

## The Rufford Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
Your name	Leili Khalatbari
Project title	Assessing Asiatic cheetah's population size and structure in central deserts of Iran
RSG reference	21607-1
Reporting period	July 2017 - July 2018
Amount of grant	5000 GBP
Your email address	<a href="mailto:Leili.kh@gmail.com">Leili.kh@gmail.com</a> , <a href="mailto:leili.khalatbari@cibio.up.pt">leili.khalatbari@cibio.up.pt</a>
Date of this report	25-July-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
Planning and preparing the logistics for the Fieldwork				We reviewed all published and unpublished reports on the recent observation of cheetahs during last three years and planned the fieldwork according to current distribution.
Fieldwork: assess the local distribution and collect biological samples				We accomplished fieldwork in six protected areas with recent cheetah observation records and collected total of 296 scat samples
Laboratory work				Currently we are optimizing best cost-time efficient method for non-invasive DNA extraction of scat samples and identifying species ID. Some of collected scats were already extracted and the rest will be extracted after optimising the method.
Genetical analyses				This task is undergoing but not fully accomplished yet, please see question 7.

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

Due to changes in Department of Environment (DoE) regulations on using biological samples, we were not able to receive tissue samples from cheetahs that were killed/died in the last years on time. In the initial plan, we were supposed to extract DNA from these samples to optimize microsatellite markers. We are now trying to optimise them with DNA extracted from scat samples, but this methodology needs more time.

We had designed the leaflets to distribute among drivers and local shepherds, but unfortunately the NGO that we were collaborating with had to halt their activities due unforeseen political problems and thus we couldn't proceed with this activity. However we will start this activity as soon as the problem is solved.

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

- Updating species distribution, status and threats: while visiting protected area with recent cheetah observations, in addition to collecting scat samples, we

interviewed game guards, local people and director of protected areas about the status of species and the threats in each protected area. These data were combined to prepare the updated status and distribution map of species along with regional threats.

- Identifying conservation measures: together with experts from active NGOs in conservation of species, Conservation of Asiatic Cheetah Project (CACP), Department of Environment (DoE), Wildlife Conservation Society (WCS), Cat SG of IUCN and independent experts we identified conservation measures that should be taken into account by the authorities when planning their activities.
- Assessing genetic structure of Asiatic cheetahs: we will assess the genetic structure of this species which will contribute to more informed management decisions (this task is not fully accomplished yet).

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

Game guards from each protected area that accompanied us during fieldwork were trained with invasive (tissue) and non-invasive (scat) sampling methods in order to continue sampling during their regular patrolling of the area and when they encounter road killed animals. In all of our camping sites we bought local products or ate in small family restaurants.

In the process of identifying threats and conservation measures, we discussed the necessary steps with a variety of stakeholders, from livestock owners to directors of protected areas.

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

Yes, we need to survey these areas again in the next year in order to collect samples from individuals that might move between different areas. It will be very useful if we can repeat the sampling with scat dogs which are especially trained to find scats as this will significantly increase the chances of finding samples from elusive species in vast habitats.

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

We have published partial results of this work in scientific journals and conferences and we are planning for more publications and presentations. Moreover, as planned before, results were disseminated with conservation authorities in order to take into consideration in their management decisions. This report is already being used for predicting activities for third phase of CACP.

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

We had the opportunity to arrange the fieldwork in May and July 2017 which was earlier than anticipated in the project schedule application. We took this

opportunity to conduct the fieldwork in order to save time and to benefit from knowledge and experience of our local collaborators who are working in these areas for long time and were available only in these months. We reimburse the expenses from Rufford Foundation grant afterwards. Initially we had predicted more days of fieldwork to cover all the protected areas with previous cheetah observations, but after reviewing the reports we understand that the current range is more limited than though before, so we discarded sampling in some of the protected areas. Also we were unable to survey one of the protected areas due to safety reasons. Instead, we used the allocated budget to pay stipend to one field assistant and to pay the fuel in the cases that DoE vehicles were accompanying us.

We couldn't accomplish the laboratory work and genetic analysis in the predicted timeframe. The microsatellite markers used in previous studies are optimised for DNA extracted from tissue samples, but as we didn't received the tissue samples, the optimisation process is being developed based in scat samples; these are obviously more degraded and thus require much more time for the optimisation process to be concluded. We are also trying to combine two methods for extraction, identification and genotyping of non-invasive samples, and optimizing processes to find the best time-budget efficient method. Once this technical issue is sorted, we can continue with extracting all samples, identifying species, genotyping them and finally performing genetic analysis.

**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	1,250	380	+870	We spend fewer days in the field than predicted in initial plan.
Lodging	125	0	+125	We stayed in game guard stations, local people houses and DoE facilities.
Food / supplies	2,400	1,140	+1,260	We spend fewer funds on this item as we ate in local family restaurants or prepared our own food. Also we spent fewer days in the field.
Renting 4x4 vehicle	0	2270	-2270	We had applied to other funds to cover this item, but they were unsuccessful and we had to cover this item from Rufford budget.
Insurance	75	75	0	

Sampling material	435	490	-55	
Shipping samples to Portugal	115	130	-15	
Producing leaflet for truck and bus drivers	300	0	+300	These two activities were currently paused, we bought a sequencing kit instead to carry on with the laboratory work and will reimburse it when the problem is solved and we start proceeding with these activities.
Producing flyer for shepherds and livestock owners	300	0	+300	
Sequencing kit	0	551	-551	
Field assistant stipend	0	570	-570	This was not predicted in the initial budget but since we had save some funds by reducing fieldwork days we took the opportunity to have a very committed field assistant to help us during fieldwork.

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

Collected data shows that Asiatic cheetahs are now fragmented in three scattered subpopulations, in this study we are going to assess level of gene flow between these subpopulations through genetic studies. The next step is to predict natural corridors and verify those corridors using genetic data to prioritize those that are actually being used by animals. Also it is important to assess species diet.

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

In two presentations that I had in CIBIO/InBio Centro de Investigação em Biodiversidade e Recursos Genéticos - Universidade do Porto Portugal (November 2017) and in UN World Wildlife Day in Bern/Switzerland (March 2018) I used Rufford Foundation logo as our sponsor.

In our recent paper, entitled "Range contraction of the Asiatic cheetah during last century is related to prey availability and climate change", published in Hystrix Journal (DOI: <https://doi.org/10.4404/hystrix-00080-2018>), we had acknowledged the Rufford Foundation in the acknowledgment section of the paper.

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

**Jose Carlos Brito:** Scientific advisor  
**Taher Ghadirian:** Fieldwork advisor  
**Diana Costa:** Genetic laboratory advisor  
**Ehsan Hakimi:** Field assistant  
**Hamed Abolghasemi:** Collaborator in the fieldwork

**Mahgol Kazari:** Collaborator in the fieldwork

**Ladan Salamat:** Collaborator in the fieldwork

**Gholam Hosein Yusefi:** Collaborator in the fieldwork

## 12. Any other comments?

We are planning to continue this project by applying to 2<sup>nd</sup> Rufford small Grant, which will help us to resample the protected areas.

We would like to thank to Rufford Foundation for being interactive during process of reviewing applications.

We will keep you updated about our future publication and work progress. As soon as the problem is solved we will carry on with two paused activities.