

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 | Tijana Čubrić |
| Project title | Nose-horned viper in Serbia-continuation of monitoring population status and conservation efforts |
| RSG reference | 23392-2 |
| Reporting period | 5 th September 2017- 5 th September 2018 |
| Amount of grant | £5000 |
| Your email address | tijanacubric@hotmail.com |
| Date of this report | 16 th September 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 |
|---|--------------|--------------------|----------------|---|
| Continuation of population monitoring to draw population trends and assess the status of this /species in Serbia | | | | We have collected considerable amount of demographic data, genetic samples (some of them are already analysed) and we have taken buccal swabs for parasite analysis. Our data have already showed some preliminary results and foundation for future monitoring. |
| Camera traps | | | | We have successfully installed our camera traps. Even though snakes are tricky due to their small size, we have obtained some important information about their behaviour. |
| Investigation of venom markets | | | | We have some problems with obtaining the real info from local collectors about the byer of the venom. The only manufacturer of anti-venom and buyer of venom in Serbia is Institute for Immunology and Virusology Torlak in Belgrade but according to the law and according to their statement, they are not buying the venom from Serbia. Therefore, we have conducted additional research and presented the results in this and detailed report. |
| Continuation of creating better understanding of nose-horned vipers and snakes in general and help in changing the social perception of this rarely aggressive species through education activities | | | | According to our interviews with local habitants on the locations we have visited and did our education activities, their opinions are different. About half of them have already changed the ill-deserved attitude towards nose-horned viper but the other half stays persistent in their opinion. Regarding our new lectures from this year, the schoolchildren and mountaineers were quite interested to hear about snakes and they engaged with us. |

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

We have had two difficulties.

First, we had problem with the weather in the Krupanj surroundings, so we needed to stop our field work after few days and conduct second field survey the next season. This resulted in spending more money on the fuel than previously planned, but we were able to tackle this by saving money on food.

Second, as I have already written in the objectives paragraph, we have some problems with obtaining the real information from local collectors about the venom buyer. We have tried to tackle this problem by conducting research on the internet and by surveying the hospitals in Serbia i to obtain information where they buy the anti-venom. Therefore, we could perhaps recognise if there is another manufacturer who could be purchasing venom from local collectors.

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

*First stage of monitoring-obtaining preliminary results on selected populations.
We have continued our monitoring on five populations which we have started during our last project and we have included two new ones. Preliminary analysis indicated that the biggest population is at Svilajnac surroundings and the smallest one is in Đerdap National Park. Regarding individual animals, 50.68 % of them had negative body condition index which could indicate that they are in poor health. We have collected buccal swabs for parasite analyses and we will analyse them soon. We have collected considerable amount of demographic data, but we lack more findings in analysed populations where low number of individuals was detected so far. This result is important for two reasons. First, our government bodies will have, for the first time, published population data on this species and will be able to react and even to monitor the populations which are in the protected areas. Second, we are using methods which are easily repeated on any other population of nose-horned viper so the colleagues from surrounding countries can use them in their respective countries and therefore our results will be comparable. Further, our camera trap has already given some interesting data about thermoregulation and habitat use of this species, but we need more data to publish it.

*Venom investigation market

We have talked with the local collector in Krupanj surroundings (village Sokograd) and he insists that he sells the venom to the National Institute for Immunology and Virology "Torlak" in Belgrade and that he has "license" for this. Even though this certainly was the case in the past, this is not true now. Namely, we have communicated with the authorities of the Immunological Institute "Torlak" to ask them do they purchase vipers from Serbia and their answer was negative. They answered that they obtain animals from import (mostly from neighbouring country Montenegro, where this species is unfortunately unprotected). We have then contacted Institute for Nature Protection and asked them if it is legal to purchase snakes in Serbia and they said that there is a ban for collecting nose-horned vipers

for several years now. In Institute for Nature Protection, Rastko Ajtić (who is herpetologist in charge) has tight relationships with the inspectors for nature and environmental protection and they monitor every imported snake. After this, we asked the state and private hospitals in Serbia for the name of the manufacturers of the anti-venom they use. Hospitals which were willing to answer us named Institute for Immunology and Virology "Torlak" as the manufacturer of the venom they use. Then, we have searched the internet and the literature data for manufacturers of anti-venoms and other medical companies which sell raw venom to the manufactures and medical researchers. We did not find any other company besides "Torlak" in Serbia. (Please see our full detailed report for more details). Besides further investigations in other parts of Serbia in order to find other local collectors (if they exist) willing to talk and sending the report of our findings to the Institute for Nature Protection in Serbia, the only efficient way to find out who is buying the venom could be transboundary collaboration between scientists and government bodies in their respective countries, where we could collect the samples of vipers used for venom production and do genetic analysis in order to find their country of origin and try to react accordingly.

Social influence as a tool in the conservation. The children in schools and members of mountaineer societies were very interested to hear about snakes. We have filmed our amateur educational video where we speak about proper procedure in case of encounter with nose-horned viper and in the case of the snakebite, about different venomous and non-venomous snake species which inhabit Serbia and about importance of the snakes in general. We have uploaded it on You Tube here: <https://youtu.be/VHzXTJVq4QU> and we have also put English translation for people from other countries within this viper's range. Based on our interviews with the local farmers we saw that some of them are slowly changing their opinion about this viper. We have concluded that repeated conservation actions and engagement with them can drastically change their attitude. We also have nice following and engagement on our Facebook page (<https://www.facebook.com/sacuvajmoposkoka>). We have also formed a blog where we write some interesting facts about snakes (<https://snakecorner.wordpress.com/>). The main threat to this viper are humans (through killing and harvesting). So, enabling people to know the real information and making them understand the importance of preserving this species (and its impact on members of their own community) is a powerful tool in conservation.

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

First community involvement included local farmers from our fields. They have direct benefit from us as we have obtained them with proper information (and brochures) about proper procedure to avoid snakebite and about proper procedure in the case of snakebite. Further, mountaineers had opportunity to hear about those information during our lectures. Both local farmers and mountaineers are the people who are most commonly encountered and sometimes bitten by this viper. Additionally, we have conducted small contest on our Facebook page e.g. if our followers send us photograph of the snake, we send them symbolic prize in the form

of brochure containing information about venomous and non-venomous snakes in Serbia.

5. Are there any plans to continue this work?

Yes, I am planning for sure to continue my work. Our government gives small amount of grants for nature protection but I will try to apply for the funds from the other foundations.

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

Regarding scientific community, we are in the process of publishing one paper. One short note is already published (<https://biotaxa.org/hn/article/view/28402>). There are also reports about our activities on my Researchgate page (https://www.researchgate.net/profile/Tijana_Cubric).

Regarding government bodies, we have already sent in the past reports to the Institute for Nature Protection in Serbia and we are planning it to send again.

Regarding wider community, there was interview on the radio station "Zlatousti" of the capital of Central Serbia - Kragujevac about our project and we are also sharing some information through our social media. We will also show our film to any interested party.

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

In September and October 2017. We spend grant on three fieldworks and on equipment (camera traps and dataloggers) and on printing the brochures. From November 2017 to March 2018, the nose-horned viper hibernates so we did not spend grant during that period. Then from March to August 2018. We have spent grant for the fieldwork.

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 |
|---|-----------------|---------------|------------|----------|
| Field trip(fuel)-Djerdap 520 km in both ways | 69 | 69 | 0 | |
| Field trip (fuel)-Lazarev Canyon 450km in both ways | 62 | 62 | 0 | |
| Field trip (fuel)-Jelasnicka | 52 | 52 | 0 | |

| | | | | |
|---|------|------|-----|--|
| klisura 370 km in both ways | | | | |
| Field trip-Kragujevac 170 km in both ways | 28 | 28 | 0 | |
| Field trip (fuel) – Ibar Valley 154 km in both ways | 26 | 26 | 0 | |
| Field trip (fuel)-Krupanj 438 km in both ways | 55 | 110 | +55 | We had problem with the rainy weather so we had to break field trip in two parts. |
| Field trip (fuel)-Svilajnac 246 km in both ways | 31 | 31 | 0 | |
| Road tool (4 in both ways) | 15 | 15 | 0 | |
| Accommodation, food + drink for all 7 fields for 3 persons | 2782 | 2770 | -12 | We spent less as we have saved money |
| Education material (print of 1000 leaflets, 50 posters, 50 t-shirts and 150 questionnaires) | 700 | 700 | 0 | |
| Camera trap equipment | 600 | 600 | 0 | |
| Dataloggers iButton | 270 | 270 | 0 | |
| Fuel for lectures at Universities in Nis, Kragujevac, Novi Sad and Belgrade | 100 | 100 | 0 | |
| Laser for analysing distance data for estimating density of populations | 200 | 200 | 0 | |
| Provision that bank takes for the transaction | 10 | 15 | +5 | The bank took bigger provision |
| TOTAL | 5000 | 4993 | 7 | We have saved 55 GBP on food in order to conduct second half of field trip in Krupanj. Note that in the budget that 55GBP are in accommodation, food and drink part. |

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

- It is from immense importance to continue our field research to obtain sample size large enough to satisfy statistical requirements to do and publish demographic studies.
- Regarding our previous step, it is also important to widen our research area to as many locations (populations) as possible to get the wider picture and more information about populations, their habitats and threats.
- Large scale genetic analyses are very important at this point as they can provide information on important questions quicker than monitoring.
- Further, radio telemetric studies would be very useful to give us information about habitat use, reproduction patterns, growth rate, data about natality

and mortality. This is non-invasive method which produces important data which are used in any conservation planning.

- Education must be continued. It would be very useful that besides our lectures and our documentary, we do series of other documentaries about snakes in Serbia and photographs exhibition with symbolic prizes for participants.

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 have used Rufford Foundation logo on our brochures, lectures, t-shirts and on our documentary. Both members of local communities and students have heard about the Rufford Foundation. Also, we have and we will acknowledge The Rufford Foundation as a financier in our papers.

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

Tijana Čubrić - Project manager, working on field, analyzing data, education activities, filming, producing and narrating the amateur video.

Jelena Jovanović - Field work

Jelena Mijatović - Field work

Marko Maričić - Field work and education activities

Nikola Vuletić - Logistic help

Dr Jelka Crnobrnja-Isailović - Appearing in our amateur educational video

12. Any other comments?

I am using this opportunity to express my enormous gratitude for your help in enabling me to do something practical for this neglected snake. It is sometimes very hard to obtain funds for conservation of snakes as they are neglected and far from charismatic animals. So, in the name of the nose-horned viper-THANK YOU. Also, I want to thank in my own name as I would not be able to do my PhD thesis in this capacity without the Rufford grants and definitely would not be able to do any practical conservation work.

