

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	Dejan Kulijer
Project title	Research and protection of threatened dragonfly species and habitats in the Mediterranean region of Bosnia and Herzegovina
RSG reference	13017-2
Reporting period	June 2013 – May 2014
Amount of grant	£5,975
Your email address	dejan.kulijer@gmail.com
Date of this report	25.09.2015.

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
Field research and data collecting		+		<p>Our work significantly increased the knowledge of the dragonfly distribution in the region, particularly on the distribution and habitats of rare and/or threatened species: <i>C. ornatum</i>, <i>C. microstigma</i>, <i>L. tetraphylla</i> and <i>C. heros</i>, was main segment of the project. Presence of <i>L. macrostigma</i> and <i>G. schneiderii</i> in BiH was not confirmed by our research, but the survey will continue.</p> <p>During c. 50 field days with more than 40 people involved, we collected data from c. 70 localities and collected more than 1,000 new records.</p> <p>Part of our work was planned to focus on population research of several species. We conducted investigations at multiple locations for <i>C. heros</i>, and partially for <i>C. ornatum</i> and <i>L. tetraphylla</i>. This showed to be quite complex task that needed group of people to be present large part of the season in the area. Taking into account that additional funds for research were secured from CEPF, this task will continue in forthcoming year(s).</p>
Identification and protection of habitats of threatened species			+	<p>Our work focused on five most important dragonfly areas in the Trebišnjica, Trebižat and Neretva catchments and karst poljes of the region. In these areas we found new localities of target species and started the work on the proposition of potential Natura 2000 sites for dragonflies in the southern part of Bosnia and Herzegovina.</p> <p>In collaboration with Hutovo blato Nature Park we started monitoring in order to identify area of the park that should be given special attention and proposed conservation measures for this area.</p>
Capacity building and cooperation			+	<p>Important cooperation was established with Slovene Odonatological Society (SOD) that will continue in the future. The involvement of SOD is important as they can significantly contribute with their</p>

				<p>knowledge and expertise, particularly in research and protection of threatened species and the development of monitoring plan.</p> <p>Nature Park Hutovo blato was our main and most important partner during the project. They provided valuable assistance in personnel and vehicles for field work in the Park.</p> <p>The project helped us to expand our network of local and foreign researchers, and organize training for students (field research in groups in Hutovo blato, organisation of the Balkan Odonatological Meeting). During field work we conducted basic training for several students and BIO.LOG members that improved their skills in dragonfly identification and field research.</p> <p>We acquired field guides, nets and small boat that were valuable for the research and essential in our further work in future. The project was important for capacity building of the BIO.LOG Society. This will help us in the future in organisation and implementation of similar projects.</p>
Presentation of the results and public awareness			+	<p>We establish a webpage of the project with the goal not only to present project info, but also to promote and share information's on dragonflies, their significance, diversity and need for conservation. We intend to update regularly the webpage with further activities on dragonflies in the country, as well as other important information from the region. Web site is available at www.biolog.ba/odonata. Information on project activities, as well as produced reports and publications are available here. Several scientific articles and reports were published in local and international journals and bulletins. The results were also presented at several international congresses.</p> <p>We prepared and printed posters and flyers in order to improve awareness on the significance of dragonfly protection BiH and the region. Posters and flyers were</p>

				<p>distributed to NGOs, student associations, national and regional conservation authorities and protected areas. They will be also distributed during future activities of the BIO.LOG Society.</p> <p>During the project several meetings were conducted with stakeholders and local organisations (Nature Park, NGOs and Ministry) in order to introduce them with our work and the importance of the area for dragonflies.</p> <p>Network of scientists, students and volunteers from the country, region and wider, is important for our future work and promotion. Several students from BiH participated in field and training activities and the meetings. The Balkan Odonatological meeting gathered 22 participants, mainly students, from West Balkans and Germany that also participated in field work in the study region.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Field research and data collecting was successful, but the population research was found to be more complex and demanding. The one season period for multiple species population research was found to be insufficient. Particularly for mark/capture/re-capture of *Lindenia tetraphylla* in complex and hardly accessible Hutovo blato wetland and was also affected by severe floods that happened in the region in 2014.

As this segment of the project is not fully finished we plan to continue it in following years, and for this we already managed to secure additional funding. We believe that the impact of these changes on the overall project is very limited, as we will continue with the population research after the official end of the project.

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

Sites for protection of *C. ornatum*, *L. tetraphylla* and *C. heros* will be proposed for protection and to be included in the proposition of the countries Emerald/Natura 2000 network.

During the project large amount of new scientific data on species and habitats from the country are collected. New populations of two species of European conservation concern *C. ornatum* and *C. heros*, and several nationally rare and threatened species, were discovered.

We established website, the members of the group organised regional scientific meeting in the Bosnia and Herzegovina (Balkan Odonatological Meeting).

But we believe that the most important result is that the work on dragonfly research and protection will not finish with this project and our work on research and protection of threatened species continues.

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

Our work focused on cooperation with professionals and amateurs working in the area of nature management and protection, as well as on collaboration and education of students. Particularly the work with students at local university is significant and important for the future, as they will be engaged in data collecting and monitoring in the region.

Network of scientists, students and volunteers from the country, region and wider is important for our future work and promotion. Several students from BiH participated in field and training activities and the meetings, The Balkan Odonatological meeting gathered 22 participants, mainly students, from West Balkans and Germany that participated in fieldwork. As a result of this, as well as previous project supported by Rufford Foundation, four students continue to work on dragonflies with their diploma thesis that involved dragonflies.

One of the results of continuous work with students during the Rufford projects was the discovery of *L. caudalis* for the first time, for the country. As it is extremely rare and critically threatened species in the Balkan region, this represented a great new finding.

5. Are there any plans to continue this work?

Yes, and already during the project we were to secure funding for the continuation of our work in period from 2013 to 2015 from The Critical Ecosystem Partnership Fund (CEPF). This grant will be largely focused on continuation of the research and protection of threatened dragonflies in the Mediterranean region of BiH, as well as the proposition of future Natura 2000 areas for dragonflies in the same region.

In order to ensure better results in conservation of most significant sites, it is important that in the future we involve more stakeholders and also to try to coordinate work with organisations working on the protection of other species and habitats in the area. This will also enable that we and other local organisations better use available funding and prevent unnecessary duplication of work. It will also ensure better acceptance of the initiative and strengthen it and its impact.

The involvement of foreign experts was successful in knowledge exchange. Their experience was very important, especially their knowledge of some aspect of field research and conservation process. It was also a base for further development of cooperation on regional level that will contribute to the knowledge of Odonata fauna of the Balkans, one of the least investigated regions of Europe.

We are committed and highly motivated to continue our work in the future. The equipment, skills and lessons we learned with this project are valuable for our future research and conservation work, not only on dragonflies, but also on the protection of other threatened species and habitats in the region and the country.

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

During the project significant attention was given to the presentation and sharing of the results. Scientific data were presented in scientific articles as well as several regional and European dragonfly meetings and congresses, and at World Dragonfly Congress (International Congress of Odonatology). The list of papers, presentations and other reports and articles is given in separate file.

Several short reports, as well as reports on Balkan Odonatological Meeting, were published in local and international journals and bulletins.

All collected data were entered in country database and also submitted for the European Dragonfly Atlas project. The data will be also available for the planned Balkan dragonfly atlas and nature conservation projects in the country.

The web site on dragonflies of BiH was developed. Its purpose is not only to present data on the project, but also to be source for all information on dragonflies of the country, to present dragonfly news and strengthen cooperation in the country and the Balkan region. It will also contribute to the conservation work and long term protection of threatened species and habitats in the country.

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 Rufford grant was used from June 2013 to August 2014. Compared to the plan (May 2013 – May 2014), the project started month later (June 2013, as the money was received at the end of May. For the end of the project, we decided to use the grant during further three months in order to gather additional data and include full season 2014, and also to contribute to the Balkan Odonatological Meeting that was held in Bosnia and Herzegovina (www.biolog.ba/odonata/boom).

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
Fuel expenses for field research	1950	1850	-100	Due to lower costs of the fuel
Boat for field research	200	180	-20	Acquired at lower price
Accommodation & food for field research	2010	1900	-110	Lower costs of accommodation than predicted
Entomological supplies	100	120	+20	Additional supplies purchased
Field camp costs - fuel	285	430	+145	More participants and vehicles during the field camp
Field camp costs - accommodation and food	600	600		
Field camp costs - hand nets	80	100	+20	Higher price than planned
Field camp costs - field guides	50	67	+17	Higher price than planned

Design and printing of a brochure – 2000 copies	600	700	+100	The money was used for the info flyer on research of <i>L. tetraphylla</i> in Hutovo blato, poster on the threatened dragonflies of the region and their habitats, as well as development of the web site, that we thought to be better than additional brochures, as we already produced significant printed material from first Rufford project, as well as now.
Communication and postage costs	100	100		
Total	5.975	6047	+72	The additional expenses were covered by BIO.LOG Society projects

The exchange rate was variable during the period of the project implementation. The average exchange rate was 1GBP = 2,34 BAM

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

- Research and monitoring of populations of threatened species.
- Collaboration with national and local nature conservation authorities and NGOs.
- Further work on popularisation and public awareness.

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 used the RSGF logo on posters, flyers, web sites, for congress presentations and reports in bulletins and journals. The printed materials with the logo was and is continuously distributed to educational and nature conservation institutions and NGOs. It was distributed at Balkan Odonatological Meeting in Macedonia this year, and will be also at the next European Odonatological Congress in Sweden and Balkan Odonatological Meeting in Serbia 2016. Additionally it will be distributed during local events and conferences organised or participated by BIO.LOG members.

11. Any other comments?

We would like to thank RSG Foundation for the support to the research and protection of dragonflies and their habitats in Bosnia and Herzegovina. We believe that the project was very successful and resulted with important scientific data. The project also helped in bringing people who are interested in dragonflies and who will continue this work in the future together.

A lot of time and effort of all team members was invested, but still some of the activities need more time and human resources than it was available. We will continue our efforts on the development of monitoring at important sites and encouraging more people to join us.

While working on the project our team grown stronger, better skilled and prepared for new challenges, and also determined to continue our work. The team is looking forward to continue collaboration in the future for the benefit of nature and long-term preservation of species and habitats.

The results of the research were presented in scientific articles and at international congresses. Below is the list of these articles and presentations. Several more papers and presentations are in print or in preparation.

- Kulijer, D., 2015: *Sympetrum flaveolum* in the Dinaric Alps (Odonata: Libellulidae). *Libellula* 34(1/2): 91–101.
- Kulijer, D., 2014: Odonata fauna of karst streams and rivers of South Herzegovina (Bosnia and Herzegovina, West Balkan). IDF-Report. Newsletter of the International Dragonfly Fund 72: 1-50.
- Kulijer, D., Topić, G., 2013: First record of a Balkan population of *Ceriagrion tenellum* outside the influence of the Mediterranean climate (Odonata: Coenagrionidae). *Libellula* 32(3/4): 97-108.
- Kulijer D., De Knijf G., Franković M., 2013: Review of the Odonata of Bosnia and Herzegovina. *Odonatologica* 42(2): 109-123.
- Vilenica, M., Kulijer, D. & Gligorović, B., 2014: New data on distribution and threats to the populations of *Caliaeschna microstigma* at the north-western edge of its range. In: Abstract book - 3rd European Congress on Odonatology, Montpellier, France, p. 31.
- Kulijer, D., De Knijf, G., Franković, M., 2013: Distribution and protection of dragonflies of European conservation concern in Bosnia and Herzegovina. In: ICO 2013 Book of Abstracts, 2013 International Congress of Odonatology, Freising, Bavaria, Germany, p. 32.
- Kulijer, D., 2013: Importance of karst poljes for the protection of rare and threatened dragonfly species. In: ICO 2013 Book of Abstracts, 2013 International Congress of Odonatology, Freising, Bavaria, Germany, p. 57.
- Vilenica, M., Kulijer, D., Kitanova, D., 2013: Distribution and threats to the populations of *Caliaeschna microstigma* (Schneider, 1845) at the western edge of its range. In: ICO 2013 Book of Abstracts, 2013 International Congress of Odonatology, Freising, Bavaria, Germany, p. 31.

Additionally, the Rufford Foundation was mentioned in articles and reports related to Balkan Odonatological Meeting (e.g. Agrion, Erjavecija, Fondeko) and an article „The fascinating world of dragonflies“ in Fondeko svijet, the best scientific revue on nature, people and ecology, in Bosnia and Herzegovina.