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	Ana Ostojic
Project title	Conservation of meadow-steppe vegetation fragments with special attention to *Centaurium erythraea*
RSG reference	22416-1
Reporting period	June 2017-end of May 2018
Amount of grant	4,110
Your email address	ana.ostojic.kg@gmail.com
Date of this report	31St May 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
Mapping of steppe vegetation (identification of steppe sites)				According to old literature data, we identified several important localities for research, which still exist in the investigated area. There are several more sites, but they are not including in the project. We hope to pay attention to these sites in future
Mapping *Centaurium erythraea* (identification of localities and screening of presence and abundance)				On each researched locality we recorded species *Centaurium erythraea,* with more or less abundance, but if we compare to numbers recorded in pervious researches we noted that abundance decrease.
Screening of vegetation structure, notified phytocoenological releves, forming databases				For vegetation research we used traditional Braun-Blanque method. On each assigned site we set up rope and make square (5 x 5 m), and make list of all species with mark (r-rare, +- several individuals, 1-5). All collected results we save in Turboveg specialised programme for vegetation processing. We collected material for herbarium.
Researching public knowledge and traditional use of *Centaurium erythraea*				We conducted questionnaire for local people (young, older, male-female) about general plant collecting and processing and especially *Centaurium erythraea* using in traditional food or medicine
Botanical garden				As ex-situ model of protection, we are very satisfied with made of link with Faculty of Biology and part of botanical garden that we got for our purpose. Plants material is successfully grow and we intend to spread these activities.
Raising awareness to public				Education for different targeted groups and promo material (brochure, poster, info boards, and

				photo exhibition) contribute to raise public awareness at the satisfying level but we have to put more efforts to education and promotional activities.
Publication of project results in national journal		x		We prepared results, text and we wait internal review of our professors to send in journal. We hope that this activity will completed in next several months.

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

We have one situation that one of information boards that we set up was accidently destroyed by local tractor driver. And traditionally such information boards in Serbia (especially in villages) are using for local advertisements and we worried that locals could remove our posters. We made collaboration with presidents of each village and local people to save board and we explained importance and its roll in this process.

We were worried about season, to catch right time for vegetation screening, because of rain and bad weather conditions for summer season.

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

1) The first one is scientific outcome related to screening of steppe fragments in Sumadia region meadows after 15 years of pervious research. Also, vegetation and *Centaurium erythraea* databases is formed and represent basis for future investigations and conservation. Mapping of sites and establishing ex-situ model of steppe species protection in botanical garden.

According the plan of project activities, the fieldwork has started in July. During June, after project approval, we got started detailed review of up to date botanical research of the area and existing literature such as published articles, books, reports, official documentation connected to flora and vegetation of this area. During July/August we started fieldwork on screening of steppe flora. After a study of the area, 50 vegetation releves were recorded and collected floristic material. Phytocoenological releves were based on the same localities where these kind of habitat noted more than 15-20 years ago and the idea of such approach is to present a changes in natural distribution of the steppe like vegetation and one interesting species Centaurium erythraea *in correlation to the anthropogenic or other pressures. Investigation of flora and vegetation include detailed mapping with geo-references. This field research was conducted by group of young biologists/ecologists with supervision of experienced university professors.*

2) The second outcome is related to contribution of local people in collecting questioners and knowledge or experience in traditional use of plants and its

roll in recent time. What is their opinion about extinction of some species and where they see their roll in sustainable use or protection?

In this part of project we conducted an ethnobotanical study, focused on local MAP species and its use in Sumadija region in Central Serbia. The aims of this study were to: 1) document the diversity use of some popular MAP species with accent to Centaurium erythraea*; 2) their distribution and way of using in research area; 3) traditional use through domestic products for own usage or local market; 4) transferring knowledge about processing and use; 5) traditional use in ethnomedicine. This study is intended to contribute to the preservation and extension of traditional ethnobotanical and ethnomedical knowledge related to traditional use one of three most popular MAP species,* Centaurium erythraea*. We researched eight villages in three selected municipalities: Kragujevac (1. Ramaca, 2. Dobraca, 3. Kamenica, 4. Taboriste,); Knic (5. Donja Kamenica, 6. Makovica), Stragari (7. Ljubicevac, 8, 8a. Vlakca), that are located at different elevations (400–700 m asl).*

3) Very important outcome of project beside scientific work is involving local people in conservation issues and education through lectures and promo materials about importance of steppe fragments and flora protection.

During the last three months in 2017 we organised lectures/educations for our target groups. We choose at the first mountain climbing members from central Sumadia region. The aim of these lectures was rising of the knowledge about steppe vegetation, with accent on endangered, endemic or rare species and promotion of its conservation. Participants were familiar with locations and the most important species on these localities, as well as what is their roll in protection. We conducted five presentations. Next education presentation was held for local community members (local authorities, local societies, school children, and women) in selected sites as very important segment for long lasting protection impact. We choose local important persons for village's municipalities where we implemented our research. They were familiar with our project and activities we conducted in previous period. Also, we put all efforts to explain recognition of species of our interest and importance of their protection, as well as their roll in nature protection and importance of these kinds of sites. Both presentations, for mountain society and authorities were very similar, but adopted to target group and level of understanding of issue.

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

We involve local communities in our project through several activities: interview survey, education, promotion, and face to face communication on field fork.

Interview survey:
Chosen villages are relatively small in terms of the number of inhabitants, and are located by the main and secondary roads. In all visited villages, young people under the age of 30 were in the minority due to the migration to nearby towns. The

opened and semi-structured interviews were done with 57 people, among them 85% aged between 55 and 78, 13% between 30 and 50, and 2% between 25 and 30. Occupations of informants were predominantly agriculture – intensively fruit production (older participants) while younger participants had the employment in cities around (included sales, truck driving, fishing, teaching etc.) From total participants there were 41 women and 16 men. All the participants are born or living in this area for a long time. The interviews took about 30 minutes per interview. We intended to interview a balanced ratio of men and women, but the majority of men didn't want to participate in the interview although directly involved in activities with livestock or agriculture.

Education activities:
We involved local community members (local authorities, local societies, school children, and women) in lectures, as well as mountain climbing members as people with direct touch with nature.

Promo material: (Brochures, posters, info boards, photo exhibition)
Photo exhibition was held during the December 2017. Photos of different plants and landscapes from our fieldwork were representing at village of Ramaca, one of research sites, in culture home and as mobile exhibition in several other sites. After we organised photo exhibition and brochure/leaflet sharing, we publish our results on wooden info boards at five localities along the mail village's road in targeted sites. At the first we set up wooden board construction with poster. It contains specific steppe species recorded during the project and information about *Centaurium erythraea*. That was great way to animate local communities.

5. Are there any plans to continue this work?

Yes, we intend to continue scientific and education work on conservation of steppe fragments in Sumadia region. Based on our research we noted leak or gaps in recent data and literature, and we recorded new potential sites, insufficient described till now. Also, our future work will more oriented on fieldwork in terms of data collecting and preparing handbook for important plant species recognition. And more cooperation with local communities on concrete recipes of traditional use of *Centaurium erythraea* in food preparing and ethnomedicine, with publication of original traditional recipes. Next step, will be also focused on education of school children and its involvement in future conservation.

We have to establish stronger relationship with nature protection authorities and cooperation with NGOs to share information on vegetation data status to prepare basis for future protection.

Also, we have idea to improve visibility of project results and investigation in general through the social networking, and digitalisation (mobile application platforms, web site platform).

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

Currently I am in the write up process and planning to get scientific papers in national journal or conference. Also, Researchgate social network is good way for presenting results of project. During the project we produced promo/info material.

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 Rufford Foundation Grant was used between June 2017 and 31st May 2018. All project activities were conducted in 1 year.

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
Fieldwork activities: - Transportation cost	830	843	13	+13 £ extra were used for payroll
Accommodation cost	480	450	30	-30 £ we used for daily allowance
Daily allowance for fieldwork	480	510	30	+30 used in accommodation costs
Equipment for research activities	890	890		
Brochure	340	340		
Leaflets	210	210		
Informational boards	435	500	65	+65£ we add by our own account to make some more boards (instead 3, we set up 5 boards) because we decided to use recycled wood which is cheaper and with this small addition we got 2 more boards.
Photo exhibition	120	165	35	+35£ added from local municipality for printing in bigger format
Botanical garden	245	245		
Questionnaire printing	80	80		

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

According to current knowledge based on our research during the project and pervious researching by other authors, we noted decrease in abundance of *Centaurium erythraea*, but we don't know reason (anthropogenic factors-overexploitation, soil degradation, and land use changes). It will be future challenge to discover.

Also, if we compare new and old phytocoenological releves, we recorded changes in vegetation structure. That is the next step to research. It could be useful to do screening of more sites on basic level and to choose some of them for detail investigation.

It is also necessary to activate local community in terms of protection, gain knowledge about sustainable/proper plant collection, suggestion about development of new ideas such as herbal tours, botanical gardens as ex-situ conservation.

We would be satisfied to animate young people/children with modern technologies in nature conservation.

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, we used RSGF logo at all printed materials:

- Brochure.
- Poster.
- Info boards.
- Participants list.
- Evaluation list.
- Questioners.

Thanks to RF will be note at Acknowledgements in future publishing article.

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

Prof. Dr Marina Topuzovic, Full professor at the University of Kragujevac, Faculty of natural sciences, dept. for botany and anatomy of plants. She was our scientific support and consultant in fieldwork activities.

Prof. Dr Aca Markovic, retired professor of vegetation science at the University of Kragujevac, Faculty of natural sciences, dept. for botany and anatomy of plants. He worked in Sumadia region, and he published a lot of articles and books related to project issue. His knowledge in vegetation and practical knowing of research area was very useful to consult about concrete sites.

Ivana Kruljevic M.Sc., graduated ecologist and biologist. She is PhD student at the University of Nis, dept. for biology and ecology. She was engaged in field work on screening of flora and vegetation and in education part of project.

Milena Tabasevic M.Sc., ecology and environmental protection, and PhD student at the University of Belgrade, Faculty of biology. She helped in flora determination and vegetation research and education activities.

Visnja Vasiljevic, ecologist at the final year of master studies. She has experience in field work and recording vegetation releves. She was assistant in field research and interview conducting and brochure preparing.

Lukovic Jovan, economist. He was technical support in promotional and education activities, financial organization, design and preparing promo material.

12. Any other comments?

We are sincerely honoured to conduct this project. Also, we have to highlight that we have great cooperation with Rufford's representatives and really appreciate efforts to prompt answer on each question that we have during the project.

This project is cornerstone on future conservation of Sumadia steppe fragments.