

## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
<b>Your name</b>	Marina Kipson
<b>Project title</b>	Strengthening the support and scientific evidence for conservation of "Europe's Amazon" through monitoring of bats as bioindicators and involvement of community
<b>RSG reference</b>	10385-1
<b>Reporting period</b>	12 months
<b>Amount of grant</b>	£5974
<b>Your email address</b>	<a href="mailto:marinakipson@gmail.com">marinakipson@gmail.com</a>
<b>Date of this report</b>	04.09.2012.

**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
Identification of bats as bioindicators along Mura and Drava rivers			X	We were able to identify bat species that live along Mura and Drava rivers, the first step that is necessary to establish further monitoring scheme. In total, 15 bat species were identified, making this more than a third of all bat species occurring in Croatia (35 species in total).
Development of monitoring protocols in the researched region			X	The initial data helped to filter out sites that can be used in the following years as key monitoring sites and a standardised method for the chosen localities has been developed.
Raising awareness through educational lectures and workshops			X	Lectures and workshops were held in Međimurje County in three elementary schools, mountaineering club and in a regional lecture hall in Nedelišće organized for general audience; five lectures in total.
Inclusion of the results into Natura 2000 Network (cooperation with the Ministry of Environmental and Nature Protection and State Institute for Nature Conservation)			X	Both Institutions were notified and will be presented with data gathered through the project. Since data on bat fauna in the region is scarce, cooperation with the State Institute for Nature Protection is already underway in order to incorporate the results into the future Natura 2000 Network.
Building a platform for establishing a future volunteer network		X		We established an excellent cooperation with the staff of Regional office for Nature Protection (Međimurska priroda) who participated in all of our fieldwork activities. However, only a few enthusiasts from local community showed an interest in active involvement. Although people found the idea interesting, they lacked the incentive to get involved, especially on a voluntary basis. Unfortunately, we feel that this aspect of the project did not reach its full potential.
Promotion of the project			X	Basic information about the project was printed on a A4 leaflet (40 pieces) that

				was distributed in the local community during fieldwork; text about bats and the project was published on regional internet portals, web pages of Regional office for Nature protection (Međimurska priroda) and is in preparation for publishing in their yearly magazine; a lecture was held on an interdisciplinary conference “Environmental history of the Regional Park Mura Drava Area” and a poster is being prepared for Croatian Biological Congress; by the end of the year a column will be published in Draškovec school newspapers.
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

In early summer months (June/July 2012) water levels of both rivers were extremely high, with floods threatening inhabited areas in our research region. This made certain localities inaccessible, mainly because they were covered with water. Also accessing some of the desired sites during drought season posed quite a task and we fully acknowledge the name “European Amazon” for our study region. We therefore extended the research period and made an additional fieldwork visit in August 2012. This was within our budget limit because the beginning of our research started in August 2011 instead of July 2011, after the initial funds were received.

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

**i. Gathering valuable scientific data on a national and international/regional level**

Regional Park Mura-Drava was designated in 2012 as a part of the UNESCO Biosphere reserve Mura-Drava-Dunav and parts of it will be included into the future Natura 2000 Network. The research on bat fauna that we conducted was the first systematic one from Croatian side and provided with results that can directly be included into existing legislatives concerning biodiversity conservation. Since bats were recognised as good bioindicators, this data can serve as a baseline for monitoring in our researched region.

During the course of the project we found as much as 15 bat species in the area, of which 11 were not previously known to occur in the region. As much as four species are listed under EU Habitats Directive (future Natura 2000 species: barbastelle bat, *Barbastella barbastellus*; Bechstein’s bat, *Myotis bechsteinii*; greater horseshoe bat, *Rhinolophus ferrumequinum*; greater mouse-eared bat, *Myotis myotis*) that directly inform about good ecosystem health, primarily forests and waters (confirmed on four localities).

Other collected data provided new information on species distribution and frequency of which individual bat species can be found at different localities. This is a vital step for future monitoring scheme that can enable conservationists to draw conclusions about potential changes in the environment.

## ii. Key monitoring sites and adjusted standardised method

Long-term data are the key in assuring the health of an ecosystem and in informing biodiversity conservation legislations that Croatia is a part of (Eurobats Agreement, Convention on Biological Diversity, Convention on Migratory species and Natura 2000 Network), with bats making a valuable target group in this respect.

Through this project we identified key monitoring sites that would provide the best output data in tracking changes of bat fauna. The sites are chosen on the basis of mistnetting and echolocation transects results (this included more than 15 hours of recording) and are distributed evenly through the region with respect to habitat structure and proximity to rivers (seven sites from 13 researched sites in total). We also propose a standardised monitoring method (for echolocation transects), which is adopted and adjusted from Slovenian bat monitoring scheme, based on our experience.

Species listed under Habitats Directive have a particular value as bioindicators because they can directly inform about general habitat quality. However, they are usually also more difficult to notice. Therefore, essential species on our sites will be the ones which are most abundant. Abrupt and sudden changes in occurrence and activity of these species are a valuable source of information that can help in generating a bigger picture in environmental changes. The most abundant species that occurred on majority of localities (determined primarily through echolocation transects) were greater noctule (*Nyctalus noctula*), Daubenton's bat (*Myotis daubentonii*), soprano pipistrelle (*Pipistrellus pygmaeus*) and Nathusius'/Kuhl's pipistrelle (*Pipistrellus nathusii/kuhlii*).

Church attics and towers that contain bat colonies will have a special monitoring scheme. During the project, we entered 20 facilities and found roosts in eight of them. These sites could be a cause for a direct conflict with humans, so an additional education and good cooperation with responsible people will be necessary in order to maintain these colonies.

## iii. Support and interest in our work by stakeholders

The project got the support from the Regional office for Nature Protection (Međimurska priroda), whose staff participated in project fieldwork and gave us logistic support.

A detailed report with proposed measures and monitoring sites will be presented to State Institute for Nature Protection. Collaboration is already assured and the data we gathered should be included in an existing database supporting the Natura 2000 Network.

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

During an educational workshop in Nedelišće elementary school, we installed two bat houses in their school yard which should be checked for new inhabitants by the school children in the following years. Another bat house was given to Sv. Martin na Muri elementary school after the lecture was given.

Column for Draškovec school newspaper will come out by the end of the year. We also plan to continue the collaboration with the school children with a project of monitoring the bat colony which is located in their village church tower.

Staff of Međimurska priroda invited us to hold a lecture on project results for general audience in Nedelišće lecture hall. They were also provided with research data and text for their yearly publication which can be useful in the promotion and conservation of the protected area they govern.

People and school children who attended the lectures (around 200 participants in total) got a chance to learn about the biodiversity of bat fauna in their region and its significance. At the fieldwork season smaller number of local community members participated in our research and learned about fieldwork techniques.

### **5. Are there any plans to continue this work?**

Future plans include:

1. Continuation of monitoring on predetermined sites and buying the necessary equipment for its realisation
2. Working intensively with the members of the local community and school children in order to raise their interest into the research
3. Promotion of the project in general audience, organising lectures, media coverage, workshops and organising the first European Bat Night in the region
4. Creating an international cooperation between NGOs from neighbouring countries (Slovenia and Hungary) in order to create a unified database
5. Increasing the area of our research and inclusion of two eastern most Counties (Virovitičko-podravska and Osječko-baranjska County) of the Biosphere Reserve, with identification of further monitoring sites

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

The work was already presented with a lecture at the conference “Environmental history of the Regional Park Mura-Drava Area”:

- M.Kipson: Preliminary results of bat survey along Mura and Drava rivers and directions for future monitoring.
- Poster presentation will be held at Croatian Biological Congress:
- M. Kipson, D. Josić, J. Medvedović, P. Žvorc, M. Šalek: Results of conducted bat survey in the area of Mura-Drava Regional Park with directions for future.

The results will be used in cooperation with State Institute for Nature Conservation in filling in gaps for the region that will be particularly valuable in establishment of Natura 2000 Network.

A short summary of the results will also be sent to the Ministry of Environmental and Nature Protection.

### **7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?**

The predicted time length of the project corresponds with the actual length of the project. All the activities were performed in a given timescale (August 2011 – August 2012).

**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
Kestrel Pocket weather meter	202	275	+73	Changes in price due to taxes and customs.
Petterson bat detector D240x	1114	1230	+116	Changes in price due to taxes and customs.
BatSound Standard Ana. Software Ver. 4	403	0	-403	The analyses were performed using BatSound software package at Charles University in Prague.
Pesola Springscale Lightline 50 g	40	44	+4	Changes in price due to taxes and customs.
Mist net 3m long	37	42	+5	Changes in price due to taxes and customs.
Mist net 6m long (2x)	44	98	+54	Changes in price due to taxes and customs with additional piece of equipment bought.
Mist net 9m long (2x)	50	110	+60	Changes in price due to taxes and customs with additional piece of equipment bought.
Mist net 12m long (2x)	0	124	+124	Equipment needed for project conduction.
Poles for mistnetting (8x)	0	101	+100	Equipment needed for project conduction.
Zoom Handy H2 Recorder	0	179	+179	Equipment needed for project conduction.
Transport bag for poles	0	29	+29	Equipment needed for project conduction.
Garmin GPSMAP 62S	0	311	+311	Equipment needed for project conduction.
Bat house (3x)	0	54	+54	Installed during school workshop.
Daily wage	1920	1920	0	
Accommodation expenses	664	0	-664	Accommodation expenses were brought down to zero (tents and sleeping bags were used instead).
Transportation	1500	1450	-50	
<b>TOTAL</b>	5974	5967	-7	The budget went through significant changes; however the project was conducted within the budget limits.

**Currency exchange rate 1 GBP = 9.4 HRK.**

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

The most important thing would be to continue the monitoring in the following years in order for this project to leave a more permanent database that could be used as an argument for nature conservation. This is especially true in the face of financial and unemployment crisis that Croatia is currently facing and that will increase the pressure on natural sources. There are an increasing number of planned hydropower stations on river Drava and Mura that would change the river dynamics and irreversibly impact floodplain forests.

In order to preserve the region, it would be crucial to engage with NGOs from neighbouring countries that would form bat alliance and create a single database for the entire region. In this respect, I feel that bats as bioindicators are an ideal study group, especially due to their high mobility that enables them to cross borders, even national ones, such as rivers.

Furthermore, it is also important to activate the local community and gain their support. Therefore, a much greater attention should be given in mobilizing local community and making the project feasible in a long-term perspective.

### **10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?**

RSGF logo was used on A4 promotion leaflet that was distributed in the local community. It was also shown in PowerPoint presentations in lectures that were given in schools, among local community members and conference "Environmental history of the Regional Park Mura-Drava Area". It will also be used in the poster that is being prepared for Croatian Biological Congress. General information about the project and invitation for involvement in the research activities on different regional web pages also mentioned RSGF in assuring funds for project implementation.

### **11. Any other comments?**

I can honestly say that there were times during the project that were quite challenging and made me doubt my own abilities. However, I learned a lot through this project, especially about personal set of values and what a huge task it is to engage people into active involvement. I am thankful to RSGF for providing me the opportunity to implement this project and hope that the continuation of it will be even more adventurous.