

Wetland birds and conservation in Namibia: an overview

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Received July 1990; accepted August 1990

ABSTRACT

Of Namibia's 620 bird species, 27% are wholly dependent upon wetlands, and a further 11% on riverine vegetation. A high proportion of these species are potentially endangered within Namibia. Man-made wetlands are little compensation for the loss of richer natural wetlands and riverine vegetation. Priorities for the future conservation of wetland birds in Namibia are preservation of wetland habitats - with full protection of key areas and insistence on full impact assessment on all proposed development of wetland habitat, reduction of the disturbance of breeding colonial birds and monitoring of, and control over, levels of hunting and the use of toxic chemicals.

INTRODUCTION

Wetland birds are here considered to be those species whose individuals are dependent upon wetlands for their food. Of the 620 species of birds which have been recorded within Namibia and the adjacent marine area, 167 species (27%) are wetland birds according to this definition (Williams 1986). A further 70 bird species (11%) are partially dependent upon wetlands, or wetland-associated vegetation, notably riverine woodland.

ESTABLISHED CONSERVATION STATUS

The current conservation status of wetland birds is best evaluated in terms of endemism and Red Data assessment. There are no species of wetland birds endemic to Namibia. One species, the slaty egret *Egretta vinaceigula*, may be a "near-endemic" - that has more than 60% of its global breeding population within Namibia. Of the 176 species which appear in the list of Red Data birds for Africa and related islands (Collar & Stuart 1985) five species occur in Namibia of which two, the wattled crane *Grus carunculata* and the slaty egret, are wetland birds. On a national scale, the conservation status of each bird species, excluding wholly pelagic species, has been evaluated (Williams & Brown 1985). Of the 124 species which are considered national Red Data species, 35 (28%) are wetland birds. Of the the priority Red Data species, those which merit immediate and special conservation concern, 17 (53%) are wetland birds (Table 1).

Table 1: Wetland species listed within the top 30 bird species most in need of conservation attention within Namibia (Williams & Brown 1985).

Species	Scientific name
great crested grebe	<i>Podiceps cristatus</i>
blacknecked grebe	<i>Podiceps nigricollis</i>
great white pelican	<i>Pelecanus onocrotalus</i>
whitebacked night heron	<i>Gorsachius leuconotus</i>
saddlebilled stork	<i>Ephippiorhynchus senegalensis</i>
greater flamingo	<i>Phoenicopterus ruber</i>
lesser flamingo	<i>Phoenicopterus minor</i>
wattled crane	<i>Grus carunculata</i>
crowned crane	<i>Balearica regulorum</i>
African finfoot	<i>Podica senegalensis</i>
chestnutbanded plover	<i>Charadrius pallidus</i>
rock pratincole	<i>Glareola nuchalis</i>
greyheaded gull	<i>Larus cirrocephalus</i>
caspian tern	<i>Sterna caspia</i>
whiskered tern	<i>Chlidonias hybridus</i>
African skimmer	<i>Rhynchops flavirostris</i>
Pel's fishing owl	<i>Scotopelia peli</i>

THE IMPORTANCE OF WETLANDS TO DRYLAND BIRDS

A large number of other bird species, in addition to the "wetland birds" defined above, make extensive use of wetlands in Namibia. For example, many birds drink at wetlands, including sandgrouse which soak up water to carry to their young, and availability of water may limit their distribution. Many weavers and swallows which forage over drylands by day, fly to roost in reedbeds or other thick wetland vegetation. Some species of weavers build their nests hanging over water but forage away from water. There are a number of species which, under natural conditions would be restricted to the vicinity of wetlands for nesting. These include swallows which build their nests with mud pellets and bee-eaters, and some kingfishers, which require a combination of stream-eroded banks in soft alluvial deposits to enable them to dig their nest burrows. Importantly, in the semi-arid areas of central and southern Namibia, the majority of bush or tree-nesting species are concentrated along water courses which support the only tall or thick vegetation. Riverine vegetation is of critical importance for many species in northern Namibia and a high proportion of the nation's Red Data species are dependent upon riverine vegetation. Thus conservation of wetlands in their broadest sense will benefit not merely wetland birds *per se* but a wide variety of other species.

Man-made wetlands

Many people believe that man's creation of some 400+ dams in Namibia, which range in size from reservoirs to small farm impoundments, has or will compensate for lost natural wetlands. This is false thinking. Certainly dams provide foraging areas for many wetland species but they do not provide the suitable breeding areas found in shallow, natural wetlands. Currently, the only artificial wetland with a nationally important breeding population of wetland birds is the Hardap reservoir. There the artificial flooding of the area around a former rocky hill has created an island in deep water which supports breeding populations of great white pelicans *Pelecanus onocrotalus*, goliath herons *Ardea goliath* and African spoonbills *Platalea alba*. This island merits special protection and this should be emphasized in the Master Plan for the Hardap Nature Reserve. The only other important obvious change wrought by the larger dams is the provision of safe, deep, areas where Egyptian geese *Alopochen aegyptiacus* and redknobbed coot *Fulica cristata* can moult in safety from predators. Formerly, in order to moult, most of these birds migrated to distant wetlands in the Transvaal or southwestern Cape provinces of South Africa (Siegfried 1967; Winterbottom 1971; Skead 1980).

THREATS TO WETLAND BIRDS

Habitat degradation

The greatest threat is that which is least noticeable. This is regional habitat degradation. In the communal areas this involves disturbance by humans or their stock, and in particular destruction of vegetation. Vegetation is destroyed by trampling by both man and stock, by clearance for agriculture, and by collection of wood for burning or for use in construction. In fenced farmlands such habitat degradation involves overgrazing and bush clearance, both of which reduce water retention and lead to increased runoff accompanied by high sediment loading. Clogging of wetlands results, and with it reduced ground water absorption and increased seasonality of water availability. These factors are all detrimental to wetlands in general and wetland birds in particular.

Habitat degradation is most serious in habitats which are rich in species and whose original natural extent within Namibia was limited. Such areas affected include the riverine woodlands of Kavango and East Caprivi. These woodlands support about 50 avian species which occur nowhere else in Namibia.

Such is the habitat degradation of riverine woodland on the Namibian bank of the Kavango River that a number of large birds for which this habitat is critical - western banded snake eagle *Circaetus cinerascens*, Pel's fishing owl *Scotopelia peli*, wood owl *Strix woodfordii* and emerald cuckoo *Chrysococcyx cupreus* - are no longer to be found along most of the 400 km of Namibian river-frontage (Brown & Hines 1987). Currently these species occur in Kavango only in small protected areas, notably the Mahango Reserve. In the West Caprivi area, for example, 54% of the riparian bird species are listed as candidates for the Red Data Book (Williams & Brown in prep.), compared to 10% of birds in adjacent dry woodland (Brown 1990).

Toxic chemicals

The degree of pollution of Namibian wetlands by toxic chemicals, and particularly the effect this has on wetland birds, is under study. Although most of the input of chemicals is carried out within this country it must be borne in mind that chemicals may reach Namibian wetlands from adjacent countries, notably Angola, Zambia, and Botswana.

Lesser flamingo *Phoenicopterus minor* and great white pelican eggs from Etosha were found to be contaminated with halogenated carbons in the early 1970s (Berry 1972; Berry et al. 1973). A current study conducted by C. Brown is assessing levels of contamination in wetland birds over wider regions of the country.

Development works

Developments which may cause major local alteration of wetland conditions e.g. the building of large dams across water courses, construction of roads across floodplains, should all be carried out only after thorough environmental impact assessments.

At Walvis Bay, impoundment of former inter-tidal flats has created much new habitat favourable for some wetland birds. However, the access road to the saltworks cut off additional intertidal areas which have subsequently dried out to the detriment of these birds (Williams 1987; Ward 1989).

Hunting

Sport or trophy hunting of wetland birds is currently of only minor importance in Namibia. Formerly regulations permitted hunting of any (wild) duck or goose and so legally it was possible to hunt rare or endangered species. This situation has been remedied by alteration of the regulations to clearly state which species may be hunted, and by provision of a field guide to huntable species which is issued to sportsmen (Anon 1988).

Hunting for the pot is not regulated. Though we have no data on the scale of such hunting, it is likely to far exceed sport-hunting in its effects. It is particularly prevalent in the communal areas, notably in East Caprivi. The disturbance which accompanies such hunting - both through sudden shots and by movement of men and dogs through riverine or wetland vegetation - may be detrimental to other protected wetland species.

Aliens

There are no alien wetland birds in Namibia nor is there any direct evidence to indicate that alien plants in wetland situations have had any adverse effect upon wetland birds in Namibia. However, it is known that the alien plant *Salvinia* ties up nutrients in wetlands and so causes a lowering of productivity which itself may affect wetland bird number (Hines et al. 1985).

Several wetlands in Namibia have alien fish species (Holtzhausen, this volume) but we know of no definite threats to wetland birds posed by these fish.

Wetland birds as pests

Where substantial artificial dams create regionally large populations of Egyptian geese the geese may become a local pest if they move onto adjacent arable land to feed. Similarly, weavers or lovebirds, whose numbers have increased through provision by man of appropriate habitat and water, may become local pests of adjacent arable crops. In all cases these are local problems of generally minor importance and are best solved on a case by case basis, following scientific investigation of the situation.

Disturbance

Many wetland birds breed in colonies. Disturbance of such colonies can often lead to massive breeding failure. Low flying aircraft can be an important cause of disturbance and could lead to breeding failure of the large colonies of flamingos and pelicans when these occur at Etosha Pan and at Lake Oponono, in southern Owamboland (Lindeque & Archibald, this volume). This form of disturbance could be reduced through an awareness programme aimed at pilots, with an increase in public relations when avian breeding is expected. This must be backed by legislation where necessary.

Human disturbance of breeding colonies is an important cause of breeding failure. Coastal wetland birds are particularly vulnerable. For example, in 1986 a large colony of Hartlaub's gulls *Larus hartlaubii* and swift terns *Sterna bergii*, both national Red Data species, failed at Lüderitz after excessive human disturbance (Komen et al. 1986).

CONSERVATION ON AN INTERNATIONAL SCALE

Birds are the most mobile of animals. In highly migratory or nomadic species critical nonbreeding areas may be widely

separated from breeding areas. The conservation of such species emphasises the need for international cooperation. Separation of breeding and critical nonbreeding areas is especially well marked in many wetland species which occur in Namibia.

Flamingos, which periodically breed in vast numbers at Etosha Pan (Berry 1972), and which present one of the principal reasons for protecting the actual pan area, move to the Makadikadi Pans of Botswana in years when there is water there but not in Etosha Pan. In the dry season, and through drought years, most of the population moves to wetlands along the Namib coast, notably to wetlands in the South African enclave of Walvis Bay (Williams 1987, 1988). Other species with similar needs and movements, and internationally important nonbreeding concentrations at wetlands along the Namib coast, are the blacknecked grebe *Podiceps nigricollis* and the chestnut banded plover *Charadrius pallidus* (Williams 1987, 1988).

Some species, for example the whiskered tern *Chlidonias hybridus* and openbilled stork *Anastomas lamelligerus*, breed in internationally important numbers in the seasonally flooded wetlands of Bushmanland (Hines in press, pers. obs.), and probably Owamboland. During the local dry season they migrate northwards to north-central Africa for the wet season there (Snow 1978).

Internationally significant populations of several species of shorebirds which breed in huge tundra reserves in Arctic Russia and Siberia pass the long northern winter at the few wetlands along the Namib coast (Whitelaw et al. 1977; Williams 1988).

The function of many of our wetlands as critical localities for the global conservation of some species is perhaps the most important lesson to be learnt from this consideration of wetland birds and their conservation situation.

By far the most critical inland wetland in the southern half of the country is the Fish River system. The permanent and longterm semi-permanent pools of this system, and the adjacent wetland associated vegetation, form a marked contrast to the surrounding semi-desert. Together they form a linear oasis which is followed by some wetland birds - notably the African black duck *Anas sparsa* and squacco heron *Ardeola ralloide*. It is also critical for species dependent upon the wetland associated vegetation e.g. the Cape robin *Cossypha caffra*, olive thrush *Turdus olivaceus* which move via the Fish River between the east-west linear oasis of the Orange River and the pools of the Naukluft Mountains. The Cape white-eye *Zosterops pallidus* has apparently used this route to reach the Kuiseb River system and so spread via that linear oasis to the Namib coast.

PRIORITIES FOR FUTURE ACTION

Surveys

The situation of wetland birds within the northern communal areas is inadequately known, so sound assessments of their status cannot currently be made. Given the increasing population pressures on these wetlands, surveys of the distribution and overall population size of wetland associated birds (including those dependent upon riverine vegetation) are urgently needed, especially in East Caprivi and in Kavango.

Those parts of Bushmanland which flood extensively in years of average rainfall support subcontinentally significant numbers of wetland birds (Hines, in press). Evidence suggests that flooded areas of southern Owamboland may be similarly important (Winterbottom 1969; Williams & Archibald 1990; Lindeque

& Archibald this volume). Steps should be taken as soon as possible to conserve these wetlands. Surveys are required of the status of wetland birds in both these wetland areas through a period of above average rainfall.

Registration of areas of established importance

Wetlands of proven international importance - Etosha Pan, and the coastal wetlands of Sandwich Harbour and Cape Cross should be given special conservation attention and, to improve their longterm conservation standing, should all be registered under the international Ramsar Convention for the conservation of wetlands.

Environmental impact assessment

Whenever wetlands are subject to large-scale human alteration through development, environmental impact assessments must be made of the likely effects of the alteration and these should consider wetland birds as an indicator component. Where feasible, such assessments should determine ways in which wetland alteration can be minimised. Conducting environmental impact assessments should be a firmly established policy, indeed a legal requirement, of the Namibian Directorate of Wildlife, Conservation and Research.

REFERENCES

- ANON. 1988. Guide to huntable birds in Namibia. Windhoek: SW Africa/Namibia Directorate of Nature Conservation.
- BERRY, H. 1972. Flamingo breeding on the Etosha Pan, South West Africa, during 1971. *Madoqua*, Ser. 1, 5: 5-31
- BERRY, H.H., STARK, H.P. & VAN VUUREN, A.S. 1973. White Pelicans *Pelecanus onocrotalus* breeding on Etosha Pan, South West Africa, during 1971. *Madoqua*, Ser. 1, 7: 17-31.
- BROWN, C.J. & HINES, C.J.H. 1987. Western banded snake eagles in Namibia. *Gabar* 2: 40-42.
- BROWN, C.J. 1990. Birds of the West Caprivi Strip, Namibia. *Lanioturdus* 25: 22-37.
- COLLAR, N.J. & STUART, S.N. 1985. Threatened birds of Africa and related islands. Cambridge U.K.: ICBP/IUCN.
- HINES, C.J.H. In press. The temporary wetlands of Bushmanland and Kavango, northeastern Namibia. *Madoqua*.
- HINES, C.J.H., SCHLETTWEIN C.H.G. & KRUGER, W. 1985. Invasive alien plants in Bushmanland, Owambo, Kavango and Caprivi. In: Brown, C.J. Macdonald, I.A.W. & Brown, S.E. Invasive alien organisms in South West Africa/Namibia. C.S.I.R. *S. Afr. Nat. Sc. Prog. Rpt.* 119: 6-12.
- HOLZHAUSEN, J.A. 1991. Freshwater fishes of Namibian wetlands - a review. *Madoqua* 17: 189-191.
- KOMEN, J., WILLIAMS, A.J. & MYER, E. 1986. Hartlaub's gulls and swift terns at Lüderitz: a conservation problem. *Lanioturdus* 22: 3 & 10-12.
- LINDEQUE, M. & ARCHIBALD, T.J. 1991. Seasonal wetlands in Owambo and Etosha National Park. Simmons, R.E., Brown, C.J. & Griffin, M. (Eds.). The status and conservation of wetlands in Namibia. *Madoqua* 17: 129-133.

- SIEGFRIED, W.R. 1967. Trapping and ringing of Egyptian geese and African shelduck at Vogelvlei, Cape. *Ostrich* 38: 173-178.
- SKEAD, D.M. 1980. Recovery distribution of Redknobbed coots ringed at Barberspan. *Ostrich* 52: 126-128.
- WARD, J.D. 1989. Comments on the geomorphology of Walvis Lagoon and environs. Windhoek: Geological Survey of Namibia.
- WILLIAMS, A.J. 1986. Popular checklist of the birds of South West Africa/Namibia. Windhoek. Directorate of Nature Conservation.
- WILLIAMS, A.J. 1987. Conservation management of the Walvis Bay wetland with particular reference to coastal bird numbers and their conservation significance. Walvis Bay: Printed by Walvis Bay Round Table 36.
- WILLIAMS, A.J. 1988. Walvis Bay and other coastal gems. *African Wildlife* 42: 82-85.
- WILLIAMS, A.J. & ARCHIBALD, T.J. 1990. Crowned cranes and other wetland birds of the Ekuma River and Etosha National Park. *Lanioturdus* 25: 61-63.
- WILLIAMS, A.J. & BROWN, C.J. 1985. A policy for bird conservation in South West Africa/Namibia. Evaluation of conservation priorities for bird species. Windhoek: Unpublished report, Directorate of Nature Conservation.
- WINTERBOTTOM, J.M. 1969. Water birds in Ovamboland. *Ostrich*. 40: 27-28.
- WINTERBOTTOM, J.M. 1971. A preliminary checklist of the birds of South West Africa. Windhoek: SWA Scientific Society.