

REPORT ON ORNITHOLOGICAL SURVEY IN KILINDI AND DEREMA FOREST RESERVES – NGUU MTS. (JACOB KIURE)

1. Summary

In May 2005, I conducted an ornithological survey in Kilindi and Derema Forest reserves in Nguu Mountains.

During the survey 96 species of birds and 13 species of mammals were recorded. Of the birds, two species are globally Threatened (East Coast Akalat *Sheppardia gunningi* and Banded Green Sunbird *Anthreptes rubritorques*), and two are Near – threatened (Southern Banded Snake Eagle *Circactus fasciolatus* and Moreau's Sunbird *Nectarinia moreaui*)

The mammals records include two globally threatened species (Black- and Rufous Elephant Shrew and Tree hyrax)

The presence of such species highlights the importance of the reserves to the national and international scientific and conservation communities. There is an urgent need for an effective long – term conservation programme, not only to help secure the survival of these Threatened species, but also to preserve the catchments forest on which many local people ultimately depend for water.

2. Introduction

The Eastern Arc Mountains

The montane forests of East Africa harbour a rich and unique biological community. The Eastern Arc Mountains are thought to have been a refugium for the forest during the driest periods of the Pleistocene (Stattersfield *et al* in prep). They comprise an archipelago of isolated habitats, and hence represent an evolutionary situation analogous to that of oceanic islands such as the Galapagos: their isolation and relative stability over a long period of evolutionary time has enabled the persistence and differentiation of relict populations, leading to high levels of endemism. This has been well demonstrated in birds and these areas have been identified as biodiversity “hot – spots”, known as Endemic bird Areas (ICBP 1992). As well as supporting a rich endemic flora and fauna which represent a unique genetic resource, the Eastern Arc Mountains provide refuge for less restricted species which are nonetheless globally threatened with extinction. Thus, not only are the Eastern Arc mountains of great importance in terms of African biogeography, but they are also immense global scientific and conservation significance.

Nguu Mountains

The Nguu Mts are located at 05° 32' S, 37° E in Tanga Region, Kilindi District.

The mountains covers on area of 28,456 ha and an altitude between 700 – 1565m asl. With a status of catchments forest reserves. The mountains are one of the Tanzania Important Bird Areas.

The Nguu mts represent the northernmost extension of the central part of the Eastern Arc mountains. They are highly dissected by numerous streams that fall eastwards towards the Indian Ocean. There are nine catchments forest reserves listed represent virtually all the montane forest cover in these mountains.

Surveyed forest were Kilindi FR which covers on area of 4,299 ha and Derema FR which covers on area of 3,928ha.

3. Ornithological survey

Birds are good indicators of biodiversity because they are widely distributed and their taxonomy and distribution are well known. It has been demonstrated that there is high degree of congruence between patterns of endemism for birds and for other taxa (ICBP 1992).

Methodology

The main objective of this survey was to collect data on birds, part of the project also involves the study of how the birds of these species have related from each another, in this case specimens including blood samples for DNA analysis were collected.

Mist nets were the main method used to capture birds. Nets were set, successively at range of altitudes and were moved every few days to maximize catch rates. 15 mist nets of 220m in total were used in both surveyed localities. Mistnetting was conducted in three different sites in Kilindi FR and a single site in Derema FR due to heavy rains.

Intensive field observation was another method used in each site.

Various supplementary techniques were used in addition to field observation. Breaks in the canopy were used to provide observation point for birds such as raptors and hornbills, while fruiting and flowering trees were located and visited frequently for observation of birds such as Turaco and Sunbirds. Mixed – species flocks were located and observed for as long as possible, and details of their composition and the behavior of their members were recorded.

4. Results A: Birds

4.1 A total of 96 birds species were recorded during the survey. (See list B)

4.2 Anatomical bird specimens collected:-
80 bird skins were collected (see list C)
108 DNA bird blood samples were collected (see list C)
4 wet bird specimens were collected (see list C)
6 birds skeletons were collected (see list C)

4.2 217 birds were netted in both surveyed localities (see list D)

4.4 Species of conservation interest recorded:

Southern – Banded snake Eagle (*Circaetus fasciolatus*)

Status: Near – threatened with a wide but localized distribution
(collar *et al.* 1994)

Observation and ecology: One pair was common at Kilindi FR. It was observed for approximately 10 mins in intact submontane forest.

Brown *et al* (1982) describe this species as a secretive and retiring bird of heavy woodland and forest, which is not often seen in the open. My observations support this, or imply that the species is very rare. Very little is known of the diet and breeding habits (Brown *et al* 1982).

Conservation status: Brown *et al.* (1982) note that this species is probably commoner than supposed, as it is hard to locate and see. Very little is known of this bird, but proven breeding records in Kenya, Mozambique, Zimbabwe and Tanzania suggest a preference for lowland, and in particular coastal, woodland. Therefore, protection of such habitats is probably more important for the survival of this species.

Tiny Greenbul (*Phyllastrephus debilis*)

Status: This Greenbul was considered as a candidate for Threatened status by Collar and Stuart (1985), but is not listed by Collar *et al.* (1994). It is an endemic resident in coastal Kenya and Tanzania South from the Tana River to the Rufiji River, inland to the Rabai and Shimba Hills, Usambara, Uluguru and Nguru mts. It is also known from Ndungidi and Liwale in south – East Tanzania, Mozambique south to Limpopo and from the Horoni – Lusitu area in Zimbabwe (Keith *et al.* 1992). This small Greenbul inhabits forest undergrowth up to 1500m.

Observation and Ecology: This species was rare with two individuals observed in Kilindi FR. In a mixed – species flock.

Conservation status: This species is confirmed as a forest dependent. I observed two individuals in intact submontane forest. There is no evidence to suggest that this species can adapt to habitat degradation. It is likely that numbers of this species will decline as both its lowland and highland forest habitat is progressively cleared, but given its relatively large range, it is not presently under any threat of extinction.

White – chested Alethe (*Alethe fuelleborni*)

Status: This large Alethe has a restricted range in Eastern Arc Mountains EBA (Stattersfield *et al.* in prep). It was previously considered as a candidate for Threatened status by Collar and Stuart (1985), but is not listed in Collar *et al.* (1994). Its range stretches across Tanzania from the South Pares and Usambaras in north – east to the Livingstone mts. In the South – west, extending into the extreme north – east of Zambia and north Malawi south to the south Viphya plateau, as well as isolated population on Mt. Gorogonza and the coast around Beira, in central Mozambique (Britton 1980, Keith *et al.* 1992) though some authors (Mackworth – Praed and Grant 1962, Britton 1980) consider the northern birds as separate race *usambarae*, based on plumage variation and large size, others consider the species monotypic (Keith *et al.* 1992). This thrush is common in the undergrowth of certain highland forests of Eastern Tanzania at 900 – 2600m (Britton 1980). Although it is known to be common down to 450m in the east usambara (T. Evance in litt. 1995)

Observation and ecology:

This species was generally seen on the ground or in the understorey in areas of intact submontane forest with little undergrowth and herb layer. Most sightings were brief views of single bird flying low and brief perching at 1 – 4m., on a few occasions individuals were observed foraging.

Conservation status:

Although this species has a restricted range in the montane forest of the Eastern Arc mountains EBA, it is considered common within its range (Keith *et al.* 1992). Taking into account the elusive nature of the species and the high ratio of net records to field sightings, my observations support this idea, and the species may be fairly common at all surveyed sites.

However the species' preferred habitat is being disturbed within the reserves. Pit – sawing and forest clearance must be stopped in both areas to prevent the destruction of the habitat of important populations of *A. fuelleborni*.

East Coast Akalat (*Sheppardia gunningi*)

The population in Nguu mts described as a new race (Fjeldsa *et al.* 2000)

Status: Threatened: Vulnerable (Collar *et al.* 1994). This species has a small-occupied range, within which the quality and extent of its forest habitat are declining rapidly in many places, with consequent severe fragmentation. It is highly sensitive to such habitat alteration at most sites and thus its population is projected to be rapidly declining.

Observation and ecology:

This skulking largely ground – haunting thrush was recorded in intact submontane forest at 900 – 1500m. along streams, on fallen logs, and in areas with very tangled vegetation. It was mainly observed either on the ground or flitting between perches at 0.2 – 1.5m. Birds were observed probing amongst leaf litter, turning over leaves to reveal and eat small arthropods, berries and seeds (Contra Keith *et al.* 1992) who note this species as purely being insectivorous). It was seen sallying for flying insects, often fly catching from logs.

Conservation status:

My observations of this species indicate a dependence upon intact, moist forest with a relatively dense undergrowth. Therefore this thrush is likely to be highly sensitive to habitat destruction and the clearance of undergrowth for shambas. Accurate population estimates in the Nguu mts are required, but this species may be better classified as Near – threatened.

Uluguru violet- backed Sunbird (*Anthreptes neglectus*)

Status: this species was previously classified as Near – threatened (collar and stuart 1985), but is not listed by (Collar *et al.* 1994). It inhabits forest and forest edge and is known from several forest sites in Eastern Tanzania (up to 1800 m in the Ulugurus) and northern Mozambique, although there are few records of it occurring in coastal Kenya (Hall and Moreau 1970, Briton 1980)

Observation and ecology:

This species was recorded in both intact and heavily degraded forest and in public land and cultivated areas.

Conservation status:

It is clear from my observation that while this species is found in intact submontane forest, it is essentially a forest edge bird; it is adaptable and can withstand fairly high levels of habitat degradation. For this reason it is in no immediate danger of extinction, but the fact that it is known from only a few sites make it a species of conservation importance.

Moreau's Sunbird (*Nectarinia moreaui*)

Status: Near – threatened (Collar *et al* 1994) regarded as a canopy and mid –storey specialist (Britton 1980), this species has restricted range in Eastern Arc Mountains EBA (Stattersfield *et al.* prep). It was previously only known from above 1300m in the Ngurus, Ukaguru and Uvidunda mts, and is considered to be a possible hybrid between Loveridges Sunbird and Eastern Double – collared Sunbird by Sibley and Moreau (1990), but a full species by Britton (1980), Collar and Stuart (1985) and Collar *et al* (1994).

Observation and ecology:

This species was quite rare with two records only in Kilindi FR. The birds were recorded in a forest clearing at 1400m. in a mixed – feeding party foraging in the mid – storey.

Conservation status:

My observations of this poorly known sunbird indicate that it is a forest – dependent species which is likely to be highly sensitive to habitat destruction. It is very likely to occur in other parts of the Nguu mts as well and further searches should be made.

Green – headed Oriole (*Oriolus chlorocephalus*)

Status: This species was previously considered as a candidate for threatened Status by Collar and Stuart (1985), but is not listed in Collar *et al* (1994). A resident in woodland, intact and secondary forest, this oriole occurs in eastern Tanzania and south – east Kenya. While it is common throughout the lowlands of the East Usambara and in the Nguru mts it is generally considered to be uncommon throughout its range. It has been recorded up to 1800m in the Ulugurus, but it is more usually found below 1000m (Britton 1980).

Observations:

This species was very common in both surveyed sites. It was observed in the canopy and sub – canopy in intact submontane forest and forest – edge habitat. The birds were regularly observed feeding on fruits, usually in pairs and were occasionally seen in mixed – species flocks.

Conservation status:

Observation of this species in forest edge habitats imply that it may tolerate a degree of habitat degradation. However, in the long term, clearance of evergreen montane forest is likely to have detrimental effects on this species.

Kenrick's Starling (*Poeoptera kenricki*)

This exclusively arboreal starling was previously considered as a candidate for Threatened status by Collar and Stuart (1985), but is not listed in Collar *et al.* (1994). Classified as having a restricted range in the Eastern Arc Mountains EBA (Stattersfield *et al.* in prep.), this species is found in highland forest at 900 – 2500m. in central Kenya and eastern Tanzania where it is usually common (Britton 1980)

Observation and ecology:

The species was observed in intact and degraded forest – edge, predominantly in the canopy. This species was quite rare with two records only. Birds perched for long periods of time (a maximum of 45 minutes) in the outermost dead branches.

Conservation status:

This species was rare with two records in Kilindi FR. It might be overlooked or under – recorded. While currently not classified as Threatened or near – threatened, deforestation, especially the removal of mature trees within its restricted range, make this species worth of conservation attention.

B: Mammals

A total of 13 mammal species were recorded during the survey.

Following is a species list of recorded mammals:

Black – and -Rufous Elephant Shrew (*Rhynchocyon cirnei*)

Common, recorded in both surveyed localities.

Usambara Galago (*Galagoides orinus*)

Common, recorded in both surveyed localities.

Zanzibar Galago (*Galagoides zanzibaricus*)

Common at the forest edge in both Kilindi and Derema FR

Black – and- White Colobus (*Colobus polykomos*)

Rare, a single record of a group of 5 individuals observed in kilindi FR

Blue Monkey (*Cercopithecus mitis*)

Common, recorded in both surveyed sites.

Yellow Balloon (*Papio cynocephalus*)

Recorded at the forest edge and adjacent miombo woodland in both Kilindi and Derema FR.

Red – Billed Coast Squirrel (*Funisciurus palliates*)

Common in both surveyed sites

Porcupine (*Hystrix* sp)

Quills were seen in kilindi FR.

Palm Civet (*Nandina binotata*)

There was single record of one individual inside the forest reserve.

Leopard (*Panthera pardus*)

Prints and droppings were found by stream in intact submontane forest in kilindi FR. According to local people living near the forest, there have been a loss of goats captured by leopards.

Three Hyrax (*Dendrohyrax validus*)

Abundant recorded both surveyed localities

Harvey's Red Duiker (*Cephalophus harveyi*)
Recorded twice in Kilindi FR.

Wild pig (*Potamochoerus porcus*)
Very common, recorded in both
Surveyed localities.

5. Human activities in the forests.

- i) **Logging:** Despite the fact that pit – sawing is banned, a big number of pit – sawing sites were seen in the forest reserves.
Most affected tree species include *Newtonia buccananii*, *Khaya anthotheca* and *Milicia excelsa*. In Kilindi village, a village chairman is own this illegal business. Poles are commonly collected in the forests.
- ii) **Cultivation:** As a result of confusion over the position of the forest reserve boundary in Kilindi FR. It is unclear whether some plantations of beans along water courses out of the forest are breaching the forest reserve. In any case this kind of riparian cultivation is illegal. No shambas recorded deep in the forest.
- iii) **Hunting:** Duiker hunting and trapping is common in the reserves. A porcupine hunter was regularly visiting caves in Kilindi FR.

6. Conclusion and Recommendations for conservation

Conclusions:

In May 2005 I surveyed submontane forest in Kilindi and Derema forest reserves in Nguu mts. The aim was to collect data on birds, part of the project also involves the study of how the birds of these species have related from each another, also to gain understanding of the ecological requirements and the threats to the survival of the birds as well as mammals, with a view to promoting their conservation.

The forests of the eastern Arc Mountains comprise immensely rich and unique biological communities, and my results are testimony to this. However I confirmed the fact that these forests are subject to intense degradation and that there is an urgent need for an effective long – term conservation programme. Such a conservation programme must include three main components: protection of habitat, improvements in current farming practices and environmental education and publicity.

Recommendations

- i) The boundary between the forest reserves and the public land requires demarcation, possibly involving the planting of quick – growing, non-invasive exotic tree species.

- ii) Pit – sawing activities which are currently occurring in the area illegally should be stopped as room as possible
- iii) Senior forestry staff should be appointed to live and work in the villages close to the forest reserves; currently foresters are living several kms from the forest and rarely visiting the forests.
- iv) Environmental education activities in the villagers surrounding the forest reserves should be initiated so as to protect to reserves and lay the basis for sustainable development in the future.
- v) Biodiversity research is needed in all forests within Nguu Mts. It is very likely that the Nguu mts hold many new subspecies and possible even species.

List A: Surveyed sites, coordinates, altitudes, habitat description, duration, net – metre –hrs and observation hrs.

Camp Site	Coordinates	Altitude	Habitat description	Duration of survey	Amount of time mistnetting(net – metre - hrs	Observation hrs
A: Dibilo Camp (Kilindi FR)	Longitude. 37 ⁰ 33' 48" Latitude. 5 ⁰ 34' 03"	800m.	Secondary submontane forest, with grassland and miombo woodland at the foothills of the mt.	May 6 – 11, 2005	7920 (Single netting site)	18
B: Kibute Camp (Kilindi FR)	Longitude 37 ⁰ 35' 00" Latitude. 5 ⁰ 36' 30	1000m	Secondary submontane forest, with characteristic of coastal forest very disturbed by pit – sawing, and pole collection.	May 12 – 18 2005	13200 (Two netting sites)	13
C: Kalinga Camp (Kilindi FR)	Longitude 37 ⁰ 34' 32" Latitude 5 ⁰ 36' 10"	1500m	Submontane to montane forest, less disturbed with few old pit-sawing signs.	May 19 – 24 2005	5280 (Single netting site)	18
D: Patwa Camp (Derema FR)	Longitude 37 ⁰ 30' 24" Latitude 5 ⁰ 38' 20"	800m.	Secondary submontane forest with characteristic of coastal forest, quite disturbed by pit - sawing	May 24 – 29 Raining most of the time	3520 (Single netting site)	38

NB: Due to heavy rains in the last week of the survey, Derema FR was not well surveyed. In this case I suggest that I start with this forest in August for at least 10 days in higher altitudes before I do other forests.

LIST B: Annotated checklist of all birds recorded at surveyed sites.

Hamerkop (*Scopus umbretta*)

A pair was recorded in the pond at the forest edge in Kilindi FR collecting nesting materials.

Southern Banded Snake - Eagle (*Circaetus fasciolatus*)

Recorded in both Kilindi and Derema FR.

African Goshawk (*Accipiter tachiro*)

Recorded in both Kilindi and Darema FR.

Great Sparrowhawk (*Accipiter melanoleucus*)

Recorded in Kilindi FR

African Harrier – Hawk (*Polyboroides typus*)

Recorded at the forest edge in Kilindi FR

Augur Buzzard (*Buteo augur*)

Recorded at the rocks within Kilindi FR

Mountain Buzzard (*Buteo oreophilus*)

Commonly observed in Kilindi FR

Bateleur (*Terathopius ecaudatus*)

A pair was seen at the cultivated land just at the forest edge in Derema FR.

Long – Crested Eagle (*Lophaetus occipitalis*)

Single bird was recorded perched on the forest edge in Kilindi.

African Crowned Eagle (*Stephanoaetus coronatus*)

Observed regularly at both sites, displaying and calling.

Crested Guineafowl (*Guttera pucherani*)

Seen and heard commonly in Kilindi FR

Eastern Bronze – napped Pigeon (*Columba delegorguei*)

Very common, recorded in both kilindi and Derema FR

Olive Pigeon (*Columba arquatrix*)

Recorded at kilindi FR.

Lemon Dove (*Aplopelia Larvata*)

Common at Kilindi FR.

Tambourine Dove (*Turtur tympanistria*)

Recorded in both Kilindi and Derema FR

Brown – headed Parrot (*Poicephalus cryptoxanthus*) Recorded in Kilindi FR. A flock of seven birds was seen perched in a dry tree.

Purple – crested Turaco (*Tauraco porphyreolophus*)
Recorded in a forest patch about ½ km from Kilindi FR.

Livingstone's Turaco (*Tauraco livingstonii*)
Abundant. Recorded in both surveyed sites.

Barred long – tailed Cuckoo (*Cercococcyx montanus*)
Uncommon. Recorded in Kilindi FR.

Yellowbill (*Centhmocharis aereus*)
Recorded in Kilindi FR.

White – browed Coucal (*Centropus supervilliosus*)
Common. Recorded in both Kilindi and Derema FR. Mostly at the forest edge and grassland.

African Wood Owl (*Strix woodfordii*)
Recorded in both Kilindi and Derema FR.

Mottled Swift (*Apus aequatorialis*)
Flocks were recorded in both Kilindi and Derema FR.

African Palm Swift (*Cypsiurus parvus*)
Recorded at the forest edge and shambas

Speckled Mousebird (*Colius striatus*)
Only recorded in Derema FR, where two flocks of three and ten birds were noted.

Narina Trogon (*Apaloderma narina*)
Recorded in both Kilindi and Derema FR

Bar – tailed Trogon (*Apaloderma vittatum*)
Recorded in Kilindi FR.

Pygmy Kingfisher (*Ispidina picta*)
Recorded in both Kilindi and Derema FR.

Little Bee – eater (*Merops pusillus*)
Recorded at the forest edge in both Kilindi and Derema FR.

Crowned Hornbill (*Tockus alboterminatus*)
Common, recorded in both Kilindi and Derema

Trumpeter Hornbill (*Bycanistes bucinator*)

Abundant. Flocks were recorded in both Kilindi and Derema FR.

Silvery –checked Hornbill (*Bycanistes brevis*)

Abundant in both surveyed sites. Always recorded in forest and often in flocks with b. bucinator.

Yellow – rumped Tinkerbird (*Pogoniulus bilineatus*)

Recorded in both Kilindi and Derema FR.

Green Barbet (*Stactolaema olivacea*)

Abundant in both Kilindi and Derema FR.

Red – fronted Tinkerbird (*Pogoniulus pusillus*)

A pair was recorded at Derema FR

Scaly –throated Honeyguide (*Indicator variegates*)

Recorded in Kilindi FR.

Cardinal Woodpecker (*Dendropicos fuscescens*)

Recorded in Kilindi FR.

African Broadbill (*Smithornis capensis*)

Common, recorded in both surveyed sites

Lesser Striped Swallow (*Hirundo abyssinica*)

Flocks were recorded in both Kilindi and Derema FR.

Black Saw – wing (*Psalidoprocne holomelas*)

Common in both Kilindi and Derema FR.

Mountain Wagtail (*Motacilla clara*)

A single pair was recorded on a fast flowing stream in Kilindi FR.

Black Cuckoo – shrike (*Campephaga flava*)

Recorded at the forest edge in Kilindi FR.

Common Bulbul (*Pycnonotus barbatus*)

Common, recorded in both Kilindi and Derema FR
Mostly in forest edge and glades.

Little Greenbul (*Andropadus virens*)

Abundant recorded in both surveyed sites.

Shelley's Greenbul (*Andropadus masukuensis*)

Common, recorded in both surveyed sites.

Yellow – streaked Greenbul (*Phyllastrephus flavostriatus*)

Common, recorded in Kilindi FR.

Tiny Greenbul (*Phyllastrephus debilis*)

Rare, two individuals were recorded in Kilindi FR.

Cabanis's Greenbul (*Phyllastrephus cabanisi*)

Rare, two individuals were netted in Kilindi FR

White – starred Robin (*Pogonocichla stellata*)

Rare in both Kilindi and Derema FR

(One recorded in Kilindi and three in Derema FR)

East Coast Akalat (*Sheppardia gunningi*)

Common, recorded in both surveyed sites

White – chested Alethe (*Alethe fuelleborni*)

Common, recorded in both surveyed sites.

White – browed Robin – Chat (*Cossypha leuglini*)

This forest edge species was recorded in both Kilindi and Derema FR.

Red – capped Robin – chat (*Cossypha natalensis*)

Common, recorded in both Kilindi and Derema FR.

Orange Ground - Thrush (*Zoothera gurneyi*)

Rare, recorded in Kilindi

Red-tailed Ant –thrush (*Neocossyphus rufus*)

Common, recorded in both Kilindi and Derema FR.

Evergreen Forest Warbler (*Bradypterus lopezi*)

Recorded in Kilindi FR in intact and degraded submontane forest.

Yellow throated Woodland Warbler (*Phylloscopus ruficapilla*)

Recorded in Kilindi FR.

Kretschmer's Logbill (*Macrosphenus kretschmeri*)

Recorded in Derema FR.

Tawny – flanked Prinia (*Prinia Subflava*)

Recorded in the grassland at the forest edge.

Black – headed Apalis (*Apalis melanocephala*)

Recorded in Kilindi FR

Green – blacked Camaroptera (*Camaroptera brachyura*)
Recorded in Both Kilindi and Derema FR

Ashy Flycatcher (*Muscicapa caerulescens*)
Recorded at the forest edge in Kilindi FR

African Dusky Flycatcher (*Muscicapa adusta*)
Recorded in Kilindi FR.

Chin – spot Batis (*Batis molitor*)
Recorded in Derema FR

Forest Batis (*Batis mixta*)
Common ,recorded in both Kilindi and Derema FR.

Black – throated Wattle - eye (*Platysteira paltata*)
Recorded in kilindi FR.

African Paradise – flycatcher (*Terpsiphone viridis*)
Common, recorded in both Kilindi and Derema FR

Crested Flycatcher (*Trochocercus cyanomelas*)
Common, recored in both Kilindi and Derema FR.

Yellow White – eye (*Zosterops senegalensis*)
Rare, single record in kilindi FR.

Moreau's Sunbird (*Nectarinia moreaei*)
Rare two records in a mixed – feeding party in Kilindi FR.

Amethyst Sunbird (*Chalcomitra amethystine*)
Recorded at the forest edge in Derema FR.

Oliver Sunbird (*Cyanomitra olivacea*)
Very common, recorded in both surveyed sites.

Collared Sunbird (*Hedydipna collaris*)
Common at all surveyed site

Uluguru Violet – backed Sunbird (*Anthreptes neglectus*)
Rare, single record at Derema FR.

Tropical Boubou (*Laniarius aethiopus*)

Recorded in both Kilindi and Derema FR.

Mostly in forest edge and glodes.

Black – backed Puffback (*Dryoscopus cubla*)

Common, recorded in both surveyed sites

Black – fronted Bush – Shrike (*Malaconotus nigrifarons*)

Rare, recorded in Kilindi FR.

Retz's Helmet – shrike (*Prionops retzii*)

Recorded at the riverine

Forest edge in Kilindi FR.

Square – tailed Drongo (*Dicrurus ludwigii*)

Common, recorded in both surveyed sites.

White – napped Raven (*Corvus albicollis*)

Common, a flock of more than 30 birds were common up the rock in Kilindi FR

Green – headed Oriole (*Oriolus chlorocephalus*)

Common, recorded in both surveyed sites.

Kenrick's Starling (*Poepetera kenricki*)

Rare, two records in Kilindi FR.

Red – winged Starling (*Onychognathus morio*)

Common, recorded in submontane forest and forest edge. Often seen in monospecific flocks comprising up to ten individuals.

Spectacled Weaver (*Ploceus ocularis*)

Common, recorded at the forest edge in both kilindi and Derema FR.

Golden Weaver (*Ploceus subaureus*)

Recorded at the forest edge in Kilindi FR

Dark - backed Weaver (*Plocens bicolor*)

Common, usually observed in groups of two to three in mixed – species flocks. This species appeared to closely associate with square –tailed Drongo.

Peters 's Twinspot (*Hypargos niveoguttatus*)

Common, recorded in both surveyed sites.

Green – backed Twinspot (*Mandigoa nitidula*)

Common, recorded in both surveyed sites.

Red – faced Crimsonwing (*Cryptospiza reichenovii*)

Rare, only single record in Kilindi FR.

Common Waxbill (*Estrilda astrildi*)

Common, flocks were recorded at the forest edge in cultivated area in both Kilindi and Derema FR.

Bronze Mannikin (*Lonchura cucullata*)

Common, always recorded in the forest edge and cultivated areas both in Kilindi and Derema.

Black – and – white Mannikin (*Lochura bicolor*)

Recorded in the forest glade in Kilindi FR.

Yellow – fronted Canary (*Serinus Mozambicus*)

Small flocks were recorded at the cultivation in the forest edge in Kilindi FR.

LIST C: Collected anatomical specimens

SPECIES	SKINS	BLOOD SAMPLES	WET SPECIMENS	SKELETONS
Accipiter tachiro	1	1		
Centropus superciliosus	1	1		
Cecyx picta	1	1		
Stactolaema olivacea	4	4		
Indicator variegatus	1	1		
Smithornis capensis		4		
Psalidoprocne holomelas		1		
Pycnonotus barbatus	1	1		
Andropadus virens	7	9	1	
Andropadus masukuensis	11	11	2	
Phyllastrephus flavostriatus	7	8	1	
Phyllastrephus cabanisi	2	2		
Sheppardia gunningi	7	9		2
Alethe fuelleborni	7	10		
Cossypha heuglini	2	2		
Cossypha natalensis	9	9		
Zoothera gurney		1		1
Neocossyphus rufus	1	2		1
Macrosphenus kretschmeri	1	1		
Heliolais erythroptera	1	1		
Batis molitor	2	2		
Batis mixta	13	13		
Trochocercus cyanomelas		1		
Nectarinia olivacea		4		
Dicrurus ludwigii		1		
Ploceus ocularis	1	1		
Hypargos niveoguttatus		3		
Mandingoa nitidula		3		
Cryptospiza reichenovii	1	1		

LIST D: Number of individuals netted during the survey

SPECIES	Kilindi forest Reserve	Derema Forest Reserve
Accipiter techiro	1	1
Turtur tympanistria	3	1

Centropus superciliosus		1
Cecyx picta	2	3
Stactolaema olivacea	4	
Indicator variegatus	1	
Smithornis capensis	6	
Psalidoprocne holomelas	2	
Pycnonotus barbatus		2
Andropadus virens	16	4
Andropadus masukuensis	14	
Phyllastrephus flavostriatus	10	
Phyllastrephus cabanisi	2	
Sheppardia gunningi	13	2
Alethe fuelleborni	12	
Cossypha heuglini		2
Cossypha natalensis	12	2
Zoothera gurneyi	1	
Neocossyphus rufus	2	
Macrosphenus kretschmeri		2
Heliolais erythroptera		1
Batis molitor		2
Batis mixta	13	
Trochocercus cyanomeles	8	4
Nectarinia olivacea	31	6
Dicrurus ludwigii	2	
Ploceus ocularis		1
Hypargos niveoguttatus	13	6
Mandingoa nitidula	7	2
Cryptospiza reichenovii	1	

References:

Briton, P.L (1980) *The birds of East Africa their status and distribution*. East African Natural History Society, Nairobi, Kenya.

Brown, L. Urban, E.K; and New man, K. (1982) *The birds of Africa*. Volume I Academic press London U.K

Collar, N.J. and stuart, S.N (1985) *Threatened birds of Africa: the ICBP/IUCN red data Book*. International Council for Bird Preservation, Cambridge, U.K

Evans, T.D (in prep) Note on the field identification of Uluguru Violet – backed sunbird *Anthreptes neglectus*.

Fry, C.H., Keith, S. and Urban, E.K. (1988) *The bird of Africa*. Volume 3. Academic press London U.K

Kingdon Jonathan: *The KINGDON FIED GUIDE TO AFRICAN MAMMALS*.

Terry Stevenson and Jon Fanshawe: *FIELD GUIDE TO THE BIRDS OF EAST AFRICA – Kenya, Taznania, Uganda, Rwanda and Burundi*.

Neil and Elizabeth Baker. *Important Bird Areas in Tanzania*.