

Attempted Kleptoparasitism by a Crested Tern on a Pied Cormorant at Warnbro Sound, South-western Australia

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Summary

A Crested Tern *Thalasseus bergii* was observed attempting to kleptoparasitise a Pied Cormorant *Phalacrocorax varius* in Warnbro Sound in south-western Australia. Interspecific kleptoparasitism is unusual behaviour for the Crested Tern, and it is unusual for a bird to attempt theft from a larger bird. It is proposed that this was a deliberate response to theft rather than a simple response to a food stimulus, and is discussed in the context of an event between isolated individuals outside a colonial environment.

Introduction

Kleptoparasitism in birds is typically considered the piracy of food from one bird by another; it can be considered as intra- (within species) or interspecific (between species) food-theft (Rothschild & Clay 1952; Fulton 2005). The word kleptoparasitism is derived from the Greek *kleptes*, a thief, and *parasitos*, where one eats at the table of another (Delbridge *et al.* 1988), and is usually used for interspecific food-theft. Kleptoparasitism among birds is more commonly associated with certain groups that are predatory and opportunistic, notably the Fregatidae, Falconiformes, Stercorariidae and Laridae (Brockmann & Barnard 1979). Crested Terns *Thalasseus bergii* are not considered interspecific kleptoparasites, but are intraspecific pirates, unlike the closely related Roseate Tern *Sterna dougallii*, which is an interspecific kleptoparasite, although only a small percentage of individuals of these species are effective pirates (Hulsman 1976; Higgins & Davies 1996; Shealer & Spendlow 2002; Conover 2003). Hulsman (1976) described various methods used by gulls and terns to steal fish on One Tree Island, Queensland: although Crested Terns were intraspecific pirates, they actually stole few fish brought into the colony, whereas Silver Gulls *Chroicocephalus novaehollandiae* were frequently successful intra- and interspecific pirates.

On One Tree Island, intraspecific piracy by Crested Terns was more common at their display area than in the breeding colony, and fish were used to attract prospective mates and engage in courtship flights. Crested Terns carried fish crosswise in the bill, landing, calling and displaying, and occasionally one snatched a fish from another (Kees Hulsman pers. comm.). In colonial congregations, however, spontaneous theft of fish is likely to be more common because the birds are closer together. For example, Silver Gulls position themselves within colonies, and within crèches, of Crested Terns (Domm & Recher 1973; Hulsman 1976, 1984; GRF pers. obs., Penguin Island 2008), undoubtedly to take advantage of the proximity of food and the bedlam of a crowded environment (Domm & Recher 1973; Dunn 1973). Less is known about the behaviour of the Crested Tern in more open environs.

Methods and observations

The following observation was made on 9 July 2009 just before sunset in the swash zone of the central beach in Warnbro Sound, south-western Australia (32°20'S, 115°44'E) (Figure 1) during a study of waders there. This study has been under way for >3 years and has included 271 2-km beach transects and 26 surveys on the adjacent Penguin Island. Beach transects were ~50 m wide on the seaward side. Crested Terns were detected in 44% of transects, with a mean of 0.71 per transect, and Pied Cormorants *Phalacrocorax varius* in 47% of transects, with a mean of 0.73 per transect. Since both species were detected only rarely on the shore, such occurrences were ignored, and only foraging Terns and Cormorants were included. The following observations were made while standing on a ~9-km-long beach at Warnbro Sound, ~15 m from the site of interaction between the two birds. Field binoculars were used to detect details, such as fish being held in the beak or swallowed and the Cormorant catching fish inside waves. No people, dogs or birds were close at the time, and only two Silver Gulls and an Australasian Gannet *Morus serrator* were within 500 m. All times and distances were estimated, and written down within an hour. The Crested Tern and Pied Cormorant are common at this beach; they feed there regularly and breed annually on nearby islands.

A Pied Cormorant flying perpendicularly across the beach landed in the swash zone 5 m from shore and started feeding on small fish ~3–5 cm in length; it caught fish mostly while surfing inside waves ~80 cm high. A Crested Tern was apparently attracted to the site by the presence of the Cormorant: it flew directly to the site from >50 m away and had turned around after passing the site, which suggests that it saw the Cormorant's actions rather than the fish. The Tern took three fish, from close to the Cormorant (within ~2 m), in three successive dives: the first from 15 m above sea-level (asl) as it arrived at the site, and the next two from 5 m asl as it hovered above. It then appeared to have trouble sighting the fish, and pulled out of the next two consecutive dives. This is not unusual at Warnbro Sound, although it usually happens on dives from greater altitudes of 20 m asl (GRF unpubl. obs.). With a shallow (~0.5–1.0 m deep) swash zone and from only 5 m asl, a discontinued dive was unusual (GRF pers. obs.), although these events have not been quantified. The Cormorant appeared to be in the way of where the Tern was trying to dive, because the dives were broken off when the Tern was 1–1.5 m directly above the Cormorant, which was on or near the surface. After positioning itself in the wind for a longer period of time than during the previous dives for fish (~45 seconds compared with 10 seconds previously), the Tern made another dive, and this time tried to take a fish from the Cormorant's beak. It failed, although it made good contact with the fish. It hovered again 5 m above the Cormorant and made one more attempt, which it broke off as the Cormorant swallowed a fish quickly. After this, it flew away down the beach with its head tilted down in its usual prey-searching posture. The whole series of events took ~3 minutes. Both birds were small for their species (GRF pers. obs.), with the Cormorant ~70 cm and Tern ~40 cm in length (gauged from measurements in Slater *et al.* 1991; corresponding masses, from Johnstone & Storr (1998), are 1300–2270 g and 250–545 g, respectively).

Discussion

Intraspecific piracy by Crested Terns was more common during colonial breeding on nearby Penguin Island than in open areas along Warnbro Beach (GRF pers. obs.), and has also been noted on One Tree Island in eastern Australia

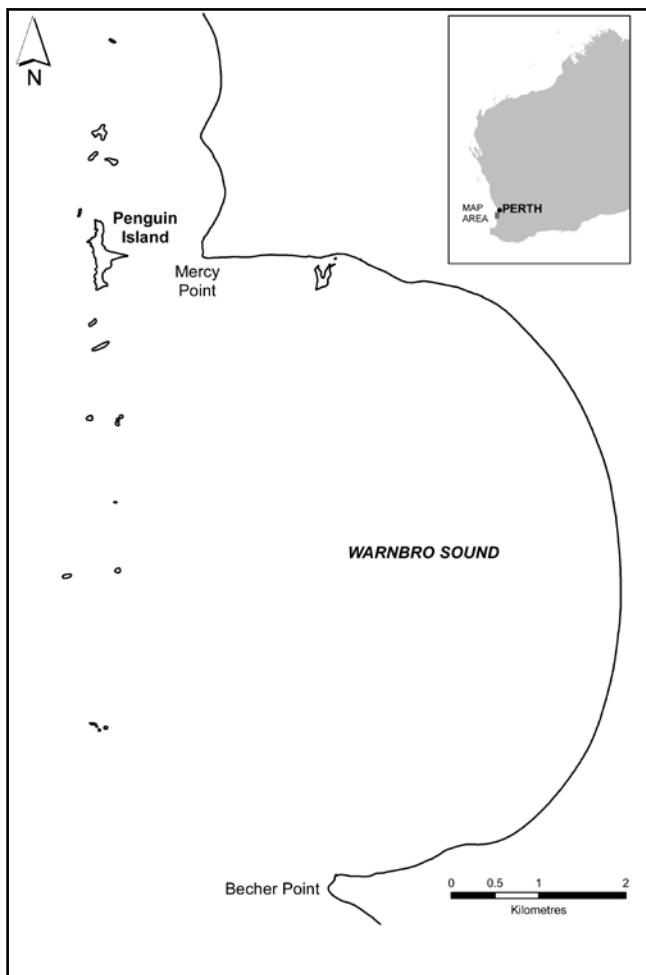


Figure 1. Map of Warnbro Sound, including Penguin Island. The inset shows the position of the study site in Western Australia. Observations were made in the central area of Warnbro Sound.

(Hulsman 1976, 1984). The close proximity of birds in mating competition and breeding colonies clearly facilitates piracy. Dunn (1973) found that interspecific thefts by the Roseate Tern were correlated with the abundance of colonial hosts on Coquet Island, England. The observation in the present study differed in that it occurred in an open space, in a foraging area, outside a breeding colony and outside the breeding season. To date, most studies have been carried out where birds are more numerous and larger data sets can be obtained. Thus, events such as that described here may generally be overlooked. This attempted kleptoparasitism was a quantitatively uncommon event compared with the more numerous events within colonial congregations, yet the pirate Crested Tern and host Pied Cormorant were both common species, though well spaced and in low abundance in the open beach area.

The attempted kleptoparasitism did not appear to be a reflex action or a simple response to a food cue (*c.f.* Recher & Davis 2004); rather, it was an interspecific attempt at theft from a much bigger bird, which contrasts with the general expectation of the host being smaller than the pirate (Brockmann & Barnard 1979). Smaller birds such as the Roseate Tern may group-mob equivalently sized terns to improve their success (Dunn 1973), and Dusky Woodswallows *Artamus cyanopterus* have been observed to collaborate to steal prey from a similar-sized passerine (Fulton 2005; Davis 2006). Although this was uncommon at Warnbro Sound, it shows that the Crested Tern may attempt interspecific kleptoparasitism even when the host species is much larger.

Acknowledgements

I thank the Department of Conservation & Environment for allowing me to make observations on Penguin Island, Kees Hulsman for his prompt and valuable comments, and Peter Dann as reviewer. I thank Ron Johnstone for data on bird masses and Sean Emmett and the Department of Environment & Conservation for assistance with the map. I acknowledge my supervisors Harry F. Recher and Pierre Horwitz. I acknowledge the Nyoongar people, the traditional owners of the land where this study was undertaken.

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