

An avifauna survey of Mandera and Daua River, North Eastern Kenya.

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Executive Summary

The survey of the birds of Mandera and Daua River valley was carried out in August 2008. The area comprises of three major habitats types: semi arid bush land, scrubby grassland and riparian woodland along the Daua River. During the survey we used a combination of two different methods –Timed Species Counts, Point Counts. A total of 74 birds species from 41 families were recorded during the survey. This total included one Palearctic Migrant, one Afro-tropical migrant, 6 species whose resident populations also include some migratory birds, three species listed as rare in the region by the Ornithological Sub-committee of the East African Natural History Society and three new species for the area. Two species characteristic of the Jubba and Shabeele Valleys Endemic Bird Area were recorded. The presence of this two species is especially important because it is one of the criteria used to identify the international recognized Important Bird Areas. The African White-winged Dove *Streptopelia d. perspicillata* was the most common species recorded along the portion of the riparian woodland along the Daua River surveyed, while the *Green-backed Heron* *Butorides striatus*.

Study Area

Daua River valley is located in Mandera District (03° 34'N, 41° 46'E) in the vast North-eastern province; it forms the extreme north-eastern boarder of Kenya and Ethiopia. The area is largely semi-arid bush land and scrubby grassland, with riparian woodland and palms along the Daua River. The site is considered an area of plant endemism, and also encompasses the Malka Mari National Park, Potential Important Bird Area, a remote and little visited site. Mandera district is generally low lying and flat. The district receives a mean annual precipitation of less than 200mm.

The study area in general can be described as arid lands. This makes it prone to environmental degradation. Land use is mainly livestock production along side a variety of wildlife species.

Broad objectives

The overall aim of the research was to conduct a comprehensive bird survey so as to prepare a checklist of the birds of the little known Daua River valley as part of documenting the area's biodiversity and its conservation status. The survey also served as an extension of Ornithology Section's research boundary. The specific objectives of the study were

- (i) Assess the conservation status of the habitat in terms of threats using birds as indicators.
- (ii) Identify further research areas on the birds and biodiversity.
- (iii) Determine presence or absence of biome indicator species.

Methods

Timed Species counts (TSCs)

Timed species counts were used to determine relative abundance of birds along Daua River. Each session lasted one hour, during which repeated species lists were made every ten minutes i.e. each species was recorded every time it was positively identified either by sight or sound (Bennun & Howel, 2000). Data for the TSCs was recorded in six columns, corresponding to six 10 minutes intervals during an hour-long survey. Because both White-winged Dove and Juba Weaver occurred along the river transects ran randomly either upstream or downstream. All birds observed were recorded, with those recorded in the first ten minutes attaining a score of six points while those in the last ten minutes (51-60mins) attain a score of one point. A team of three using binoculars each for the count and a Zimmermann *et al* (1996) bird guide for identification were used in the survey. One of the team members recorded the data on pre-designed datasheets.

Point Counts

This method was used to provide absolute densities. Census stations were systematically selected and marked with the help of a GPS at intervals of 100meters. The observers waited for two minutes to settle down and counted birds within the circle of 30m radius for ten minutes. The team comprised of three members where one was the recorder. Counts started within the centre of the circle and the walking within the radius to flush birds and count those that were foraging or hiding. We carried out 15 point counts in three transects.

Opportunistic observation

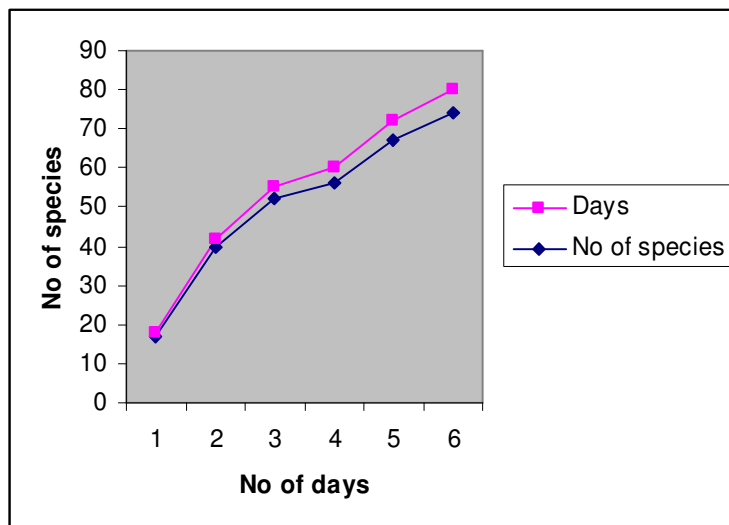
Each member of the team carried a pair of 8×42 binoculars during the field work days and recorded any species seen or heard and positively identified using the Zimmerman *et al*, (1996) guide book. All sightings were recorded on a daily basis on note books.

Results and Discussion

Timed Species Count (TSCs)

A total of 8 hour-long timed species counts were conducted in the different habitat types (but mostly along the Daa River woodland).

A species discovery curve developed from the bird survey data from 8 TSCs is shown below. This accumulation curve helps to provide an area's species list with a rough or relative estimate of the number of species that may be expected for a site.



A total 74 bird species from 41 families were recorded during the survey. This number represents 45% of the total number of bird families recorded in Kenya. The list includes 1 Palearctic migrant (PM), 1 Afro tropical migrant (AM), 6 species whose resident populations also include some migratory birds, and 3 species are listed as rare in the region by the Ornithological Sub-committee of the East African Natural History Society. Our Timed Species Counts revealed that the African White-winged Dove and Spotted Morning Thrush *Cicladusa guttata* were the most common species recorded along the portion of the riparian woodland along the Daa River surveyed, while Dwarf Raven *Corvus (ruficollis) edithae*, and Green-backed Heron *Butorides striatus atricapillus* were least common. White-bellied Go-away-bird *Criniferoides leucigaster* and Red-billed Hornbill *Tockus e. erythrorhynchus* were the most common species recorded in the semi arid bush land mostly on the acacia bushes, while the least common were

Carmine Bee-eater *Merops nubicus* and Nubian Woodpecker *Campethera nubica*.

Our survey also recorded several species which had not been recorded in the area before, which included Goliath Heron *Ardea goliath*, Green Backed Heron *Butorides striatus* and African Moustached Warbler *Melocichla mentalis*.

The Juba weaver is not entirely confined along the riverine vegetation of Daua River, as it was recorded several times in Mandera town on acacias. Africa White winged Dove, on the other hand is largely restricted along the river, on both Kenyan and Ethiopian side. The riverine vegetation has been severely modified by irrigation and invasive species mainly *Prosopis juliflora*. There is therefore need to carry out comparative surveys along Daua River where native vegetation has been severely modified and in areas where there is still native vegetation. Although we did not reach Malkamari National park, recent reports indicate that the vegetation along the river in the park is still undisturbed. Therefore, there are possibilities that there is good habitat for both White-winged Dove and Juba weaver.

Table 1: Summary of observed species status under: Rare, Palaearctic and Afro tropical migrants recorded at Mandera during the survey.

Osc No.	Family Name	Common name	Scientific name
234	Otididae: bustards	Heuglin's Bustard	<i>Neotis benglinii</i> X
314	Scolopacidea: sandpipers and relatives	Common sandpiper	<i>Actitis hypoleucos</i> PM
486	Alcedinidae: kingfishers	Grey-headed Kingfisher	<i>Halcyon leucocephala</i> am
497	Alcedinidae: kingfishers	African Pygmy Kingfisher	<i>Ispidina picta</i> am
504	Meropidae: bee-eaters	Carmine Bee-eater	<i>Merops nubicus</i> AM
505	Meropidae: bee-eaters	White--throated Bee eater	<i>Merops albicollis</i> am
519	Coraciidae:rollers	Lilac-breasted Roller	<i>Coracias caudate</i> am
524	Upupidae: hoopoe	Hoopoe	<i>Upupa epops</i> am,pm
1117	Sturnidae:starlings and oxpeckers	Shelley's Starling	<i>Lampotornis shelleyi</i> X
1128	Sturnidae:starlings and oxpeckers	Magpie Starling	<i>lampotornis bicolor</i> X
1128	Sturnidae:starlings and oxpeckers	Wattled Starling	<i>Creatophora cinerea</i> am

am, pm are afrotropical migrants and palaeartic migrants which occur alongside resident individuals, X are rare species of special interest to Ornithological Sub-Committee.

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Appendix 1: bird species recorded during the survey

Somali Ostrich	<i>Struthio (camelus) molybdophanes</i>
Green-backed Heron	<i>Butorides striatus</i>
Goliath Heron	<i>Ardea goliath</i>
Hamerkop	<i>Scopus umbretta</i>
Marabou Stork	<i>Leptoptilus crumeniferus</i>
Sacred Ibis	<i>Threskiornis a. aethiopicus</i>
Hadada Ibis	<i>Bostrychia hagedash brevirostris</i>
Egyptian Goose	<i>Alopochen aegyptiacus</i>
Black-shouldered Kite	<i>Elanus c. caeruleus</i>
Gabar Goshawk	<i>Micronisus gabar aequatorius</i>
Eastern Pale Chanting Goshawk	<i>Meliarax poliopterax</i>
Crested Francolin	<i>Francolina sephaesus</i>
Vulturine Guneafowl	<i>Acryllium vulturinum</i>
Heuglin's Bustard	<i>Nentis heuglini</i>
Water Thick-knee	<i>Burhinus v. vermiculatus</i>
Spur-winged Plover	<i>Vanellus spinosus</i>
Black-headed Plover	<i>Vanellus tectus</i>
Crowned Plover	<i>Vanellus c. coronatus</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Chestnut bellied Sandgrouse	<i>Pterocles exustus olivascens</i>
Black-faced Sandgrouse	<i>Pterocles decoratus</i>
Emerald Spotted Wood Dove	<i>Turtur chalcospilos</i>
Namaqua Dove	<i>Oena c. capensis</i>
Speckled Pigeon	<i>Columba g. guinea</i>
African Mourning Dove	<i>Streptopelia d. perspicillata</i>
African White-winged Dove	<i>Streptopelia reichonowi</i>

Ring-necked Dove	<i>Streptopelia capicola somalica</i>
Laughing Dove	<i>Streptopelia s. senegalensis</i>
African Orange-bellied Parrot	<i>Poicephalus rufiventris</i>
White-bellied Go-away-bird	<i>Criniferoides leucigaster</i>
White-browed Coucal	<i>Centropus s. superciliosus</i>
Slender-tailed Nightjar	<i>Caprimulgus clarus apatelius</i>
African palm Swift	<i>Cypsiurus parvus laemogstima</i>
Speckled Mousebird	<i>Colius striatus kikuyuensis</i>
Blue-naped Mousebird	<i>Urocolius macrourus pulcher</i>
Grey-headed Kingfisher	<i>Halcyon l. leucocephala</i>
African Pygmy Kingfisher	<i>Ispidina p. picta</i>
Carmine Bee-eater	<i>Merops nubicas</i>
White-throated Bee-eater	<i>Merops albicolis</i>
Little Bee-eater	<i>Merops pusilluss cyanostictus</i>
Lilac-breasted Roller	<i>Coracias caudata</i>
Hoopoe	<i>Upupa epops</i>
Commom Scimitarbill	<i>Rhinopomastus cyanomelas schalowi</i>
Red-billed Hornbill	<i>Tockus e. erythrorhynchus</i>
Von Der Decken's Hornbill	<i>Tockus deckeni</i>
African grey Hornbill	<i>Tockus nasutus</i>
Nubian Woodpecker	<i>Campethera nubica</i>
Chestnut-headed Sparrow-lark	<i>Eremopterix signata</i>
African Pied Wagtail	<i>Motacila aguimp vidua</i>
Common Bulbul	<i>Pycnonotus barbatus</i>
Spotted Morning Thrush	<i>Cicladusa guttata</i>
Bare eyed Thrush	<i>Turdus tephronotus</i>
African Moustached Warbler	<i>Melocichla mentalis</i>
Grey-backed Camaroptera	<i>Camaroptera brachyura</i>
African Paradise Flycatcher	<i>Turdus tephronotus</i>

Northern White-crowned Shrike	<i>Eurocephalus rueppelli</i>
Grey-headed Bush-Shrike	<i>Malaconotus blanchoti</i>
Rosy-patched Bush-shrike	<i>Rhodophoneus cruentus</i>
Common Drongo	<i>Dicrurus a. adsimilis</i>
Brown-necked or Dwarf Raven	<i>Corvus (ruficollis) edithae</i>
Pied Crow	<i>Corvus alba</i>
Shelley's Starling	<i>Lamprotornis shelleyi</i>
Superb Starling	<i>Lamprotornis superbus</i>
Fischer's Starling	<i>Spreo fischeri</i>
Magpie Starling	<i>Speculipastor bicolor</i>
Wattled Starling	<i>Creotophora cinerea</i>
Black-bellied Sunbird	<i>Nectarinia nectariniodes</i>
Grey-headed Sparrow	<i>Passer griseus</i>
White-headed Buffalo Weaver	<i>Dinemellia dinemelli boehmi</i>
Red-billed Buffalo Weaver	<i>Bubalornis niger intermedius</i>
Juba Weaver	<i>Ploceus dicrocephalus</i>
Chestnut Weaver	<i>Ploceus r. rubiginosus</i>
Red-billed Firefinch	<i>Lagonosticta senegalla ruerrima</i>
Village Indigobird	<i>Vidua chalybaeta</i>

List of species encountered in the timed species count from the most common to the least along the riparian woodland along Daua River.

1. African Mourning Dove	<i>Streptopelia d. perspicillata</i>
2. Spotted Morning Thrush	<i>Cicladusa guttata</i>
3. Egyptian Goose	<i>Alopochen aegyptiacus</i>
4. African Pied Wagtail	<i>Motacila aguimp vidua</i>
5. Crowned Plover	<i>Vanellus c coronatus</i>
6. Spur-winged Plover	<i>Vanellus spinosus</i>
7. Grey-headed Kingfisher	<i>Halcyon l. leucocephala</i>
8. Black-headed Plover	<i>Vanellus tectus</i>
9. African Paradise Flycatcher	<i>Turdus tephronotus</i>
10. Emerald Spotted Wood Dove	<i>Turtur chalcospilos</i>
11. African palm Swift	<i>Cypsiurus parvus laemogstima</i>
12. Water Thick-knee	<i>Burhinus v. vermiculatus</i>
13. Common Bulbul	<i>Pycnonotus barbatus</i>
14. Grey-headed Bush-Shrike	<i>Malaconotus blanchoti</i>
15. Common Sandpiper	<i>Actitis hypoleucos</i>
16. Hadada Ibis	<i>Bostrychia hagedash brevirostris</i>
17. Hamerkop	<i>Scopus umbretta</i>
18. Grey-backed Camaroptera	<i>Camaroptera brachyura</i>
19. African Pygmy Kingfisher	<i>Ispidina p. picta</i>
20. Goliath Heron	<i>Ardea goliath</i>
21. Brown-necked or Dwarf Raven	<i>Corvus (ruficollis) edithae</i>
22. Green-backed Heron	<i>Butorides striatus</i>

List of species encountered in the timed species count from the most common to the least in semi arid bush land.

1. White-bellied Go-away-bird	<i>Criniferoides leucigaster</i>
2. Red-billed Hornbill	<i>Tockus e. erythrorhynchus</i>
3. Chestnut bellied Sandgrouse	<i>Pterocles exustus olivascens</i>
4. Little Bee-eater	<i>Merops pusillus cyanostictus</i>
5. Superb Starling	<i>Lamprotornis superbus</i>
6. Vulturine Guneafowl	<i>Acryllium vulturinum</i>
7. Namaqua Dove	<i>Oena c. capensis</i>
8. Fischer's Starling	<i>Spreo fischeri</i>
9. White-headed Buffalo Weaver	<i>Dinemellia dinemelli boehmi</i>
10. Common Drongo	<i>Dicrurus a. adsimilis</i>
11. Speckled Mousebird	<i>Colius striatus kikuyuensis</i>
12. Ring-necked Dove	<i>Streptopelia capicola somalica</i>
13. Black-faced Sandgrouse	<i>Pterocles decoratus</i>
14. White-throated Bee-eater	<i>Merops albicollis</i>
15. Crested Francolin	<i>Francolina sephaesus</i>
16. Gabar Goshawk	<i>Micronisus gabar aequatorius</i>
17. Eastern Pale Chanting Goshawk	<i>Meliarax poliopterax</i>
18. White-browed Coucal	<i>Centropus s. superciliosus</i>
19. Common Scimitarbill	<i>Rhinopomastus cyanomelas schalowi</i>
20. Shelley's Starling	<i>Lamprotornis shelleyi</i>
21. Von Der Decken's Hornbill	<i>Tockus deckeni</i>
22. African grey Hornbill	<i>Tockus nasutus</i>
23. Lilac-breasted Roller	<i>Coracias caudata</i>
24. Nubian Woodpecker	<i>Campethera nubica</i>
25. Carmine Bee-eater	<i>Merops nubicus</i>