

# LUNDY STORM PETREL SURVEY, JULY 2018

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## INTRODUCTION

In October 2014, the discovery of a juvenile Storm Petrel in the Old Light Manx Shearwater colony provided the vital and long-awaited evidence that Storm Petrels were breeding on Lundy (Taylor, 2015). Prior to this, surveys found no evidence of breeding (Price 2002, Booker & Townend 2010) though an assessment of suitable habitat identified a number of potential areas (Bolton, 2004).

The change in fortunes for Storm Petrels followed ten years after the last rats were eradicated from the island through the Lundy Seabird Recovery Project (Appleton *et al.*, 2006). Since the 2014 discovery, efforts have focused on the best ways to survey this species, which typically occupies small crevices under or amongst rocks and boulders. Much of this habitat on Lundy is difficult or impossible to access safely.

Infra-red cameras were trialled as a survey method at the Old Light shearwater colony in 2016, along with scanning at night using torches over suitable habitat elsewhere on the island (Booker and Bolton, 2017).

The 2018 survey aimed to build on these previous surveys and provide a more definitive population estimate to feed into the National Seabird Census (Seabirds Count). We visited the island between 5 and 10 July 2018, throughout which the weather was hot and dry, with clear skies day and night.

In this write-up, we have used the same survey section letter codes as is used in the cliff nesting and Manx Shearwater reports in previous LFS annual reports and journal entries.

## METHODS

### Nocturnal survey

We trialled further nocturnal survey using a set of identical torches and a thermal image camera (Pulsar Helion XQ38F thermal imaging scope), loaned by Natural England, to observe activity at night at the north end (section H), the Old Light Manx Shearwater colony (section C) and at Earthquake (section D). We investigated the south west coast (section B) to see if potential habitat was viewable using the thermal camera but the distances were too large.

At the Old Light shearwater colony, we conducted 20 two-minute scans with torches on 5 July between 23.00 and 00.00 (sunset was 21.28). At Earthquake, we conducted scans with torches on the same night between 00.30 and 00.50.

At the north end, we used both the thermal camera and torches to scan for birds on 6 and 8 July. We positioned ourselves along the old railway line and scanned down the slope towards the sea, again counting in two-minute slots. We also conducted a walk around survey on neighbouring Puffin Slope (also section H) in amongst the boulders, scanning with torches and trialling the thermal image camera.

At the end of fieldwork, torches were retained on the island for future survey work.

### **Playback survey**

We conducted day-time playback surveys at safely accessible suitable habitat between 5 and 9 July 2018. We focussed on the natural coastal habitats, excluding the extensive network of dry stone walls, with the exception of a small suitable area on the east coast in section L3.

We trialled two devices for audio playback at the north end (section H). We used traditional hand-held cassette players for an initial survey on 6 July, using the same recording as all previous playback surveys on the island. We then repeated the section on 9 July using digital MP3 players (MIFA Bluetooth speaker with a micro SD card) that were set up to play the call for exactly 10 seconds followed by a 30 second pause and then a tone to indicate to the surveyor to move onto the next check. This meant that there was complete standardisation across device, call and waiting time, regardless of surveyor. We covered the area systematically, by traversing the slope in transects, maximum five metres apart, playing the call into all suitable holes under rocks. Where there was a mass of boulders to navigate, the call was played at approximately one metre intervals.

Playback surveys using the MP3 players were also conducted on 8 July at Pyramid Rock and at rocks at the north end of Pyramid slope (section F), Earthquake (section D) and at suitable areas of the east coast, notably the beach, quarry scree and suitable boulder areas (sections L1, L2 and a small area of L3).

## **RESULTS**

### **Nocturnal survey**

No birds were observed (or heard) other than at the north end, where we recorded considerable activity on the two nights we visited. Storm Petrels and Manx Shearwaters were clearly visible in both the torch beam and through the thermal image camera.

Specifically, on 6 July, using the torch, 15 two-minute scans between 23.25 and 00.05 produced a total of 19 sightings. Between 00.20 and 00.40, on a different section of the same slope, we recorded 7 sightings, and between 00.48 and 01.08 in the third and final section of the slope, we recorded one sighting. In addition, at 01.10 a Storm Petrel was heard calling near the location of an earlier playback response.

On 8 July, between 00.35 and 01.00, seven two-minute torch scans produced eight Storm Petrel sightings, and on the same night, two-minute scans with the thermal image camera between 00.35 and 00.55 produced 23 sightings in total, with a maximum of six birds in any two-minute slot.

### **Playback survey**

Earthquake. The call was played at 29 locations on 8 July. No responses were heard.

Pyramid rock. The call was played at 17 locations on 8 July. No responses were heard. At the north end of Pyramid slope, the call was played at 26 locations, but no responses were heard.

East coast beach and quarries. At section L1, the call was played at 35 locations at two discrete boulder areas on 8 July. No responses were heard. On the same date, along a short section of stone wall, adjacent to the farm, in section L3, the call was played eight times at suitable spots,

but no responses were heard. Also on the same date, at section L2, the call was played at 67 locations from two transects providing full coverage of the boulder beach. No responses were heard. In the same section on the same date, the call was played at a total of 16 locations in suitable discrete boulder/scree patches, but no responses were heard.

North end. On 6 July, three playback responses were recorded from this section (the number of times the call was played was not recorded). The location of each response was noted and photographed. On 9 July, the call was played at 888 locations across 14 transects, covering all accessible suitable habitat. Three responses were heard, but from different locations than on 6 July. These were also recorded and photographed. In addition, calls were heard from four chicks from different locations.

Survey location maps and images are stored at the RSPB office in Exeter.

### **Population estimate**

This survey has picked up evidence of storm petrels at the north end only, despite previous evidence of breeding at the Old Light Manx shearwater colony in 2014 (Taylor, 2015) and 2016 (Booker and Bolton, 2017). The nocturnal sightings at the north end are encouraging, showing activity across much of the slope, but they are difficult to use for estimating the population. The playback survey however, is the systematic, standard method for assessing population and so it is these data we have used to estimate the current breeding population.

The maximum number of responses from breeding adults on any one day was three, so this figure, plus the chicks was used in the estimate. Not all breeding birds will respond to a played call and an adjustment is needed to account for this and arrive at a population estimate. The published conversion factor applied to storm petrel colonies without calibrations of their own is 2.4, based on the median response rate of 0.42 (Mitchel *et al.*, 2004). For Lundy, this increases our three adult responses to seven, which on adding the four chicks, leads to a population estimate of 11 Apparently Occupied Sites (AOS). Using the maximum and minimum response rates (0.25 – 0.59) from the same publication, the Lundy population range becomes 9–16 AOS.

### **CONCLUSIONS**

Our survey shows a storm petrel colony in its early stages of establishment at the north end of the island. It was encouraging to see several birds flying over the area at night, which when coupled with the playback survey, provides clear evidence of a small breeding population. We didn't record any storm petrel activity at the Old Light Manx shearwater colony, where evidence of breeding has been previously proven, however, birds were recorded there in 2016 on the infra-red cameras, so it is likely birds were present but missed on this occasion.

The scale of Lundy, its potential storm petrel habitat and difficult terrain, provides a challenge for survey effort, but if the pattern of recovery continues as it has for Manx shearwater and the auks (Booker *et al.*, 2019), focus areas and methods for future surveys will hopefully become clearer. Regular ringing effort also provides an insight into storm petrel activity and locations, which further adds to the picture, including 42 birds caught at the north end and two at the Old Light Manx shearwater colony in Autumn 2018 (Tony Taylor pers. comm.). Further regular survey effort using a combination of nocturnal searches (thermal image camera and torches) and day-time playback over the coming years will be important to track the recovery of storm petrels, both at the island's north end and in other suitable areas.

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