

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	Igor Balashov
Project title	Conservation of Terrestrial Molluscs in Ukraine
RSG reference	16750-1
Reporting period	March 2015 - March 2016
Amount of grant	£5000
Your email address	igor_balashov@ukr.net
Date of this report	20th March 2016

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
<p>Checking of the known locations of the threatened land snails related to the fens and search of unknown populations (<i>Vertigo</i> species and <i>Pupilla pratensis</i>).</p>			+	<p>Two new locations of the threatened land snail <i>Vertigo moulinsiana</i> (Annex II of Habitat Directive, VU in IUCN Red List) were revealed in the fens of Volynhian Region. Two new locations of threatened <i>Pupilla pratensis</i> were revealed in the fens of Rivne and Lviv regions. Both these species were unknown in Ukraine outside the Crimea before these findings. At the same time checking of the single known site with habitat of these two species in the Crimea has shown that this habitat was completely destroyed in 2014 and both species became regionally extinct in the Crimea. Both known locations of <i>Vertigo geyeri</i> (Annex II of Habitat Directive) in Ukraine that were known in literature from the begging of 20th century were checked, but species was not revealed. These habitats are much transformed by human activity. Moreover seven new locations of <i>Vertigo angustior</i> (Annex II of Habitat Directive) were found on the fens of northern Ukraine, several other were checked. New data on the ecological preferences of these species were collected. On the basis of the collected data the manuscripts "Conservation of the land snails related to the fens in Ukraine" (in English) and "Terrestrial molluscs of the lower basin of Tsyri River (Volhynia, Ukraine)" (so far in Russian, maybe will be translated) are prepared and will be submitted to some peer-reviewed journals. Manuscript "Threatened land snails <i>Vertigo moulinsiana</i> and <i>Pupilla pratensis</i> are recently extinct in Crimea (Ukraine)" (in English) was submitted to "Tentacle", a newsletter of the IUCN Molluscs Specialist Group. In regard of some threatened populations of <i>Vertigo angustior</i> and <i>Vertigo substriata</i> a paper "Terrestrial</p>

				molluscs of the "Slobozhanskii" National Nature Park (Kharkiv region, Ukraine)" (in Russian) is published in Zoologicheskii Zhurnal (listed in Scopus).
Checking of an only known population of the threatened minute snail <i>Platyla jankowskiana</i> (VU in IUCN Red List)			+	Largest expedition with 10 members (eight of them are students) was carried during 9 days in the type locality of this species to reveal it. However it was not found. Perhaps species is extinct, perhaps initial data on this locality was wrong, perhaps abnormal shells of a closely related <i>Acicula parcelineata</i> were described as this species. Manuscript "Is Carpathian land snail <i>Platyla jankowskiana</i> extinct?" (in English) with detailed analysis of this case was submitted to "Tentacle", a newsletter of the IUCN Molluscs Specialist Group. Manuscript on this area "Distribution patterns of terrestrial molluscs in the Zheniec Valley (Ukrainian Carpathians)" (in English) and manuscript on a related species "Land snails <i>Acicula parcelineata</i> in Ukraine: distribution, ecological preferences and conservation" (in Russian) are in work, they will be submitted to some peer-reviewed journals.
Studying of the populations of the species of <i>Helicopsis</i> genus that lives in the steppes (dry grasslands) of Ukraine to clarify their conservation statuses and taxonomical identities			+	Extensive materials and data on this topic were collected. Around 35 sites of the <i>Helicopsis</i> species were checked in the Crimea, Lugansk, Donetsk, Kharkiv, Khmelnytskyi and Lviv regions. It includes the type locations of the 12 nominal taxa of the species rank in this genus. However taxonomy of this group became even more complicated after I have studied morphology in collected material. This group requires a taxonomical revision using methods of molecular genetics. I can't proceed it in Ukraine on the adequate level, but I have discuss this problem with Prof. B. Hausdorf from the Hamburg University (Germany), most known specialist on the systematics of this group, and he is interested to help with solving of this issue. Expectedly I will visit his laboratory in the second half of 2016 or in 2017. After taxonomical problems will be solved there will be enough data to evaluate the conservation statuses of these rare snails.

				In the relation of studying ecology of the <i>Helicopsis</i> species a paper “Distribution patterns of terrestrial mollusks in the chalk steppe and neighboring phytocenoses of the Oskol River Valley in the Dvorichanskyi National Nature Park, Ukraine” (in English) was published in Russian Journal of Ecology (listed in Scopus). Manuscript of a paper “Invasion of a Crimean land snail <i>Brephulopsis cylindrica</i> to the insular protected steppes of Western Ukraine: a threat to the native biodiversity?” (in English) is submitted to Journal of Conchology (UK, in Scopus).
Publishing of a book “Conservation of terrestrial molluscs in Ukraine” (in Russian, 300 exemplars)			+	Done.
Publishing of a brochure (1000 exemplars in Ukrainian, 500 in Russian and 100 in English)			~+	I have made a Ukrainian version (1000), but no Russian and English so far. At the very minimum I will put the pdf-versions of the other languages on the website later.
Producing of a website			+	I decide to save costs and to make it by myself, but it takes too much time and I did not run it yet, I have a preliminary hidden version, I hope it will be revealed during examination of my project. I have bought a domain name for it (landsnails.in.ua) and mentioned it both in the book and brochure. I’m very interested to run this website and to fill it with new data all the time after, so it will be for sure.
Submitting new accounts for the Red Book of Ukraine			+	I was officially included into working group at Commission of the Red Book of Ukraine as a specialist on the terrestrial molluscs. So I will work on this group for its next edition (it is planned to be published in 2019). I have submitted the accounts of the 32 species of terrestrial molluscs that are not listed in Red Book of Ukraine yet, but were considered threatened in my book. However Commission will not precede it in the near time, it is planned to do more closely to the publication of the next edition.
Propositions on the new protected areas			+	Documents were submitted to create two small protected areas in Lviv Region: one is a fen with populations of <i>Pupilla pratensis</i> and

				<p><i>Vertigo angustior</i>, another one is rocky steppe with populations of <i>Helicopsis striata</i> and <i>Mediterranea inopinata</i> (but I can't give a warrant that it will be created, some of such our previous attempts were succeed, but many were failed, in Ukraine you can't make a protected area if a land user is not agree, even if it is some governmental organisation).</p>
Involving of the students			+	<p>In the different expeditions the 10 students were involved in total (including one school student), mainly the biologists of Kiev and Kharkiv universities. Besides giving them useful experience and knowledge on the nature conservation two of them decide to study land snails and their conservation. First of them is Zoia Shvydka who is graduated from Kiev University last year and in the late 2015 she is become a PhD student in the same university, she is start to working on the ecology, conservation and morphology of the haired snails of <i>Trochulus</i> s.l. School student Veronika Skvortsova is decided to work on the rare snail <i>Acicula parcelineata</i> and she is makes a work on it in the Minor Academy of Sciences of Ukraine (a centre of the scientific work with school students in Ukraine). This year she goes to be a student-ecologist in Kiev National University. We are working with her on the listed above paper on the <i>Acicula parcelineata</i>.</p>

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

Field budget was overspent and I was able to save some costs from the other topics, but all of them were still completed. Finishing of a book is takes too many time and in this reason I'm not completely finished the website and some of the planned papers, but I'm working on it right now, it will be finished in the near months.

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

1. Publishing of a book with evaluation of the conservation statuses of all terrestrial molluscs in Ukraine, popularization of this issue in the brochure and website and submitting of the accounts to the Red Book of Ukraine on this basis.

2. Finding of the new locations of *Vertigo moulinsiana* and *Pupilla pratensis* that were unknown before carried studies even closely to the regions where they were find.

3. Important material on the *Helicopsis* species is collected. It will be used as a basis of taxonomical revision based on DNA sequencing which is necessary to evaluate conservation statuses of these snails, some of which are threatened.

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

Not too much, some of them stole my bag in Rivne Region (not with camera and not with GPS fortunately).

5. Are there any plans to continue this work?

There are lots of, see below paragraph 9 about further steps.

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

I already share it in my book and brochure and I will actively develop my website. I have lots of other planned books and brochures on topics listed below in further steps.

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

Costs on the camera, GPS and other equipment were used in March-April of 2015. Expedition costs were used during April-November. Cost on the book, brochure and website were used in March 2016. All these were in time, except that I was hoping to finish the book, the brochure and the website faster, same as submit some more papers (but I will do it during March-April 2016).

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
Camera (Nikon D7100;Micro-Nikkor AF 60mmf/2.8D; Nikon ML-L3; holders, rings and other supporting devices for macro photo)	1450	1374	-76	Exchange rate is drop down after I have submitted a project. In addition to specifically listed items (exactly these camera and lens were bought) I have bought also Raynox macroscopic lens M-250, Nikon AF Nikkor 50mm f/1.8D, Schneider B+W 007 Clear MRC 62mm, SLIK pro II 3way, specific additional holder to move camera vertically, additional simple "rings" to place lens further from the camera, 32 Gb Transcend card, cleaning kit and a bag for all these (LowePro Format 160

				Black).
GPS device (Garmin eTrex 30 + maps)	270	178	-92	Exchange rate is drop down after I have submitted a project (this exact model of a device was bought).
Publishing of book "Conservation of terrestrial molluscs in Ukraine" (300 exemplars)	850	695	-155	
Publishing of brochure (1000 exemplars in Ukrainian, 500 in Russian and 100 in English)	450	162	-288	But only Ukrainian version is published so far.
Producing of a website	150	6	-144	I only bought a domain name (landsnails.in.ua) for 2 years so far, I decide to made a website by myself so I will be able to handle it by myself and fill by the new materials without assistance, but it takes too much time, so I'm still working on it, but I will start it for sure it is of my high interest. I have mentioned domain name both in the book and in the brochure.
Stuff for collecting of samples (tubes, boxes, ethanol)	450	522	+72	I have bought a lot of the different tubes, packets and boxes for collecting of the samples in the field and transporting; some instruments: pincers, lots of various microscopic needles, microscopic scalpel; 6 liters of ethanol; large boxes for storing a collection of the shells of the land snails in my institution, there was no founding for it.
Field expenses (fare, food, gas, hotels, involving of local people)	1380	2013+	+633	I overspent it, we used no hotels, only the tents, but it was still much more expensive than I have planned, there were 3 large long expeditions with 5-10 members and 8 smaller ones with 2-3 members (up to 14 days each).
Bank's fee (1%)	0	50	+50	
Total	5000	5000	0	

GBP were exchanged for UAH at rate 33-37 in the different time, UAH was very unstable during 2015-2016 (most were exchanged at around 34-35, in the first half of 2015).

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

Work carried during this project, the filed studies and summarizing of all existing data in the monograph, is shows the 4 main ways of the further necessary studies in the conservation of terrestrial molluscs in Ukraine:

1. Studying of the species related to the open dry habitats (steppes, rocky outcrops). The largest problem in this relation is taxonomy of *Helicopsis* genus: it is unclear which forms are actual species. At this most of the *Helicopsis* forms are threatened. This problem should be solved using molecular genetic methods. Therefore, first of all, it is necessary to collect a solid material that will be suitable for the sequencing (large part of necessary materials is collected during this project in 2015). Searching for the populations of *Zebrina detrita* (Transcarpathia) and *Balea perversa* (Crimean Mountains) is necessary to confirm their presence in Ukraine and to evaluate their conservation statuses. In many regions such dry open habitats are studied not enough and no species of this group are known there (but expected to be found). It mainly concerns the southern part of Central Ukraine. The rocky outcrops of Donetsk Upland are also studied not well enough, but for now it is almost unavailable because of the war in this region. The populations of *Pupilla sterrii* and *Granaria frumentum* in Ukraine requires monitoring and deep studying of the threats for the certain sites.

2. Studying of the species related to the dead wood and old trees. For the 3 species of this group there are no certain data about location of their populations in Ukraine: *Macrogastera ventricosa*, *Cochlodina cerata*, *Alinda biplicata*. The search for the populations of these species should be carried. Studying of the most ancient forests in Ukraine, especially on the plains, is necessary to found unknown populations of this group. Most important in this relation are populations of *Macrogastera* species, *Clausilia cruciata* and *Discus perspectivus* on the plains. It also seems to be important to investigate possibilities of using molluscs of this group as indicators of undisturbed forests.

3. Further studying of the species related to the wetlands. It is still related to the species of *Vertigo* genus and to *Pupilla pratensis*. More fens with soils rich in calcium should be searched in north-western Ukraine and on the Podolian Upland to reveal unknown populations of such species (first of all *Vertigo geyeri* and *V. moulinsiana*). However it is much complicated because of very imprecise literature data on the location of such sites.

4. Studying of the species related to the Carpathian Mountains. In this case for some species that known in Ukraine by the several populations the data accumulation is needed to reveal their preferences and possible threats (*Aegopinella epipedostoma*, *Lehmannia macroflagellata*, *Deroceras occidentale*, *Edentiella bakowskii*, *Monachoides incarnatus*). For some other species there are no certain populations known and their search is needed (*Spermodea lamellata*, *Cochlodina cerata*, *Limax bielzii*, *Urticicola umbrosus*).

My goal is to work on these four directions. As a part of it I want to produce a large guide on the terrestrial molluscs of Eastern Europe after listed issues and some taxonomical problems will be solved, perhaps in 5-10 years. It would be a united and enlarged edition of my two recently published monographs on the taxonomy and conservation of terrestrial molluscs of Ukraine, with good original photos and detailed distribution maps of all species.

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, in the book and in the brochure, on the both sides of the both covers and inside. It will be also on the website after it will be completely in work.

11. Any other comments?

This was my first significant grant and I want to say that it brings my studies on the absolutely new level, gives experience how to organize scientific expeditions, allow publishing of useful book and brochure, very inspiring.