

PUFFIN (*FRATERCULA ARCTICA*) NUMBERS ON LUNDY DURING SUMMER 2007

by

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ABSTRACT

Between April and July 2007 a total of 21 surveys were conducted at St. Phillip's Stone to ascertain the number of puffins on Lundy and to determine breeding success. The 2007 survey showed activity at seven different burrows. The results suggest that five pairs attempted breeding and feeding observations were recorded at four burrows, indicating successful breeding. At the fifth burrow (burrow C) activity declined in mid-June suggesting a failed breeding attempt. On 13 July a puffin chick was observed at burrow E. The survey was discontinued in mid-July due to adverse weather at which time three pairs (at burrows D, H & I) were still actively feeding.

Keywords: *Puffin, breeding, numbers, Lundy*

INTRODUCTION

This report contains the results of a simple land-based survey, using previous methods employed by Davey (1998) and Cole & Reach (2000). The only known nesting location on Lundy is at St. Phillip's Stone and although it is possible that other nest sites exist, no land sightings have been recorded elsewhere since 2000 when puffins were observed at Long Roost (Price, 2004).

The survey was conducted by the Lundy wardens at St. Phillip's Stone with a total of 21 site visits throughout the breeding season. Visitor sightings have been extracted from the LFS log book to supplement this data, and staff and visitor observations have been noted.

METHODS

Location Survey - St Phillip's Stone F4

Surveys were conducted at St. Phillip's Stone, a north facing slope just to the south of Threequarter Wall and St. Mark's Stone. The burrow site corresponds to site F4 in the Lundy Site Register (Price, 2004) and observations were made from viewing platform Fe (Price, 2004) using 8x32 binoculars and 48x60 telescope.

The site register is a document detailing nest sites and viewing locations of all Lundy's seabird nest sites.

A site photograph was labelled with known burrows to correspond with the 2006 data (Saunders & Wheatley, 2008) and a grid was then imposed onto the photograph to assist with recording puffin observations (Figure 1).



Figure 1: Site Photograph of St Phillip’s Stone and Identified Burrows

RESULTS

A total of 21 surveys were conducted between May and July 2007 with a combined observation effort of over 16 hours. All puffin activity was monitored and a summary produced for each survey (Table 1).

Surveys of St. Phillip’s Stone commenced on 6 April 2007; the first puffin observed at St Phillips Stone was on 4 May 2007 (Log book entry) and there was regular activity recorded at this site from 11 May until the end of the survey on 19 July 2007.

One new burrow (I) was identified that was not seen to have been occupied in the 2006 Survey (Saunders & Wheatley, 2008).

No activity was recorded at burrows A or G and minimal activity was observed at burrows B and F, and it is assumed no breeding attempt was made. A puffin at burrow C began the season with regular activity, however the sightings dropped off and few observations were recorded towards the end of the season and no feeding was seen to have taken place. Burrows D, E, H & I were the most active burrows and feeding was observed at all four burrows between 22 June and 19 July.

Sand eels (*Ammodytidae*) were the predominant fish identified in all feeding observations that were noted, with one record of a larger fish species, possibly a clupeid, but no pipefish (*Syngnathidae*) were seen. The provisioning rates of puffins observed during surveys are shown in Figure 2.

Date	Observation Effort (m hrs)		Start Time		End Time		Confirmed burrow Activity	A	B	C	D	E	F	G	H	I	Observation made, number of puffins	Feeding Observed	C	Chick Observed	
	1:00	08:30	14:00	09:30	1:00	08:30															1:30
06-Apr-07	1:00	08:30	14:00	09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Apr-07	1:00	08:30	14:00	09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Apr-07	0:30	16:00	16:30	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-May-07	3:05	12:55	16:00	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03-May-07	1:15	18:15	09:45	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-May-07	3:15	09:45	06:10	07:20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14-May-07	1:10	06:10	08:30	08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-May-07	2:17	06:13	08:00	09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-May-07	1:00	08:00	07:10	08:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-May-07	1:30	07:10	08:11	09:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02-Jun-06	0:59	08:11	08:15	09:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Jun-07	2:00	08:15	09:00	11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun-07	2:00	09:00	09:20	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Jun-07	2:40	09:20	12:00	07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jun-07	2:00	05:00	04:38	06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jun-07	2:07	04:38	05:40	07:52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07-Jul-07	2:12	05:40	06:00	07:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul-07	1:35	06:00	06:00	08:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul-07	2:35	06:00	05:40	07:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul-07	2:00	05:40	06:00	07:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jul-07	1:08	05:55	07:03	07:03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1: Summary of Results for St. Phillip's Stone Surveys - Number of Puffins observed at each burrow

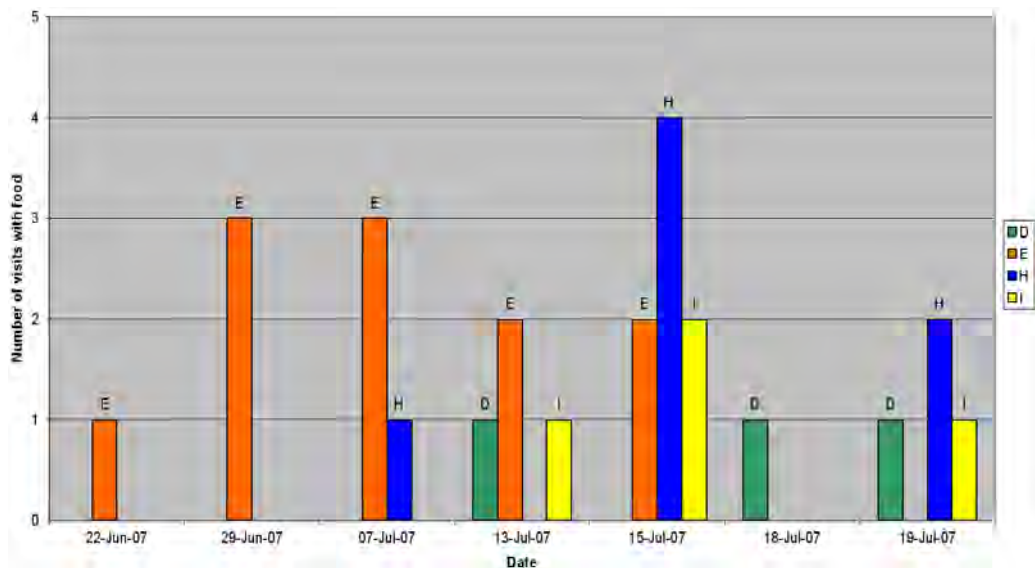


Figure 2: Provisioning Rates of Puffins observed during surveys - Burrows D,E,H & I

LOGBOOK RECORDS

Between April and July 2007 a total of 62 puffin observations and 259 sightings were recorded in the LFS Bird Log Book. The first sighting of the year was on 5 April and the last on 28 July.

LOGBOOK OBSERVATIONS

Observations from the Lundy log book are listed in Table 2

Previous censuses have been conducted during the first few days of June, before the arrival of pre-breeding adults prospecting for possible future breeding sites. To enable comparison with historical data observations between 1 June and 14 June were extracted from the logbook (Table 2: observations in **bold**). Thirteen observations were recorded with sufficient site detail to enable comparison and each observation was grouped into the appropriate study plot A - L (Price, 2004). The maximum number of puffins observed in each area at any one time was used to compare the number of puffins on Lundy in 2007 with previous years.

The total island figures are compared in Figure 3 and Table 3 and these clearly illustrate the numbers and distribution pattern of puffins on Lundy between 1981 and 2007.

Survey results indicate that there were five potential breeding attempts at St. Phillip’s Stone in 2007. A sudden drop in activity at burrow C in late June may suggest a failure as no subsequent activity was observed at burrow C for a further month. It can be assumed that four chicks hatched successfully as adults at each of these burrows were observed feeding on at least three separate dates. There was a confirmed chick sighting at burrow E on 13 July and again on 15 and 16 July.

Studies in Canada have shown when frequency of breeding puffins is low at a colony they tend to avoid the Arctic Skua (*Stercorarius parasiticus*) when returning to the colony with food often turning around in flight and returning towards the sea (Grant, 1971).

Table 2: Observations recorded in the LFS Logbook

Date	Number	Location	Observation
03-May	4	St Phillip's Stone	2 in courtship behaviour & briefly mating on water
29-May	1	St. Phillip's Stone*	Seen entering a burrow
01-Jun	2	St. Phillip's Stone*	Seen with nest material entering a burrow
02-Jun	2	St. Phillip's Stone	In and out of burrow
04-Jun	4	St. Phillip's Stone	In and out of burrows
06-Jun	1	St. Phillip's Stone	
08-Jun	3	North Light	In a raft of Auks
09-Jun	3	West of North Light	3, possible 5 puffins on water
09-Jun	1	East Coast	Seen from Oldenburg ~ 1 mile off Lundy
10-Jun	7	North of Jenny's Cove	Seen together on water. 2 seen on separate occasions at St. Phillip's burrow area
10-Jun	2	St. Mark's Stone	Near to St. Mark's Stone
11-Jun	2	Quarry Beach	
11-Jun	2	Shutter Rock	On the water
13-Jun	1	South Light	On the water
13-Jun	3	St. Mark's Stone	Near to St. Mark's Stone
16-Jun	3	Brazen Ward	3-6 puffins on water close to Brazen Ward
18-Jun	2	Quarry Beach	Swimming/diving
19-Jun	2	St. Mark's Stone	On the rocks
26-Jun	2	Jenny's Cove	On the water
28-Jun	4	North End to Gannets Coombe	
02-Jul	2	Jenny's Cove	In Jenny's Cove
03-Jul	3	Between Battery and Dead Cow Point	On the water
16-Jul	8	St. Phillip's Stone	7 Adults, one chick & feeding at 2 burrows
23-Jul	5	St. Phillip's Stone	1 seen at burrow I and 4 on water

* Recorded in Logbook as Jenny's Cove; later investigation determined that it was actually St. Phillip's Stone.

Figure 3: Total number of Puffin recorded on and around Lundy in early June 1981-2007

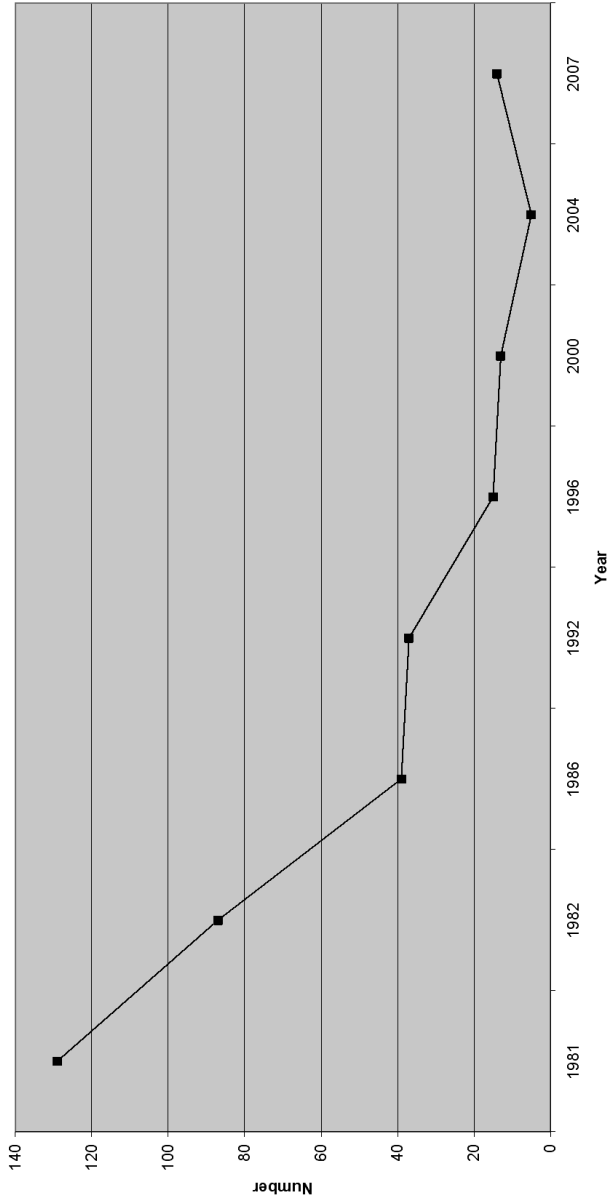


Table 3: Puffin Numbers recorded on and around Lundy in early June between 1981 and 2007

Study Plot	1981	1982	1986	1992	1996	2000	2004	2007
A								2
D								
E	34	18	8	1	1			
F	31	35	12	13		2		
G	8	3	10	7	1	5	5	7
H	47	20	7	10	13	5		
I	5	6	2	5		1		3
J	4	5						
L				1				
								2
TOTAL	129	87	39	37	15	13	5	14

A similar behavioural trait was observed on a number of occasions with a puffin at burrow I when Herring Gulls (*Larus argentatus*) were in the vicinity of its burrow as on one survey it was observed with fish for almost an hour before it managed to enter the burrow. Such behaviour may indicate that the presence of gulls is perceived as a threat due to the small size of the colony.

Gulls (*Larus* spp.) act as both predators and competitors. Whilst the gull population at St. Phillip's Stone is not high, both Herring Gulls (*Larus argentatus*) and Lesser Black-backed Gulls (*Larus fuscus*) were nesting at the site.

In the Isle of May in south-east Scotland, the presence of breeding gulls significantly affected the pattern of recruitment of puffins to the colony, with the highest rates of recruitment in areas of low gull density (Finney *et al.*, 2003).

A full island census is due to take place on Lundy in 2008 and gull trends and nesting densities could be established in the vicinities of the puffin colony. In future puffin surveys it may be useful to record gull populations and breeding attempts and monitor for kleptoparasitism.

It is worth noting that the conservation status of gulls is also important, Herring Gulls are declining in their long-established coastal colonies and it will be interesting to look at figures from the island census in conjunction with further puffin surveys.

If time allows provisioning rates at the colony should be monitored as it would provide valuable information of the quality and frequency of the feeds that the chicks are receiving. This would involve a series of dawn to dusk surveys and the quality of feeds should be assessed through monitoring the number of feeds in a 24hr period as well as the fish species and number of fish per feed.

No other land-based sightings were recorded during the surveys, however, on 25 June 2007 a visitor reported having seen two puffins entering a burrow on a slope to the north of The Battery. Unfortunately a detailed site description was not given. Historical records show no activity in this area since 1996, when one puffin was observed at site D3 (Price, 1996). A detailed site drawing of this location is included in the 2004 site register and other potential sites include D1 & D2, although no observations have been recorded at either site since 1986 (Price, 1996). Further investigation of these areas should be considered in 2008.

Comparison of the Puffin numbers in early June with the 2004 Site Register shows a slight increase in total Puffin numbers from 2004 and figures appear to be on a par with the figures obtained in 2000. Puffin numbers in Section F of the Site Register, St. Phillip's Stone, (Price, 2004) have remained relatively constant since 1981. Any fluctuation in numbers is minimal and cannot be considered significant at present.

ACKNOWLEDGEMENTS

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