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FIRST TWO DAYS IN THE LIFE OF A LITTLE TERN, *STERNA ALBIFRONS* (AVES: STERNIDAE)

J. C. W. Lim
767 Bedok Reservoir View #09-219, Singapore 460767
(Email: arian001@starhub.net.sg)

INTRODUCTION

The little tern, *Sterna albifrons* Pallas, is a small group of small seabirds that breeds along the coast and inland waterways of temperate and tropical countries. In Singapore, it is a common resident as well as a winter visitor. The first breeding record of this species in Singapore was made in Jul.1987 at Changi (Wang & Hails, 2007). Subsequently it was also reported to be breeding in Seletar and Tuas (Wells, 1999). The birds seek out flattish sandy grounds near water, making a simple scrape on the ground to nest. Here, the female lays a clutch of two to three eggs (Gochfeld & Burger, 1996). Details of its courtship, egg-laying, and chick behaviour in Singapore have been described by (Cheah & Ng, 2008).

A pair of little terns was first observed along a man-made bicycle trail on the eastern side of Singapore Island on 1 Jun.2009. It was in an exposed sandy area and held three eggs. Two of the eggs were subsequently lost for unknown reasons, while the remaining egg hatched successfully on the morning of 21 Jun.2009. Diurnal observations were made of the newly hatched chick on the same day and the next at a distance of about 5–7 m atop a man-made earth mound. Little terns are not distinctly sexually dimorphic, and thus it is not possible to tell the father bird from the mother bird.

OBSERVATIONS

At hatching, the chick was blind and covered with down. Eye opening was observed merely hours into hatching. The chick appeared feeble and spent most of its time confined to the nest in the care of the brooding parent (Fig. 1). No observation was performed after 1830 hours because of waning lighting conditions as it was presumed that the chick remained in the nest without wandering after dark. Its plumage appeared to blend in perfectly with the substrate of sand and granite chips, rendering it practically invisible to the unobservant. The chick was fed by the parent that had returned

Fig. 1. Brooding little tern and day-old hatchling.

Fig. 2. Brooding and feeding little terns with day-old chick gaping to receive a fish from the latter.

Fig. 3. Brooding little tern with day-old hatchling trying to swallow a sand-caked fish.

from foraging. The brooding parent puffed its abdominal plumage to reveal the chick beneath with its pinkish gape. A freshly delivered fish was offered directly from the bill and fed head first (Fig. 2). If the fish was dropped, the feeding parent would retrieve the fish, then caked in sand, and offer it to the chick again (Fig. 3). During feeding, the brooding parent merely observed the proceedings. While no feeding to the brooding parent by the feeding parent was observed, the feeding parent was occasionally observed to swallow the catch (comprising only of freshwater fish) when the chick refused the offer, probably owing to appetite satiation or if the fish being too large for the chick to swallow head-first.

Chick feeding and brooding duties appeared to be distributed almost equally between both parent birds. After having fed the chick, the feeding parent would observe the chick momentarily before taking over brooding duty. The brooding parent would take to the air immediately after the chick has been fed. Feeding frequency appeared to be mitigated by fish abundance (sourced from a pond located about 100 m downhill) ranging from a few minutes to hourly ferrying services, with a perceived longer lag time towards later half of the day when both parent birds were observed to spend an extended period in-nest. Perhaps attributed to the dry weather conditions and dwindling water level in the pond, the size of fish delivered appeared smaller towards later half of the day. This is evident in Fig. 4 when the feeding parent bird attempted to feed the chick with a small fish. At any one time, one parent would patrol the vicinity, either by walking to and from its nest, or by taking to the air when it sensed intruders approaching from approximately 20 m down-slope, indicating heightened level of vigilance. This vigilant behaviour was evident when the brooding parent bird sat upright in a tensed posture with a cocked head, followed by restlessness (Fig. 5).

The down-feather clad chick appeared energetic and physically mobile into the second day of hatching. It frequently left the nest to explore the surrounding areas. During such excursions, the chick always stayed in the open and sometimes wandered far from the nest (about 5–10 m).The chick also displayed a sequence of run-rest-run behaviour, with at least one of its parents on the ground watching over it. A sequence of the chick resting in the clear and attempting a sprint is shown in Figs. 6, 7, respectively. In contrast to day one, the chick was observed to receive fresh delivery from its feeding parent out in the open i.e. the chick flapped its wings and opened its mouth in anticipation of its arriving parent (Fig. 8). After post feeding, the chick was observed to perform a penguin duck by first scurrying for the parent bird, then ducking its head into the space between the parent's feet and there cuddled up into an amorphous fur ball (Fig. 9).

Fig. 4. Little tern chick trying to swallow a tiny-sized delivery from feeding adult.

Fig. 5. Brooding little tern in alert posture.

Fig. 6. Chick resting in the open with mouth ajar.

Fig. 7. Chick attempting for a sprint on second day of hatching.

Fig. 8. Chick gaping with wings aflap in anticipation of being fed.

Fig. 9. Chick seeking refuge head-first between the brooding parent's feet.

On both days, the parent birds behaved in a consistent manner when exposed to human presence. When a person stood upright at his observation post, both parent birds would sky-dive at him, only to manoeuvre a steep about-turn immediately above in an attempt to ward off the unwelcome visitor. However, they stopped this threat behaviour when the observer sat down, suggesting that although these terns are highly protective and territorial at their nesting location, they also exhibited some form of tolerance when no aggression was perceived. Terns are well known for their aggressiveness when their colony is threatened. A grey heron (*Ardea cinerea*) was mobbed by a number of black-naped tern (*Sterna sumatrana*) that used projectile-vomiting to defend their breeding colony (Deng et al., 2008).

The chick's highly energetic behaviour into its second day of hatching may be perceived as a critical trait towards securing its survival in an open area with predators and human activity. Some natural predators may include cats and monitor lizards. It is also possible that the chick was trying to distance itself from its excrement-filled nesting cavity since both parent terns were not observed to clean the nest.

DISCUSSION

This article complements the account of the breeding ecology of the little terns by Cheah & Ng (2008), which stated that the first two days after hatching are crucial to the chick's survival. The chick did survive this early period but unfortunately was found dead of unknown causes on its eighth day after hatching (Lee et al., 2009). At around this age the chick would have been actively moving away from the nest and the adults would not be always around, thus increasing the possibility of predation. As the nest was along a cycling track, it is always possible that the chick may have been accidentally hit by a bicycle or even trampled by a pedestrian.

Such chick mortality appears to be higher among tropical bird species compared to those in the temperate regions. In the tropics, nests and young are exposed to a greater variety of predators among other reasons (Gill, 2007). However, the birds can always raise another brood as they are not constrained by seasons. Indeed, adult little terns with breeding

colours in the form of yellow bill with black tips have been sighted in Singapore as late as November and December, although their nesting has yet to be investigated (Wells, 1999).

Little tern chicks take about 20 days to fledge (Cheah & Ng, 2008) and during this period they would be constantly exercising their wings and flapping them whenever there are strong winds, and they would wander away from their nests while one or both the parents would be away foraging.

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