

Vikindu Forest Reserve, Tanzania: a first ornithological survey including a record of the Sokoke Pipit *Anthus sokokensis*

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Detailed accounts of birds in the Dar es Salaam area, Tanzania have been provided by Harvey & Howell (1987). With regard to the forest bird community, more references were made from the Pugu Forest Reserve, which until now remains the most studied locality of all the coastal forests in Tanzania (e.g. Fuggles-Couchman 1939, Stuart & van der Willigen 1979, Howell 1981, Stuart 1981, 1983, Collar & Stuart 1985, 1988).

Recently, the avifauna at two forest localities, Pande and Kazimzumbwe, both in the Dar es Salaam area, has been investigated (Burgess *et al.* 1991, Mlingwa *et al.* 1993) as part of the ICBP coastal forest research programme. In continuation of this programme, which aims at assessing the conservation significance of each of the remnant coastal forests, a survey was made in 1989 with a view to collect data which can help in preliminary assessment of a bird assemblage at Vikindu. This paper presents results of work carried out in this respect in October and November 1989.

Methods

Study area

Vikindu Forest Reserve (6°59S, 39°17E) covers 10 km² of low-lying flat land, about 25 m above sea level, and 17 km south of Dar es Salaam city. Most of the natural forest area was extensively logged in the past and replanted with exotic species such as *Eucalyptus* sp., *Cassia siamea* and *Pinus* sp., in order to protect the clay and sandy soil from erosion (Mbwana, pers. comm.). However, illegal tree cutting from the remaining natural vegetation for fuelwood and charcoal-making continues in the reserve.

Although botanical collections have been made in this forest over the years, the flora has never been described. At present, anything resembling typical coastal forest vegetation in Vikindu Forest Reserve remains only in the form of tiny patches along stream valleys. This vegetation include *Warburgia elongata*, possibly endemic to eastern African coastal forests, and the rare *Triestamma schliebenii* (Burgess *et al.* 1992).

Survey methods

The study was conducted from 18–23 October and 14–20 November 1989. Survey methods involved a combination of audio-visual observations and mist-netting. The latter enabled the recording of more secretive forest birds, although many species are of course unlikely to be trapped because of their aerial or skulking habits or because of their remarkable eyesight (Tyler 1979).

Netting was made in a tiny patch of forest (2 ha) which had a very sparse shrub layer and almost no undergrowth. The tree canopy cover was about 60–90 per cent, and the upper canopy height was approximately 15 m. *Azelia quanzensis* and *Baphia* spp. were the dominant trees growing on clay and sandy soil in the area.

Ten nets ranging from 5 m to 15 m long were employed, totalling 125 m in length.

Nets were placed with the bottom shelf close to the ground and the top shelf at about 3 m. Sampling was carried out from 06:00–19:00 hours, with net checks every 30 min. Nets were always furled at the onset of rain in order to avoid casualties. Mistnets were moved every two days if catching was poor.

Observations were carried out in a variety of habitats, from typical forest vegetation to formerly cultivated areas within the reserve boundaries.

Results

The species recorded during the study period are listed in Table 1. Order and nomenclature follow Britton (1980). A total of 53 individuals of 14 species were netted in Vikindu Forest in 16 800 metre-net hours of effort. Forty-one species of birds recorded were regarded as partly or wholly dependent on forest for their survival, plus a further 20 non-forest ones.

Table 1. *Species observed and netted in Vikindu Forest Reserve*

Abbreviations used to indicate status of species are as follows: column heading: O: Observation; a subjective index of abundance (a–d) based on observation is given: a = common, b = frequent, c = scarce, d = seen or heard only once or twice regardless of group size.
N: Mist-netting; the total number of individuals of that species caught is noted.
F: Species known to be partly or wholly dependent on the forest habitat for its existence is noted by “x”.

Family and species	O	N	F
Accipitridae: birds of prey			
<i>Gypohierax angolensis</i> Palm-nut Vulture	d	–	–
<i>Terathopius ecaudatus</i> Bateleur	d	–	–
<i>Accipiter tachiro</i> African Goshawk	c	–	x
<i>Stephanoaetus coronatus</i> Crowned Eagle	c	–	x
Phasianidae: francolins			
<i>Francolinus sephaena</i> Crested Francolin	c	–	–
Numididae: guineafowls			
<i>Guttera pucherani</i> Kenya Crested Guineafowl	c	–	x
Columbidae: pigeons, doves			
<i>Streptopelia semitorquata</i> Red-eyed Dove	c	–	–
<i>Turtur chalcospilos</i> Emerald-spotted Wood Dove	c	–	–
<i>Turtur tympanistria</i> Tambourine Dove	c	–	x
<i>Treron australis</i> Green Pigeon	c	–	x
Psittacidae: parrots			
<i>Poicephalus cryptoxanthus</i> Brown-headed Parrot	c	–	x
Musophagidae: turacos			
<i>Tauraco livingstonii</i> Livingstone's Turaco	b	–	x
Cuculidae: cuckoos			
<i>Ceuthmochares aereus</i> Yellowbill	b	–	x

continued

Family and species	O	N	F
<i>Centropus superciliosus</i> White-browed Coucal	c	—	x
Strigidae: owls			
<i>Ciccaba woodfordii</i> African Wood Owl	b	—	x
Caprimulgidae: nightjars			
<i>Caprimulgus pectoralis</i> Fiery-necked Nightjar	c	—	x
Apodidae: swifts			
<i>Apus affinis</i> Little Swift	b	—	—
<i>Cypsiurus parvus</i> Palm Swift	b	—	—
<i>Neafrapus boehmi</i> Böhm's Spinetail	c	—	—
Coliidae: mousebirds			
<i>Colius striatus</i> Speckled Mousebird	c	—	—
Trogonidae: trogons			
<i>Apaloderma narina</i> Narina's Trogon	c	1	x
Alcedinidae: kingfishers			
<i>Halcyon albiventris</i> Brown-hooded Kingfisher	c	—	—
<i>Ispidina picta</i> Pygmy Kingfisher	c	1	x
Meropidae: bee-eaters			
<i>Merops albicollis</i> White-throated Bee-eater	d	—	—
Phoeniculidae: wood hoopoes			
<i>Phoeniculus purpureus</i> Green Wood Hoopoe	c	—	x
Bucerotidae: hornbills			
<i>Tockus albeterminatus</i> Crowned Hornbill	c	—	x
Capitonidae: barbets			
<i>Pogoniulus bilineatus</i> Yellow-rumped Tinkerbird	c	—	x
<i>Pogoniulus pusillus</i> Red-fronted Tinkerbird	c	—	—
Eurylaimidae: broadbills			
<i>Smithornis capensis</i> African Broadbill	c	1	x
Pittidae: pittas			
<i>Pitta angolensis</i> African Pitta	d	—	x
Dicruridae: drongos			
<i>Dicrurus adsimilis</i> Drongo	c	—	—
<i>Dicrurus ludwigii</i> Square-tailed Drongo	c	—	x
Pycnonotidae: bulbuls			
<i>Andropadus importunus</i> Zanzibar Sombre Greenbul	c	—	—
<i>Andropadus virens</i> Little Greenbul	a	4	x
<i>Chlorocichla flaviventris</i> Yellow-bellied Greenbul	a	—	x
<i>Nicator chloris</i> Nicator	c	1	x
<i>Phyllastrephus debilis</i> Tiny Greenbul	c	2	x
<i>Phyllastrephus fischeri</i> Fischer's Greenbul	d	—	x
<i>Phyllastrephus terrestris</i> Brownbul	d	—	—
<i>Pycnonotus barbatus</i> Common Bulbul	c	—	—
Turdidae: thrushes, chats			
<i>Cercotrichas leucophrys</i> White-browed Scrub Robin	c	—	—
<i>Cercotrichas quadrivirgata</i> Eastern Bearded Scrub Robin	b	5	x
<i>Cichladusa guttata</i> Spotted Morning Thrush	c	—	—
<i>Cossypha natalensis</i> Red-capped Robin Chat	a	15	x

continued

Family and species	O	N	F
<i>Neocossyphus rufus</i> Red-tailed Ant Thrush	c	2	x
Sylviidae: warblers			
<i>Camaroptera brachyura</i> Grey-backed Camaroptera	b	2	x
<i>Sphenoeacus mentalis</i> Moustached Warbler	c	—	—
Muscicapidae: flycatchers			
<i>Trochocercus cyanomelas</i> Crested Flycatcher	a	6	x
Motacillidae: pipits			
<i>Anthus sokokensis</i> Sokoke Pipit	c	—	x
Malaconotidae: bush shrikes			
<i>Dryoscopus cubla</i> Black-backed Puffback	b	—	x
<i>Laniarius ferrugineus</i> Tropical Boubou	b	—	x
<i>Malaconotus quadricolor</i> Four-coloured Bush Shrike	c	—	x
Prionopidae: helmet shrikes			
<i>Prionops scopifrons</i> Chestnut-fronted Helmet Shrike	c	—	x
Sturnidae: starlings			
<i>Lamprotornis corruscus</i> Black-breasted Glossy Starling	b	—	x
Nectariniidae: sunbirds			
<i>Anthreptes collaris</i> Collared Sunbird	c	1	x
<i>Nectarinia olivacea</i> Olive Sunbird	a	11	x
Ploceidae: weavers			
<i>Ploceus bicolor</i> Dark-backed Weaver	c	—	x
Estrildidae: waxbills			
<i>Hypargos niveoguttatus</i> Peters' Twinspot	c	—	x
<i>Mandingoa nitidula</i> Green-backed Twinspot	c	1	x
<i>Pyrenestes minor</i> Lesser Seed-cracker	c	—	x
<i>Uraeginthus angolensis</i> Cordon-bleu	d	—	—

Notable records included the vulnerable Sokoke Pipit and the African Pitta, which is a common Afrotropical migrant on the East African coast.

Discussion

The forest bird assemblage at Vikindu is depauperate compared to other remnant forests, Pande and Pugu and Kazimzumbwe, in the Dar es Salaam area (see Harvey & Howell 1987, Burgess *et al.* 1991, Mlingwa *et al.* 1992). The comparatively severe damage made in the natural forest vegetation at Vikindu is the causative factor for a poor species diversity of the avifauna. The effect of habitat damage has not only led to local extinction of a number of species which would be expected to occur in Vikindu forest, but also appears to have affected abundance of the remaining bird species. Compared to other recently studied forest sites on the coast of Tanzania for example (see Bagger *et al.* 1989, Faldborg *et al.* 1991, Holsten *et al.* 1991, Mlingwa *et al.* 1992), mistnet samples at Vikindu were the smallest, suggesting that birds occur in low densities. Furthermore, within the trapping area, there was not much activity in the upper vegetation strata to show that birds were abundant above the netting zone. Even

with the general assessment of abundance made in areas of the reserve where a survey was carried out, many species of birds recorded were scarce or rare (Table 1).

Despite the absence of an entirely natural vegetation in the reserve, due to illegal tree-cutting and introduction of exotics, the remaining avifauna is still representative of eastern African lowland forests. The forest birdlife at Vikindu includes the Sokoke Pipit (Mlingwa 1991) which is endemic on the East African coast, as well as a member among threatened birds of Africa (Collar & Stuart 1985, 1988). Vikindu thus becomes the second southernmost point in the range of *Anthus sokokensis* which was previously regarded as restricted to Pugu Forest (Howell 1981, Collar & Stuart 1985, 1988).

Ornithologically, therefore, this initial survey has shown a considerable conservation importance of the Vikindu Forest Reserve. In addition, a number of forest patches which were not investigated during the study are still present in the reserve, though their total coverage remains unknown. Further survey in these patches might discover some additional species such as the Green Tinkerbird *Pogoniulus simplex*, Pale-breasted Illadopsis *Trichastoma rufipennis puguensis*, East Coast Akalat *Sheppardia gunningi*, Little Yellow Flycatcher *Erythrocerus holochlorus* and the Forest Batis *Batis mixta*. These birds have not been recorded in the present study, but they occur in the neighbouring forests at Kazimzumbwe and Pugu.

This study and those recently made at Pande and Kazimzumbwe (see Burgess *et al.* 1991, Mlingwa *et al.* 1992) have contributed to a better understanding of the forest bird community in the remaining forest patches in the Dar es Salaam area. This community is considerably rich by East African standards; however, its survival will definitely depend on the protection of the remaining natural vegetation, albeit disturbed, from further clearance.

Though the biodiversity conservation needs of remaining patches of forest in the Dar es Salaam area have been emphasized by Howell (1981) and Harvey & Howell (1987), there seems to be little effort to control the harmful human activities taking place at all four localities—Pande, Pugu, Kazimzumbwe and Vikindu. It is therefore suggested that this problem would be controlled only if alternative sources of fuelwood and construction material for local human populations can be found. Initiating tree-planting schemes in villages surrounding the reserves, preferably along agroforestry lines, would be a suitable choice since the same land may offer both agricultural crops and forestry products.

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