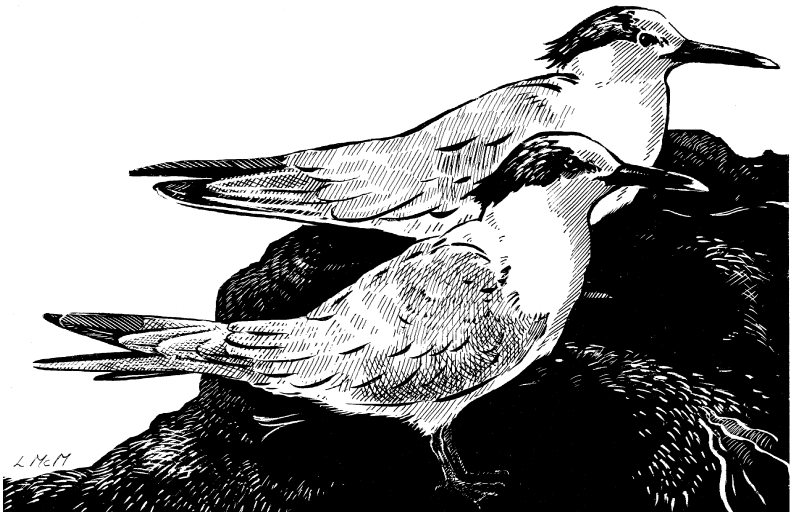


Sandwich Tern

Grootseeswael

Sterna sandvicensis

The Sandwich Tern has a fragmented breeding distribution in Europe, in Asia along the Black and Caspian seas, and along the Atlantic Ocean shore of both North and South America. It is a seasonally abundant nonbreeding visitor to southern Africa; *c.* 60 000 pairs breed in northwestern Europe, of which *c.* 90% are in Britain, Germany, the Netherlands and France (Tucker & Heath 1994). The nonbreeding range of this population is along the Atlantic Ocean coast of Africa and around the Cape along the Indian Ocean coast as far east as Mozambique (Møller 1981). The populations breeding along the northern Black (30 000 pairs) and eastern Caspian (20 000 pairs) seas have the Mediterranean and Arabian seas, respectively, as their main nonbreeding areas (Cramp *et al.* 1985), and do not normally visit southern Africa. But ringed nestlings from both of these populations have been recovered in this region: from the Ukraine (47°N 36°E) in July 1986, to Knysna (3423AA) in March 1987; from the Caspian Sea (40°N 53°E) in July 1978, to Oranjemund (2816CB) in January 1982 (SAFRING). Both recoveries were on opposite coasts to what would be anticipated, given the normal nonbreeding areas, and it is a matter of speculation whether they had rounded the Cape or had migrated in the wrong directions.

Habitat: In southern Africa, it comes to land only to roost, usually with other terns or gulls, and may then bathe or fish in estuaries and coastal lakes. It is almost exclusively marine; inland records are exceptional (e.g. feeding on fish at near-empty farm dams among orchards near Tulbagh (3319AC), 80 km from the shore from 13–25 March 1995 (Hofmeyr & Krone 1995)). It uses all coastal habitats but favours sheltered bays and estuaries, seldom foraging far from shore. It occurs almost exclusively within the continental shelf (Møller1981).

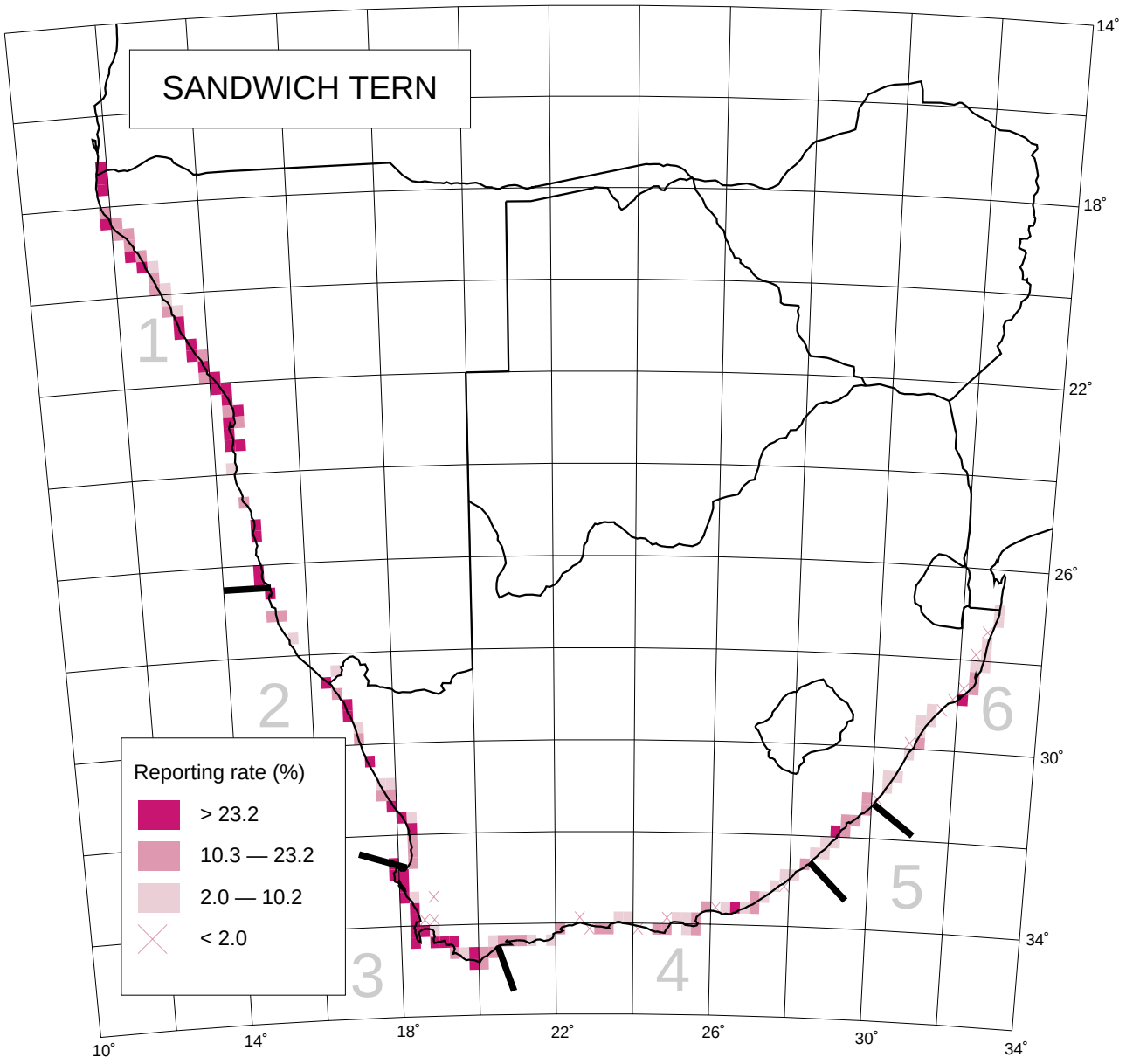
Movements: It commences egglaying in the northern hemisphere in early May, and young fledge from late June. Southward migration of adults begins in June, and first arrivals occur off western Africa in July, but the bulk of adult migration takes place later (Møller 1981). The models indicate that reporting rates increase most rapidly in northern Namibia in September, and in the southwestern Cape Province in October. Northward departure occurs February–May. Passage through northern Namibia in March is apparent in the models. Juveniles commence their first southward migration with slow dispersive movements, and most do not start strongly directed southward migration until September or October. Small numbers of birds, mainly juveniles, remain in southern Africa through the breeding season (Møller 1981); only four ringed birds have been recovered May–October, compared with 72 recoveries November–April (Morant *et al.* 1983).

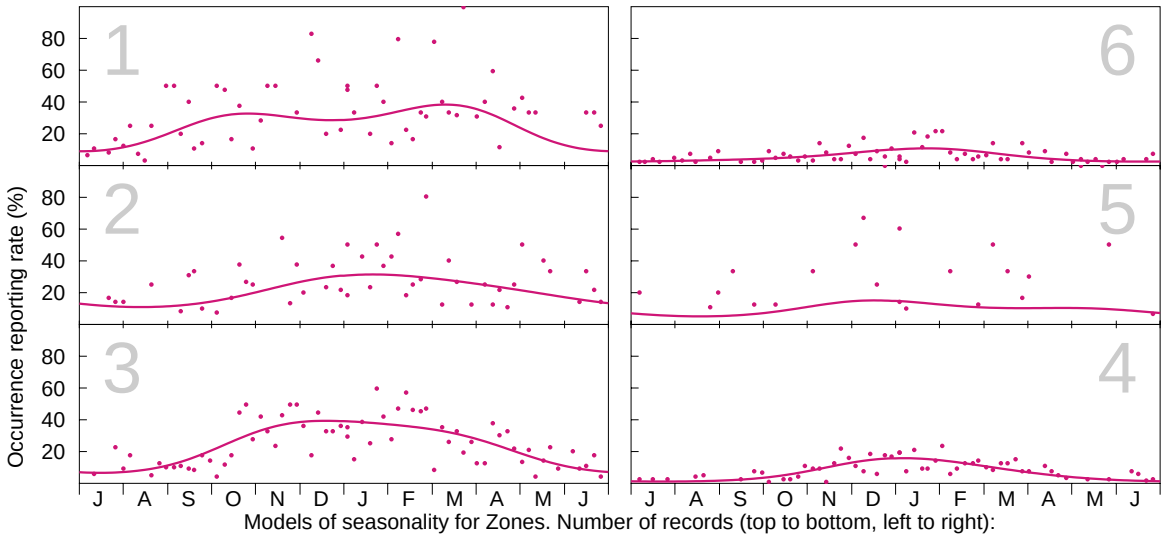
It is a diurnal migrant with peak movements in the early morning and evening. It normally travels within a few hundred metres of the coast, just above the surface of the sea in small groups, though occasionally in flocks of several hundred (Møller 1981). Møller (1981) estimated that juveniles migrate at average speeds of 30–40 km per day, but failed to take into account the fact that his calculation was biased downwards by including the two-month period after fledging during which birds disperse slowly; a recalculation suggests more realistic average speeds of 130 km per day in October–November. Because migrating Sandwich Terns hug the coastline, the total distance, from a North Sea breeding site to the southwestern Cape Province, is approximately 15 000 km. Averaging 130 km per day, the migration time would be approximately four months, which is similar to the observed time between departure from the breeding colonies and arrival in the southwestern Cape Province.

Historical distribution and conservation: There is no reason to suspect that the range has changed in southern Africa during the 20th century; Stark & Sclater's (1906) distribution spanned the coast from Walvis Bay to Durban. In the European breeding grounds, the provenance of most Sandwich Terns migrating to southern Africa, population sizes are difficult to assess because colonies shift frequently, but trends are mostly upwards and there has been some range expansion, especially in the Baltic Sea region. In the Netherlands, populations had recovered by 1990 to *c.* 11 000 pairs, compared with a 20th-century maximum of 40 000, and a minimum of 650 pairs in 1965, which was the result of a population crash due to pesticide poisoning (Cramp *et al.*1985; Tucker & Heath 1994).

A.J. Williams and L.G. Underhill

Recorded in 154 grid cells, 3.4%
Total number of records: 3918
Mean reporting rate for range: 14.8%





Models of seasonality for Zones. Number of records (top to bottom, left to right):
Occurrence: 172, 119, 326, 185, 29, 132.