

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	Ejigu Alemayehu Worku
Project title	Distribution Pattern, Population Estimate and Habitat Suitability Map of the Endangered Mountain Nyala (<i>Tragelaphus buxtoni</i>) in Arsi Mountains, Ethiopia
RSG reference	15774-1
Reporting period	
Amount of grant	£4800
Your email address	yismake1998@gmail.com
Date of this report	

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
Training of two field assistants			x	The field assistants were trained on wildlife population data collection techniques, data documentation and involvement of local people for sustainable wildlife management.
Distribution pattern of mountain nyala			x	The distribution of mountain nyala was assessed and the potential range of the species is now fully mapped
Population estimation			X	The total population data was collected from Arsi Mountains National Park (Galama and Kaka), Munessa-Shashemene, Sororo-Torgam, Arbagugu, Worganbula, Dindin and Muktar areas using pellet and total count.
Habitat suitability map of the endangered mountain nyala			X	The habitat suitability map data were collected and the suitable habitats have been identified and recommended for further conservation of the species and its habitats.

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

The size of the study area was too large, difficult to manage and reach each sampling point in the study area. To solve this problem, the trained field assistants were working independently and helped me to complete the work.

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

The most important outcome of this project area the following:

- 1) The distribution of mountain nyala in Arsi and Ahmar Mountains is clearly known.
- 2) The population status of mountain Nyala is determined; data were collected during both wet and dry season
- 3) Habitat suitability data were collected from six land cover types (Afroalpine, ericaceous, montane, mixed planation, artificial planation and cultivated land). Slope and elevation are derived by using Surface analysis of GIS from 90m resolution Digital elevation model in ArcGIS 10.3 Spatial Analyst. Then the habitat suitability model will be developed using these different variables.

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

The local communities benefited from the project by working as field assistants, camp attendants, guides and guards and will be ultimate beneficiaries following the completion of the work. The two field assistants and a camp attendant were full time employees of this project and have got trained on the following major themes:

- Using data collection sheets and documentation of data.
- Practising data collection techniques on wildlife population census (using pellet count, transect sampling, total count and distance sampling methods).
- Conservation of the endangered mountain nyala and its Afroalpine habitat.
- Environmental, economic, and social benefits of wildlife.
- Involvement of local people for sustainable wildlife management.

The training has helped to create awareness on mountain nyala ecology and conservation that benefit the local community in the long run.

5. Are there any plans to continue this work?

The data collection has been going process were successful. The results so far are promising and are leading to scientific questions which need further investigation. There are plans to conduct a research on "**Conservation and comparative behavioral ecology of the endangered mountain nyala (*Tragelaphus buxtoni*) in Arsi highlands, Ethiopia**". This study will gather information on feeding ecology, habitat preference and create awareness among the local communities for the conservation of endangered mountain nyala and their vulnerable afroalpine and/or endangered tropical montane habitats. This project is essential to understand the habitat requirements, levels of ecological flexibility and behavioral adaptability of mountain nyala in Arsi highlands. The local communities will benefit from the project by working as field assistants, guides and guards during the project and will develop

positive attitude towards the conservation of mountain nyala following the implementation of the result of the project.

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

The research findings will be disseminated by formal publication in leading, peer-reviewed international journals and also with local newspapers to reach the general public. I also intend to give presentations at regional, national and international academic conferences. From this project, I will publish at least two journals:

- 1) Population status and distribution pattern of the endangered mountain nyala (*Tragelaphus buxtoni*) in Arsi and Ahmar Mountains, Ethiopia (to be submitted to *Oryx*)
- 2) Habitat suitability map of the endangered mountain nyala (*Tragelaphus buxtoni*) in Arsi and Chercher Mountains, Ethiopia (to be submitted to *Animal conservation*).

The research result will be given to Ethiopian Wildlife Conservation Authority (EWCA), the Oromia National Regional state, Oromia Forest and Wildlife Enterprise (OFWE), and District Wildlife Conservation Offices. In addition, the result will be given to NGOs working on the conservation of wildlife and afroalpine and/or montane habitats.

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 RSG was used for a period of 1 year i.e. from June 2015 through May 2016 and used effectively as originally proposed.

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 Principal Investigator 5£/day for 240 working days (£5x240 days)	1200	1200	0	
Per diem for 2 field research assistants £5/day for 240 working days (5x2x240 days).	2400	2400	0	
Per diem for camp attendant £5/day for 240 working days	1200	1200	0	

(£5x240 days)				
Total	4800£ (152,400.0 0ETB)	4800£ (152,400.0 0ETB)	0	

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

The project was successful in determining the distribution pattern, population status and identifying suitable habitats of mountain nyala. Findings of this research will help governmental, nongovernmental organisations and other interested parties to make changes in wildlife conservation. The next research will be on conservation and behavioural ecology of mountain nyala in Arsi highlands, Ethiopia. This study will gather information on feeding ecology, habitat requirements and create public awareness among the local communities about the conservation of endangered mountain nyala and their vulnerable afroalpine and/or montane habitats. Hence, this study will improve our understanding about the adaptive behavioural ecology of the species. Site specific published data on behavioral ecology will be helpful in the conservation planning of wildlife animals and it is more important for habitat specific species like mountain nyala with low population density and high sensitivity to human disturbance.

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, I have used and will use the RSGF logo for reports produced in relation to this project. The research project report will be presented at the annual Centre for Ecological and Evolutionary Synthesis (CEES), University of Oslo, student conference to be held on November 22-23, 2016. The local communities, local governmental and non-governmental officials in the project area were well informed about RSGF. So, it is important to mention that all of them appreciated and were very thankful to RSGF for funding this relevant project.

11. Any other comments?

I want to thank the Rufford Foundation for financial support of my work. Without it, the implementation of this project would be impossible.