

## **THE SEYCHELLES SOOTY TERN PROJECT - past, present and future**

In 1971 George Dunnet, then Professor of Zoology at the University of Aberdeen, obtained a NERC grant to enable a study of the biology of Seychelles Sooty Terns, whose populations were allegedly declining through over-exploitation of their eggs. These were considered by some to represent an important nutritional supplement for local people in June-July, when seas are rough and fish in short supply. I was the fortunate youngster to whom George offered the study, and during 1972 and 1973 I undertook basic studies of the birds' biology, little expecting to be still looking for ringed birds 30 years later!

The early 1970s study provided a basis on which the egg industry could be re-organised in an attempt to ensure that the annual harvest could be sustainable, but assumptions about some aspects of Sooty Tern life had to be made. For example, only longer-term studies could throw light on the birds' annual survival, age at first breeding, habitat needs and the extent of inter-colony movements of adult and young birds.

In 1993 the Seychelles Government decided to stimulate further research to test some of the assumptions made earlier. This stimulus did not extend to funding at that stage, however, and the initiation of this phase of the work was achieved through grants and other assistance from the Royal Society, Percy Sladen Memorial Fund, the Seabird Group, Air Seychelles, British Airways for Nature Conservation, the Islands Development Company and Bird Island Lodge. Bird Island hosts the large colony where most of the current work is undertaken, and the continuing support and interest from the owners is invaluable for the continuation of these long-term studies.

The early funding from these bodies allowed the purchase of large numbers of rings that were put on adults and pulli in the main colonies of the Seychelles and Amirantes. Subsequently, using finance from the Dutch Trust Fund, the Division of Environment of the Seychelles Ministry of Environment and Transport was able to support my visits, sometimes with an assistant, although our time was, and continues to be, volunteered.

The main thrust of my annual visits during the incubation phase of the nesting cycle is to search the Bird Island colony for ringed birds in order to collect data for the estimation of annual survival, age at first breeding and inter-colony movements of both young birds and established breeders. Each year, about 200 ringed birds are found (thought to represent about 10% of the ringed birds present in the colony), mainly from cohorts marked in 1993-1997 on Bird Island, but also including birds ringed during the 1972 and 1973 seasons, and birds ringed in other colonies. Unfortunately, it has not proved possible to search other colonies where large numbers of birds have been ringed. Nevertheless, the ringing of these birds, ring searches on Bird Island, and associated studies of movements of radio-tagged birds and of habitat requirements of nesting birds have enabled staff from the Division of Environment to be trained in many aspects of the practical studies and their theoretical background.



**Elvina Henriette, Division of Environment,  
registering the ring number of a Sooty Tern  
on Bird Island**

The current studies have now shown that established breeding adults sometimes switch colonies between breeding seasons, the most likely stimuli for these moves being human disturbance of nesting birds, associated with both legal and illegal harvesting of eggs, and changes in the distribution of food sources in the vicinity of large colonies. This suggests that colonies in the Seychelles and Amirantes form units of a metapopulation, but the geographical extent of this population over the western Indian Ocean, and thus the source of potential recruits to Seychelles colonies, remains to be established. The youngest ringed Sooty Tern found breeding is four years old, and the data available so far suggest that most birds first return to breed between 6 and 8 years old. This is similar to findings in colonies that have been

studied on the Dry Tortugas, Florida, and on Johnston Atoll, Hawaii, and suggests that the level of egg exploitation in the Seychelles is not leading to earlier breeding of young birds. Preliminary analyses of re-sighting data of ringed birds on Bird Island are indicating an annual survival approaching 90%, but the survival of juveniles between fledging and their return as breeding adults is unknown.

These findings approximate closely to the assumptions I made in 1973 when making suggestions for the re-organisation of the egg industry but, as knowledge increases, refinements to the calculations of permissible harvest will be made. During the course of the present studies, however, a change in policy was proposed in 1997.



**Cases of Sooty Tern eggs on the beach of Desnoeuufs Island, awaiting transport to the markets on the central Seychelles islands. Each case contains 300 eggs, supported on egg trays and sealed in polythene to prevent seawater ingress.**

In 1997, the price of Sooty Tern eggs was increased in order to more properly reflect the value of this resource to the Seychellois. At the same time, a levy of 15% was placed on egg sales, the funding so generated going to the Division of Environment to support monitoring of the egg harvest and of the size of exploited

colonies, and the protection from illegal cropping of otherwise unprotected colonies. The aim is to make the running of the egg industry by the Islands Development Company, and the administration and policing of associated conservation regulations by the Division of Environment, self-sustaining.

The presence of such a large number of ringed Sooty terns in Seychelles colonies represents a valuable resource, and annual searches for these birds will continue to be the main component of study until the pattern of return of pulli ringed in 1997 has been established. In addition, however, studies have begun on the potential for re-establishing Sooty Tern colonies on islands from which they formerly disappeared; these studies involve the management of appropriate habitats on these islands, including eradication of exotic predators, and the responses of adult birds to decoy models and broadcast calls. Further into the future, the tracking of birds away from their colonies, both when feeding and during dispersal/migration, will help to highlight any threats to the birds while at sea. Continued monitoring of populations and the egg harvest will identify any needs to modify harvest strategy in the light of such threats.

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