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AN UNUSUAL METHOD OF PREDATION BY A KELP GULL

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The number of breeding Kelp Gulls *Larus dominicanus vetula* in South Africa's Western Cape increased from 6 484 to 18 090 pairs between the years 1978-2000 (Crawford *et al.* 1989, 2009). Since then the numbers breeding on offshore islands in the Western Cape have decreased to less than 10 000 pairs (Crawford 2013, Makhado *et al.* 2013). This was partly attributed to increasing predation by Great White Pelicans *Pelecanus onocrotalus* feeding on their chicks since the mid-1990s (Mwema *et al.* 2010). However, on Robben Island there has been a substantial increase of Kelp Gulls from only four pairs in 2000 to more than 2 500 pairs in 2011 (Calf *et al.* 2003, Makhado *et al.* 2013. This is a cause for concern because of their potential impact on threatened seabird species breeding on the island (Calf *et al. 2003)*.

Predation by seabirds on other seabirds commonly occurs and can have a major influence on breeding success and strategies (Becker 1995, Schreiber and Kissling 2005). The Kelp Gull is versatile in its foraging behaviour and has benefited largely from human activities in coastal ecosystems (Crawford 2005). Generalist predation behaviour by Kelp Gulls is widespread in near-shore and intertidal regions and

Fig 1 - Predation of a Swift Tern egg by an adult Kelp Gull

is largely found to be opportunistic, depending on the prey in the vicinity (Hockey *et al.* 2005). In South America, they feed opportunistically on dead rodents (Ruiz and Simeone 2001), and in Namibia, they were observed to prey upon African Penguin *Spheniscus demersus* chicks of more than 1 kg (Malan *et al.* 2004). It is well established that in South Africa this species is a predator of eggs and chicks of other seabirds, including terns (Burger and Gochfeld 1991). Swift Terns *Thalasseus bergii* usually breed in dense colonies and the number of predators as well as predation rates often increase with colony size (e.g. Stokes and Boersma 2000), although the proportion of prey killed usually decreases due to the overwhelming effect of prey numbers on the predators (Emslie *et. al.* 1995).

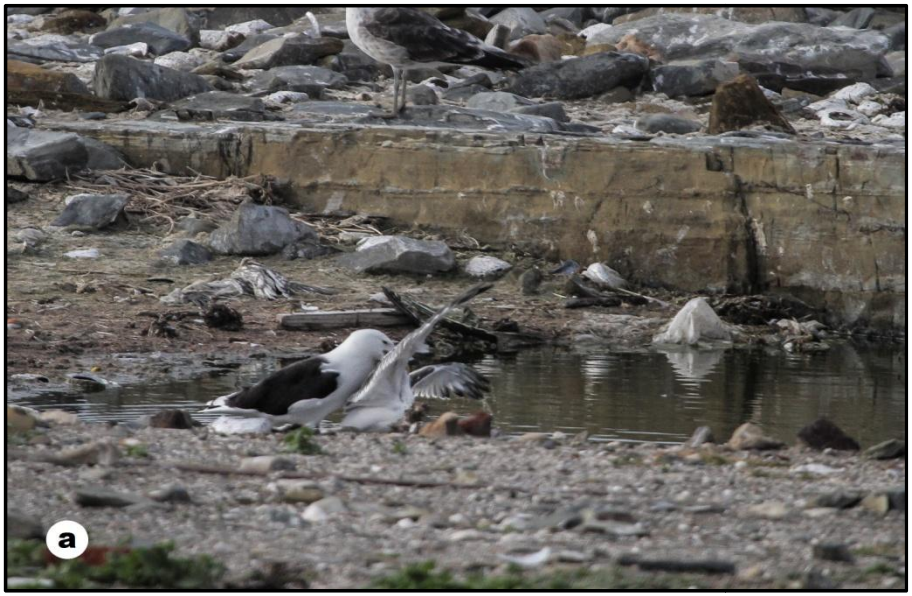

Fig 2 (above and opposite) - Video-sequences of the predation: a) Kelp Gull dragging the immature Swift Terns toward the water b) Kelp Gull forcing the head of the bird under the water c) Kelp Gull eating the interior of the dead Swift Tern.

However, predator-prey relationships at colonies are complex and vary in different systems in relation to the number and kind of predators as well as the size and age of the colony (Hunter 1991).

From January 2014, a breeding population of about 9 000 Swift Tern pairs bred a few hundred metres away from a colony of Kelp Gulls, established in November 2013 on the northern side of Robben Island (an area known as the Blue Stone Quarry). This juxtaposition resulted in several events of predation on Swift Tern eggs and chicks. Some specifically identified gulls were observed repeatedly

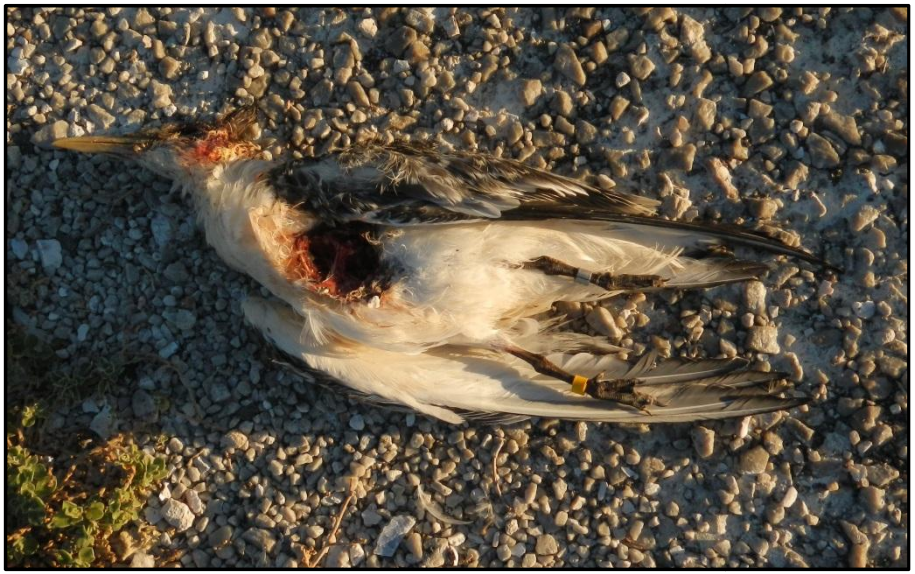

Fig 3 – The remains of Swift Terns chick after been predated by Kelp Gull.

attempting to take abandoned eggs or those of incubating birds, especially in the periphery of the colony (Fig 1).

At 15:50 on 10 May 2014, I video recorded an adult Kelp Gull catching and dragging a recently-fledged Swift Tern into the flooded quarry (Fig 2a). The gull deliberately forced the head of the bird under the water (Fig 2b; https://vimeo.com/116058067) for about 5 minutes. When the tern stopped struggling, the gull dragged it back to the shore. One minute later, I found the gull eating the presumably now dead bird (Fig 2c;). Kelp Gulls at this colony tend to kill unsupervised Swift Tern chicks and eat only their intestine/stomach contents, leaving the rest of the body uneaten (Fig 3; pers. obs.).

Predation by drowning is not common behaviour in seabirds, but it has been observed in the Great Skua *Catharacta skua* hunting and drowning adult Kittiwakes *Rissa tridactyla* by forcing them onto the water (Perry 1948) and giant petrels *Macronectes* spp. have been reported to drown albatrosses *Thalassarche* spp. and crested penguins *Eudyptes* spp. by holding their heads underwater (Cox 1978, Ryan *et al.* 2008) or by standing on penguins shortly after they enter the sea (Horswill *et al.* 2014). Despite many recordings of generalistic predation by Kelp Gull on terns (Yourio and Quintana 1997), including predation of an adult Hartlaub's Gull *Chroicocephalus hartlaubi* (Cooper 1977), this appears to be the first record of drowning behaviour by Kelp Gulls.

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