Darwin Initiative for the Survival of Species

Half Year Report (due 31 October each year)

Project Ref. No.	162/12/004
Project Title	Building capacity for conservation of a critically endangered flagship species
Country(ies)	Kenya
UK Organisation	Zoological Society of London
Collaborator(s)	IUCN African Rhino Specialist Group, Kenya Wildlife Service
Report date	31/10/06
Report No. (HYR 1/2/3/4)	HYR 4
Project website	http://www.zsl.org/field-conservation/deserts-and-rangelands/conserving-the-black-rhino,22,AR.html (ZSL) http://www.kws.org/darwin.html (KWS)

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

1) 1 BSc in Wildlife Management at Moi University - Adhan Berhe, the KWS Rhino Warden, has started his final year of the course after successfully completing the third year.

2) 2 MScs in Wildlife Management – The KWS scientists Ben Okita and Lekishon Kenana have completed their MSc studies. Both did extremely well with Ben receiving a distinction from DICE, University of Canterbury. Both Ben and Lekishon have been promoted to senior positions. Ben is now Senior Scientist Rhino and the National Rhino Coordinator; Lekishon is the Senior Scientist Savannah. Both are making significant contribution to the conservation effort within KWS.

3) Metapopulation management: - Tsavo West NP (with its existing rhino sanctuary) is a key area for the long term conservation of black rhinos in Kenya. The population in the sanctuary is showing biological problems with growth rate declining to 2.4% from the 10% as result of decline in rhino browse due to the high density of browsers. Following assessment, a briefing document was produced for the KWS board for the creation of an IPZ in the surrounding valley (which has abundant food and water) with a founder population of 20 rhinos from the sanctuary. The has been approved by the board and the project is now providing technical expertise to initially move 10 rhinos in January and their following successful establishment move a further 10 rhinos after the April rains.

Assessments were also undertaken over the last year for the removal of elephants. A water hole was created outside the sanctuary for the elephants and initially 2 attempts were made to drive groups of elephants out of the sanctuary using a helicopter and ground vehicles. However this proved to be difficult and it was then decided to translocate the animals. Elephant translocations have been completely successful with all the 255 animals removed safely from the sanctuary. The KWS team (trained originally by ZSL staff) were highly efficient and the operation a model management activity. The extension section of the sanctuary is also being undertaken by KWS. The project is providing technical support where needed.

The planned full moon night monitoring exercise with 3 teams placed at the 3 artificial water holes and equipped with digital cameras has gone very well. The images have been analysed by the field team to determine the number of ID and clean animals in the sanctuary which will assist in selecting candidates for the translocation.

4) Habitat assessment and carrying capacity estimation - The main work during this reporting period involved the following:

- Development of the Kenyan black rhino Carrying Capacity Model: Statistical and Hypothesis generation aspects, and building of the Excel Spreadsheet-based tool to estimate Carrying

Capacities for new areas.

- Near completion of the write-up of the methods, theory and results of work on the Kenyan black rhino habitat characteristics and carrying capacities.

- Advanced Field training course on browse availability assessment for black rhino, conducted at Ol Pejeta, Kenya.

- Survey of browse availability and Carrying Capacity on a 190 km2 section of Ol Pejeta Ranch which will receive black rhino introductions in January 07.

- Development of the vegetation database for black rhino habitat assessment field data and data analysis (some final changes to data summary routines need to be made).

5) Development of the Kenya's 2006-2010 black rhino conservation strategy - The 2000-2005 guiding black rhino strategy on which the Darwin Initiative project is based on is due for review in 2006 to give direction to the next phase of rhino conservation. Kenya Wildlife Service (KWS) launched its 2005-2010 strategic plan in April 2006. The review of the current rhino strategy will therefore also be linked with the KWS strategic plan particularly on issues that directly affect endangered species conservation and management. We are now planning to conduct the review in December- January and hold a stakeholder's workshop to discuss the findings of this review and to draw up principles and objectives that would guide black rhino conservation from 2006 to 2010. The workshop will bring together all the key local stakeholders. The agreed objectives will then form the basis for the new black rhino management strategy that will be produced soon after the workshop. This will then be used as the basis for planning annual work programmes.

6) Development of a Regional Rhino Strategy - A primary recommendation made, at the 2004 IUCN African Rhino Specialist Group (AfRSG) meeting in Kenya, by the working group which included the Darwin Initiative was the establishment of an East African Community (EAC) Rhino Management Group (RMG). The EAC-RMG's purpose would be to enable collaborative and coordinated management by the participating country rhino management agencies of the East African metapopulation of *D.b.michaeli* towards achieving viable population goals. A concept paper to initiate cooperative planning and management of *D.b. michaeli* with the primary focus on local and regional cooperation under the political and institutional umbrella of the existing East African Community Natural Resource and Environment Secretariat (EAC NRES) was subsequently developed by KWS and ZSL and sent to the National Wildlife Authorities of Kenya, Tanzania and Uganda. A working group comprising of the National Rhino representatives of Kenya, Tanzania and Uganda, Darwin Initiative, IUCN AfRSG chairman and other key partner organisations then discussed the setup of the EAC-RMG and its implementation timetable at the 2006 AfRSG meeting in Swaziland. The National wildlife authorities of Kenya, Tanzania and Uganda have all now agreed to the formation of the EAC Rhino Management Group. A briefing document with the Terms of Reference for the group has been produced and sent to the EAC Natural Resource and Environment Secretariat. A stakeholder workshop is being planned for January and based on the outcomes of this meeting we hope to submit a post-project funding proposal for the establishment of EAC-RMG. Kenya conserves the majority (about 85%) of eastern black rhinos, Tanzania, a former stronghold has approximately 55 animals, Rwanda until recently had one rhino; while Uganda intends to reintroduce *D.b. michaeli*, which went locally extinct around 1980.

7) Education - The education wardens of Tsavo West NP and Lake Nakuru NP (Elema Hapicha and Lucy Makosi) successfully completed their 2 week study tour in teaching techniques based at ZSL's education centre in London and Whipsnade Animal Park. Elema and Lucy have benefited enormously through formal and informal teaching activities and developing skills in activity centred learning.

8) Publications and presentations - The following paper has been published: An integrated management strategy for the conservation of Eastern black rhinoceros *Diceros bicornis michaeli* in Kenya, *Int. Zoo Yb.* (2006) 40: 118–129

Two papers on the habitat work are being planned for publication.

Ben Okita presented the Kenyan range state report at the 8th meeting of the IUCN SSC African Rhino Specialist Group (Swaziland). The Kenyan black rhino numbers have increased by over 5% per annum over the last 2 years to a total of 539 animals (end of 2005). The goal of the national strategy is to increase numbers by a minimum of 5% per annum. This goal is being met for the first time since the population was stabilised at the end of the 1980s. A whole session at the meeting was

also dedicated to Darwin project presentations (Project overview, Population performance in Kenyan rhino sanctuaries, Habitat characteristics and carrying capacities, Rhino monitoring).

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

1) Delays in the CC model development occurred over this period. Extra effort was spent in researching background information to provide justifiable parameter values for the influence of soil fertility, texture and climate temperature on browse growth in the carrying capacity model. Similarly, extra effort went into researching the impacts of fire and browser density on browse availability within ecosystems, and how to incorporate these effects in the CC model. There are few cross-ecosystem studies available on these last two aspects, and a new approach had to be taken to understand their influences. Essentially it appears that the competing browser biomass density is positively correlated with black rhino density, implying that each habitat has a "browser carrying capacity" which is itself related to standing browse availability and browse growth (influenced by rainfall, soil fertility, temperature). Only when competing browser densities exceed these levels do impacts on rhino carrying capacity arise. In a similar vein, each habitat has a "fire capacity" – i.e. a level of burning that approximately maintains the browse at standing levels. This depends on annual rainfall and resulting grass biomass. Black rhino carrying capacity is impacted only when the fire frequency exceeds this level for each habitat. The impact of fire and competing browsers thus need to be incorporated as modifiers of the "potential" rhino carrying capacity for a given habitat as generated by our model. Fire and total browser "carrying capacities" need to have their own model.

As black rhino stocking rate decisions may be taken by Kenyans based on the Darwin research, we have tried to be extra careful to logically justify our carrying capacity recommendations and present possible alternative models (which are however less well-supported by the field evidence). This had delayed the final write-up, which is however imminent.

2) Based on statistical references, it appeared that an "antilog bias correction" was needed for CC predictions from our natural-log based regression model. We had to therefore develop the implementation of this bias-correction, which has a small but positive effect of CC predictions.

3) During the survey of the new Ol Pejeta area, smaller plot sizes (4m radius plots) were decided on to make it easier for newly trained people to make browse assessment under a limited time schedule. However, it was later found that the smaller plots failed to incorporate sufficient variation particularly in bush-clump mosaic vegetation, resulting in an under-estimate of browse in these habitats. A rough correction could be made by comparing photographed plots to the 10m radius plots done previously in the neighbouring Sweetwaters section of Ol Pejeta. However we are planning to repeat the survey (or certain parts thereof) using 10m radius plots, this will be undertaken mainly by the trained field staff.

In Summary: final write-up is well underway and should be finished soon. Plans for 2 scientific papers are being made based on this. Adjustments to the vegetation database are being finalized.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement? No

Discussed with the DI Secretariat: Yes

Changes to the project schedule/workplan: Yes

3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures? No

Please send your **completed form by 31 October each year per email** to Stefanie Halfmann, Darwin Initiative M&E Project Manager, Email: stefanie.halfmann@ed.ac.uk