LANIOTURDUS

VOL. 44 (5) 2011

www.namibiabirdclub.org

CONTENTS

Editorial

This special edition of Lanioturdus contains only three articles, all of a more scientific nature than most of the articles I have been publishing. I realize that these articles may not be everyone's cup of tea but I believe that it is important that they be published.

The first article on the Rockrunner, one of our near endemic birds, is by Julia Schweitzer who was studying at the University of Duisburg-Essen in Germany and who came to Namibia as a student specifically to make a study (for a university project) of this species about which little is known. Julia received a small sponsorship from the Namibia Bird Club while she was here. Her work, which was written in German, was shortened for Lanioturdus and translated by Holger Kolberg. Should any reader be interested in the complete work (in German) it can be obtained from Holger (holgerk@mweb.com.na).

The second article by Tony Tree and Mark Boorman deals with wader numbers on the Namibian coast. The collection of the data for this article took place in 1998 and 1999. I believe that it is important to publish articles such as this as the data therein could serve as a base for comparison for any future similar study that may be done. In the article it is stated that numbers of Red Knots were in decline. I think that we will find that they have declined even further in the last decade while even in those days Common Redshank was regarded as a regular visitor to Mile 4 Saltworks where it is regularly seen today.

The final article by Thomas Göttert and others deals with the bird species recorded on former rangeland on the south-western boundary of the Etosha National Park and the use of birds as bio-indicators to assess the quality and structural complexity of the habitat.

This is the final edition of Lanioturdus for 2011. The committee wishes all members happy birding over the festive season and prosperous birding for 2012. The editor of Lanioturdus, of course, wants to hear about all those interesting goodies you see out there over the holiday period.

Observations on bird species occurrence in combination with rhino monitoring on former livestock farmland: implications for developing a buffer zone at the south-western border of the Etosha National Park in Namibia

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Abstract

Our study describes a 16 months (Nov 2005 – Feb 2007) continuous bird species monitoring conducted in a 368 km² area in direct adjacency to the Etosha National Park (ENP). In order to discuss the suitability of the studied area to serve as an effective buffer zone for the ENP, we used birds as bioindicators for an indirect assessment of the habitat's quality and structural complexity. We developed the method in combination with a rhino tracking procedure (regularly driven tours between the camp site and rhino activity areas). We validated our findings using the cumulative species curve method, which also highlights the importance of the time scale for such a habitat assessment. We found a clear seasonal effect, not in terms of the relative proportion of different ecological groups – but with regards to the beta diversity (Sørensen index: 0.6). We discuss the bird species range in view of seasonality (availability of water) and additional habitat-related features. Based on the study area's proximity to the ENP and the occurrence of two geological formations (with distinct vegetation types), the number of bird species (n = 148) indicates a remarkable proportion (21.5 %) of all bird species occurring within Namibia present in the study area. Although this area has been used for intensive livestock farming over several decades in the past, we can assume its notable level of structural complexity and suitability to possibly become an effective buffer zone for the ENP in the future.

Introduction

Measuring levels of biodiversity is widely used as a tool for assessing the quality of areas, selecting suitable areas and developing adequate conservation strategies (Witting & Löschke 1995). The methodological approaches range from rapid appraisals to all-taxa biodiversity inventories (Sueur et al. 2008). Here, we observed bird species in an area that could potentially be developed towards an effective buffer zone for the Etosha National Park (ENP) in the future (Etosha buffer zone project, Göttert & Zeller 2008). The concept of buffer zones originates from the 1968 UNESCO's '*Man and Biosphere Programme*' (MAB). It is based on the idea of linking a strictly protected core area (in the present case: ENP) with additional zones (buffer- and transition zones), where a certain degree of direct human resources use is not only permitted - but even required for successful management (e.g. local community demands, tourism, non-invasive data collection).

The aim of this paper was to use avian species richness in terms of a state-description of the specific area studied. We selected birds as they can easily be observed and have been frequently used in biodiversity assessments (Tews et al. 2004a). Therefore, we developed a simple and applicable method for monitoring bird species richness over time, 'along the way' with a rhino monitoring procedure that was conducted at the same time in this area.

Material and methods

Study area

The study was carried out in the semi-arid climate zone of north-central Namibia at the

Etosha Heights/Moesamoeroep farm complex, a fenced area of 368 km² (today 481.4 km²) in adjacency to the south-western border of the ENP. The area comprises two broad geological substrates: Otavi dolomite (dominated by woodland) and Etosha calcrete (characterised by a habitat mosaic including Etosha mixed low trees, mopane shrubs and Etosha plains [Mendelsohn et al. 2000]). Between 1907 and 1947, the studied area had been part of the protected area that was later termed ENP. Between the 1960's and the beginning of this century, the area was used for commercial livestock farming before it was converted into a wildlife conservancy in the early 2000's.

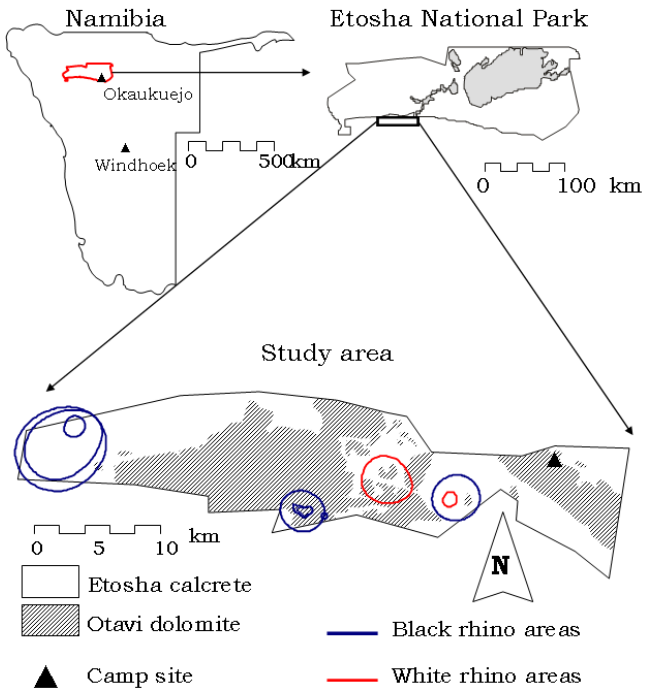

Figure 1. Study area: size, geographic position and geological formations. Additionally, the position of the camp site and each individual rhino's core areas (50 % Kernel polygons) are given. Black rhinos: n = 6; period: Nov 2005 – Feb 2007; number of fixes: 817; $\bar{x}$ individual fixes: 136.2; SD: 73.3. White rhino: n = 1; period: Jun 2006 – Feb 2007; number of fixes: 81.

Data collection

Our study is based on observations made during a period of 16 months (between Nov 2005 and Feb 2007), through a non-stop stay of T. Göttert in the area in line with an investigation on re-introduced African rhinos' spatial behaviour using VHF radio telemetry (Göttert et al. 2010). Thus, long distances needed to be travelled regularly in order to locate and observe a relatively small group of rhinos (6 black rhinos, 1 white rhino) in this rather large area.

The bird monitoring presented in this paper was developed 'along the way' with rhino data collection. Using a 4 x 4 vehicle (Nov 2005 – Oct 2006) and a motorbike (Oct 2006 – Feb 2007), driven at a speed of 20 - 60 km * h^{-1}, we drove standardised tours on gravel and sandy roads to regularly move between the camp site and rhino activity areas (Figure 1). During 261 observation days, we drove tours between approximately 50 and 150 km (depending on the number of rhinos monitored on that day). While moving within the area (driven tours or walking), we noted the occurrence of bird species throughout the study period whenever we observed a species for the first time. Intensive additional support was given during a data collection period in the wet season (N. Mensing; Jan 31 - Mar 21, 2006; 26 tours) and the dry season (H. Petersen; Jul 3 - Sep 3, 2006; 43 tours). For species identification we used literature by Sinclair & Ryan (2003). Whenever possible, a digital photograph of the respective animal was taken.

Data analysis

To assess the time frame necessary for sampling saturation of the species richness, we used the cumulative species curve method (Wethered & Lawes 2003). Since data collection forms part of a cumulative assessment over time, the sampling unit was on site each consecutive day.

Bird species were pooled according to habitat preferences as obtained from Sinclair & Ryan (2003). Based on this information, we defined the following ten broad habitat types: 1) Catholic, 2) Rocky areas, 3) Water, 4) Grassland and desert, 5) Grassland, 6) Grassland and savannah, 7) Savannah and desert, 8) Savannah, 9) Savannah and woodland, and 10) Woodland. The number of bird species per habitat type was examined and the proportion of species per habitat was calculated.

To look at seasonal patterns of avian species richness, species were listed according to habitat types for the wet and dry season collection period. For comparison of seasonal data, the Sørensen similarity index was calculated (Sørensen 1948):

$$\text{Similarity index } (\beta) = \frac{2c}{(S_1 + S_2)}$$

Where: S_1 = total number of species recorded in the wet season

S_2 = total number of species recorded in the dry season

c = number of species common to both seasons

This index may range from 0 (no species overlap) to 1 (the same species found during both seasons).

Results

In total, we found 148 bird species, of which we can prove 66.9 % by photographs. The cumulative species curve plateaus out after nine months after the start of the study, indicating a sufficient time period of data collection in order to critically assess the species richness in this area (Figure 2). There is a steep increase pattern between Jan 9 and Feb 21, 2006.

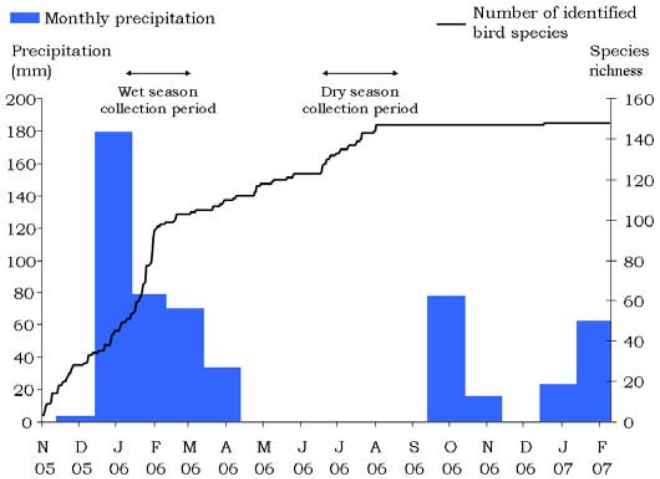

Figure 2. Cumulative species curve over the study period. Species names according to the order of first identification are given in Table 1.

Among others, the following ecological groups of bird species can be identified:

Water associated species

In total, seven water-associated species were found (Egyptian Goose *Alopochen aegyptaiciaca*, Red-billed Teal *Anas erythrorhyncha*, Squacco Heron *Ardeola ralloides*, Blacksmith Lapwing *Vanellus armatus*, Three-banded Plover *Charadrius tricollaris*, Yellow-crowned Bishop *Euplectes afer* and Little Grebe *Tachybaptus ruficollis*), of which only *V. armatus* and *E. afer* were also found during the dry months of this year (May – Sep). The other five species were strictly linked with water bodies that existed at the study area between Jan and Apr 2006.

Migratory species

From 22 Palaearctic or intra-African migrant species, the following 13 species we only observed during the wet season (Jan – Apr): White Stork *Ciconia ciconia*, Abdim's Stork *Ciconia abdimii*, Jacobin Cuckoo *Clamator jacobinus*, Great Spotted Cuckoo *Clamator glandarius*, European Bee-eater *Merops apiaster*, Yellow-billed Kite *Milvus aegyptius*, Black Kite *Milvus migrans*, Eurasian Hobby *Falco subbuteo*, Red-footed Falcon *Falco vespertinus*, Pearl-breasted Swallow *Hirundo dimidiata*, Violet-backed Starling *Cinnyricinclus leucogaster*, Garden Warbler *Sylvia borin*, and Lesser Grey Shrike *Lanius minor*.

The following three migrant species were exclusively seen during the dry season (May-Sep): Brown Snake-Eagle *Circaetus cinereus*, Booted Eagle *Aquila pennatus* and Temminck`s Courser *Cursorius temminckii*. The following six migrant species were seen during both seasons: Lesser Spotted Eagle *Aquila pomarina*, Tawny Eagle *Aquila rapax*, Purple Roller *Coracias naevius*, Rufous-cheeked Nightjar *Caprimulgus rufigena*, Black-chested Snake-Eagle *Circaetus pectoralis* and Steppe Buzzard *Buteo vulpinus*.

Indicators for woodland

Indicators for woodland including old and hollow trees are hole nesting birds, such as the Barn Owl *Tyto alba*, Southern Yellow-

billed Hornbill *Tockus leucomelas*, Monteiro's Hornbill *Tockus monteiri*, Grey Hornbill *Tockus nasutus*, Damara Hornbill *Tockus damarensis*, African Hoopoe *Upupa africana*, and Common Scimitarbill *Rhinopomastus cyanomelas*.

Conservation status

Using data presented by Robertson et al. (1998), the bird monitoring revealed four species listed as vulnerable (Marabou Stork *Leptoptilos crumeniferus*, Lapped-faced Vulture *Aegypius tracheliotus*, Tawny Eagle *Aquila rapax* and Martial Eagle *Polemaetus bellicosus*) and two species listed as endangered (White-backed Vulture *Gyps africanus* and Bateleur *Terathopius ecaudatus*). According to Robertson et al. (1998) and Sinclair & Ryan (2003), the following six Namibian endemic species were identified: Rüppell's Parrot *Poicephalus rueppellii*, Carp's Tit *Parus carpi*, Bare-cheeked Babbler *Turdoides gymnogenys*, White-tailed Shrike *Lanioturdus torquatus*, Monteiro's Hornbill *Tockus monteiri* and Damara Hornbill *Tockus damarensis*.

Lanioturdus torquatus – Photo Thomas Göttert

Tockus damarensis – Photo Thomas Göttert

Parus carpi – Photo Thomas Göttert

Habitat preferences

When looking at the habitat requirements of the bird species monitored, a clear link with savannah and savannah – woodland mixed habitat could be seen (Figure 3). The same pattern was displayed when using the entire number of bird species or the species identified during the dry and wet season collection period. There was obviously no change in the distribution of bird species per ecological group between seasons. Also, there was no obvious difference in the total number of species per collection period: wet season = 91 species, dry season = 104 species. In contrast, the Sørensen similarity index (β) = 0.6 indicated a noticeable turnover of occurring bird species between the seasons.

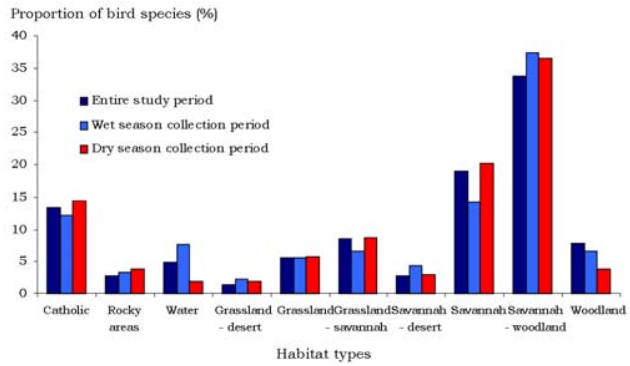

Figure 3. Seasonal bird species richness per habitat type. Proportions of bird species are given in percentage for all identified bird species during the wet season,

Discussion

Since the framework for this study (locating a small group of rhinos in a large area) was based on regular long-distance tours that needed to be driven anyway, the bird

monitoring presented in this paper has been a cost- and time-effective approach. The cumulative species curve method allows for a validation of the used method. The steep increase phase between Jan 9 and Feb 21, 2006 may be linked with the precipitation (as further indicated by a seasonal effect [β diversity]). The 2005/2006 austral summer was exceptionally wet in many areas of southern Africa (Muller et al. 2008). This may have even increased the seasonal effect in our study. As it took us more than nine months to detect the entire set of species (together with the seasonal effect), the time scale in our study seems to be applicable and reasonable. Very short periods of data collection might fail to reflect the level of structural complexity in this case. Presumably, we were not able to detect all present avian species in the complete area during the entire time of investigation, since the main focus of the study was rhino monitoring, and many bird species were found along the way on distinct routes throughout former farm areas with different habitat types.

According to Avibase (2010), a total of 690 bird species can be found in Namibia. With a total of 148 identified bird species, the study area contained almost one quarter (21.5 %) of these species. From a total of 60 raptor species (Accipitridae & Falconidae) distributed across Namibia (Avibase 2010), even 46.7 % (28 species) were identified over the study period. The results illustrate a high quality of the study area, comprising a relevant proportion of the entire bird species-range occurring within Namibia.

It is known that intensive livestock farming can lead to overgrazing, which - together with periodic droughts - may cause irreparable degradation of biodiversity (Tews et al. 2004b). Although the studied area had been used for commercial livestock farming over several decades in the past, this study assumes a remarkable bird species-range and significant numbers of indicators for a savannah-woodland continuum. Joubert & Ryan (1999) used birds (and small mammals) to compare commercial and communal rangelands in the Succulent Karoo in South Africa. They found a larger bird assemblage on commercial rangelands, providing more vegetation structure than communal lands.

The relatively high number of bird species observed may be partially explained by the different geological formations and associated habitat structures of the study area, as well as its notable size. Skowno & Bond (2003) carried out a study on bird communities in a comparable ecosystem in KwaZulu-Natal, South Africa. By demonstrating that different habitat types (grasslands, *Acacia* woodlands and broadleaf woodlands) have different bird assemblages, these authors showed the importance of birds as indicators for structural changes in the vegetation. The occurrence of woodland-associated bird species in our study, for example, demonstrates the availability of suitable (old) trees. Since woodland habitat is associated with the rocky Otavi dolomite areas, former cattle-caused influence on the vegetation may have been less intense in the rocky areas when compared to the grasslands on the Etosha calcrete formation.

Another reason for the relatively high number of species may be the direct proximity of the study area to the ENP. Since bird occurrence is not hindered by an anthropogenic boundary, such as the game fence of the National Park, there should be a considerable species-exchange between the study area and the ENP. We think the area had already recovered from former livestock farming to a certain degree when we carried out this study; the area already represented a buffer zone for the ENP at least for a range of bird species (e.g. birds we found in high grass-land, which were presumably not present in former times with cattle overgrazing). As we have no data on the situation during the times of livestock farming, the above stated thoughts are of a speculative nature. However, it can be expected that the amount of artificial water areas (0.07 water areas per km^2) also had a positive effect on the occurrence of species, as water areas display very important requirements for birds hosting during the dry season.

In summary, our study describes a method to assess avian species richness and indirectly judge on the habitat quality 'along the way'

with a rhino monitoring procedure in a specific area. This approach seems to be an appropriate tool to assess the area's suitability in regards to development strategies towards a buffer zone for the ENP. Despite the former land use of livestock farming, the assessment of the avian species richness suggests the area to comprise important habitat for savannah and savannah-woodland associated biodiversity. Owing to its size, geology (habitat structure), and direct proximity to the ENP, the studied area may become an important additional conservation area for the ENP. The size of the ENP has been successively reduced over the years, and ENP was completely fenced in 1973. Not only is the ENP one of Africa's oldest and one of the worlds largest protected areas, it also represents an example for pronounced edge effects and land use conflicts along its borders. Considering possible effects of global change and current attempts to interlink protected areas and develop Transfrontier Conservation Areas (Hanks 2003), one approach to overcome these edge effects and land use contrasts may be the development of specific buffer zones (with specific objectives) alongside the borders of the ENP. The observations presented here on birds, as well as the constitutive habitat assessment describe a case-study that assumes the study area's development potential towards such a buffer zone. Together with the results from other studies conducted in the same area (Jokisch 2009, Göttert et al. 2010); the present observations on bird species occurrence may provide an additional mosaic stone for the realisation of the Etosha buffer zone project.

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Table 1. Bird species found over the study period. Order of species is based on the first sighting.

Scientific name	English name	Habitat
Plocepasser mahali	White-browed Sparrow-Weaver	Savannah - woodland
Crithagra flaviventris	Yellow Canary	Savannah - semi-desert
Oena capensis	Namaqua Dove	Savannah - woodland
Lamprotornis nitens	Cape Glossy Starling	Savannah - woodland
Lanioturdus torquatus	White-tailed Shrike	Savannah
Pycnonotus nigricans	African Red-eyed Bulbul	Savannah
Pterocles bicinctus	Double-banded Sandgrouse	Catholic
Tockus leucomelas	Southern Yellow-billed Hornbill	Savannah - woodland
Ardeotis kori	Kori Bustard	Grassland - savannah
Quelea quelea	Red-billed Quelea	Savannah
Bubo africanus	Spotted Eagle-Owl	Catholic
Aegypius tracheliotus	Lappet-faced Vulture	Savannah
Corvus capensis	Cape Crow	Grassland - desert
Upupa africana	African Hoopoe	Savannah - woodland
Melierax gabar	Gabar Goshawk	Savannah
Melierax canorus	Southern Pale Chanting Goshawk	Savannah - semi-desert
Monticola brevipes	Short-toed Rock-Trush	Rocky areas
Coracias naevius	Purple Roller	Savannah - woodland
Merops hirundineus	Swallow-tailed Bee-eater	Catholic
Parus carpi	Carp's Tit	Savannah - woodland
Estrilda erythronotos	Black-faced Waxbill	Grassland - savannah
Pytilia melba	Green-winged Pytilia	Savannah - woodland
Vidua regia	Shaft-tailed Whydah	Grassland - savannah
Cercomela familiaris	Familiar Chat	Rocky areas
Calendulauda sabota	Sabota Lark	Savannah
Emberiza flaviventris	Golden-breasted Bunting	Savannah - woodland
Numida meleagris	Helmeted Guineafowl	Catholic
Lophotis ruficristata	Red-crested Korhaan	Grassland - savannah
Dicrurus adsimilis	Fork-tailed Drongo	Savannah - woodland
Granatina granatina	Violet-eared Waxbill	Savannah - woodland
Elanus caeruleus	Black-shouldered Kite	Grassland - savannah
Pterocles namaqua	Namaqua Sandgrouse	Grassland - desert
Streptopelia capicola	Cape Turtle-Dove	Catholic
Struthio camelus	Common Ostrich	Savannah - semi-desert
Milvus aegyptius	Yellow-billed Kite	Catholic
Sagittarius serpentarius	Secretarybird	Savannah - woodland
Polemaetus bellicosus	Martial Eagle	Savannah
Philetairus socius	Sociable Weaver	Savannah
Pternistis adspersus	Red-billed Spurfowl	Savannah - woodland
Vanellus coronatus	Crowned Lapwing	Grassland

Scientific name	English name	Habitat
Vanellus armatus	Blacksmith Lapwing	Water
Alopochen aegyptiaca	Egyptian Goose	Water
Ciconia abdimii	Abdim's Stork	Grassland
Coracias caudatus	Lilac-breasted Roller	Grassland
Leptoptilos crumeniferus	Marabou Stork	Grassland - savannah
Milvus migrans	Black Kite	Catholic
Tockus monteiri	Monteiro's Hornbill	Savannah - woodland
Parus cinerascens	Ashy Tit	Savannah
Falco vespertinus	Red-footed Falcon	Grassland - savannah
Falco chicquera	Red-necked Falcon	Savannah
Anas erythrorhyncha	Red-billed Teal	Water
Bubalornis niger	Red-billed Buffalo-Weaver	Savannah - woodland
Urocolius indicus	Red-faced Mousebird	Savannah - woodland
Amadina erythrocephala	Red-headed Finch	Savannah - woodland
Bubulcus ibis	Cattle Egret	Grassland
Afrotis afraoides	Northern Black Korhaan	Catholic
Malcorus pectoralis	Rufous-eared Warbler	Grassland - savannah
Tricholaema leucomelas	Acacia Pied Barbet	Savannah - woodland
Tockus nasutus	Grey Hornbill	Savannah - woodland
Vidua paradisaea	Long-tailed Paradise-Whydah	Savannah - woodland
Laniarius atrococcineus	Crimson-breasted Shrike	Savannah
Tyto alba	Barn Owl	Catholic
Charadrius tricollaris	Three-banded Plover	Water
Turdoides bicolor	Southern Pied Babbler	Savannah
Ploceus intermedius	Lesser Masked-Weaver	Savannah - woodland
Merops apiaster	European Bee-eater	Catholic
Falco subbuteo	Eurasian Hobby	Savannah - woodland
Buteo buteo vulpinus	Steppe Buzzard	Catholic
Gyps africanus	White-backed Vulture	Savannah - woodland
Caprimulgus rufigena	Rufous-cheeked Nightjar	Savannah - woodland

Scientific name	English name	Habitat
Caprimulgus tristigma	Freckled Nightjar	Woodland
Burhinus capensis	Spotted Thick-knee	Catholic
Euplectes afer	Yellow-crowned Bishop	Water
Hirundo dimidiata	Pearl-breasted Swallow	Savannah - woodland
Ploceus velatus	Southern Masked-Weaver	Grassland - savannah
Terpsiphone viridis	African Paradise-Flycatcher	Woodland
Turdoides gymnogenys	Bare-cheeked Babbler	Savannah
Tockus damarensis	Damara Hornbill	Savannah - woodland
Accipiter minullus	Little Sparrowhawk	Woodland
Passer motitensis	Great Sparrow	Woodland
Cinnyricinclus leucogaster	Violet-backed Starling	Woodland
Crithagra atrogularis	Black-throated Canary	Savannah - woodland
Cercotrichas paena	Kalahari Scrub-Robin	Savannah
Namibornis herero	Herero Chat	Savannah - woodland
Crithagra mozambica	Yellow-fronted Canary	Savannah - woodland
Lanius minor	Lesser Grey Shrike	Savannah
Passer diffusus	Southern Grey-headed Sparrow	Woodland
Sylvia borin	Garden Warbler	Savannah - woodland
Emberiza tahapisi	Cinnamon-breasted Bunting	Rocky areas
Tachybaptus ruficollis	Little Grebe	Water
Mirafra passerina	Monotonous Lark	Savannah – woodland
Ploceus rubiginosus	Chestnut Weaver	Savannah - woodland
Cinnyris fuscus	Dusky Sunbird	Savannah
Calendulauda africanoides	Fawn-coloured Lark	Savannah
Ardeola ralloides	Squacco Heron	Water
Poicephalus rueppellii	Rüppell's Parrot	Savannah - woodland
Aquila spilogaster	African Hawk-Eagle	Savannah - woodland
Aquila rapax	Tawny Eagle	Savannah – woodland

Scientific name	English name	Habitat
Streptopelia senegalensis	Laughing Dove	Catholic
Accipiter badius	Shikra	Savannah - woodland
Clamator glandarius	Great Spotted Cuckoo	Savannah - woodland
Myrmecocichla formicivora	Ant-eating Chat	Grassland
Terathopius ecaudatus	Bateleur	Savannah
Colius colius	White-backed Mousebird	Savannah-semi-desert
Creatophora cinerea	Wattled Starling	Catholic
Eremopterix leucotis	Chestnut-backed Sparrowlark	Savannah
Clamator jacobinus	Jacobin Cuckoo	Savannah - woodland
Circaetus pectoralis	Black-chested Snake-Eagle	Catholic
Prinia flavicans	Black-chested Prinia	Savannah
Ciconia ciconia	White Stork	Grassland
Rhinoptilus chalcopterus	Bronze-winged Courser	Savannah - woodland
Chalcomitra amethystina	Amethyst Sunbird	Woodland
Scleroptila levaillantoides	Orange River Francolin	Grassland - savannah
Aquila pomarina	Lesser Spotted Eagle	Savannah - woodland
Eremomela icteropygialis	Yellow-bellied Eremomela	Savannah - woodland
Anthoscopus minutus	Cape Penduline-Tit	Savannah
Lagonostica senegala	Red-billed Firefinch	Woodland
Rhinopomastus cyanomelas	Common Scimitarbill	Savannah – woodland
Bradornis mariquensis	Marico Flycatcher	Savannah - woodland
Tchagra australis	Brown-crowned Tchagra	Savannah - woodland
Aegypius occipitalis	White-headed Vulture	Savannah
Falco rupicolus	Rock Kestrel	Catholic
Turdoides melanops	Black-faced Babbler	Woodland
Cinnyris talatala	White-bellied Sunbird	Savannah - woodland
Ardea melanocephala	Black-headed Heron	Grassland - savannah

Scientific name	English name	Habitat
Calamonastes fasciolatus	Barred Wren-Warbler	Savannah
Sporopipes squamifrons	Scaly-feathered Finch	Savannah
Falco biarmicus	Lanner Falcon	Catholic
Hirundo fuligula	Rock Martin	Rocky areas
Tchagra senegalus	Black-crowned Tchagra	Savannah
Aquila pennatus	Booted Eagle	Catholic
Falco rupicoloides	Greater Kestrel	Savannah - semi-desert
Ptilopsis granti	Southern White-faced Scops-Owl	Savannah - woodland
Anaplectes melantis	Red-headed Weaver	Savannah - woodland
Turnix sylvatica	Kurrichane Buttonquail	Grassland - savannah
Batis pririt	Pririt Batis	Savannah - woodland
Passer melanurus	Cape Sparrow	Grassland
Polyboroides typus	African Harrier-Hawk	Woodland
Glaucidium perlatum	Pearl-spotted Owlet	Savannah - woodland
Polihierax semitorquatus	Pygmy Falcon	Savannah
Cursorius temminckii	Temminck's Courser	Grassland
Cisticola aridulus	Desert Cisticola	Grassland
Lanius collaris	Common Fiscal	Catholic
Sylvietta rufescens	Long-billed Crombec	Savannah - woodland
Circaetus cinereus	Brown Snake-Eagle	Savannah - woodland
Otus senegalensis	African Scops-Owl	Savannah - woodland
Falco peregrinus	Peregrine Falcon	Catholic
Lophaetus occipitalis	Long-crested Eagle	Woodland