Final Evaluation Report

Your Details	
Full Name	Anka Tutulugdzija
Project Title	Populationon status and habitat assessment of the strictly protected *Artemisia pancicii* in the Deliblato Sand
Application ID	22362-1
Date of this Report	20.06.2018

1. 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
To define population status				Considering that 2017 was extremely wet, our field work went into first part of September 2017. First at all, the idea was to determine the area of population occupancy by a system of squares and define geographic position (coordinates and altitude) patches/fragments using GPS technology. During our visit, we could not find *Artemisia pancicci* in Flamunda and Crni vrh, areas distribution from were founded previous years from local communities. So, in 2017 we haven't had the possibility to define an area of occupancy, patchiness and fragmentation of *Artemisia pancicii* on the territory of Deliblato Sands.
Determine reproduction mode				
To assess environmental parameters and habitat condition				We were dedicated to assessing environmental parameters and habitat condition, since this habitat faces a number of threats including soil degradation, potential desertification, increased direct influence of temperature, floods and storm winds, which determine the distribution of plant cover. From four localities we took eight samples in two repetitions. The soil samples were taken in accordance with the provisions of soil fertility control system at a depth of 30 cm. Each sample was accompanied by information on its exact geographic position (coordinates and altitude). The soil samples were analysed for: pH, $CaCO_3$ content, organic matter - humus content, total nitrogen content, available

				phosphorus and potassium (extraction with ammonium lactate) based on the AL method. As published data indicated that the species grows on neutral or light alkaline soil with an adequate to high content of potassium, magnesium, calcium and a humus layer, also and available microelements (Co, Mn, Cu, and Zn) using DTPA extraction we could compare our result soil samples analyse. Our soil samples result has shown that there was no significant difference between samples for pH and they are light alkaline soil like published data indicate. For humus content soil samples found that in areas Crni vrh, humus content was minor from other areas. There was no significant difference between samples for total nitrogen content, available phosphorus and potassium, also microelements as copper and zinc. Interesting was content iron and manganese, because there was significant difference between samples from Flamunda and Crni vrh, sample from Flamunda have much higher value. There are significant differences in calcium content between samples in area Flamunda, but also between samples from Flamunda compering with other two areas from which samples taken.
Evaluate phenotypic variation				
To sample plant material for DNA				
Awareness-raising on endangered flora				We have designed a web site that is regularly updated https://artemisiapancicii.com/gallery/. Because the promotion will not be finished with this project, so can put information on. Before we went on field work, we shared brochures during July and August.

2. Describe the three most important outcomes of your project.

a). We couldn't determine the presence of *Artemisia pancicci* in 2017 in areas Deliblato sands as Flamunda, Heronija and Crni vrh. During the project we had difficulties as the weather conditions, and we were only in September, we couldn't with certainty to assert that *Artemisia pancicci* doesn't exist in Deliblato Sands.

b). We established the physical and chemical characteristics of soil composition and quality, so with the investigation of the environmental conditions it will be possible suggest future soil management actions to influence vegetative phase species Artemsia pancicci.

c). Awareness-raising on endangered flora in Serbia and Deliblato Sands and importance of their protection.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

During the project we had difficulties as the weather conditions in 2017 were extremely wet so our field work went into first part of September 2017, because we had to get familiar with the terrain and determine the surface of population occupancy by system of squares and define geographic position (coordinates and altitude) patches/fragments using GPS technology.

4. Describe the involvement of local communities and how they have benefitted from the project.

Artemisia pancicii is one of the rarest native plants in Europe, registered in seven isolated localities that are restricted in Czech Republic, Austria and Serbia.

The raising of conservation consciousness of the local population and therefore contributes to the preservation of both *A. pancicii* and Deliblato Sands. Rarity and high risk of extinction is the reason why conservation and protection of every single individualspecies on Deliblato Sand is of high importance.

Still, Deliblato sands faces several threats including soil degradation, potential desertification, increased direct influence of temperature, floods and storm winds, determining the distribution of plant cover. The exploitation of certain plant habitats for the purpose of industry, trade or collection is the most dangerous activity.

5. Are there any plans to continue this work?

This project is the initiation in the field of conservation of *Artemisia pancicci*. I was able to work with my research group at Deliblato Sand. The main result that we gained from this project is, the habitat condition field were before was founded *Artemisia pancicci*. As published data indicated that the species grows on neutral or light alkaline soil with an adequate to high content of potassium and calcium and we with our analysis soil samples same, we will be able suggest future soil management actions to influence vegetative phase.

Also, is very important focus on increasing the awareness among the local communities on holding back shrubs, mowing, grazing and fire management on Deliblato Sand.

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

The promotion of the project and the field guide was shared with brochures to local schools near Deliblato sands as well as on mountaineering associations "Naftaš" and "Železničar" from Vršac. The project news was shared also on our webpage.

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

Next steps of this research are the investigation of the environmental conditions, specially influence of water stress and storm winds.

Scale-up public education and awareness creation towards conservation of the species and Deliblato sands.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

We used the Rufford Foundation logo on the website, also on the brochures.

9. Provide a full list of all the members of your team and their role in the project.

Dr. Vesna Milankov (University of Novi Sad)
She helped in this project enormously by giving ideas for problem-solving, as well as discussing arising issues.

Dr. Jasmina Ludoski (University of Novi Sad)
Her knowledge and support for linear morphometric and landmark-based geometric morphometric method.

Nemanja Gojkovic - Research Assistant (University of Novi Sad)
He contributed to the design of a web site Artemisia pancicii and technical and friendly support during all time work.

We are grateful to MSc **Milorad Živanov** from Institute of field and vegetable crops Novi Sad and **Rank Peric** from The Institute for Nature Conservation of Vojvodina for all support during field work.

10. Any other comments?

We are extremely grateful to The Rufford Foundation for providing funds for this project (it is my first project after all). I would like to thank all the people and RF for laying down their trust.

It was a great pleasure to work on this project.