

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	Igor Trbojević
Project title	Distribution, status and protection of brown bear (<i>Ursus arctos</i> L., 1758) in Bosnia and Herzegovina
RSG reference	20571-2
Reporting period	December 2016 – December 2017
Amount of grant	4957
Your email address	igortrbojevic@yahoo.com
Date of this report	04 December 2017

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
Increase the level of knowledge on species				This objective will gradually increase with the duration of the project. As much we work on a given issue, it will rise to increasing knowledge about bears.
Establish the presence of the species in specified areas				<p>Of the four localities, the presence of brown bear were found in three localities (at Kozara locality there were no bears in the examined period). Total of 20 bears.</p> <p>1.) Locality Mountain Tisovac (and one small part of Mountain Čemernica II) - three individuals: two adults (one older male, and one female) and one cub (All individuals are registered and recognised on picture from photo traps, measuring traces and seen from hunting watchtower in spring and autumn counting);</p> <p>2.) Locality Mountain Vlašić - 11 individuals: five adults (two older males, one younger individual and two females) and six cubs (all individuals are registered and recognised on picture from photo traps, measuring traces and seen from hunting watchtower in spring and autumn counting except for two cubs, they are only seen on the autumn counting);</p> <p>3.) Locality Mountain Lisina - six individuals: three adults (one adult male, two adult females) and three cubs (five individuals are registered and recognised on picture from photo traps, measuring traces and seen from hunting watchtower in spring and autumn counting and one cub was seen in autumn counting).</p>

			<p>4.) Locality Mountain Kozara - Although there was a young bear in Kozara mountain in November 2015 (in the part that belongs to Kozara National Park), there was no signs of presence of bears during this work. For these areas, local hunting organizations have represented a total of 41 individuals!</p>
Determine the permanent localities (constant presence of the species in the region)			<p>A survey conducted in the period from July to November 2017 identifies habitats in which bears live permanently and sporadically. It is found that bears in Bosnia and Herzegovina inhabit a total of 22100 km², of which permanently about 17700 km² and sporadically about 4400 km². According to known data from Kaczensky et al. (2013) in the period until 2012, the bears settled around 33200 km² (permanently around 21600 km² and sporadically about 11600 km²). Thus, the distribution range has decreased.</p>
Establish the cause of death of individuals			<p>In the investigated areas, five bears were killed (four in the locality of Vlašić Mountain and one in the locality of the Mountains Tisovac-Čemernica). Four bears were legally killed under suspicion that they damaged property and killed domestic animals (11 sheep, one cow and one pig). In the area of Vlašić mountain, one illegal culling of bear was discovered, on 1st November 2017. The dead bear found by local hunters, but they did not allow that the corpse to be sampled nor to be photographed.</p>
Better use of habitat			<p>Using photo traps that were set during the project (one year), large human activities were observed in the bear habitat. For example, on the locality of the Mountain Tisovac in the period from 1st November 2016 to 1st November 2017, using photo traps was counted: 2228 occurrences of vehicles used for the forest industry,</p>

			<p>117 vehicles of hunting organization and 68 vehicles of local residents. Total of 2413 occurrences. If it is applied throughout the year, it is about seven vehicles every day. The problem is even bigger because 40 % of the counted vehicles are observed in the period from 5.00 to 7.00 am and 7.00 to 9.00 pm (in the period when predators move in searching for food). This means that bears, and other predators, are forced to go away later to searching for food, but also to change locations to avoid human activity. At the same time, due to the great activity of the forest industry, there is a loss of habitats, but also the natural bear food. This again brings bear to the use of alternative sources of food, such as waste close to human settlements, or to use the additional food left by humans (meat waste on feeding places in hunting grounds - where that feeding places exist).</p>
<p>The relationship between humans and bears</p>			<p>Same as in previous areas, the local human population does not have much tolerance for this species, which is manifested by frequent poaching (of which we have already been warned by the authorities). However, the fact is that bears have caused damage to the local residents (killed livestock, destroyed orchards, beehives...). The reason for such behaviour is because their natural food was destroyed by the great use of forests, habitat reduction and because of constant hunting pressure which again causes restlessness in their habitat. So, it is most likely that this is not about increasing the number of bears, but primarily because of the losing of habitats and losing of natural food. Using the meat (meat waste, domestic animal carcasses) like an additional nutrition for bears. Is it because of the frequent</p>

				<p>use of meat in their diet, bears become more predatory? - A very common theme in workshops and meetings related to the issue of human and bear relations, but also the increasingly frequent issues of residents who had problems with bears. In surveys conducted on hunting organizations, it was found that additional feeding of bears does not mean that bears will not damage bees or livestock.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

In the locality of the Mountain Vlašić, local hunting organizations (three hunting organisations) during the period 2016-2017 did not have any activities due to the prohibited issued by the Federal Ministry of Agriculture, Water Management and Forestry of the Entity of the Federation of Bosnia and Herzegovina. Prohibited activities were due to failure to perform their duties, mainly due to the large number of poaching and poor hunting ground management. Hunting organisations usually bringing a food to feeding places, which is then absent. This gave us an extra cost when we performing spring and autumn counting on hunting watchtowers. The problem was solved by bringing the food (corns and waste meats) at feeding places. We got the waste meat from the nearest butcher shops.

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

1. Establish the presence of the species in specified areas. Through this goal, in both years of work, both 2016 and 2017, it has been proven that the official number of bears on certain sites is not accurate. This was very important because this provided evidence that on this species did not take proper care. Also, thanks to this in January 2018, genetic counting of bears will begin in Bosnia and Herzegovina, and the project will be run by the Center for the Environment from Banja Luka.

2. Determine the permanent localities (constant presence of the species in the region). This goal was also very important because it gave an insight into the distribution of bear's population in Bosnia and Herzegovina. It is obvious that the distribution of bears was reduced from 33200 km² to 22100 km². These are very alarming data and as such are shared with the IUCN Specialist Group Large Carnivores Initiative for Europe (LCIE). These data will be published in the European Commission report for the period 2012-2016.

3. Better use of habitat. This is another topic that needs to be discussed with the competent ministries. It is obvious that large activities of the forest industry have a very negative effect on bear, as well as lack of peace in the habitat. This is

particularly noted as a problem in the Republic of Srpska entity because there are no breeding areas for bears as in the Federation of Bosnia and Herzegovina.

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

The local communities were open to help solve certain problems, such as delivering food to the feeding places at the Vlastic mountain locality. In conversations with the local population, we had support for our work, as they realized that pressure on hunting associations should be intensified due to bad care of bears, which would reduce the damaging effects of bears on the local community.

5. Are there any plans to continue this work?

Yes. The plan is that the project lasts 5 years, as stated in the first RSG application.

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

We have already shared the results with non-governmental organisations, resulting in the project for genetic counting of bears in Bosnia and Herzegovina.

At the next scheduled meeting with the ministry, the majority of the results obtained so far will be discussed (in February 2018).

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

Funding from the RF was obtained on December 12, 2016, but the project has already started on November 1, 2016. However, this did not affect the execution of the project.

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 at the time of the fieldwork, for two people	1437	1537	0	In the project proposal was predicted a personal investment of 100 £
Travel expenses for field work	2331	2482	51	In the project proposal was predicted a personal investment of 100 £. Higher spending money (51 £) is settled from the fee.
Fee for two people	1189	1138	-51	Higher spending money (in Travel

				expenses for field work) is settled from the project leader fee
Photo-traps	0	2712	0	
Sampling equipment	0	28	0	
GPS device	0	152	0	
TOTAL	4957	8049	0	

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

Given that genetic counting of bears will be carried out, in addition to their number, their exact locations (general distribution) will also be available, which will later be able to compare the distribution trend.

Now it is very important to work on the following two goals: to find out the size of the territory of individuals, and to establish the dynamics of movement of individuals. These goals require multi-year systematic work and are achieved by telemetry research, but with all other events together to create a realistic picture of the brown bear population in Bosnia and Herzegovina. In order to achieve these goals, greater financial resources and specific equipment (telemetry monitoring equipment) are needed.

It is important to continue further research on the whole territory of Bosnia and Herzegovina (as planned with the project), because only with a comprehensive study we can get to the ultimate goals and knowledge.

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?

Yes. We use RF logo for our presentation „The status of the brown bear population in Bosnia and Herzegovina” in Workshop „Managing bears across the Alps, The Dinaric Mountains and beyond”, 6th-7th February 2017 in Venice, Italy.

With the results of the project we will participate in the 27th Rufford Small Grants Conference in Montenegro, which will be held on February 3rd-6th 2018 in Bar (the abstract was accepted on 28th November 2017).

11. Any other comments?

In the entity of the Republic of Srpska was formed an Intervention Team for Large Carnivores (ITLC), in June 2017. This was one of the items that had been agreed with the competent ministry, in order to form the management plan for large carnivores (bears, wolves and lynx).

When the first results from genetic counting of bears are achieved, then new negotiations on establishing a Bear Management Plan will be initiated.



