CAPE CORMORANT | *Phalacrocorax capensis*

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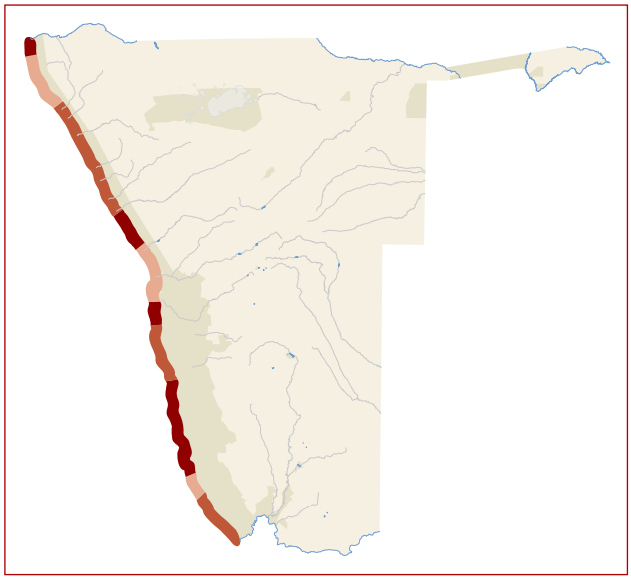
Conservation Status:	Endangered
Southern African Range:	Coastal and inshore waters of Namibia, South Africa
Area of Occupancy:	105,700 km^2
Population Estimate:	57,400 breeding pairs in Namibia
Population Trend:	Decreasing
Habitat:	Coastal islands and rocks, protected mainland sites, guano platforms, lagoons, coastal marine waters
Threats:	Lack of good quality prey, extreme environmental fluctuations, disturbance, pollution from oiling, disease, predation, entanglement in human debris



DISTRIBUTION AND ABUNDANCE

The Cape Cormorant breeds between southern Angola and Nelson Mandela Bay, Eastern Cape Province, South Africa (du Toit *et al*. 2003, Simmons *et al*. 2006, Dyer 2007, Crawford *et al*. 2007b, Kemper *et al*. 2007b, Roux *et al*. 2007). Its non-breeding range along Africa's south-western coast extends to Lobito (Angola) and vagrants have been reported from as far north as Gabon (Cooper *et al*. 1982). It breeds along the coast and at one inland desert oasis (Die Oase) where it nests with White-breasted Cormorants *P. lucidus* among the reeds surrounding the lake (Cooper *et al*. 1982). The Cape Cormorant is a relatively mobile bird (Berry 1976a, Cooper *et al.* 1982) and its abundance, measured by birds present and breeding at numerous localities across its range, fluctuates considerably in concert with fish stocks (Crawford & Dyer 1995, Crawford 2007).

Population estimates are problematic to determine because of poor breeding seasonality, lack of breeding locality fidelity and the difficulty of obtaining accurate ground counts of large colonies. Aerial photographic censuses are therefore used to obtain population estimates from large or inaccessible colonies (Crawford *et al*. 2007b). The global population is estimated at roughly 95,000 pairs, of which about 57,400 pairs are estimated from Namibia (Crawford *et al*. 2007b, T Cook pers. comm.). Cape Cormorants breed at 28 localities in Namibia (du Toit *et al.* 2003); the artificial platforms at the Mile 4 Salt Works north of Swakopmund and Ichaboe Island regularly support more than 10,000 pairs (Crawford *et al*. 2007b). Large roosts of non-breeding Cape Cormorants are found frequently at the Walvis Bay Lagoon and at Sandwich Harbour (data in Jarvis *et al*. 2001).

ECOLOGY

Cape Cormorants prefer to roost and breed in areas free of terrestrial predators, although they may roost in large numbers on wide beaches. They usually breed in dense colonies on islands, cliffs, ledges and artificial structures, including platforms and boats (Crawford 2005). Four sets of artificial platforms near Swakopmund and Walvis Bay, built to promote breeding and subsequent guano collection, provide additional breeding habitat (Berry 1976a). The average colony size is just over 2,000 nests (n=44). Cape Cormorants have a protracted breeding season extending in Namibia from August to May with a peak between October and February (95% of 116 records consisting of about 90,600 nests: Brown *et al*. 2015, MFMR unpubl. data) and may not breed in years when conditions are unfavourable (Crawford *et al*. 2007b). Replacement clutches and second clutches after a successful breeding attempt may be laid (Randall *et al*. 1981, Crawford 2005). Nests may contain human debris (rope, netting, fishing line, plastics), particularly near human habitation (J Kemper pers. obs.). In Namibia, clutch size averages three eggs, but ranges between one to five eggs (Berry 1976a). In the non-breeding season, this species remains in large flocks, and is often seen in long, sinuous skeins flying low over the ocean between feeding, breeding and roosting areas. Cape Cormorants generally forage within 50 km (T Cook pers. comm.) of the coast, including in coastal lagoons, but can be encountered up to 70 km offshore (Siegfried *et al.* 1975). They forage by pursuit-diving, often in large flocks, sometimes with other species (Rand 1960, Duffy *et al*. 1984). Birds dive benthically or in the water column, over water that can reach more than 100 m deep; mean dive depth is 11.5 m (maximum 37 m) and dives last on average 28 seconds (Cook *et al*. 2012). Sardine *Sardinops sagax* was the preferred food item throughout Namibia before the collapse of Sardine stocks and contraction of their range to the north in the early 1970s (Berry 1976a, Matthews 1961, Matthews & Berruti 1983). In southern Namibia, Cape Cormorants currently feed mainly on Bearded Goby *Sufflogobius bibarbatus*, but can feed on a variety of mostly pelagic fish species, including Sardine and Anchovy *Engraulis encrasicolus* if available, as well as squid and crustaceans (Duffy *et al*. 1987, MFMR unpubl. data). It is likely that Sardine and Anchovy feature more prominently in the diet of birds foraging in central and northern Namibia.

THREATS

A lack of prey, particularly of high-energy Sardine and Anchovy, is the chief threat to this species. In southern Namibia, the diet is now dominated by energy-poor Bearded Goby, while Cape Cormorants in central and northern Namibia may still be able to feed on Sardine and

Anchovy stocks (Crawford *et al*. 2007b). It is particularly sensitive to fluctuating environmental conditions and resulting periodic food scarcity can cause mass abandonment of nests or mass mortality of chicks or post-fledglings (Crawford *et al*. 1980, Duffy *et al*. 1984, Crawford *et al*. 1992, du Toit *et al.* 2003). Climate change scenarios predicting increases in the frequency or intensity of extreme environmental conditions (Roux 2003) may exacerbate these threats. Cape Cormorants are susceptible to human disturbance (Cooper *et al*. 1982) and startled individuals may cause a mass panic (Jarvis & Cram 1971), sometimes causing groups of breeding birds to be displaced from their nests; Kelp Gulls *Larus dominicanus*, Great White Pelicans *Pelecanus onocrotalus* and White-breasted Cormorants may subsequently prey on the exposed nest contents (Berry 1976a, MFMR unpubl. data). Cape Cormorants are vulnerable to oiling and respond poorly to rehabilitation efforts (Crawford *et al*. 2000, J Kemper pers. obs.). Although oiling incidents of Cape Cormorants in Namibia have been rare to date, mass mortality of cormorants has occurred due to spillage of fish oils. The best-documented case was in 1974 in Walvis Bay when more than 4,500 birds died, principally due to starvation resulting from loss of flight ability (Berry 1976b). Cape Cormorants are susceptible to avian cholera *Pasteurella multocida,* which has caused mass mortalities in South Africa (Williams & Parsons 2004, Waller &Underhill 2007) but has not been recorded definitively in Namibia. Dead or dying birds at Sandwich Harbour in the years 2000 to 2004 (R Braby unpubl. data) were not diagnosed with any particular diseases, but may have died of cholera, given that Kelp Gulls were also found dead and were assumed to be the natural vector (Williams & Parson 2004). Cape Cormorants also seem susceptible to toxic plankton poisoning (MFMR unpubl. data). Cape Fur Seals *Arctocephalus pusillus pusillus* and Orcas *Orcinas orca* occasionally specialise in predating cormorants around breeding islands (Williams *et al.* 1990a, du Toit *et al.* 2004, MFMR unpubl. data).

CONSERVATION STATUS

Numbers of breeding pairs may vary between years and between breeding localities, making it difficult to calculate reliable population trend estimates. Despite substantial fluctuations in regional and global numbers, there has been a general decline in the Cape Cormorant population in Namibia and globally over the last three decades (Crawford *et al*. 2007b). Numbers increased between 1956/57, when the first comprehensive aerial census was done, and in the 1970s, possibly because additional breeding space and access to Sardine stocks was provided by the building and extending of platforms north of Walvis Bay; breeding space also became available at Ichaboe Island as the numbers of Cape Gannets *Morus capensis* plummeted there (Crawford 2007a). In addition, the 1956/57 estimate, made early in the breeding season, is probably unrealistically low (Crawford 2007b).

In Namibia, the species has declined by 57% during the last three generations (Crawford *et al*. 2007b), warranting its listing as *Endangered* (criterion A2(a)). Given the substantial fluctuations in population size and the lack of reliable count data, it is difficult to assess whether this represents a true decline; however, recent assessments of the South African population indicate that it has declined at a similar rate (T Cook pers. comm.) and it is now also considered *Endangered* there (Taylor *et al*. in press). Based on the population trends observed across its range, the Cape Cormorant's threat status was changed in 2013 from globally *Near Threatened* to *Endangered* (IUCN 2014). All breeding localities except the guano platforms fall into the Namibian Islands' Marine Protected Area or the Skeleton, Dorob, Namib-Naukluft or Tsau//Khaeb (Sperrgebiet) national parks. Some of the guano platforms north of Swakopmund have private reserve status (Noli-Peard & Williams 1991). Access to these sites is controlled, thus limiting disturbance to breeding birds. Any revised or future Nambian Parks and Wildlife legislation should list this species for *Specially Protected* status. The species is listed on Annex 2 of the African-Eurasian Waterfowl Agreement (AEWA).

ACTIONS

The availability of good quality prey will be crucial to future population trends. The Namibian population of Cape Cormorants therefore needs to be monitored carefully and may require reassessment once series of reliable counts are available for the entire species. This species requires concerted monitoring action across its breeding range, including annual aerial surveys of the guano platforms and main breeding islands during the peak breeding season, which may differ between localities. The Ministry of Fisheries and Marine Resources is committed to implementing an Ecosystem Approach to Fisheries (EAF) management approach and needs to incorporate the foraging needs of Cape Cormorants into fishery management plans. Management actions could include quota limitations, as well as seasonal and spatial catch restrictions. Management plans need to be developed for all breeding localities, particularly to ensure minimal disturbance at breeding colonies and to manage potential disease outbreaks. A proposal by the Ministry of Fisheries and Marine Resources to grant tourism concessions at Penguin Island and/or Seal Island (Currie *et al*. 2009) need to implement and enforce access restrictions during the Cape Cormorant breeding season. Legislation on marine pollution (including fish oil and plastics) needs better enforcement to minimise oiling incidents and the National Oil Spill Contingency Plan is in urgent need of revision.