

**AVIAN EXPLORATORY SURVEY AT ANWASE LOWLAND FORESTS,
KWANDE LOCAL GOVERNMENT, BENUE STATE, NIGERIA**
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INTRODUCTION

The exploratory survey took place at Anwase lowland forest patches, Kwande LGA, Benue State of North central Nigeria from 6th to 12th of February 2022. The survey components were four:

- ***Forest and bird survey:***
Seven (7) forest patches were visited by Mark and Patience and birds seen and heard were recorded. This also informed the choice of some of the points used for bird ringing.
- ***Bird ringing*** was done in three sites: River Mnya, River Mkomn and Asesoo forest patch, by Joy and Waldi.
- ***Vegetation sampling*** was carried out by Patience while visiting the different forest sites.
- ***Knowledge and attitudinal perception (Social survey)*** was carried out within the Anwase schools and local communities. This was funded from a separate source and is not reported here.

BIRD REPORT

Methodologies

One of the team's main bird observers< Mark, operated together with the forest surveyor Patience most of the time, accompanied by a local guide. This meant being on the move a great deal, spending much of our time travelling between forest patches. This partly explains why the list is skewed toward savannah species. The other two observers, Waldi and Joy, remained more stationary, fitting in observations around their ringing. Bird species were recorded opportunistically therefore, by sight and by voice, using the Birdlasser app. A full list is given in Appendix 2.

Sites

The places around which most observations were made are the three mapped forest sites (Figure 1), Asesoo forest patches (there were others almost contiguous with that in which ringing took place), the Mnya stream gallery forest, and the hill forests on the mountains to the east of Anwase (which are much more extensive than mapped, occupying valleys rather than ridges, but some hillsides too). Additional observations of interest were made in degraded and rapidly disappearing forests north-west of Anwase. These last, and also the hill forests, were each only visited during the middle hours of a single day.

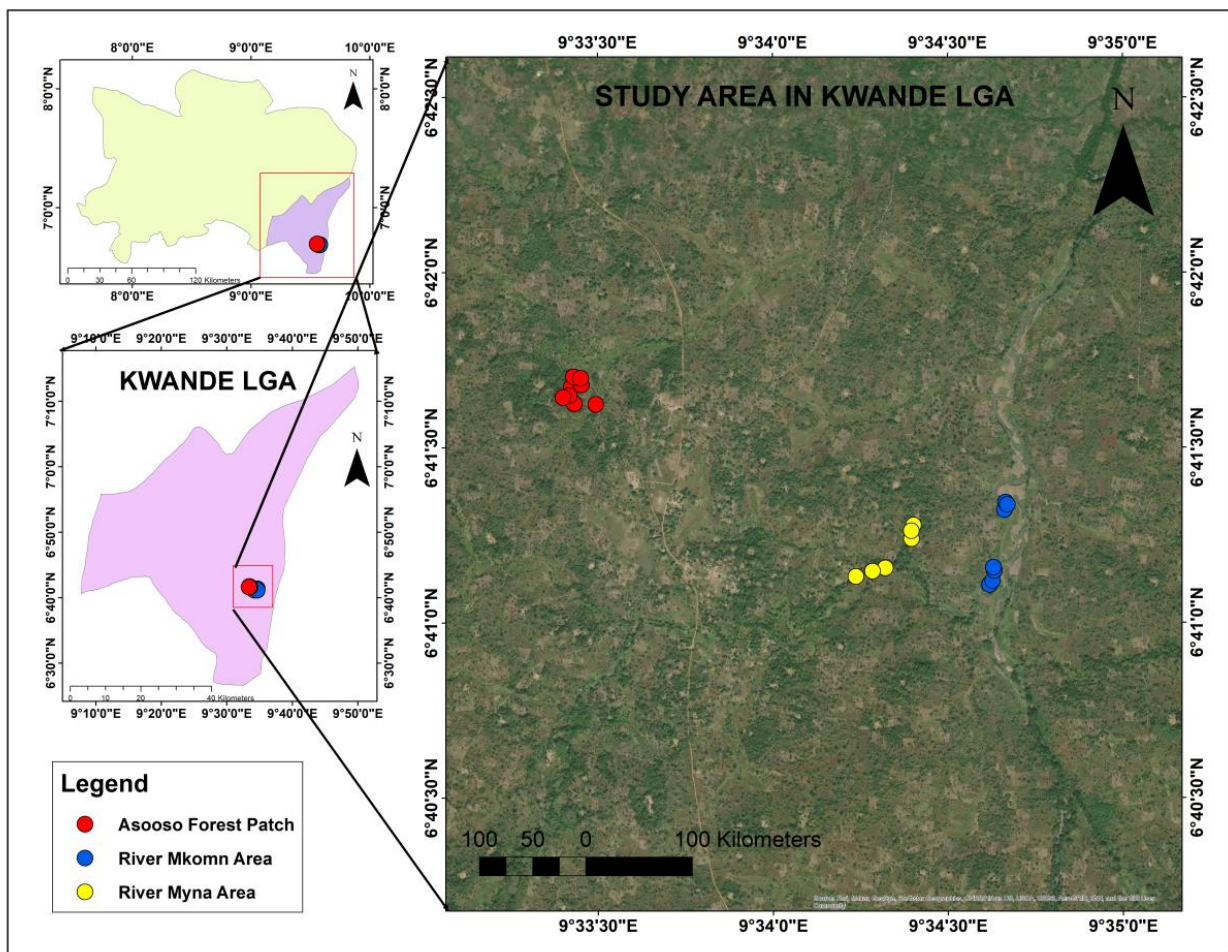


Figure 1: Study Areas Marked in Anwase, Kwande LGA, Benue State

NOTES ON SELECTED SPECIES

Blue Malkoha *Ceuthmochares aereus aereus*. Two birds seen together in lianas in a recently burnt forest patch constitute the first record for the western part of the Benue Basin forests.

African Hawk-Eagle *Aquila spilogaster*. A single bird flying overhead slowly at medium height is the first record for the region. The following notes were made: "Raptor, medium-large – dwarfed a mobbing Blue-bellied Roller. Good head projection, rather long thin tail. Wings medium breadth, rounded. Upperparts brown. Underbody white, pale rufous underwing coverts, remiges barred but whitish. Suggestion of darker on both front and rear edges of wings." The forest hawk-eagle species that initially came to mind, Ayres' and Cassin's, had to be excluded, and no other largish raptor appeared possible. This bird closely resembled a likely sub-adult seen by the same observer at Yankari a couple of years earlier, identified with expert assistance.

Collared Flycatcher *Ficedula alibicollis*. A single bird flycatching in a group of flowering *Gmelina* trees that closely resembled a Pied Flycatcher was identified by its distinctive incessant high 'seep' calls. First records for the region too.

Olive Sunbird *Cyanomitra olivacea cephalis*. In addition to being frequently trapped, this species was often heard and occasionally seen in forest understorey, in which it appeared very common. First records for the western Benue Basin forests.

Western Bluebill *Spermophaga haematina pustulata*. A single male was seen at close range in a tiny forest patch surrounding a spring of water, where many seed-eating birds were resting in the heat of the day. First record for the western Benue Basin forests.

Anomalous birds

Paradise flycatcher *Terpsiphone sp.* At least two birds resembling the one trapped in the Asesoo forest patch (see ringing report) were seen on more than one day feeding in the manner typical of the genus in the immediate area in which the bird was netted. Associating these records with the bird netted in the nearby Mnya gallery forest in 2012 (Barshep et al 2020), where other similar birds were also seen, it is clear that there is a population of such

birds in the area – these plumages are not occasional aberrations. Taking into account also sightings at Shikpeche (some 35 km to the west) in January 2020 of a very long-tailed paradise flycatcher which was entirely black but for a white vent, accompanied by another very dark bird with a standard-length tail, one might hypothesize that the latter is an undescribed species and the Anwase birds hybrids between it and Red-bellied Paradise Flycatcher *T. rufiventer neumanni*. These are resident at Anwase, whereas African Paradise Flycatchers *T. viridis ferreti* are to the south of their mapped breeding range and have never been observed in the region in the rainy season. An expert on the genus at the University of Kent has agreed to analyse the blood sample gathered, once permissions are obtained and carriage can be arranged.

Greenbul *Baeopogon* sp.? At least two unfamiliar birds were seen and heard moving about the mid-storey of the forest in the same corner of the Asesoo forest patch where the anomalous paradise flycatchers were seen and trapped, and at the same time on the morning of 9 February as some of those observations. 10x40 Zeiss binoculars were used, at roughly 20 metres. These notes were taken: “Brown, rather plain. Mid-brown above, paler brown below. Paradise flycatcher size or close – much bigger than Pied [Flycatcher]. No head pattern, dark eyes. White outer tail, tail also showing mainly white from underneath. Short range [insect] catching sallies within tree ... Clung to trunk at one point. Low sweet whistle kept up: three notes, down in the middle, or two notes, second rising.” Some clarifications are needed:

- Size here refers to total length: the body was bulkier than that of the anomalous paradise flycatchers, but the tail shorter; these and a European Pied Flycatcher *Ficedula hypoleuca* were birds available nearby for comparison.
- On feeding behaviour, I should clarify that prey was caught on foliage, not in the air
- On the call, ‘low’ refers to volume, not pitch; the latter was medium, a very pleasant sound.

White tail sides, size and forest habitat all point to the genus *Baeopogon*. The birds’ behaviour and bill shape (rather long and slim, as *Baeopogon*) rule out larger honeyguides *Indicator*. However, there are a number of difficulties with identifying the birds as either Honeyguide or

Sjostedt's Greenbul *B. indicator* and *B. clamans*, which are here presented in descending order of significance:

- The incessant whistling contact calls, clearly made by these birds, were quite unlike any recorded or reported vocalisation of either species
- The plumage lacked the colours and the contrasts found in both species, and the underparts were much too pale too
- *B. clamans* has only been recorded in the wettest parts of the lower guinea forests – thus in the Oban but not the much closer Okwangwo division of Cross River National Park – whereas the Anwase forests are close to the margin of forest in that part of Nigeria, with an impoverished avifauna (thus mist-netting shows Forest Robin *Stiphornis erythrothorax* to be common in the wettest eastern part of the Benue Basin forests but absent in the intermediate central section, and Yellow-whiskered Greenbul *Eurillas latirostris* to be common in both eastern and central forests but absent from the drier forests in the west where Little Greenbul *E. virens* is all one finds)
- Neither the pale eye of adult male *B. indicator indicator* nor the dark tail tip of all adults of that taxon was observed

The birds are therefore left unidentified, pending the obtention of further evidence – unfortunately neither were photos taken nor recordings made.

BIRD RINGING REPORT

RINGING PROTOCOL

Ten mist-nets of various lengths totaling 126 meters were used to capture birds for six consecutive days in different sites from 06:00am to 06:00pm in order to increase capture efforts. This was because conditions within these forest patches were quite conducive and net control was done every 30 minutes. All birds trapped were identified using a field guide (Borrow and Demey, 2002), and marked with SAFRING rings. Morphometric measurements were taken thus: wing length, weight, tarsus length, bill length; with the aid of a wing meter rule, electronic scale and vernier caliper respectively. Moults were scored using the British Trust

for Ornithology technique (Ginn & Melville 1983): old feathers were scored 0, new feathers 5, and growing feathers 1-5 depending on their stage of growth. Brood patch (BP) presence and development were used as indicators of breeding and stages scored from 0-5 (see Redfern, 2010).

Blood Sample Collection

Blood samples were collected from three paradise flycatcher taxa: African Paradise Flycatcher *Terpsiphone viridis*, Red-bellied Paradise Flycatcher *Terpsiphone rufiventer neumanni*, and an anomalous Paradise Flycatcher trapped at Asesoo Forest patch. This is to ascertain their genomic relationship and possibly unravel the 'new' bird. It was done through the branchial vein using venipuncture method with a 21^{8/5} gauge needle and 5ml syringe. After collection, the samples were stored in 95-99% ethanol and kept in a cool dry place and later transferred to a freezer at -21°C until molecular analysis.

RINGING RESULTS

91 individual birds belonging to 25 species (excluding the Paradise Flycatcher with a strange plumage) were captured using mist-nets. 84 individuals were newly ringed, three re-traps; just a few escaped from the bird bags or during processing. However, eight re-traps of trap-happy birds caught in the net immediately after releases were not considered.

A majority of the captured birds (i.e. 93%) were resident species, except for Whinchat (*Saxicola rubreta*), Great Reed Warbler (*Acrocephalus arundinaceus*) and European Reed Warbler (*Acrocephalus scirpaceus*). Little Greenbul (*Eurillas virens*), Copper Sunbird (*Cinnyris cupreus*), Olive Sunbird (*Cyanomitra olivacea*) and Bronze Mannikin (*Spermestes cucullata*) had the highest species abundance (Appendix 1). Two species of genus *Terpsiphone* were trapped: African Paradise Flycatcher (*T. viridis*) (Figure 2) and Red-bellied Paradise Flycatcher, (*T. rufiventer neumanni*) (Figure 3).



Figure 2: African Paradise Flycatcher, *Terpsiphone viridis*



Figure 3: Red-bellied Paradise Flycatcher, *Terpsiphone rufiventer neumanni*

Abundance of birds and species richness were higher within and around river Mkomn while river Mnya had the least; though ringing effort (length of mist-net*days of trapping) across the three sites was uneven (Table 1). Among the three sites, a higher number of forest species (Olive Sunbird, Little Greenbul, Red-bellied Paradise Flycatcher, Red-tailed Leaflove (*Pyrrhurus scandens*) and Green Crombec (*Sylvietta virens*) were recorded in Asooso Forest Patch.

Short note on the Paradise Flycatcher with a distinctive Plumage

The paradise Flycatchers in genus *Terpsiphone* (Aves: Monarchidae) are known to exhibit distinct plumage polymorphism which is well documented. For example, male Madagascar paradise flycatcher (*Terpsiphone mutata*) shows four plumage types that vary with season (Mizuta *et al.* 2003). Also, male African Paradise Flycatchers *T. viridis* come in distinct plumages, but they belong to different subspecies. However, other plumages have been displayed by this group of birds in West Africa different from what has been well studied. An earlier enigmatic plumage in Nigeria was recorded a decade ago (Barshep *et al.* 2020).

On the 10th of February, another *Terpsiphone* with a different plumage was trapped during the Anwase field trip within the area in which the previous one was recorded. It had a glossy black head with no distinct crest; the tail was relatively long. Bill, orbital ring and legs were blue-black. Upperparts, wings and tail were brownish-black, darker around the mantle region.

Underwing coverts were pale rufous. Underparts, from chest to undertail coverts had of black and rufous shades in varying amounts, with black predominating higher up and rufous lower down (Figure 4). Morphometrics taken are: mass 14.11g, wing length 74mm, tarsus length 6.90mm, bill length 16.84mm and tail 73mm).



Figure 4: Unidentified Paradise Flycatcher, *Terpsiphone* sp. (Photo: Ishong Joy Akpanta)

ASSESSMENT OF FOREST PATCHES

Forest assessment report provides information on the hill forest and the forest patches visited from 6th to 12th of February 2022. It aims to identify forest remnants for biodiversity conservation, study their structure and composition, also threats to the identified forest patches and measures that could conserve their biodiversity.

Structure and Composition

The following forest patches were visited and assessed:

1. Mnya Gallery Forest

Mnya gallery forest has naturally fallen trees with Diameter at Breast Height (DBH) greater than 60cm and 40cm, with a good number of old trees considering the area. High tree crown with thick branches can be seen in some areas and trees with epiphytic ferns or other plants with visible roots. Climbers were also present. The forest comprises mainly of indigenous species; stands of *Gmelina arborea* were observed in plot 2 while plot 1 has Bamboo thickets. Two plots were laid in here using Forest Integrity Assessment (FIA) tool for assessment. The forest is a source of construction material and a breeding site for fishes.



Figure 5: Some of the Field Assistants during the field trip at River Mnya

(Photo: Waldi Philemon Gurumse)

2. Asesoo Iyanev Forest Patch

Asesoo Iyanev forest patch is considerably more natural, dense and intact than all the other valley forests visited. It is healthier with a land area of about 1.86ha. The forest floor has an accumulation of leaf debris with a lot of regeneration taking place, especially of palm trees. More so, there was evident fallen trees, several with DBH greater than 60cm and 80cm, also presence of fallen logs and snags. Two plots were laid using the Forest Integrity Assessment (FIA) tool for assessment. Plot 1 is sparse with Palm trees while plot 2 is largely composed of regenerating palm trees.

3. Asesoo Forest Patch Extension

This is an extension of the Asesoo Iyanev forest patch and quite large, covering an area of about 5.12ha. Some parts of the boundary have tree species like *Gmelina arborea* at the edge, almost planted as if setting a boundary of the forest in that axis. There was also evidence of Bamboo harvesting. This particular forest patch contains some form of traditional worship, which might have contributed to its continuing existence. The forest is surrounded by buildings, farmland (Cassava), a local brick making site and a rice paddy with an old palm plantation.

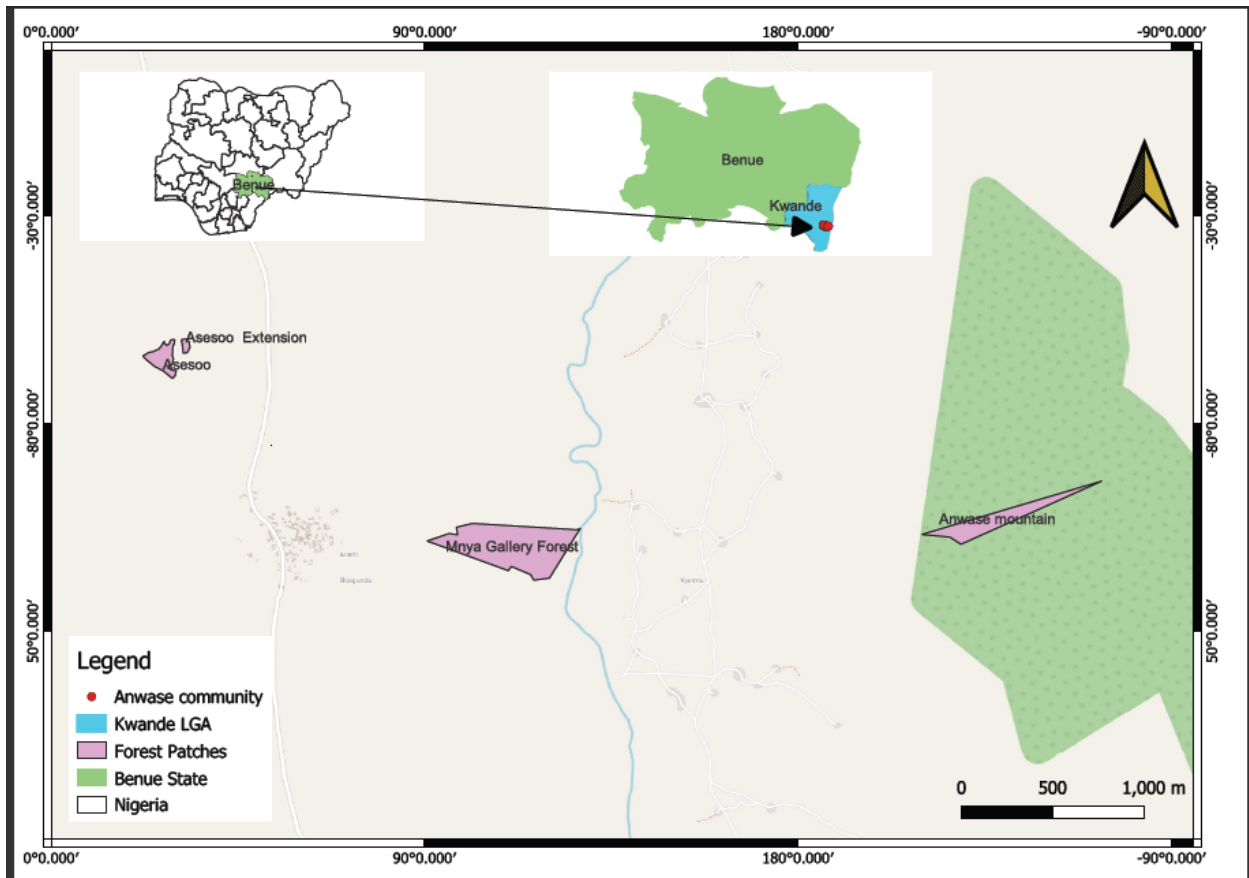


Figure 6: Study Area showing Forest Patches Visited at Anwase



Figure 7: A session of conservation education with some locals in the wild by Mark Hopkins

4. Asesoo Gallery

This is a strip of forest south of the Asesoo Forest patch almost like a belt. It is bordered by a rice and cassava farm on each side. It is composed of tall trees more than 60cm in girth and serve as a resting site for birds as they make a stop before moving to the next tree/forest.

5. Mbakpelegh Forest Patch

Mbakpelegh is a highly disturbed forest with evidence of seasonal fire; however, some areas are regenerating along a stream course. There, we observed fishing traps in the stream. This forest patch has farmlands scattered both within and adjoining the forest, also affected by fire. It is composed of tall trees with *Gmelina* present.

6. Anwase mountain forest/Gallery

Anwase hill forest is on a mountain that rises in three stages. At the base, there exist some scattered farmlands where fire is used to control weeds; this has led to the spread of fire in some parts of the mountain. Also, there was evidence of logging on the mountain. However, the gallery forest at the top of the first slope (about 540m above sea level) was observed to be natural and healthy with little disturbance. A freshly cleared area of land for farming was also observed. Crops planted were cassava and guinea corn.

At the top of the second rise there was less farming but a lot of hunting activities going on, as several traps for small antelopes were observed. The second mountain also shows a regeneration process after a possible fire incidence in the past. The more extensive forest here (at about 850-900m above sea level) looks really healthy and dense with closed canopy; water sources provide water for hunters. Two hunters' camps were observed at this point. Between the second summit and the third mountain lies a healthy forest patch. Little change was observed here from Mark Hopkins' previous visit ten years earlier.

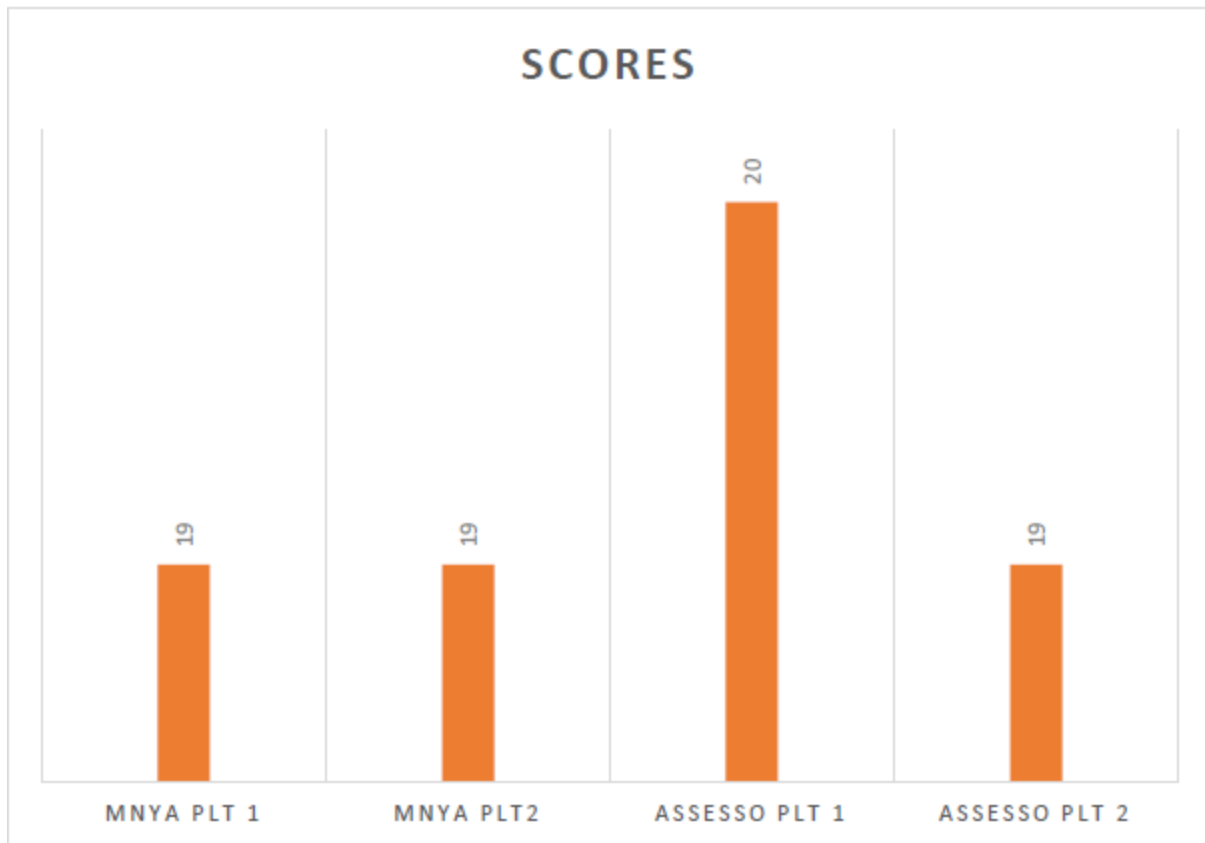


Figure 8: Forest Inventory Assessment Scores for Mnya Gallery and Asesoo Forest Patch Plots

Note: *Assesso PLT 1 scored higher (20) in structure and composition compared to Mnya PLT 1, Mnya PLT2 and Assesso PLT 2

7. Ashima Unon Forest

This is a private forest where *Tectonia grandis* was planted in some areas primarily at the edge with some palm trees, like a boundary demarcation. This forest has an escarpment of rock in some part, has been affected by fire in previous years and is trying to regenerate. Some of the trees found in these forest patches are as listed below;

Table 1: Common Tree Species found in Anwase

S/N	Common Name	Scientific Name	Family
1	African Mesquite	<i>Prosopis Africana</i>	Fabaceae
2	African Locust Bean	<i>Parkia biglobosa</i>	Fabaceae
3	African Mahogany	<i>Khaya senegalensis</i>	Meliaceae
4	West African Copal Tree	<i>Daniellia oliveri</i>	Fabaceae
5	Red Flowered Silk-cotton	<i>Bombax costatum</i>	Bombacaceae
6		<i>Cissus populnea</i>	Amplidanceae
7	African Mango	<i>Irvingia gabonensis</i>	Irvingiaceae
8	Cabbage Palm	<i>Anthocleista nobilis</i>	Loganiaceae
9	Coral Tree	<i>Erythrina senegalensis</i>	Fabaceae
10	African Nut Tree	<i>Brachystegia eurycoma</i>	Fabaceae
11	Velvet Tamarind	<i>Dialum guinensis</i>	Fabaceae
12	Denissoro	<i>Pachystela pobeguiniiana</i>	Sapotaceae
13	Camel's Foot	<i>Piliostigma thonningii</i>	Fabaceae
14	Black Plums	<i>Vitex doniana</i>	Lamiaceae
15	Oil Palm	<i>Elaeis guineensis</i>	Arecaceae
16	Gmelina	<i>Gmelina arborea</i>	Lamiaceae
17	Teak	<i>Tectona grandis</i>	Verbanaceae

Impact and Threat

Mnya gallery forest is threatened by farm encroachment. Fishing traps were observed also in the stream with dumping of waste (plastic especially) indicating human disturbances. In some areas, soil is being harvested for construction purposes; likewise, there is a site for local brick making. Overall, the forest patches are threatened by agricultural expansion and fire which is either used to clear for farming or for hunting. Forest is destroyed to plant rice for a single season, after which another stretch of forest is destroyed. By now very little is left in the valley. The protection of some of the remaining forest patches becomes necessary for the preservation of the diverse species recorded. The major crops grown in the area are Cassava, Rice, Guinea corn, Plantain, Tobacco, Banana, and yams.

Focal Habitat

The focal habitats in these forest areas include rivers and streams, and wetland formerly covered by a vanished tree species adapted to that habitat which is now used for rice farming. The mountains contain their own ecosystem.

CONCLUSION AND RECOMMENDATIONS

Biodiversity conservation of the Anwase forest ecosystem ought to be multifaceted, using strategies involving participation in all stages and by all stakeholders. Since anthropogenic activities are the greatest threats, there is a need to reduce or stop encroachment and harmful activities especially by teaching sustainable agricultural practices and providing livelihood support. Religious beliefs and traditions which protect the environment could be given value by being enacted and enforced by the community, especially as regards bush burning and deforestation.

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Table 2: Number and species richness of mist-netted birds across sites

Sites	Number	Species richness	Mist-net length(m)	Ringling days	Effort (length of mist-net(m)* days of trapping)
River Mnya	15	9	63	4	252
Asesoo forest	32	10 (excluding the unknown)	138	3	414
River Mkomn	44	15	75	3	255
Total	91				

Appendix 1 : Species ringed at Anwase during the Survey

Species	Number
Bronze Mannikin (<i>Spermestes cucullatus</i>)	14
Bar-breasted Firefinch (<i>Lagonosticta rufopicta</i>)	2
Orange-cheeked Waxbill (<i>Estrilda melpoda</i>)	6
Compact Weaver (<i>Pachyphantes superciliosus</i>)	5
Collared Sunbird (<i>Hedydipna collaris</i>)	1
Copper Sunbird (<i>Cinnyris cupreus</i>)	7
Olive Sunbird (<i>Cyanomitra olivacea</i>)	13
Splendid Sunbird (<i>Cinnyris coccinigastrus</i>)	1
Red-bellied Paradise Flycatcher (<i>Terpsiphone neumanni</i>)	4
African Paradise Flycatcher (<i>Terpsiphone viridis</i>)	3
Short-winged Cisticola (<i>Cisticola brachypterus</i>)	1
Green Crombec (<i>Sylvietta virens</i>)	1
Grey-backed Cameroptera (<i>Camaroptera brevicaudata</i>)	4
European Reed Warbler (<i>Acrocephalus scirpaceus</i>)	2
Great Reed Warbler (<i>Acrocephalus arundinaceus</i>)	3
Whinchat (<i>Saxicola rubetra</i>)	1
Leaflove (<i>Pyrrhurus scandens</i>)	2
Little Greenbul (<i>Eurillas virens</i>)	10
Common Bulbul (<i>Pycnonotus barbatus</i>)	1
Malachite Kingfisher (<i>Alcedo cristata</i>)	1
African Pygmy Kingfisher (<i>Ceyx pictus</i>)	2
Senegal Coucal (<i>Centropus senegalensis</i>)	2
Red-eyed Dove (<i>Streptopelia semitorquata</i>)	2
Black-billed Wood Dove (<i>Turtur abyssinicus</i>)	1
Blue-spotted Wood Dove (<i>Turtur afer</i>)	1
Paradise Flycatcher (different plumage)	1
TOTAL	91

Appendix 2: List of all birds recorded across days

Common Name	Scientific Name	06/02/22	07/02/22	08/02/22	09/02/22	10/02/22	11/02/22	Days seen	Status
Double-spurred Spurfowl	<i>Pternistis bicalcaratus adamauae</i>	✓	✓	✓	✓	✓	✓	6	H
African Palm Swift	<i>Cypsiurus parvus</i>		✓					1	
Western Plantain-eater	<i>Crinifer piscator</i>	✓	✓	✓			✓	4	
Guinea Turaco (Guinea)	<i>Tauraco persa persa</i>		✓	✓	✓	✓	✓	5	
Senegal Coucal [senegalensis]	<i>Centropus senegalensis senegalensis</i>	✓	✓	✓	✓	✓	✓	6	T
Blue Malkoha	<i>Ceuthmochares aereus aereus</i>					✓		1	
Red-eyed Dove	<i>Streptopelia semitorquata</i>	✓	✓	✓	✓	✓	✓	6	T
Vinaceous Dove	<i>Streptopelia vinacea</i>	✓	✓	✓	✓	✓	✓	6	
Laughing Dove	<i>Spilopelia senegalensis</i>		✓		✓	✓	✓	4	
Black-billed Wood Dove	<i>Turtur abyssinicus</i>			✓	✓			2	TO
Blue-spotted Wood Dove	<i>Turtur afer</i>	✓	✓	✓	✓	✓	✓	6	T
African Green Pigeon (African)	<i>Treron calvus [calvus-group]</i>						✓	1	H
Striated Heron (Old World)	<i>Butorides striata atricapilla</i>		✓	✓				2	
Western Cattle Egret	<i>Bubulcus ibis</i>			✓	✓	✓	✓	4	
AFRICAN CUCKOO HAWK	<i>Aviceda cuculoides</i>				✓		✓	2	
Long-crested Eagle	<i>Lophaetus occipitalis</i>	✓						1	
AFRICAN HAWK-EAGLE	<i>Aquila spilogaster</i>						✓	1	
Lizard Buzzard	<i>Kaupifalco monogrammicus monogrammicus</i>		✓	✓		✓	✓	4	
Shikra	<i>Accipiter badius</i>						✓	1	
Yellow-billed Kite	<i>Milvus aegyptius parasitus</i>	✓	✓	✓		✓	✓	5	
Red-necked Buzzard	<i>Buteo auguralis</i>		✓		✓			2	
Pearl-spotted Owlet	<i>Glaucidium perlatum</i>		✓					1	
African Scops Owl (African)	<i>Otus senegalensis senegalensis</i>		✓		✓			2	H
Northern White-faced Owl	<i>Ptilopsis leucotis</i>		✓					1	
Green Wood Hoopoe	<i>Phoeniculus purpureus guineensis</i>		✓	✓		✓	✓	4	
African Grey Hornbill	<i>Lophoceros nasutus nasutus</i>	✓	✓	✓	✓	✓	✓	6	
Purple Roller	<i>Coracias naevius</i>					✓		1	
Abyssinian Roller	<i>Coracias abyssinicus</i>				✓			1	
Blue-bellied Roller	<i>Coracias cyanogaster</i>		✓	✓	✓	✓	✓	5	
Grey-headed Kingfisher	<i>Halcyon leucocephala</i>		✓					1	
African Pygmy Kingfisher	<i>Ispidina picta ferrugina</i>	✓					✓	3	TO
Malachite Kingfisher	<i>Corythornis cristatus</i>			✓					TO
White-throated Bee-eater	<i>Merops albicollis</i>					✓		1	

NORTHERN CARMINE BEE-EATER	<i>Merops nubicus</i>			✓	✓	✓	✓	4	
Yellow-rumped Tinkerbird (Lemon-rumped)	<i>Pogoniulus bilineatus leucolaemus</i>	✓	✓	✓	✓	✓	✓	6	
Yellow-fronted Tinkerbird	<i>Pogoniulus chrysoconus chrysoconus</i>		✓	✓	✓	✓	✓	5	H
AFRICAN GREY WOODPECKER (Grey)	<i>Dendropicos goertae centralis</i>				✓			1	
Lanner Falcon	<i>Falco biarmicus abyssinicus</i>						✓	1	
Senegal Batis	<i>Batis senegalensis</i>			✓				1	
Black-crowned Tchagra (Black-crowned)	<i>Tchagra senegalus senegalus</i>		✓		✓	✓	✓	4	
Northern Puffback	<i>Dryoscopus gambensis gambensis</i>					✓	✓	2	
Red-shouldered Cuckooshrike	<i>Campephaga phoenicea</i>	✓						1	
Yellow-billed Shrike	<i>Corvinella corvina togoensis</i>		✓	✓		✓		3	
African Golden Oriole	<i>Oriolus auratus auratus</i>				✓			1	H
Glossy-backed Drongo	<i>Dicrurus divaricatus divaricatus</i>	✓	✓	✓	✓		✓	5	
Red-bellied Paradise Flycatcher (Tricolored)	<i>Terpsiphone rufiventer neumanni</i>	✓	✓	✓	✓	✓	✓	6	T
African Paradise Flycatcher	<i>Terpsiphone viridis ferreti</i>	✓	✓	✓	✓	✓	✓	6	T
Piapiac	<i>Ptilostomus afer</i>				✓		✓	2	
Pied Crow	<i>Corvus albus</i>				✓			1	
African Blue Flycatcher	<i>Elminia longicauda longicauda</i>			✓				1	H
YELLOW-THROATED LEAFLOVE	<i>Atimastillas flavicollis flavicollis</i>	✓	✓			✓		3	
SWAMP PALM BULBUL	<i>Thescelocichla leucopleura</i>	✓	✓					2	
Little Greenbul	<i>Eurillas virens erythroptera</i>	✓	✓	✓	✓	✓	✓	6	T
Red-tailed Leaflove	<i>Phyllastrephus scandens scandens</i>					✓	✓	2	TO
Common Bulbul	<i>Pycnonotus barbatus inornatus</i>	✓	✓	✓	✓	✓	✓	6	T
Green Crombec	<i>Sylvietta virens virens</i>			✓	✓	✓	✓	4	T
Willow Warbler	<i>Phylloscopus trochilus</i>	✓					✓	2	H
GREAT REED WARBLER	<i>Acrocephalus arundinaceus arundinaceus</i>		✓	✓				2	T
EURASIAN REED WARBLER (Eurasian)	<i>Acrocephalus scirpaceus scirpaceus</i>			✓				1	TO
SHORT-WINGED CISTICOLA	<i>Cisticola brachypterus brachypterus</i>		✓					1	TO
Tawny-flanked Prinia	<i>Prinia subflava</i>	✓		✓			✓	1	
Grey-backed Camaroptera	<i>Camaroptera brevicaudata brevicaudata</i>	✓	✓	✓	✓	✓	✓	6	T
Brown Babbler	<i>Turdoides plebejus</i>		✓			✓		2	
Splendid Starling	<i>Lamprotornis splendidus</i>		✓					1	
African Thrush (African)	<i>Turdus pelios saturates</i>			✓	✓	✓	✓	4	
Grey Tit-flycatcher	<i>Myioparus plumbeus plumbeus</i>	✓						1	
Spotted Flycatcher	<i>Muscicapa striata</i>				✓			1	

European Pied Flycatcher	<i>Ficedula hypoleuca</i>		✓		✓			2	
COLLARED FLYCATCHER	<i>Ficedula albicollis</i>	✓		✓	✓			3	
Whinchat	<i>Saxicola rubetra</i>		✓		✓			2	T
Collared Sunbird	<i>Hedydipna collaris somereni</i>	✓			✓	✓	✓	4	T
Pygmy Sunbird	<i>Hedydipna platura</i>			✓				1	
Green-headed Sunbird (Green-headed)	<i>Cyanomitra verticalis verticalis</i>			✓	✓	✓	✓	4	
Olive Sunbird (Western)	<i>Cyanomitra olivacea cephalis</i>				✓	✓	✓	3	T
Scarlet-chested Sunbird	<i>Chalcomitra senegalensis</i>		✓					1	
Splendid Sunbird	<i>Cinnyris coccinigastrus</i>	✓	✓	✓	✓	✓	✓	6	T
Variable Sunbird (Yellow-bellied)	<i>Cinnyris venustus venustus</i>		✓	✓	✓	✓	✓	5	
Copper Sunbird	<i>Cinnyris cupreus cupreus</i>		✓	✓	✓	✓		4	T
Sahel Bush Sparrow	<i>Gymnoris dentate</i>	✓	✓	✓	✓	✓	✓	6	
Village Weaver (Black-headed)	<i>Ploceus cucullatus cucullatus</i>			✓	✓	✓		3	
Compact Weaver	<i>Ploceus superciliosus</i>		✓					1	TO
NORTHERN RED BISHOP	<i>Euplectes franciscanus</i>		✓					1	
Bronze Mannikin	<i>Spermestes cucullata cucullata</i>	✓	✓	✓	✓	✓	✓	6	T
Orange-cheeked Waxbill	<i>Estrilda melpoda</i>		✓		✓			2	T
Western Bluebill (Red-rumped)	<i>Spermophaga haematina pustulata</i>					✓		1	
Bar-breasted Firefinch	<i>Lagonosticta rufopicta rufopicta</i>		✓	✓				2	TO
EXCLAMATORY PARADISE WHYDAH	<i>Vidua interjecta</i>					✓		1	
Tree Pipit	<i>Anthus trivialis trivialis</i>				✓			1	
Yellow-fronted Canary	<i>Crithagra mozambica caniceps</i>			✓				1	
Total: 89 species									Key
									H = heard only
<i>Key</i>									T = trapped
BOLD CAPITALS = new to entire Benue Basin forest region (12 species)									TO = trapped only
Bold italics = new only to western Benue basin forest area (7 species)									
Bold = new only to Anwase environs (7 species)									

PICTURE GALLERY OF BIRDS AND OTHER FORMS OF BIODIVERSITY RECORDED



Figure 9: African Grey Hornbill (*Tockus nasutus*) Photo by Adaje Patience Onyeche



Figure 10: Cattle Egrets in a Rice Farm Photo by Adaje Patience Onyeche



Figure 11: Exclamatory Paradise Whydah (*Vidua interjecta*) Photo by Adaje Patience Onyeche



Figure 12: White-throated Bee Eater (*Merops albicollis*) Photo by Adaje Patience Onyeche



Figure 13: Northern Carmine Bee Eater (*Merops nubicus*) Photo by Adaje Patience Onyeche



Figure 14: Common Palm Forester (*Bebearia cocalia* - Male) at River Mnya Photo by Adaje Patience Onyeche



Figure 15: Frog at Mnya Gallery Forest Photo by Waldi Philemon Gurumse



Figure 16: *Orthetrum* sp at Mnya Gallery Forest Photo by Waldi Philemon Gurumse



Figure 17: *Chlorocypha curta* Photo by Waldi Philemon Gurumse



Figure 18: *Bicyclus* sp. at Anwase Photo by Adaje Patience Onyeche



Figure 19: Long-crested Eagle at Anwase (Photo: Adaje Patience Onyeche)

SOME ANTHROPOGENIC ACTIVITIES RECORDED DURING THE EXPLORATION



Figure 20: Local Bricks around Mnya Gallery Forest (Photo: Adaje Patience Onyeche)



Figure 21: Bush Burning at Anwase Forests (Photo: Adaje Patience Onyeche)

APPRECIATION

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