

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	Slavica Vaselek
Project title	Diversity and spatial distribution of sandflies and pathogens they transmit (leishmania, phleboviruses) in Vojvodina province (Serbia)
RSG reference	13981-1
Reporting period	September 2013 - September 2014
Amount of grant	5944£
Your email address	slavica.vaselek@gmail.com
Date of this report	07.12.2014.

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
Updated inventory list of sandflies species of Vojvodina			x	During our survey beside of confirmation of previously recorded species we recorded one new species that has never been found in Vojvodina.
First data of phlebovirus occurrence and frequency of leishmania			x	Presence of leishmania was never recorded in Vojvodina region until now - we found first leishmania positive sandfly from this region.
Spatial distribution of sandflies species, leishmania and phleboviruses		x		Considering the fact that Vojvodina has total surface approximately 21,500 km ² and that weather condition were not suitable for field work it was impossible to cover all areas. Mainly we focus on Banat district which was hotspot for sandfly (papatasi) fever and district Srem and Backa were covered only half. But data that we collected strongly suggest the fact that sandflies have wide distribution in all 3 districts of Vojvodina.
Location of the hotspots with highest density and/or diversity of these insects and pathogens		x		One season of fieldwork is not enough to cover all areas and complete full picture about distribution of sandflies and pathogens they transmit. With data that we collected from this year field work we have a better understanding of potential patterns of distribution and we can plan next year field work.
Dissemination of information about progress and results to stakeholders for human, wild and domestic animal health			x	We achieved superb collaboration with veterinarians. They helped us to establish excellent collaboration with local people. We also established collaboration with Institute for Human health in Novi Sad and strengthened our previous collaboration with other faculties at our University and Veterinary Institute in Novi Sad.
Education, motivation and training of young researchers and students			x	Many students and researchers (from Serbia and Turkey) from different areas of expertise showed interest in this subject. We worked closely together directly at the field and in the lab exchanging knowledge's and experience. Hopefully by the next field work season we will collaborate with many

				of them.
Publication of the results			x	Newly generated interest in sandflies and leishmaniasis resulted in invitation for a lecture at Faculty of Natural Sciences where we will be able to share our result and observation, have chance to exchange ideas with other scientists and interest students and young researchers in this topic. Data will be published in one of the prestigious international journals, presented in 2 nd Conference for European Network for Neglected Vectors and Vector-Borne Infections and be included in VECTORNET.

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

First of all, main difficulty was caused by poor weather conditions. Whole field work season was rainy, cold and windy. None of these conditions suits for sandfly research. Nevertheless, field work was organised and carried out whenever it was possible.

Secondly, some of our traps were missing after night at the field, so we decided to make new ones. Ordering standard traps for sandflies is very expensive and it takes a few months for them to be delivered from US. Because we didn't foresee these kinds of expenses and we didn't have time to wait for delivery, making traps was optimal and economic solution.

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

Three most important outcomes of this project are: (1) updated inventory list of sandflies species of Vojvodina, (2) first data of occurrence of leishmania and (3) education, motivation and training of young researchers and students.

- (1) Updated inventory list of sandflies species of Vojvodina – According to the data from old literature, in Vojvodina were present only three sandfly species. During our survey we recorded one new species never before found in this region. This species is a proven vector of leishmaniasis, and because of that, this finding is extremely important both from veterinary and medical aspect.
- (2) First data of occurrence of leishmania – Several specimens that we collected tested positive on leishmania parasite. This is the first finding of leishmania in Vojvodina and first finding of leishmania in Serbia after almost 40 years.
- (3) Education, motivation and training of young researchers and students - Because reemerging leishmaniasis is a hot subject in Serbia we organised several lectures concerning sandflies, their biology and ecology, vector capacity and pathogens they transmit with special emphasis on leishmania. Large number of students was present mainly from 3rd and 4th year of studies and they showed genuine interest for further education in these subjects.

During the summer our colleagues from Turkey joined us at the field and laboratory. We worked closely with two students (MSc and PhD) and two professors who are experts in this area, and during this time we had both exchange of knowledge's and training.

Education and training are very important for us, and we hope that by the next field work season we will establish permanent team of young scientists, students and supervisors so we can expand our research and sped it up.

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

Organising field work in such a large area and make a right decision about which localities to visit is never an easy task, especially when the amount of data is very limited. Establishing collaboration with local veterinarians helped us a lot with resolving this problem. Veterinarians enable us to make close contact with local people and gather useful information about most suitable places to put traps, time period of insect activities etc. We shared our knowledge's both with veterinarians and local people, and after they got proper information and education, local people were interested in our work, more involved and prepared to help us.

5. Are there any plans to continue this work?

Yes, most definitely. Serbia is one of the Balkan countries in which sandflies are absolutely neglected group of vectors, and diseases which are caused by leishmania and phleboviruses are almost unknown as a threat.

Finding of sandflies that are proven vectors of leishmania and finding of leishmania positive sandflies urge the research of these insects not just in Vojvodina but also in all other parts of Serbia, especially in the south-west and south in areas which in the past were hotspots for leishmaniasis.

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

Because these are the first data for Vojvodina after more than 60 years of silence, publication of the results is very important, not just for us but for everybody that work on this topic. Data will be published in one of the prestigious international journals. All data will be included in the database of European network for sharing data on the geographic distribution of arthropod vectors, transmitting human and animal disease agents (acronym: VECTORNET). Results will also be presented in 2nd Conference for European Network for Neglected Vectors and Vector-Borne Infections. We are invited to give lecture at the Faculty of Natural Sciences, and beside that we plan to continue with presentation of results in Serbia and University of Novi Sad.

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

The RSG was used from September 2013 to September 2014. This corresponds to the anticipated length of the project. At the beginning grant was used for purchase laboratory supplies and chemicals so we could prepare for the upcoming field work. During the summer we spend majority of money for field work, and the last part of the money was used for laboratory pathogen testing.

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 work travel costs	1163	800	+363	During the preparation of this project we didn't know how much area we would manage to cover within the field activities, and for precaution we calculated a little extra money for travel costs
Wages for field work	1024	1024	/	
Daily allowance	614	614	/	
Wages for laboratory work (identification)	1024	1024	/	
Wages for laboratory work (pathogen testing)	512	512	/	
Pathogen testing (leishmania, phleboviruses)	682	650	+32	We manage to arrange lower price
Costs related to lectures and presentation work	222	250	-28	Several locations were out of the city, so we had travel costs
Promotion material (designing, printing)	64	/	+64	Material was printed for free and all funds were rerouted for making new traps
Consumable laboratory material (identification)	213	250	-37	Because we didn't know how much material are, we going to have we bought a bit over the recommended budget
Consumable chemical (field and laboratory)	426	350	+76	Some of the chemicals (e.g. alcohol) we bought for lower price
Making new traps	0	470	-470	All extra funds from travel costs and printing material were rerouted for making new traps
Total	5944	5944		

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

With this project, we prove that vector species of sandflies are present in Vojvodina and that circulation of pathogen/disease exists. The most important step that we should definitely do is to widen our research area on all Serbia, for start only on south-west and south Serbia and then to all other parts. More detailed data will allow us to have a better perspective on sandfly composition and possible locations for hotspots of disease, and then we can suggest a plan for monitoring or surveillance of sandflies (depending of the results).

New traps that we made showed very good results in field and we should compare them with other traps traditionally used for sandfly collecting.

**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 of course. Logo is put on every trap that we made, also during every presentation and lecture logo was displayed on plane site. Promotion material also contains logo, and poster that we plan to prepare for conference will have logo on it.

11. Any other comments?

During this project we manage to strengthen collaboration with our colleagues from Turkey and Veterinary Institute of Novi Sad and we manage to establish many new international and national contacts which will hopefully result in future collaboration.



Top left: CDC light trap placed near the dog shelter. Top Middle: Collecting traps from chicken shelter. Top right: Preliminary counting of sandflies. Bottom left: CDC light trap and carbon dioxide trap placed near dog shelter. Bottom right: Dissection of sandflies.