



Tanzania Forest
Conservation Group
Shirika la Kuhifadhi
Misitu ya Asili Tanzania

TFCG Technical Paper 14

Ngaramia Riverine Forest A biodiversity survey

Nike Doggart, Simon Loader, Andrew Perkin and Moses Mwangoka

August 2002



Acknowledgements

The Tanzania Forest Conservation Group is grateful to Charles and Netti Dobie for making this survey possible.

The authors are also grateful to all the staff at the Ras Kutani Hotel for making us feel welcome and for assisting us to carry out the surveys.

Field Survey

Plants: Moses Mwangoka, Tanzania Forest Conservation Group, PO Box 23410, Dar es Salaam
Mammals: Andrew Perkin, Nocturnal Primate Research Group, Oxford Brookes University, UK
Amphibians: Simon Loader, British Museum of Natural History, UK
Reptiles: Nike Doggart, Tanzania Forest Conservation Group, PO Box 23410, Dar es Salaam
Birds: Andrew Perkin (as above)

Report Writing

Author: Nike Doggart, Tanzania Forest Conservation Group

Cover photo

Aerial view of the Ngaramia Forest. Photo by Andrew Perkin.

1) Introduction

The Coastal and Eastern Arc Forests of East Africa have the highest concentration of endemic vertebrate fauna of any area in the world (Myers et al. 2000). They have thus been recognised as a biodiversity hotspot of global significance. The Coastal forests are typically small highly fragmented forest patches surrounded by subsistence agriculture and scrub. Their small size has made them particularly vulnerable to pressure from fire, clearance for agriculture and timber extraction.

2) Location

Ngaramia Forest

S06° 56' E039° 30'

Altitude: 0 – 20 m above sea level

Area: < 10 ha.

The forest is on land under long term leasehold to the Selous Safari Company, Amani Beach Hotel and a private individual Mr Herring. Additional forest is on land belonging to Gomvu Village. The village are in the process of gazetting their forest as a Village Forest Reserve with support from the Tanzania Forest Conservation Group.

The forest is accessible via the Ras Kutani Hotel.

After 26 km driving south of the Kigamboni ferry on the Kigamboni– Kimbiji road take a north-east turn at the sign posts for the Ras Kutani and Amani Beach hotels. Follow the signs to the Ras Kutani Hotel.

NB the forest is on private land and access is subject to permission from the Ras Kutani Hotel.

The forest is concentrated along the Ngaramia River and around the Ras Kutani Lagoon. The vegetation changes from forest to scrub with distance from fresh water.

3) Methods

The forest was visited between 5th – 7th October by the three authors.

The forest was also visited during March and July 2001 by the TFCG Botanical Collector Moses Mwangoka.

3.1 *Large mammals*

Nocturnal and diurnal walks were made through the forest. All observations of mammals were recorded. Discussions were also held with hotel staff familiar with the forest.

Nomenclature for all mammals follows Kingdon (1997).

3.2 *Galagos*

Recordings were made of bushbaby calls using a Sony WM-C6C tape recorder and a directional microphone. Observations were made using a Petzl head torch with a halogen bulb.

3.3 *Birds*

Birds records are based on observations during diurnal and nocturnal walks.

Nomenclature follows Van Perlo 1995.

3.4 *Reptiles*

Reptiles were recorded through diurnal and nocturnal walks. During the diurnal walks the focus was on species living in the leaf litter and under rotting logs. At night the focus was on chameleons and other species living in the lower branches of trees. Discussions were also held with hotel security guards and other staff to determine the presence of distinctive species such as pythons and sea turtles.

Identifications of specimens have been provided by D.G. Broadley of the National Museums of Zimbabwe.

3.5 *Amphibians*

Amphibians were recorded on diurnal and nocturnal walks and by turning the soil to search for caecilians. During the diurnal walks the focus was on species living in the leaf litter and the water's edge. At night the focus was on tree frogs and other species living in the lower branches of trees.

Identifications have been provided by Simon Loader of the Natural History Museum, London.

3.6 *Plants*

Collections were made of trees, shrubs and herbs from the forest on the Ras Kutani Hotel land and from the proposed Village Forest Reserves. Specimens were dried and have been sent to the Missouri Botanical Gardens and the National Herbarium in Arusha. Identifications have been provided by Roy Gereau from the Missouri Botanical Gardens. Many specimens await identification to species level.

4) Results

4.1 Mammals

A total of 14 mammal species from eight families have been recorded around the Ras Kutani forest. Of these four were recorded during the current survey. Other records are based on discussions with hotel staff.

Table 1. A checklist of mammals in Ras Kutani.

Species	Common name	Forest Dependency	Range
COLOBIDAE			
* <i>Colobus angolensis</i>	Angola pied colobus	FF	W
CERCOPITHECIDAE			
* <i>Papio cynocephalus</i>	Yellow baboon	O	W
<i>Cercopithecus mitis</i>	Gentle monkey	F	W
GALAGONIDAE			
<i>Otolemur garnettii</i>	Small-eared galago	FF	N
<i>Galagoides zanzibaricus</i>	Zanzibar galago	FF	N
MACROSCELIDINAE			
<i>Petrodromus tetradactylus</i>	Four toed elephant shrew	FF	W
HYSTRICIDAE			
* <i>Hystrix</i> sp.	Porcupine	F	W
VIVERRIDAE			
<i>Genetta</i> sp. ¹	Genet	F	
FELIDAE			
* <i>Panthera leo</i>	Lion	O	
* <i>Panthera pardus</i>	Leopard	F	W
BOVIDAE			
* <i>Syncerus caffer</i>	African buffalo	F	W
* <i>Tragelaphus scriptus</i>	Bushbuck	F	W
* <i>Cephalophus monticola</i>	Blue duiker	F	W
* <i>Neotragus moschatus</i>	Suni	F	W

¹ Only dung was observed for this species.

*Not observed by the survey team but reported to be present by hotel staff.

Key to Tables 1 and 2.

* This species was reported to be present by hotel staff but was not observed by the authors.

Forest dependency

Ecological requirements are defined in terms of:

- **Forest dependent species (FF):** Species dependent on primary forest only. It does not include forest edge or secondary forest species;
- **Forest non-dependent species (F):** Forest dwelling but not dependent on primary forest: species occurring in primary forest as defined above as well as other vegetation types. It should be emphasised that many of these species are still dependent on a forest habitat albeit forest edge or disturbed forest. Most species in this category will still be adversely affected by forest destruction.
- **Non-forest species (O):** These are species that do not normally occur in primary or secondary forest or forest edge.

Range

Species ranges are defined in terms of:

- **Near-endemic (N):** Species with ranges restricted to the East African lowland forests and / or the Eastern Arc Mountains.
- **Widespread (W):** Species with ranges extending beyond the Eastern Arc and East African lowland forests.

4.2 Reptiles

A total of nine reptile species have been recorded around Ras Kutani. This includes four species recorded during the current surveys and five species reported by staff at the hotel.

Specimens were collected of the *Crotaphopeltis hotamboeia* and *Lygodactylus capensis*. Specimens have been deposited at the National Museums of Zimbabwe.

Table 2. A checklist of reptiles recorded in Ras Kutani forest and along the neighboring coast (see Table 1 for key).

Species	Common name	Forest dependenc y	Range
CHELONIIDAE			
* <i>Chelonia mydas</i>	Green turtle	O	W
* <i>Dermochelys coriacea</i>	Leatherback turtle	O	W
GEKKONIDAE			
<i>Lygodactylus capensis</i>	Cape dwarf gecko	O	W
<i>Hemidactylus platycephalus</i>	Baobab gecko	O	W
SCINCIDAE			
<i>Mabuya maculilabris</i>	Speckle-lipped skink	F	W
VARANIDAE			
* <i>Varanus niloticus</i>	Nile monitor lizard	O	W
BOIDAE			
* <i>Python sebae ?natalensis</i>	Southern African python	O	W
COLUBRIDAE			
* <i>Philothamnus</i> sp.	Green snake		W
<i>Crotaphopeltis hotamboeia</i>	White-lipped snake	FF	W

4.3 Amphibians

A total of eight species from four families were recorded from around the forest area. All species from the Hyperoliidae family were taken from a small reed bed on public land along the road to the hotel at S06 57'96" E039 29'52". Eight specimens were collected. These have been deposited at the British Natural History Museum.

Table 3. A checklist of amphibians found in Ras Kutani forest and surrounding wetlands

Species
PIPIDAE
<i>Xenopus muelleri</i>
BUFONIDAE
<i>Bufo gutturalis</i>
RANIDAE
<i>Ptychadena ?anchietae</i>
<i>Phrynobatrachus acridoides</i>
<i>Phrynobatrachus ?mababiensis</i>
HYPEROLIIDAE
<i>Kassina maculata</i>
<i>Hyperolius parkeri</i>
<i>Hyperolius tuberilinguis</i>

4.4 Birds

Fifteen species of bird from 13 families were recorded. This includes five species not included in the list available from the Ras Kutani Hotel which lists 85 species. Thus 90 species are known to occur around the Ras Kutani forest.

Table 4. Bird species observed by authors in the Ras Kutani Forest

Species	Common name
ANHINGIDAE	
<i>Anhinga rufa</i>	African darter
SCOPIIDAE	

<i>Scopus umbretta</i>	Hamerkop
ALCEDINIDAE	
<i>Halcyon senegaloides</i>	Mangrove kingfisher
ACCIPITRIDAE	
<i>Milvus migrans</i>	Black kite
STRIGIDAE	
<i>Strix woodfordii</i>	African wood owl
TROGONIDAE	
<i>Apaloderma narina</i>	Narina's trogon
CAPITONIDAE	
<i>Pogoniulus bilineatus</i>	Yellow-rumped tinkerbird
PYCNONOTIDAE	
<i>Pycnonotus barbatus</i>	Yellow vented bulbul
TURDIDAE	
<i>Cossypha natalensis</i>	Red-capped robin chat
MONARCHIDAE	
<i>Trochocercus albonotatus</i>	Blue-mantled crested flycatcher
<i>Terpsiphone viridis</i>	Paradise flycatcher
CAMPEPHAGIDAE	
<i>Centropus superciliosus</i>	White-browed coucal
CORVIDAE	
<i>Corvus albus</i>	Pied crow
<i>Corvus splendens</i>	Indian house crow
ESTRILDIDAE	
<i>Lonchura bicolor</i>	Bi-coloured mannikin

4.5 Plants

Fifty-five plant specimens were collected from the forest around the Ras Kutani Hotel and within the Amani Gomvu area. The surveys recorded 42 species of plants from 26 families.

Table 5. A checklist of plants of the Ras Kutani and Amani Gomvu forests

GENUS	AUTHOR
ANACARDIACEAE	
<i>Ozoroa obovata</i>	(Oliv.) A. Fern. & R. Fern.
<i>Rhus</i> sp.	L.
<i>Sorindeia madagascariensis</i>	Thouars ex DC.
APOCYNACEAE	
<i>Carissa spinarum</i>	L.
ARECACEAE	
<i>Hyphaene</i> sp.	Gaertn.
<i>Phoenix reclinata</i>	Jacq.
BORAGINACEAE	
<i>Ehretia</i> sp.	P. Browne
CELASTRACEAE	
<i>Maytenus undata</i>	(Thunb.) Blakelock
DILLENIACEAE	
<i>Tetracera boiviniana</i>	Baill.
EBENACEAE	
<i>Diospyros</i> sp.	L.
<i>Euclea</i> sp.	L.
EUPHORBIACEAE	
<i>Antidesma venosum</i>	E. Mey. ex Tul.
<i>Margaritaria discoidea</i>	(Baill.) G.L. Webster
FABACEAE	
<i>Baphia kirkii</i>	Baker
<i>Bauhinia thonningii</i>	Schumach. & Thonn.
<i>Dichrostachys cinerea</i> subsp. <i>africana</i>	Brenan & Brummitt
<i>Erythrophleum suaveolens</i>	(Guill. & Perr.) Brenan
FLACOURTIACEAE	

<i>Oncoba</i> sp.	Forssk.
FLAGELLARIACEAE	
<i>Flagellaria guineensis</i>	Schumach.
LECYTHIDACEAE	
<i>Barringtonia racemosa</i>	(DC.) Spreng.
LILIACEAE	
<i>Gloriosa superba</i>	L.
LORANTHACEAE	
<i>Tapinanthus</i> sp.	(Blume) Rchb.
MALVACEAE	
<i>Gossypium</i> sp.	L.
<i>Thespesia</i> sp.	Sol. ex Corre 5a
MELIACEAE	
<i>Xylocarpus</i> sp.	J. Ko 2nig
MYRTACEAE	
<i>Syzygium</i> sp.	Gaertn.
OCHNACEAE	
<i>Ochna</i> sp.	L.
<i>Ouratea</i> sp.	Aubl.
RHAMNACEAE	
<i>Ziziphus</i> sp.	Mill.
RUBIACEAE	
<i>Canthium</i> sp.	Lam.
<i>Catunaregam nilotica</i>	(Stapf) Tirveng.
<i>Chassalia</i> sp.	Comm. ex Poir.
<i>Pavetta</i> sp.	L.
<i>Tricalysia</i> sp.	A. Rich. ex DC.
RUTACEAE	
<i>Vepris</i> sp.	Comm. ex A. Juss.
SAPOTACEAE	
<i>Manilkara</i> sp.	Adans.
STERCULIACEAE	
<i>Dombeya</i> sp.	Cav.
<i>Melhania</i> sp.	Forssk.
TILIACEAE	
<i>Grewia</i> sp.	L.
VERBENACEAE	
<i>Premna</i> sp.	L.
<i>Vitex</i> sp.	L.
VIOLACEAE	
<i>Rinorea</i> sp.	Aubl.

4.5 Species richness

A total of 121 vertebrates are known to occur around the Ras Kutani forest and coastal habitats. This figure includes two marine turtle species that use the Ras Kutani beach for nesting.

Table 6. Summary of the species richness of the Ras Kutani vertebrates

Taxon	No. of species
Mammals	14
Reptiles	9
Amphibians	8
Birds	90
TOTAL	121

4.6 Resource Use

The forest visited during this survey is within the land under long term leasehold to the Selous Safari Company who own the Ras Kutani Hotel. The hotel provide security guards who protect the forest from unauthorised resource use.

There is a well-maintained nature trail which runs through the forest including short board walks over the lagoon.

The forest has been well-protected and there are few signs of other resource use.

5) Discussion

Ngaramia is a typical East African coastal forest. It is small, isolated from other forest patches and threatened. It has a relatively high concentration of restricted range species including one listed on the IUCN red data list.

There has probably been forest in this area for many millions of years. Formerly the forest would have been linked with neighbouring forest patches such as Vikindu to the West. Climate change coupled with forest clearance for agricultural land has resulted in the isolation of the forest patch at Ngaramia.

5.1 Interesting findings

- An unusual galago was heard calling during the first night and a brief recording was made. This sounded similar to the *Otolemur crassicaudatus* although this species is not known to occur within the coastal forest zone. Further research is needed to determine whether this species is found in this area.
- The bushbaby, *Galagoides zanzibaricus* is listed by the IUCN as being vulnerable.

6) Recommendations

- Additional surveys are required to record other species. Surveys should focus on:
 - small mammal fauna including bats and rodents.
 - Elephant shrews to determine whether the black and rufous elephant shrew (*Rhyncocyon petersi*) is present. Although only the four-toed elephant shrew was recorded during this survey it is possible that *R. petersi* is also present. This species is listed as vulnerable by the IUCN.
 - Forest understorey birds specifically to determine whether the East Coast akalat is present. This is one of the bird species endemic to the East African Coastal Forest. Although it was not recorded during this survey it is possible that with more intensive study effort this species would be recorded.
 - Reptiles specifically to determine the identify of the green snakes which appear to be quite common and whether the chameleon *Rhampholeon brevicaudatus*. Although the authors searched intensively for this species, none were recorded however it is possible that with more survey time, the species would be found.
- Care should be taken with spotlights near the beach to avoid disturbing the sea turtles navigational systems. It is well documented that sea turtles can become disorientated where bright lights are in use close to their nesting beaches. Care should also be taken to protect the turtle nests from disturbance.
- The lagoon ecosystem is sensitive to pollution. In areas of Mexico where many tourists use lagoons for recreational purposes the accumulation of sun cream has had a negative impact on the biodiversity of the lagoon. If possible guests should be asked to rinse off before entering the lagoon.

References

- Broadley, D. G. and K. M. Howell 1991 A Checklist of the reptiles of Tanzania with synoptic keys. Syntarsus 1: 1-70. National Museums and Monuments of Zimbabwe.
- Burgess, N.D. and G.P. Clarke 2000 Coastal Forest of Eastern Africa. IUCN.
- Kingdon, J. 1997 The Kingdon field guide to African mammals. Academic Press.
- Van Perlo, 1995 Birds of Eastern Africa. Collins.

Myers, N., R. A. Mittermeier, C. G Mittermeier, G. A. B. da Fonesca and J. Kent 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.