

Winter counts of wetland and floodplain birds in the Kwando River and floodplain system, Caprivi

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Introduction

Human and, increasingly, elephant pressure on Namibia's wetlands and riparian belts are a major cause of conservation concern. Many wetland birds are listed in Namibia's Red Data Book (Simmons & Brown in prep) because of population declines caused by the degradation and destruction of wetland habitats, and because of high levels of disturbance. Good information on the status of major wetlands and their avifauna is important for their conservation management. Birds provide one of the best indicators of wetland health. That is why wetland bird counts are such an important part of Namibia's environmental monitoring system.

This paper reports on bird densities in the Kwando River system in Caprivi. The Kwando is one of a series of large rivers that rise on the Angolan highlands and flow south to Namibia. Others are the Cunene, Cuvelai (that ends in the Etosha Pan) the Cubango and Cuito that join and form the Okavango, and part of the catchment of the Zambezi. The Kwando drains an area of about 50,000 km² between the Cuito and Zambezi, and has a mean annual flow of about 915 million m³ (range <400 ->2,000 million m³, compared to the Cunene at 5,100, the Okavango at 9,700 and the Zambezi at 40,000 million m³). The Kwando River enters Namibia and forms the border between West and East Caprivi, and then East Caprivi's western border with Botswana. At its most southern point, at the south end of the Mamili National Park, it turns sharply to the north-east, where it becomes the Linyanti, which forms Caprivi's southern border with Botswana. This drainage joins Lake Liambezi and then onto the Chobe River, which in turn joins the Zambezi at Namibia's most eastern point. Large parts of the Linyanti are dry for long periods, and only in years of exceptional flows do all the systems join. In these years, the Kwando may also be linked to the Okavango system, through the Selinda spillway.

The Kwando is an unusual river. It consists of a wide floodplain of 2-3 km. Within this floodplain the Kwando River meanders, twists and turns, and split into a number of channels that rejoin a few km downstream. Many oxbow lakes, backwaters and flooded depressions occur on either side of the main channel (Figures 1-3). The Kwando River is thus not a linear wetland as is the case with most other large rivers in Namibia, where birds can be monitored as the number recorded per 10 km of river. Rather, it is a perennial wetland area that covers some 300 km². Consequently, it is one of Namibia's largest and more important perennial wetland systems, not only for birds, but also for a host of other species, including lechwe, reedbuck, waterbuck, sitatunga, hippo, crocodile and many other aquatic species.

Methods

On four consecutive days, from 12-15 August 2004, bird counts were carried out along different sections of the Kwando River from a boat, over distances that ranged between about 15 and 25 km. The distances refer to those traveled following the curves of the river, and were measured with a GPS set at 20 m intervals. Counts started at about 16h00 each day and took between 1hr 20 min and 1hr 50 min. The average speed of travel was between 23-28 km/h, being some 3-4 km

faster when traveling downstream. The boat was slowed or stopped from time to time to confirm sightings and carry out accurate counts. The stretches of river covered were as follows: Lianshulu south (downstream - 25 km), Lianshulu north (upstream – 22.5 km); Mazambala south (downstream – 14.3 km); Mazambala north (upstream – 19.0 km). Counts were made only on the outward journey. The return journey was done after last light, with spotlights, to count crocodiles.

It was assumed that count width was 100 m on each side of the boat. In large sections, where the channel was fringed by high dense reedbeds, visibility was much less than this. In more open area visibility was somewhat greater. A 10 km stretch of river would thus represent a 2 km² sample.

Results and Discussion

The species and numbers seen per count are shown in Table 1. The mean number of each species recorded per 10 km of river traveled is calculated, as well as population estimates for the entire Kwando system. The population estimates are conservative, as they assume that the survey was able to see birds up to 100 m on either side of the boat, which for some species overestimates the visible sample width.

From the results it is clear that the Kwando system, though not highly productive, nonetheless supports significant numbers of species associated with the north-eastern perennial river systems. Particularly high numbers of Pied Kingfishers were estimated (1,540 birds), and Malachite Kingfishers were also found to be fairly common (278 birds). The Kwando system is estimated to support some 56 African Fish Eagles and 93 African Marsh Harriers. A pair of Ayres' Eagles *Hieraetus ayresii* was seen near Lianshulu lodge, but not during the counts. Of the herons, 74 Goliath, 93 Purple, 74 Squacco and 56 Rufousbellied were estimated, as were some 450 Hadedda Ibis and 110 Pygmy Geese. This last may be a significant underestimation, as these Geese are more likely to occur in the lilly-filled backwaters than in the main river channel. Bee-eaters are a characteristic sight along the Caprivi rivers, and they were recorded in abundance along the Kwando, at 4 (Carmine) and 5 (Whitefronted and Little) birds per km².

Of interest were observations on Brownthroated Martins flying, hawking and feeding at night. The return boat trip was made after last light, using spotlights to count crocodiles. This time coincided with the emergence of large numbers of small insects over the river. The Martins were seen in the spotlights hawking insects over the water and adjacent reedbeds in large numbers. The birds were not put up by the boat and spotlights – they were seen way ahead of the boat, actively hawking insects. We are not aware of previous reports of these birds flying and feeding at night.

The results reported here give a snapshot of the estimated status of the wetland birds in the Kwando system. It is recommended that a summer count be carried out. The counting methodology could be refined by dividing the wetland system into habitat subdivisions, such as main channel, backwaters, oxbow lakes, reedbeds, wet floodplains, dry floodplains, etc. The areas under each could be determined and then representative samples of each habitat could be systematically surveyed. This would give more accurate (and probably higher) figures than the results reported here. The Kwando system is a sufficiently important wetland to warrant further research and monitoring.



Figure 1: Main river channel on the Kwando River



Figure 2: Backwater off main Kwando River



Figure 3: Flooded marshlands on Kwando floodplain

Note to Table 1 below: Carmine Bee-eaters arrived in the area only on day 3 (14th August) of the count. Their abundance was calculated based on the distances surveyed on days 3 & 4, i.e. 33.3 km.

Table 1: Numbers of wetland and floodplain birds counted in four sample areas along the Kwando River, Caprivi, in winter 2004

Roberts No.	Species	Latin name	Liashulu south	Liashulu north	Mazambala south	Mazambala north	Total count	No per 10 km = 2 km ²	Estimated no. for the Kwando system
			12/8/2004 4 25.0 km	13/8/2004 4 22.5 km	14/8/2004 14.3 km	15/8/2004 19.0 km	80.8 km		
60	Darter	<i>Anhinga melanogaster</i>	3	0	0	0	3	0.4	56
64	Goliath Heron	<i>Ardea goliath</i>	1	0	2	1	4	0.5	74
65	Purple Heron	<i>Ardea purpurea</i>	0	0	2	3	5	0.6	93
71	Cattle Egret	<i>Bubulcus ibis</i>	0	0	8	2	10	1.2	186
72	Squacco Heron	<i>Ardeola ralloides</i>	0	0	2	2	4	0.5	74
74	Greenbacked Heron	<i>Butorides striatus</i>	1	1	1	3	6	0.7	111
75	Rufousbellied Heron	<i>Butorides rufiventris</i>	0	0	1	2	3	0.4	56
76	Blackcrowned Night Heron	<i>Nycticorax nycticorax</i>	0	0	1	0	1	0.1	19
78	Little Bittern	<i>Ixobrychus minutus</i>	0	0	1	1	2	0.2	37
79	Dwarf Bittern	<i>Ixobrychus sturmii</i>	0	1	0	0	1	0.1	19
81	Hammerkop	<i>Scopus umbretta</i>	1	0	1	1	3	0.4	56
94	Hadedda Ibis	<i>Bostrychia hagedash</i>	8	2	2	12	24	3.0	446
114	Pygmy Geese	<i>Nettapus auritus</i>	0	6	0	0	6	0.7	111
148	African Fish Eagle	<i>Haliaeetus vocifer</i>	0	2	0	1	3	0.4	56
165	African Marsh Harrier	<i>Circus ranivorus</i>	0	0	2	3	5	0.6	93
240	African Jacana	<i>Actophilornis africanus</i>	6	3	2	4	15	1.9	278
241	Lesser Jacana	<i>Microparra capensis</i>	0	2	0	0	2	0.2	37
258	Blacksmith Plover	<i>Vanellus armatus</i>	8	9	7	8	32	4.0	594
260	Wattled Plover	<i>Vanellus senegallus</i>	6	7	4	13	30	3.7	557
261	Longtoed Plover	<i>Vanellus crassirostris</i>	0	0	0	1	1	0.1	19
298	Water Dikkop	<i>Burhinus vermiculatus</i>	4	2	0	4	10	1.2	186
389	Copperytailed Coucal	<i>Centropus cupreicaudus</i>	10	12	6	9	37	4.6	687
428	Pied Kingfisher	<i>Ceryle rudis</i>	17	22	20	24	83	10.3	1,541
429	Giant Kingfisher	<i>Megaceryle maxima</i>	1	0	0	0	1	0.1	19
431	Malachite Kingfisher	<i>Alcedo cristata</i>	8	3	2	2	15	1.9	278
441	Carmine Bee-eater *	<i>Merops nubicoides</i>	0	0	18	10	28	8.4	1,261
443	Whitefronted Bee-eater	<i>Merops bullockoides</i>	18	15	29	20	82	10.1	1,522
444	Little Bee-eater	<i>Merops pusillus</i>	19	51	10	5	85	10.5	1,578
533	Brownthroated Martin	<i>Riparia paludicola</i>	20	23	27	19	89	11.0	1,652