

Birds of Alsalam and Abyei–Muglad Principalities West Kordofan State, Sudan

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Abstract

Original Research Article

The avifauna of West Kordofan received very little attention. The present study aimed to contribute to birds species recorded for the area and Sudan. Observations were made during May 2011, September 2014, October 2016 and 2019 and facilitated by using a binocular. Documentation was made by a Nikon digital camera. The avifauna of western Kordofan included 78 out of the 653 species recorded for Sudan. The non-passerines species were 55 and the passerines were 23. The order Passeriformes was the largest including 9 families and 23 species. Most Accipitridae, except *Milvius migrans*, were categorized as endangered or critically endangered; The Secretary Bird (*Sagittarius serpentarius*) as vagrant; and the Arabian Bustard (*Ardeotis arabs*), Curlew Sandpiper (*Calidris ferruginea*) and the African Skimmer (*Himantopus flavirostris*) as near threatened. The abundance scale adopted in this study ranked these bird species as uncommon. The study concluded that more attention to be paid for studying birds of Sudan especially in conflict and oil fields areas.

Keywords: Birds, Status, Abundance, West Kordofan, Sudan.

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INTRODUCTION

Bowen [1,2] catalogue of Sudan birds, in the Sudan Government Museum is of historical value unlike the bird guide of the Sudan by [3] and the distribution atlas with locality records for most of the Sudan's birds by [4]. Some locality records of birds were published. Of these are bird fauna of Um Bbadr by [5], Hantub [6], Dinder National Park [7]; Khartoum [8], El Ga'ab depression [9], Shendi area [10] and Jabel El Dayer National Park [11]. Electronic list of birds of Sudan, some with images, are available at: [12-15]. In this study birds El Salam and Abyei–Muglad principalities western Kordofan were recorded.

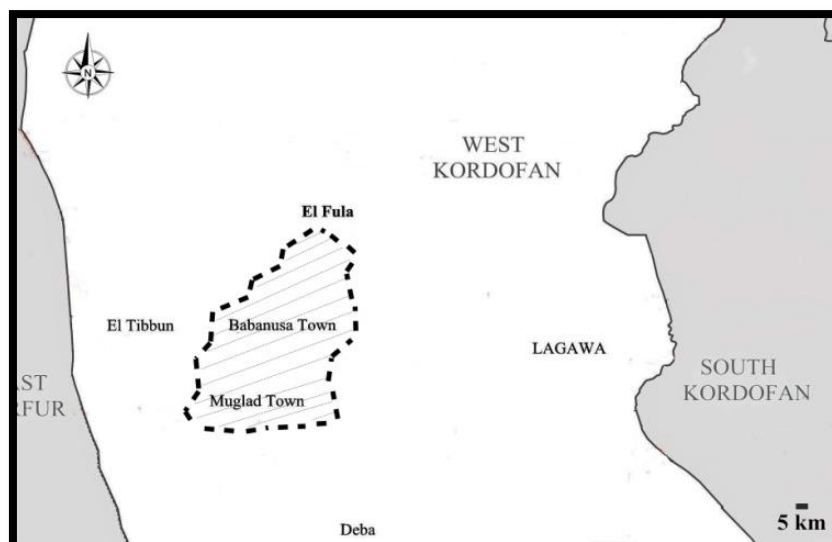
MATERIAL AND METHODS

The study area, in dotted lines, lies in the southern part of Western Kordofan State (11 to 20°N and 30°27' to 32°22'E) Map 1. The birds were observed during May 2011, September 2014, October 2015 and 2019, and facilitated by using an 8x42, 123m/1000m

Back4prism COMET binocular. Documentation was made by a Nikon digital camera of the type DX (AF-SNIKKOR 18-55mm 1:3.5-5.6G and a 55-200mm 1:4-5.6G ED zoom) in addition to SAMUNG DUOS a smart phone. Identification followed [15-17].

The study considered a species as abundant (A) when over 20 specimens were seen each day in more than one location; common (C) when 10-19 specimens were seen each day in more than one location; fairly common (F) when 5-9 specimens were seen each day in more than one location and uncommon (U) when 1-4 specimens were seen in one location each day or from one location only throughout the study.

Classification and valid species name followed [18] (Table 1). In this study the number of bird species encountered in each family was given as a percentage of species recorded by <https://en.wikipedia.org>[12].



Map-1: The study area is in dotted line. The map was modified From UN Office for the Coordination of Humanitarian Affairs

RESULTS

The bird species recorded in western Kordofan were given in Table (1). Their status information followed [19] and their categorization was based on [20]. A total of 78 species, 39 families and 16 orders of birds were recorded from the area (Table I). It is apparent from Table 1 that out of 55 non-passerines species, 19 were abundant mostly Columbidae and 19 were uncommon.

Of the 23 Passerines species, 15 were abundant and none was uncommon. The avifauna of western Kordofan included 78 out of the 653 and 631 species recorded for Sudan by [18, 19], respectively. In this study some bird species might have been missed in view of traipse security restrictions in the oil fields, hiding of some species and irregular visits to the study sites.

Table-1: Birds of El Salam and Abyei–Muglad Principalities Western Kordofan State, with their abundance (AB), status and IUCN red list Categorization (RLC)

English name	Scientific name	AB	Status	RLC
Non-passerines species				
Order: Pelecaniformes Family: Ardeidae (17) 29% were encountered				
Grey Heron	<i>Ardea cinerea</i>	F	RBP	LC
Great White Egret	<i>Ardea alba</i>	F	P	LC
Little Egret	<i>Egretta garzetta</i>	F	RBP	LC
Squacco Heron	1.1. <i>Ardeola ralloides</i>	1.2. U	RBP	LC
Cattle Egret	<i>Bubulcus ibis</i>	A	MBP	LC
Order: Pelecaniformes Family: Scopidae (1) 100% were encountered				
Hamerkop	<i>Scopus umbretta</i>	F	RB	LC
Order: Pelecaniformes Family: Threskiornithidae (6) 17% were encountered				
Sacred ibis	<i>Threskiornis aethiopicus</i>	A	RBP	LC
Order: Ciconiiformes Family: Ciconiidae (8) 63% were encountered				
Yellow-billed Stork	<i>Mycteria ibis</i>	F	MB	LC
Black Stork	<i>Ciconia nigra</i>	F	PW	LC
Abdim's Stork	<i>Ciconia abdimi</i>	A	MB	LC
White Stork	<i>Ciconia ciconia</i>	C	PW	LC
Marabou Stork	<i>Leptoptilos crumeniferus</i>	A	RB	LC
Order: Anseriformes Family: Anatidae (23) 13% were encountered				
Egyptian Goose	<i>Alopochen aegyptiaca</i>	U	MB	LC
Spur-winged Goose	<i>Plectropterus gambensis</i>	U	MB	LC
Pintail	<i>Anas acuta</i>	U	PW	LC
Order: Accipitriformes Family: Accipitridae (52) 12% were encountered				
Black Kite	<i>Milvus migrans</i>	A	MBPW	LC
Hooded Vulture	<i>Necrosyrtes monachus</i>	F	RB	CE

EgyptianVulture	<i>Neophron percnopterus</i>	U	RB	EN
White-backed Vulture	<i>Gyps africanus</i>	C	RB	CE
Lappet-faced Vulture	<i>Torgos tracheliotus</i>	A	RB	EN
White-headed Vulture	<i>Trionoceps occipitalis</i>	F	RB	CE
Order: Accipitiformes Family: Sagittariidae (1) 100% were encountered				
Secretary Bird	<i>Sagittarius serpentarius</i>	U	RB	V
Order: Falconiformes Family: Falconidae (16) 6% were encountered				
Peregrine Falcon	<i>Falco peregrines</i>	U	RB/P	LC
Order: Galliformes Family: Phasianidae (6) 33% were encountered				
Clapperton's Francolin	<i>Francolinus clappertoni</i>	U	RB	LC
Quail	<i>Coturnix coturnix</i>	U	PW	LC
Order:Galliformes Family: Numididae (1) 100% were encountered				
Hemltd Guineafowl	<i>Gallinula chloropus</i>	U	RB	LC
Order: Otidiformes Family: Otididae (9) 11% were encountered				
Arabian Bustard	<i>Ardeotis arabs</i>	U	RB	NT
Order: Charadriiformes Family: Glareolidae (7) 14% were encountered				
Egyptian Plover	<i>Pluvianus aegyptius</i>	A	MB	LC
Order : Charadriiformes Family: Charadriidae (20) 10% were encountered				
Spur-winged Plover	<i>Vanellus spinosus</i>	A	RB	LC
African Wattled Lapwing	<i>Vanellus senegallus</i>	U	RB	LC
Order: Charadriiformes Family Scolopacidae (27) 4% were encountered				
Curlew Sandpiper	<i>Calidris ferruginea</i>	U	PW	NT
Order:Charadriiformes Family: Recurvirostridae (2) 50% were encountered				
Black-winged Stilt	<i>Himantopus himantopus</i>	U	PW	LC
Order: Charadriiformes Family: Laridae (1) 100% were encountered				
African Skimmer	<i>Rynchops flavirostris</i>	A	MP	NT
Order: Pterocliiformes Family: Pteroclididae (5) 20% were encountered				
Spotted Sandgrouse	<i>Pterocles senegallus</i>	U	RB	LC
Order:Columbiformes Family: Columbidae (12) 58% were encountered				
Rock Pigeon	<i>Columba livia</i>	A	RB	LC
Speckled Pigeon	<i>Columba guinea</i>	U	RB	LC
Turtle Dove	<i>Streptopelia turtur</i>	A	RB	LC
Mourning Dove	<i>Streptopelia decipiens</i>	A	RB	LC
Red-eyed Dove	<i>Streptopelia semitorquata</i>	A	RB	LC
Laughing Dove	<i>Spilopelia senegalensis</i>	A	RB	LC
Namaqua Dove	<i>Oena capensis</i>	A	MB	LC
Order: Caprimulgiformes Family: Caprimulgidae (10) 10% were encountered				
Nightjar	<i>Caprimulgus sp.</i>	U	?	LC
Order: Apodiformes Family: Apodidae (8) 13% were encountered				
Common Swift	<i>Apus apus</i>	A	P	LC
Order: Coliiformess Family: Coliidae (2) 100% were encountered				
Speckled Mousebird	<i>Colius striatus</i>	C	RB	LC
Blue-naped Mousebird	<i>Urocolius macrourus</i>	C	RB	LC
Order: Coraciiformes Family: Alcedinidae (10) 20% were encountered				
Giant Kingfisher	<i>Megaceryle maxima</i>	F	RB	LC
Pied Kingfisher	<i>Ceryle rudis</i>	F	RB	LC
Order: Coraciiformes Family: Meropidae (9) 22% were encountered				
Little Green Bee-eater	<i>Merops orientalis</i>	A	RB	LC
Carmine Bee-eater	<i>Merops nubius</i>	A	MB	LC
Order: Coraciiformes Family: Coraciidae (4) 25% were encountered				
Abyssinian Roller	<i>Coracias abyssinicus</i>	A	MB	LC
Order :Bucerotiformes Family: Upupidae (1) 100% were encountered				
Hoopoe	<i>Upupa epops</i>	F	RBPW	LC
Order :Bucerotiformes Family: Bucerotidae (5) 40% were encountered				
Red-billed Hornbill	<i>Tockus erythrohynchus</i>	F	RB	LC
Grey Hornbill	<i>Tockus nasutus</i>	F	RB	LC
Order:Bucerotiformes Family:Bucorvidae (1) 100% were encountered				

Abyssinian Ground Hornbill	<i>Bucorvus abyssinicus</i>	U	RB	LC
Order: Piciformes Family: Picidae (8) 13% were encountered				
Nubian Woodpecker	<i>Campethera nubica</i>	U	RB	LC
Passerines species				
Order: Passeriformes Family: Alaudidae (18) 17% were encountered				
Kordofan Lark	<i>Mirafra cordofanica</i>	A	R	LC
Desert Lark	<i>Ammomanes deserti</i>	A	RB	LC
Crested Lark	<i>Galerida cristata</i>	A	RB	LC
Order: Passeriformes Family: Motacillidae (11) 18% were encountered				
Yellow Wagtail	<i>Motacilla flava</i>	C	PW	LC
White Wagtail	<i>Motacilla alba</i>	A	PW	LC
Order: Passeriformes Family: Pycnonotidae (3) 33% were encountered				
White-vented Bulbul	<i>Pycnonotus barbatus</i>	A	RB	LC
Order: Passeriformes Family: Corvidae (6) 50% were encountered				
Pied Crow	<i>Corvus albus</i>	A	RB	LC
Fan-tailed Raven	<i>Corvus rhipidurus</i>	F	RB	LC
Piapiac	<i>Ptilostomus afer</i>	F	RB	LC
Order: Passeriformes Family: Sturnidae (11) 18% were encountered				
Ruppell's Starling	<i>Lamprotornis purpuropterus</i>	C	RB	LC
Long-tailed Glossy Starling	<i>Lamprotornis caudatus</i>	C	RB	LC
Order: Passeriformes Family: Ploceidae (20) 25% were encountered				
Little weaver	<i>Ploceus luteolus</i>	F	RB	LC
Village Weaver	<i>Ploceus cucullatus</i>	A	RB	LC
Northern Masked Weaver	<i>Ploceus taeniopterus</i>	A	RB	LC
Red-billed Quelea	<i>Quelea quelea</i>	A	MB	LC
Northern Red Bishop	<i>Euplectes franciscanus</i>	F	RB	LC
Order: Passeriformes Family: Estrildidae (14) 14% were encountered				
Red-billed Firefinch	<i>Lagonosticta senegala</i>	C	RB	LC
African Silverbill	<i>Euodice cantans</i>	A	RB	LC
Order: Passeriformes, Family: Viduidae (5) 40%				
Pin tailed Whydah	<i>Vidua macroura</i>	A	LC	RB
Sudan Broad-tailed Whydah	<i>Vidua orientalis</i>	A	LC	RB
Order: Passeriformes Family: Passeridae (11) 27% were encountered				
House Sparrow	<i>Passer domesticus</i>	A	RB	LC
Kordofan Sparrow	<i>Passer cordofanicus</i>	A	R	LC
Sudan Golden Sparrow	<i>Passer luteus</i>	A	RB	LC

Key to status: B=Breeding record confirmed; M=Migrant including on passage through Sudan; P=Breeds in Palearctic; R=Resident; W=Winters in Sudan; V =Vagrant.

DISCUSSION

In western Kordofan the non-passerines species were 55 and the passerines species were 23. The order Passeriformes included 9 families and 19 species followed by Charadriiformes with 5 families and 6 species. Columbiformes included one family Columbidae with 7 species, while 6 orders were represented by one family each, with 1 species each (Table 1). All the 19 Passerines species were categorized as least concern. Out of the 27 Scolopacidae recorded for Sudan by [12] a single specimen of Curlew Sandpiper (*C. ferruginea*) was found in the study area. It was ranked as near threatened by [19].

Most accipitrids except *M. migrans*, are either as endangered or critically endangered [20]. *Sagittarius* was ranked as Vagrant and *A. Arabs*, *C. ferruginea* and *H. flavirostris* as near threatened.

According to [21] *U. epops* is the only species which have both a resident breeding population and a wintering population, and *M. migrans* have both a migrant breeding population and a wintering population. Forty seven out of recorded 78 species are resident breeding population. *Ardea alba* and *A. apus* breeds in Palearctic while 8 non-passerines and two passerines breeds in the Palearctic and winters in the country (PW) Table 1.

Table I recorded 12 non-passerines and 1 passerine migrants, and 9 non-passerines and 2 passerines Palearctic in the area. The migration strategies of Palearctic Passerines in Africa were critically analyzed by [19] and the Western Palearctic bird species migrating within Africa were listed by [22, 23].

Some birds in the study area perform an essential service to plants by dispersal of almost ready to germinate seeds over a wide area. In turn, plants provide goods (nectar, seeds and fruits for particular bird species) and services (nesting sites, nesting material and roosting sites) to a wide spectrum of birds.

Flocks of *L. crumeniferus* were seen seeking food in burrow pits and dumping areas used by the oil operating companies (Fig. 1). In open grass *C. abdimi* were dominant (Fig. 2).



Fig-1: *Leptoptilos crumeniferus*



Fig-2: *Ciconia abdimi*

Vanellus senegallus and *B. ibis* are associated with open grass land where they seek arthropods. Water birds such as *Anas acuta* and *Scopus umbretta* are associated with depressions inundated during the wet season and dominated by floating and emergent vegetation. They wade in water in search of food. *Megaceryle maxima* (*C. rudis* and *H. flavirostris*) skims Wadi Al Galla water surface to catch small tilapias and clariids fish.

Some Accipiteridae aggregates at a distance around slaughtering areas waiting to snatch a piece of meat *M. migrans* or thrown away carrion e. g. *T. tracheliotus*, (Fig. 3). *Corvus albus* (Fig. 4) and *T. tracheliotus* were seen in open grass and garbage sits seeking food.

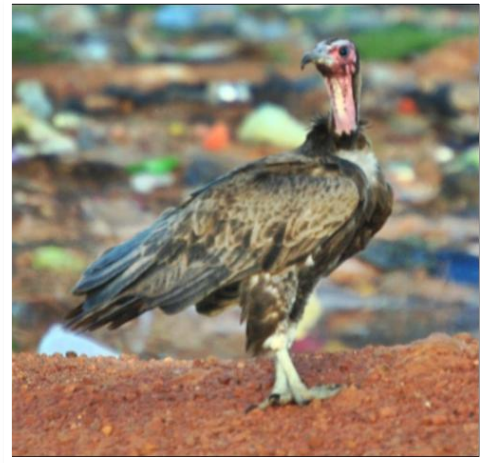


Fig-3: *Torgos trachelotus*



Fig-4: *Corvus albus*

Quelea quelea are associated with Poaceae (=Gramineae). *Passer luteus* was seen mostly in shrubs. *Streptopelia decipiens*, *S. senegalensis*, *O. capensis*; *G. cristata* are associated with bare grassy areas. *Euodice cantans* (Fig. 5) is often found perching in plants with broad leaves feeding on grass seeds picked from the inflorescences and/or the ground. *Tockus erythrohynchus* (Fig. 6) and Long-tailed Glossy Starling (*L. caudatus*) are usually seen in tall trees. *Acacia* spp., *Ziziphus spina-christi* and *Azadirachta indica* are preferable roosting and nesting site for a number of birds including Doves, *P. cucullatus* and Scared Ibis *Threskiornis aethiopicus* (Fig. 7) and roosting site for *A. cinerea*. *Adansonia digitata* is a nesting site for storks. Machineries and tall instillation may be used Fig. 8.



Fig-5: *Euodice cantans*



Fig-6: *Tockus erythrohynchus*



Fig-7: *Threskiornis aethiopicus* on *Azadirachtia indica* tree



Fig-8: *Columba guinea* roosting and nesting on a non-working reg.

Pigeons and Kordofan Sparrow are examples of Passerine and Nonpasserine resident species, respectively. One single pair of Speckled Pigeon (*Columba guinea*) was seen in the study area at a Reg in Sharif (Fig. 8). Rain pools are abundant offering drinking sites for birds (Fig. 9). No birdspecies of the study area were recorded as Vagrant.



Fig-4: Marabu Stork, *Leptoptilos crumeniferus* upper left and Ruppell's Vulture *Gyps ruppelii* lower right

CONCLUSION

Association between tress assemblage and bird assemblage in forests of West Kordofan and bird adaptability to overcome continuous stresses due to oil exploration and armed tribal conflicts are to be studied.

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