International Journal of Natural Resource Ecology and Management
2026, Vol. 11, No. 4, pp. 157–166
https://doi.org/10.11648/j.ijnrem.20261104.12

Research Article

# A Checklist of Birds of Nimule National Park, South Sudan

**Malik Doka Morjan[1, *], Gift Simon Demaya[1], Baya Philip Brown[2], Shazali Abdallah Gordon[1], Isaac Seme Solomon[3]**

[1]School of Natural Resources and Environmental Studies, University of Juba, Juba, South Sudan
[2]Ministry of Wildlife Conservation and Tourism, Juba, South Sudan
[3]Nimule National Park, Nimule, South Sudan

## Abstract

This study was based on bird surveys of Nimule National Park (NNP), South Sudan. The surveys were conducted from May to August 2009, January to April 2010, and May 2010, and in subsequent years during January and February of 2024 and 2025, as well as in August 2026, covering both the wet and dry seasons. Attempts were made to sample all three (3) habitat types of NNP, which include riverine, grassland, and woodland savannah. The rationale of the study was to establish a checklist of birds for NNP and its surrounding environments. The line transect method using random sample points was adapted for recording all birds cited or heard during the surveys. We recorded 172 bird species during the study, of which 9 species are Afro-Palearctic song birds and 12 species of Palearctic waterbirds that breed in Europe/Asia and winter in Africa. At least 4 species are endangered and 1 species is critically endangered. A total of 81 species are likely new records that did not appear in previous studies. Based on our observations together with the previous two unpublished bird checklists, a cumulative total of 228 distinct bird species have so far been documented within the park territory and its immediate buffer zone. It is therefore believed that the recent increase in the number of birds encountered in the study area could be due to either migration or seasonal changes, during which the surveys were conducted. The findings from the bird surveys in Nimule National Park highlight a diverse avian community comprising 173 species, including significant numbers of Afro-Palearctic songbirds and Palearctic waterbirds. The identification of 81 likely new records underscores the ecological importance and dynamic nature of the park's habitats. When combined with previous unpublished checklists, the cumulative total of 228 recorded species reflects both seasonal variations and migratory influxes. These results emphasize the need for continued monitoring to better understand temporal patterns and support conservation efforts within NNP and its surrounding environments.

## Keywords

Avian Biodiversity, Bird Species Checklist, Nimule National Park, South Sudan, Bird Surveys, Migratory Birds, Palearctic Migrants

## 1. Introduction

Nimule National Park (NNP) is one of the oldest national parks in South Sudan, established in 1954. Ecologically, it is a rich park in terms of fauna and flora, with diverse bird species. The Park is located in Magwi County of the Imatong

*Correspondence: Malik Doka Morjan (malik.doka@gmail.com)

**Received:** 19 October 2026; **Accepted:** 31 October 2026; **Published:** 13 November 2026

Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

State in Eastern Equatoria, on the border with Uganda. It is bounded by the River Nile in the east, the Illingua Mountains in the west, and the South Sudan-Uganda border in the south of the country. It lies between the latitudes 30°45 and 30°30 North and longitudes 310°45 and 320°0 East.

The area size of NNP was earlier estimated to be approximately 250 $Km^2$ [1, 4], but later increased to 410 $Km^2$ [7] by annexation of a buffer zone on the eastern side of the River Nile.

Except for Bird Life International Publications, the avifauna of NNP has been little documented. Even earlier studies conducted in the park, such as [1, 8, 9], have largely concentrated on mammals and remained unpublished. Despite the fact that NNP is home for a diverse species of birds, few records of species have so far been acknowledged in the earlier studies, some of which are local resident species and others are migrants from Europe and North America.

Nimule National Park (NNP) in South Sudan represents a critical habitat characterized by diverse ecosystems, including riverine, grassland, and woodland savannah. Despite its ecological significance, comprehensive avian surveys in the park have been limited, leaving gaps in the understanding of its bird biodiversity [12]. This study aims to address this gap by conducting systematic bird surveys across multiple seasons and years, thereby capturing both resident and migratory species. Employing the line transect method with random sampling points, the research seeks to establish an updated and detailed checklist of bird species in NNP and its surrounding environments. Given the park's location within a major migratory corridor, the study also explores seasonal variations and migration patterns, contributing valuable insights for conservation planning and biodiversity management in the region.

The number of bird species recorded in the study area has not progressed over the last four decades owing to protracted armed conflicts that have hampered research and field studies. Therefore, this study provides fresh records of bird species for the Nimule National Park and its surrounding areas, and provides baseline data for future conservation work, especially for the endangered species.

## 2. Materials and Methods

The study was conducted in the NNP and its adjoining buffer zone over multiple periods spanning from May to August 2009, and again during January to April and May of 2010. These intervals were strategically chosen to encompass both the wet and dry seasons, thereby capturing seasonal variations in the region's avifauna. This timeframe also included critical migration periods, specifically winter and summer migrations, involving palearctic and Eurasian-African songbird species that visit the park. The inclusion of these diverse seasonal conditions and migration phases provided a comprehensive understanding of bird presence and behavior across temporal scales.

To extend the longitudinal scope of the research, the study was repeated in subsequent years during January and February 2024 and 2025, as well as in August 2026. These follow-up surveys aimed to monitor changes or trends in bird populations and migration patterns over time, allowing for the assessment of ecological dynamics and potential impacts of environmental changes within the park and its buffer zone. This repeated sampling approach strengthens the study's ability to detect temporal shifts and contributes valuable data for long-term conservation planning. During the period 2011-2023, fieldwork was difficult because the country had entered a period of political instability following independence from Sudan, which was further complicated by the COVID-19 pandemic.

During the study period, weekly visits were made to the study sites. We conducted the surveys using the line transect method [2, 5, 6]. We established 17 temporary line transects in total, with lengths of 1.5-2.5 km in the study area, depending on the terrain and width of the Nimule Park, which was wider at the southern boundary and narrower towards the north. Transects were laid across the three habitat types described by [1, 8], as follows: Out of the total number of transects, 14 were walked inside the park across the various habitat types of NNP, i.e., wooded grasslands, bushed grasslands, and riverine woodlands, and three transects were laid in the buffer zone along the eastern bank of the River Nile. Transects were spaced from one another at a distance of 0.5 km and oriented in the east-west directions, starting from the river bank in the eastern boundary and ending at the foot of the Illingua hills in the western boundary of the park, traversing the vegetation zones therein. In the buffer zone, we laid the three transects on the north-south orientation because of the terrain. Along each transect, we set 25 sampling points at 100-meter spacing. We identified and recorded the bird species seen or heard along transects [6]. We conducted transect walks early in the morning and evening hours between 06: 00 am in the morning hours to 12: 00 noon; and from 03: 00-05: 30 pm. Observations for all bird species were made across the three habitat types of NNP and also in the buffer zone on the eastern bank of the River Nile.

To maintain consistent data comparability over the extended multi-year period between the historical baseline surveys (2009-2010) and the contemporary tracking era (2024-2026), uniformity in sampling protocols was strictly adhered to. The same 17 transect configurations, with 100-meter spacing increments and fixed time windows, were employed consistently throughout all years. During the August 2026 wet-season window, variations in seasonal access and local water levels were observed along the River Nile trail, attributed to unpredictable annual rainfall patterns. To address these variations while preserving data integrity, survey paths were confined to the predetermined transects, and data analysis concentrated on relative species presence and distribution within fixed habitat zones, rather than on absolute density metrics.

Fieldwork was conducted under optimal weather conditions, avoiding rain, strong winds, and storms.

We subjected doubtful sightings of birds to prolonged observations and note-taking, and later referred to further identification processes using field guides, particularly [11]. We collated our observations with the species list of birds of Nimule National Park, which is one of the internationally Important Bird Areas (IBA) [3]. We strived to conduct fieldwork under favorable weather conditions with no rain and/or heavy winds and storms.

During the study period, most bird species were recorded in areas near the River Nile, where the riverine woodland habitat dominated, with a few observations made in the central and northern parts of the park, where steep trails descended from elevated hills.

## 3. Results and Discussions

A total of 172 species of birds were recorded between 2009 and 2026 ranged from small to medium and large sized avifauna. This makes the first ever publication of birds' checklist from Nimule National in South Sudan. These include species that have also been reported for the NNP and its environs in previous unpublished studies [1, 8]. Of these, 151 birds were local residents and intra-African migrants in the NNP and its environs at the buffer zone, while the other 22 species were common Palearctic migrants most probably from Eurasia and North America. At least four species were endangered and one (Hooded vulture) was critically endangered [14], based on current species-level assessments, particularly for the Hooded Vulture. The IUCN Red List defines Critically Endangered as an extremely high risk of extinction in the wild, and current assessments should be cited at the species level [13]. Of the total number of species recorded, 26 were previously recorded by [1, 8]. Only 15 species or subspecies of our findings conformed to the species list of Birdlife International [3].

In these surveys, most detections of birds were made along the River Nile, both inside the park and in the buffer zone at a distance within 0.5-1 km from the edge of the river. Birds in the NNP seem to concentrate in areas closer to the river than in other areas of the NNP, particularly deep in the middle and far western zones of the park. Not a surprise this also conforms to the fact that most birds do naturally associate well with areas or habitats closer to water sources. Accordingly, few sightings were made in the western parts of the park owing to the lack of streams and water sources.

The progress made in this study due to the length of the period of fieldwork and the overall objectives under which the studies were conducted compared to previous studies. However, the results of this study indicate a recent increase in species diversity and migratory birds in NNP and its environs. Taking previous studies as a baseline, this study presents at least 81 new species observations of birds in NNP and its environs that were not reported previously. The cumulative avian inventory for the Nimule eco-region now comprises 228 distinct species. This total includes the 147 bird species traditionally recognized in historical lists and unpublished checklists, along with the addition of 81 newly verified records. In conclusion, it is hoped that this updated checklist of bird species produced by this study, which will be the first published list, will serve as a baseline for future research on avifauna in NNP, thus contributing to a further understanding of the conservation needs of the bird populations in the Nimule National Park.

The checklist of bird species recorded in this study is presented in Table 1 below. The common Palearctic migrant bird species recorded in the study area are indicated by a double asterisk (**). Records of uncommon bird species for NNP and its environs are denoted by an asterisk (*) new species observations are denoted by a circle (). The rest are considered residents.

***Table 1.*** *Bird check list of Nimule National Park, South Sudan.*

| No. | Common name | Scientific name |
|---|---|---|
| 1 | White-faced Whistling-Duck | Dendrocygna viduata (Linnaeus, 1766) |
| 2 | Fulvous Whistling-Duck | Dendrocygna bicolor (Gmelin, 1789) |
| 3 | Vinaceous Dove | Streptopelia vinacea (Gmelin, 1789) |
| 4 | Emerald-spotted Wood-Dove | Turtur chalcospilos (Wagler, 1827) |
| 5 | Eastern Plantain-eater | Crinifer zonurus (Ruppell, 1827) |
| 6 | Great Spotted Cuckoo | Clamator glandarius (Linnaeus, 1758) |
| 7 | Alpine Swift** | Tachymarptis melba (Linnaeus, 1758) |
| 8 | Little Swift** | Apus affinis (Gray, 1780) |
| 9 | African Crake | Crecopsis egregia (Peters, 1854) |
| 10 | Black Crake | Zapornia flavirostra (Swainson, 1837) |

| No. | Common name | Scientific name |
|---|---|---|
| 11 | Senegal Thick-knee | Burhinus senegalensis (Swainson, 1837) |
| 12 | African Wattled Lapwing | Vanellus senegallus (Linnaeus, 1766) |
| 13 | African Skimmer | Rynchops flavirostris (Vieillot, 1816) |
| 14 | Reed Cormorant | Microcarbo africanus (Gmelin, 1789) |
| 15 | Great Cormorant | Phalacrocorax carbo (Linnaeus, 1758) |
| 16 | Blue-naped Mousebird | Urocolius macrourus (Linnaeus, 1766) |
| No. | Common name | Scientific name |
| 17 | Common Hoopoe | Upupa epops (Linnaeus, 1758) |
| 18 | African Gray Hornbill | Lophoceros nasutus (Linnaeus, 1766) |
| 19 | Red-throated Bee-eater | Merops bulocki (Vieillot, 1817) |
| 20 | Swallow-tailed Bee-eater | Merops hirundineus (Lichtenstein, 1793) |
| 21 | D'Arnaud's Barbet | Trachyphonus darnaudii (Pre'vost & Des Murs, 1847) |
| 22 | Yellow-rumped Tinkerbird | Pogoniulus bilineatus (Sundvall, 1850) |
| 23 | Northern Red-fronted Tinkerbird | Pogoniulus uropygialis (Heuglin, 1862) |
| 24 | Black-breasted Barbet | Pogonornis rolleti (De Filippe, 1853) |
| 25 | Cardinal Woodpecker | Dendropicos fuscescens (Vieillot, 1818) |
| 26 | African Gray Woodpecker | Dendropicos goertae (Muller, PLS, 1776) |
| 27 | Nubian Woodpecker | Campethera nubica (Boddaert, 1783) |
| 28 | Gray Kestrel | Falco ardosiaceus (Vieillot, 1823) |
| 29 | Black Cuckooshrike | Campephaga flava (Vieillot, 1817) |
| 30 | Red-shouldered Cuckooshrike | Campephaga phoenicea (Latham, 1790) |
| 31 | Brown-crowned Tchagra | Tchagra australis (Smith, 1836) |
| 32 | Green-backed Camaroptera | Camaroptera brachyura (Vieillot, 1821) |
| 33 | Eurasian Blackcap** | Sylvia atricapilla (Linnaeus, 1758) |
| 34 | Greater Whitethroat** | Curruca communis (Latham, 1767) (Latham, 1787) |
| 35 | Ruppell's Starling | Lamprotornis purpuroptera (Ruppel, 1845) |
| 36 | Superb Starling | Lamprotornis superbus (Ruppell, 1845) |
| 37 | Purple Starling | Lamprotornis purpureus (Statius Muller, 1776) |
| 38 | Western Yellow Wagtail | Motacilla flava (Linnaeus, 1758) |
| 39 | African Pipit | Anthus cinnamomeus (Rupell, 1840) |
| 40 | Tree Pipit | Anthus trivialis (Linnaeus, 1758) |
| 41 | Gray-headed Kingfisher | Halcyon leucocephala (Statius Muller, 1776) |
| 42 | Common Reed Warbler** | Acrocephalus scirpaceus (Hermann, 1804) |
| 43 | Common Redstart** | Phoenicurus phoenicurus (Linnaeus, 1758) |
| 44 | Beautiful Sunbird | Cinnyris pulchellus (Linnaeus, 1766) |
| 45 | Common Greenshank** | Tringa nebularia (Gunnerus, 1767) |
| 46 | Dwarf Bittern | Botaurus sturmii (Wagler, 1827) |
| 47 | Little Bittern | Botaurus minutus (Linnaeus, 1766) |
| 48 | Great Egret** | Ardea alba (Linnaeus, 1758) |

| No. | Common name | Scientific name |
|---|---|---|
| 49 | Hamerkop | Scopus umbrette (Gmelin, 1789) |
| 50 | Osprey** | Pandion haliaetus (Linnaeus, 1758) |
| 51 | Hooded Vulture | Necrosyrtes monachus (Temmink, 1823) |
| 52 | Dark Chanting-Goshawk | Melierax metabates (Heuglin, 1861) |
| 53 | Greater Swamp Warbler | Acrocephalus rufescens (Sharpe & Bouvier, 1877) |
| 54 | Bruce's Green-Pigeon | Treron waalia (Meyer, 1793) |
| 55 | African Blue Flycatcher | Elminia longicauda (Swainson, 1838) |
| 56 | Gray-capped Warbler | Eminia lepida (Hartlaub, 1881) |
| 57 | Mountain Yellow-Warbler | Iduna similis (Richmond, 1897) |
| 58 | Sedge Warbler** | Acrocephalus schoenobaenus (Linnaeus, 1758) |
| 59 | Swamp Flycatcher | Muscicapa aquatica (Heuglin, 1864) |
| 60 | Northern Double-collared Sunbird | Cinnyris reichenowi (Sharpe, 1891) |
| 61 | Common Sandpiper** | Actitis hypoleucos (Linnaeus, 1758) |
| No. | Common name | Scientific name |
| 62 | Yellow-fronted Tinkerbird | Pogoniulus chrysoconus (Temmink, 1832) |
| 63 | Black-Billed Barbet | Lybiu guifsobalalito (Hermann, 1783) |
| 64 | Bateleur | Terathopius ecaudatus (Daudin, 1800) |
| 65 | Little Bee-eater | Merops pusillus (Muller, 1776) |
| 66 | Northern Carmine Bee-eater | Merops nubicus (Gmelin, 1788) |
| 67 | Black-winked Bishop | Euplectes hordeaceus (Linnaeus, 1753) |
| 68 | Northern Red (orange) Bishop | Euplectes franciscanus (Isert, 1789) |
| 69 | Common Bulbul | Pycnonotus barbatus (Desfontaine, 1789) |
| 70 | Winding Cisticola | Cisticola marginatus (von Heuglin, 1869) |
| 71 | Red-cheeked CordonBleu | Uraeginthus bengalus (Linnaeus, 1766) |
| 72 | Long-tailed Cormorant | Phalacrocorax africanus (Gmelina, 1789) |
| 73 | White-breasted Cormorant | Phalacrocorax lucidus (Lichtenstein, 1823) |
| 74 | Senegal Coucal | Centropus senegalensis (Linnaeus, 1766) |
| 75 | Grey Crowned Crane | Balearica regulorum (Bennett, 1834) |
| 76 | Pied Crow | Corvus albus (Müller, 1776) |
| 77 | African Mourning Dove | Streptopelia decipiens (Hartlaub & Finsch, 1870) |
| 78 | Cape Turtle (Ringed-Necked) Dove | Streptopelia capicola (Sundevall, 1857) |
| 79 | Laughing Dove | Streptopelia senegalensis (Linnaeus, 1766) |
| 80 | Red-eyed Dove | Streptopelia semitorquata (Rüppell, 1837) |
| 81 | Namaqua Dove | Oenaca pensis (Linnaeus, 1766) |
| 82 | African Darter | Anhinga rufa (Daudin, 1802) |
| 83 | African Fish-Eagle | Haliaeetus vocifer (Daudin, 1800) |
| 84 | Long Crested Eagle | Lophaetus occipitalis (Daudin, 1800) |
| 85 | Martial Eagle | Polemaetus bellicosus (Daudin, 1800) |
| 86 | Little Egret | Egretta garzetta (Linnaeus, 1766) |

| No. | Common name | Scientific name |
|---|---|---|
| 87 | Greater White Egret | Ardea alba (Linnaeus, 1758) |
| 88 | Yellow-billed Egret | Egretta intermedia (Wagler, 1827) |
| 89 | Cattle Egret | Bubulcus ibis (Linnaeus, 1758) |
| 90 | Spotted Flycatcher ** | Muscicapa striata (Pallas, 1764) |
| 91 | Helmeted Guineafowl | Numida meleagris (Linnaeus, 1758) |
| 92 | White-billed Go-Away Bird | Corythaixoides leucogaster (Smith, 1833) |
| 93 | African Firefinch | Lagonosticta rubricate (Lichtenstein, 1823) |
| 94 | Red-billed Firefinch | Lagonosticta Senegala (Linnaeus, 1766) |
| 95 | African Pygmy Falcon | Polihierax semitorquatus (Smith, 1836) |
| 96 | African Paradise Flycatcher | Terpsiphone viridis (Müller, 1776) |
| 97 | Crested Francolin | Dendroperdix sephaena (Gmelin, 1789) |
| 98 | African Goshawk | Accipiter tachiro (Daudin, 1800) |
| 99 | Dark Chanting Goshawk | Melierax metabates (Heuglin, 1861) |
| 100 | Eastern Chanting Goshawk | Melicrax polipterus (Cabanis, 1868) |
| 101 | Gabar goshawk | Melierax gabar (Daudin, 1800) |
| 102 | Black-headed Gonolek | Laniarius erythrogaster (Cretzschmar, 1829) |
| 103 | Egyptian Goose | Alopochen aegyptiaca (Linnaeus, 1766) |
| 104 | Lesser Black-backed Gull ** | Larus fuscus (Linnaeus, 1758) |
| 105 | Hamerkop | Scopus umbrette (Gmelin, 1789) |
| 106 | Pallid Harrier | Circus macrourus (African Bird Club Checklist 2004) |
| No. | Common name | Scientific name |
| 107 | Black-headed Heron | Ardea melanocephala (Vigors & Children, 1826) |
| 108 | Goliath Heron | Ardea goliath (Cretzschmar, 1827) |
| 109 | Purple Heron | Ardea purpurea (Linnaeus, 1766) |
| 110 | Squacco Heron | Ardeola ralloides (Scopoli, 1769) |
| 111 | African grey Hornbill | Tockus nasutus (Linnaeus, 1766) |
| 112 | Northern Red-billed Hornbill | Tokus erythrorhynchus (Temminck, 1823) |
| 113 | Green Wood Hoopoe | Phoeniculus purpureus (Miller, 1784) |
| 114 | Village Indigo Bird | Vidua chalybeate Müller, 1776) |
| 115 | African Sacred Ibis | Threskiornis aethiopicus (Latham, 1790) |
| 116 | Glossy Ibis | Plegadis facinellus (Linnaeus, 1766) |
| 117 | Hadada Ibis | Bostrychia hagedash (Latham, 1790) |
| 118 | African Jacana | Actophilornis afrianus (Gmelin, 1789) |
| 119 | African Pigmy-kingfisher | Ispidina picta (Boddaect, 1783) |
| 120 | Giant Kingfisher | Megaceryle maxima (Pallas, 1769) |
| 121 | Grey-Headed Kingfisher | Halcyon leucocephala (Müller, 1776) |
| 122 | Woodland Kingfisher | Halcyon senegalensis (Linnaeus, 1766) |
| 123 | Malachite Kingfisher | (Alcedo cristata (Pallas, 1764) |
| 124 | Pied Kingfisher | Ceryle rudis (Linnaeus, 1758) |

| No. | Common name | Scientific name |
|---|---|---|
| 125 | Black Kite** | Milvus migrans (Boddaert, 1783) |
| 126 | Grey Kestrel | Falco ardosiaceus (Vieillot, 1823) |
| 127 | Speckled Mouse Bird | Colius striatus (Gmelin, 1789) |
| 128 | Standard-winged Nightjar | Macrodipteryx longipennis (Shaw, 1796) |
| 129 | African Golden Oriole | Oriolus auratus (Vieillot, 1817) |
| 130 | Spotted Eagle Owl | Bubo Africana (Temminck, 1821) |
| 131 | Pink-backed Pelican | Pelecanus rufescens (Gmelin, 1789) |
| 132 | PiaPiac | Ptilostomus afer (Linnaeus, 1766) |
| 133 | African Green Pigion | Treron calvus (Temminck, 1808) |
| 134 | Speckled Pigeon | Columba guinea (Linnaeus, 1758) |
| 135 | African Wattled Plover | Vanellus senegallus (Linnaeus, 1766) |
| 136 | Spur-winged Plover | Vanellus spinosus (Linnaeus, 1758) |
| 137 | Common Ringed Plover ** | Charadrius hiaticula (Linnaeus, 1758) |
| 138 | Common Quail | Coturnix coturnix (Linnaeus, 1758) |
| 139 | Cardinal Quelea | Quelea cardinalis (Hartlaub, 1880) |
| 140 | Red-billed Quelea | Quelea quelea (Linnaeus, 1758) |
| 141 | White-browed Robin-Chat | Cossypha heuglini (Hartlaub, 1866) |
| 142 | Abyssinian Roller | Coracias abyssinicus (Hermann, 1783) |
| 143 | Silver Bird | Empidormis semipartitus (Rueppell, 1840) |
| 144 | Lesser Grey Shrike | Lanius minor (Gmelin, 1788) |
| 145 | Woodchat Shrike ** | Lanius senator (Linnaeus, 1758) |
| 146 | Northern Grey-headed Sparrow | Passer griseus (Vieillot, 1817) |
| 147 | Long-tailed Starling | Lamprotornis caudatus (Müller, 1776) |
| 148 | Wattled Starling | Creatophora cinereal (Meuschen, 1787) |
| 149 | Black-Winked Stilt** | Himantopus Himantopus (Linnaeus, 1758) |
| 150 | Little Stint** | Calidris minuta (Leisler, 1812) |
| 151 | Marabou Stork | Leptoptilos crumeniferus (Lesson, 1831) |
| No. | Common name | Scientific name |
| 152 | Saddle-billed Stork | Ephippiorhynchus senegalensis (Shaw, 1800) |
| 153 | White Stork** | Ciconia Ciconia (Linnaeus, 1758) |
| 154 | Scarlet-chested Sunbird | Chalcomitra senegalensis (Linnaeus, 1766) |
| 155 | Lesser Stripped Swallow | Hirundo abyssinica (Guérin-Méneville, 1843) |
| 156 | African Palm Swift | Cypsiurus parvus (Lichtenstein, 1823) |
| 157 | Common Swift | Apus apus (Linnaeus, 1758) |
| 158 | African Pied Wagtail | Motacilla aguimp (Dumont, 1821) |
| 159 | Garden Warbler** | Sylvia borin (Boddaert, 1783) |
| 160 | Red-winged Grey Warbler | Drymocichla incana (Hartlaub, 1881) |
| 161 | Red-billed Buffalo Weaver | Bubalornis niger (Smith, 1936) |
| 162 | Red-headed Weaver | Anaplectes rubriceps (Sundevall, 1850) |

| No. | Common name | Scientific name |
|---|---|---|
| 163 | Southern Masked Weaver | Ploceus velatus (Vieillot, 1819) |
| 164 | Village Weaver | Ploceus cucullatus (Müller, 1776) |
| 165 | Red-Collard Widowbird | Euplectes ardens (Boddaert, 1783) |
| 166 | Yellow-backed Widowbird | Euplectes macrourus (Gmelin, 1789). |
| 167 | Eastern Paradise Whydah | Vidua paradisaea (Linnaeus, 1758) |
| 168 | Pin-tailed Whydah | Vidua macroura (Pallas, 1764) |
| 169 | Whiskered Tern** | Chlidonias hybrida (Palas, 1811) |
| 170 | White-winged Tern ** | Chlidonias leucopterus (Temmink, 1815) |
| 171 | European Bee-eater ** | Merops apiaster (Linnaeus, 1758) |
| 172 | Common Nightingale ** | Luscinia megarhynchosew (Brehm, 1831) |

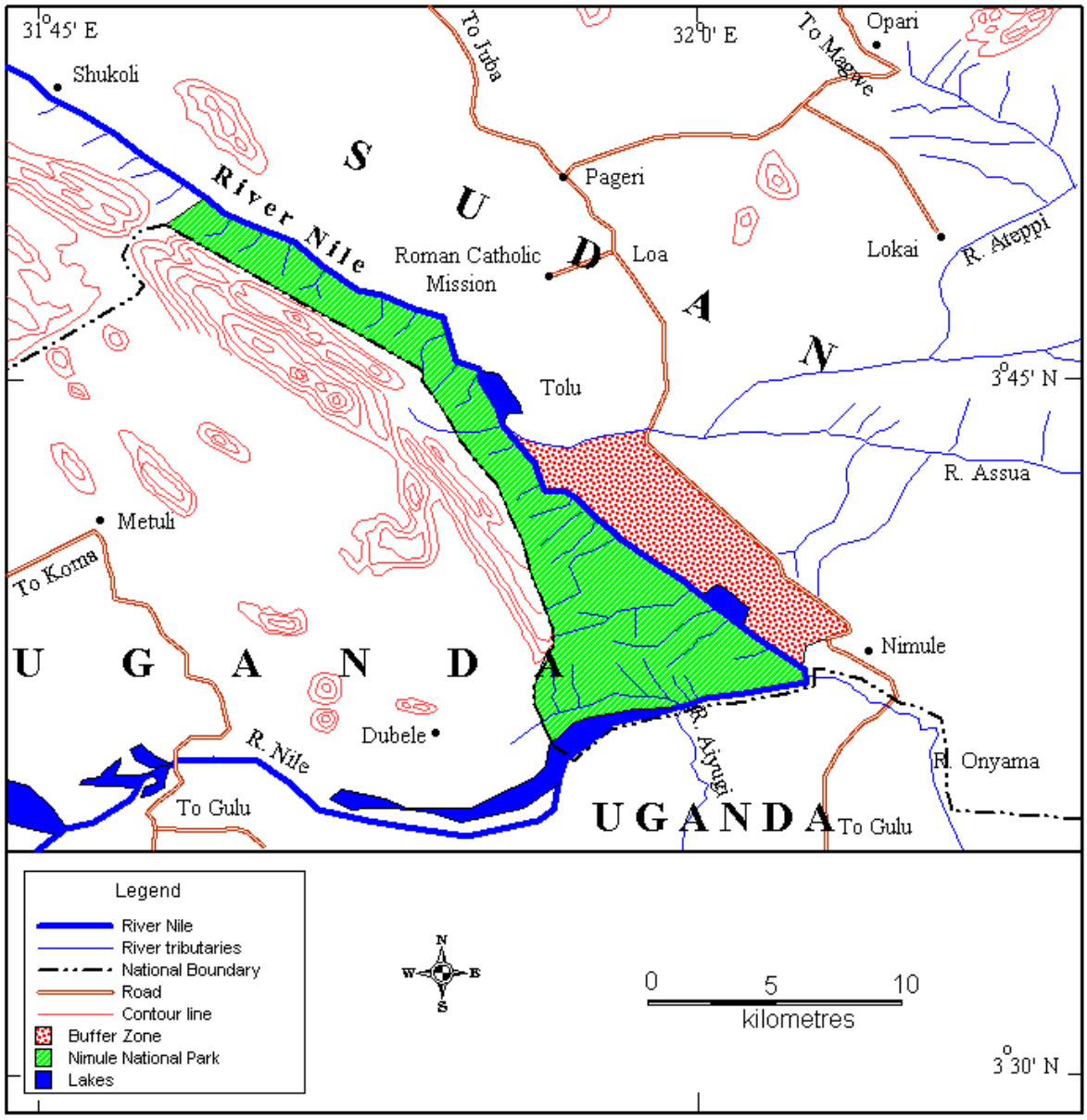



*Figure 1. Map of the study area modified from Ngere 2013 [10].*

## Abbreviations

| | |
|---|---|
| NNP | Nimule National Park |
| IBA | Important Bird Areas |
| IUCN | International Union for the Conservation of Nature |

## Acknowledgments

We are grateful to the Snowy Mountain Engineering Company, the Nimule National Park Staff, the Ministry of Wildlife Conservation and Tourism and University of Juba for their field support. We also extend our thanks to all those who supported our fieldwork.

## Author Contributions

**Malik Doka Morjan:** Conceptualization, Data curation, Formal Analysis, Methodology, Supervision, Writing – original draft

**Gift Simon Demaya:** Conceptualization, Data curation, Formal Analysis, Methodology

**Baya Philip Brown:** Data curation, Writing – original draft

**Shazali Abdallah Gordon:** Data curation

**Isaac Seme Solomon:** Data curation

## Conflicts of Interest

The authors declare no conflicts of interest.

## References

[1] Abdullah, R. Y. (1987). Wildlife Research Report in Nimule Park, Directorate of Wildlife Conservation and National Parks Forces. Equatoria Region, Juba. File No. 31. E. 1/16. Unpublished Report.

[2] Anderson, D. R., Laake, B. R., Crain., and K. Burnham. (1979). Guidelines for Line Transects Sampling of Biological Populations. *Journal of Wildlife Management. Vol. 43: 70-87.*

[3] Birdlife International (2017) Important Bird Areas Factsheet: Nimule. Downloaded from http://www.birdlife.org on 21/02/2017.

[4] Blower (1977). Wildlife Conservation and Management in The Southern Sudan; Project Findings and Recommendations. Food and Agricultural Organization of the United Nations, Rome.

[5] Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L. and Thomas, L. (2001). *Introduction to Distance Sampling: Estimating Abundance of Biological Populations*. Oxford University Press, New York.

[6] Gregory, R. D., Gibbons, D. W. and Donald, P. F. (2004). Bird Census and survey techniques. Downloaded from http://www.books.google.comon 13/8/2013.

[7] Hillman, J. C (1985). Wildlife Research in the Sudan in Relation to Conservation and Management, Khartoum, Sudan.

[8] Kenyi, J. M., (1983). Wildlife Research Report on Nimule National Park. Directorate of Wildlife and National Parks Forces. Equatoria Region, Juba. File No. 31. E1/16, Unpublished Report.

[9] Morjan, M. D., Ojoke, L. I., Nicholas, B. B. and Omoli, A. A. (2000). A pilot survey of Nimule National Park. New Sudan Wildlife Society, Boma, South Sudan. Un-publish ed Report.

[10] Ngere, B. P. (2013). Population Status, Distribution and Trends of African Elephant (*Loxodonta africana*) in Nmule National Park. Unpublished MSc Dissertation, University of Eldoret, Kenya.

[11] Sinclair, I. and Ryan, P. (2002). Birds of Africa South of the Sahara: A Comprehensive Field Guide. Random House Struik Publishers, Cape Town, South Africa.

[12] Demaya, G. S., Gordon, S. A., Lado, T. F., Luiselli, L., & Battisti, C. (2022). Are Afrotropical Protected Areas Effective in Increasing Waterbird Richness and Diversity? A Case Study from South Sudan (East Africa). In Diversity (Vol. 14, Issue 7, p. 554). https://doi.org/10.3390/d14070554

[13] Le Roux, R. (2023). Conservation genetics of the Hooded vulture Necrosyrtes monachus. [University Of Kwazulu Natal]. https://doi.org/10.29086/10413/23203

[14] IUCN, (2018). THE IUCN RED LIST OF THREATENED SPECIES 2018. International Union for Conservation of Nature. https://doi.org/10.2305/IUCN.UK.2018-2.RLTS.T104651572A104651577.en Downloaded October 28, 2026.

## Biography



**Malik Doka Morjan**, Is a wildlife biologist and Associate Professor at the School of Natural Resources and Environmental Studies, University of Juba, Juba, South Sudan. Obtained a PhD in Environmental Conservation, University of Massachusetts, USA. He taught and worked extensively on wildlife conservation in South Sudan specially on the ungulate migrations. He won the National Geographic Emerging Explorers 2009 Award. Member of the IUCN's African Elephant Specialists' Group. His research interests include wildlife migrations, wildlife conservation issues in South Sudan, elephant conservation, avian conservation, human wildlife conflicts, impact of climate change on wildlife in South Sudan.



**Gift Simon Demaya**, Assistant Professor. School of Natural Resources and Environmental Studies, University of Juba, Juba, South Sudan. He earned BSc (Hons) in Wildlife Science, University of Juba. MSc: Wildlife Management, Karatina University, Kenya. Currently a PhD Candidate University of Juba. Member IUCN African turtle and tortoises' specialists Group. His research interests: Birds' migration, fresh water turtle and Tortoises conservation, wildlife management, GIS and remote sensing applications in wildlife.



**Baya Philip Brown**, Wildlife Biologists. Ministry of Wildlife Conservation and Tourism, Juba, South Sudan. Education: BSc (Hons): Wildlife Science, University of Juba, MSc: Wildlife Management, University of Eldoret, Kenya. He works in wildlife management at the Ministry.



**Shazali Abdalla Gardon**, Lecturer: School of Natural Resources and Environmental Studies, University of Juba, South Sudan. BSc (Hons): Wildlife Science, University of Juba. MSc: Makerere University, Kampala, Uganda. His interests include birds, small mammals, amphibians and vegetation ecology.



**Isaac Seme Solomon**, Chief Park Warden, Nimule National Park, at the time of this study, now at the Head office of the Ministry of Wildlife Conservation and Tourism. South Sudan. His interest include carnivore conservation and bushmeat crisis in South Sudan. Education: BSc (Hons): Wildlife Science, University of Juba. Pg. Dip: University of New Castle, UK.