Elephant-Habitat Interaction Study
Shimba Hills National Reserve, Kenya

Report for The Davis Expedition Fund

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Introduction

Shimba Hills National Reserve and the joining Mwaluganje elephant sanctuary covers an area of 253km. It lies 25km south of Mombassa and 15km inland from the Indian Ocean. In recent years, (since 1992), the area has gradually been enclosed in an elephant proof electric fence which has been constructed to relieve the rising human elephant conflict around the borders of the reserve. This has left a confined and increasing elephant population.

The area now faces a new but extremely urgent problem of alarmingly high elephant damage to areas of forest. The Kenyan Wildlife Service aims to promote biodiversity and feels that this is being threatened by the loss of forest habitat that is being caused by elephant damage , especially in Mwaluganje forest and Mtae Kaya in the Mwaluganje elephant sanctuary. This area was only fenced in 1995 and in the last two years the bull elephants that live in this area have debarked and pushed down a high proportion of the trees opening up the forests and so altering the habitat. The damage in forested areas in Shimba Hills National Reserve is at a much lower level and is considered acceptable but there is fear that this level may escalate in the future due to the increasing elephant population.

The Kenyan Wildlife Service held a workshop in March 1997 with all the relevant stake holders where the problem and possible solutions were discussed. Culling a proportion of the elephants was ruled as the most feasible option as birth control and translocation were deemed to be impractical in this situation. A cull of 200 elephants has been proposed though no final decisions have yet been made. This figure is based on the mean estimate of 460 elephants in the area estimated from a dung transect survey carried out in April 1997. This is obviously a very controversial issue as many people believe that the elephants should not be culled on ethical grounds. The Kenya Wildlife Service are not at present carrying out any implementations towards addressing the problem and are still gathering vegetation data, in the form of the elephant-habitat interaction study which has been underway since 1993.

Field Work Carried out in August/September 1997

1) Aerial Survey

In the context of the controversy that surrounds the problem some interested parties challenged the validity of the KWS's elephant population figures based on the dung density survey. Therefore to obtain a minimum population number an aerial survey was conducted. As much of the area is forested and would conceal many of the elephants in it this exercise could not be thought as a true total count. The whole area was flown in 500m transects in a helicopter with 4 observers. All elephants that we observed were recorded and their location noted with the use of a GPS.

A total of 465 elephants were recorded which was in agreement with the figure estimated from the dung transects and quelled the fears from some areas that the dung transect method might have vastly over estimated the actual figure.

2) Permanent Vegetation Plots

One of the objectives in the on going elephant interaction study in this area is to obtain an idea of the rate of damage in the different forests. So to allow tree damage to be monitored over time we set up 9 permanent vegetation plots of 20m*20m along 2km transects in three different forests :

1) Mwaluganje Forest, this area has obvious and acute elephant damage.

2) Longomwagandi Kaya Nature Reserve, this area in Shimba Hills National Reserve has a far lower amount of elephant damage but unfortunately, in view of the sensitivity of the area, some worrying evidence of human damage.

3)Makadara Forest, this area also has a very low level of elephant damage.

The parameters measured were dbh, (diameter at breast height), of all trees with a cbh, (circumference at breast height), of greater than 20cm, phenology, species, openness, height and damage such as elephant or human, new and old. The plots and recorded trees were permanently marked for future remeasuring. The number and height of all saplings found in the plots was also recorded to provide some crude information on regeneration.

Future Management

Although future culling in this area looks rather likely a final decision has not been made yet. However, what ever the outcome it will be disputed by one side or the other. The emotion and politics behind the arguments in this debate could probably last for many years, however it seems evident that Mwaluganje Forest needs some form of immediate protection if it is to survive in its formal state.

How it Helped!

This was an extremely valuable experience for me in many ways. Firstly the chance to contribute to some valuable and greatly needed research. It also gave me the opportunity to practice field skills recently learnt in a field course in Uganda and to learn new ones such as planning and carrying out an aerial survey. Secondly, and just as importantly the six weeks that I was at Shimba gave me the opportunity of being able to learn about practical management issues on the ground in a way that would never be possible through purely academic sources. I was able to talk extensively with rangers, the Biodiversity officer, the Reserve warden, the tourist and community warden and to many representatives of development and conservation NGO's. I was also able to attend workshops with local people which aimed to promote better partnership between conservation and the local residents. This unique experience for me opened my mind to the intricacies of practical conservation and showed me how academic research , practical issues and partnership with local people must be married together for successful conservation.

Acknowledgements

I would like to thank Moses Litoroh the Biodiversity Officer for South Coast (KWS) for giving me the opportunity of joining the research team and the Davis Expedition Fund for providing me with financial support.