

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	Anton Vlaschenko
Project title	Conservation and monitoring of <i>Nyctalus lasiopterus</i> in the Eastern Part of the species distribution range
RSG reference	20925_B
Reporting period	April 2017 – April 2018
Amount of grant	£8800
Your email address	anton.vlaschenko@gmail.com
Date of this report	April 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
Identification of the tree cavities occupied by Giant Noctule (GN) and estimation of the size of colonies.				Only one roost site was found in lime tree by radio-telemetry. It was a temporary roost of a single young male in migration season (August), Dergachy Forest (50°03'N, 39°05'E) – Kharkiv region, Ukraine. Unfortunately, in 2017 field season there were no records of GN in breeding season.
Tracking home range, and identification of the borders of breeding micropopulations.				We tracked a single young male during four days (in August) in Dergachy Forest and identified preliminary home range of the species.
To observed and monitor the new discovered location on GN in Dergachy Forest in Kharkiv region (NE Ukraine)				The new location of GN that was discovered in 2016 and was carefully evaluated in 2017 (intermittently from May to September). Both acoustic recording and mist-netting methods (without and with acoustic lure) were applied in that area.
To invent the known location on GN in Chernobyl Exclusions Zone (N Ukraine)				The bat research expedition to Chernobyl Exclusions Zone in (N Ukraine) was done (July 2017).
Monitoring of the seasonal movement activity by passive acoustic recording.				Echolocation calls of bats were recorded intermittently and permanently in Dergachy Forest from May to September. The obtained data is currently being analysed.
Study of the diet.				Faeces of GN were collected and some part of them were analysed (by standard methods with optical microscope). Bird feathers were identified. Some part of them fixed in alcohol and sent to genetic lab in Germany for future detailed analyses.
In Turkey we aim to identify the mating and hibernation tree cavities of GN and				This part of the project was planned on the base of additional support of The Mohamed bin Zayed Species Conservation Fund, but we did not

specificity the location and colony size of unstudied breeding micropopulation.				get money from the Fund in 2017.
The tissue and fur samples collection for the future study of genetic structure of GN populations.				The tissue and fur samples were collected. The fur samples were analysed in isotope Lab of Leibnitz Institute of Zoo and Wildlife Research (Berlin, Germany) and the prediction of the potential origin of the GN from Dergachy Forest was made.

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

During this part of our long-term project (2010-2018 and continue) we did not have any principal difficulties, that might affect our planned activity in principal way. Of course we have some insignificant difficulties, and now we look back on some of them even with fun. For example our car stuck in the mud for all night during radio tracking of GN in Dergachy Forest (August).

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

The key outcomes of this project are the levels-up of equipment and methods applied for studying ecological features of GN ecology in Eastern Europe.

1. In 2017 (during the project run) we applied radio tracking of bats in Ukraine at first.
2. Molecular-genetic analyses of faeces samples and stable isotope analyses of fur samples were applied for GN for the first time in Eastern Europe.
3. Complex of acoustic methods both recording by full spectrum bat detector and attraction bats by acoustic lure were also applied for the first time.

All of this methodological approach allowed us collected more detailed data on the species spatial ecology, feeding ecology and seasonal movements.

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

The project on GN that we are doing in Eastern Europe up to 10 years is well known both among professional bat researchers and nature conservation activists, but in 2017 there were no so many locals that have to be educated.

We informed the local forestry authority about the present the species on the exact forest plots, and we also informed the owners and security guards of the main mist-netting lake in Dergachy Forest about the importance of the place for the wildlife conservation.

Because of the record of the GN in 2016 in Kharkiv region, we decided to make a GN a bat species of the year in 2017 our region. Thousands of wall and pocket calendars, and stickers with GN were printed and spread during bat lectures and bat public events.

5. Are there any plans to continue this work?

The project has its roots from 2009 and going on up to 10 years. During all these years the project run has fluctuation between field data collection (2011, 2013, 2014, 2017) and data analysing and preparing papers (2010, 2012, 2015-16). This project dynamic is still going on and we have great plans for the future realization of GN research. In 2018 we are planning to complete the analysis of the acoustic data and possibly make additional recordings (in Dergachy Forest, Kharkiv region). The laboratory analysis on insect and bird prey in faecal pellets of GN will be finished too. We are not sure that the mist-netting monitoring and future radio-telemetry study will be done in Dergachy Forest in 2018 (because it is resource consuming activity), but we will additionally apply for another funding in order to get additional support by 2019.

We did not get support for Turkish part of planned project in 2017, but formulated research questions are still open. We are planning to running up with the fundraising again.

We have several main ideas to continue this work: find exactly breeding populations and migration stopovers of the species and protect the areas, and to make deep study of GN ecology. We are having ahead new 10 years.

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

It is a good tradition of our project to publish main results in scientific papers and discoveries on our web-site <http://www.bat-kharkov.in.ua/en/> and YouTube channel:

<https://www.youtube.com/channel/UChd2cHDsrQIN-HrnZGto1Sq>

We will continue this tradition and the next publication about GN from Kharkiv Bat Group currently accepted will be: Kovalov V., Hukov V., Rodenko O. (2018): New record of *Nyctalus lasiopterus* (Schreber, 1780) in Ukraine with a new confirmation of carnivory. North-Western Journal of Zoology (2018): e181701

http://biozoojournals.ro/nwyz/content/acc/nwyz_e181701_Kovalov_acc.pdf

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 active field part of the project was lasting from May to September 2017; the data analysing and reasoning of project run was in November, January and April. In total it covers 12 months.

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
Ultrasound detector D500X Mk II	1600	1360	+240	
Ultrasound loudspeaker BatLure	1450	1318	+132	
Delivery of D500 and BatLure	0	44	-44	
Digital Camera Body Canon EOS 7D Mark II	0	879	-879	
Radio-tracking tags 5 it.	400	440	-40	
Dergachy forest expedition (intermittently from May to September)	2850	2850	0	
Chernobyl Zone expedition (July)	300	1209	-891	
Askania-Nova expedition	550	0	+550	The expedition was rejected because of failure with additional support from The Mohamed bin Zayed Species Conservation Fund
Lop-top Acer travel made	580	0	+580	
GPS transmitters	630	0	+630	Buying of this equipment was rejected because of failure with additional support from The Mohamed bin Zayed Species Conservation Fund
Bat-boxes' manufacture and transport	260	260	0	
Miscellaneous and Medicine	60	120	-60	
Batteries, accumulators, jacks and SD Cards, extra car fixing	120	320	-200	
	8800	8800		

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

We need in revision of the GN status and ecology features in Eastern Europe. We are planning to prepare the data set (or manuscript) till the end of 2019.

Thanks for support of Rufford Foundation we have different kinds of modern equipment, but one field season not enough for implemented it's in full power, we need one or two seasons more in order to continue the monitoring and research of GN in Dergachy forest.

The check up and monitoring of bat-boxes will be conducted too.

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 current project (Conservation and monitoring of *Nyctalus lasiopterus* in the Eastern Part of the species distribution range) is not only one grant from The Rufford Foundation given to Kharkiv Bat Group as a branch of Ukrainian Independent Ecology Institute. Therefore we have several kinds' of replicas of the Logo. There are chevrons, signs, labels and thousands of wall and pocket calendars with Rufford logo. The Rufford logo is also present on all public presentation about bats made by Kharkiv Bat Group. The Rufford Foundation logo often appear on the TV and internet channels of local and national Ukrainian mass media.

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

Anton Vlaschenko – Ph.D in Ecology, Head of Ukrainian Independent Ecology Institute (UIEI). Leader of the project: I managed buying of equipment planning of field work and took part in part of expeditions.

Olena Rodenko – bachelor student of University of Silesia in Katowice (Poland), Kharkiv Bat Group and UIEI member. Olena took part in field work in August in Dergachy forest, involved in bat acoustic data analyzing.

Olena Holovchenko – bachelor student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group and UIEI member. Olena took part in field work in August in Dergachy forest.

Victor Kovalov – master student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group and UIEI member. Victor took part in field work during all summer in Dergachy forest and in July in Chernobyl Zone.

Olexey Parfilov – bachelor student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group volunteer. Olexey was main car driver during all period of the project, and took part in field work both in Dergachy forest and in Chernobyl Zone.

Natalia Shaniuk – young naturalist of Kharkiv Bat Group, she took part in field work in Dergachy forest in July and August, and took part in identification of insects remains and feathers in faeces of GN.

Tatiana Zhebina – Mgr. of biology, research worker of Natural History Museum of V.N. Karazin Kharkiv National University, she took part in she took part in field work in Dergachy forest in May, and helped in identification of insects remains in faeces of GN.

Hanna Suvorova – Kharkiv Bat Group volunteer, she helped in field work in Dergachy forest in July and August.

Olgha Timofeeva – bachelor student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group and UIEI member. Olgha worked in bat acoustic data analyzing.

Katherina Posrednikova – master student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group and UIEI member. Victor took part in field work during all summer in Dergachy forest and in July in Chernobyl Zone.

Ihor Tovstukha - bachelor student of V.N. Karazin Kharkiv National University (Ukraine), Kharkiv Bat Group and UIEI member. Ihor took part in field work both in Dergachy forest and in Chernobyl Zone.

Co-coordination of research in Chernobyl Zone:

Dr. Sergij Gashchak, Deputy Director of International Radioecology Laboratory of Chernobyl Center for Nuclear Safety. Website: www.chernobyl.net

Kseniia Kravchenko – Ph.D. student of Leibnitz Institute of Zoo and Wildlife Research (Berlin, Germany). Kseniia helps with molecular-genetic analyses of faeces samples and stable isotope analyses of fur samples.

12. Any other comments?

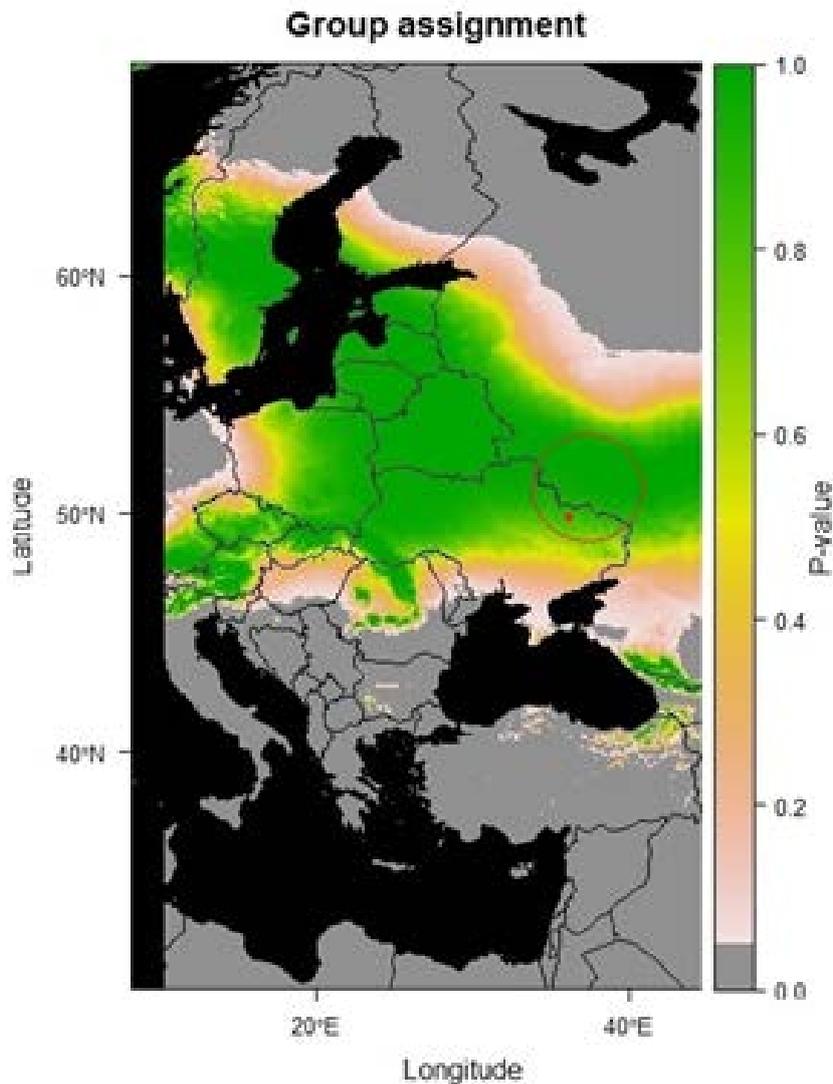
The prediction of origin of GN (five individuals recorded in 2016) mist-netted in Dergachy forest was modeled based on values of hydrogen stable isotopes. The fur samples were analysed in isotope lab of Leibnitz Institute of Zoo and Wildlife Research, the project team gratefully thank to Dr Christian C. Voigt for the analyses. About details of methods and approaches see:

Lehnert LS, Kramer-Schadt S, Schonborn S, Lindecke O, Niermann I, et al. (2014) Wind Farm Facilities in Germany Kill Noctule Bats from Near and Far. PLoS ONE 9(8): e103106. doi:10.1371/journal.pone.0103106

Here is the map of prediction origin of GN: the green colour identifies more probable areas of respondency hydrogen stable isotopes in fur according to calibration

curve; red dot – location of Dergachy forest on the map of Eastern Europe; red cycle – more probable areas where the individuals were born.

On the base of the map we can do preliminary conclusions that that GN were born in not far from the point where they were caught, and even possible that there is breeding micropopulation in North-eastern Ukraine.

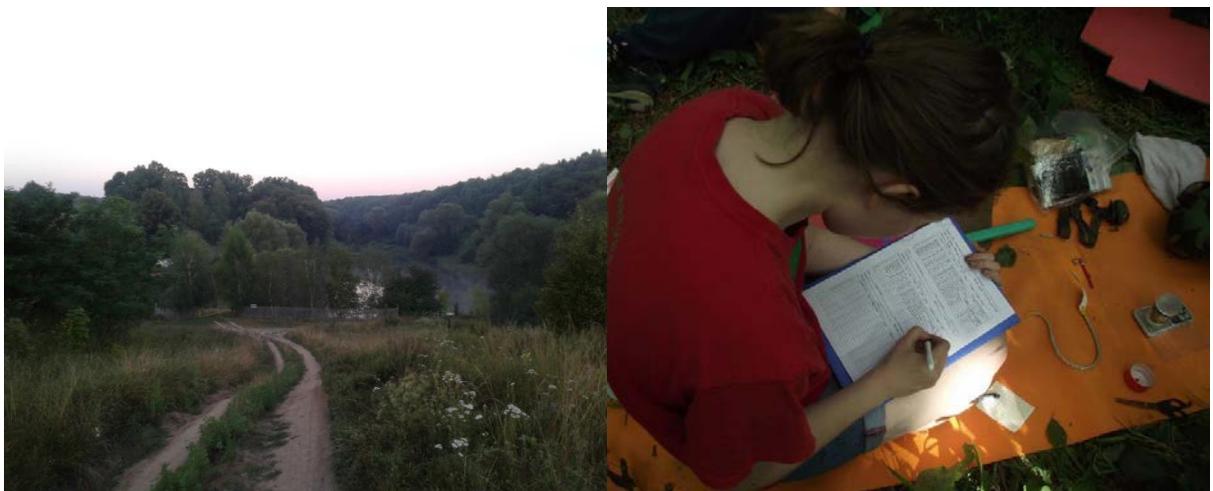




Left: May 2017, first expedition to Dergachy forest, Kharkiv region. ©Anton Vlaschenko. Right: Main mist-netting lake - May, Dergachy forest, Kharkiv region. ©Anton Vlaschenko.



Left: Main mist-netting lake - August, Dergachy forest, Kharkiv region. ©Victor Kovalov. Right: Main mist-netting lake - May, Dergachy forest, Kharkiv region. The red arrow pointed the location of mist-nets operation. ©Victor Kovalov.



Left: View on the lake from the hill, the hunting and migration stopover of GN, – August, Dergachy forest, Kharkiv. Right: Measurements of bats in July expedition to Dergachy forest, Kharkiv region. © Hanna Suvorova.



Left: Bat Lure on the pole of mist-net on the bank of main mist-netting lake - July, Dergachy forest, Kharkiv region. ©Hanna Suvorova. Right: Bat Lure on the one of mist-netting point in Chernobyl Zone, Azbuchin Lake on the front of Chernobyl Power Plant, July. ©Anton Vlaschenko.



Left: Mist-netting in Chernobyl Zone, Azbuchin lake, July. ©Sergey Gahshak. Right: Little unpredictable difficulties, one night was spent in a puddle. August, Dergachy forest, Kharkiv region. ©Olena Holovchenko.



Left: Morning decision. August, Dergachy forest, Kharkiv region. ©Olena Holovchenko. Right: Cutting fur from GN captured in Dergachy forest, August, Kharkiv region. ©Anton Vlaschenko.

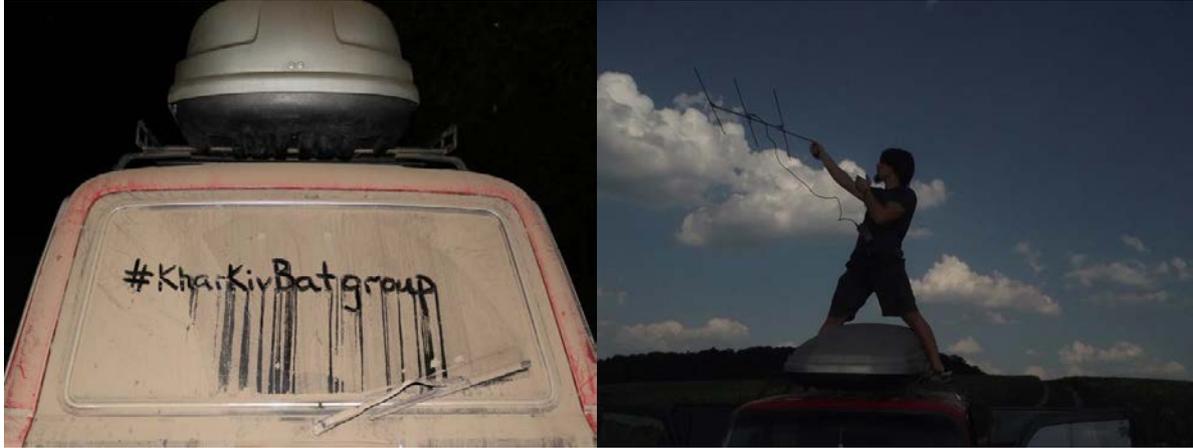


Left: Gluing the radio- telemetry tag on GN in Dergachy forest, August, Kharkiv region. ©Anton Vlaschenko. Right: Gluing the radio- telemetry tag on GN in Dergachy forest, August, Kharkiv region. ©Anton Vlaschenko.



Left: Ratio-telemetry of GN in Dergachy forest the first steps. August, Kharkiv region.

©Olena Rodenko. Right: GN in Dergachy forest. August, Kharkiv region. ©Anton Vlaschenko.



Left: On of a car involved in the expedition in Dergachy forest. August, Kharkiv region. ©Anton Vlaschenko. Right: Olexey Parfilov continue ratio-telemetry of GN in Dergachy forest. August, Kharkiv region. © Olena Rodenko.



Left: Comparison of three Noctule species, from top to down: *N. leisleri*, *N. noctula* and *N. lasiopterus*. Dergachy forest. August, Kharkiv region. ©Victor Kovalov. Right: Remains of feathers in faeces of GN from Dergachy forest, Kharkiv region. X20. ©Victor Kovalov & Natalia Shanuk.



Left: Remains of feathers in faeces of GN from Dergachy Forest, Kharkiv region. X20. ©Victor Kovalov & Natalia Shanuk. Right: Remains of feathers in faeces of GN from Dergachy forest, Kharkiv region. X20. ©Victor Kovalov & Natalia Shanuk.