

LITTLE TERN PROJECT

2017 REPORT



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The Little Tern Project is co-ordinated by Durham Heritage Coast

Following the retirement of long-serving seasonal Little Tern Warden Trevor Stephenson, the 2017 season saw an increase in resourcing for the project from the Heritage Coast Partnership. Coralie Niven was recruited as Project Officer, with Ruth Smith and Liz Shaw taking up part-time seasonal warden posts. In 2017 INCA's role was restricted to providing limited technical advice / support and producing the annual report.

Funding

The costs of wardening the Crimdon site in 2017 were met by the Heritage Coast Partnership and EU LIFE+.

Partnership working

Support is provided in many forms by a range of partners but especially by Durham County Council, Natural England, the National Trust and the Hartlepool Countryside Warden Service.

INTRODUCTION

Little terns *Sternula albifrons* have nested around Teesmouth for at least a hundred years. They had traditionally nested on the south side of the river in an area of Coatham Sands known as The Ducky. In the mid 1990s there was a progressive relocation of birds to Crimdon Denemouth, on the Durham / Hartlepool boundary, and it is here that they have almost exclusively bred since 2005. Two pairs laid eggs at South Gare this year, though neither nest survived for long; this follows the success of a single pair here in 2015. There was no evidence of breeding at Seaton Snook or Seaton Sands this year.

The birds nest on the foreshore just above the high tide line, using debris on the beach as landmarks to locate their nest scrapes and as shelter for eggs and chicks. The birds arrive from their wintering areas off West Africa in late April and May. After a brief courtship, females lay a clutch of up to three eggs in a shallow scrape in the sand. Incubation is shared by both adults and takes 21 days. The young are active in a few days and seek shelter amongst debris on the beach. Adults return with food but soon the young venture down to the water's edge and start to supplement their food supply themselves. Within a further 21 days the chicks fledge, but tend to remain in and around the colony and adjacent foreshore until the end of July. The return movement to West Africa begins in August, so that by September very few remain.

The UK breeding population continues to decline in line with European and international trends. Recent estimates suggest there are about 1200 breeding pairs in the UK. Owing the longevity of adult little terns, the recent years of very poor reproductive success may not yet be reflected in the population.

SUMMARY

Perimeter fence installation was completed at Crimdon on 26 April, on which date the first two returning adults were noted. Numbers built up to reach 118 individuals by 14 May, 152 on 23 May and 165 on 10 June.

First incubation was noted on 27 May, after which the number of apparently-occupied nests increased steadily to reach a peak of 79 on 11 June.

On 8 June, the 21 nests surveyed comprised a single clutch of one egg, 10 of two eggs and 10 of 3 eggs (51 eggs in total). The equivalent statistics for 13 June were 47 nests composed of 28 clutches of two eggs and 19 of three eggs (113 eggs in total).

After 11 June the numbers of nests began to decline slowly (potentially as a result of fox predation) then dramatically following a major incursion by human intruders with dogs overnight on 16/17 June, just at the point of hatching; chicks as well as eggs were thought to have been predated.

The first surviving chicks were noted on 19 June. The remaining nests held a maximum of six broods recorded on 22, 23 and 27 June, with five broods logged on 3 and 4 July. Two juveniles fledged on 10 July, with a further six fledged by 19 July, making a total of eight in all; a very poor return in what had seemed to be a very promising season, and the colony's worst productivity since 2013.

There was no evidence of food shortages, and weather conditions were generally benign. Tidal incursions within the colony area were only recorded on a few occasions (8 May and in late June).

Human disturbance was problematic this season, with several confirmed or suspected incursions within the colony perimeter, and occasional incidents on the foreshore involving quad bikes and motorbikes.

Kestrels were noted hunting in the vicinity of the colony on three dates in the first half of May, while Carrion Crows were occasionally present later in the month. Sparrowhawk predation of an adult Little Tern was witnessed on 22 June and suspected six days later. Hedgehogs gained entry into the colony area towards the end of May, and were thought to have predated nesting Ringed Plovers. Some Little Tern nests were almost certainly lost to Fox in mid June.

Two dead adult Little Terns were found within the colony on 22 June and dispatched for veterinary analysis. A third dead adult was picked up outside the colony on 10 July.

On 14 July 190 birds were counted on the foreshore, constituting the peak count for 2017. The final adult Little Tern departed the colony on 23 July, shortly after the last juvenile. Numbers increased rapidly at South Gare during this period, with 155 (including 7 juveniles) counted on 20 July. It is tempting to conclude that this gathering contained the great majority of Crimdon's birds. The last report of the season involved a juvenile in Tees Bay on 27 August.

Between 2012 and 2016 the maximum number of breeding pairs on Teesside was 104 (in 2012). During this period the median number of breeding pairs was 64, the mean number of breeding pairs was 71.4, and the mean number of chicks fledged per season was 36. In 2017 a minimum of 79 pairs fledged 8 juveniles; a poor year in terms of productivity if not in terms of breeding numbers.

WARDENING AND MANAGEMENT AT CRIMDON DENEMOUTH

Coralie Niven was employed as Project Officer while Ruth Smith and Liz Shaw each took on the shared role of part-time Warden. All staff and volunteers benefited from the new warden's hut installed last spring.

Access infrastructure and chestnut-paling fencing had been installed by Durham County Council and the Heritage Coast Partnership project earlier in the spring, in an attempt to channel beach-users to the foreshore without causing disturbance to the Little Tern colony. For the most part the measures were successful, though throughout the season some visitors continued to pass too close to the northern edge of the colony while taking a short cut to the beach.

Fence installation took place on 26 April. Sections of the fence were lifted on the mornings of both 21 and 29 June, owing to high tides. On 2 July sections of the anti-Hedgehog fencing were removed following damage caused by the high tide.

Motorbikes and quad bikes caused some problems; 8 of the former were on the foreshore on 9 July and 3 on 23 July, for example, while 2 quad bikes were recorded on 16 July.

PROVISIONING

Newcastle University postgraduate students Shona Guinan and Emma Hampsey undertook observations of chick provisioning on 12 dates between 23 June and 16 July, comprising 29 sets of timed observations of individual broods. On each date of observations between one and five different broods were monitored for periods of 30-60 minutes, the age of these broods varying between 2 and 23 days. There appeared to be no shortage of prey, these items being predominantly sandeels with some sprats and occasional crustaceans.

WEATHER

The weather posed few problems this season, with the early weeks in particular being noticeably warmer and drier than normal. The mean temperature on Teesside was 1.4°C warmer than average for May, and 1.2°C warmer for June; however, in July the mean temperature was 0.6°C cooler than the norm. The hottest temperatures of the year occurred between 16 and 19 June, after which cooler and more unsettled conditions prevailed.

Rainfall was recorded on 9 dates in May (total 14.4mm), 15 dates in June (79.2mm) and 20 dates in July (61.4mm). It was the driest May since 2004, while both June and July were the wettest for five years. The warden's logs recorded heavy rain on 11 July, but only "brief showers all day" on 6 June; on Teesside the latter date was the wettest June day since 2010, with 20.4mm of rain recorded.

Tidal incursions into the fenced area were recorded on 8 May and on both 21 and 29 June, with the latter event flooding out at least two re-laid clutches.

PREDATION

Historically the Crimdon Denemouth colony has experienced problems with predation from Fox and occasionally from Hedgehog, Mink and Crows; more recently Kestrels have had a substantial impact. This year Crows and Foxes and/or dogs appeared to be the most significant predators of the colony, though a Sparrowhawk kill was recorded on 28 June and the species was suspected of taking adults on other occasions. Hedgehog, Black-headed Gull, Grey Heron and Kestrel presence was also recorded. According to a plausible theory advanced by Chris Brown the colony became less effective at deterring predators following the catastrophic nest losses of 16/17 June, and the suspension of monitoring visits within the fenced area made detection of incursions by mammalian predators all but impossible.

On 22 June two dead adult Little Terns were retrieved from the colony and sent for analysis, the results of which proved inconclusive; "The primary finding at post mortem in both were very subtle indications of acute trauma prior to death. No haemorrhage or bruising was found in the skin; however particularly in the female bird something has caused haemorrhage in the area around the heart and lungs. The findings were subtle, as previously indicated, and it is very difficult to give precise indications about the types of trauma, however possibilities would include small predators such as stoats or weasels or possibly other Terns. In other species of Terns I have found evidence of trauma when it was suspected that thin needle-like stabs have been carried out possibly by the beaks of other Terns. These leave little signs of damage in the skin. Intra-species aggression should therefore be considered and it might be an idea to set up surveillance cameras if losses continue." There has since been some speculation that these injuries might conceivably be consistent with predation by a domestic cat.

Another dead adult Little Tern found just outside the colony fence on 10 July was thought to be the victim of Fox or dog attack, and animal tracks were frequently found around the site during this period. Crow predation of one Little Tern and two Ringed Plover eggs was recorded on 15 July.

DISTURBANCE

Newcastle University postgraduate student Shona Guinan made a series of timed observations of disturbance events affecting the colony and kindly made the data available. She made timed observations on 15 separate days between 1 June and 16 July, totalling 3273 minutes in all. These observation periods are summarised in Table 1.

Date	Day	Time (BST)	Total minutes	Number of incidents
1 June	Thu	1209-1515	186	23
12 June	Mon	1343-1605	82	20
15 June	Thu	0651-0857	126	12
19 June	Mon	1320-1644	204	29
23 June	Fri	1137-1613	276	21
24 June	Sat	1114-1634	320	32
27 June	Tue	1158-1520	202	11
28 June	Wed	1004-1502	298	14
5 July	Wed	1109-1617	308	30
6 July	Thu	1612-1947	215	17
10 July	Mon	0855-1244	229	11
12 July	Wed	0850-1359	309	37
13 July	Thu	0843-1120	157	14
14 July	Fri	1609-1927	198	20
16 July	Sun	1804-2047	163	23
Totals	-	-	3273	314

Table 1. Summary of timed disturbance observation periods

314 observed disturbance incidents over 3273 minutes equates to a mean of one disturbance incident every 10 minutes and 25 seconds. Table 2 provides a summary of the total number of each type of disturbance incident recorded (ranked by frequency), and expresses this as a percentage of all disturbance incidents.

These observations provide us with our first robust dataset on the relative frequency of disturbance events at Crimdon. Discounting the 19% of events with unknown causes, it should be noted that more than 73% of all events are anthropogenic in character, with dogs off-lead being easily the most important sources of disturbance. Disappointingly, birdwatchers and photographers appear to be responsible for almost a tenth of all incidents. Joggers also seem to have a disproportionately disturbing impact compared to ordinary walkers and beach-users. Predators were only ascribed as the causal factor in 22% of cases.

Type of disturbance incident	Number	Percentage of total
Dogs off-lead	91	29%
Predators	68	22%
Unknown	59	19%
Walkers / beach-users	31	10%
Birdwatchers / photographers	29	9%
Joggers	22	7%
Rangers / Researchers / Ringers	12	4%
Dogs on-lead	2	<1%

Table 2. Summary of types of disturbance incident recorded

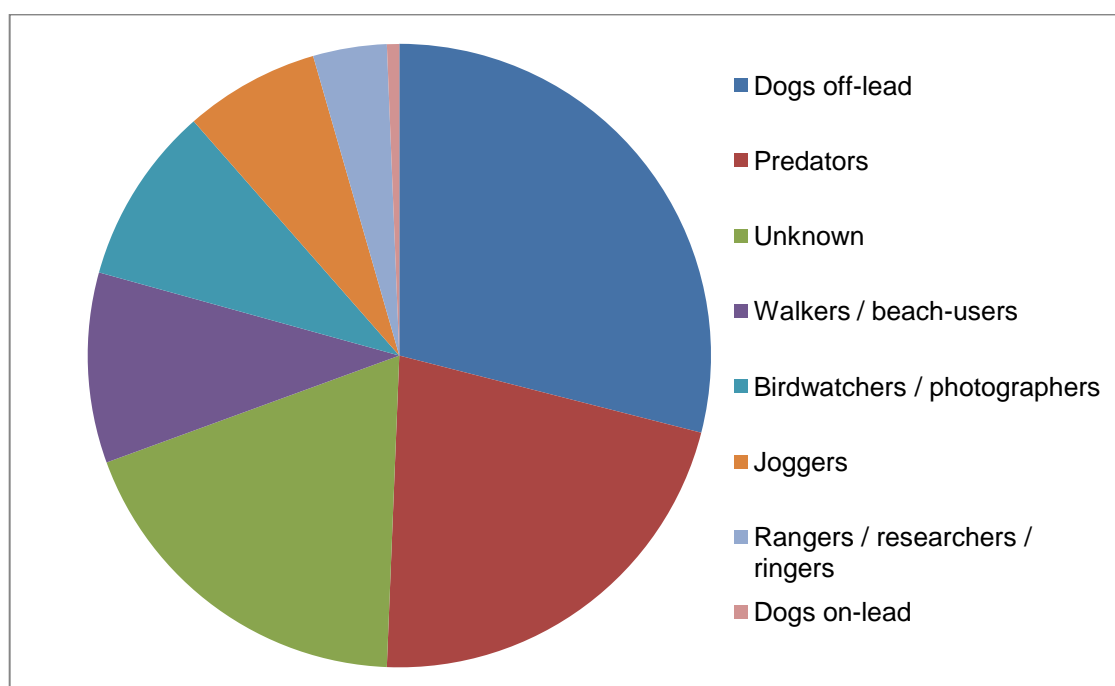


Figure 1. Relative frequency of types of disturbance recorded

RINGING AND COLOUR RINGING

Ringing activities were undertaken by Chris Brown, while several individuals endeavoured to detect and read colour rings borne by adult birds. Wardens once again experienced difficulties in reading the alpha-numeric codes on colour rings. The maximum number of adult Little Terns with blue rings noted was 21 on 22 May; 18 were counted on 13 July.

Between 10 and 17 June seven adults were nest-trapped, of which three were controls, the most notable being one on 13 June that had originally been ringed as a pullus here on 10 July 2001 (one of 40 fledged that year) .

Chick-ringing took place on 22 and 23 June, a brood of two and a brood of three being metal-ringed on each date (the pulli were too small for colour-ringing). Thereafter ringing activities within the colony were suspended until 13 July owing to the disastrous disturbance / predation rates experienced, when the surviving chicks proved uncatchable.

DIARY OF EVENTS IN 2017

26 April	Fence installed.
8 May	Tidal inundation recorded.
14 May	118 adults counted.
22 May	21 blue ringed adults counted.
23 May	152 adults counted.
27 May	Incubation first noted.
10 June	165 adults counted.
11 June	79 apparently occupied nests recorded.
16-17 June	Major nest losses took place overnight.
19 June	Chicks first noted.
21 June	Tidal inundation recorded; fence lifted.
22 June	Six broods present. Single adult lost to Sparrowhawk. Two dead adults found in colony.
23 June	Six broods present.
27 June	Six broods present.
29 June	Tidal inundation recorded; fence lifted but two nests flooded.
3 July	Five broods present.
4 July	Five broods present.
9 July	8 motorbikes present on foreshore.
10 July	Two juveniles fledged. Dead adult found outside colony area.
12 July	A record 37 instances of disturbance to the colony logged in a 5 hour 9 minute period of observation.
14 July	190 birds counted on foreshore, comprising a group of 150 (thought to be from Crimdon) and of 40 (from other colonies?).
15 July	Crow predation of Little Tern egg suspected.
16 July	2 quad bikes present on foreshore.
19 July	A further six juveniles fledged, making eight in all.
23 July	The last adult Little Tern departed the colony. Two motorbikes on foreshore.

OTHER TEESMOUTH SITES

South Gare and Coatham Sands

This year all activity was concentrated close to the South Gare Breakwater. On 16 May 7 adults were noted, but apart from a single bird the following day there were no further sightings here until 28 June, when 43 were counted. On 5 July two nests were found (unfortunately well outside the fenced enclosure), each containing two eggs. This is only the second confirmed breeding attempt here in the last two decades. Neither nest was still extant by 10 July, though the 4 adults were still present in the vicinity. In the second half of July numbers built up to reach 116 (including 1 juvenile) on 18th and 155 (including 7 juveniles) on 20th. It is tempting to conclude the latter gathering comprised virtually all of the Crimdon Denemouth colony and its fledged juveniles.

Seaton Snook

The site lies within the Teesmouth National Nature Reserve and a post-and-twine fence and associated signage is maintained by Natural England with the help of the Hartlepool Countryside Service. However, owing to vegetation encroachment potential breeding habitats is now extremely limited in extent, hence no regular wardening or sustained observation took place here. No reports of Little Terns were received during the breeding season.

Seaton Sands

In the past little terns have occasionally nested on the foreshore north of the North Gare breakwater and at various sites as far north as the Seaton Carew pumping station and car park. Territorial birds were not reported at any of these locations during the season.

**NESTING AND FLEDGING OF LITTLE TERN (STERNULA ALBIFRONS)
ON TEESSIDE, 1985-2017**

Year	Pairs nesting	Fledged	Info
1985	8	6	Coatham
1986	24+	15+	Coatham
1987	44	22	Coatham
1988	62	67	Coatham
1989	24	12+	Coatham
1990	32	2	Coatham
1991	49	3	Coatham, egg theft
1992	38	1	Coatham
1993	45	45	Coatham
1994	57	16	50 Coatham 7 Seaton
1995	55	7	20 Coatham 15 Crimdon
1996	43	54	10 Coatham
1997	65	12	Mostly at Crimdon
1998	52	67	Mostly at Crimdon
1999	65	2	Crimdon, egg theft
2000	0	0	Crimdon
2001	55	40	Crimdon
2002	53	26	Crimdon, predation(?)
2003	65	55	Crimdon
2004	61	1	Crimdon, fox predation
2005	31	2	Crimdon, food shortage
2006	25	37	Crimdon
2007	47	105	Crimdon
2008	22	67	Crimdon
2009	60	118	Crimdon
2010	95	4	Crimdon, kestrel predation
2011	84	147	Crimdon

2012	114	0	Crimdon, kestrel & sparrowhawk predation
2013	50	1	Crimdon, major egg theft, hedgehog & kestrel predation
2014	64	92	Crimdon, kestrel & sparrowhawk predation
2015	45	29	44 Crimdon, 1 South Gare, food shortage, crow predation
2016	84	58	Crimdon, possible stoat predation
2017	81	8	79 Crimdon, 2 South Gare, human agency & fox predation

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