Assessment of the impact of a newly introduced free-ranging group of chimpanzees (*Pan troglodytes schweinfurthii*) on the vegetation of Ngamba Island, Lake Victoria, Uganda

by

Claudia Ulrike Regina Schoene

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Meinen Eltern

in

Liebe und Dankbarkeit

&

Tim

the best of all companions
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Density of the different vegetation types
Number of plant species
Braun-Blanquet classification
Density of plants per species and per hectare
Density according to height classes and growth form

Quadrat I
Quadrat II
Quadrat III
Quadrat IV

“Tree” density corrected for Aframomum angustifolium

Distribution of plant species according to growth form

Shrub
Sparse shrub
Tree

Density of “Dead Trees”

Ngamba Island chimpanzees’ food plant species

Distribution and density of Ficus species

Total projected canopy cover

Total projected canopy cover at different height classes
Mean total projected canopy cover at different height classes
Total projected canopy cover at different height levels
Mean total projected canopy cover at different height levels
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Mean total projected canopy cover at different height levels according to growth form

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SUMMARY

Assessment of the impact of a newly introduced free-ranging group of chimpanzees
(Pan troglodytes schweinfurthii) on the vegetation of Ngamba Island, Lake Victoria
Uganda

Claudia Ulrike Regina Schoene

Supervisor: Professor Gretel van Rooyen
Co-supervisor: Professor Wouter van Hoven
at the
Centre for Wildlife Management
for the degree of
Magister Scientiae (Wildlife Management)

The purpose of the current research project was to undertake a thorough quantitative and
qualitative survey of the vegetation on Ngamba Island. Based on the results of this survey
suggestions are made for future management of the chimpanzees on the island.

It was assumed that the introduction of chimpanzees onto an island that was previously not
inhabited by this species would have an (to be defined) impact on the environment in
general, and the vegetation cover, in particular.

The woody vegetation was sampled and analysed using the varying quadrat plot method.
This method gives the following results per (a) species, (b) stem growth form and (c) height
class: 1. Canopy regime at different height levels; 2. Total projected canopy cover; and 3.
Density.

The results of the vegetation analysis showed that at this stage the forest structure on
Ngamba Island still represents a healthy secondary rain forest cover.

A major impact chimpanzees have on the woody vegetation cover of Ngamba Island is that
they defoliate and destroy trees of all height classes.

The number of mature trees that a parent tree produces per fruiting period might often be as
little as ≤ 1. Even though chimpanzees act as seed dispersers in their natural habitat the
impressive number of seeds dispersed by each individual chimpanzee is therefore put into perspective by the very low final recruitment rate. Resulting from the above it is postulated that the impact of the Ngamba Island chimpanzees as seed dispersers for selected woody vegetation species is of low importance if not negligible. It is by far outweighed by the destruction caused to the secondary rain forest cover of the Island by this newly introduced species.

Using different approaches and calculations to estimate the necessary home ranges for chimpanzees in a confined habitat the areas calculated range from 5 – 56 hectare per chimpanzee. Even though, there is an 11.2-fold difference between these estimates they indicate nevertheless, that Ngamba Island with an area of 42.40 ha of secondary rain forest cover and 16 adult and 17 juvenile chimpanzees is already highly overstocked.

In summary the impact the newly introduced species of chimpanzees on Ngamba Island will have over time on the secondary rain forest cover of their forest refuge is that of continuing destruction. Using a rate of destruction of about 0.05 ha per chimpanzee per year the secondary rain forest cover of Ngamba Island will be completely destroyed in 53 years with a stocking density of 16 adult chimpanzees. Increasing stocking density - also through maturing of the juvenile chimpanzees currently present on the Island into adulthood - will increase the rate of destruction of the woody vegetation cover of Ngamba Island proportionally.