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 Palaearctic 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 border 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 100 meters. 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 flash 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 Daua 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.

![Species Discovery Curve](image)

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 Palaearctic 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 Daua 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.

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

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


Appendix 1: bird species recorded during the survey

Somali Ostrich \hspace{5mm} Struthio (camelus) molybdophanes
Green-backed Heron \hspace{5mm} Butorides striatus
Goliath Heron \hspace{5mm} Ardea goliath
Hamerkop \hspace{5mm} Scopus umbretta
Marabou Stork \hspace{5mm} Leptoptilus crumeniferus
Sacred Ibis \hspace{5mm} Threskiornis a. aethopicus
Hadada Ibis \hspace{5mm} Bostrychia hagedash brevirostris
Egyptian Goose \hspace{5mm} Alopochen aegyptiacus
Black-shoulered Kite \hspace{5mm} Elanus c. caeruleus
Gabar Goshawk \hspace{5mm} Micronisus gabar aequatorius
Eastern Pale Chanting Goshawk \hspace{5mm} Meliarax poliopterax
Crested Francolin \hspace{5mm} Francolina sephaesus
Vulturine Guneafowl \hspace{5mm} Acryllium vulturinum
Heuglin’s Bustard \hspace{5mm} Neotis heuglini
Water Thick-knee \hspace{5mm} Burhinus v. vermiculatus
Spur-winged Plover \hspace{5mm} Vanellus spinosus
Black-headed Plover \hspace{5mm} Vanellus tectuss
Crowned Plover \hspace{5mm} Vanellus c coronatus
Common Sandpiper \hspace{5mm} Actitis hypolences
Chestnut bellied Sandgrouse \hspace{5mm} Pterocles eunustus olivascens
Black-faced Sandgrouse \hspace{5mm} Pterocles decoratus
Emerald Spotted Wood Dove \hspace{5mm} Turtur chalcospilos
Namaqua Dove \hspace{5mm} Oena c. capensis
Speckled Pigeon \hspace{5mm} Columba g. guinea
African Mourning Dove \hspace{5mm} Streptopelia d. perspicillata
African White-winged Dove \hspace{5mm} Streptopelia reichonowi
Ring-necked Dove
Laughing Dove
African Orange-bellied Parrot
White-bellied Go-away-bird
White-browed Coucal
Slender-tailed Nightjar
African palm Swift
Speckled Mousebird
Blue-naped Mousebird
Grey-headed Kingfisher
African Pygmy Kingfisher
Carmine Bee-eater
White-throated Bee-eater
Little Bee-eater
Lilac-breasted Roller
Hoopoe
Common Scimitarbill
Red-billed Hornbill
Von Der Decken’s Hornbill
African grey Hornbill
Nubian Woodpecker
Chestnut-headed Sparrow-lark
African Pied Wagtail
Common Bulbul
Spotted Morning Thrush
Bare eyed Thrush
African Moustached Warbler
Grey-backed Camaroptera
African Paradise Flycatcher

Streptopelia capicola somalica
Streptopelia s. senegalensis
Poicephalus rufiventris
Criniferoides leucigaster
Centropus s. superciliosus
Caprimulgus clarius apatelius
Cypsiurus parvus laemogstima
Colius striatus kikuyuensis
Urocolius macrourus pulcher
Halcyon l. leucocephala
Ispidina p. picta
Merops nubicus
Merops albicollis
Merops pusillus cyanostictus
Coracias canda
Upupa epops
Rhinopomastus cyanomelas schalowi
Tockus e. erythrorhynchus
Tockus deckeni
Tockus nasutus
Campethera nubica
Eremopterix signata
Motacila aguimp vidua
Pycnonotus barbatus
Cicaladusa guttata
Turdus tephronotus
Melicichla mentalis
Camaroptera brachyura
Turdus tephronotus
Northern White-crowned Shrike  
*Eurocephalus rueppelli*

Grey-headed Bush-Shrike  
*Malaconotus blanchoti*

Rosy-patched Bush-shrike  
*Rhodophoneus cruentus*

Common Drongo  
*Dicrurus a. adsimilis*

Brown-necked or Dwarf Raven  
*Corvus (ruficollis) edithae*

Pied Crow  
*Corvus alba*

Shelley’s Starling  
*Lamprotornis shelleyi*

Superb Starling  
*Lamprotornis superbus*

Fischer’s Starling  
*Spreo fischeri*

Magpie Starling  
*Speculipastor bicolor*

Wattled Starling  
*Creotphora cinerea*

Black-bellied Sunbird  
*Nectarinia nectariniodes*

Grey-headed Sparrow  
*Paser griseus*

White-headed Buffalo Weaver  
*Dinemellia dinemelli boehmi*

Red-billed Buffalo Weaver  
*Bubalornis niger intermedius*

Juba Weaver  
*Ploceus diacrocephalus*

Chestnut Weaver  
*Ploceus r. rubiginosus*

Red-billed Firefinch  
*Lagonosticta senegalla ruerrima*

Village Indigobird  
*Vidua chalybaeta*
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  
   Streptopelia d. perspicillata
2. Spotted Morning Thrush  
   Cicladusa guttata
3. Egyptian Goose  
   Alopochen aegyptiacus
4. African Pied Wagtail  
   Motacila aguimp vidua
5. Crowned Plover  
   Vanellus c coronatus
6. Spur-winged Plover  
   Vanellus spinosus
7. Grey-headed Kingfisher  
   Halcyon l. leucocephala
8. Black-headed Plover  
   Vanellus tectuss
9. African Paradise Flycatcher  
   Turdus tephronotus
10. Emerald Spotted Wood Dove  
    Turtur chalcospilos
11. African palm Swift  
    Cypsiurus parvus laemogstima
12. Water Thick-knee  
    Burhinus v. vermiculatus
13. Common Bulbul  
    Pycnonotus barbatus
    Malaconotus blanchoti
15. Common Sandpiper  
    Actitis hypoleucos
16. Hadada Ibis  
    Bostrychia hagedash brevirostris
17. Hamerkop  
    Scopus umbretta
18. Grey-backed Camaroptera  
    Camaroptera brachyura
19. African Pygmy Kingfisher  
    Ispidina p. picta
20. Goliath Heron  
    Ardea goliath
21. Brown-necked or Dwarf Raven  
    Corvus (ruficollis) edithae
22. Green-backed Heron  
    Butorides striatus
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  Criniferoides leucigaster
2. Red-billed Hornbill  Tockus e. erythrorhynchus
3. Chestnut bellied Sandgrouse  Pterocles exustus olivascens
4. Little Bee-eater  Merops pusillus cyanostictus
5. Superb Starling  Lamprotoris superbus
6. Vulturine Guneafowl  Acryllium vulturinum
7. Namaqua Dove  Oena c. capensis
8. Fischer's Starling  Spreo fischeri
9. White-headed Buffalo Weaver  Dinemellia dinemelli boehmi
10. Common Drongo  Dicrurus a. adsimilis
11. Speckled Mousebird  Colius striatus kikuyuensis
12. Ring-necked Dove  Streptopelia capicola somalica
13. Black-faced Sandgrouse  Pterocles decoratus
14. White-throated Bee-eater  Merops albicollis
15. Crested Francolin  Francolina sephaeas
16. Gabar Goshawk  Micronisus gabar aequatorius
17. Eastern Pale Chanting Goshawk  Meliarax polioptera
18. White-browed Coucal  Centopus s. superciliosus
19. Commom Scimitarbill  Rhinopomastus cyanomelas schalowi
20. Shelley’s Starling  Lamprotoris shelleyi
21. Von Der Decken’s Hornbill  Tockus deckeni
22. African grey Hornbill  Tockus nasutus
23. Lilac-breasted Roller  Coracias candata
24. Nubian Woodpecker  Campethera nubica
25. Carmine Bee-eater  Merops nubicus