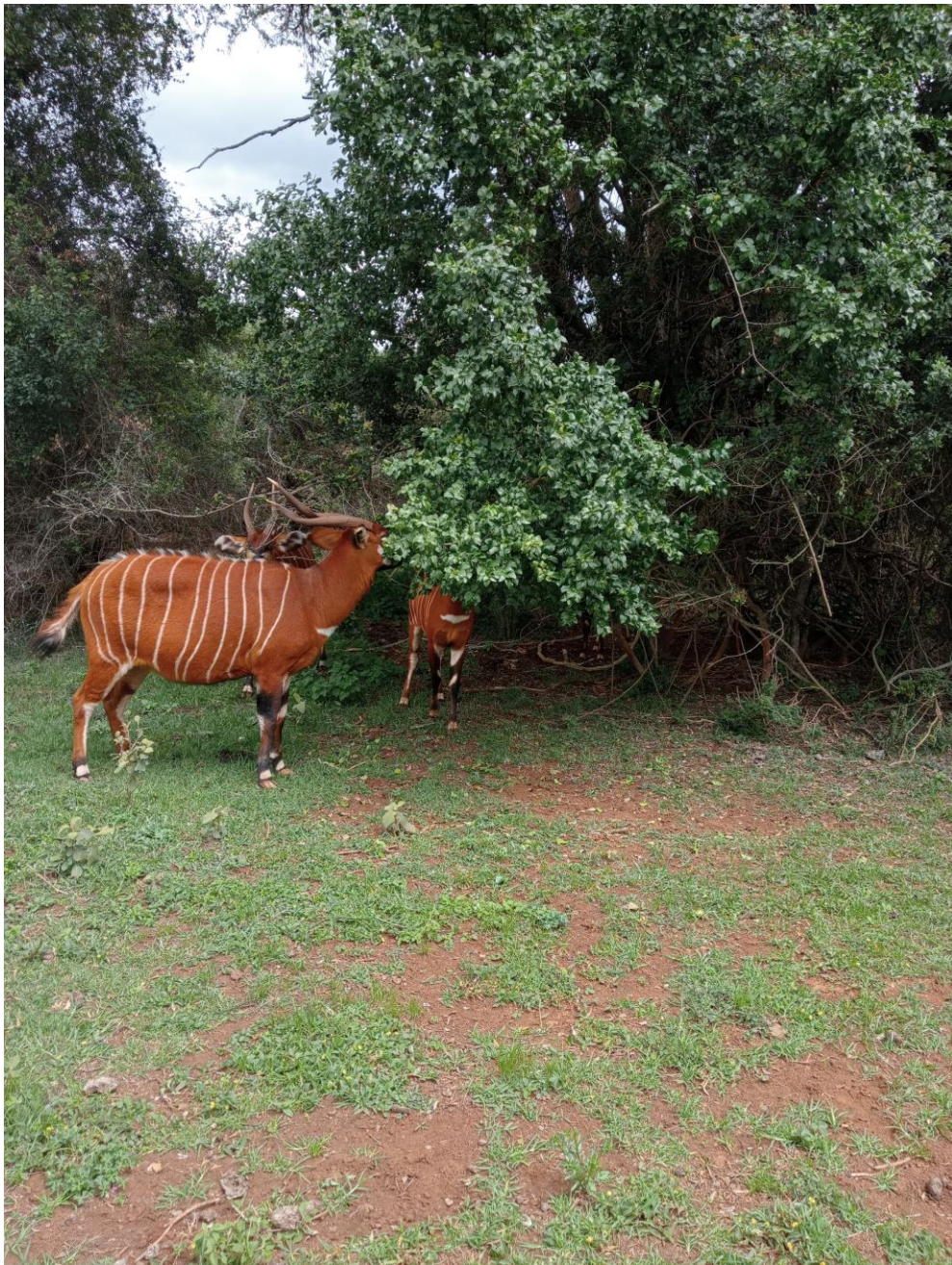


**Understanding Nutritional Requirements of The Critically Endangered Mountain Bongo  
(*Tragelaphus eurycerus spp. isaaci*) at Mount Kenya Wildlife Conservancy**

*June Mutinda -Progress report*

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## Introduction

### 1.1. Background information

The Mountain Bongo population has suffered a major population crash over the last three decades as a result of poaching, human encroachment, habitat destruction, and diseases. The same threats continue to threaten the remaining population in Kenya. With extremely low, fragmented, and unviable populations in the wild, successful captive breeding remains the only hope to save the species from the verge of extinction. Conservation measures to save this species have focused majorly on captive breeding in zoos in western countries and at Mount Kenya Wildlife Conservancy in Kenya.

While food and foraging efficiency are key determinants of species reproductive success and survivorship, these attributes have received very little attention for the Mountain bongo both in the wild and in captivity. Thus, inadequate scientific information on the foraging goals of the bongo continues to impede the conservation and management efforts at Mount Kenya Wildlife

Conservancy. Such challenge is potentially linked to nutritionally related disorders and diseases observed in the captive populations. Thus, with captive breeding and reintroduction as the last conservation intervention to restore and boost population recovery of the bongo in the wild, understanding the foraging goals and the primary food plants fundamental to meet such nutritional goals remain a great priority.

### **1.2 Problem statement:**

The Mountain Bongo is a critically endangered and rare forest antelope, which is endemic to Kenya and whose fragmented population, of 150 individuals country wide, risk extinction. The bongo has over time been threatened by poaching, disease outbreak and habitat destruction. Due to these threats, the sub-species faces extremely high risk of extinction in the wild. Therefore, captive breeding remains as the reliable conservation and management tool to save the population globally. Previous research carried out on bongo conservation mainly highlighted the plight of the bongo and role of genetics in conserving the sub-species with very little literature on mountain bongo nutrition ecology. Therefore, this study aimed at understanding nutritional requirements of the critically endangered mountain bongo (*Tragelaphus Eurycerus spp. isaaci*) at Mount Kenya Wildlife Conservancy

### **1.3 Project Goals & Objectives**

To enhance wild population recovery of the Mountain bongo through nutritional improvements for successful captive breeding and reintroduction.

Project objectives:

To determine;

- (i) The nutritional foraging goals across age-sex classes and season of the free ranging population of the Mountain bongo in Mount Kenya Wildlife Conservancy
- (ii) The important food plant species utilized by the bongos in meeting their nutritional goals,
- (iii) Compare food resources critical for meeting bongo's nutritional goals in both the Conservancy

## **2.0 Methodological Approaches**

### **2.1.1 Study Area**

Mount Kenya Wildlife Conservancy is located in, Nyeri County, Kenya. The area lies between 0° 03'N and 37°09'E at 2387M above sea level. The Conservancy covers an area of 1250 ha. Within the Mount Kenya Wildlife Conservancy, bongos are managed in captivity and within the sanctuary where they are managed in a free ranging setting. The area experiences a bimodal rainfall pattern annually with the long rains occurring from March to May and short rains between October and November. Ecologically, the area falls within the Mount Kenya biosphere, which is important for overall biodiversity conservation and also serves as one of the few remaining critical habitats for the critically endangered Mountain bongo.

### **2.2 Project implementation**

The project began in November 2022 at Mount Kenya Wildlife conservancy. The implementation phase involved behavioral sampling and collecting nutritional plant samples for the wet season.

#### **2.2.1 Behavioral sampling**

To understand nutritional goals across age-sex class and season in the bongo, I collected behavioral data on feeding and ingestion rates in adults and juveniles during wet season, using focal animal sampling method (Altman, 1974). Behavioral data was recorded continuously for 10 minutes with 5 minutes resting intervals. To estimate ingestion rates, number of food units consumed in 5 minutes focal observation during a feeding bout were counted. During focal animal follow up, I recorded the general animal behaviors (i.e., feed, move, rest, and social interaction, vigilant and others (i.e., any other behavioral category observed), time spent feeding, food plant, parts eaten, and number of food units ingested in five minutes observation period.

#### **2.2.2 Collecting plant samples**

This was achieved through focal animal sampling. Purposive sampling was used to select the study populations. Random sampling was then used to select the study individual. The individual was followed for ten minutes and continuous recording method used to record the activities of

the individual. Once an individual was spotted feeding, the plant species and plant part was noted down and collected immediately after the sampling time elapsed.



*Plate 1: Collecting plant samples*

### **2.2.3 Drying plant samples**

After collecting the plant samples, the wet weight was measured and recorded using a scientific weighing scale after which the samples were dried using a plant drier at 55<sup>0</sup>c for five hours.



*Plate 2: Weighing and drying plant samples*

### 2.2.4 Packaging plant samples

This process involved measuring the dry weight of the completely dry samples and packaging them in moisture absorbent bags before transportation to the laboratory for nutritional analysis.



*Plate 3: Packaging plant samples*

### 2.2.5 Laboratory analysis

Once in the laboratory, I ground the samples to 1Millimetre particle size and carried out nutritional analysis for macronutrients following protocols by Rothman 2012.

### 2.2.5 Preliminary Results

Nutritional analysis indicated that out of the total dry matter, 11.04 % comprised Ash, 4.24% Lipids, 15.64% Crude protein, and 37.03 % of the diet was Neutral Detergent fiber. (Table 1 below)

*Table 1 Available nutrients in the diet*

<b>Nutritional component</b>	<b>Percentage in diet</b>
Ash	11.04
Lipids	4.34
Crude protein	15.64
Neutral Detergent Fiber	37.03

### **2.2.6 Project implementation progress**

Wet season behavioral and nutritional data was collected and nutritional analysis was carried out successfully. Dry season data will be collected at the end of the wet season, analyzed, and results presented.

### **2.2.7 Conclusion**

The first phase was implemented successfully and nutritional analysis was carried out on the samples for the wet season. The project is ongoing and once the dry season data is collected and analyzed, a final report will be prepared and submitted.

### **2.2.8 Acknowledgement**

We would like to appreciate Rufford Small Grants Foundation and Mount Kenya Wildlife Conservancy for their support in ensuring the successful implementation of this work.

### **3.0 Challenges encountered while in the field**

The project implementation was delayed beyond the stipulated timeline due to the COVID- 19 pandemic where institutions including Mount Kenya Wildlife Conservancy closed down.

There was also a challenge with permitting because the Mountain Bongo is a critically endangered species.

The Mountain Bongo is a very elusive and shy species and is mostly active during the early morning hours and late evening. This required the team to be in the field very early in the morning.