

Field visit report to Quirimbas National Park, Mozambique
9th – 12th November 2002

Prepared by Nike Doggart and Neil Burgess

Schedule

- 9th November: Dar - Pemba, meet with Peter Bechtel, WWF-Mz and Nikolau from GECORANA
- 10th: Travel to Quirimbas National Park, camp in riverine forest
- 11th: Travel to community camp site and visit an inselberg
- 12th: Return to Pemba and travel to Dar

Introduction

Between November 9th – 12th Nike Doggart of the Tanzania Forest Conservation Group (TFCG) and Neil Burgess from WWF-US traveled to Mozambique. The trip had been organised at the request of the WWF representative for the park Peter Bechtel. He had requested advice as to whether the vegetation in the park could be classified as ‘coastal forest’.

Short background to the Quirimbas National Park

The park has a marine and a terrestrial component. The marine component includes a number of islands along the coast including the Quirimba Islands. The marine fauna of these islands was surveyed by Frontier-Mozambique and was shown to have exceptionally high species richness for an East African site. The terrestrial component includes a mix of woodland, grassland, bamboo thicket, coastal thicket, riverine forest and inselberg forest.

WWF have been providing support to a local NGO called GECORENA who have been working with the Provincial staff to push for the gazettment of the national park. The park has now been legally gazetted (2002) and a management plan has been developed.

The park includes a number of settlements. The management plan recommends that people move into ‘use zones’ within the park. In return the park will offer some protection from elephants and lions for those living within the use zones.

Follow up activities requested by GECORANA

1. Trip report: observations, recommendations, list of what was seen, next steps and priorities. ND and NB
2. List of books to buy NB and ND
3. Information on photo traps ND
4. List of research contacts NB and ND
5. GBP 1000 for bird survey work from RSPB NB
6. Contact details of Zanzibar intercropping system, Mafia Island, TFCG ND
7. Advice on specimen collecting, data collecting, what to do with any materials collected. NB and ND
8. Fundraising assistance for surveys and implementation of the park according to the proposals already prepared. NB and ND

Biological Research in Northern Mozambique

There has been extremely little research on the biodiversity of the area (and northern Mozambique in general). In part this has been caused by the inaccessibility of the area for the last 25 years given the war and then the fear of land mines. Northern Mozambique is regarded as one of the last biologically unknown areas of Africa. Just to the north in southern Tanzania the coastal forest mosaic contains many strictly endemic species, and the whole of the forested area from Lindi in the south up into Kenya is regarded as a global priority for biodiversity conservation due to the large numbers of species found nowhere else in the world. Whether these global biological values extend down into northern Mozambique is unknown currently, but there seems no reason to believe that this will not be the case.

The biological values of the Quirimbas National Park are largely unknown. The marine areas have been surveyed in some detail by Frontier Mozambique, showing that the coral reefs are diverse and important regionally (or globally). However, biologists have scarcely visited the terrestrial areas of the park. An important population of elephants is found here, but lists of the plants, birds, smaller mammals, amphibians and reptiles are not available. This hinders the development of a comprehensive management plan for the park, and also hinders the park's possibilities to receive funding from agencies which need to know the biological importance before they can release funds (e.g. WWF and Conservation International). For both WWF and CI the 'priority' areas for global biodiversity conservation (Global 200 ecoregions and hotspots respectively) stop somewhere in southern Tanzania, the lack of data in northern Mozambique making it impossible to know if these priority regions should be extended further south.

Climatically the northern Mozambique area has one main rain season and a long dry season. The annual rainfall is around 900-1000 mm per annum, lower than much of northern Tanzania and southern Kenya where there are also two rainy seasons and a somewhat shorter long dry season. The area of the Quirimbas Park is therefore in a zone where evergreen forest cannot survive without addition (ground) water supplies, or where elevation or small hills provide positions for enhanced levels of rainfall, or run off. Hence climatically this region is probably at the limits of where 'coastal forest' vegetation can survive, or at least at the limits of where this vegetation type will remain evergreen throughout the year.

Results of field surveys

Vegetation

In terms of vegetation in the area we observed a mosaic of bamboo (also found in the South of Tanzania), coastal thicket, very dry coastal forest, riverine forest, inselberg forest (forest living on the water that collects at the base of the inselbergs), miombo woodland, acacia woodland, dambo grasslands, palm-savanna/woodland, and a succulent-dominated inselberg flora. Mangroves were also reported to occur along the coast, together with extensive areas of coral rag thicket. The major vegetation types seemed extensive, probably covering hundreds of kilometers each of the park. The plane ride from Dar es Salaam to Pemba also crossed many hundreds of kilometers of similar vegetation, including patches of what appeared to be a more evergreen type of forest to the north of the park.

The wettest forest elements of this vegetation comprise those found in the wetter positions along the edge of drainage features (streams and small rivers), and at the base of inselbergs. In these positions the forest canopy was evergreen to semi-evergreen at the driest time of the year (during our visit). On the edges of dambo habitats there was also developed a palm canopy forest with an evergreen understorey and forest elements in the bird fauna. In other parts of the coast of eastern Africa these riverine and groundwater forest types are not of the highest biological importance and tend to support mainly widespread plants and animals. An exception is found in the drier coast of northern Kenya and into southern Somalia, where the riverine forests contain significant levels of local endemism. It remains to be seen whether these vegetation types of northern Mozambique have a high value for biodiversity.

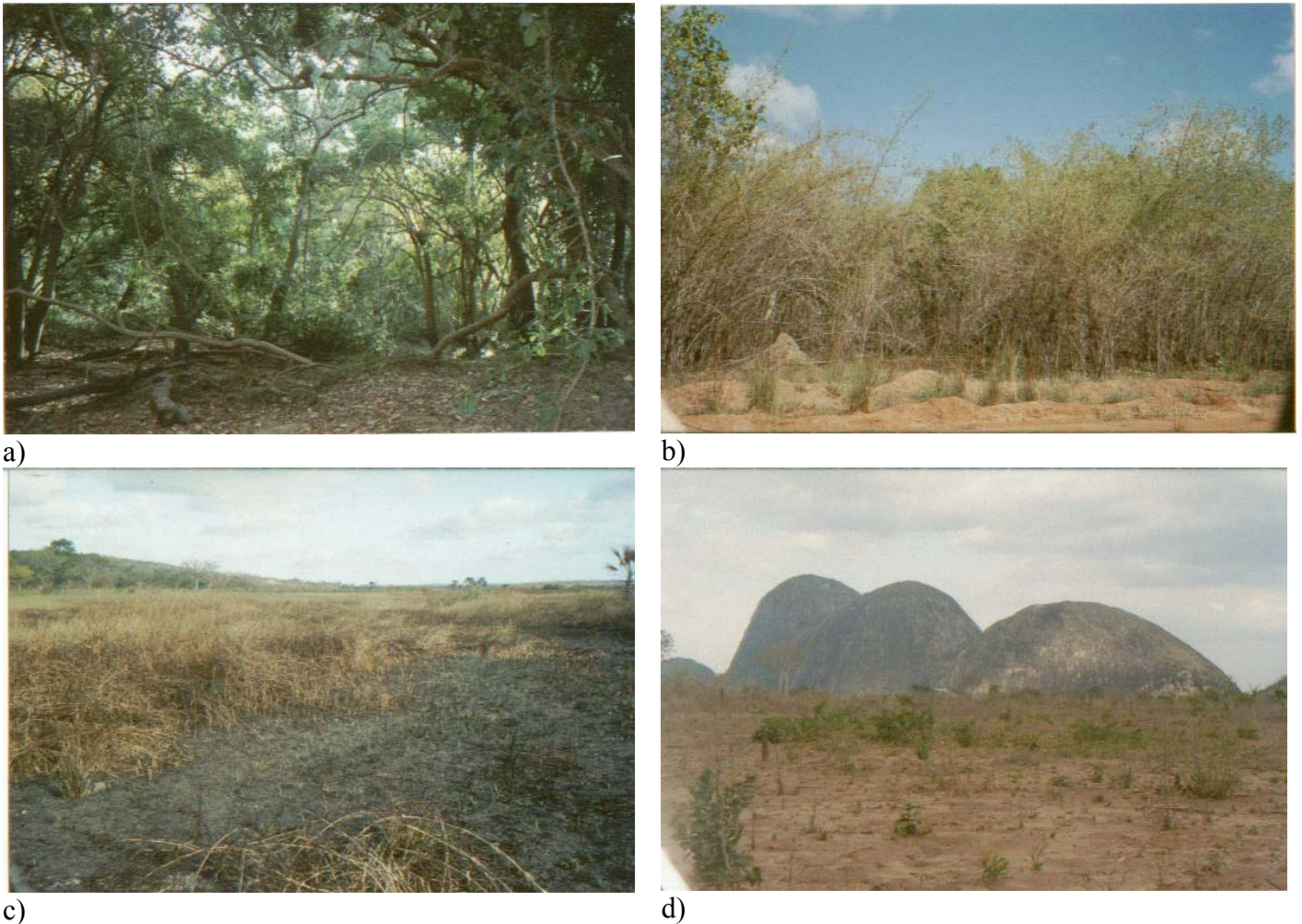


Figure 1. Vegetation types in Quirimbas National Park. a) riverine forest, b) bamboo woodland, c) dambo grassland, d) inselberg areas (with forest at their bases)

In **drier areas** away from ground water sources there are extensive areas of vegetation types that follow changes in the soil, locally elevated water supplies, and the effects of disturbance. Extensive stands of **bamboo dominated vegetation and typical miombo woodlands** are found and these are deciduous in the late dry season (when we visited). In other areas are stands of denser woodlands that grade gradually into deciduous forests, where there is little or no grassy ground cover, and where tree canopies meet and interdigitate. We saw a number of different examples of these types of vegetation some of which were said to extend over hundreds of square kilometers. We also visited areas of **semi-evergreen forest**, in a patchwork with entirely deciduous 'forest' types. Other areas of semi-evergreen forest also apparently exist elsewhere in the park. Although very dry, we would interpret these areas as coastal forest types. In Tanzania these dry coastal forests contain high rates of endemic plants, and can also be important for birds, small mammals, reptiles and amphibians. Only detailed study and visits during wetter times of the year will provide the data to know if this is also true in Mozambique.

Various kinds of dambo grasslands in seasonally inundated areas were also found in the park. On the margins the vegetation is dominated **by palm trees and bushlands**, while in the wettest locations there are pure grasslands over black cotton soils. Such areas elsewhere in eastern Africa do not support notable plants or animals and most species are found widely throughout eastern and southern Africa.

On the exposed rocky areas, particularly on the inselbergs, a desiccation tolerant flora was found. Although none of the species were identified, in other areas of Africa these ancient dry rock outcrops can support an interesting flora, including endemic species.



a)



b)



c)



d)

Figure 2. Further vegetation types of the Quirimbas National Park. a) dry semi-evergreen coastal forest, b) very dry deciduous 'coastal forest', c) palm tree canopy vegetation with evergreen understory, d) desiccation tolerant vegetation on bare inselberg rock.

Species

During the visit we recorded a number of mammal, reptile, amphibian and bird species that are listed in Appendices 1 – 4.

During this very brief survey no particularly rare or threatened species were discovered in the Quirimbas National Park. However for all taxonomic groups some of the species recorded were indicative of the eastern African coastal forest mosaic. Some of the amphibians (and one bird) could also not be easily identified to species based on experience from coastal Tanzania. Hence, it is very likely that further longer-term field surveys would discover much of interest in the forests, and also perhaps in other habitat types – especially in the desiccation tolerant flora of the inselbergs.

At least a few weeks of survey work in different habitats types would be required to get a reasonable understanding of the species composition of the park. Ideally such field work should be undertaken in different seasons, to locate populations of migratory species. As an example, the globally rare bird the spotted ground thrush (*Zoothera guttata*) is suspected to have a breeding population in northern Mozambique (it breeds in southern Tanzania) – but would only be in this area during the breeding season (November to April) and would migrate north to Kenya during the driest part of the year.

Considerably more than a few weeks would most likely be needed to develop a full list of the flora of the Park, especially as it can be expected that endemic species new to science will be found.

Biological survey of the area north of the park in the plateau highlands close to the Tanzanian border is also regarded as a high priority. Foresters on our trip indicated that *Milicia excelsa* forest is (or was) found on these plateaux which would potentially make them similar to the wetter coastal forests further north, and perhaps comparable to the *Milicia* forests of the Rondo Plateau region of southern Tanzania which has around 100 endemic plant species and several animal endemics.

Threats

The vegetation of the park was in very good condition almost everywhere, especially when compared with the situation in coastal areas of Kenya and much of Tanzania. Extremely low rates of tree cutting, pole removal, and only small areas of slash and burn agriculture are found – mainly along access roads.

Logging of high value hardwood timber for export (species such as *Pterocarpus angolensis*, *Dalbergia melanoxylon*, *Azelia quanzensis*) has been considerable in recent years, and is still appreciable today.

During our visit we noted a number of logging bays near Pemba where cut logs were stored prior to shipping in the round wood form out of the country (Figure 3).

Recommendations

Based on the three days we spent in Mozambique we have the following recommendations for the terrestrial habitats of the park.

- An inventory of the plants and animals found in the park should be completed. Having an understanding of the biological values of the Park in terms of endemic and rare species would assist in raising profile and funding for the management of the terrestrial portion of the park.
- Training for Mozambican biologists in the fauna and flora of this northern part of their country could be encouraged through links with scientists in Tanzania and elsewhere. Many Tanzanian biologists have experience of the flora and fauna of their coastal forest habitats and these people would be able to readily assess the values of Quirimbas NP (and areas further north) for these groups.

- More private sector involvement in the development of tourism at the site could be encouraged. Links south to Southern Africa and north to Tanzania and Kenya could be made. The simplicity of visiting the area from Dar es Salaam could be promoted to people resident in Tanzania. It is closer than visiting Lamu or other parts of coastal Kenya, and has many of the same values in terms of history and reefs.
- Links could be developed with existing conservation programmes in Tanzania e.g. WWF in Mafia and Mnazi Bay, TFCG and WCST in the coastal forests, etc.
- Investigate whether some of the agricultural techniques used in Zanzibar could be applied in and around the national park.
- Develop the GIS resources for the park and provide training to those involved in the park in the application of these resources to assist management planning.



Figure 3. Logs ready for export, near Pemba town.

Appendix 1 Birds

A total of 42 species were recorded.

Camp 1	Scientific name	Location observed
Hamerkop	<i>Scopus umbretta</i>	Camp 2
Hadada ibis	<i>Bostrychia hagedash</i>	Camp 1
Crested guineafowl	<i>Guttera pucherani</i>	Camp 1
Helmeted guineafowl	<i>Numida meleagris</i>	Camp 2
African green pigeon	<i>Treron calva</i>	Camp 1
Red-eyed dove	<i>Streptopelia capicola</i>	Camp 2
Purple-crested turaco	<i>Tauraco porphyreolophus</i>	Camp 2
Livingstone's turaco	<i>Tauraco livingstonii</i>	Camp 1
Burchell's coucal	<i>Centropus burchelli</i>	Camp 1
African wood owl	<i>Strix woodfordii</i>	Camp 1
African palm swift	<i>Cypsiurus parvus</i>	Camp 1
Narina's trogon	<i>Apaloderma narina</i>	Camp 1
Brown-hooded kingfisher	<i>Halcyon albiventris</i>	Camp 2
Giant kingfisher	<i>Megaceryle maxima</i>	Camp 2
Malachite kingfisher	<i>Alcedo cristata</i>	Camp 2
Little bee-eater	<i>Merops pusillus</i>	Camp 2
Swallow-tailed bee-eater	<i>Merops hirundineus</i>	Camp 2
Lilac breasted roller	<i>Coracias caudata</i>	Camp 1
Trumpeter hornbill	<i>Bycanistes bucinator</i>	Camp 1
Crowned hornbill	<i>Tockus alboterminatus</i>	Camp 1
Yellow-rumped tinkerbird	<i>Pogoniulus bilineatus</i>	Camp 1
European swallow	<i>Hirundo rustica</i>	Camp 1
Yellow-vented bulbul	<i>Pycnonotus barbatus</i>	Camp 1 and 2
Red-capped robin chat	<i>Cossypha natalensis</i>	Camp 1
Cliff chat	<i>Myrmecocichla</i>	Camp 2
	<i>cinnamomeiventris</i>	
Grey-backed camaroptera	<i>Camaroptera brachyura</i>	Camp 1
Black-throated wattle-eye	<i>Platysteira peltata</i>	Camp 1
Blue-mantled crested-flycatcher	<i>Trochocercus cyanomelas</i>	Camp 1
Yellow white-eye	<i>Zosterops senegalensis</i>	Camp 2
Mouse coloured sunbird	<i>Cyanomitra veroxii</i>	Camp 2
Collared sunbird	<i>Hedydipna collaris</i>	Camp 1
Black-backed puffback	<i>Dryoscopus cubla</i>	Camp 1 and 2
Brown-crowned tchagra	<i>Tchagra australis</i>	In farmland
Fork tailed drongo	<i>Dicrurus adsimilis</i>	Camp 1
Pied crow	<i>Corvus albus</i>	Camp 2
White-naped raven	<i>Corvus albicollis</i>	Camp 2
Southern blue-eared starling	<i>Lamprotornis elisabeth</i>	Camp 2
Violet backed starling	<i>Cinnyricinclus leucogaster</i>	Camp 2
Black-headed weaver	<i>Ploceus cucullatus</i>	In farmland
Spectacled weaver	<i>Ploceus ocularis</i>	In farmland
Dark-backed weaver	<i>Ploceus bicolor</i>	Camp 1
Green-winged pytilia	<i>Pytilia melba</i>	In farmland
Peter's twinspot	<i>Hypargos niveoguttatus</i>	In farmland

An additional robin-like bird was observed at Camp Site 1 with a yellow belly, grey head and greenish back - however it was not possible to identify it to species. Although similar to a white starred robin, no white star was seen.

Appendix 2 Mammals

We were able to identify eight mammal species on the basis of observations or by examining horns and skins shown to us by hunters.

Common name	Scientific name
Baboon	<i>Papio cynocephalus</i>
Blue monkey	<i>Cercopithecus mitis</i>
Vervet monkey	<i>Cercopithecus aethiops</i>
Elephant	<i>Loxodonta africana</i>
Roan	<i>Hippotragus equinus</i> *
Bushbuck	<i>Tragelaphus scriptus</i> *
Bush duiker	<i>Sylvicapra grimmia</i> *
Suni	<i>Neotragus moschatus</i> *

*These were identified on the basis of horns or skins shown to us by local hunters.

In addition a galago was heard calling in the riverine forest at Camp 1. According to known ranges it would be expected that *Galago moholi* and *Galagoides granti* would be found in this area. Of these the calls were most similar to a *Galagoides granti* although further research is needed.

We also had a glimpse of an elephant shrew although we were not able to identify what species it was.

Bush pig prints were seen.

A small carnivore, probably a genet was seen close to the river at Camp Site 2.

Appendix 3 Amphibians

At least four species of tree frog were recorded from camp site 1. We also observed a species of *Ptychadena* at Camp site 2 and an *Arthroleptis*, probably *Arthroleptis stenodactylus*. Foam nests were also observed along the river at Camp Site 2. These probably belong to *Chiromantis xerampelina*, as *Chiromantis petersii* is not known to range this far south.

Afrivalus sp.

20 mm. Pale brown with two darker lateral longitudinal stripes. White spots on sides. No dorsal asperities



Similarities with *Afrivalus* sp. sensu Poynton & Broadley 1987 which is thought to have a widespread distribution from Zambia, Malawi and eastern Tanzania.

Hyperolius ? tuberilinguis Smith 1849

30 mm Pale brown / beige on back with faint darker arrow pattern on back. Horizontal pupils. Pale brownish gold irises.



Hyperolius sp.

25 - 30 mm. Pale brown with occasional darker flecks. Olive green bar behind eyes. Olive green patches laterally on the dorsum. 5 pairs of small bright yellow spots on snout, in front of eye, behind eye and two on its sides. Horizontal pupil. Iris Brownish gold with red in the 'corners' of the eye. Through the lower part of the iris there is a small longitudinal black line.



Hyperolius sp.

20 mm. Dorsum yellow. Faint dark stripe from eye to snout. Bright yellow thighs and feet. Pupil horizontal. Irises gold.



Appendix 4 Reptiles

Four reptile species were identified. Another two species of reptile were identified but it was not possible to identify them.

Common name	Scientific name
Rainbow skink	<i>Mabuya margaritifer</i>
Ornate scrub lizard	<i>Nucras ornata</i>
Mozambique agama	<i>Agama mossambica</i>
Savanna vine snake	<i>Thelotornis capensis</i>