.,
25. *Primula veris* subsp. *columnae* (Ten.) Lüdi,
26. *Primula vulgaris* Huds.,
27. *Ranunculus montanus* Willd.,
28. *Rumex acetosella* L.,
29. *Sanguisorba minor* Scop.,
30. *Sanicula europaea* L.,
31. *Saxifraga aizoon* Jacq.,
32. *Scabiosa leucophylla* Borb.,
33. *Scilla pratensis* L.
34. *Scorzonera rosea* W. K.,
35. *Symphytum tuberosum* L.,
36. *Taraxacum officinale* Web.,
37. *Thymus pulegioides* L.,
38. *Thymus serpyllum* L.,
39. *Trifolium montanum* L.,
40. *V. chamaedrys* L.,
41. *Veratrum album* L.,
42. *Veronica beccabunga* L.,
43. *Vicia cracca* L.,
44. *Viola elegantula* Schott,
45. *Viola tricolor* subsp. *subalpina* Gaud.

Endangered or vulnerable plant species found on Mt Ozren with assessment of anthropogenic influence and population size:

<b>Plant species</b>	<b>Anthropogenic influence</b>	<b>Population number and size</b>
<i>Erythronium dens-canis</i> L.	LOW	10 large populations (forest borders)
<i>Edraianthus jugoslavicus</i> Lakušić	LOW-MEDIUM	5 medium populations (open areas)
<i>Iris bosniaca</i> Beck	HIGH	4 populations (near villages)
<i>Knautia sarajevensis</i> (Beck) Szabó	MEDIUM	5 large populations (forest borders)
<i>Lilium bosniacum</i> (G. Beck) G. Beck ex Fritsch	EXTREMELY HIGH	3 populations (all of them near villages)
<i>Lilium martagon</i> L.	EXTREMELY HIGH	2 small population (forest, open area)
<i>Platanthera bifolia</i> (L.) L. C. M. Richard, syn. <i>Orchis bifolia</i> L.	MEDIUM-HIGH	2 medium populations (forest and open area)
<i>Silene sendtneri</i> Boiss., syn. <i>Orites sendtneri</i> (Boiss.) J. Holub,	MEDIUM	2 small populations (forest border, steep rocky areas)
<i>Traunsteinera globosa</i> (L.) Reichenb., syn. <i>Orchis globosa</i> L	MEDIUM	4 populations (open areas, 2 of them near villages)
<i>Trollius europaeus</i> L.	LOW	1 large population (open area)
<i>Viola elegantula</i> Schott	LOW	10 large population (open areas, near villages)
<i>Dianthus petraeus</i> Waldst & Kit., subsp. <i>petraeus</i>	LOW-MEDIUM	1 population (rocky mountain area, high altitude)