

LUNDY'S BREEDING WHEATEARS IN 2014

by

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INTRODUCTION

The study of Lundy's breeding Northern Wheatears *Oenanthe oenanthe*, started in 2013 and described in an earlier paper (Taylor 2014), continued in 2014. The work has been carried out as a BTO 'Recapturing Adults for Survival' (RAS) project, with the aim of monitoring how well adult Wheatears survive from one breeding season to the next, as they winter in West Africa and migrate between breeding and wintering areas. Comparing data between years, and between different breeding areas, gives a better understanding of how factors such as varying weather conditions, in Africa and during migration, affect survival. This in turn provides insights into what stages of the birds' life cycle are critical in driving population changes, and hence should be the key focus of any conservation efforts.

This paper gives the results of the 2014 RAS work. The colour-ringed population also allowed us to estimate the total number of Wheatears breeding on Lundy. Further observations are recorded, where these extend or modify the general information given in Taylor (2014), on Wheatear breeding biology on the Island.

METHODS

Adult birds breeding in the south-western coastal areas from the Castle to the Battery were trapped and colour-ringed between 25 May and 3 June 2014. Birds already carrying colour-rings tended to avoid traps, but were observed through binoculars and telescopes and identified as individuals by recording the combinations of colour-rings they were wearing. Records of colour-ringed birds, provided by other observers on Lundy before and after our visit in 2014, were added to our database.

Where possible, nests were located by watching birds carrying food to chicks, to confirm which individuals were definitely local breeders and which were paired together. BTO metal rings were put on any nestlings that were at a suitable age and within reach, but many nests were in narrow crevices, between or under rocks and stones, and were inaccessible. Colour-rings were not used on nestlings because this would compromise the RAS study, but can be added to birds retrapped later as adults.

On 31 May, two of us spent about seven and a half hours walking round the island recording all the Wheatears we saw. We kept moving at a consistent pace, stopping periodically to scan areas of sideland, and fields or moorland on the plateau, for any Wheatears visible through binoculars. Our route (indicated in Table 1) was chosen in an attempt to cover most of the ground where Wheatears were likely to be, while avoiding counting birds twice. In the north of the island we discounted a few observations on our way south which might have involved birds already recorded on the way north. In the late stages of the walk we retraced our route from the Old Light to South West Point to compare Wheatear numbers with those from the same area in the morning.

Table 1. Lundy Wheatear Survey, 10:40–18:15 hrs*, 31 May 2014.

Section	Start	Route	Finish	Distance walked (km)	Time taken (minutes)	Number of Wheatears seen			Birds seen per km	
						Males	Females	Unsexed		Total
1	SW Point	W edge of plateau	Old Light	0.81	20	3	3	2	8	9.9
2	Old Light	W edge of plateau	Top of Battery path	0.41	20	4	2	0	6	14.6
3	Top of Battery path	W edge of plateau	Halfway Wall (W end)	1.09	30	3	2	0	5	4.6
4	Halfway Wall (W end)	W edge of plateau	Threequarter Wall (W end)	0.76	30	9	3	5	17	22.4
5	Threequarter Wall (W end)	W edge of plateau	Top of North Light steps	1.75	70	7	5	0	12	6.9
6	Top of North Light steps	N & E plateau edge	Main Track W of Gannets' Rock	0.89	40	1	5	0	6	6.7
7	Main Track W of Gannets' Rock	Main track	Threequarter Wall gateway	1.11	15	0	2	2	4	3.6
8	Threequarter Wall gateway	E edge of plateau	Halfway Wall gate	1.00	25	3	1	0	4	4.0
9	Halfway Wall gate	Main track	Quarter Wall	0.99	30	2	2**	0	4	4.0
10	Quarter Wall	Main track	Top of High Street	0.57	15	1**	1	1	3	5.3
11	Top of High Street	E–W track	Wall W of Old Light	0.53	10	0	0	0	0	0.0
1	Wall W of Old Light	W edge of plateau	SW Point		30	(3)	(3)	(1)	(7)	(8.6)
12	SW Point	S edge of plateau	Benjamin's Chair	0.52	15	2	1	0	3	5.8
13	Benjamin's Chair	W & S sides of Castle Hill	Castle	0.47	10	2	1	0	3	6.4
14	Castle	E & N sides of Castle Hill, Church, High St.	Top of High Street	0.85	25	1	2	1	4	4.7
			Total	11.73	06:25	38	30	11	79	6.9
			*With 2 breaks, totalling 70 mins							
			**Plus one probable Greenland bird							

RESULTS

Breeding population between the Castle and the Battery, 2014

The total number of colour-ringed birds in this area, either trapped or re-sighted in 2014, was 47. There were 26 males and 21 females. Females spend less time away from their nests than males, particularly when incubating or brooding small young, and therefore are less likely to be caught or seen on the plateau areas where we did most trapping. There were also three males and one female that were visiting breeding sites but not colour-ringed. So there was a minimum of 29 breeding males, representing 29 breeding pairs.

In 2014, it was possible to reach and ring 11 chicks in four nests. A breeding female, trapped and colour-ringed on 1 June 2014 just north of the Old Light, had originally been ringed as a chick on 6 June 2013, about 300 m further north.

Adult survival between 2013 and 2014

Of the 49 birds colour-ringed in 2013, 22 were re-sighted on Lundy in 2014, giving an over-winter survival value of 22/49 (= 45%). This is a minimum figure, since it is possible that a small number of birds were present in the study area in 2014 but not observed, or bred outside the area. Our own work and other studies suggest that both possibilities are unlikely and that any such error is small.

Population estimate for the whole island, 31 May 2014

The total number of Wheatears recorded during the survey was 81. They included 39 males, 31 females and 11 seen too briefly or distantly to be sexed (see Table 1). The section from South West Point to the Old Light was covered twice, at the start of the walk and then near the end, with eight birds seen in the morning and seven in the afternoon.

Two birds, seen on the main track in sections 8 and 9 of the route, have been excluded from the calculations because they appeared to be of the Greenland subspecies *O. o. leucorhoa*. They looked large and bright, and their belly plumage was in pristine condition (breeding birds with brood-patches look noticeably untidy because of the lack of feathers there).

The total number of birds seen in sections 1, 2, 12 and 13 of the walk (Castle to Battery) was 20. This represents an actual population of 29 breeding pairs. So the whole-island population in 2014 was estimated to be $79 \times 29 / 20 = 115$ pairs.

Other observations

In general, work in 2014 confirmed the 2013 observations on breeding sites and feeding behaviour, reported in Taylor (2014); but two points need qualifying in the light of our 2014 work:

- a) Nest sites: while the majority were in rock crevices or burrows on the sidelands (where all the nests in 2013 were located), two were found in walls on the plateau in 2014. One was in the extreme west end of Quarter Wall, west of the stile, where the wall is backed by a rock outcrop. The other was at the east end of Halfway Wall, with its entrance almost at ground level.
- b) Feeding areas: In 2013, birds in the main study area were not seen crossing the Old Light wall, so the populations on either side of it appeared not to be mixing at the time. In 2014, during a spell of strong north and north-west winds, birds breeding north of the wall were

flying across it to more sheltered areas in South West Field to find food. Birds were also flying south along the sidelands, to reach feeding areas that were in the sun and sheltered from the wind by buttresses.

DISCUSSION

Breeding Population, Castle to Battery

There was good evidence that at least 29 pairs were breeding in the study area. Our level of coverage of the area makes it unlikely that more than one or two extra pairs could have gone unnoticed.

In all cases, adult birds colour-ringed in 2013 were within about 200 m of their original ringing site when re-sighted in 2014. This supports the assumption that there will not normally be errors in the survival calculations produced by birds changing breeding areas between years, into or out of the study area.

The particular value of ringing chicks is that their age and place of origin are known very precisely. The return of a female to breed just 300 m from her place of birth is worth noting. Her mother also bred again in 2014, very close to where she had in 2013. Both will have migrated to West Africa and back before returning to Lundy.

Adult survival between 2013 and 2014

The survival rate of 45% for birds breeding on Lundy is very close to the national average (46%) since 1999, when reliable data first became available. The annual national figures have varied between about 60% and less than 20% in that time (Kew & Leech 2013).

Population estimate for the whole island

The whole island survey in 2014 was carried out in a more systematic way than in 2013, when recording Wheatears was incidental to Manx Shearwater survey work. So the reliability of the estimate should have improved.

The estimate of 115 pairs is a 44% increase on the 80 pairs in 2013. There are no clear indications of similar increases elsewhere: the population on Skomer, Pembrokeshire, decreased from 22 pairs in 2013 to 15 in 2014 (*Skomer Island Bird Report 2014*), while on Skokholm, Pembrokeshire, it increased from 12 to 13 pairs (*Skokholm Bird Observatory Annual Report 2014*). On these islands, populations have been stable in recent years, with numbers probably limited by availability of suitable feeding habitat. The current density on Lundy of 0.26 pairs per hectare is little more than half that on Ramsey, Pembrokeshire, so perhaps numbers on Lundy are still building in response to rat eradication.

If the maximum error in the Castle to Battery population estimate is taken as two extra pairs (see above), the island population could be as high as $79 \times 31 / 20 = 122$ pairs. The range 115–122 pairs still makes no allowance for any extra pairs in the areas not covered during the survey walk (see next paragraph), but since these were thought unlikely to involve significant numbers, no adjustment has been made. So an estimate of 115 pairs is suggested as a minimum.

On a small scale (tens of metres) there were inevitably many areas of the island that we did not see during the survey, but since that applied in the study area as well as the rest of the island, the calculations allow for this over most of the relevant habitat. Larger, completely unsurveyed

areas were: near the main track in Middle Park (though being a long distance from typical nesting areas, this is probably little-used by breeders), around the Terrace and Quarter Wall Cottages, and on Lametor and Rat Island. The east sidelands south of Quarter Wall were also not observed, but during the survey birds were recorded collecting food in Brick, Tillage and St Helen's Fields, which are likely to be the best feeding habitat for any pairs breeding on this section of the East Side. In addition, any birds on the east sidelands will tend to feed on the plateau in the late afternoon, to remain in sunlit areas. So, since the southern half of the East Side was surveyed from 16:00 hrs onwards, few birds should have been missed here.

In contrast to the overall increase of 44% in 2014, the number of breeding pairs in the study area only increased by 1/28 (= 4%). So the different levels of increase inside and outside this area need explaining. One possibility is that the study area is prime habitat for Wheatears and was already close to its carrying capacity in 2013, so that any increase in population had to be accommodated in more marginal areas further north. There is some evidence supporting this: the distance walked in the study area was estimated as 2.20 km and on the whole survey as 11.73 km, so the study area made up 19% of the survey; the pairs in the study area make up 29/115 (= 25%) of the estimated island total. As shown in Table 1, the numbers of birds seen per kilometre were highest in sections 1 and 2 (both in the study area) and 4 (west side of Middle Park). All three of these are beside extensive areas of close-cropped turf, which appears to be the preferred feeding habitat of Wheatears.

A potential source of error that needs to be considered is variation in the activity and visibility of Wheatears according to the time of day. The weather on 31 May 2014 was good – warm, with very light winds and hazy sunshine all day – so this is unlikely to have introduced any bias.

If Wheatears tend to be significantly less (or more) active in the middle of the day, when we were in the northern half of the island, the results would be biased, but our impression was that birds were busy feeding at all times during the walk. Variations in the frequency of seeing birds seemed to relate primarily to suitability of habitat.

Section 1 was counted twice, with the aim of testing for any major change in activity levels. The resulting counts (eight birds between 10:40 and 11:00 hrs; seven between 16:45 and 17:15 hrs), suggest that any change was small. However, it is still possible that numbers of active birds dropped rapidly from 17:25 hrs onwards, after the second count of section 1. This could affect the population estimate but cannot be tested reliably with the current data. The survey ended with some birds still busy feeding, more than three hours before sunset, suggesting that any effect should not have been severe. In the future, it would be interesting to survey a limited area regularly throughout one day, to investigate how time of day affects activity levels.

As noted at the start of this section, the 2013 estimate was based on smaller numbers of Wheatears and less systematic counting than in 2014. So any inconsistencies between the two years' data are more likely to be the result of inaccuracies in the first year than the second.

CONCLUSIONS

1. At least 29 pairs of Wheatears bred between the Castle and the Battery in 2014.
2. Colour-ringed birds in this area showed 45% adult survival from the 2013 breeding season – close to the national average.
3. The whole-island 2014 breeding population was estimated as 115 pairs, up from 80 pairs in 2013.

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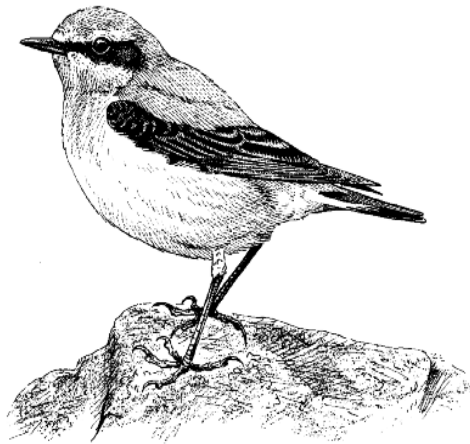
REFERENCES

Kew, A. & Leech, D. (eds). 2013. *RAS News*, Spring 2013: 3–5.

Skokholm Bird Observatory Annual Report 2014. Available from: <http://pembsbirds.blogspot.co.uk/2015/03/skokholm-bird-observatory-annual-report.html>

Skomer Island Bird Report 2014. Available from: www.welshwildlife.org/wtsww-publications-reports-2014

Taylor, T. 2014. Lundy's Wheatear Population in 2013. *LFS Annual Report* 63: 80–84.



Wheatear by Mike Langman, from 'The Birds of Lundy'