

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	Djordjije Milanovic
Project title	Study of endemic and threatened serpentine flora in NW Bosnia.
RSG reference	21814-1
Reporting period	May 2017-June 2017
Amount of grant	£5000
Your email address	djordjije.milanovic@sf.unibl.org
Date of this report	23.05.2018.

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
Studying of existing published data				We have found all the available published data related to the endemic serpentine flora of Bosnia and Herzegovina. All we found was useful.
Introductory meetings with administrations of the FMA				We visited all forest agencies and connected with the staff working on the implementation of FSC certificates (Forest Management Certification).
Preliminary mapping of serpentine areas in Western Bosnia and separation of the research area into 8 smaller units				We used topographic maps, as well as geological and pedological maps of Bosnia and processed them in GIS software. In this way, we identified eight smaller research units.
Field work				The fieldwork was divided into two parts. The first from 23 rd May to 21 st September (summer and autumn aspect). And the other (spring aspect) from April 1 st to 15 th May.
Endemic plants for Botanical garden of University of Banja Luka				We collected certain species from the field and in cooperation with the Institute of Genetic Resources we planted them in a botanical garden. The collected species are: <i>Viola beckiana</i> , <i>Halacsya sendtneri</i> , <i>Gypsophila spergulifolia</i> , <i>Thlaspi avalanum</i> , <i>Polygonum albanicum</i> , <i>Cytisus heuffelii</i> , <i>Cardamine plumierii</i> , and <i>Cerastium malyi</i> subsp. <i>serpentinii</i> .
Preparing the brochure				At the beginning of the workshop, we handed printed brochures to all participants.
Presentation/workshop				We held the workshop on the International Day of Forest (21st March 2018) and achieved all scheduled goals. The attendees were representatives of all relevant

				forest agencies, representatives of Institute of Genetic Recourses and representatives of NGOs and faculties.
--	--	--	--	---

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

Considering that the work officially started at 23rd May 2017 (instead of April 1st), we were forced to change the dynamic of our project.

Also, we have had problem with extreme bad weather conditions in January and February 2018, so we changed the date of the workshop to March 21st 2018.

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

- We provided precise and high-quality data about population state and distribution of endemic and threatened plant species of serpentine habitats in NW Bosnia and Herzegovina. As we hoped, we found all the target species of serpentine habitats: *Halacsya sendtneri*, *Gypsophila spargulifolia*, *Potentilla heptaphylla subsp. australis*, *Polygonum albanicum*, *Cytisus austriacus subsp. heuffelii*, *Asplenium adulterinum*, *Asplenium cuneifolium*, *Cardamine plumierii*, *Viola beckiana subsp. beckiana*, *Silene armeria*, *Scleranthus perennis*, *Cerastium malyi subsp. serpentini*, *Echium maculatum*, *Thlaspi avalanum*, *Daphne blagayana*, *Euphorbia serpentini* and *Notholaena marantae*.
- All relevant forest agencies (Prijedor, Banja Luka, Gradiška and Teslić) are ready to continue the work on monitoring of rare and endemic plant species in the preliminary defined permanent sample plots.
- Planting endemic serpentinophytes in Botanical garden provides an excellent base for conservation of these plants ex situ.

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

During our meetings with forest agencies, we have found very good cooperation. The obligation of each forest agency to Forest Management Certification (FSC) is monitoring of these endemic species, but it is far from satisfactory. By placing permanent plots and education, we have raised this obligation to a satisfactory level for each forest agency.

Also, we have found good cooperation with the Institute of Genetic Resources and we used their newly set botanical garden for plant material from ophiolitic geological substrates, which will be used primarily by students of the Faculty of Biology and Forestry Faculty.

5. Are there any plans to continue this work?

Yes. This was the first stage of the project. In the following years the research should be expanded to central and eastern Bosnia, where serpentine habitats occupy a larger area. The final outcome would be the completing data on rare, threatened and endemic flora of serpentine complex of all Bosnia and Herzegovina.

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

The plan is to publish the results in the official Bulletin of the Faculty of Forestry, University of Banja Luka. We also plan to publish the results through Facebook's site of our non-governmental organisation "Arbor Magna".

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 from May 2017 to the middle of the May of 2018. There were enough funds for all planned activities.

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
Accommodation and food during the field work	900	900	0	
Travel expenses for field work	1000	725	275	Sometimes we had available off-road vehicles from Forest Agencies, and in that way we reduced our fuel costs.
Fee for one person (researcher)	500	500	0	
Notebook personal computer	600	640	-40	
GPS device x2	600	630	-30	
pH meter	150	150	0	
Iron pegs x150	150	220	-70	Some iron pegs have broken, so we have had to make new ones
Camera	700	800	-100	
Brochure printing and design cost	200	120	80	
T-shirt printing	0	200	-200	This was not planned by the budget, but given the fact that we reduced fuel costs, we thought that printing a t-shirt was a good idea for advertising and publicity.
Workshop organization costs	200	100	100	NGOs organization Centre for Environment gave us their meeting room for the workshop so we did not have to rent additional space.
Total	5000	4985	15	

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

The important next step is that forestry agencies continue to monitor the mentioned species as they have promised.

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?

Yes. During the project we used The Rufford Foundation logo in all our materials (presentations, brochures and for the t-shirts).

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

Branislava Dukic - Considering that Branislava works in one of the forest agencies, she was very helpful in field activities because she knows the terrain as well as relations within the forest agencies.

12. Any other comments?

We are grateful to The Rufford Foundation for the support and hope to continue the collaboration.

Appendix 1 below

Appendix 1

Localities	Rudine at Kozara	Vrbanja near Banja Luka	Jošavka	Pribinić	Čečava	Ljubić Mt	Borja Mt	Velika Usora valley	Comments
Species									
Halacsya sendtneri				+		+			
Gypsophila spergulifolia		+		+	+	+			
Potentilla heptaphylla subsp. australis						+			
Polygonum albanicum			+			+			
Cytisus austriacus subsp. heuffelii							+	+	
Asplenium adulterinum		+					+		
Asplenium cuneifolium	+								
Cardamine plumierii				+			+		

Viola beckiana subsp. beckiana							+	+	Disappeared from some famous sites
Silene armeria		+		+	+			+	
Scleranthus perennis		+				+			
Cerastium malyi subsp. serpentinii						+	+		
Echium maculatum							+		Only one plant found.
Thlaspi avalanum	+	+	+		+	+	+	+	
Daphne blagayana				+			+	+	
Euphorbia serpentinii							+		Very rare on the serpentins of NW Bosnia
Notholaena marantae		+	+			+			