

BREEDING BIOLOGY, THREATS AND CONSERVATION OF THE SOCOTRA CORMORANT (*PHALACROCORAX NIGROGULARIS*) AT SINIYA ISLAND, UNITED ARAB EMIRATES

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INTRODUCTION

The Socotra Cormorant (*Phalacrocorax nigrogularis*) is a little-studied seabird species endemic to the Arabian Gulf and Gulf of Oman regions. Currently, approximately 38-39,000 pairs (34% of the global breeding population) breed on islands in the UAE (Jennings 2010). We initiated a long-term study of the Socotra Cormorants on Siniya Island, Umm Al Quwain in 2011. This is the largest known breeding colony in UAE with approximately 15,500 pairs estimated in 1995 (Jennings 2010).

Breeding Performance

Breeding performance, namely hatching success (proportion of eggs that hatched successfully), fledging success (proportion of chicks that fledged successfully) and breeding success (number of chicks fledged per pair) was measured during the 2011 breeding season. Field work was initiated in September 2011 when birds had already laid eggs. Clutch size varied between one to three eggs (mean SE) although larger clutches ranging from five to 11 eggs were occasionally recorded (Muzaffar et al. 2012). Hatching success was 58.7%, fledging success was 65.6% and about 1.7 chicks fledged per pair. Chicks were altricial and grew the first coat of down within one week. Chicks began creching within two weeks of hatching. Creches became larger with the progressing season and numbered in the thousands late in the season (November to early December). Cannibalism was documented during this time when chicks were increasingly left unattended by their parents. Old juveniles were seen to opportunistically feed on young, late chicks (Gubiani et al. 2012). Cannibalism has been reported anecdotally in Socotra cormorants (Jennings 2010) and we reported a very high incidence of this behaviour at Siniya Island (Gubiani et al. 2012). Unlike what has been speculated in Newspaper articles (Anonymous, 2012), cannibalism is not a result of food shortages. Gulls (*Laridae*), for example, are notorious for cannibalising on chicks from neighbouring nests, and the behaviour is a manifestation of intense territoriality that occurs early in the breeding season in many gull species. The causes of this behaviour in Socotra cormorants remain unknown.

Breeding Habitat

We documented Socotra cormorants nesting under *Prosopis juliflora* trees planted on Siniya Island. Breeding performance was higher under the shade of trees suggesting that this tree was advantageous to the species on this island (Muzaffar et al. 2012). However, we do not advocate planting of any non-native species because of other potential consequences they may have on the native vegetation and fauna.

Feral Cat and Red Fox predation

Predation by feral cats and red foxes (*Vulpes vulpes*) was documented and their impacts estimated based on transect samples. Approximately 2000 birds were killed per season by foxes and feral cats, constituting a major threat to this population. Population viability models indicate that fox or cat predation at much lower levels could cause population collapse within a few decades. Feral cats



Fig. 3 Banded bird observed at Siniya Island(Khalifa Al Dhaheri)

should be controlled on the island and we recommend that the impact of foxes should be studied more carefully.

Diet, Fisheries and Fishing line entrapment

Preliminary data suggests that flying fish (>90% in 2011) was the primary food brought to the colony to feed the chicks. Fish abundance determines breeding success in many seabirds and the 2011 data shows flexible feeding patterns. This is also inconsistent with the idea that Socotra Cormorants compete with fisheries in these waters. We intend to pursue this study over the coming years to determine diet and foraging patterns in much greater detail. Many Socotra cormorants (adults and juveniles) were found dead on Siniya Island due to fishing line entrapment (Fig. 1). We were able to rescue and release one adult individual which had a fishing hook imbedded in its left tarsus. Many Socotra cormorants as well as other seabirds escape after being trapped in fishing gear with part of the gear (nylon filament, hooks, weights, etc.) still attached to them. Many perish in the water while others return to the colony to get entangled in scrub vegetation before dying. Better estimation of the extent of deaths arising from fishing line entanglement is needed.

Long-term demographic studies

We banded 12 adults and 100 chicks in 2011 with black on white bands with alpha numeral codes (Fig. 2). In 2012 we banded an additional 10 adult birds. The objective of this exercise is to determine inter-year survival in adults, colony fidelity, juvenile survival and dispersal. We intend to continue this work in years to come so that we can estimate demographic parameters, which in turn will improve our understanding of population dynamics of the species (Fig. 3). A parallel banding operation has been carried out by Dr. Reza Khan, Dubai Zoo where 50 captive-bred Socotra Cormorants were released in Ras Al Khor (Haniff, 2012). These bands are black on white numbers (Fig. 4). Observers, nature enthusiasts and bird watchers are encouraged to report band numbers to Dr. Sabir Bin Muzaffar (Department of Biology, UAE University, Al Ain PO Box 15551, UAE, Email: s_muzaffar@uaeu.ac.ae) and to Dr. Reza Khan (Public Parks & Horticulture Dept., Dubi Municipality, PO Box 67 Dubai, drezakhan@gmail.com).



Fig. 1 Fishing line entrapment (R. Gubiani)



Fig. 2 Banded Bird at Siniya Island (R. Gubiani)

References will be online at www.wmnews.com