

# Nest boxes for roseate terns *Sterna dougallii* on Coquet Island RSPB reserve, Northumberland, England

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## SUMMARY

Since the mid 1970s the number of nesting roseate terns *Sterna dougallii* had declined on Coquet Island. In 2000, tern nest boxes were installed on an artificial terrace on the island to provide shelter for tern eggs and chicks from their main nest predators, large *Larus* gulls. Since 2003, all roseate terns breeding on Coquet Island have used nest boxes as nest sites and the number of breeding pairs has risen steadily.

## BACKGROUND

The roseate tern *Sterna dougallii* is a red-listed species in the UK, having declined from over 1,000 breeding pairs in the late 1960s to under 100 pairs in the 1990s. Much of the decline can be accounted for by birds moving to the colony at Rockabill in the Republic of Ireland, but small colonies have persisted at several UK sites, notably Coquet Island, northeast England, which now holds most of the UK breeding population. In 1976 the number of pairs of roseate terns nesting on Coquet Island declined from 60 to 26, and it showed no sign of recovering, with peak numbers reaching more than 30 pairs in only four years between 1977 and 1999. In 2000, following a visit to the Rockabill colony and discussions with the wardens there, nest boxes were installed on an artificial terrace on Coquet Island to provide shelter for the terns from their main nest predators, herring gulls *Larus argentatus* and lesser black-backed gulls *L. fuscus*, and the weather.

## ACTION

**Study site:** The provision of nest boxes for roseate terns was undertaken on Coquet Island RSPB reserve, Northumberland, northeast England in 2000.

**Nest box provision:** Prior to 2000 up to 12 nest boxes had been provided for roseate terns each year, but these could not accommodate all the breeding pairs. Following a visit to the Rockabill roseate tern colony in the Republic



**Figure 1.** Constructing the roseate tern terrace, Coquet Island RSPB reserve.

of Ireland and discussions with the wardens there, before terns returned to breed in 2000, a three tier terrace was constructed on a low cliff edge/bluff near the traditional tern nesting sites on the south of Coquet Island. The terrace was 25 m long, and each tier was made of a low dry stone wall topped with flagstones to prevent Atlantic puffins *Fratercula arctica* from burrowing in and undermining the structure (Fig 1). The flagstones were covered in a layer



**Figure 2.** Sloping roseate tern nest box.



**Figure 3.** Square roseate tern nest box.

of shingle shells from a beach on the other side of the island, and 25 wooden nest boxes were put out on the terrace.

The nest box dimensions are approximately: height = 15 cm; doorway width = 15 cm; box length = 45 cm; box width = 30 cm. The boxes may be of a sloping- or flat-roofed design (Figs. 2 and 3).

The island warden (P. Morrison) considers that dimensions of the boxes are however, not that critical, with the cluster of lots of boxes, minimal disturbance, food availability and association with common terns *Sterna hirundo* (which help to drive away larger gulls) being also important factors. Additionally roseate terns are known to nest under or tucked in amongst a variety of natural beach debris or man-made structures, such as old car tyres, of a great variety of shapes and sizes.

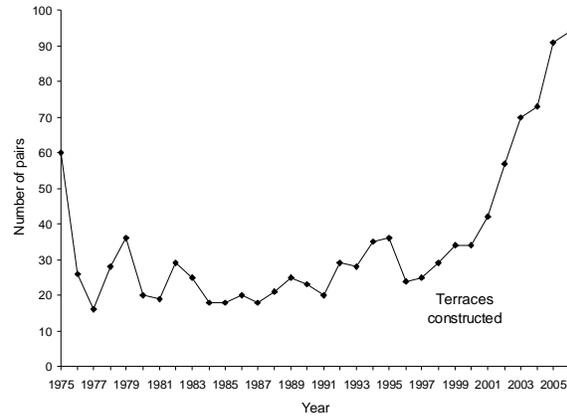
After the first year, the terrace was extended along the cliff edge, with volunteers constructing the walls in September (after departure of the terns), and reserve staff replenishing the shingle shell layer in the spring of 2001. Subsequently the terrace has been further extended and more nest boxes provided each year, with 200 put out in 2006 (Fig. 4). Since 2001, the number of nest boxes put out has always exceeded the number of roseate tern pairs recorded on Coquet Island in the previous year.

## CONSEQUENCES

Since 2003 all the roseate terns breeding on Coquet Island have used nest boxes as nest sites or as shelter for their chicks. Some boxes were available in the traditional nesting areas on the island, but the birds appear to favour those on the terraces, and all the roseate terns in 2006 nested on the terraces.



**Figure 4.** Tern nest boxes on the terrace.

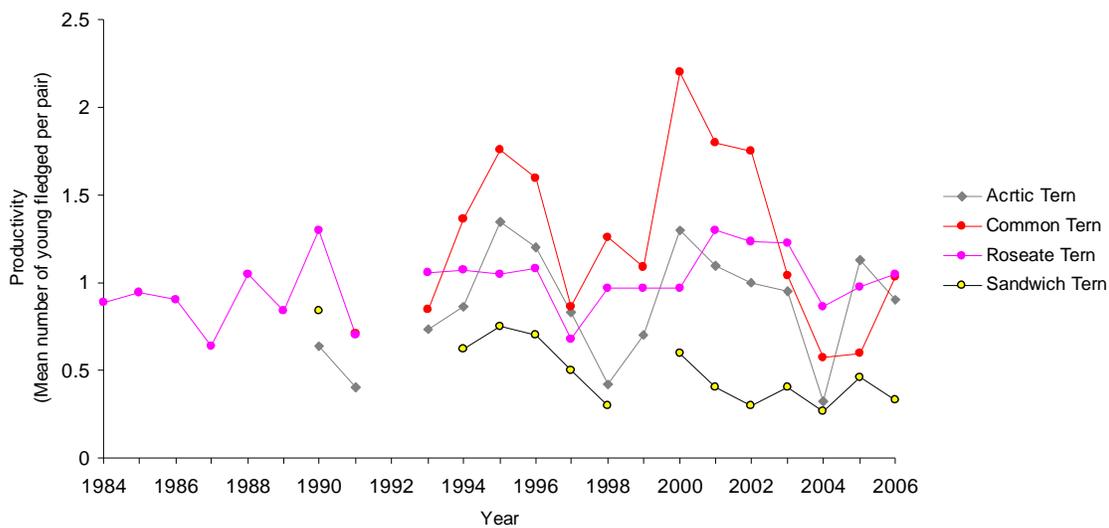


**Figure 5.** Roseate tern pairs breeding on Coquet Island RSPB reserve, Northumberland.

These will be repaired as necessary each year and extended if the colony continues to grow.

Numbers of roseate terns breeding on Coquet Island have increased from 34 pairs in 2000 to 94 pairs in 2006 (Fig. 5). There has also been a rise in productivity, and since 2001, roseate terns seem to have been more successful in raising young than the other three tern species (common tern, Arctic tern *S. paradisaea* and Sandwich tern *S. sandvicensis*) nesting on the island (Fig. 6). In 2004, all the terns, regardless of species, lost many young to storms and a food shortage, but the roseate terns seemed more able to cope with these events, and still fledged 0.86 young per pair (compared to 0.57 for common and 0.32 for Arctic terns). So whilst food supply and weather may still be the most important factors in determining nesting success, it appears that the nest boxes can improve productivity, even in bad years.

There is no data on loss of eggs and chicks to gull predation before the boxes were used because the young chicks used to hide themselves very well in nearby stinging nettle *Urtica dioica* beds, so it was hard for the research staff to follow their fate. Now that roseate terns use the boxes, an added advantage is that staff can easily monitor nests and thus know exactly how many eggs are laid and how many young successfully fledge, and all young can be ringed.



**Figure 6.** Productivity of the four species of terns breeding on Coquet Island RSPB reserve.

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