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A PRELIMINARY SURVEY OF BIRDS IN PARK W, NIGER

by S. H. Koster and J. F. Grettenberger

INTRODUCTION

Park W was established in 1936, but until recently little attention has been given to its avifauna. It is the only national park in Niger and the one remaining locality there with relatively undisturbed upland and riparian vegetation; hence, many of its bird species probably do not occur elsewhere in Niger. Although the climate is hot and dry for most of the year and the vegetation is mainly scrub savanna, at least 283 species of birds occur.

Study Area

Park W lies within the Sudan savanna zone and is international with portions in Niger, Benin and Upper Volta (Fig. 1). The portion in Niger covers 2200 km², and lies between latitudes 11°05' and 12°35'N and longitudes 02°05' and 02°50'E. It is essentially a peneplain at 250 m a.s.l., and the 750 mm isohyet and 35° isotherm pass through it. The Niger River, the only permanently flowing water, forms the eastern boundary.

Annual rains begin from early April to late June, usually in May, and end in September/early October. The dry season has three distinct periods: warm and humid in October-November, relatively cool and dry in December-February, and hot dry in March-May. The upland vegetation is mainly *Combretum* wooded savanna, consisting of fairly dense woodlands and shrublands interspersed with small openings. Of several plant associations in the park (Koster 1981), only riparian, woodland and shrubland are considered here.

From November 1975 to February 1978 and from March 1980 to November 1981, we made observations on birds throughout the park, with monthly visits to 1-km-transect study areas, two in woodland, two in shrubland, and one in floodplain and fringing forest of the Niger and the next two largest rivers, the Mekrou and Tapoa. Mistnets were used extensively, especially in riparian vegetation. Many nests were located, and other evidences of breeding were obtained by observing fledglings, mating behaviour, and hypertrophied gonads of specimens.

Niger River

The vegetation along the Niger River is the most diverse of the three riparian areas. The fringing forest is interspersed with seasonal marshes, woodland and shrubland patches, and the transition from riparian to upland vegetation is usually abrupt. Maximum and minimum flow periods occur during February and July, respectively, corresponding to high and low rainfall periods at the headwaters in the Guinea Highlands. During minimum flow period, extensive gravel bars and shallow backwaters are formed. At flood stage, several large marshes are inundated. Fringing forests grow to 30 m, have a nearly closed canopy and a dense understory of shrubs. Common trees are of the genera *Diospyros*, *Ficus*, *Daniellia*, *Mitragyna*, *Cola* and

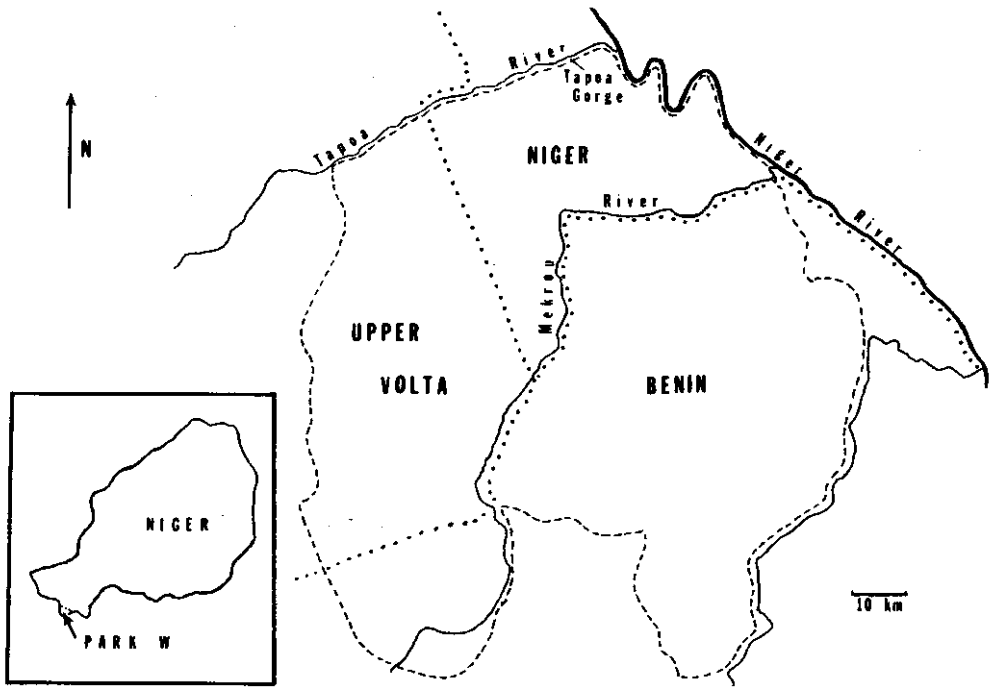


Figure 1. Map of Park W: ---- park boundary, international boundary.



Figure 2. Total monthly counts of bird species observed in Park W, Niger.

Pterocarpus. Common shrub genera include *Acacia* and *Combretum*. The shrub *Mimosa pygma* is common in marshes and along the banks.

The bird list here totalled 205 species, or 72% of the park's total. Species restricted to the Niger included Little Bittern *Ixobrychus minutus*, African Skimmer *Rynchops flavirostris*, Grey Pratincole *Glareola cinerea*, African Moorhen *Gallinula chloropus*, and other marsh birds. Wading birds and waterfowl were uncommon except for White Storks *Ciconia ciconia* and Whistling Teals *Dendrocygna viduata*.

Mekrou River

The Mekrou's width is 10-20 m and depth 2-3 m during the late rainy season (September). Flow ceases by December, although numerous pools remain throughout the dry season. The riverbed is mainly gravel with some rocky sections. The riparian vegetation consists of a band of forest usually less than 30 m wide, with dense understory and a nearly closed canopy interspersed with patches of shrubland and woodland. Common trees are *Diospyros*, *Ficus*, *Daniellia*, *Cola*, and in some areas *Borassus* palms.

190 bird species were recorded here, only 15 fewer than on the Niger. Many species congregated in large numbers, especially during the dry season. Among birds of prey, *Bataleurs* *Te rathioptus ecaudatus* were particularly common then. A pair of Pel's Fishing Owl *Scotopelia peli* was often seen in one locality. Species richness was impressive along the Mekrou; in one 1-km section, 152 species were recorded in a single month. Several large colonies of Carmine Bee-eaters *Merops nubicus* nested in steep banks during the dry season. A pair of White-headed Vultures *Trigonoceps occipitalis* nested in a *Borassus aethiopicum* palm.

Tapoa River

The Tapoa's width is 5-10 m and its depth 1-2 m. Flow normally ceases during November, but several shallow pools survive the dry season. The riverbed is mainly silt deposits. Riparian vegetation is narrow and discontinuous, thick, or merely a band of shrubs and small trees such as *Mitragyna inermis* and *Vitex chrysocarpa*. A steep, narrow gorge extends for 1 km, with permanent waterholes and a rich variety of birds. 186 species were recorded, 19 fewer than on the Niger. Species absent here, but present along the Mekrou and Niger Rivers, were mainly those preferring dense undergrowth or marsh habitat. Several species observed in the Tapoa Gorge apparently were not found elsewhere along the river.

Woodlands

Woodlands are dominated by *Combretum* and *Terminalia*. The average canopy height is 8 m, canopy cover 40%, and the shrub layer 1.7 m. Dense grass grows to 3 m and includes *Hyparrhenia involucreta* and *Andropogon gayanus*.

156 bird species were counted. Observations indicated that composition changed significantly by season. Fires, which burn about 70% of the park annually, influenced distributions, and during peak flowering

and fruiting periods, many bird species were attracted to woodlands. 11 species were seen in a single *Lannea microcarpa* tree in one hour, several seldom seen again.

Shrublands

Combretum, *Acacia guiera*, *Dicrostachys* are other abundant shrubs which cover much of the park on ironpan soils in upland areas. The shrub layer is 1-4 m high with scattered emergent trees, and is burned extensively. Shrub canopy cover averages 28%. Grass cover is sparse or dense depending on soil conditions, 1-2 m high. Open areas of annual grasses such as *Lodetia togoensis* occur.

Only 67 bird species were recorded in shrublands, including Black-bellied Bustards *Eupodotis melanogaster*, and once a Secretary Bird *Sagittarius serpentarius* (which, according to locals, were formerly more common).

African Migrants

Monthly species counts were highest in the mid-dry season and lowest in the late-wet season (Fig. 2). Observations during the wet season were affected by access and reduced visibility, yet the consistency of counts during the study and the magnitude of seasonal differences seem likely to reflect actual changes. Monthly and seasonal records in Park W corresponded reasonably well with those of the same species reported in Nigeria (Elgood, Fry & Dowsett 1973). We expected to find more migrants, but observations in the Niamey area 150 km north of Park W showed that in the wet-season many African migrants occur well north of the park.

Palaeartic Migrants

Only 43 palaeartic migrants were recorded, many fewer than expected: in the inundation zone of the Niger, Curry & Sayer (1979) found 108 species.

ACKNOWLEDGEMENTS

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APPENDIX

Breeding activity, seasonal occurrence, and habitats in Park W, Niger, November 1975 to February 1978.

Nomenclature follows that of Serle & Morel (1978). Habitat categories 1 through 5 corresponds to the Niger River, Mekrou River, Tapoa River, woodlands and shrublands. s = sighting at seasonal waterhole.

Species	Nests in Park	Wet Season					Dry Season					Niger R.	Mekrou R.	Tapoa R.	Woodland	Shrubland	
		JUN	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR						APR
<i>Phalacrocorax africanus</i>							x	x	x	x	x			x	x	x	
<i>Anhinga rufa</i>		x			x	x	x	x	x	x	x	x	x	x	x	x	
<i>Pelecanus rufescens</i>										x				x			
<i>Ardea cinerea</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>A. melanocephala</i>							x	x	x			x	x	x	x		
<i>A. purpurea</i>					x	x	x	x	x	x	x			x	x	x	
<i>A. goliath</i>					x	x			x	x	x			x	x	x	
<i>Egretta alba</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>E. intermedia</i>											x					x	
<i>E. garzetta</i>		x	x		x		x	x	x	x	x	x	x	x			
<i>Ardeola ibis</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>A. ralloides</i>					x	x	x	x	x	x	x			x	x		
<i>Butorides striatus</i>	Jun	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Nycticorax nycticorax</i>										x	x	x		x	x		
<i>Ixobrychus minutus</i>		x	x	x	x	x	x	x	x	x	x	x	x	x			
<i>I. sturmi</i>						x				x							x
<i>Scopus umbretta</i>	Oct-Nov	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Ciconia episcopus</i>										x	x	x	x	x	x		
<i>C. abdimii</i>		x	x									x	x	x	x		
<i>Anastomus lamelligerus</i>										x	x	x	x	x			
<i>Ephippiorhynchus senegalensis</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Leptoptilos crumeniferus</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Ibis ibis</i>					x	x			x					x	x		
<i>Threskiornis aethiopicus</i>									x	x				x			
<i>Bostrychia hagedash</i>	Jun	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Anas querquedula</i>						x			x	x	x	x		x			
<i>Dendrocygna viduata</i>	Aug	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Nettapus auritus</i>					x	x								x			
<i>Sarkidornis melanotos</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Alopochen aegyptiacus</i>										x				x			
<i>Plectropterus gambensis</i>		x	x	x	x	x	x	x	x	x		x	x	x			
<i>Gyps ruppellii</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>G. africanus</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Trigonoceps occipitalis</i>	Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<i>Necrosyrtes monachus</i>		x	x	x	x	x	x	x	x	x	x	x	x		x	x	x

Species	Nests in Park	Wet Season					Dry Season					Niger R.	Mekrou R.	Tapoa R.	Woodland	Shrubland	
		JUN	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR						APR
<i>Falco biarmicus</i>	Mar	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>F. tinunculus</i>							x	x	x				x	x	x	x	
<i>F. naumanni</i>									x	x	x		x	x	x	x	
<i>F. ardosiaceus</i>	Jan	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>F. chicquera</i>		x								x	x					x	
<i>Elanus riocourii</i>										x	x	x				x	
<i>E. caeruleus</i>				x	x			x	x							x	
<i>Milvus migrans</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Aquila rapax</i>								x	x	x						x	
<i>A. wahlbergi</i>							x	x								x	
<i>Polemaetus bellicosus</i>							x	x	x	x	x	x				x	
<i>Hieraaetus spilogaster</i>		x	x		x											x	
<i>H. pennatus</i>									x	x		x				x	
<i>Kaupifalco monogrammicus</i>										x	x	x	x	x	x	x	
<i>Circaetus gallicus</i>							x	x						x	x		
<i>C. cinereus</i>							x	x	x	x						x	
<i>C. cinerascens</i>					x	x				x				x	x		
<i>Butastur rufipennis</i>			x		x		x				x	x	x	x	x	x	x
<i>Buteo auguralis</i>		x					x									x	
<i>Terathopius ecaudatus</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Haliaetus vocifer</i>	Dec-Jan	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Accipiter badius</i>	Feb	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Melierax metabates</i>										x	x	x	x				x
<i>M. gabar</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Polyboroides radiatus</i>										x	x		x			x	
<i>Circus macrourus</i>										x	x	x	x				x
<i>C. aeruginosus</i>					x		x	x	x	x						x	
<i>Sagittarius serpentarius</i>												x				x	
<i>Francolinus bicalcaratus</i>	Sept	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Ptilopachus petrosus</i>	Jun-July	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Numida meleagris</i>	Jun-July	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Limnecorax flavirostra</i>	Jun	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Porphyrio alleni</i>		x	x								x	x	x				
<i>Gallinula angulata</i>		x									x	x	x				
<i>Balearica pavonina</i>						x	x	x	x	x	x		x	x			
<i>Otis arabs</i>								x	x	x	x	x				x	
<i>Neotis denhami</i>							x	x	x	x	x	x				x	
<i>Eupodotis ruficrista</i>								x	x	x	x	x				x	
<i>E. melanogaster</i>	Sept	x	x	x	x	x	x	x	x	x	x	x				x	
<i>Burhinus senegalensis</i>						x	x	x	x	x	x	x	x	x	x	x	
<i>B. capensis</i>						x	x	x	x	x	x					x	
<i>B. vermiculatus</i>											x	x	x	x	x		
<i>Actophilornis africana</i>	Aug	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
<i>Microparra capensis</i>								x	x	x	x	x	x	x	x	s	
<i>Vanellus albiceps</i>							x	x	x	x	x	x	x	x			
<i>V. spinosus</i>	Jun		x				x	x	x	x	x	x	x	x	x		
<i>V. sengallus</i>		x	x	x	x		x	x	x	x	x	x				x	

Species	Nests in Park	Wet Season					Dry Season					Niger R.	Mekrou R.	Tappa R.	Woodland	Shrubland	
		JUN	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR						APR
<i>Cuculus gularis</i>		x	x	x	x							x	x	x	x	x	x
<i>Clamator levaillantii</i>		x	x		x	x							x				x
<i>Cuculus canorus</i>								x	x	x	x	x		x	x	x	x
<i>Chrysococcyx caprius</i>		x	x														x
<i>Centropus senegalensis</i>	Sept	x	x	x	x	x		x	x	x	x	x		x	x	x	x
<i>Caprimulgus inornatus</i>		x	x								x	x		x	x	x	x
<i>C. climacurus</i>			x							x					x	x	x
<i>Macrodipteryx longipennis</i>		x						x						x	x	x	x
<i>M. vexillarius</i>			x														x
<i>Apus affinis</i>						x			x		x			x	x	x	x
<i>Chaetura ussheri</i>								x	x		x				x	x	x
<i>Cypsiurus parvus</i>	Dec-Jan	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Coracias abyssinica</i>	Jun	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>C. naevia</i>		x	x	x	x			x		x	x	x	x				x
<i>C. cyanogaster</i>											x						x
<i>Eurystomus glaucurus</i>		x	x	x	x	x		x				x	x		x	x	x
<i>Upupa epops</i>	May	x	x		x			x	x	x	x	x	x	x	x	x	x
<i>Phoeniculus purpureus</i>	Feb	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>P. aterrimus</i>				x						x	x	x	x				x
<i>Ceryle rudis</i>	Dec	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Megaceryle maxima</i>	Dec	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Alcedo cristata</i>	Jul	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Ceyx picta</i>		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Halcyon senegalensis</i>	Jun	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>H. leucocephala</i>		x	x	x	x	x							x	x	x	x	x
<i>H. malimbica</i>		x	x					x	x	x	x	x	x	x	x	x	x
<i>H. chelicuti</i>										x							x
<i>Merops orientalis</i>		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>M. albicollis</i>								x					x				x
<i>M. nubicus</i>	Jan-Feb	x	x		x			x	x	x	x	x	x	x	x	x	x
<i>M. pusillus</i>			x						x	x	x	x	x				x
<i>M. bullocki</i>	Jan	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Tockus nasutus</i>	Mar	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>T. erythrorhynchus</i>	Dec	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Bucorvus abyssinicus</i>		x	x	x	x	x		x	x	x	x	x	x	x			x
<i>Lybius dubius</i>	Jun	x	x	x	x	x		x	x	x	x				x	x	x
<i>L. vieilloti</i>										x	x						x
<i>Pogoniulus chrysoconus</i>						x		x	x	x	x	x	x				x
<i>Indicator indicator</i>	Feb	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>I. minor</i>										x	x	x					x
<i>Campethera punctuligera</i>	Jun	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Dendropicos obsoletus</i>										x	x						x
<i>Mesopicos goertae</i>		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Jynx torquilla</i>										x							x
<i>Mirafra rufocinnamomea</i>											x	x					x
<i>Galerida cristata</i>											x	x	x				x
<i>Eremopterix leucotis</i>	Dec				x			x	x	x	x	x					x

<u>Species</u>	Nests in Park	<u>Wet Season</u>					<u>Dry Season</u>					Niger R.	Mekrou R.	Tapoa R.	Woodland	Shrubland		
		JUN	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR						APR	MAY
<i>Vidua chalybeata</i>			x		x										x	x	x	x
<i>V. funerea</i>				x	x	x		x	x	x	x				x	x	x	x
<i>V. macroura</i>			x			x							x	x	x	x	x	x
<i>V. orientalis</i>						x	x			x	x	x			x	x	x	x
<i>Lonchura malabarica</i>	Jan		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Amadina fasciata</i>									x	x	x	x	x		x	x	x	x
<i>Pytilia phoenicoptera</i>			x	x	x			x	x	x	x	x		x	x	x	x	x
<i>P. melba</i>				x	x				x	x	x	x		x	x	x	x	x
<i>Lagonostica senegala</i>	Aug		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>Estrilda caerulescens</i>			x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>E. larvata</i>						x			x	x	x	x	x	x	x	x	x	x
<i>E. troglodytes</i>	Aug		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
<i>E. melpoda</i>									x	x	x	x			x	x	x	x
<i>E. bengala</i>	Jul		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x

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