

## 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
Your name	Anagaw Atickem Meshesha
Project title	The Distribution Pattern and Behavioural Ecology of the Newly Identified Cryptic African Wolf
RSG reference	9998-2
Reporting period	2.5 years
Amount of grant	£5600
Your email address	<a href="mailto:anagawam@gmail.com">anagawam@gmail.com</a>
Date of this report	8 <sup>th</sup> November 2013

**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
Distribution pattern of African wolf			Fully achieved	With little information on the distribution pattern of African wolf discovered at two relict mountains of Ethiopia, we know sampled and provide a country wide image for the species distribution (See attached report for the details)
Validating the current taxonomy of canids in Ethiopia by using molecular genetics technique			Fully achieved	I believe this is the most striking outcome of this project. We provide a solid evidence that current morphological bases of canids taxonomy in Africa is by flawed. (see attached report).
Behavioural ecology of African wolf		Partially achieved		Because I started the African wolf research with no background information, my first impression was those animals could be restricted to few highlands in a small number like the case of Ethiopian wolf. I found that, this is not the case. The African wolf inhabits the lowlands as low as 1400 m asl in the Ethiopian rift valley. With such wide range of ecological zones, I believe the behavioural ecology of the species is very broad. I did a brief ecological study in one relict mountains of Ethiopia, this however will not provide the full picture of the species ecology. Studies at different ecological zones need to be carried out to adequately understand the behavioural ecology of the species.

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

Due to the ever nature of our study animals and the methods we used in our study, this research have been tough difficulties. With the exception of the Menz Guassa highlands, African wolf are found at a very low density, and getting the pellet samples for our DNA extraction was by far difficult than what I expect. While it needs further research, it is likely that the African wolf is active mainly during the night that makes our sampling more difficult. In Guassa menz, the African wolf is active starting from evening that gives us the opportunity to have an idea on their den site and localities frequently used by them. The other problem is the presence of many carnivores which has a very similar pellet size and shape with African wolf. Even a smaller cat like serval cat, their pellet sample is

indistinguishable from the African wolf. We could not tell before we did the DNA sequencing, which is very costly.

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

1) We confirmed that the African wolf is widely distributed though out the range of Ethiopia, it is not restricted to the highlands of Ethiopia where they first discovered. This was our main goal during the start of the project.

2) More importantly, we confirmed that, the currently used morphological base of African canid taxonomy is flawed. We provide solid evidence based on photographed animals tagged with their DNA to explicitly explain our argument (we did this both from mitochondrial DNA and nuclear DNA). For instance, we found those considered to be black-backed jackal in Bale Mountains to be striped jackal. We found striped jackal in a very different phenotypic appearance resolving the recent debate on some strange canid of Ethiopia dissimilar to any of the known canids of Africa. We also questioned the presence of the golden jackal in Ethiopia and in Africa based on our findings (see the details from the report attached).

3) While it is still preliminary, we learn the behavioural ecology of the species giving us an opportunity for further ecological studies.

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

During our field work in collecting pellet samples, local people involved as field assistance and camp attendant getting per diem for their work. Ethiopian student who was collaborating with this research also get a good experience where one them succeed in getting PhD studies on the African wolf. Training Ethiopian students on wildlife conservation will have lasting contribution for conservation.

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

Yes, we attached the behavioural ecology study with one Ethiopian PhD student to be trained here at the University of Oslo. We believe the golden jackal never existed in Ethiopia and may be in Africa. We did not get a single individual of golden jackal from our canid sample, and we also get a DNA from photographed animals with very different morphological appearance and coat colour to be the same African wolf. This leads to us to believe many of the canids that are considered as golden jackal are simply African wolf. Yet, we need bit more work for our prediction to be accepted as a fact. There are also some important questions to be answered in the African canid taxonomy we learn from this project.

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

I with my colleagues here are two scientific papers which will be available for both the scientific community and conservation managers. Our results are also will be released to the general public to through media and web sites.

**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 whole research period was from July 2011 to October 2013. It took us some 27 months. We took bit more time than I first considers. As our samples are mainly based on pellet samples which are very difficult to get from such low density nocturnal carnivore, it took us much longer time to get samples from wide range of the country. More importantly, we have to wait to get sample from a photographed animals, this is possible only when the animals were found dead by road kill or other natural case. This definitely took us much of our time and we also have to keep paying for those long waiting days. However, we are very happy with the outcome of this project.

**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
Per diem for field assistances	£3600	£3600	0	The laboratory supplies was provided by Centre for Ecological and Evolutionary Synthesis, University of Oslo, and Mohamed bin Zayed Species Conservation Fund
Transportation cost	£2000	£2000	0	
Laboratory supplies	0	£4000	-4000	
Total	5600			

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

We did one big step in African canid taxonomy, yet some taxonomic uncertainty remains inconclusive. As I mentioned in my report in the detailed findings of this project, the striped jackal reported in Kenya is not with the same group of striped jackals in Ethiopia and western African countries. Whether this is because there is unique canid in Kenya or error in gene bank needs to be addressed. While there is a report of golden jackal in Kenya, no other sequence of golden jackal is reported from any African country and we did not get any in our Ethiopian sampling. The presence of the golden jackal needs to be re investigated in Kenya and other African countries. In addition, because the recent molecular work showed that the current morphological taxonomy is flawed, the canid specialists need to establish a new taxonomic method to tell on the species of canids.

**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?**

This research was just completed and we did not yet officially publish the papers. As we provide a new platform for the African canid taxonomy, I expect this work to be of great interest for the scientific community, conservation managers and the general public. We are working on two scientific papers at the moment.

11. Any other comments?

I would very much thanks for Rufford Small Grants for nature conservation for sustained support in the previous mountain nyala research and the current project where both research leads to a major contribution for the scientific knowledge of both species.

