Sooty Terns As A Pelagic Species

Of the 40 species of terns (Sterninae), most feed either on freshwater marshes, lakes, and streams, or along marine coasts and estuaries. A few venture into offshore waters on continental shelves or near islands, especially in the nonbreeding season. Sooty Terns seem to be the most pelagic (beyond the continental shelf) of terns, although several other *Sterna*, both species of *Anous*, and *Gygis* feed in offshore and pelagic waters. Apparently by exploiting pelagic waters and breeding on isolated islands, Sooty Terns utilize a niche available to few other species. Several features of Sooty Terns deserve further comment in this regard.

One of the most puzzling facts about Sooty Terns is that they rapidly become waterlogged when placed on water (Watson and Lashley, 1915) and apparently seldom rest on water. As Sooties inhabit the open oceans during the nonbreeding season, birds from some colonies must fly continuously for 6 months or more. Virtually nothing is known of the physiological adaptations involved in flying for such long periods. For example, do they sleep on the wing as the Swift (*Apus apus*) apparently does (Lack, 1956), or do they go without any sleep at all? Perhaps Sooty Terns have some morphological adaptation that allows them to fly better than coastal terns, but as yet this remains another unstudied aspect of Sooty Tern biology.

Being able to feed without landing in the water certainly enhances the ability of a nonswimming bird to range far from land. Thus Sooties can exploit food in a large area far from land, reached by few other birds. Several factors restrict Sooty Tern food availability. Except for some areas where upwellings or convergences occur, tropical pelagic waters are poor in nutrients and the plankton that form the base of their food chain (Raymont, 1963). Sooties apparently are restricted to feeding on food items that occur at the very surface of the ocean, or in the air immediately above it. This food is driven to the surface mainly by large predacious fish (Ashmole and Ashmole, 1967: 58) and thus is not evenly distributed throughout the ocean.

The length of incubation shifts and brooding spells varies considerably between different Sooty Tern colonies. Adults usually shift at 1 or 2 day intervals on Bush Key whereas they vary from 2 hours to 3 days in the Seychelles (Ridley and Percy, 1958), and are as long as 6.5 days on Ascension Island (Ashmole, 1963), and 7 days on Christmas Island (Ashmole and Ashmole, 1967). The duration of the shift must depend somewhat on the time required to fly to the feeding ground, find enough food to last until the adult can feed again, and then return to the colony. The most reasonable explanation for the great variation between colonies in time spent foraging is that food is farther away or scarcer for some colonies than others.

More puzzling is the change in length of brooding spells once the