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Ngubi Forest

Biodiversity Report

Kikuyu Escarpment Forest, Limuru · Kiambu County, Kenya

A Living Forest ·Verified Biodiversity · Responsible Adventure

139	74	55	132	26	10
Plant Species	Bird Species	Fungi Species	Invertebrate Species	Mammal Species	Reptile & Amphibian Spp.

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Scientific study by National Museums of Kenya commissioned by Acacia Traders Limited

About This Report

In October 2024, the National Museums of Kenya (NMK) conducted a comprehensive biodiversity survey of Ngubi Forest and the surrounding Kikuyu Escarpment. The study was commissioned to assess the ecological health of the forest before the establishment of the Kikuyu Escarpment Recreation Camp (KERC), the facility now operating as Ngubi Adventures Forest Camp.

Fourteen specialist scientists from NMK's departments of Botany, Zoology, Ornithology, Mycology, Herpetology, and Mammalogy spent days in the field using internationally accepted sampling methods to build a complete species inventory across six major taxa. Their findings confirmed that the forest is ecologically significant — and that responsible, low-impact recreation can coexist with its conservation.

Who Should Read This?	Audience
Teachers & Students	Chapter-by-chapter species counts, ecology principles, field methods
Researchers & Scientists	Full species checklists in Appendices; IUCN Red List status; methodology
Conservationists & NGOs	Impact assessments, mitigation measures, monitoring recommendations
Corporate Groups & Event Planners	Proof that your event or retreat actively supports verified conservation
Corporate Groups & Event Planners	A forest with a certified ecological story — a setting with purpose
Corporate Groups & Event Planners	Fascinating facts about the plants, birds, and animals living here

The full 119-page scientific report is available on request from Ngubi Adventures Forest Camp. This summary document is designed for general audiences.

The Forest at a Glance

Ngubi Forest sits on the Kikuyu Escarpment, approximately 38 km from Nairobi along the Limuru–Maai Mahiu Road. It is part of the larger Uplands Forest system that extends toward the Aberdare Ranges — one of Kenya's most important montane forest corridors.

Location	Kikuyu Escarpment Forest, Limuru, Kiambu County, Kenya
Nearest city	Nairobi (~38 km) Approx.
Altitude	2,200 m above sea level
Forest type	Montane forest — *Juniperus procera* plantation + riparian + natural
Key feature	Mau Mau historical caves; Rift Valley escarpment views
Legal status	Gazetted forest managed by Kenya Forest Service (KFS)
Partner agencies	National Museums of Kenya, Kenya Wildlife Service, Nature Kenya

Why Is This Forest Important?

Forests like Ngubi are far more than trees. They are living systems that regulate rainfall, recharge groundwater, store carbon, and shelter thousands of species. The Kikuyu Escarpment corridor is recognised as an Important Bird Area (IBA) and harbours endemic species found nowhere else on Earth.

The NMK study confirmed that Ngubi Forest is ecologically healthy enough to support responsible recreation — and that Ngubi Adventures' low-impact camp model is scientifically endorsed as compatible with long-term biodiversity conservation.

Biodiversity Summary at a Glance

Taxon	Species Recorded	Notable Finding
Plants	139 species / 53 families	No endangered species at camp site
Birds	74 species / 27 families	Near-threatened Mountain Buzzard recorded
Fungi	55 species / 13 families	Endangered *Antrodia juniperina* present
Invertebrates	132 species	60 pollinator species; low human impact
Reptiles & Amphibians	10 species	2 CITES-listed chameleon species
Mammals	26 species	Leopard (Vulnerable) recorded

Plant Life

Plants form the foundation of every ecosystem. They produce oxygen, anchor soils, moderate temperatures, and feed every other living thing — from fungi to leopards. Understanding what grows in Ngubi Forest is the first step toward protecting it.

What Scientists Found

Total plant species recorded	139
Number of plant families	53
Number of genera	120
Most diverse area	Riparian zone (highest total species count); Camp site (highest balanced diversity index).
Most diverse family	Asteraceae (Daisy family) — 15% of all species recorded (a high percentage often linked to past forest disturbance).
Most frequent tree	*Euclea divinorum* (**Magic guarri**)
Cedar plantation dominant	*Juniperus procera* (**African pencil cedar**)
Species of conservation concern at camp site	None recorded. *Prunus africana* [**African Cherry**], listed as Vulnerable, exists elsewhere in the broader forest.

What This Means for You

The camp site itself sits in a relatively diverse zone — the scientists measured a Shannon diversity index of H'=3.79, indicating a healthy and varied plant community. The riparian area along the stream edge is the richest zone and is left undisturbed. No globally or nationally threatened plant species were recorded in or around the camp footprint, giving the project a clean ecological bill of health.

For teachers: This forest is an open-air classroom for plant ecology, forest succession, and conservation biology. Students can observe up to five distinct vegetation strata — from the forest floor to the upper canopy — within a single 100-metre transect.

Conservation Actions Recommended by NMK

- **Rehabilitate** degraded areas using indigenous plant species
- Clearly **mark** forest boundaries to prevent encroachment
- **Plant** additional native trees to increase canopy diversity
- **Ban waste dumping** near the forest edge
- **Educate** local communities on the forest's vital role in supporting local farmers through soil, water, and pollinator conservation.

Bird Life




Birds are among the most charismatic and visible indicators of a forest's health. Ngubi's avian diversity reflects the richness of the Afromontane forest system — and includes species found in very few other places on Earth.

What Scientists Found

Total bird species recorded	74
Number of bird families	27
Most common families	Cisticolidae (Warblers & Apalises) and Muscicapidae (Robins & Chats)
Forest specialist species	7 species (e.g., **Black-collared Apalis, Yellow-whiskered Greenbul, Brown Woodland Warbler**)
Forest generalist species	8 species (e.g., **Cape Robin Chat, Grey Apalis, Olive Sunbird**)
Globally threatened species	None recorded
Near-threatened species	**Mountain Buzzard** (*Buteo oreophilus*)
Endemic species	**Kikuyu White-eye** (*Zosterops kikuyuensis*)
Biogeographic affinity	High Afromontane — closely linked to the Aberdare Range ecosystem

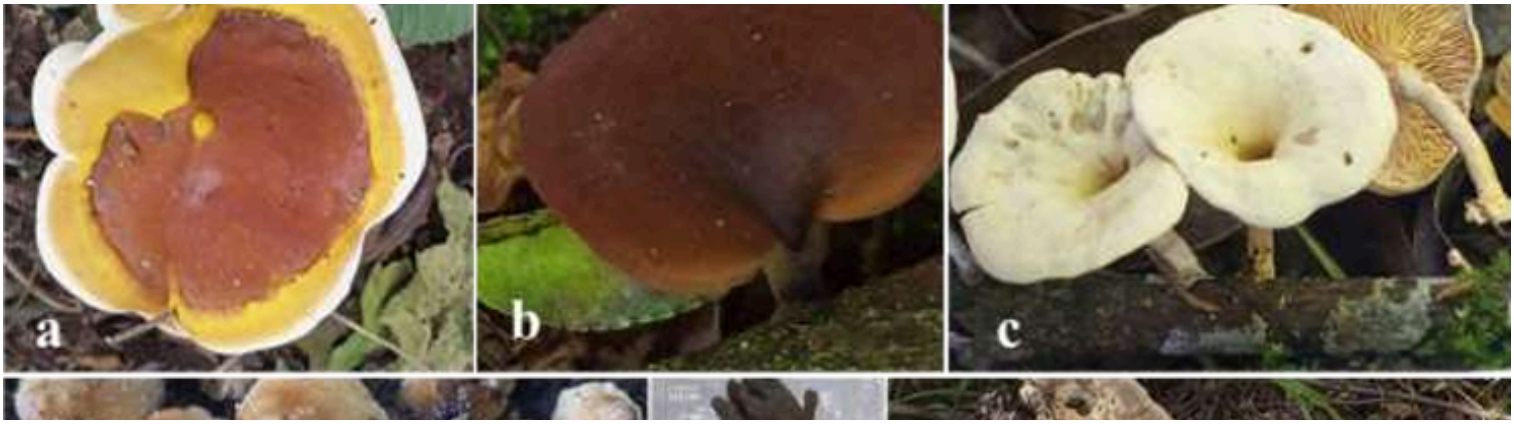
The Mountain Buzzard—a large, handsome raptor classified as Near Threatened—was a key find. Its presence indicates a healthy forest ecosystem with sufficient prey and minimal disturbance. The Kikuyu White-eye, a regional endemic found only in the central Kenya highlands, was also confirmed. Other notable sightings include the Hartlaub's Turaco and Hunter's Cisticola.

For birdwatchers: Ngubi is a specialized "island" of biodiversity. Because the forest edge, stream corridor, and cedar stands each attract distinct communities, a single morning walk offers the chance to see a significant portion of the forest's 74 species.

Citizen Science Opportunity

NMK recommends ongoing bird monitoring using the **Kenya Bird Map Protocol** (kenya.birdmap.africa) — a free citizen-science platform. Visitors and camp guests can contribute real scientific data simply by recording birds they see during their stay. Ngubi Adventures actively supports this programme.

Fungi - The Forest's Hidden Network



Fungi are the invisible architects of forest health. They break down dead wood, recycle nutrients, and form mycorrhizal partnerships with tree roots that allow the entire forest to communicate and share resources.

What Scientists Found

Total fungi species	55 (across 13 families and 27 genera)
Macrofungi (Mushrooms)	27 species (96% are "woodrotters" that decompose fallen timber)
Mycorrhizal fungi (AMF)	28 species (microscopic fungi that live in the soil and support tree roots)
Endangered species found	Antrodia juniperina (found exclusively on Juniperus trees)
Role of cedar plantation	The 100-year-old cedar stands act as a critical refuge for the endangered Antrodia fungus
Overall impact assessment	Minimal — camp footprint is only 2.3 acres of the 1,950-hectare forest.

The discovery of Antrodia juniperina is a major scientific highlight. While this fungus is rare globally, it thrives here because of the mature cedar trees. By protecting these trees from illegal logging, the camp directly ensures the survival of this endangered species.

Conservation Actions Recommended by NMK

- **Protect Woody Debris:** Leave fallen cedar logs and stumps in place; they are the primary habitat for rare wood-rotting fungi.
- **Control Soil Compaction:** Stick to designated trails to protect the delicate underground mycorrhizal networks.
- **Regular Monitoring:** NMK suggests a fungi survey every 3–5 years to track the health of the Antrodia population.

Invertebrates: Pollinators, Predators & Recyclers

Invertebrates—**insects, spiders, and beetles**—perform vital ecological services that the entire forest depends on. Without them, trees cannot reproduce and the forest food chain collapses.

What Scientists Found

Total invertebrate species	132
Butterfly species (Lepidoptera)	41
Beetle species (Coleoptera)	15
Bee & wasp species (Hymenoptera)	17
Pollinator species	60 (critical for both forest renewal and neighboring farm productivity)
Natural pest enemies	27 species (providing "free" pest control for the local ecosystem)
IUCN Status	26 species are "Least Concern"; 106 species are so rare or under-studied they have not yet been assessed

This forest acts as a "pollinator reservoir" for the surrounding Limuru community. The 60 species of pollinators and 27 species of natural "pest enemies" found here migrate into adjacent farms, helping local farmers grow better crops without expensive chemical inputs.

Conservation Actions Recommended by NMK

- **Minimize Light Pollution:** Use warm-toned or low-voltage outdoor lighting at the camp. Bright white or UV lights can disorient nocturnal moths and other insects.
- **Pollinator-Friendly Landscaping:** Use indigenous, flowering plants around camp structures to support the local bee and butterfly populations.
- **Create "Beetle Banks":** Maintain areas of undisturbed soil and leaf litter to provide nesting sites for ground-dwelling beetles.

Reptiles & Amphibians: Bio-indicators of Health





Reptiles and amphibians are among the most sensitive indicators of environmental health. Their presence—particularly amphibians, which breathe through their skin—signals clean water, stable soils, and low chemical pollution.

What Scientists Found

Total species recorded	10
Reptile species	9 (8 lizard species + 1 snake)
Amphibian species	1 frog species (Mahnert's ridged frog)
IUCN threatened species	None recorded at the site.
CITES-listed species	2 chameleon species (Jackson's Three-horned and Von Höhnell's).
Endemic species	Several species found here are restricted to the Kenya highlands, making them nationally significant.
Conservation conclusion	Herpetologically, there is no evidence to stop project implementation, provided vegetation disturbance is minimized.

The two chameleon species recorded are listed under CITES Appendix II, meaning their international trade is strictly controlled. Spotting a chameleon on a guided walk is a genuine conservation moment

The "Clean Water" Story: The presence of the **Mahnert's ridged frog**—an endemic species that requires specific moisture levels—proves that the forest floor and riparian zones remain healthy and free of toxic pollutants.

Mammals: From Shrews to Leopards



The mammal survey combined scientific trapping, forest transects, and community interviews to build a list that ranges from tiny bats to Kenya's most iconic apex predator.

What Scientists Found

Total mammal species	26
Rodent species	8 — The most species-rich group in the forest.
Carnivore species	5: Leopard, Large-spotted Genet, Spotted Hyaena, White-tailed Mongoose, and Common Dwarf Mongoose.
IUCN Vulnerable species	Leopard (Panthera pardus).
Unique find	Short-snouted Sengi — A shy, rarely encountered mammal.
Bat species	Recorded (African Long-fingered Bat), serving as vital nocturnal pollinators.

The confirmation of the Leopard in the wider forest system is a testament to the integrity of the habitat and the presence of a healthy prey base. The presence of the Mount Kenya Guereza Colobus is another key indicator of a mature forest canopy.

Conservation Actions Recommended by NMK

- **Waste Security:** All food waste is stored in animal-proof metal bins to prevent baboons and other wildlife from becoming "habituated" or dangerous.
- **Habitat Connectivity:** Canopy trees are preserved to ensure arboreal monkeys like the Colobus can move freely through the forest.

Our Conservation Commitment

Every guest who visits Ngubi Adventures — whether camping, hosting a retreat, bringing a school group, or attending an event — is directly supporting the conservation of one of Kenya's most biodiverse montane forest ecosystems.

For Campers & Groups	For Schools & Researchers	For Corporate & Events
Your stay funds **active conservation stewardship** of 139 plant species, 74 bird species, an **endangered wood-rotting fungus (Antrodia juniperina)**, and a Leopard territory.	Access to **real field data, living species**, and NMK-validated ecological systems—including the study of **rare Short-snouted Sengis** and **CITES-listed chameleons**—for genuine hands-on learning.	Your event contributes to a **socially responsible forest** economy. We protect a vital '**pollinator reservoir**' of 60 insect species that support the productivity of neighboring local farms.

What We Do Every Day

Habitat Enrichment Planting

We plant indigenous tree and shrub species to increase canopy diversity and support bird and invertebrate populations.

Low-Impact Operations

Our camp footprint is restricted to 2.3 acres, ensuring that the ecologically rich riparian zone remains completely undisturbed.

Citizen Science Partnership

We support the Kenya Bird Map Protocol; guests can contribute real biodiversity data during their visit to national databases.

Waste & Light Management

We use animal-proof bins to prevent primate conflict and warm-toned, targeted lighting to protect nocturnal moths and bats.

KFS & NMK Partnership

We operate in full partnership with Kenya Forest Service (KFS) rangers to curb illegal logging and maintain an active relationship with the National Museums of Kenya.

Visit the Forest. Experience the Science.

Ngubi Adventures Forest Camp is located on the Kikuyu Escarpment Forest, 38 km from Nairobi. We are open Monday–Sunday, 9 AM – 5 PM. To maintain the serenity and security of the forest, we operate on a **booking-only basis.** We kindly ask that all visits are scheduled **at least 24 hours in advance**; we do not currently facilitate unscheduled walk-ins at the gate. This ensures we can manage forest capacity and provide your group with a truly dedicated, eco-conscious experience.

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Partners	National Museums of Kenya · Kenya Forest Service · Nature Kenya

Full scientific report: ***Biodiversity of Uplands-Ngubi Forest and Possible Impacts and Mitigation Measures from the Proposed Kikuyu Escarpment Recreation Camp (KERC), Kenya.*** Edited by Taita Terer et al. National Museums of Kenya, 2024.