

A survey of Little Tern *Sternula albifrons* colonies at Port Said, Egypt, in 2015 with notes on behaviour

MOHAMED I HABIB

The global population of Little Tern *Sternula albifrons* is estimated at c190 000–510 000 individuals; the overall population trend is decreasing due to changing habitats, although some populations have unknown trends (Wetlands International 2014). In Egypt, it is a fairly common breeder along the Mediterranean coast; the total breeding population was estimated at 2000 pairs by Goodman & Meininger (1989). Between 800–1200 pairs were thought to nest on the coast of the northern Sinai (Meininger & Baha El Din 1986) and 700 pairs were located at lake Bardawil there (Atta 1986). Baha El Din (1999) mentioned 1200 pairs at lake Bardawil, 1500 at lake Manzala (coastal Nile delta) and 600–800 at lake Burullus (coastal Nile delta). Eason *et al* (2012) found 439 nests in Zaranik protectorate, northern Sinai. The seashore near Port Said was missing from any previous survey and the first sighting of breeding birds in the Port Said region was July 2007 (Habib 2014a). The present survey was made to investigate breeding status in 2015 at five breeding colonies near Port Said and two new colonies found east of Port Fouad and south of Port Said respectively. An important objective was to see whether breeding colonies still existed given the continual development of the Port Said area *eg* construction of the new corniche road, gas exploration and drilling facilities and new roads, and to provide recommendations for protection. Behavioural observations were also made.

STUDY AREA

The study area is within the Port Said region, along the Mediterranean coast including east of Port Fouad but is not part of the Ashtum El Gamil protected area. All colonies are spread along the coast and the study area was divided into seven counting sections:

Colonies 1–2: situated east and west of the drainage lake (31° 16' 45"N, 32°13' 09"E) in a shallow hypersaline lake with small, scattered sandy islets, the water coming from two main small canal discharge drains crossing lake Manzala. The terns nest on small patches of exposed sand and the area is occupied by nesting terns and other wading birds.

Colony 3: at the sea shore of El Manasra village (31° 20' 06"N, 32° 06' 36"E), a sandy shore covered with vegetation dominated by *Nitraria retusa* bushes. The beach nesting area measures c1500 × 150 m², with one third occupied.

Colonies 4–5: located at two hypersaline lagoons east of El Deba village along the Mediterranean shore, on the western side of Port Said (31° 21' 02"N, 32° 04' 58"E). The lagoons reach their maximum size in winter and become nearly dry in summer. The terns nest near the shore in an area 2.5 km long × 150–500 m wide. The area is densely covered with halophytic vegetation, mainly *Nitraria retusa*.

Colony 6: located east of Port Fouad at Boughas El Qalaa, a huge lake less than 90 cm deep. The lake is a fish nursery ground and protected by coast guard and fishery authorities. A small fishing boat was used to reach this newly discovered breeding colony.

Colony 7: located south of Port Said governorate at El Rswa (31.23392°N, 32.29278°E) where birds are breeding on both sides of the Suez canal. Newly discovered.

METHODS

The nesting colonies cover about half of the areas surveyed. Access is restricted due to large natural gas production and piping facilities c10 km east of Port Said on the Mediterranean shore. Most of the area was reached by car and boat, and birds were identified and counted with binoculars. Counting units were apparently occupied nests, which are defined as the summed numbers of occupied nests and unoccupied nests that appear to have been used during the present breeding season (Bibby *et al* 2007). I used line transects by using natural marks to prevent over counting and marked each counting spot by GPS and photographs. Air temperature varied from 37°C at the beginning of the season in late May to over 40°C at midday in June and July. Visits to each colony were kept short, less than 20 min (*cf* Walsh *et al* 1995), with visits 07.00–15.00 h. Five visits were made to each colony in the 2015 breeding season. Most of the behavioural observations were made using a telescope and photographed from vantage points, as the muddy substrate prevented closer access.

RESULTS AND DISCUSSION

Number of nests

The counting revealed the following number of nests for each colony: colony 1 (500 nests); colony 2 (five nests); colony 3 (300 nests); colony 4 (1272 nests); colony 5 (25 nests); colony 6 (200 nests); and colony 7 (350 nests). The total number of nests was 2652. The previous counts in 2014 produced 2591 nests in total. The situation in colonies 1–2 had changed due to disappearance of many small islets where terns had been breeding. In colony 3, decline occurred from 794 nests in 2013 to 300 in 2015; the reasons are not clear and need further study. Colonies 4–5 showed a small increase and colonies 6 and 7 were newly discovered.

Behaviour (Plates 1–16)

Parent birds were observed to wet their breast and belly-feathers with fresh water from a nearby broken freshwater pipeline to cool incubating eggs and chicks or to let fledglings drink water from the wetted feathers. When the temperature rose above 40°C, parents buried eggs in very shallow wet sand and, during the hottest part of the day, continually soaked their belly-feathers in fresh water and placed them over the buried eggs, wetting the sand to lower the egg temperature. After hatching, especially during the first few days, parents covered the chicks with fresh water and sand to cool and shield them from the sun (observed in both August 2012 and June/July 2015). Wader species stand over hatchlings in order to shade them from the sun (Podulka *et al* 2004) but this behaviour has apparently not been recorded before in Little Tern. From five days after hatching, chicks independently sought shade for sun protection, waiting for both parents to bring fresh fish and shrimps

Birds arrived at Port Said in early April, scouting the area and forming territories for display and mating. A male attracted the attention of females by performing advertising flights over his territory while carrying small fish, being pursued usually by one to three females. After landing, he was followed by the lead female, and then he started to approach with fish and performing display posture, dropping bill and wing and encircling each other. Then, the female would start the begging call and perform the hunched posture, with the male approaching from the rear, wagging his head from side to side, then jumping over her back and delivering a small fish, raising wings and dropping the tail for copulation. After copulation, the female started to build a few nests in the sand by digging first with feet and then pressing the sand back and forth with its belly and chest, forming a cup-shape dent. The nest was a scrape or a little deeper cup-shaped dent, sometime lined with a small amount of dried vegetation or ornamented with shells. Birds



Plate 1 (left). Breeding display of Little Tern *Sternula albifrons*, Port Said, Egypt, 2015. © Mohamed I Habib

Plate 2 (right). Breeding display of Little Tern *Sternula albifrons*, Port Said, Egypt, 2015. © Mohamed I Habib



Plate 3 (left). Breeding display of Little Tern *Sternula albifrons*, Port Said, Egypt, 2015. © Mohamed I Habib

Plate 4 (right). Breeding display of Little Tern *Sternula albifrons*, Port Said, Egypt, 2015. © Mohamed I Habib



Plate 5 (left). Breeding display of Little Tern *Sternula albifrons*, Port Said, Egypt, 2015: receiving fish before mating. © Mohamed I Habib

Plate 6 (right). Copulation by Little Terns *Sternula albifrons*, Port Said, Egypt, 2015. © Mohamed I Habib



Plate 7 (left). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: chicks hiding behind stone. © Mohamed I Habib

Plate 8 (right). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: eggs and damp sand. © Mohamed I Habib



Plate 9 (left). Little Tern *Sternula albifrons* chick partially covered with sand, Port Said, Egypt, 2015. © Mohamed I Habib

Plate 10 (right). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: chicks and damp sand. © Mohamed I Habib



Plate 11 (left). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: adult shading two chicks. © Mohamed I Habib

Plate 12 (right). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: adult shading chick. © Mohamed I Habib



Plate 13 (left). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: adult drinking and wetting belly. © Mohamed I Habib

Plate 14 (right). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: standing rather than incubating in over 40°C. © Mohamed I Habib



Plate 15 (left). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: covering young with wet mud. © Mohamed I Habib

Plate 16 (right). Protecting Little Tern *Sternula albifrons* young and eggs from hot weather, Port Said, Egypt, 2015: muddy belly of adult. © Mohamed I Habib

started to lay eggs in clutches from one–three and rarely four. In June 2015, I found a nest with six eggs and one just hatched chick and another nest with 11 eggs, indicating more than one female laying in the same nest.

The terns preferred to nest on the mainland rather than on islands. Eason *et al* (2012) found that Little Terns in the northern Sinai (439 nests in total) preferred to nest on islands (69% of nests), rather than on the mainland (31%). This could be because of disturbance from the salt production company or fishermen. This is opposite to my results from the survey of the Port Said colonies, where birds preferred to nest on the mainland in four colonies, except for colonies 1–2 and 6 where they preferred to nest on islands. Birds bred in loose colonies on sandy sea shores with nests placed 5–15 m apart, in a rare case only 1 m. The territory was restricted to just enough space around the nest to allow mating and nesting activity without physical contact with neighbouring pairs

After c20 days, eggs hatched asynchronously. The chicks learnt the parent's calls on the first day, especially the call of the male, which brought food the first few days. The

chicks emerged from under the female's belly, flapping and running towards the male and getting small fish or shrimps.

The chicks left the nest c5 days after hatching, when the parents with their short legs could no longer shade them. The chicks sought shade and protection from predators between vegetation, boats or rocks. They were able to 'fly' very short distances (c5 m) after two weeks. After four weeks, fledglings flew with adults to fishing grounds nearby and waited to be fed on small fish by the parents.

Port Said is an important nesting area for Little Terns in the Middle East, representing more than 11% of the current Black sea and Mediterranean sea breeding population, estimated at 63 500–113 000 birds (Wetlands International 2014). Little Terns in Port Said face disturbance during the breeding season, such as fishermen walking through the area, minitrucks carrying fish which were seen to destroy nests and people collecting c1-week-old chicks which are not yet able to fly. In June 2015, more than 500 chicks were collected by people visiting the area; only after long discussion, they released all of them after being informed that they might be infected by bird influenza but unfortunately 50 chicks had already died. Building the corniche road (c3 km, El Manasra–El Deba) will increase tourism and visitor pressure on the beaches.

These seven colonies merit protection from further development within the breeding areas and from disturbance. Colonies 3–4 are located within the gas industry zone and colonies 4–5 will be disturbed by building the new corniche road. Populations of many seabirds and other species that nest along the coasts are declining due to habitat degradation and habitat loss. An improved understanding of the species-specific factors that determine nest densities is therefore a critical factor for conservation efforts. Signs should be posted forbidding any human traffic in the breeding areas during mating, nesting and fledging.

ACKNOWLEDGEMENTS

I am grateful to Anne Laure Brochet, Enno Ebels, Tim Dodman and Bonnie Grover for advice and help in writing this paper.

REFERENCES

- Atta, GAM. 1986. *Status of breeding population of Little Tern Sterna albifrons in Bardawel Nature Reserve Egypt*. Unpublished MSc thesis, University of Aberdeen (UK).
- Baha El Din, SM. 1999. *Directory of important bird areas in Egypt*. BirdLife International/Palm Press, Zamalek, Cairo.
- Bibby, CJ, ND Burgess, DA Hill & SHA Mustoe. 2007. *Bird census techniques*. 2nd edn. Academic Press.
- Eason, P, B Rabea & O Attum. 2012. Island shape, size, and isolation affect nest-site selection by Little Terns. *Journal of Field Ornithology* 83: 372–380.
- Goodman, SM & PL Meininger. 1989. *The Birds of Egypt*. Oxford, UK.
- Habib, MI. 2014a. Winter water bird counts, 8–15 February 2013, Port Said, Egypt. *International winter birds count association publication* 2014.
- Habib, MI. 2014b. Little Tern, *Sterna albifrons*, nesting, Port Said, Egypt. *Bulletin of the Mediterranean Waterbirds Network* 2: 19–23.
- Meininger, PL & SM Baha El Din. 1986. Seabirds along the Mediterranean coast of Egypt. In: Medmaravis & Monbailliu (eds). *Mediterranean Marine Avifauna Conference 1986*.
- Podulka, S, RW Rohrbough & R Bonney. 2004. *Handbook of Bird Biology*. Princeton University Press, New Jersey.
- Walsh, PM, DJ Halley, MP Harris, A del Nevo, IMW Sim & ML Tasker. 1995. *Seabird Monitoring Handbook for Britain and Ireland*. Joint Nature Conservation Committee/RSPB/Institute of Terrestrial Ecology/Seabird Group.

Mohamed I Habib, PO Box 432, Hurghada, Egypt. mrhydro35@hotmail.com