

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	Sandra Radunovic
Project title	Preservation of grassland's biodiversity in Biosphere reserve "Golija-Studenica" at mountain Golija region, by sustainable use and management
RSG reference	13902-1
Reporting period	October 2013 – October 2014
Amount of grant	£ 4010
Your email address	sradunovic.azs@gmail.com
Date of this report	November 10 th 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
Biodiversity assessment of flora and vegetation at selected sites			+	<p>Research sites were selected upon an available literature and data, as well as in collaboration with local NGO. The main criteria for selection were management practices (mowing, grazing, combined use and abandoned), since the different management and land use can affect floristic composition. Also selected sites were at different altitudes - from 1000 m above sea level up to 1500 m above sea level. Among selected sites, the loss of species exposed to spontaneous vegetation successions was highly present at abandoned sites. It was also noted that land abandonment and improper land management (mainly lack of grazing and cutting the meadows) from one side, and overgrazing and excessive fertilisation from the other side, led to loss species diversity.</p>
Field research			+	<p>Flora and vegetation were sampled according to Braun-Blanquet method. All selected sites were studied from the aspect of biodiversity analysis, current management practices and soil features characterisation.</p> <p>During the field research we visited 60 sites and found 190 species. Soil samples were also collected as well as plant biomass, for the purpose of estimating grasslands productivity. Among collected plant materials we found a significant number of medicinal plants. Most common medicinal plants at the researched sites were: <i>Achillea millefolium</i>, <i>Hypericum perforatum</i>, <i>Thymus pulegioides</i>, <i>Veronica officinalis</i>, <i>Arctium lappa</i>, <i>Carlina acaulis</i>, <i>Origanum vulgare</i>, <i>Potentilla erecta</i>, <i>Alchemilla sp.</i>, <i>Teucrium montanum</i>, <i>Rosa canina</i>, etc.</p> <p>Although it was not in our research focus, we had a chance to visit some specific sites in damp meadows with <i>Filipendula ulmaria</i>. We agreed that these are very interesting habitats, from the conservation point of view, and can be a part of some future research.</p>

Ethnobotanical survey		+	<p>Through interviews with local inhabitants, we have collected very important information related to their agriculture practices and traditional use of plants from the surrounding meadows and pastures. This was the first record on traditional use of bio-resources, traditional agriculture and ethnobotanical information in this area. In total 135 local inhabitants were interviewed. During the interviews we found out that local people already use medicinal plants (MAP) for herbal remedies for their own consumption, but there is no organised sustainable collection of MAP, despite the diverse resources.</p> <p>Results of this ethnobotanical study and questionnaire analysis are very important for preservation of traditional knowledge related to use of biological resources, especially medicinal plants, in this area. Through questionnaire analysis we also had the opportunity to tailor recommendations for sustainable use of MAP under the examined area.</p>
Dissemination of project results and knowledge transfer		+	<p>During the interviews with the local community we informed them about importance of sustainable use and management of grasslands and medicinal plants. Through the workshop for relevant stakeholders we have focused on potentials and recommendations for sustainable use of bio-resources in this protected area. We also held an informative herbal path tour through the area where informational boards were posted. Project results were published in guideline with recommendations for resource management for local community and other relevant stakeholders.</p>

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

We didn't have any unforeseen difficulties during the project implementation. All the project activities were carried out within 1-year project duration.

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

Outcome 1. Resources assessment study at selected sites

During the research period we have visited 60 sites. These sites were mostly grasslands and meadows under the different management regime. We identified 190 different plant species. We found lowest diversity at the abandoned grasslands where spontaneous vegetation successions were present (numerous shrubs and small trees – *Juniperus communis*, *Rosa canina*, *Prunus* sp., etc.). The

highest diversity was found at the sites with the proper management, as expected. When it comes to medicinal plants, we recorded high presence of genus *Hypericum*, presented with three different species (*Hypericum perforatum*, *H. barbatum* and *H. maculatum*), genus *Thymus* (*Thymus pulegioides*, *T. balcanus*), as well as *Achillea millefolium* and *Teucrium montanum*. In the researched area we registered species from the Red List of Flora of Serbia (*Orchis morio*, *Dactylorhiza maculata*) and some of the endemic Balkan species (*Silene sendtneri*, *Viola macedonica*).

Outcome 2. Ethnobotanical study and questionnaire analysis

During the interviews with the local community we have collected very valuable data, which will be preserved for the future generations. Since this rural, mountainous area is affected by depopulation and aging it is very important to preserve traditional knowledge on plant diversity, their use in folk and veterinary medicine, as well as practices of wild collecting, basic processing, as well as the storage of products.

Outcome 3. Dissemination of research results to local community

All the findings and results from this research were shared with the local community. We saw this research as a very useful way to promote sustainable use of the resources, especially medicinal plants, and encourage local inhabitants for wild collecting at small scale. That can be a good opportunity for diversification of economic activities and reducing depopulation in this rural area.

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

Local community was highly involved during the project implementation. During our field work they informed us about land management practices for the last 20-30 years and some interesting sites for our research. Also, during the interviews, we had a chance to exchange a lot of information related to traditional use of MAP, best management practices and we tried to raise awareness on importance of sustainable management and use of biological resources. On our workshop, through brochure and herbal tour we have realised that just a small percentage of local inhabitants is aware of the benefits that they have living in the protected area such as MAB "Golija-Studenica". They expressed their willingness to consider ecotourism and production of local products (teas, jams, juices) as an alternative source of income, instead of e.g. growing potatoes.

5. Are there any plans to continue this work?

Our plan for next summer is to do some research on the other side of Mt. Golija (within the boundaries of the Nature Park) in ecologically similar areas.

Also, in the future we are planning to focus on mountain mires. There are three mire complexes (Košaninova jezera, Bele vode and Dajičko jezero) at Mt. Golija. They are among the rarest and the most threatened habitat types today. According to IUCN classification, they are classified as fragile ecosystems, which are sensitive to the minor changes in abiotic and biotic factors.

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

Project results will be shared by websites (Faculty of Agriculture and Rufford Foundation website). Results will be also presented in at least two scientific papers during 2015. During the project implementation, results were shared through informational boards, workshop and brochure.

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

Grant was used for a period of 1 year (October 2013- October 2014) and all the activities were done during this period.

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
Transportation (10 field trips x 100 £)	1000	870	130	The difference between the planned and the spent amount was added to the planned budget for informational boards.
Accommodation (8 overnights x 6 persons x 20 £)	960	940	20	The difference between the planned and the spent amount was added to the planned budget for informational boards.
Food (6 persons x 10 days x 10 £)	600	600	0	
Field equipment (GPS device, camera)	650	650	0	Since we purchased GPS device, we bought regular camera and for the rest of the money we bought dictaphone which was necessary during the interviews.
Questionnaire preparation and printing (150 units x 1£)	150	150	0	
Brochure preparation and publishing (100 units x 5 £)	500	400	100	Brochure printing cost was less than planned, so we added that amount for informational boards.
Informational board (3 pcs x 50 £)	150	400	250	Actual price for informational boards was higher than we expected, since we had to pay for the wooden construction (according to the standards within the boundaries of protected area). For this purpose, we added difference from the other activities where we had extra funds.
TOTAL	4010	4010	0	

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

It would be very important to continue work with local community in protected areas, such as MAB "Golija-Studenica". They are somewhat aware of the importance of nature conservation, but usually

it is not priority in their everyday life. It is very important that the local community recognise the value of natural areas in which they live, to understand the importance of nature, to accept the concept of sustainable development and protected areas, which are widely spread in other countries, and that is a benefit of living and working in a protected natural area.

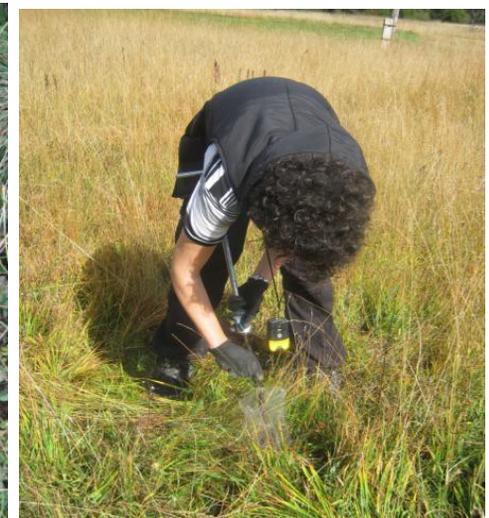
10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

RSGF logo was used in all materials produced in this project.

1. Informational boards
2. Questionnaire
3. Presentation slides
4. Brochure

11. Any other comments?

It was pleasure and great experience to collaborate with Rufford Foundation. Rufford small grants are an opportunity for young researchers from developing countries to carry out their ideas and research. I am very grateful that I had that chance and I hope we will cooperate again in the future.







LEKOVITO BILJE GOLJE

Majčina dušica (*Thymus serpyllum*)



Opis biljke: Graminasta biljka, visoka od 20 do 30cm. Ima sokce, elipsaste, zelene listiće na kratkim peteljcima. Cvetovi su roze do ljubičaste boje. Izrazito aromatičnog mirisa.

Stanište: Zaljevna dosta toplije i sunca. Raste na sušnim brežuljcima i padinama, na rubovima šuma. Često se javlja na kamenitim podlogama.

Lekoviti delovi biljke: List i cvet.

Lekovita svojstva: Čaj ima antiseptično dejstvo, efikasan je protiv grla u bronhijama, razvodnjava sluz u plućima i pomaže pri njegovom izbacivanju. Čaj se takođe upotrebljava za lečenje organa za varenje.

Hajdučka trava (*Achillea millefolium*)



Opis biljke: Biljka uopšte ne stabljikom visine do 80 cm. Listovi su perasto deljeni. Cvetovi su bele boje, sakupljeni u cvasti na vrhu stabljike. Cela biljka je jako prijatnog mirisa.

Stanište: Raste kao samonikla biljka, najčešće na livadama i pašnjacima.

Lekoviti delovi biljke: Cvetovi i sušeni peteljci. I cela biljka najviše do 30 cm dužine. Zbog visokog sadržaja gorkih materija i eteričnog ulja, ubira se u gorko droge.

Lekovita svojstva: Koristi se u obliku čaja za poboljšanje apetita, kod želudačnih tegoba, sadržajna i teškog varenja. U narodnoj medicini se koristi za zaručivanje rana kao hemostipik i za ublažavanje bola.

Kantarion (*Hypericum perforatum*)



Opis biljke: Višegodišnje zeljasta biljka sa uspravnom i razgranatom stabljikom, visine do 60cm. Listovi su nasuprot, sekci, ovalne eliptični. Na vrhovima stabljike i grančica maleni se cvasti sastavljeno od pravilnih petodelnih cvetova žutozelenke boje.

Stanište: Raste na sušnim livadama, na suvobraznim obroncima i na rubovima šuma.

Lekoviti delovi biljke: Stabljika, listovi i cvetovi.

Lekovita svojstva: Čaj se upotrebljava za stimulisanje apetita i poboljšanje varenja, lečenje organa digestivnog trakta, kao i za stimulisanje aktivnosti mišićnih vlakna, a često se koristi i kao dodatno sredstvo za smirenje. Ulje kantariona pomaže regeneraciju tkiva.

Trava iva (*Teucrium montanum*)



Opis biljke: Višegodišnja, polupostojna biljka visine od 30 do 30cm. Stabljike su delimično razgranate. Listovi su sežeci, uski i eliptični s rudičja. Cvetovi su na vrhovima grančica, ovalnoliste boje. Vreme je gorak i oporog ukusa, sa prepoznatljivim aromatičnim mirisom.

Stanište: Raste na suvim, toplim i kamenitim podlogama, uglavnom se javlja na na preko 800m n.v.

Lekoviti delovi biljke: Nadzemni deo biljke.

Lekovita svojstva: Kao čaj se najčešće upotrebljava lečenje želudačnih bolesti, bolni žučne kolec i žučnih puteva.

Borovnica (*Vaccinium myrtillus*)



Opis biljke: Uspravna grm visine do 50 cm. Listovi su jajnog ili dugajastog jajnog oblika, sa kratkim peteljkom. Cvetovi su ovalnolobasti, cvetno-zumovog oblika i više pojedinačno a razvija listova. Plod je tamno plava, sočna bobica, slatko-kiselkastog i malo oporog ukusa.

Stanište: Raste na kiselim podlogama, u šumarskim i rubnim šumama.

Lekoviti delovi biljke: Listovi i skuplja se pre sazrijevanja plodova i plod.

Lekovita svojstva: Čaj od listova borovnice se koristi protiv opšta slabog trkta. Nove bobice sadržavaju diuretijs. Sveže bobice deluju kao blagi purgati. Od bobica se pripremaju sokovi, džemovi, sirni, džaka, itd.

Šipurak (*Rosa canina*)



Opis biljke: Šipurak raste kao grm visine do 3 metra. Stabljike su tvrde i u obliku polulake zavijene naizmenično, obrasci izrastaju. Listovi su najmanje parni, sastavljeni od 5-7 listova jajnog oblika, po rubu oštro nazubljeni. Cvetovi su različitih boja. Plod je jajnog oblika, spolja glatak, crvene boje i kiselkastog ukusa.

Stanište: Javija na rubovima šuma, među grmljem, poruč puzava.

Lekoviti delovi biljke: Zreli plodovi i cvetni listići.

Lekovita svojstva: Čaj se koristi za ublažavanje tegoba povezanih sa nedostatkom vitamina C. Koristi se i protiv gripice, katarisa u disajnom i bolni mokraćnih organa.