

# **ROSEATE TERN**

## **SPECIES RECOVERY PROGRAMME**

### **ISLES OF SCILLY, 2002**



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## SUMMARY

English Nature has funded a three-year programme to encourage roseate terns to return to breed on the Isles of Scilly. This report presents the results of the third and final year's work.

The audio equipment on Samson North Hill was activated on 18<sup>th</sup> April and 20 dummy terns were put in place. Up to 30 common terns were defending the site from 18<sup>th</sup> May and nests with eggs were found on two occasions, involving five clutches on 11<sup>th</sup> June with two clutches on 20<sup>th</sup> June. At least one predated clutch was present on the first of these two dates, with two to three on the second visit. Examination of predated shells suggested crows may have been responsible and perhaps coincidentally a loose flock of 27 carrion crows was present on the island's north-east corner on 20<sup>th</sup> – two to three hundred metres from the tern site.

Lesser Black-backed Gull incursion into the site was further reduced this year, although some 18 nests were destroyed up to and including 29<sup>th</sup> May.

Up to about 20 common terns apparently bred successfully on nearby Green Island Samson.

A substantial number of pairs bred successfully on Annet's southern end, with c50 nests on 11<sup>th</sup> July. At which time up to 120 birds were in the air and some young were fledging. Many nests also contained freshly laid clutches.

No Roseate terns were seen or heard at any of the above sites or elsewhere during the spring and summer.

On two occasions people were seen inside the protected area on Samson.



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## Roseate Tern Species Recovery Programme, Isles of Scilly 2002

### 1 INTRODUCTION

In March 2000 English Nature agreed to fund a project on the Isles of Scilly to try to encourage roseate terns *Sterna dougalli* to return to breed in the area. The species had not bred on the island for five years and it was realised that the longer their absence as a breeding species, the less likely or more difficult it would be for them to return.

Maintaining the breeding range of roseate terns through the protection of extinct colony sites and encouraging birds to return to these is a crucial part of their conservation in Europe. The annual conservation liaison meeting comprising the Isles of Scilly Environmental Trust, English Nature and the Royal Society for the Protection of Birds has made tern conservation on the islands a priority and has agreed a policy of using decoys. This project implements that policy. The importance of tern conservation has also been highlighted in the Isles of Scilly Natural Area Profile published by English Nature. Roseate tern is a Biodiversity Action Plan species with a target of 200 breeding pairs by 2008.

The technique used for this programme was pioneered in the United States, it uses a sound lure combined with decoys to persuade birds to return to historical or 'favourable' breeding sites. Dr Stephen Kress at the Audobon Society has successfully used this technique with roseate terns and other species.

### 2 TERNS ON THE ISLES OF SCILLY - HISTORICAL INFORMATION

The Isles of Scilly are situated approximately 28 miles (45 kilometres) off the west tip of Cornwall. Although some 200 or so islands and lesser rocks are involved, human habitation is restricted to the five largest, St Mary's, St Agnes, Bryher, Tresco and St Martin's. The sixth largest, Samson (96.3 acres, or 39 hectares – approximate position 6° 22.5W - 49° 56N) was also inhabited up to about 1850.

The islands are designated an area of Outstanding Natural Beauty and are unique as Europe's only example of a Lusitanian semi-oceanic archipelago<sup>1</sup>. A voluntary Marine Park is in operation. An outstanding feature of this fairly recently 'drowned landscape'<sup>2</sup> are the sheltered areas of shallow, clear water overlying extensive stretches of shell sand, mostly in the vicinity of Tresco, Samson and the south side of St Martin's. Historically this has provided an attractive feeding and nesting area for common tern *Sterna hirundo*, Sandwich tern *Sterna sandvicensis* and roseate tern, all of which are recorded as breeding from at least the early 19th century<sup>3,4</sup>. Considerable debate has taken place in recent years regarding the possible former presence of breeding Arctic terns *Sterna paradisaea* also, but the issue remains unresolved. Though they have definitely been absent as breeders for the past fifteen years or more<sup>5</sup>.

About 100 to 200 pairs of common terns appear always to have been present within the last 200 years, though that has recently declined to around 100. And far fewer, but often unspecified numbers of Sandwich terns have been

involved. Though c15 pairs laid eggs on Samson as recently as 1991, plus odd pairs elsewhere since that date. Roseate terns have reportedly been present in numbers of from one to 12 pairs since at least 1840, with the last known breeding attempt as recent as 1994. Since that time, however, no pairs are known to have been present in the islands and few birds have been noted on spring or autumn passage. As elsewhere, roseate terns in Scilly have demonstrated a marked preference for breeding among, or in close proximity to, common terns and during the early 1990's responded favourable to the introduction of timber nest boxes.

Historically, tern breeding populations in Scilly are subject to frequent same-year and between-year inter-site movements, resulting in fragmentation of total numbers and rendering individual groups vulnerable to failure from a range of causes. These sites are spread over a number of inhabited and uninhabited islands and causes of failure include human disturbance, tidal flooding, and the effects of extreme weather and rat, gull and/or cat predation.

Three or four small isolated and bare rocks are particularly favoured by common terns, but hold too few pairs for successful defence against gull predation. These same sites also involve frequent loss of eggs and, presumably, young during heavy rain or high winds. In order to improve breeding success at these sites a programme of pre-season 'sanding' in the early 1990's successfully increased breeding numbers to around 40 pairs per site. However this merely resulted in increased gull predation of exposed young. Attempts to counter this through provision of small rock shelters proved unsuccessful and 'sanding' was abandoned; aesthetic considerations prohibit use of simple systems that have proved successful elsewhere, e.g. provision of old car tyres for sheltering young.

Importantly, the frequency of same-year, between-site movements has annually meant that meaningful attempts at estimating total numbers of pairs involved, or assessing productivity, can only be achieved by equally frequent attempts to locate and count pairs/nests. In past years this work has been facilitated by the English Nature's provision of the launch Melza with an experienced local boatman.

## **2.1 Previous Tern Management on Samson**

Since summer 1991 the North Hill site has been roped off for protection from human disturbance. In 1992 about 15 timber nest boxes were constructed and provided for the possible future use by roseate terns. Though roseate terns here have not used these particular boxes (owing to their absence) the species has successfully utilised them on Tresco Green (Skirt) Island and one of the small bare rocks.

In 1997 and again in 1998, 12 dummy incubating common terns placed in position among the nest boxes. This had the effect of attracting a few breeding pairs in each year but no young were reared. Problems were encountered with breeding lesser black-backed gulls *Larus fuscus* encroaching into the area and this was eventually resolved through the persistent removal of the nests, including frequent repeat clutches. Dummy terns were constructed from the comparatively soft Potter's plaster and a



small number were attacked and partly damaged, presumably by large gulls, though carrion crows *Corvus corone*, a pair or two of which are in the area, may also have been responsible. One to two crows were seen on the ground within the breeding area in 1998 and predated tern eggs subsequently found. On one occasion two crows were seen walking about the area as if searching for nests (PR). Overall tern productivity was generally low throughout the islands in both years.

In 1999 up to 60 common terns and 11 nests were recorded on Samson. Greater numbers of nests were recorded at three other sites, but Samson recorded the second highest productivity with 11 large young. Eleven young and 55 adults were present on the 28<sup>th</sup> July and 12 birds were still defending the site on the 12<sup>th</sup> August 1999.

### **3 THE PROJECT**

#### **3.1 Location**

The project was located on Samson, this decision was based on the fact that it is a historical site, above the high-tide level, relatively free from human disturbance and with easy access by boat.

Samson is situated near the centre of the archipelago. It comprises two hills, North Hill (35m AOD) and South Hill (42m AOD). A flat, sandy, vegetated isthmus separates the two hills. There are a number of pre-historic burial chambers on the summits of both hills. These have been excavated, but retain importance as archaeological sites. Both hills have an extensive covering of bracken, but the western summit of North Hill is dominated by area of a waved heath and lichen-covered low heather. Several additional seabird species breed on Samson, some of which, e.g. Shag, have colonised since the removal of rats. Most relevant to the terns are approximately 1,000 pairs of Lesser Black-backed Gulls, a few of which breed in close proximity to the North Hill tern site.

Within the past 10 to 15 years the North Hill site, (OS NGR SV87961312) has been consistently favoured by breeding terns, with some 60-80 pairs of common terns present in 1991, together with about 15 pairs of Sandwich and at least three pairs of roseate terns. All laid eggs but regrettably the site then failed due to the actions of Brown Rats, though this had not previously been appreciated as a problem associated with seabird breeding failures on this island.

During winters 1991/92 and 1992/93 an active programme of rat clearance was undertaken on Samson and the island has remained rat free since that time; clearance work was carried out by the Isles of Scilly Seabird Group using grant money provided by RSPB, English Nature and Birding Southwest. However, since then the majority of terns appear to have lost interest in the site. This may be because they used it as an alternative to the nearby and more favoured Samson Green Island where there were frequent failures due to tidal inundation. Nevertheless, given the recent history of tern breeding site failures in Scilly, particularly on Green Island, Samson is still thought to offer the greatest probability of a safe and productive multi-species tern-breeding site within these islands. Being free from tidal flooding, the effects of heavy rain and free from mammalian predators.

There is also ground cover for young birds and the ability to easily control human disturbance. The site also offers reasonable prospects of access for management purposes during bad weather. To that end there is multi-agency (IOS Environmental Trust, RSPB, English Nature) agreement that all necessary efforts should be made to encourage and promote this site as the main tern colony in Scilly.

### **3.2 Sound equipment and decoys**

In summer 2000 a self-contained audio system was installed at the Samson North Hill. The system comprises a portable CD player combined with a custom build 10-watt amplifier. It is powered by an 80-watt solar panel using three 12V 40W lead-acid-gel batteries. The CD was custom recorded using a desktop PC CD-writer and calls provided by the British Sound Library. Two 15W waterproof boat-speakers were placed 50cm above the ground on opposite sides of the colony area. The batteries and other electronic equipment were contained in a lightweight fibreglass box that was padlocked and fixed permanently to the solar panel.

The sound system was left running 24 hrs a day. It might seem strange to play the calls during the hours of darkness, but Stephen Kress has advised that this has been found to be the most successful method in the United States. It does mean that power requirements are higher compared to playing only during daylight hours, but this is offset by the electronic complications associated with switching the system on and off.

The site was visited on a regular basis throughout the season, to monitor the response of the terns and to check that the equipment was still functioning.

## **4 RESULTS**

### **4.1 Samson North Hill Site**

#### **Access to and from Samson**

As in past years all access was via Hicks and Sons boats, or via boats on contract to that company. The addition to the Hicks fleet this year of a lightweight RIB greatly reduced the time involved in reaching any island, weather permitting, and greatly increased the ability to visit more than one island on any one day.

#### **The Equipment**

The audio equipment appears to have performed faultlessly throughout. The three 12-volt batteries and solar panel were again left on site during the preceding winter and when the audio equipment was started up on 18<sup>th</sup> April battery power was at 14 volts.

#### **Lesser Black-backed Gulls**

Since taller vegetation was pushed back away from the tern site in the two previous years the number of Lesser Black-backed Gull pairs nest building or attempting to build within the limits of the protected tern site has further reduced. As in 2001 most nests found were along the western limit of the tern area, with one to two only closer in. Ten nests were destroyed on 18<sup>th</sup> May and eight on 29<sup>th</sup> May, at least some of those on the latter date presumably



involving replacement nest. The only gull's nest encountered after the end of May involved a clutch of two destroyed at the edge of the site on 20<sup>th</sup> June.

### **Environmental Trust Volunteers**

During the visit on 11<sup>th</sup> June PR was accompanied by four Trust volunteers.

### **Dummy Terns**

During winter 2001-02 20 new dummy terns were manufactured out of a plastic compound, in an attempt to produce a more durable dummy. All 20 were painted as Common Terns and deployed at the Samson North Hill site on 18<sup>th</sup> April. A further nine of the former plaster dummies, painted as Roseate terns were deployed on 18<sup>th</sup> May.

### **Common Terns – Samson**

The first obvious evidence of terns at the Samson North Hill site was on the 18<sup>th</sup> May, when c.30 Common terns were defending the site and landing amongst the new plastic dummies, whilst the nine Roseate dummies were being unpacked just metres away. Up until that time the weather had been bad for some two weeks, as evident from the badly wind-burned new bracken growth.

On 11<sup>th</sup> June up to 15 Common terns were present at the site and five nests with eggs were located, four of which were warm and one of which was freshly laid. Two apparently predated egg shells were also found, though it was not possible to say if more than one nest had been involved. The absence of rats from Samson and the probability of gulls taking the whole egg left Carrion crows as the most likely culprit. Importantly, all tern nests found were among the dummies and two clutches were within a few centimetres of dummies. Young terns were searched for but not found.

On 20<sup>th</sup> June six to seven terns were defending the site and just two nests with eggs were found. No chicks were found but four to five apparently predated eggs were located and Carrion crows were again suspected. On 11<sup>th</sup> July a single pair of terns were actively defending the site but no eggs or young were found. However the manner of defence was unusually direct for Common terns in Scilly, including actually striking the observer on the head and shoulders, and from this and plumage features the writer was of the opinion at least one of this pair was Arctic Tern. In which case this incident involved the next nearest to breeding in Scilly since up to 60 pairs of Arctics were said to have done so on Annet in the 1960s and a few pairs on Tresco in 1973 and 1977.

### **Carrion Crows**

Birds are normally present on Samson in mostly small numbers, though it is unclear whether they remain on that island or visit from larger islands, particularly Tresco or Bryher. Three to four birds were seen on Samson on 29<sup>th</sup> May and again on 11<sup>th</sup> June, in West Porth. However, on 20<sup>th</sup> June a loose flock of at least 27 birds was encountered at the northeast corner of the island, within about 2-3 hundred metres of the North Hill tern site.



### **Human Disturbance**

In contrast to past years, human disturbance inside the roped off area was witnessed by the writer on three occasions this year. The first involved three people who followed me into the site on 18<sup>th</sup> May to ask if they could scatter their fathers/husbands ashes on one of the burial chambers. These same then remaining inside the area for a further ten minutes. On 20<sup>th</sup> June two different couples were seen to enter the area, apparently to inspect the burial chambers.

#### **4.2 Green Island Samson**

An unknown but small number of pairs, probably less than 20, of terns apparently bred on nearby Green Island Samson, though unfortunately the island was not visited. On 11<sup>th</sup> June c40 birds were seen to get up from that part of the island normally above highest tides and on 20<sup>th</sup> June a lesser number, c25-30, got up from the same area, some of which appeared to then settle and incubate or brood. However the edges of this same island also held numbers of apparently roosting terns on this last date and it is possible those in the centre were also roosting.

#### **4.3 Annet's Southern End**

Up to three pairs of Common terns have been defending the area of Annet's most southerly beach for a number of years (PR pers obs) and in at least some years eggs were laid and young reared. On 7<sup>th</sup> June 2002 David Mawer and others encountered c35 Common terns at this site and found five nests. Whilst on 20<sup>th</sup> June he found c25 clutches.

Peter Robinson visited Annet on the afternoon of 11<sup>th</sup> July and counted an estimated 120 birds in the air over the site and located at least 50 nests; the presence of many near-fledged young making accurate assessment impossible. However many clutches appeared extremely fresh. Use of the formula from the Seabird monitoring handbook suggests some 80 pairs present at this site on 11<sup>th</sup> July, making it very probably the most successful tern breeding site in the islands since at least 1990 (pers obs).

#### **4.4 Roseate Terns**

During the current year no Roseate terns were seen or heard at Samson, Green Island or Annet.

### **5 2003 – WHERE NEXT**

The first three years of the project have demonstrated that the equipment can work effectively in the face of the Atlantic weather. The indications are that the terns are attracted to the decoys. However, the large numbers of carrion crows present on the island or able to move between the islands appears to have effectively nullified most breeding attempts.

In 2000 up to 15 common terns were recorded at the decoy site together with predated eggs, at the same time terns were thought to have bred on the adjacent Green Island. In 2001 a minimum of 25 pairs laid eggs and a maximum of 36 pairs were thought to be present. An unknown number of young fledged.

Whilst no roseate terns have been recorded, this does not mean that they have not visited or passed through the area. The number of observer-hours each year has been incredibly low and unless a roseate tern remains in a colony for several weeks it is unlikely to be recorded. It is clear from the fact that the presence of breeding terns on Annet was not known until 7<sup>th</sup> June, and was not checked after the 11<sup>th</sup> July, that effective monitoring of terns within the Scilly archipelago is not taking place on an annual basis. In 2000 there were two autumn records of roseate tern, whilst in 2001 there were two summer records from the area of Green Island.

Having come this far it would be a complete waste of the previous three years work to discontinue any work with the terns. If roseate terns are to be encouraged to return to the island American experience suggests that it may take many years. Persistence is essential.

We consider that there are two important issues that need to be considered if the project is to succeed. Firstly it seems highly likely that crows are the main egg-predator on Samson. There appears to be a roving, non-breeding population that regularly visits the island. In time these birds may find their way out to Annet and predate the terns if they continue to nest there. It is suggested that funds are made available to control the crow population through trapping and or shooting. There is no point in encouraging birds to breed if they are continually predated.

Secondly regular, more widespread monitoring is needed to establish where terns are breeding and whether any roseate terns are present.

If the Samson project is to continue, time and perhaps a small amount of money needs spending on sorting out the perimeter fence and signs. At the moment there is a confusing and newly added section of 'outer fence' on flimsy bamboo canes and the few signs are insecurely fixed and perhaps inadequate. Hopefully this action would resolve the human disturbance problems witnessed this season.

The Annet site used this year is free from rats, cats and human disturbance. It also has a lot of ideal cover, both for nests and mobile young, in the form of sea beet, short bracken, various tall grasses, the boulder beach and an assortment of sea-born debris gathered over a lengthy period. It is considered likely that the site will be used again in 2003, especially because it was so successful this year.

## **5.1 Proposed Action**

- The use of decoys and a sound system should continue on Samson on the same basis as previous years. Steven Kress in the USA will be consulted to see whether they have experience of decoys attracting predators. Removal of decoys but continuing sound might be considered after the terns have returned to the site.
- The fencing / signs on Samson should be improved to persuade the public not to disturb the birds during the breeding season.
- A crow control programme should be undertaken during winter and spring 2002/2003.



- A systematic monitoring programme should be designed to ensure that all potential tern sites are visited at least twice during the season and that all sites with terns are effectively monitored. It would appear that terns nested on Green Island this year, but there are no data. Annet is a near-ideal site for breeding, however history suggests that the terns will not necessarily stay there.

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