Numbers and conservation importance of coastal birds at the Cape Cross Lagoons, Namibia

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ABSTRACT

Six counts of coastal birds (excluding cormorants) at the Cape Cross lagoons during 1984-1986 indicate that these wetands support between 3 000 and 7 500 birds of 30 species at any time. Peak numbers per species indicate that the total number of birds exceeds 11 000 of which most (6 000) are intra-African migrants. Palaearctic migrants number 4 000, and resident species about 600. The counts show that the lagoons support between 6% and 16% of the nonbreeding population of the endemic southern African race of the blacknecked grebe *Podiceps nigricollis gurneyi* and between 1% and 3% of the subcontinental populations of both greater flamingos *Phoenicopterus ruber* and lesser flamingos *P. minor*. Artifical guano platforms in the lagoons support 14% of the world breeding population of the Cape cormorant *Phalacrocorax capensis*. The Cape Cross laagoons therefore qualify for registration under the international Ramsar Convention on wetlands. Some recommendations are made for conservation of the lagoonal avifauna.

INTRODUCTION

The Namib Coast, the 1 600 km coastline between the Cunene and Orange Rivers on the Atlantic coast of southern Africa, is for most of its length a narrow beach strip between the Namib Desert and the sea. Sheltered intertidal areas suitable for waders (charadrii) form less than 1% of the Namib Coast. In addition, there are three non-tidal permanent wetlands which offer appropriate feeding conditions for waders and other coastal birds. These are the natural lagoons at Cape Cross, the subject of this article, and the artificial saltworks at Walvis Bay and Swakopmund.

Two groups of coastal birds use the natural lagoons at Cape Cross. Seabirds breed or roost on the artificial guano platforms or roost on, and to a limited extent feed in, the lagoons. Other wetland species forage in the lagoons. The number of seabirds on the guano platforms has been documented in the 1950s (Rand 1952, 1963) and in 1978 (Cooper et al. 1982; Brooke et al. 1982; Crawford 1982). The number of nonbreeding wetland birds remains poorly documented. The only published record of their numbers is of about 6 500 birds of 15 species recorded there in December 1977 (Whitelaw et al. 1978).

Here I present data obtained during six counts of the numbers of coastal birds (excluding cormorants) at these lagoons in 1984-1986 and comment on the importance of the lagoons for the conservation of coasal birds.

STUDY AREA AND METHODS

The Cape Cross Lagoons are situated at 21° 45'S; 13° 50' E on the coast of Namibia (Fig. 1). Longshore drift of sediments from south to north along the coast has led to the formation of a sand barrier across what was formerly a coastal embayment just south of the rocky promontory of Cape Cross. The inner part of the embayment remains as a series of saline lagoons. These receive water from the sea by seepage through the sand barrier and, during extreme high tides or storms, by water washed over the sand barrier. The lagoons vary somewhat in size and number in relation to the water level. Two main factors control water level. The degree of evaporation and the amount of seawater input. It is not possible to give a precise total surface area for the lagoons because of this variation in water level. The lagoons extend some 10 km, and are from 100 m to 1 000 across, representing an area of approximately 5 km^2.

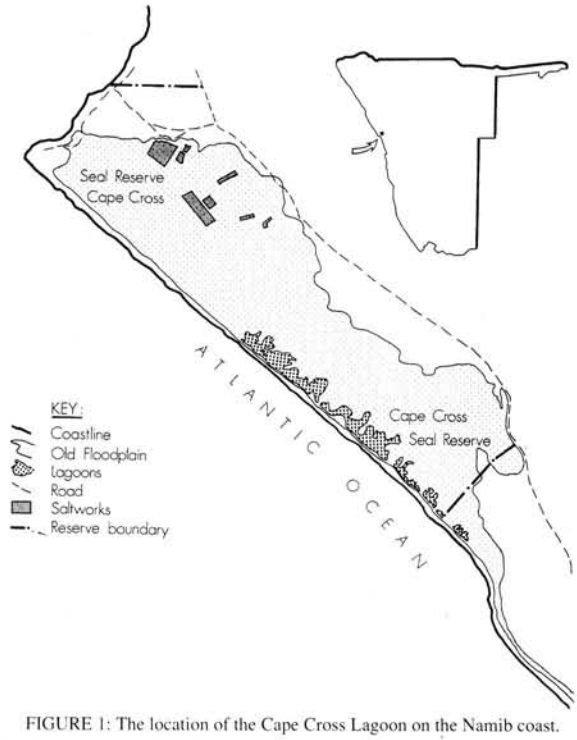

FIGURE 1: The location of the Cape Cross Lagoon on the Namib coast.

Desiccation of the eastern borders of the embayment has produced sterile salt pans and flats. These salt deposits are worked commercially on a small scale. Wooden platforms with a total area of 68 000 m^2 have been erected in some of the lagoons to provide roosting and breeding places for cormorants whose guano is then harvested (Rand 1952, 1963). To prevent undue disturbance to the birds on the guano platforms, human access to the area is restricted.

The number of birds at the lagoonal wetlands was counted in August 1984, June 1985, and in 1986 on February 8, August 13, September 27 and November 2. Counts were made during the morning but at no set time. The time of counting is unlikely to affect the numbers of most of the species which feed primarily in the wetland. The numbers of seabirds, which feed mainly away from the lagoons, is affected by time of day and by tidal and sea conditions.

Counts at Cape Cross lagoons were made on an *ad hoc* basis when logistically feasible. Three were made in the austral winter,

TABLE 1: Numbers of coastal birds at the Cape Cross Lagoons

Species	Jan* 1977	Feb 1986	June 1985	Aug 1984	Aug 1986	Sept 1986	Nov 1986	Max Count
INTRA-AFRICAN MIGRANTS								
blacknecked grebe *Podiceps nigricollis*	2 187	1	892	835	857	792	420	2 187
greater flamingo *Phoenicopterus ruber*	1 158	861	640	1 234	837	1 961	1 855	1 961
lesser flamingo *Phoenicopterus minor*	1 435	720	681	659	913	783	619	1 435
Cape teal *Anas capensis*	518	217	195	161	362	574	656	656
chestnutbanded plover *Charadrius pallidus*	0	9	9	0	6	19	28	28
avocet *Recurvirostra avocetta*	3	1	40	7	31	20	59	59
Total intra-African migrants	5 301	1 809	2 457	2 896	3 006	4 149	3 637	6 326
PALAEARCTIC MIGRANTS								
ringed plover *Charadrius hiaticula*	3	0	4	0	0	1	3	4
grey plover *Pluvialis squatarola*	15	18	0	5	4	34	19	34
turnstone *Arenaria interpres*	13	80	5	1	8	91	18	91
marsh sandpiper *Tringa stagnatilis*	0	1	0	0	0	0	2	2
greenshank *Tringa nebularia*	1	2	0	0	0	0	0	2
knot *Calidris canutus*	5	288	0	0	1	25	0	288
curlew sandpiper *Calidris ferruginea*	597	1 126	65	111	1 059	1 431	783	1 431
little stint *Calidris minuta*	210	658	0	1	0	374	0	658
sanderling *Calidris alba*	11	324	1	0	0	391	135	391
ruff *Philomachus pugnax*	17	41	0	1	1	29	17	41
sandwich tern *Sterna sandvicensis*	0	23	11	20	0	4	0	23
common tern *Sterna hirundo*	0	7	6	446	0	1	0	446
whitewinged tern *Chlidonias leucopterus*	0	1	1	0	0	0	0	1
Wilson's phalarope *Phalaropus tricolor*[1]	0	1	0	0	0	1	1	1
Total Palaearctic migrants	872	2 570	93	585	1 073	2 382	978	3 413
COASTAL BREEDING SPECIES								
great white pelican *Pelecanus onocrotalus*	0	0	4	0	0	0	0	4
whitefronted plover *Charadrius marginatus*	28	70	84	4	14	82	25	84
threebanded plover *Charadrius tricollaris*	0	3	0	0	2	6	2	6
kelp gull *Larus dominicanus*	292	241	286	74	97	115	262	292
Hartlaub's gull *Larus hartlaubii*	0	192	1	65	0	13	1	192
greyheaded gull *Larus cirrocephalus*	0	6	0	0	0	0	0	6
swift tern *Sterna bergii*	0	3	7	22	2	0	0	22
Damara tern *Sterna balaenarum*	0	6	0	0	0	0	3	6
Total coastal breeding species	320	521	382	165	115	216	293	612
GRAND TOTAL OF ALL SPECIES	6 493	4 900	2 932	3 646	4 194	6 747	4 908	10 351

Notes * Count by Whitelaw et al. (1978)
[1] Identification of the Nearctic vagrant confirmed [S.A.O.S. subcontinental rare birds committee (Hockey et al. 1988]).

when maximum numbers of intra-African migrants (see below for definition) could be expected. Two counts were made in the austral summer, and complement the previous count by Whitelaw et al. (1978), and the September count was made during the period of southward movement by Palaearctic migrants. The early and mid 1980s was a period of below average rainfall over southwestern Africa. This will have depleted the numbers of those wetland birds which breed in the affected area.

All counts in 1984-1986 were made using 10x40 binoculars and a 15-60x60 telescope from the western edge of the lagoons while moving from south to north by car. The western side was used because it was possible to drive close to the lagoons; this was the only way to establish the number of birds in the saltmarsh vegetation which exists only on the western side of the lagoons. The eastern banks are more varied in shape, shallower, and more salty, all of which makes close approach to the lagoon by vehicle impossible. There were two drawbacks to counting from the western side: the distance across the lagoons often made small waders on the eastern side unidentifiable; and observers looked directly towards the sun. Each count took three to four hours.

RESULTS AND DISCUSSION

Overall numbers

The number of birds of each species recorded in each count between 1984 and 1986 is compared with the single previous count, made in 1977 in Table 1. The number of coastal birds, excluding cormorants, recorded during the six counts ranged between 3 000 and 7 550. The maximum single count of each species (column 8 in Table 1) indicates that the lagoons support up to 11 000 coastal birds.

Intra-African migrants

Intra-African migrants which use the Namib coast are species which breed inland in Namibia or Botswana on seasonally flooded, and often saline, pans but which mostly move to the coast during the dry season when the inland pans dry up.

The overall numbers of intra-African migrants during the six counts at Cape Cross lagoons ranged between 1 800 and 5 300.

Maximum single counts indicate the the lagoons support a total population of up to at least 6 325 migrants (Table 1) or 56% of all coastal birds using the lagoons.

Total numbers of intra-African migrants were higher in 1977 than during any count in the mid 1980s. There are two likely, and not necessarily exclusive, reasons for this. First, populations of intra-African migrant species were probably higher in 1977 following good rainfall years in the mid 1970s. Numbers presumably fell through subsequent years due to below average rainfall between the late 1970s and in the mid 1980s when breeding conditions were suboptimal. Second, these birds breed inland during the rainy season, between January and March (Van der Merwe 1983). Numbers could have been high in December 1977 if birds gather in the north of their coastal range in the earliest phase of the rainy season prior to migration inland.

The Cape Cross lagoons are most important for the blacknecked grebe *Podiceps nigricollis*. The estimated world population of the southern African endemic race *P.n. gurneyi* is 14 000 individuals (Cooper & Hockey 1981; Namibian Directorate of Nature Conservation [NDNC] unpublished data). The peak lagoon population of 2 187 in 1977, represents almost 16% of the world population of this subspecies. The 800-900 birds of the mid 1980s represent about 6%.

The late 1970s to mid 1980s southern African population of the greater flamingo *Phoenicopterus ruber* was about 60 000 birds, and that of the lesser flamingo *P. minor* was 55 000 (Cooper & Hockey 1981, NDNC unpubl. data). The lagoons at Cape Cross regularly support between 1% and 3% of the subcontinental population of greater flamingoes and 1% and to 2% of the lesser flamingo population. It is usual for the lagoons to support more greater than lesser flamingoes.

The population of Cape teal *Anas capensis* which uses wetlands along the Namib Coast is about 3 000 birds (NDNC unpubl. data) and the Cape Cross lagoons support between 5% and 22% of the coastal population.

The Namib Coast population of chestnutbanded plovers *Charadrius pallidus* exceeds 6 000 birds (NDNC unpubl. data). Surprisingly few occur at the Cape Cross lagoons, even making generous allowance for the inevitable undercounting which results because most individuals frequent the eastern banks and more saline areas of the lagoons.

Palaearctic migrants

Many birds which breed in northern Europe and Asia migrate to Africa to avoid the harsh boreal winters. Of these Palaearctic migrants, some 112 000 waders (Charadrii) reach the Namib Coast (NDNC unpubl. data). The number of Palaearctic waders at Cape Cross lagoons varies between 160 and 3200 birds (Table 1). Low numbers occur from June to August, when breeding birds are absent and only birds of presumed prebreeding age or condition remain. Maximum counts indicate a total usage by 4 200 birds (Table 1) or 3% of the regional population. The lagoons are therefore the eighth most important locality, in terms of numbers of birds supported, for Palaearctic waders along the Namib Coast.

Curlew sandpipers *Calidris ferruginea* are the most numerous of the Palaearctic migrants. The 1986 number of prebreeding birds, over 1 000 in August (Table 1), was remarkably high and followed an exceptionally good breeding season in 1985 (Underhill 1986). During the peak count in September 1986, 3.7% of the calculated Namib coast population was present in the lagoons (NDNC unpubl. data). This peak was apparently the result of an influx of returning migrants in addition to the already unusually large prebreeding population based at the lagoons. The generally lower numbers recorded later in the season suggest that most curlew sandpipers use this area only as a stop-over during their southward migration to wetlands in South Africa.

Other Palaearctic waders whose numbers at the Cape Cross lagoons are regionally significant are: ruff *Philomachus pugnax*, 7,7% of the Namib Coast population; little stint *Calidris minuta* 7.2%; knot *Calidris canutus*, 5%; and sanderling *Calidris alba*, 3.6% (NDNC unpubl. data).

Resident coastal species

The Cape Cross Lagoons support between 115 and 575 resident birds (excluding cormorants) belonging to seven species which breed along the Namib Coast. Two of these species, whitefronted plover *Charadrius marginatus* and kelp gull *Larus dominicanus* occur throughout the year. The other species are erratic in their occurrence at the lagoons. For two species, Hartlaub's gull *Larus hartlaubii* and swift tern *Sterna bergii*, the lagoons and the adjacent Cape Cross promontory form the northern limit of their regular range along the Atlantic coast of Africa (Whitelaw et al. 1978; Ryan et al. 1984).

Only three species of bird have been found breeding at the lagoons: the Cape cormorant *Phalacrocorax capensis*, whitebreasted cormorant *P. carbo*, and kelp gull. These all breed on the guano platforms safe from any depredations by the many blackjacked jackals *Canis mesomelas* which are attracted to the area. Jackals are supported there by the large (100 000 adults) colony of Cape fur seals *Arctocephalus pusillus* which extends along the beach south of Cape Cross (Nel & Loutit 1986; Hiscocks & Perrin 1987). In June 1985, a pair of avocets *Recurvirostra avosetta* were seen making a nest-scrape on a tiny islet in one of the southerly lagoons but breeding was not confirmed. It is probable that whitefronted plovers breed on the sand barrier between the lagoons and the sea.

In 1978, 30 600 pairs of Cape cormorants or 13.5% of the world population (Cooper et al. 1982) 68 pairs of whitebreasted cormorants (Brooke et al. 1982), and 133 pairs of kelp gulls of 1.2% of the world population of the southern African endemic subspecies *L.d. vetula* (Crawford et al. 1982) bred on the guano platforms in the lagoons. During the 1984-1986 counts the only breeding cormorants observed were 15 pairs of whitebreasted cormorants in September 1986. Some kelp gulls had begun breeding on the platforms on 2 November 1986. Since not all birds likely to breed there would have laid by that date (Williams et al. 1984), no count of nests was made.

Nearctic vagrant

Wilson's phalaropes *Phalaropus tricollaris* breed inland in North America and migrate to contranuptial quarters in South America. They have rarely been identified in Africa and are a true vagrant to the continent. The sightings of single Wilson's phalaropes reported at the lagoons in February, September and November 1986 may be records of the same individual (A.J. Williams in Hockey et al. 1988). The only previous record of this species along the Namib Coast is of a single bird at Swakopmund in April 183 (Sinclair et al. 1984).

Passerines

Only four other bird species have been recorded at the lagoons

during the 1984-1986 counts. Seen during each count were small flocks of redcapped larks *Calendrella cinerea*, single tractrac chats *Cercomela tractrac* and Cape wagtails *Motacilla capensis*. A single black crow *Corvus capensis* was seen in September 1986. All four species were near the saltmarsh vegetation.

Conservation importance

The internationally accepted standard measure of the importance of a wetland (the Cagliari criteria ([Lyster 1985]) is whether the wetland regularly supports:

- 10 000 waterfowl or coots; or 20 000 waders; or
- 1%of the breeding pairs in a population of one species or subspecies of waterfowl; or
- 1% of the individuals in a population of a species or sub-species of waterfowl; or
- supports an appreciable number of rare, vulnerable or endangered species or subspecies; or
- the site is a particularly good example of a specific type of wetland.

Fulfilment of one, or preferable more, of these categories indicates that the wetland should be considered for registration under the international Ramsar Convention. In a local context, "population" should be considered as the southern African subcontinental population.
The Cape Cross lagoons at times support 13.7% of the world population of the Cape cormorant, consistently support between 6% and 16% of the world population of the subspecies *(gurneyi)* of the blacknecked grebe, 1.3% of the breeding population of the subspecies *L.d. vetula* of the kelp gull, and between 1% and 3% of the subcontinental populations of greater and lesser flamingoes. The lagoons thus fulfill the Cagliari criteria for five waterfowl species.

Bird species which have been evaluated as of special conservation concern within Namibia (to be treated in the national Red Data Book) and which regularly occur at the lagoons are: blacknecked grebe, greater flamingo, lesser flamingo, chestnutbanded plover, Cape cormorant, Hartlaub's gull, and swift tern (Williams & Brown 1985).

The Cape Cross lagoons are the only large, natural and permanent non-tidal wetlands along the Namib Coast. The lagoons should, therefore, be preserved in as near natural conditions as possible, at least until investigations have compared the biota there with that in the tidal wetlands of the Namib Coast.

Currently the lagoons receive adequate protection and are perhaps the least disturbed of all the wetlands along the Namib Coast. They have importance as a near natural saline system which can be compared with the heavily managed saltwork systems at Swakopmund and Walvis Bay.

I recommend that:

(i) The importance of the Cape Cross Lagoons to wetland birds be officially recognised both locally and internationally;
(ii) the lagoons be registered as a wetland of international importance under the Ramsar Convention;
(iii) Further human commercial development of the area be restricted to activities compatible with maintenance of wetlands and coastal bird populations;
(iv) Limited public access to the lagoons for educational/interpretative purposes be provided; and
(v) Research into the ecology of the lagoons be encouraged.

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