

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	Vernes Zagora
Project title	Distribution and Vulnerability of Highly Endangered Karst Viper in Central and North Part of Montenegro, and Preparing for Long-Term Monitoring
RSG reference	19309-2
Reporting period	January 2016 - November 2016
Amount of grant	£4989
Your email address	Vzagora92@gmail.com
Date of this report	07.03.2017

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
Determining of all potential habitats of karst viper, in mountains that were targeted by this project.				Using software and visiting all mountains during our fieldwork, we listed potential habitats of karst viper. (Photo available at: https://drive.google.com/open?id=0B7CpnBc9x2DwQ1InTE0wTTJBYTQ)
Defining distribution of karst viper in central and north of Montenegro.				We planned 31 days of fieldwork, and 27 days of fieldwork were conducted. Because of the wetter condition, we had to spend on mountain Prokletije 5 days (4 days were planned), we spent on mountain Orjen 4 days (2 were planned). We didn't visit mountain Sinjajevina because of high temperatures and dryness in planned period, we have also cancelled fieldtrip on mountain Mokra (which is on border between Montenegro and Kosovo) in the last moment, because of tense situation on that particular part of border between these two countries, and a police ban on going in this area.
Describing characteristics of habitat, and defining all threats.				We described the topographic characteristics, type of the plant associations, type of present grasshoppers, crickets and all kinds of threats for each habitat. The main threats to this species at its habitats are: 1. Destruction of habitat by fire and inability of firefighters to extinguish it because of the poor condition of the roads. Also, Insufficient manpower

			<p>and insufficient equipment because during the last 25 years in Montenegro due to increase in the length of the dry period increased number of fire and ,at the same time, because of the poor economic situation the fleet of fire-fighting reduced.</p> <p>2. Organising picnics, barbecues on its habitats, by groups of tourists.</p> <p>3. Developing of mountain tourism (different group activities, adventurist parks, etc.)</p> <p>4. Being killed by locals and tourists, as well as road kill on some parts of mountains.</p> <p>5. Great reduction of livestock that maintains an open habitat, and due to the healing of grasslands and the absence of grasshoppers, (because there isn't grass) is reduced their habitat and consequently the number.</p> <p>6. The biggest surprise was the very bad behaviour of the local population to nature in certain visited mountains.</p> <p>7. All the mountains are extremely vulnerable to people who trade snakes, because there is no control that would prevent their removal from the original habitat.</p> <p>8. Unplanned urbanisation and the development of illegal timber industry have been observed on some mountains.</p>
Gathering tissue samples for DNA analysis.			<p>From each adult individual the top of the tail was taken for DNA analysis. We collected DNA samples from two different populations.</p>
Population analysis.			<p>We marked found individuals in National Park "Prokletije" which we consider extremely important for</p>

			conservation of this species in Montenegro.
Participation on first Balkan Rufford Small Grants Foundation conference.			We were honoured to be part of this gathering in Banja Luka, where we presented our previous project. Also, it was opportunity to meet great people from region and hear about interesting projects and ideas.
Application for grant at foundation "Mohammed bin Zayed."			During January of 2016 we applied for grant at "Mohammed bin Zayed" foundation, but unfortunately they decided not to support our project.
Presenting project to students of University of Montenegro			Six lectures were held for students of University of Montenegro, where biology students were major. Every lecture was visited by 20-30 students.
Presenting project to primary and high schools.			Seven primary and four high schools were visited in north part of Montenegro (in cities: Plužine, Nikšić, Berane and Žabljak). Due to high interest on this subject, in every school two or more lectures were held, and between 650 and 700 kids learned how they should preserve mountains and snakes. (leaflet available at: https://drive.google.com/open?id=0B7CpnBc9x2DwVUFcmkINNk1hdVk ; https://drive.google.com/open?id=0B7CpnBc9x2DweUpHRjJKVnVqOVU Poster available at: https://drive.google.com/open?id=0B7CpnBc9x2DwLUtIOGo1aXpGOVE)
Meetings with locals.			In Plav, Gusinje and Nikšić we organised meetings with locals that are constantly in contact with habitats where karst viper lives, all possible habitats of this species.
"Days of science 2016"			This is one of the most popular manifestations in Montenegro. On Faculty of natural sciences and

			<p>mathematics we presented workshop "Beautiful snake world." Workshops were visited by primary and high schools from all over Montenegro. (Photo available at: https://drive.google.com/open?id=0B7CpnBc9x2DwX3FmSWZFOU5JSG8)</p>
"Days of mothers and children"			<p>This year we were invited on "Days of mothers and children" by paediatric clinic "Dr Mica" where we held workshop "What should I do when I see a snake?" (Photos available at: https://drive.google.com/open?id=0B7CpnBc9x2DwQV80dmRpQ3lpNVk ; https://drive.google.com/open?id=0B7CpnBc9x2DwQkZNaFI2MFVfaFU)</p>
TV show about snakes on TV "Vijesti"			<p>This TV show was planned for this year, but it was not realized because of change of plans in TV Vijesti's schedule.</p>
Snakes exhibition in "Delta city" in Montenegrin capital, Podgorica.			<p>This activity was not planned by project, because idea and opportunity came later, but Rufford Small Grants Foundation was mentioned, as well as project that we worked on. During four days of exhibition (8th-12th May 2016) we presented snakes of Montenegro, in cooperation with "Delta city" and Natural history museum of Montenegro. Exhibition was open for 12 hours every day, and by official information from management of "Delta City" it was visited by 6000-6200 people. Six national TV houses were present on opening of exhibition (TV "Vijesti", TV "Prva", TV "Radio i televizija Crne Gore", TV "Atlas" and TV "Pink"), as well as three members of newspapers ("Dan", "Pobjeda"</p>

			<p>and "Analitika") (video available at: https://www.youtube.com/watch?v=R_qfdNvilyS) (Photos available at: https://drive.google.com/open?id=0B7CpnBc9x2Dwa0o1MGR6NEdlQW8 https://drive.google.com/open?id=0B7CpnBc9x2DwQzZpZWISTE3YIU https://drive.google.com/open?id=0B7CpnBc9x2DwZldaVUZzaUI1S2s)</p>
Snakes trafficking issue			<p>Our articles about snakes trafficking on black market was published on several internet portals in Montenegro, and we were guests of a discussion on this topic at TV station "Radio televizija Crne Gore." (Photo and article available at: https://drive.google.com/open?id=0B7CpnBc9x2DwYWJ4bWlldWxNdms ; http://www.barinfo.me/text.php?kategorija=1&id=9430)</p>
Scientific paper			<p>Scientific paper about new findings of Karst Viper is on revision, and it will be published during 2017.</p>
Regional workshop			<p>All invited lecturers took part in the workshop, including regional experts from Croatia, Serbia and Bosnia and Herzegovina. The workshop was opened by the director of the Environmental Protection Agency, and workshop was visited by government's advisor for the environment, who outlined the positive impressions of our previous work, with the hope that together we will succeed to solve the problems faced.</p>
Sending proposal to Environmental protection agency and			<p>During January and February 2017 we created and sent proposal for putting karst viper on national list of protected</p>

<p>Ministry to put karst viper on the list of protected animals.</p>				<p>animals to Environmental Protection Agency and Ministry. It was written based on all collected data, scientific opinions, and legal status on regional and IUCN level, as well as on existing national laws. This activity was not originally planned by the project, but during our meetings and regional workshop we saw opportunity for making this action possible.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

- Unstable weather condition didn't allow us to fully archive all fieldwork that was planned.
- Police ban on territory that includes Mokra Mt. stopped us to visit it.

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

- Karst viper was found at two new localities (Prokletije Mt. and Lukavica Mt. (Zijovo)) with great indications that it inhabits also Golija Mt.
- All threats to this species are listed for each habitat. We defined the problems and necessary actions for the future management plan on the conservation of *V. ursinii*. Threats are described under Objective 3.
- Public awareness on several issues (Snake trafficking on black market, illegal destruction of habitats, killing snakes out of ignorance) is increased. By presenting these observations to the competent institution, we have successfully established communication with them.

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

Meetings for locals were organised (see objective 10). We introduced them with characteristics of karst viper and its threats and how they can contribute to its preservation. We talked about this species as an indicator species of healthy and virgin high mountain grassland habitat, which they found very interesting. Many citizens have helped us in finding new habitats, recommending us locations they know, according to ours description of karst viper's habitat. We explained them the importance of fighting against every kind of pollution on these habitats. We also suggested a contact address where they can apply illegal activities, such as

throwing rubbish, illegally collecting snakes from the wild, involving invasive species into nature, making illegal camps, and arson.

5. Are there any plans to continue this work?

There are several plans for continuing this work:

- Continuation of researching the distribution of karst viper in Montenegro, because it is the key for its protection, and protection of high mountain habitats, considering start of application of Natura 2000 in Montenegro in 2017, during Montenegrin process of entering in EU.
- Stability evaluation of known populations of karst viper, and making every effort in protecting populations with most probability of surviving.
- Defining of all threats to karst viper in Montenegro, and making action plans for its protection.
- Establishment of more intense international cooperation, with regional meetings on an annual basis, as well as connecting with European experts on this subject and building capacity of Montenegrin teams leading protection of karst viper and high-mountain habitats.
- Continuation of meetings with key administrators which are responsible for the implementation of the necessary protection measures, and work on an agreement to obtain the best solutions at the legal protection of karst viper and its habitats. This is of great importance for management plan for this species and its habitat.
- Continued presence in public with workshops and lectures.
- DNA analysis of key populations of karst viper, to define the level of isolation of these populations, their genetic diversity, and their relationships with the other karst viper karst viper in the Balkans (Anne-Laure Ferchaud, 2012). Work in this area is hampered by the lack of appropriate laboratory in Montenegro.

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

Information material (brochures, posters, booklets and cups) are distributed to several primary and high schools, ministry of science, faculty of natural sciences and mathematics, biotechnical faculty, on workshops and ecological organisations from Croatia, Serbia and Bosnia and Herzegovina, for dealing with this issue.

We have a webpage where everyone can inform on the project:

[\(http://drustvoekologa.me/\)](http://drustvoekologa.me/)

We made a blog-site, where we promote our project and work through short stories:

[\(https://montenegrinwilderness.com/ - ME\)](https://montenegrinwilderness.com/)

[\(https://montenegrinwildernesseng.wordpress.com/ - ENG\)](https://montenegrinwildernesseng.wordpress.com/)

Project results were presented during appearances on TV shows.
(Video available at: <https://www.youtube.com/watch?v=eBUnasXK5QA>)

Karst viper and its habitats were presented by journalists from documentary show "Život sa planinom" (translation: Life with mountain).
(Video available at:

Currently preparing a scientific paper that contains information obtained by the project. We write this paper with the colleges from Croatia.

We presented project in Banja Luka (Bosnia and Herzegovina) on Rufford Small Grants Foundation conference. (photo available at:

<https://drive.google.com/open?id=0B7CpnBc9x2DwSXBQYUI2S0pnVFk>)

During March, 2017 we plan to visit conference "FISEC 2017" in Novi Sad (Serbia), and present project results.

During October 2017 we will visit 7th International Symposium of Ecologists of Montenegro.

<https://drive.google.com/open?id=0B3WlnQ6BVBIWWE1GRFdyczJSSXQzajZmZEFjQW9tV0M1dzJZ>

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

Month	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th
Preparation of lectures, leaflets, poster.			x	x							
Presentation at several schools and faculty.				x						x	x
Detail planning of fieldwork.			x	x							
Fieldwork					x	x	x	x	x		
Educational meetings, lectures and workshops.			x		x				x		x
Broadcasts on national TV stations.					x	x	x			x	x
Presenting project results.									x		x
Meetings with local authorities,							x	x		x	

				that increased expenses.
Gloves for handling snakes	30	28	-2	
Regional work-shop (Podgorica, and travel expenses for participants)	550	567	+17	We approved coming of two participants from Serbia, which increased the travel expenses.
Snake exhibition in "Delta city", Podgorica	0	496	+496	Additional founding from "Delta city"
Workshop at "Days of mothers and children"	0	35	+35	Additional founding from paediatric clinic "Dr Mica"
Meeting with mountaineering association.	0	40	+40	Additional founding from NGO "Montenegrin Ecologists Society"
Total	4989	5564		571 pounds total, were founded by "Delta city"; paediatric clinic "Dr Mica" and NGO Montenegrin Ecologists Society.

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

- Continuing the research for karst viper on Komovi, Golija and 3 other mountains that we gathered unconfirmed data during our workshops with mountaineers and snake exhibition in "Delta city."
- Beginning of population analysis on Lovćen Mt., Prokletije Mt. or Brotnjik Mt. which are considered the most suitable for population analysis.
- Making arrangements with decision makers about creating management plan for karst viper and its habitats.
- Continuing education of general population and local communities about the importance of protecting karst viper and its habitats. We would make "traveling workshop" which will be recognisable and popular. Also, we would organise workshops in nature which will make the best connection between participants and important areas.
- Continuation of pointing out of snake dealers on black market
- Maintaining a created network with colleagues from Serbia, Croatia and Bosnia and Herzegovina and making connection with colleges from Albania and Kosovo for making regional, common action plan for karst viper.

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?

The Rufford Foundation logo was used during the whole duration of the project. Logo is printed on the leaflets, posters and t-shirts, cups that were prepared during this project.

RSGF received publicity during this project, on the two TV stations, during our fieldwork, lectures on the Faculty of Mathematics and Natural Sciences – Department for Biology, several primary and high schools, exhibitions and meetings with the decision markers, locals and mountaineers.

11. Any other comments?

I am very thankful to the RSGF because it has recognised the problem of this kind. RSGF is one of the first foundations that funded the work on this problem in Montenegro, it helped a lot in collecting very valuable data, also, it helped me and my team to develop our skills and improve our knowledge. That is the opportunity that we wouldn't have if it wasn't of its help and trust, and we are very grateful for that. The data and samples we collected are unique and important for the future protection of the karst viper and its sub-alpine and alpine meadows.

I also hope that RSGF will continue the funding of these activities in order to determine detail distribution of this species in Montenegro and prevent it's disappearance, because in Montenegro decision makers and local population still have lack of awareness about the importance of endangered species and its habitats for man.