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## A decade of tern ringing at Mile 4 salt pans, Namibia

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The Mile 4 Salt Pans are a series of man-made pans created for the harvesting of salt for human consumption, situated just north of Swakopmund. These pans host resident birds, intra-African and Palearctic migrants. Approximately 25-30 species are represented and at times significant numbers of certain species can be found here. The pans are used as feeding areas as well as a diurnal and nocturnal roost site. They are also used as a staging-post for flamingos and a number of species of waders and terns. The shallow water with protruding salt mounds makes a particularly attractive roost site for terns, presumably as they feel safer from predation by jackal and hyaena. Ringing of waders was started by here by Rod Braby in the early 90's and I inherited this job from him. However, a season of tern ringing convinced me that this is what I should focus on. Numbers of birds using the roost normally peak between October and December. This coincides with the heaviest migration and is also the time when food is plentiful in the vicinity. Large roosts can sometimes be seen during the day (fig. 1A) but it is at night that the really large numbers are present. Black Terns in particular spend most of their daylight hours at sea.



**Fig. 1.** A. (left) Masses of terns at Mile 4 Salt Pans (photo Mark Boorman); B (right) Mark Boorman sets up his equipment (photo Leif Sandgren)

Mist nets are erected in the late afternoon close to where the birds have been found to roost (fig. 1B). We also try to anticipate the flight path that they will take when they fly into the roosts. As it needs to be as dark as possible to catch these birds, we can

only set up nets in the period from four days after full moon until 10 days before the next full moon. A sound system is also set up adjacent to the mist nets. This is used to reproduce contact calls of the various species which serves as a lure and usually brings the birds closer to the nets.

Once the birds are caught in the mist nets they are removed and placed in keep cages. These cages are then taken to the ringing station for the birds to be processed. Any other species caught will also be taken for ringing. The nets are visited approximately every 20 minutes and freshly caught birds removed. Numbers of birds caught are dependent on the numbers using the roost, which is again dependent on the food source.

All birds caught firstly receive a metal ring (fig. 2A). The rings used by us for these types of birds are all either stainless steel or monel, which are far more durable than aluminium rings which are also available. Each ring is individually numbered. Dependent on the species, various details will be recorded. One of these is total head and bill length. This can be used to separate about 60% of the adults into sex. All the data recorded will be sent to SAFRING at the University of Cape Town, which keeps records of all birds ringed under their scheme.

Particular interest is taken in primary moult. This can tell us the ageing and also is helpful in separating species. Arctic Terns undergo a “straight” moult from P1 to P10, whereas Common Terns have a sequential moult. This means that several nodes can be active at one time. If a bird is caught that is already ringed, additional information is recorded. A series of photos is taken to confirm the ring number. Some rings become quite severely corroded and worn so that you can hardly read the number. A second SAFRING ring is also added. We’ve had four instances of birds already carrying two rings. The wing and rump are particularly pertinent for separating Common and Arctic Terns. In the past we have had claims that the original ringer has ringed the bird as an Arctic Tern chick, and when we recapture it is a Common Tern.

Birds are released immediately they have been processed (fig. 2B). Terns are easily stressed and need to be processed as quickly as possible. In excess of 10000 terns have been caught at this site (Table 1). Interestingly, the number of Arctic Terns in proportion to Common Terns reflects the often-used 1%. These two species are difficult to tell apart in the field although a lot easier when in the hand. There is a habit of labelling these two species as Comic Terns for the purposes of bird counts, though obviously the actual numbers of Arctic Terns present are really inconsequential.

**Table 1.** Numbers of terns caught at Mile 4 salt pans, Namibia

Arctic Tern	83	
Black Tern	2019	(19%)
Common Tern	8402	(78%)
Sandwich Tern	224	
Swift Tern	85	

Some 330 Common Terns have been caught which had foreign rings. This shows that the birds using this roost are predominantly of Baltic Sea origin. From other records of ringed birds it is also shown that birds of a more eastern origin will migrate down the east coast of Africa. Of interest is a bird ringed in Ghana. This bird was caught at Mile 4 some three weeks after having been caught in Ghana. When caught in Ghana it was

showing a suspended moult. This means that it had started the moult on the breeding grounds but then stopped it for the migration. By the time that we caught the same bird it was again in active moult. 73 Common Terns ringed at Mile 4 have been either re-caught or found dead in the northern hemisphere (Table 2).

**Table 2.** Common Tern recoveries/controls

Column A: birds ringed elsewhere and controlled/recovered at Mile 4

Column B: birds been ringed at Mile 4 and controlled/recovered elsewhere

	A		B
Finland	122	Belgium	22
Sweden	49	Netherlands	12
Germany	39	Sweden	9
Norway	27	Finland	6
Belgium	17	Denmark	4
United K	17	Germany	3
Estonia	16	Norway	3
Netherlands	10	Senegal	3
Lithuania	9	Spain	3
Spain	7	Ghana	2
Latvia	5	UK	2
Poland	5	France	1
Denmark	2	Latvia	1
Ghana	1	Lithuania	1
Russia	1	Russia	1
Senegal	1		

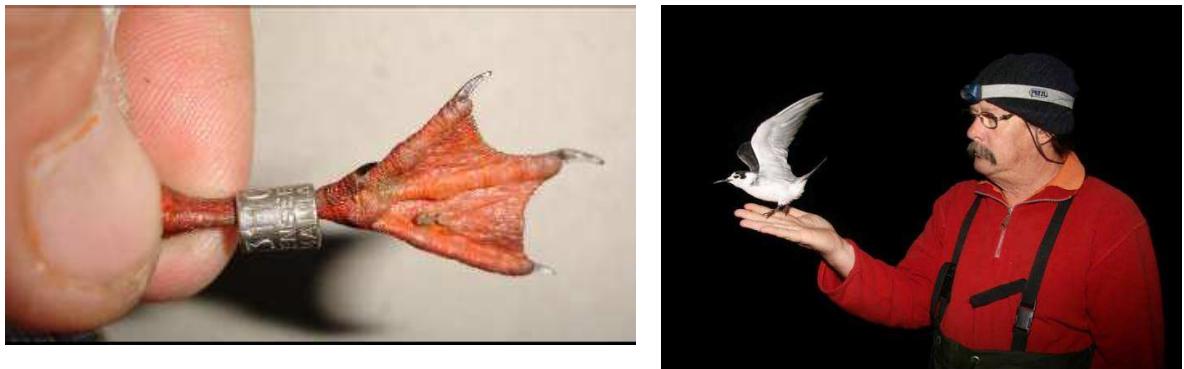
Just five Black Terns with foreign rings have been processed, one each from Italy, Latvia and Greece (Table 3). Not shown are two birds ringed in Senegal. In addition, a bird ringed at Mile 4 was caught in Spain and another shot in the Ukraine. Prior to this Latvian recovery it was assumed that “our” birds were of Black/Caspian Sea origin.

**Table 3.** Black Tern recoveries/controls

Senegal	2	Spain	1
Italy	1	Ukraine	1
Latvia	1	Greece	1

Interestingly, a Dutch researcher has recorded a bird that was caught in Greece on its “northerly” migration and in August of the same year in Holland on its southern journey. We obviously have little understanding of these birds’ migratory routes. Sandwich Tern data show that the population represented here is mainly of Baltic Sea origin.

Thank you to everyone who has braved the long cold nights with me, and to the owners and staff of Mile 4 salt works, especially the Klein family.



**Fig. 2.** A (left) Close-up of the ring used on terns (photo: Mark Boorman); B (right) Mark releases a ringed tern (photo Dirk Heinrich)