The Rufford Small Grants Foundation-2011

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants 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	Abdullahi Hussein Ali
Project title	Ecological interactions between wild and domestic ungulates in East African Arid Ecosystems – a case study of the endangered Hirola Antelope.
RSG reference	15.06.09
Reporting period	2010-2011
Amount of grant	£5989
Your email address	a.hussein.ali@gmail.com or ali@primateresearch.org
Date of this report	1st September 2011

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
1) Uncover the mechanisms underlying hirola declines.		Partially achieved		This involved analysis of remotely-sensed imagery and ground vegetation sampling. While I have completed the field data collection, I am still analysing the images and a manuscript will be submitted at the end of the year to the journal *Ecological Applications*. Other components of this objective, including habitat and resource selection of hirola, are ongoing.
2) Formulate management strategies that integrate hirola conservation with the livelihoods of local pastoral communities.		Partially achieved		Recommendations emanating from this work have been shared with the Kenya Wildlife Service and the Hirola Management Committee. I presented the progress of my work in a workshop on hirola conservation held in Ijara, Kenya.

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

I found hirola numbers to be extremely low in Arawale, Gababa and Galamaga; locating herds proved to be extremely difficult, time consuming and expensive. Therefore, I restricted the collection of demographic data to Ishaqbini Community Conservancy, which houses the greatest numbers of hirola in their remaining range (130-150 individuals). In early 2011, I spent several months trying to identify individual hirola within Ishaqbini to construct demographic models and better understand factors underlying the decline of this species. Initially, I had hoped to use horn annuli for sight-resight analyses, but this proved impossible. Hirola are an extremely shy, vigilant and highly mobile species that are difficult to photograph or approach. Because identifying the demographic rates responsible for hirola declines requires identifying individuals, I inquired from Hirola Management Committee (HMC) as to whether some sort of remote paint-marking might be possible. I was told this is possible, but unlikely because it would either spook animals or de-habituate them to people. They recommended collaring as an alternative because the Northern Rangelands Trust (NRT) has recently acquired funding to construct a predator-proof sanctuary (ca 25 km^2) within Ishaqbini to serve as a source population for future reintroductions. During this exercise, the Kenya Wildlife Service (KWS) and NRT will be translocating several hirola groups from other parts of the range into the sanctuary. This capture effort will provide opportunity to fit individuals with radio-collars and track them through time, thereby yielding unprecedented data on the mechanisms underlying hirola demography and habitat selection.

I intend to utilize this novel opportunity to collar hirola in early 2012 (see answer to question #5) and will continue to make management recommendations to HMC and other collaborators.

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

From analysis of remotely-sensed imagery and field vegetation surveys, I have been able to show how the hirola range collapsed over the past 30 years (Fig. 1). More importantly, I have shown hirola persist today only in areas of low tree cover (Fig. 1, Plate A). I have found that hirola lost much of their suitable habitat because of tree encroachment, and I suspect this is due to fire suppression and severe range degradation.

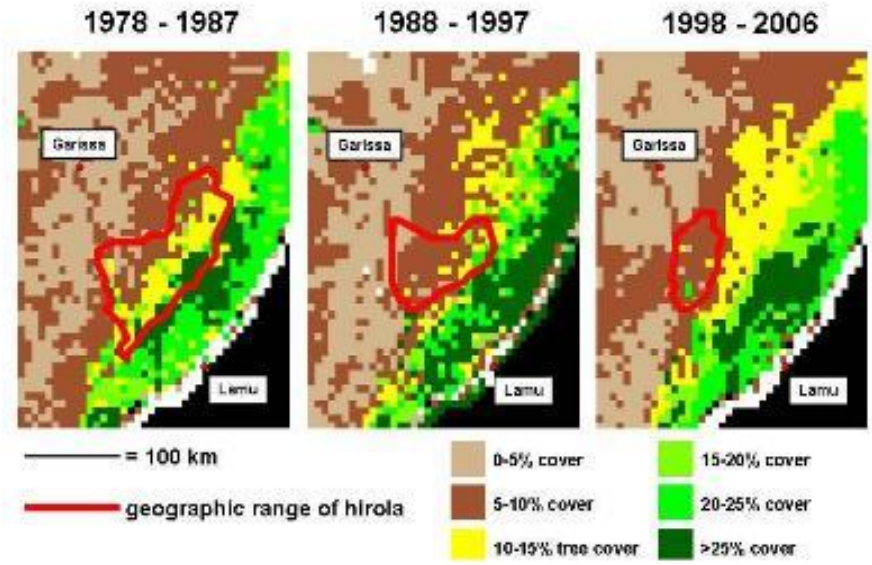

Fig. 1—Changes in tree cover and hirola range size between 1978 and 2006. Note that hirola persist mainly in areas of low tree cover. Advanced Very High Resolution Radiometer (AVHRR) data were acquired from the International Livestock Research Institute GIS database. Range maps were acquired from unpublished data from Department of Resource Surveys and Remote Sensing and the Kenya Wildlife Service.

I suspect that hirola are faced with acute food limitation and habitat loss resulting from overgrazing, fire suppression, and extirpation of elephants from the area. As a response to these factors, hirola groups are moving southward into the open grasslands of Boni forest. However, prior to recent years, this area was avoided by hirola. Further, the habitat that hirola prefer (grasslands previously-dominated by *Chloris* and *Cenchrus* grasses) in Ijara is under heavy threat of settlement, tree encroachment, quarrying and irrigation (Plates A-D). This preferred habitat and seasonally flooded grasslands are now under intense irrigation. Hirola are pure grazers (feeding only on grasses; Plate E) and large part of their dispersal sites between Ishaqbini and Arawale is under quarrying meeting the demands of neighbouring human populations.

Plate A: Tree encroachment in Arawale Plate B: Quarry site in Dubandesi area

Plate C: Ploughed land in the seasonal flood plains Plate D: Overgrazed habitat patch in Ishaqbini

Hirola were found to prefer habitats in open grassland with scattered small shrubs and trees on well-drained sandy soils (Plate E). Hirola are often found in the company of other animals such as gerenuk (*Litocranius walleri*), Grant's gazelle (*Gazella granti*), plains zebra (*Equus burchellii*), and oryx (*Oryx beisa callotis*). They avoid close association with domestic cattle which co-occur in the same range and utilise similar resources, perhaps indicating competition.

Plate E: Hirola grazing with common zebra in Ishaqbini Community Conservancy, Ijara

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

I have held a series of meetings with community members both in Ijara and Fafi Districts over the last two years (Plate F). In 2010, I administered a structured questionnaire to homesteads in

Arawale, Gababa, Galmagala and Ishaqbini. I asked questions about the historical distribution of hirola in the region, attitudes toward hirola, threats to livestock from hirola, threats to hirola from people, and the future of wildlife in these areas. I have appointed and trained three community scouts in each area to assist in hirola research as a part of community capacity building. These efforts will continue in 2012 as locals acclimate to this research. A manuscript on community knowledge and attitude regarding hirola conservation is underway which will be submitted to *African Journal of Ecology* in early 2012 in which I will make guidelines for range restoration in the hirola range.

Plate F: Mr.Ali sensitizing community members about the plight of hirola in the region

In addition, I was recently featured in a leading Kenyan newspaper, the Standard, (http://www.standardmedia.co.ke/specialreports/InsidePage.php?id=2000035100&cid=259&). I have also conducted live radio interviews with the Kenya Broadcasting Corporation Somali service to further raise awareness on the plight of this species. Further, I have an article slated to appear in the January issue of *Swara*, a popular publication of the East African Wildlife Society which will also detail current threats facing hirola. I expect the first chapter of my dissertation to be drafted by the end of the year, for submission to the journal *Ecological Applications* or *Conservation Biology* in 2012. This piece will detail interactions between tree encroachment, elephant extirpations, overgrazing, and hirola populations over the past 30 years.

5. Are there any plans to continue this work?

Yes. While the predator-proof sanctuary is a critical (see answer to Question #2), necessary step for the short-term conservation of hirola, it is an unrealistic solution for their long-term persistence in Ishaqbini or in other parts of Ijara. Therefore, I will conduct population viability analyses to compare the relative risks of extinction of hirola under three conditions to inform selection of reintroduction sites in the future: 1) predators present/livestock present; 2) predators present/livestock absent; and 3) predators absent/livestock absent. There is no "predators absent/livestock present" treatment existing within Ishaqbini.

During the hirola translocation, I will radio-collar adult female hirola. A total of 36 individuals (12 outside the sanctuary in the "buffer" area of Ishaqbini where livestock grazing is permitted [predators present/livestock present]; 12 outside the sanctuary in the "core" area of Ishaqbini where no livestock grazing occurs [predators present/livestock absent]; and 12 within the sanctuary [predators absent/livestock absent]) will be immobilised and fitted with VHF transmitters with automated drop-off functions (Savanna/LoxoTracking, Nairobi, Kenya). Immobilization and collaring will be carried out on vehicle or on foot by an experienced KWS veterinarian. Location data will be collected daily and will be overlaid on a GIS combining fine-scale habitat features, MODIS data, and Landsat imagery for survival analyses and analyses of resource selection. KWS and NRT have already acquired funding for the translocation exercise and will commence the effort beginning in February or March 2012.

Through the collaborations of the Zoological Society of London, The Nature Conservancy, and NRT, plans are underway to establish a predator-proof sanctuary as a source for future reintroductions. My work promises to take the necessary next steps to inform the conditions under which these future reintroductions are most likely to succeed. Thus, with additional support from the Rufford Small Grants Foundation, it is possible (and indeed likely) that I will make real headway toward the conservation of this unique animal. I need to extend my work to look at issues of population genetics, range enhancements among others.

Importantly, and unlike many critically-endangered species, I suspect that a modest amount of funding can actually make a substantive impact with respect to hirola populations, for two reasons. First, the primary factor responsible for hirola declines—range degradation—is reversible, given local support and financial investment. This is because the fate of hirola is linked to the long-term sustainability of livestock production in this region, because both hirola and cattle require open grasslands and, at appropriate densities, cattle and hirola can coexist. Because Somali elders have witnessed range degradation through time, they are now eager to implement improvement measures. Second, the Somali clan in this region (Abdalla Somali) do not poach or eat bush meat, and ascribe to hirola a near-mythical status. Thus, locals in this area have both economic and cultural incentives to protect hirola, providing a legitimate chance against extinction for this unique species. Finally, it is my goal that the uniqueness of hirola will be continued to recognized by the community leaders and members in the region, thus strengthening long-term conservation efforts. Importantly, I have already built strong collaborative linkages with KWS, HMC, and NRT to manage the project in the long-term, thereby maximizing chances of success of the proposed research.

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

My work is still in progress and I have been updating stakeholders and communities through both HMC meetings (Plate J) and other forums such as village meetings (Plate F). At the end of the study data will be compiled into a comprehensive report that will be submitted to funding institutions, the KWS, HMC, NRT, Ijara County Councils, and the National Museums of Kenya (NMK). I maintain excellent working relations with these groups, all of whom are regularly updated on project recent findings. Thus, I am hoping filling these knowledge gaps and raising awareness about the plight of the hirola within Ijara and Fafi Districts would technically constitute "success". I have presented my recent findings at the hirola conservation strategy workshop attended by all stakeholders including IUCN and Zoological Society of London (ZSL) representatives (Plate J). Since I have started my work, awareness regarding the plight of this species has risen meteorically both nationally and locally as a

result of my sustained campaigns. There are plans to revive the Arawale National Reserve and create several community conservancies within the hirola range.

Plate J: Stakeholders attending hirola workshop in June 2011, held at Ijara, Kenya

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

This for 2010-2011 and is the first phase of the project which will run for another 3 years.

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
7 Tents @ £25	175	175	00	
7 Sleeping bags @ £12	84	84	00	
4 pairs of binoculars @ £50	200	200	00	
1 digital camera-Sony Cybershot @ £400	400	546	146	
1 laptop computer @ £500	500	700	300	
4 rain gauges @ £20	80	20	00	
Four 50 Meters Measuring Tapes @ £8	32	32	00	
2 Secateurs@ £15	30	30	00	
2 Plant press @ £4	8	8	00	
Reports, photocopies & distribution (Lump sum £500)	500	500	00	
Refreshments for workshops and seminars (Lump sum	500	700	200	

£500)				
Local Community Scouts 8 @ £30/month x 12 months	2880	2880		
Principal investigator 1 @ £100 x 12 months	1200	1200		
Total	**6589**	**7075**	**486**	**The difference was paid by the national Museums of Kenya**

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

In addition to the response to question #5 (through which I will produce detailed demographic data on hirola within Ishaqbini), the most important steps to take involve range rehabilitation within the hirola's native range, particularly in Arawale. I have been in discussions with KWS, NRT, and ZSL representatives about this effort. There is also need to establish a filed research station within Arawalle in which to coordinate and implement hirola conservation projects.

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

Received publicity from the following

- My work published in the Kenyan standard newspaper acknowledged the support of RSGF. H
- I have had a recent opportunity to present my work at the Smithsonian Institute in which I have also used the RSGF logo.
- I have also used a RSGF logo in a presentation I have given at the joint international meeting of the Association of Tropical Biology and Conservation and Society for Conservation Biology (African section held in Arusha Tanzania in June 2011).
- I have also used the RSGF logo in numerous grassroots community meetings held in Ijara, Kenya.
- At least four publications are currently underway in the next two years in which I will keep acknowledging the support of RSGF.

11. Any other comments?

I would like once again to say thank you for supporting my work and my community