

RING OUZEL REPORT 2011



FINDINGS OF A STUDY OF RING OUZEL *Turdus torquatus* TERRITORIES IN ROSEDALE AND OTHER AREAS OF THE NORTH YORK MOORS

**Kendrick S. Hutchinson
Victor Fairbrother**

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Front cover photograph: Male ring ouzel at top of Reeking Gill, Rosedale, 2011. Peter Waterton.

1. HIGHLIGHTS OF 2011 RING OUZEL STUDY

- **First arrival in Rosedale seen on 23rd March - the earliest recorded.**
- **16 territories recorded in the Rosedale Area; 7 more than the low of 2009.**
- **4 new territories not previously recorded.**
- **19 nests found fledging 55 young.**
- **Average of 3.67 young fledged per nest; just under 11 year average of 3.87.**
- **5 nests collected for the National Nest Reference Collection at the University of Glasgow, Hunterian Museum.**

2. INTRODUCTION

The 2011 survey was the 12th year in which a detailed study had been made of the ring ouzel *Turdus torquatus torquatus* (RZ) population in the North York Moors National Park. The findings of these studies were submitted to various bodies including the North York Moors National Park Authority, the RSPB Ring Ouzel Study Group, Natural England (York office) and the land owner and head keeper of Spaunton Estate.

As in previous years the 2011 survey concentrated on the Rosedale area of the North York Moors; an area of around 25 sq/km. As for the last few years a visit was made during late summer to locate ring ouzels prior to migration.

Weather data in 2011 was obtained from a weather station situated in Westerdale 5 km north-west of Rosedale at an altitude of 225 metres. Graphs of temperature and rainfall for March through to July have been included. (**Annex 5**)

The 2011 season marked 10 years of unbroken study in the Rosedale area; only the foot and mouth outbreak in 2001 and the subsequent closure of the moors prevented continuous study since the start of the project in 1999. Included in this report for the first time are graphs showing nest productivity and first-day arrival over the past decade. (**Figs. 1, 2 & 5**)

As in previous years the continuing support of a Rosedale resident provided invaluable help in monitoring the east side of the dale and gave considerable support to both Vic Fairbrother, covering the top-end of the dale north of Blakey Crossing, and Ken Hutchinson covering the central and southern part on the west side of the dale. Close on 100 visits were made between March and September representing some 500+ hours of field work.

3. METHODOLOGY

The criteria used to assess the breeding status and thus the existence of a territory is shown in the table below.

BREEDING STATUS	CRITERIA
Possible	<ul style="list-style-type: none">• Single bird observed in suitable nesting habitat.• Male seen or heard singing on one survey date only.
Probable	<ul style="list-style-type: none">• Male observed singing on two different days in a week or more at the same place.• Territorial behaviour observed on two or more days.• Pair observed in suitable nesting habitat.• Nest-building activity.
Confirmed	<ul style="list-style-type: none">• Nest found with eggs or chicks.• Recently fledged young seen.• Adult seen carrying food.

References in this report to **Rosedale area** include the main dale (valley) of Rosedale and adjoining Spaunton Moor (Spindle Thorn, Loskey Ridge etc.). References to **Rosedale** refer only to the main dale of Rosedale.

4. RESULTS

4.1 Territories

4.1.1 Rosedale Area

Table 1: Breeding ring ouzel territories occupied in the Rosedale area between 1999 and 2011.

No.	Location (all territories recorded to date)	Grid Ref.	Year												
			99	00	02	03	04	05	06	07	08	09	10	11	
1.	Spaunton Moor - Spindle Thorn	SE 716 930	?	*	✓	*	*	*	*	*	✓	*	*	?	
2.	Spaunton Moor - Loskey Ridge west	SE 714 934	?	✓	✓	✓	*	*	✓	*	*	*	*	?	
3.	Spaunton Moor - Loskey Ridge east	SE 715 935	?	*	*	✓	✓	✓	*	*	*	*	*	?	
4.	Rosedale west - Bank Top	SE 720 951	✓	✓	✓	✓	*	*	✓	*	*	*	*	✓	
5.	Rosedale west - Bank Top (east)	SE 725 945	?	*	*	✓	*	✓	*	*	*	*	*	*	
6.	Rosedale west - Hob Crag	SE 714 954	?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
7.	Rosedale west - Thorgill Bank	SE 707 958	?	*	*	✓	*	*	✓	*	*	*	*	✓	
8.	Rosedale west - Thorgill Head	SE 670 956	?	*	✓	✓	✓	✓	*	*	*	*	*	*	
9.	Rosedale west - Sheriff's Pit	SE 697 963	✓	✓	✓	*	✓	✓	✓	*	✓	✓	✓	✓	
10.	Rosedale west - Sheriff's Pit (south)	SE 698 961	*	*	*	*	*	*	✓	*	*	*	*	*	
11.	Rosedale west - Round Hill (south)	SE 694 968	?	*	✓	✓	✓	✓	✓	✓	✓	✓	*	*	
12.	Rosedale west - Round Hill (west)	SE 693 971	*	*	✓	*	*	*	*	*	*	*	*	✓	
13.	Rosedale west - Round Hill (north)	SE 693 974	?	*	*	*	*	*	*	✓	*	*	*	*	
14.	Rosedale west - Round Hill (east)	SE 694 970	?	*	✓	✓	✓	*	*	✓	✓	✓	✓	✓	
15.	Rosedale west - Sledge Shoe Bents	SE 691 978	?	✓	✓	✓	✓	✓	✓	*	*	✓	*	✓	
16.	Rosedale west - Matty Carr	SE 688 984	?	*	*	✓	✓	✓	✓	✓	✓	*	✓	✓	
17.	Rosedale west - Matty Carr (south)	SE 690 980	?	*	*	*	*	✓	*	✓	*	*	*	*	
18.	Rosedale west - Lion Inn	SE 681 999	*	✓	✓	✓	*	✓	*	✓	*	*	*	*	
19.	Rosedale west - Blakey Swang	SE 685 998	?	?	?	?	?	?	?	?	✓	*	*	*	
20.	Rosedale west - Dalehead (north)	NZ 680 013	✓	*	✓	*	✓	*	*	*	✓	*	✓	✓	
21.	Rosedale west - Dalehead (west)	NZ 680 008	*	*	✓	✓	✓	✓	✓	✓	*	✓	*	✓	
22.	Rosedale east - Dalehead (east)	NZ 686 008	*	*	*	✓	✓	*	*	*	*	*	*	✓	
23.	Rosedale west - Dalehead (south)	NZ 682 005	*	*	✓	*	*	*	*	*	*	*	*	*	
24.	Rosedale east - Dalehead (quarry east)	NZ 685 006	*	*	*	*	*	*	*	*	*	*	✓	*	
25.	Rosedale east - Dalehead (quarry west)	NZ 683 008	*	*	*	*	*	*	*	*	*	*	✓	✓	
26.	Rosedale east - Reeking Gill	NZ 691 007	✓	✓	✓	*	*	✓	✓	✓	✓	✓	✓	✓	
27.	Rosedale east - Reeking Gill (west/cutting)	NZ 688 007	*	*	*	*	*	*	*	✓	✓	*	✓	*	
28.	Rosedale east - Reeking Gill (south)	NZ 692 003	*	*	*	*	*	*	*	*	*	*	*	✓	
29.	Rosedale east - Nab Scar (north)	NZ 694 000	*	✓	*	✓	✓	✓	✓	✓	*	✓	✓	✓	
30.	Rosedale east - Nab Scar (south)	SE 695 999	*	*	*	*	*	*	*	*	*	*	✓	*	
31.	Rosedale east - Sturdy Bank	NZ 699 000	✓	✓	✓	✓	*	*	*	*	✓	✓	✓	✓	
32.	Rosedale east - East Mine	SE 705 989	?	?	?	?	?	?	?	?	✓	*	*	*	
TOTAL			5	9	16	16	12	13	12	11	12	9	12	16	
<p>Note:</p> <ol style="list-style-type: none"> 1. Only a partial survey was carried out in 1999. 2. Foot & mouth prevented field work in 2001. <p style="text-align: center;">✓ = occupied by pair * = not occupied ? = not checked</p>															

See map at **Annex 1** for the location of ring ouzel territories and nests in Rosedale in 2011.

4.1.2 Other Areas of the North York Moors

See map at **Annex 2** for the location of other ring ouzel sightings on the North York Moors in 2011 (other than the Rosedale area and passage migrants).

4.2 Nest Sites

Table 2: Ring ouzel nest sites located in Rosedale and other areas of the North York Moors in 2011.

No.	Location	Grid Ref.	Comment
1.	Rosedale west - Sheriff's Pit	SE 6973 9627	Located 20/06; 2 pulli; assumed to have fledged.
2.	Rosedale west - Hob Crag	SE 7123 9557	Located 05/05; 4 pulli; all fledged.
3.	Rosedale west - Round Hill west	SE 6926 9706	Located 16/05; 4 pulli; all fledged.
4.	Rosedale west - Round Hill east	SE 6945 9685	Located 05/05; 4 pulli; all fledged.
5.	Rosedale west - Thorgill Bank	SE 7066 9580	Located 23/05; 4 pulli; predated.
6.	Rosedale west - Matty Carr	SE 6880 9836	Located 02/05; 4 pulli; all fledged.
7.	Rosedale east - Sturdy Bank 1 st	NZ 6987 0005	Located 27/04; 3 eggs; 3 pulli; all fledged.
8.	Rosedale east - Sturdy Bank 2 nd	SE 6987 9994	Located 16/06; 4 eggs; 3 pulli; predated.
9.	Rosedale east - Nab Scar north 1 st	SE 6945 9996	Located 27/04; 4 pulli; all fledged.
10.	Rosedale east - Nab Scar north 2 nd	NZ 6944 0000	Located 14/06; 4 eggs; 3 pulli; all fledged.
11.	Rosedale east - Reeking Gill 1 st	NZ 6915 0072	Located 27/04; 4 eggs; assumed 4 fledged.
12.	Rosedale east - Reeking Gill 2 nd	NZ 6917 0071	Located 31/05; 5 pulli; all fledged.
13.	Rosedale east - Dalehead quarry west 1 st	NZ 6829 0085	Located 04/05; 4 eggs; all fledged.
14.	Rosedale east - Dalehead quarry west 2 nd	NZ 6829 0085	Located 10/06; 4 eggs; predated at chick stage.
15.	Rosedale east - Dalehead east	NZ 6865 0075	Located 27/05; 4 eggs; all fledged.
16.	Rosedale east - Dalehead north	NZ 6805 0125	Located 24/05; 4 pulli; all fledged.
17.	Rosedale east - Dalehead west 1 st	NZ 6793 0081	Located 26/04; 4 eggs; 3 fledged.
18.	Rosedale east - Dalehead west 2 nd	NZ 6794 0079	Located 31/05; 4 eggs; 3 fledged.
19.	Bransdale east - Ousegill Bridge	SE 6396 9475	Located 28/04; 4 eggs; likely predated at egg stage.

4.3 Annual Breeding Results

Year	Total nests	Successful nests	Laying pairs (2 nd clutch)	Pairs that hatched young (2 nd attempt) [2 nd brood]	Pairs that successful fledged young (2 nd attempt/brood)	Pairs that failed to fledge young	Total young fledged	Mean fledged young per successful nest ^a	Mean fledged young per laying pair ^b
1	2	3	4	5	6	7	8	9	10
00	1	1	1	1	1	0	4	4.00	4.00
02	1	1	1 (1)	1 (1)	1 (1)	0	4	4.00	4.00
03	7	3	6 (1)	4 [1]	3	3	11	3.66	1.83
04	4	2	4 (1)	4 (1)	2 (1)	2	8	4.00	2.00
05	6	4	4 (2)	4 (1)[1]	4 (2) ^c	0	13	3.25	3.25
06	3	1	2	1 (1)	1 (1) ^d	1	5	5.00	2.50
07	4	3	4	3	3	1	12	4.00	3.00
08	9	6	7(3)	7[2] ^e	5(1)	2	23	3.83	3.29
09	5	5	4(1)	4[1]	4(1)	0	19	3.80	4.75
10	12	9	8 (5)	7 [3]	7(2)	1	30	3.33	3.75
11	19	15	14 (8)	13 [8]	12 (5)	2	55	3.67	3.92
Overall Mean								3.87^f	3.30
<p>Note</p> <p>a. Mean fledged young per successful nest (Column 9) = Column 8 ÷ Column 3</p> <p>b. Mean fledged young per laying pair (Column 10) = Column 8 ÷ Column 4</p> <p>c. One pair had two unsuccessful attempts before being successful at third attempt.</p> <p>d. One pair had one unsuccessful attempt before being successful at second attempt.</p> <p>e. One pair had two unsuccessful attempts; the 1st predated at the chick stage, the 2nd at the egg stage.</p> <p>f. Mean for: Glen Esk (Burfield) 3.48; Moorfoots (Burfield) 3.50; Yorkshire Dales (Appleyard) 3.60; BTO Nest Records (Flegg & Glue) 3.60.</p>									

Table 3: Summary of annual breeding results at ring ouzel nest sites in Rosedale & other areas of the North York Moors. Data from 2000-2011. Detailed results are presented at **Annex 3**.

Interpreting Table 3

- Column 2 shows the total number of nests found that year.
- Column 3 shows the number of nests fledging young (i.e. successfully leaving the nest) that year.
- Column 9 shows the average number of young fledged from each nest that year (see Note f. for comparison with other study areas). *This is a measure of nest productivity.*
- Column 10 shows the number of young fledged per pair averaged for all the pairs that laid eggs that year and includes those pairs that lost nests to predation or had infertile eggs. *This is a measure of the productivity of all the pairs that laid eggs.*

In 2011 the nests of 14 pairs were located of which eight (57%) were known to have laid second clutches; five of these successfully fledging young. In all 55 young were fledged from 19 nests making this the most successful year for finding nests since the study began. Four nests (21%) were predated with two pairs failing to raise any young and two pairs only losing their second clutch.

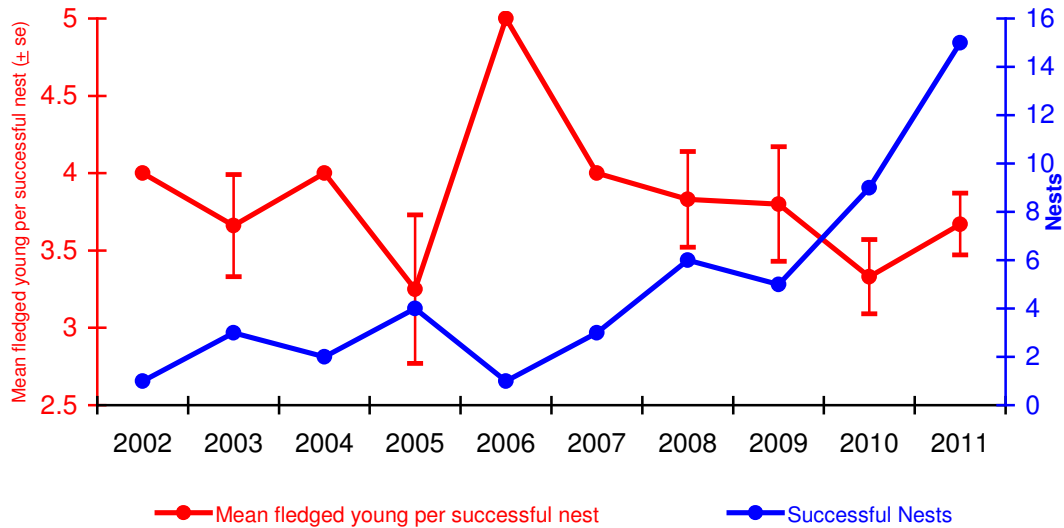


Figure 1. Annual mean fledged young per successful nest for Rosedale and other areas of the North York Moors between 2002-2011.

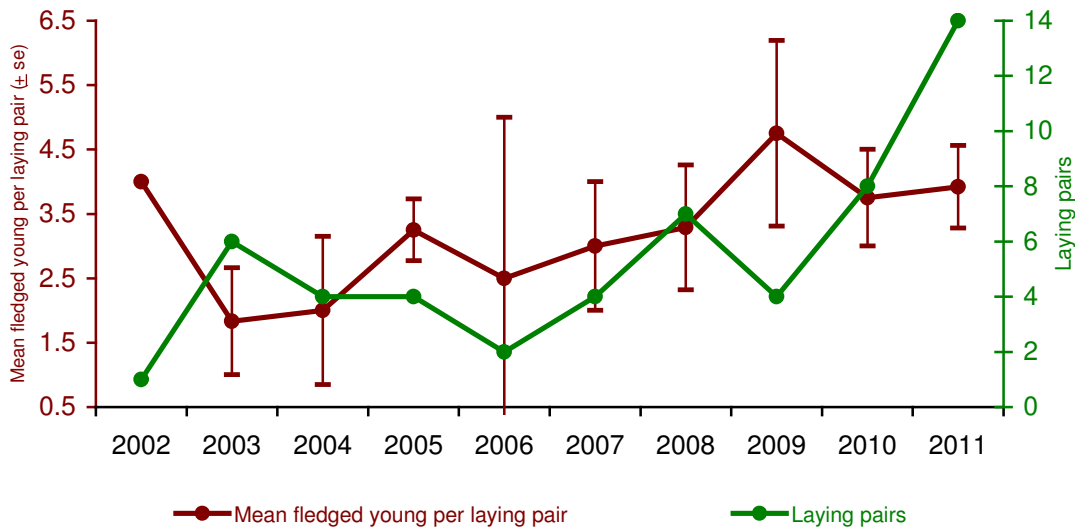


Figure 2. Annual mean fledged young per laying pair for Rosedale and other areas of the North York Moors between 2002-2011.

Interpreting Figures 1 and 2

Figure 1 - Mean fledged young per successful nest

- Values are taken from Columns 3 and 9 in Table 3.
- The right hand vertical axis is associated with the **blue** line and shows the number of nests that fledged young in a particular year.
- The left hand vertical axis is associated with the **red** line and shows the average number of young that fledged each nest in a particular year. The vertical **red** Hi-Lo lines through each data point gives the standard error ($\pm se$) e.g. In 2011 15 nests fledged an average of 3.67 young and that the standard error shows there is a 68% confidence that this value lies within the range 3.47 to 3.87.

Figure 2 - Mean fledged young per laying pair

- Values are taken from Columns 4 and 10 in Table 3.
- The right hand vertical axis is associated with the **green** line and shows the number of pairs laying eggs in a particular year.
- The left hand vertical axis is associated with the **brown** line and shows the young fledged averaged for all pairs that laid eggs.

4.4 First-egg Laying Dates

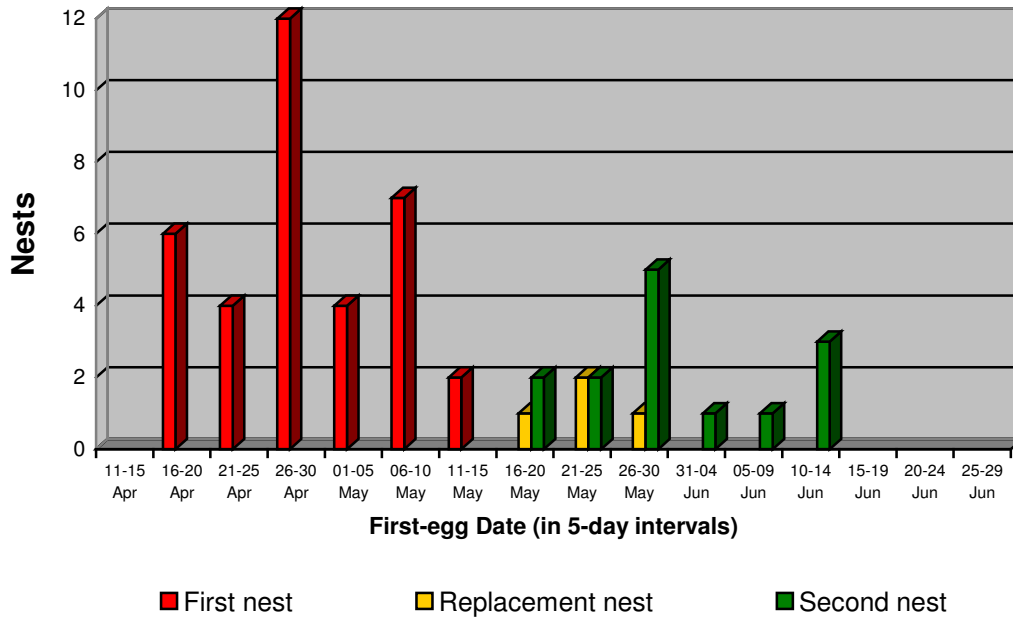


Figure 3. First-egg laying dates for Rosedale and other areas of the North York Moors between 2000-2011. Date points in 5-day intervals for the months of April, May & June. (n=53)

4.5 First-egg, Hatching & Fledging Dates

Table 4. First-egg, hatching & fledging dates for Rosedale and other areas of the North York Moors.

Year	Nest location	1 st Egg	Hatching	Fledging	Comments
2000	Spaunton Moor	6 May (a)	21 May (a)	3 June	
2002	Bank Top	17 May	1 June	15 June	Replacement nest/eggs.
2004	Matty Carr Hill	26 April	11 May	25 May	
	Hob Crag	10 June (a)	26 June (p)	-	2 nd nest.
2006	Ousegill Bridge	10 May	25 May	7 June	
	Sheriff's Pit south	21 May	5 June	18 June	Replacement nest/eggs.
2007	Round Hill south	5 May (a)	20 May (a)	2 June (a)	
	Hob Crag	5 May (p)	-	-	
	Reeking Gill west	26 April	11 May	24 May	
	Dalehead west	29 April	14 May	27 May	
2008	Sturdy Bank 1 st	29 April	14 May (a)	27 May (a)	
	Sturdy Bank 2 nd	10 June	25 June (a)	9 July (a)	1 st egg 14 days after 1 st nest fledged.
	Round Hill south	1 May	16 May (a)	29 May	
	Reeking Gill	5 May	20 May (a)	2 June	
	West Gill	25 April	10 May	23 May	Seen copulating on 22 April.
	Hob Crag 1 st	28 April	13 May (p)	-	
	Hob Crag 2 nd	27 May (p)	-	-	Replacement nest/eggs.
	Sheriff's Pit	7 May	22 May	4 June	
	Dalehead north	25 May	9 June (a) (p)	-	Likely replacement nest/eggs.
2009	Reeking Gill	16 April	1 May	14 May	Pair arrived in gill on 25 March.
	Sturdy Bank	13 May (a)	29 May (a)	11 June (a)	Pair arrived in gill on 26 March.
	Round Hill south	26 April	11 May	24 May	1 st nest. 2 nd nest at Sheriff's Pit.
	Dalehead west	10 May	25 May	8 June	Likely to be 1 st nest.
	Sheriff's Pit	26 May	10 June	23 June (a)	2 nd nest. 1 st nest at Round Hill south.
2010	Sturdy Bank 1 st	30 April (a)	16 May (a)	29 May (a)	1 st nest.
	Sturdy Bank 2 nd	16 June (p)	-	-	Predated at egg stage.
	Reeking Gill	16 April	1 May	14 May (a)	1 st nest.
	Reeking Gill cut. 1 st	9 May	24 May (a)	6 June	1 st nest.
	Reeking Gill cut. 2 nd	11 June	26 June	7 July	2 nd nest. Likely fledged at 11 days.
	Ousegill 1 st	28 April	13 May (a)	26 May	1 st nest.
	Ousegill 2 nd	2 June	17 June (a)	-	2 nd nest. Failed at chick stage.
	Hob Crag 1 st	29 April	14 May	28 May (a)	1 st nest. Fledged at 14 days.
	Hob Crag 2 nd	9 June	24 June	7 July	2 nd nest
	Sheriff's Pit	13 May	28 May	10 June	Likely to be 1 st nest.
	Round Hill central	27 April	12 May	25 May	1 st nest.
	Dalehead quarry west	22 May	6 June	19 June	Likely to be 2 nd nest.
2011	Hob Crag	19 April	4 May	17 May	1 st nest. In nest on 16th ready to fledge.
	Round Hill east	18 April	3 May	17 May	1 st nest. In nest on 16th ready to fledge.
	Round Hill west	10 May	25 May	7 June	1 st nest. In nest on 6th ready to fledge.
	Matty Carr	17 April	2 May (a)	16 May	1 st nest. In nest 14. Fledged & by nest 16.
	Sturdy Bank 1 st	21 April	6 May (a)	19 May (a)	1 st nest.
	Sturdy Bank 2 nd	28 May	12 June (a) (p)	-	2 nd nest. 3 hatched on 12th. Predated.
	Nab Scar north 1 st	21 April	6/7 May (a)	20 May (a)	1 st nest. 2 eggs hatched on 6th & 2 on 7th
	Nab Scar north 2 nd	26 May	10 June	23 June (a)	2 nd nest. 3 pulli. 1 egg unhatched.
	Reeking Gill 1 st	16 April	1 May	14 May (a)	1 st nest.
	Reeking Gill 2 nd	19 May	3 June (a)	17 June (a)	2 nd nest. 3 eggs hatched on 3rd.
	Ousegill	28 April (a) (p)	-	-	1 st nest. Likely predated at egg stage.
	Dalehead west 1 st	23 April	8 May	21 May	1 st nest.
	Dalehead west 2 nd	29 May	13 June	26 June	2 nd nest. In nest 24/6, out of nest 27 th .
	Dalehead north	8 May	23 May	6 June (a)	1 st nest.
	Dalehead quarry wst 1 st	28 April	13 May	27 May (a)	1 st nest.
	Dalehead quarry wst 2 nd	?	(p)	-	2 nd nest. Predated at chick stage.
	Dalehead east	25 May (a)	9 June	22 June	Likely to be 2 nd nest.
	Thorgill Bank	18 May	2 June (a) (p)	-	Likely to be 2 nd nest. Predated.
	Sheriff's Pit	30 May	15 June	27 June	Likely to be 2 nd nest.

(a) = actual (p) = predated

Dates other than actual are based on a 29 day breeding cycle assuming female commences sitting on 3rd egg and both incubation and chick stage take 13 days.

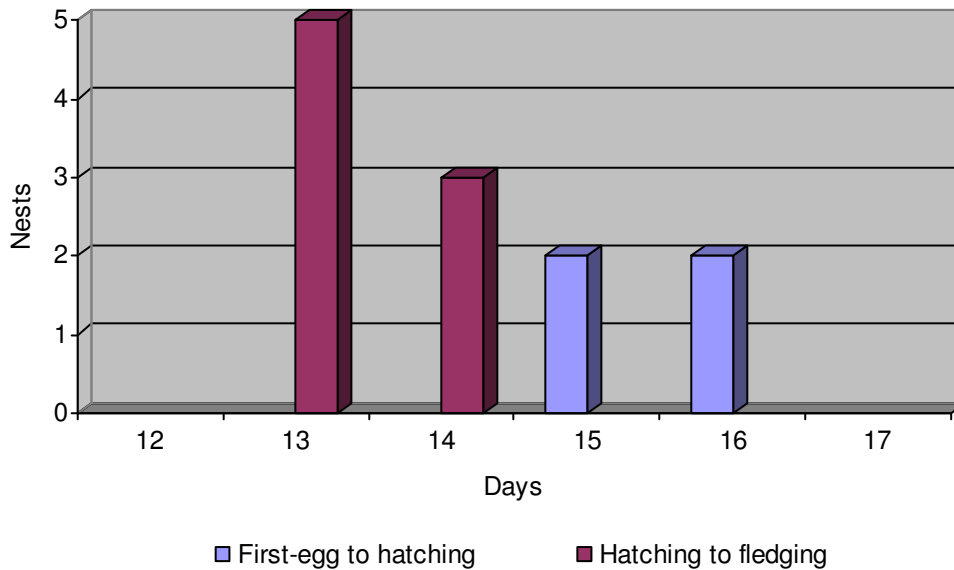


Figure 4. Number of nests with days taken from the first-egg being laid to hatching and from hatching to fledging. Data for 2000-2011 for Rosedale and other areas of the North York Moors. (n=12)

4.6 Distance Between First & Second Nests

The distance between first and second nests is shown below in Table 5. Most built their second nest close to the first. The exception to this was the 2009 pair that moved more than half a kilometre to build their second nest - the pair were easily identified by the female's distinct white head marking. Studies by Appleyard in the Yorkshire Dales record a mean distance between first, second and third brood nests (n=26) of 64 metres with a median of 55 metres. For the North York Moors (n=15) the **mean and median values are 85 metres and 51 metres** respectively.

Table 5. Distance between 1st & 2nd nests located in Rosedale and other areas of the North York Moors.

Year	Location	National Grid Reference		Distance (metres)	Comment
		First nest	Second nest		
2003	Thorgill Bank	SE7072195811	SE7073895808	17	
2005	Sheriff's Pit	SE6972196263	SE6972296271	8	
2006	Sheriffs Pit/Sheriff's Pit south	SE6972296268	SE6978496106	173	1 st - Sheriff's Pit 2 nd - Sheriff's Pit south
2008	Hob Crag	SE7144295395	SE7138795446	75	2 nd is replacement nest
2008	Sturdy Bank	SE6989499907	SE6986599899	30	
2009	Round Hill south/Sheriff's Pit	SE6953396742	SE6972596266	513	1 st - Round Hill south 2 nd - Sheriff's Pit
2010	Bransdale, Ousegill	SE6399795110	SE6397994971	140	
2010	Hob Crag	SE7138195441	SE7131895441	0	First nest was reused.
2010	Sturdy Bank	NZ6988800004	NZ6987000054	53	
2010	Reeking Gill cutting	NZ6879000661	NZ6885600683	69	
2011	Reeking Gill	NZ6915200719	NZ6916800713	17	
2011	Dalehead west	NZ6792700814	NZ6793700793	23	
2011	Sturdy Bank	NZ6986900050	SE6986899936	114	
2011	Dalehead quarry west	NZ6829600847	NZ6829600847	0	2 nd nest on top of 1 st nest.
2011	Nab Scar north	SE6945099957	NZ6943800004	48	

5. DISCUSSION

5.1 Weather Conditions

March: A cold and unsettled start to the month gave way to milder conditions with mid-day temperatures reaching 14°C on the 25th. A ridge of high pressure extending south to the Bay of Biscay dominated the second half with light south-westerly winds assisting migrating birds. Rainfall for the month was well below average. The first arrival on the Moors was seen on the 23rd - a day earlier than 2010 and the earliest recorded.

April: High pressure remained in charge for most of the month bringing with it settled conditions. Daytime temperatures soared into the low 20s on several days and rainfall was in short supply. By the 21st the Extreme Fire warning signs were put out on roads leading to the Moors. Nationally the month was the driest on record.

May: Unsettled conditions dominated the month with low pressure setting in to the west of the country. On the 23rd, an unusually deep area of low pressure brought gales to the northern half of the UK with gusts over 80 mph being recorded. Rainfall remained below average though a deluge on the 8th saw nearly 20mm fall in a 24-hour period. Temperatures in the low 20s were recorded on several days in the first part of the month but dropped back to a more-cooler average of 15 degrees for the remainder.

June: The first week of the month started dry and warm with temperatures climbing to 25 degrees on the 2nd and 3rd. By the 6th conditions became unsettled with daytime temperatures of 15 degrees being typical. The rest of the month saw rainfall most days with heavy bursts occurring on several days. Settled conditions returned at the end of the month with daytime highs in the mid twenties.

July: After a fine first few days the weather became unsettled again with low pressure being the dominant feature for most of the month. Several days from the 6th onwards saw rainfall, some being heavy and prolonged at times with over 30mm falling on the 21st. Daytime temperatures for most of the month were low at typically 15 degrees with only a few days at the beginning and the end of the month did they exceed 20 degrees.

Graphs of temperature and rainfall between April & July are shown at **Annex 5**.

5.2 First Arrivals

The first ring ouzel to be recorded in Rosedale in 2011 was seen on 23rd March; the earliest recorded and a day earlier than in 2010 (Figure 5).

A single male was seen on the 23rd March below the disused railway track near the intake wall on the south side of the gill at Reeking Gill. Two were also seen at the same location on the 25th.

On the 29th two males were seen at the south end of the Dalehead quarry; one briefly singing from a tree towards the bottom of the dale. A single male was also seen on the same day on the west side of the dale at Round Hill.

By the first week in April a number of sightings had been made on both sides of the dale including Sturdy Bank on the 1st, Hob Crag and Thorgill Bank on the 4th and at Matty Carr on the 7th.

The first arrival noted in Bransdale was a single male on the 29th March at Ousegill Bridge.

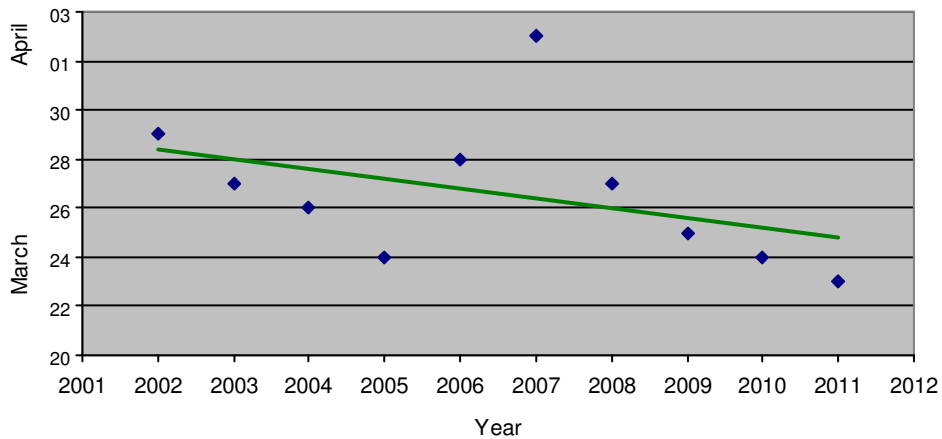


Figure 5: First-arrival date and 10 year trend for the Rosedale area of the North York Moors for the period 2002-2011.

5.3 Rosedale Territories and Nests

Sixteen ring ouzel territories were recorded in 2011 in the Rosedale area of the North York Moors. An increase of four on the 2010 count and seven on the low recorded in 2009 (Figure 6).

Most territories have been occupied before; some 7 or more times over the last 10 years. Two, Bank Top and Thorgill Bank, had not been occupied since 2006 and one, Round Hill west, had not been occupied since 2002. The re-use of these dormant territories gave a feeling early on in the season that there were more pairs around. See **Annex 1** for location of 2011 territories.

A total of 32 territories have been recorded in the Rosedale area between 1999-2011 (Table 1).

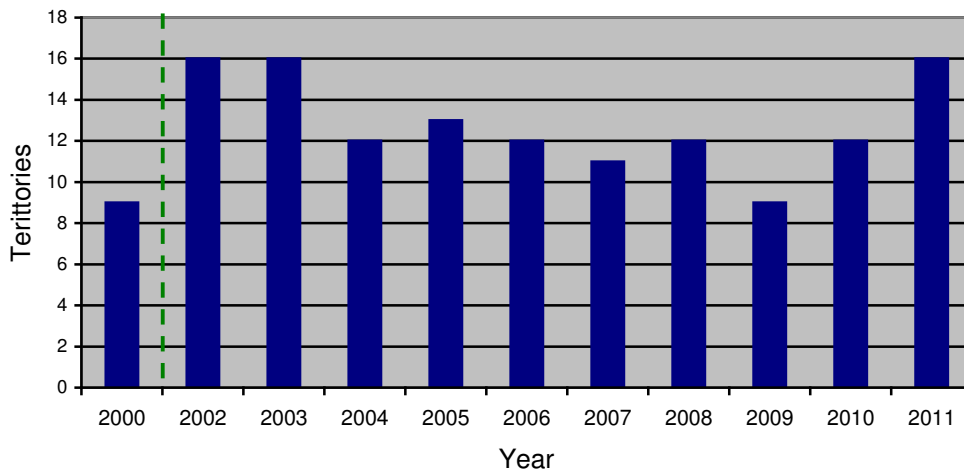


Figure 6: Confirmed & Probable territories in the Rosedale area of the North York Moors for the period 2000-2011. (foot & mouth prevented field work in 2001)

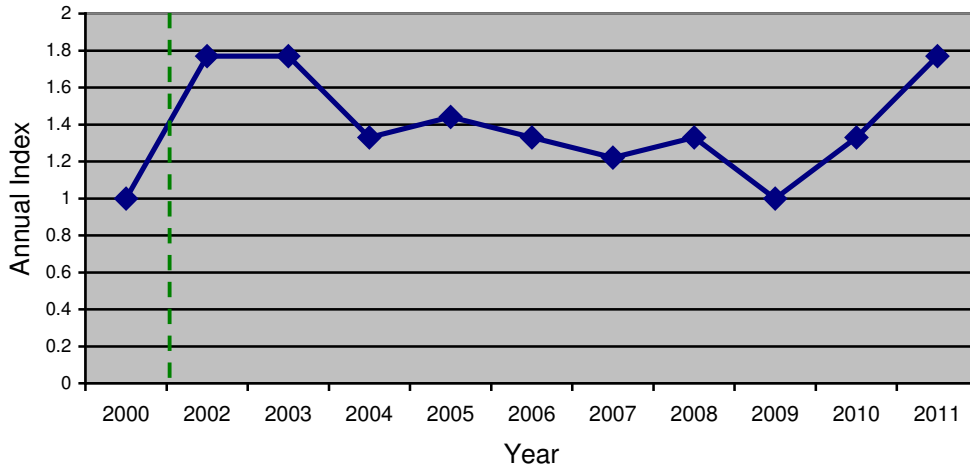


Figure 7: Annual indices of Confirmed & Probable territories in the Rosedale area for the period 2000-2011, referenced to 2000. (foot & mouth prevented field work in 2001)

5.3.1 Bank Top

This territory had not been used since 2006 and all hopes of finding birds here had gone since the visitor facilities by the ruined kilns had been upgraded some four years.

On the 18th April a male and female were seen at the back of the kilns and a short time later both were seen flying towards the moor. The female was lost from view but the male continued to be seen bobbing in and out of the heather. Discussions with the under-keeper who lives nearby indicated that the pair had been seen on the 16th April collecting nesting material close to the track at the back of the kilns.

On 26th April the head-keeper reported sighting a pair near the track about 50 metres from the main road in the vicinity of the gully/heather bank that runs along the moor-side of the track; this area was subsequently checked but nothing found.

On the 5th May the under-keeper reported hearing a male singing in the evening at the back of the kilns. There were no further sightings after the 5th May and no nest was found.

5.3.2 Dalehead east

A female was watched back to a nest containing 3 eggs on 27th May. The only previous record of a pair holding this territory was in 2004 when 4 young were fledged. The nest was close to the track but well hidden in dense heather shrubs. A check on 31st May revealed that a 4th egg had been laid indicating a first egg date of 25th May. 4 chicks had hatched when the nest was visited on 10th June and they were judged to be $\frac{3}{4}$ days old. The nest was empty on 24th June and the female was seen carrying food to fledglings in the vicinity.

5.3.3 Dalehead north

After several frustrating failed attempts to locate a nest a female was finally watched back to a nest which proved to contain 4 newly hatched chicks on 24th May. This was the first time that a nest had been located in this territory although it had been occupied in 2010. The nest was on the ground under heather close to a large rowan tree. The adults were seen carrying food to the nest which still contained 4 chicks on 31st May. On 6th June the male and female were feeding fledglings close to the nest and one fledgling was still on the edge of the nest. The male was still feeding fledglings on 20th June.

5.3.4 Dalehead quarry west

The vicinity of the Quarry territory in 2010 was checked without success until 4th May when a nest with 4 eggs was located only about 6 metres away from last year's nest. The nest was beneath the rock face under a small heather shrub high above the quarry floor. 4 newly hatched chicks were present on 14th May and the nest was found to be empty on 27th May with fledglings present nearby. Fledglings were still in the vicinity on 3rd June. On 10th June the adults were seen chasing a Jay from the quarry and eventually the female was watched back to a nest containing 4 eggs. This proved to be a **second** nest built on top of the first. The parents were feeding chicks at the nest on 20th June but by 24th June the nest was empty and apparently predated. As well as the jay, magpies and a squirrel were seen in the quarry during this period.

5.3.5 Dalehead west

The first nest of the year was located on 26th April when a female was watched back to a nest containing 4 eggs. The nest was well hidden in a large heather shrub near the crest of a steep slope high above the track. There were still 4 eggs on 6th May but a check on 9th May revealed 3 chicks and 1 egg in the nest. The fourth egg still in the nest on 11th May was presumed to be infertile. Three well grown chicks were in the nest on 19th May and were expected to fledge on 21st. No further visit was possible until 26th May when an adult was thought to be tending fledglings in the vicinity. On 31st May the female was watched back to a **second nest** containing 4 eggs only 23 metres away from the first nest. There were still 4 eggs on 10th June but on 13th June 3 newly hatched chicks were present with one remaining egg. On 20th June there were still only 3 chicks so as with the first clutch there was one infertile egg. The adults were still carrying food to the nest on 24th June and the chicks were due to fledge on 26th June.

5.3.6 Hob Crag

The first sighting was made on 4th April when a male was seen in the quarry. Later the same day a male was flushed from a position some 100 metres north of the quarry close to the track. On the 11th April a male was heard chacking in a tree below the quarry and then seen flying to join two females just north of the quarry.

Having had sightings of both birds in this area during April, it wasn't until the 5th May that the nest was located some 100 metres north of the quarry in a rocky depression on the moorside of the track. The nest contained 4 pulli which were estimated to be two days old. This was the first record of a nest at this location; previous nests having been located in the quarry.

On 9th May both adults were seen going to the nest with food, the female returning every 10 to 15 minutes while the male with a beak full of worms made just one visit in over 60 minutes of observation.

A further check on the nest on the 16th May revealed 4 very healthy chicks that were expected to fledge the following day. The nest site was clearly visible to passers-by from the track and was constructed on a bilberry bank at ground level.

There were no further sightings until the 6th June when a female was observed feeding in a meadow just south of the quarry. She was then seen flying north towards the first nest site but was then lost from view. Returning later in the day the female was seen again feeding in the same place before flying off and landing on a clump of heather some 100 metres north of the nest site. A thorough search of the area found no signs of a nest.

On the 13th June the male was seen in the central area of the quarry. He flew on to the heather at the top of the quarry face appearing to keep a watchful eye for intruders. Shortly after a female appeared on the quarry floor below the male with a beak full of nesting material and went straight to a location out of view from the point of observation but in the vicinity of the 2010 nest site. The female was observed for 45 minutes making trips to the nest site at around 2 minutes intervals; sometimes staying at the nest site for 4 to 5 minutes. She appeared totally focused on the task and was not disturbed by being observed from about 20 metres. Material was being collected at one point from the wheel ruts in the quarry floor which were puddled from the previous day's rain. The male took no part in the construction (as observed before) and stayed close by occasionally shifting position. At one point he was seen feeding at the north end of the quarry and was heard to sing just a few soft notes of simple song.

Several visits to the quarry over the following three weeks found no evidence of a nest or partial construction of one and neither adults were seen after the nest building session on the 13th June. It remains a puzzle as to just where the female built the nest, despite knowing to within a few metres the likely location, but the evidence suggest she did not use it and that there was no second brood from this pair.

5.3.7 Matty Carr

A male was seen in the quarry on 31st March and was seen to have a distinctive white stripe on the right side running over the crown to the nape. On 7th April a pair were seen in a tree some 300 metres north of the quarry the male having the same white stripe to the head. The pair were seen again a week later feeding in the same area with a second male close by. A further sighting of the male at the north end of the quarry was made on the 28th April.

A visit on the 2nd May to the quarry flushed the female off the nest which contained 3 pulli and one egg; the egg shape of the pulli suggested they had hatched that morning. On the 12th May 4 well grown chicks were seen in the nest and a further visit on the 14th May revealed 4 well fed chicks close to fledging.

Returning to the quarry on the 16th May found the nest empty with the adults feeding the juveniles close to the nest; one was seen less than 30 metres from the nest. The impression was that the young had fledged that morning.

There were no further sightings of the adults until the 8th June when the male was seen singing from a clump of heather just below the track around 50 metres north of the quarry. A short time later he was joined by a female and both were then lost from view when they flew down the daleside towards Matty Carr north.

A brief sighting of a female entering the quarry was made on 24th June but no sign of a nest was found when the quarry was checked later that day. On the 30th June a female was observed some 50 metres south of the quarry in the dale bottom appearing to feed juveniles in the heather. On several occasions over an hours observation the female was seen going into the heather carrying bilberry and coming out a few minutes later with an empty beak. At the same time a chacking was heard coming from the depths of the heather in several locations suggesting there were juveniles around.

It was thought likely that this was the same pair that nested in the quarry that successfully fledged young 40 days earlier on the 16th May. No second nest was found despite a thorough search of the quarry.

5.3.8 Nab Scar north

Pairs had occupied this difficult to monitor territory in most years of the survey without a nest being located so it was with considerable satisfaction that a female was flushed from a nest containing 4 eggs on 27th April. The nest was well hidden under a heather bush between two flat stones high on the Nab. There were still 4 eggs in the nest on 4th May but 2 newly hatched chicks were in the nest with 2 eggs on 6th May. The 2 remaining eggs hatched the following day. 4 chicks were still present in the nest on 19th May but the nest was empty on 20th May, the chicks having fledged 13 days after the second two eggs hatched on 7th May. The adults were seen feeding fledglings on 25th May and fledglings were also seen on 3rd June. The male was still feeding at least 2 fledglings on 11th June.

This breakthrough at Nab Scar was consolidated when a **second nest** containing 3 chicks and 1 egg was located on 14th June only 48 metres north of the first nest. The chicks appeared to be 4 days old. Chicks were still in the nest on 22nd June but the next day fledglings were being fed near the nest which only contained the egg which had failed to hatch.

5.3.9 Reeking Gill

A pair was watched back to a cliff nest site on 27th April. The nest was on a ledge hidden by heather in the rock face high above the Gill. It was impossible to see into the nest but a hand check revealed the presence of 4 eggs. Interestingly a pair had been seen copulating about 20-30 metres away from this site on 10th April. The chicks were found to have hatched when the nest was checked on 1st May and the adults were still carrying food to the nest on 13th May but a check on 14th May found the nest empty. On 24th May the male was observed feeding fledglings nearby.

On 25th May the female was flushed from a **second nest** 17 metres away and containing 5 eggs only 11 days after the first brood fledged. There were still 5 eggs in the nest on 31st May and 2nd June but on 3rd June there were only 2 eggs and three newly hatched chicks were present. At least 1 chick was still in the nest on 16th June but a check on 17th June found the nest empty and the adults feeding fledglings nearby. Fledging of the chicks on 16th June suggests a first egg date of 19th May, only 5 days after the first brood fledged.

5.3.10 Reeking Gill south

Activity in the area south of Reeking Gill and to the north of Nab Scar had been observed on several occasions between late March and mid-May. The difficulty had been in getting clear evidence that the ring ouzels seen freely mixing together in this area were not those associated with the territories at Reeking Gill and Nab Scar north.

On 27th April a female was seen going to the nest containing 4 eggs that had been located earlier in the day on the west side of Reeking Gill. Shortly after this observation a pair were seen feeding below the track some 250 metres south of the nest site at Reeking Gill; the female having a distinct dull gorget. Just a short time after this the nest at Nab Scar north - found earlier that morning containing 4 eggs - was checked and the female was seen sitting tight on the nest. The Nab Scar nest was approximately 750 metres from the Reeking Gill nest and about 500 metres from where a pair were seen feeding below the track south of Reeking Gill.

While it is always difficult in these situations to be 100% certain that there were three distinct pairs, it was felt likely from the above observations that this was the case and thus the criteria for Probable breeding (*Pair observed in suitable nesting habitat.*) had been met and, therefore, a new territory recorded.

5.3.11 Round Hill east

This site was referred to as Round Hill central in previous reports. The first sighting was made on the 18th April when a pair were seen feeding in the meadow south of Round Hill. Later the same day a male was heard chacking in the vicinity of the 2010 nest site. There were no further sightings until 5th May when a male was seen with food going into the heather near last year's nest site. On approaching the area the female 'exploded' from a rock overhung with deep heather just a metre from the 2010 nest. Four pulli about 2 days old were seen in a well concealed nest. A further visit on the 19th May found 4 young close to fledging that were expected to leave the nest the next day. The male was seen in a tree near to the nest site on the 23rd May singing short bursts of simple song while the female was seen foraging in the meadow close to the nest site.

5.3.12 Round Hill west

The nest at this site was found on 16th May. By chance while walking along the disused railway track a female was seen flying out of a heather bank close to the track. A quick search of the area found a nest with 4 eggs just two metres from the track. A further visit on the 23rd May found 4 warm eggs; the female seen returning to the nest shortly after. Inspecting the nest on the 31st May found 4 pulli that were estimated to be 7 days old. On the 6th June 4 lively chicks were seen that were expected to leave the nest the next day. The nest was found empty on the 8th June and the adults were seen 100 metres from the nest the male singing softly from a nearby tree while the juveniles were heard calling from a number of locations nearby. A first-egg date of the 10th May suggests this could be a replacement nest rather than a late first nest.

5.3.13 Sheriff's Pit

This nest site has been used most years over the period of the study. This year looked as though that may change as frequent visits throughout April and May showed no signs of nesting birds. However, on 20th June a female was seen sitting on a nest some 3 metres down the shaft in the north-east corner of the pit. At the same time a male was seen entering the pit with food that was assumed to be to feed young that were being kept warm by the female.

On 24th June both adults were seen taking food to the nest; though only two pulli that were estimated to be 11 days old could be seen.

On 27th June the nest was empty and the male was heard singing softly from the depths of the pit shaft. He appeared around 50 minutes later looking decidedly wet from the constant

dripping of water in the pit. In over 2 hours of observation the male entered the shaft several times but there was no sign of the female.

A further visit was made on the 30th June when the male was observed going into the pit with food at approximately 15/20 minute intervals. He was heard singing on several occasions from the depths of the shaft and while perched on the fence that surrounds the pit shaft. As noted on the 27th there was no sign of the female in over 2½ hours of observation.

On the 4th July the male was heard singing from way down the shaft and seen entering the shaft with food at intervals of 15 minutes or so - on one visit the male was seen going into the shaft with a bilberry. A chacking was heard at one point from way down the shaft that was thought to have been a fledgling. As before there was no sign of the female and the feeding of the juveniles was done entirely by the male.

Returning on the 11th July there was no sign of adults or young in over 2 hours of observation. The outcome of this site is unclear, though it seems likely the young fledged but whether they made it out of the pit is not known.

5.3.14 Sturdy Bank

The first of three nests found on 27th April was located at Sturdy Bank where a female was flushed from a nest containing 3 eggs. The nest was under a heather shrub near the head of the gill. A pair of Ring Ouzels had been observed copulating close to this site on 21st April. This nest was just a few metres away from a nest which was predated in 2010. The nest still contained 3 eggs on 1st May but 3 chicks had hatched when the nest was checked on 6th May and they were judged to be one day old. The adults were still carrying food to the nest on 18th May but the nest was found to be empty on 19th May and the adults were observed feeding fledglings at 3 scattered locations nearby. The male was still feeding 2 well grown young nearby on 30th May.

On 31st May whilst the male was still feeding fledglings nearby the female was watched back to a new **second nest** containing 4 eggs. This nest was low down and close to the beck and 114 metres away from the first nest. There were 4 eggs in the nest on 11th June but there were 3 chicks and 1 egg on 12th June. The female was seen carrying food to the nest on 14th June but on 16th June the nest was empty and apparently predated.

5.3.15 Thorgill Bank

This territory was last occupied in 2006. On 4th April a pair were seen in the area close to a large stone cairn; near to where the nest was eventually found.

A further sighting of a male was made on the 11th April close to the earlier sighting and again in the same locality on the 18th April. Nothing was seen on the 9th May in over 2 hours.

On the 23rd May a male was heard chacking from a point slightly west of the cairn. A short time later the male was seen flying out of a shallow gully that ran from near the cairn towards the disused railway track. A closer look at the gully lifted the female and a nest on the heather slope of the gully was found containing 4 eggs.

A visit on the 2nd June found 4 healthy pulli estimated to be about one day old. There was no sign of the adults during the brief visit to the nest.

On the 13th June the nest was found empty and to be sodden from the torrential rain that fell over-night of the 12/13th. This pointed to the nest having been empty for some time and suggested it had been predated some two days or more before the expected fledge date of 15th June. This was a disappointing end to what was likely to have been the pairs second nest; the first nest was not located.

5.4 Passage Migrants

On 15th April 3 ring ouzels were seen at RAF Fylingdales on Lockton High Moor (SE865965); a well known stop over for Fenno-Scandia passage birds. The same day 3 birds were seen on the coast at Ravenscar near the radio mast (NZ973012). On 21st April 13 ring ouzels were seen in Westerdale (NZ6603). A group of 7 were seen on the 24th April in the Reeking Gill area of Rosedale (NZ691007) of which some were thought to be Rosedale birds. On the 4th May 7 were seen on the coast at Ravenscar.

5.5 Late Summer Activity

As in the last few years a late season visit was made to Rosedale specifically to locate ring ouzels prior to migration.

On the 22nd August 6 ring ouzels were seen at Reeking Gill flying off the moor down the gill before circling and returning back up the gill towards the moor - thought to be two adults with young. The same day a female was seen feeding in a rowan tree 100 metres south of the gill close to the track accompanied by several mistle thrushes and starlings. Later the same day 4 ring ouzels were seen in a rowan tree below the track on the west side of the gill; one with no visible gorget suggesting it was a first-winter juvenile.

On 19th September 2 adults and a juvenile flew out of a rowan tree at Blakey Swang before flying north to a stand of rowan trees opposite Dalehead quarry.

5.6 Nest Collection

During the 2011 season a request was received from Professor Mike Hansell, School of Life Sciences, University of Glasgow, for specimens of local ring ouzel nests to add to the National Nest Reference Collection at the Hunterian Museum.

Currently the museum has around 1400 nests, representative of species that are of conservation concern. The aim is to have specimens from different parts of the country that show the local materials used in their construction. The museum presently has just nine ring ouzel nests that have been collected from Scotland and the Yorkshire Dales.

Five nests were obtained from Rosedale that were considered to be representative of ring ouzel nesting habitats in the North York Moors. Two were from quarry sites and three from heather/bilberry slopes. The nests were collected after the end of the breeding season and where possible the nests selected were ones that had been predated or had remained intact from previous seasons and not reused. The nest sites were (**see photos at Annex 6**):

5.6.1 Hob Crag quarry SE 7138 9545

This nest dates back to 2007 and was built in a recess one metre above ground level in the wall of a disused quarry. Nest was built on a clump of heather growing in the recess. The nest was not reused after the 2007 season despite remaining in good condition owing to its sheltered location. An interesting development was the discovery in 2011 of a pied wagtail nest with 3 young attached to the old ring ouzel nest. The nest elevation is 310m.

5.6.2 Hob Crag north SE 7123 9558

This was the first time a nest had been built at this location. It was built entirely on a bilberry foundation and had a solid stone backing overhung with heather. The nest site was on a 25° sloping bank at an elevation of 322m.

5.6.3 Thorgill Bank SE 7065 9581

Located in a shallow heather clad gully with gently sloping sides the nest was built on a large flat rock overhung with deep heather. A feature of this nest that had not been seen before was the adornment of rush stems around the rim of the nest. The nest site was at an elevation of 315m.

5.6.4 Dalehead east NZ 6865 0075

This nest was situated on the sloping side of a now disused railway embankment. It was suspended on a clump of heather just a few centimetres above the ground. The nest site was at an elevation 328m.

5.6.5 Dalehead Quarry NZ 6829 0085

Nest in heather clump growing from quarry wall. An unusual feature of this nest site was the building of the second nest on top of the first nest. Elevation 296m.

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ANNEX 1 - Map of Nest Sites and Territories in Rosedale in 2011

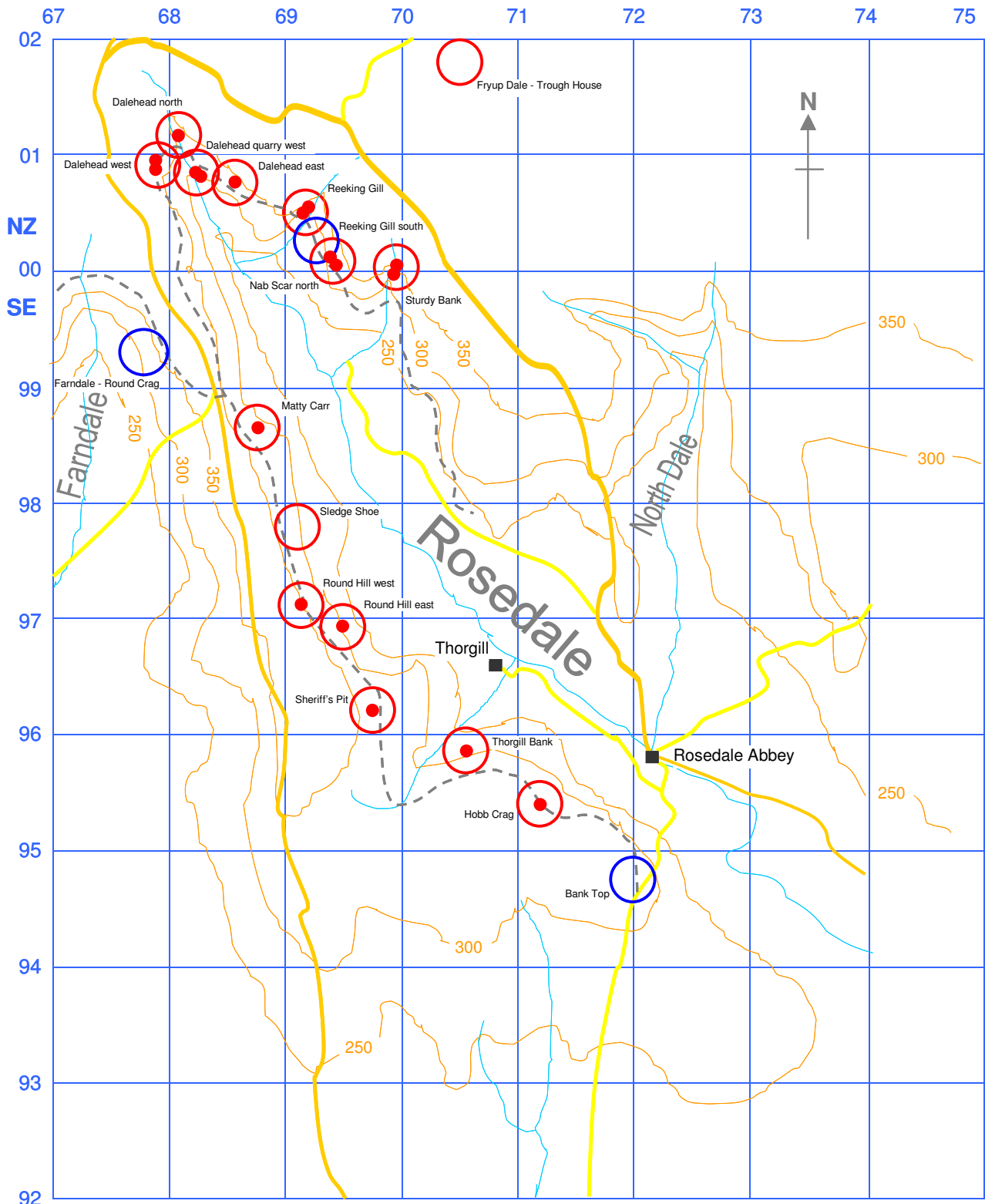
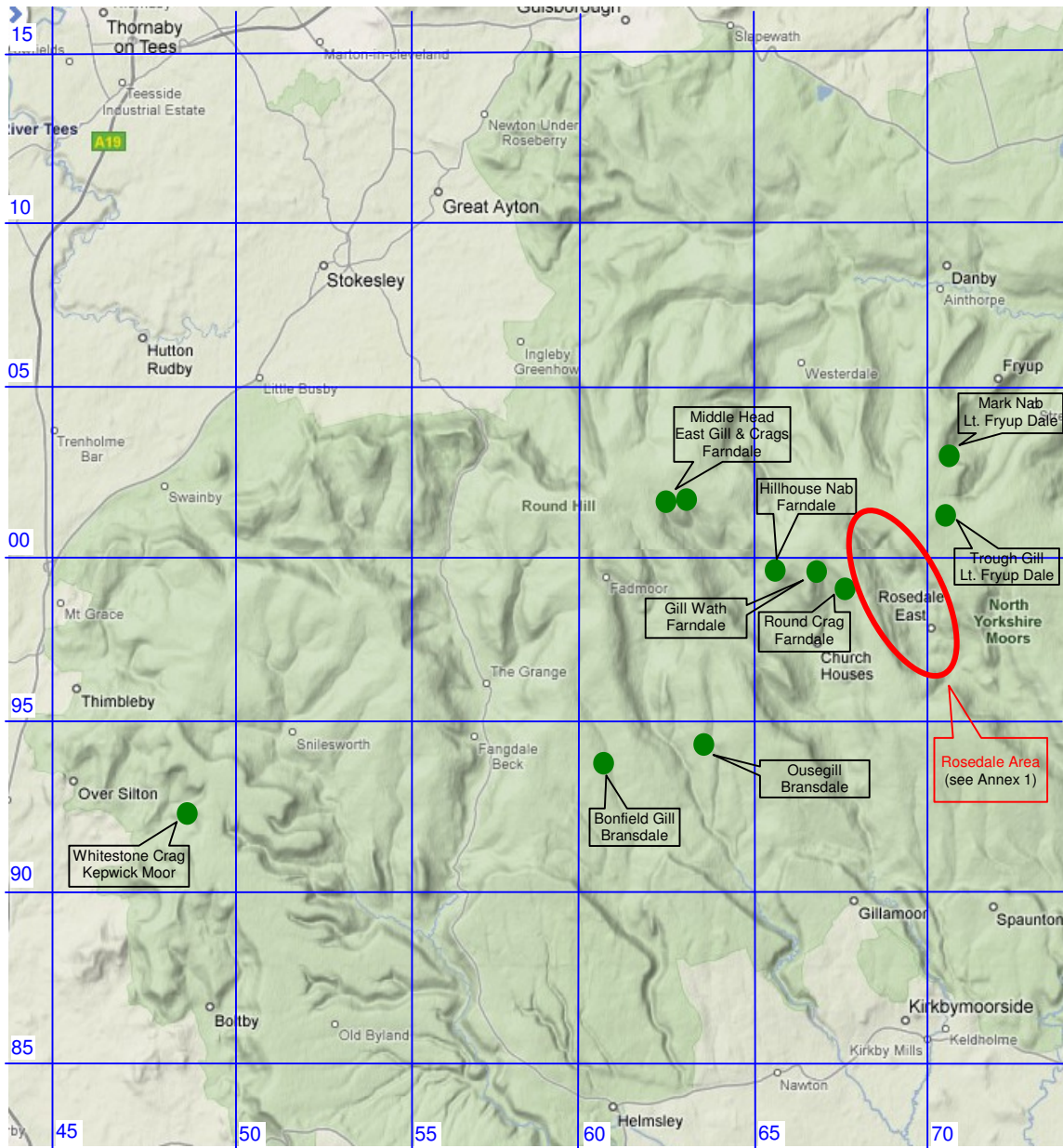


Diagram 1: Ring ouzel nest sites and Confirmed, Probable and Possible territories located in the Rosedale area of the North York Moors in 2011.

Nest Site: ● **Confirmed Territory:** ○ **Probable Territory:** ○

**ANNEX 2 - Map of Sightings on the North York Moors in 2011
(other than the Rosedale area & passage migrants)**



ANNEX 3 - Annual Breeding Results from 2000 to 2011

Table 1: Annual breeding results at ring ouzel nest sites in the Rosedale and other areas of the North York Moors. Data from 2000 to 2011.

Year	Site	Grid Ref.	Eggs	Hatched	Fledged	Comments
2000	Spaunton	SE71479347	4	4	4	1 st brood. 4 pulli ringed.
2002	Bank Top	SE72049483	+	4	4	Likely to be 2 nd brood.
2003	Ouzegill Bdg.	SE63709450	4	4	4	1 st brood. 4 pulli ringed.
2003	Round Hill	SE69279710	4	4	4	1 st brood
2003	Thorgill Head	SE69999559	4	3	0	1 st brood. Nest disturbed, chicks abandoned.
2003	Thorgill Bank	SE70729582	4	3	3	1 st brood. 3 pulli ringed.
2003	Thorgill Bank	SE70729582	2	1	?	2 nd brood. Likely to have failed at pulli stage.
2003	Loskey Ridge	SE71489347	4	+	0	1 st nest. Predated at pulli stage.
2003	Hob Crag	SE71459538	4	0	0	Likely to be 1 st nest. Predated at egg stage.
2004	Hob Crag	SE71459538	4	4	0	Predated at pulli stage. Refurbished 2003 nest.
2004	Matty Carr	SE68809833	4	4	4	Likely to be 1 st brood.
2004	Dale Hd East	NZ68560086	4	4	4	Likely to be 2 nd brood.
2004	Ouzegill Bdg.	SE63909470	2	1	?	1 st brood. 1 egg vanished. 1 pulli ringed.
2005	Sheriff's Pit 1 st	SE69659631	+	1	0	1 st nest. Nest abandoned; reason unknown.
2005	Sheriff's Pit 2 nd	SE69659631	+	0	0	2 nd attempt. Predated at egg stage.
2005	Sheriff's Pit 3 rd	SE69659631	+	3	2	3 rd nest.
2005	Matty Carr	SE68809835	4	4	4	Thought to be 1 st brood.
2005	Lion Inn	SE68249954	+	4	4	Likely to be 2 nd brood.
2005	Dale Hd West	NZ67960082	+	+	3	3 fledglings seen near nest.
2006	Sheriff's Pit 1 st	SE69659631	4	0	0	Nest on NW side of pit shaft washed out by heavy rain in mid May.
2006	Sheriff's Pit 2 nd	SE69779609	5	5	5	2 nd attempt 185m south of pit shaft.
2006	Dale Hd West	NZ67930081	4	+	+	Likely to be 2 nd brood. Not known if hatched or fledged.
2007	Hob Crag	SE71459538	3	0	0	1 st nest. Predated at egg stage.
2007	Round Hill Sth	SE69819663	4	4	4	1 st nest.
2007	Dale Hd West	NZ67940079	4	4	4	1 st nest.
2007	Reeking Gill	NZ68920066	4	4	4	1 st nest.
2008	Sturdy Bank 1 st	SE69899991	4	4	4	1 st nest.
2008	Sturdy Bank 2 nd	SE69869990	4	4	3	2 nd nest.
2008	Round Hill Sth	SE69819664	4	4	4	1 st nest. Used refurbished 2007 nest.
2008	Reeking Gill	NZ69140056	5	5	5	1 st nest.
2008	Northdale, W. Gill	SE71799957	+	+	3	1 st nest.
2008	Hobb Crag 1 st	SE71449539	4	4	0	1 st attempt. Predated at pulli stage. Used 2003/4 nest site.
2008	Hobb Crag 2 nd	SE71399545	3	0	0	2 nd attempt. Predated at egg stage.
2008	Sheriff's Pit	SE69719626	4	4	4	1 st brood.
2008	Dalehead Nth.	NZ67950102	4	1	0	Likely to be 2 nd attempt. Appeared to have failed after 1 st hatching. 1 abandoned egg left in nest.
2009	Dale Hd West	NZ67940079	4	4	4	1 st nest.
2009	Sturdy Bank	SE6987 9991	4	4	3	Likely to be 1 st nest.
2009	Round Hill Sth	SE69539674	4	4	4	1 st nest.
2009	Reeking Gill	NZ69240076	+	+	3	1 st nest.
2009	Sheriff's Pit	SE69729627	+	5	5	2 nd nest. 1 st nest at Round Hill Sth.
2010	Ouzegill 1	SE64009511	4	4	3	1 st nest. 1 left early & died near nest.
2010	Ousegill 2	SE63989497	5	3	0	2 nd nest 140m sth of 1st nest. Predated at pulli stage. 2 eggs left.
2010	Ousegill Bridge	SE63929444	5	0	0	Likely to be 2 nd nest. Predated at egg stage.
2010	Sturdy Bank 1 st	NZ69890000	3	3	3	1 st nest.
2010	Sturdy Bank 2 nd	NZ69870005	3	0	0	Predated at egg stage.
2010	Reeking Gill	NZ69080068	+	4	4	1 st nest.
2010	Reeking Gill cut 1 st	NZ68790066	4	4	4	1 st nest.
2010	Reeking Gill cut 2 nd	NZ68860068	+	3	3	2 nd nest 69m east of first nest.
2010	Hob Crag 1 st	SE71389544	+	4	4	1 st nest.
2010	Hob Crag 2 nd	SE71389544	+	4	2	2 nd nest using same nest as 1 st nest.
2010	Sheriff's Pit	SE69739627	+	3	3	1 st nest.
2010	Round Hill (central)	SE69439690	+	4	4	1 st nest.
2011	Hob Crag	SE71239557	+	4	4	1 st nest.
2011	Round Hill east	SE69459685	+	4	4	1 st nest.
2011	Round Hill west	SE69269706	4	4	4	1 st nest.
2011	Matty Carr	SE68809836	4	4	4	1 st nest.
2011	Ousegill Bridge	SE63969475	4	0	0	1 st nest. Likely to have been predated at egg stage.
2011	Sturdy Bank 1 st	NZ69870005	3	3	3	1 st nest.
2011	Sturdy Bank 2 nd	SE69879994	4	3	0	2 nd nest. Nest predated. 1 egg unsure if hatched.
2011	Nab Scar north 1 st	SE69459996	4	4	4	1 st nest.
2011	Nab Scar north 2 nd	NZ69440000	4	3	3	2 nd nest. One egg left in nest.
2011	Reeking Gill 1 st	NZ69150072	4	+	+	1 st nest. Fledged; assumed all 4 left nest.
2011	Reeking Gill 2 nd	NZ69170071	5	5	5	2 nd nest.
2011	Dalehead west 1 st	NZ67930081	4	3	3	1 st nest. One egg left in nest.
2011	Dalehead west 2 nd	NZ67940079	4	3	3	2 nd nest. One egg left in nest.
2011	Dalehead grry west 1 st	NZ68290085	4	4	4	1 st nest.
2011	Dalehead grry west 2 nd	NZ68290085	4	+	0	2 nd nest. Nest predated at chick stage.
2011	Dalehead east	NZ68650075	4	4	4	Likely to be 2 nd nest.
2011	Dalehead north	NZ68050125	+	4	4	1 st nest.
2011	Thorgill Bank	SE70699580	4	4	0	2 nd nest. Likely to have been predated at chick stage.
2011	Sheriff's Pit	SE69739627	+	2	2	Likely to be 2 nd nest.

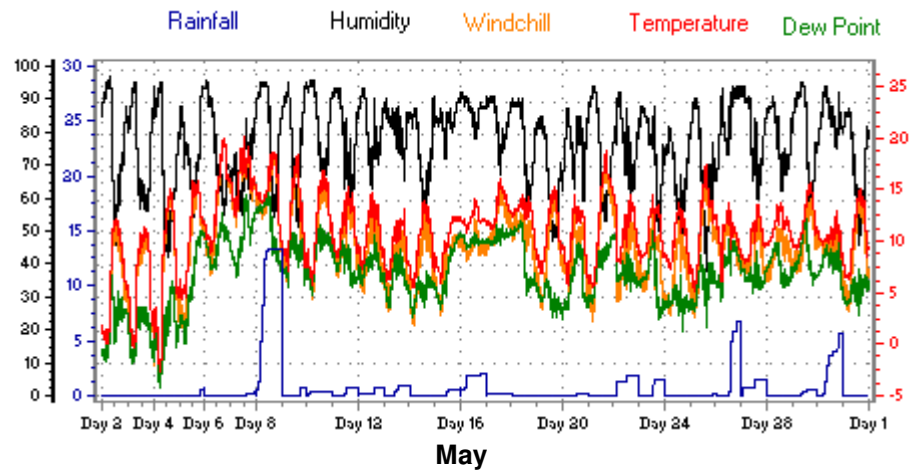
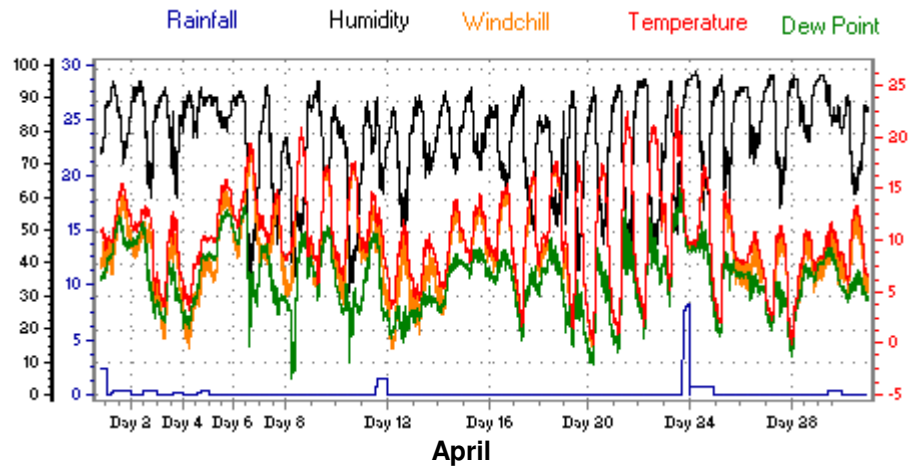
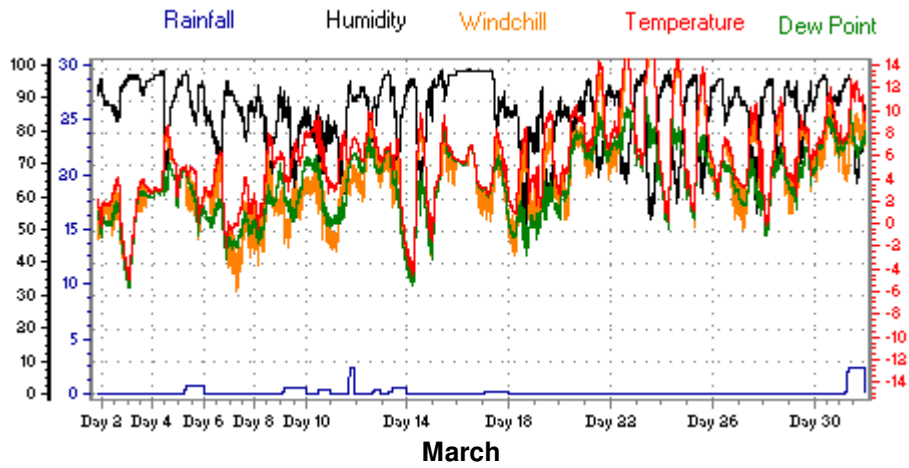
+ = Exact value unknown.

ANNEX 4 - Table of Nest Aspect & Elevation

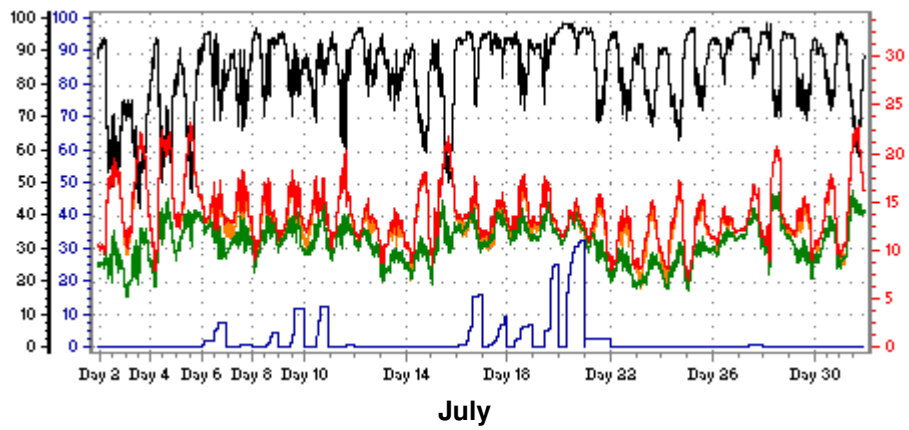
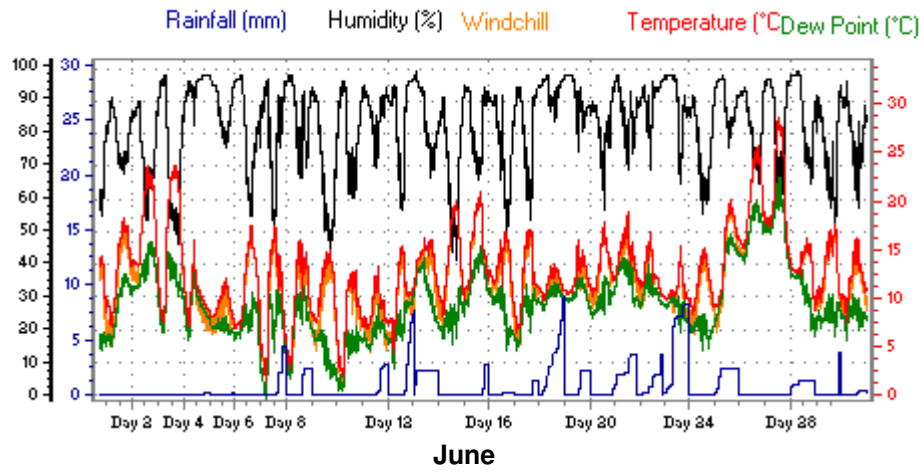
Table 1: Aspect & elevation of nest sites mainly in the Rosedale area of the North York Moors.

Year	Location	Grid Reference	Aspect	Elevation
1999	Rosedale - Sheriff's Pit	SE 6973 9627	NNW	331m
1999	Blakey Crossing	SE 6830 9900	SSW	370m
2000	Spaunton Moor - Penwash	SE 7147 9347	SSW	240m
2002	Rosedale - Bank Top	SE 7204 9483	NNW	310m
2003	Rosedale - Round Hill	SE 6927 9710	N	336m
2003	Rosedale - Hobb Crag	SE 7145 9538	NNE	313m
2003	Rosedale - Thorgill Head	SE 6999 9559	NNE	330m
2003	Rosedale - Thorgill Bank	SE 7073 9580	NE	308m
2003	Spaunton Moor - Penwash	SE 7148 9347	NE	249m
2003	Rosedale - Thorgill Bank	SE 7072 9582	ENE	309m
2004	Rosedale - Matty Carr Hill	SE 6880 9833	E	358m
2004	Rosedale - Sheriff's Pit	SE 6971 9626	SSE	331m
2004	Rosedale - DaleHead (east)	NZ 6856 0086	SW	330m
2005	Rosedale - Sheriff's Pit	SE 6971 9626	NE	339m
2005	Rosedale - Blakey Lion	SE 6824 9954	ENE	362m
2005	Rosedale - Dale Head (west)	NZ 6796 0082	E	349m
2005	Rosedale - Sheriff's Pit	SE 6971 9626	ESE	333m
2005	Rosedale - Matty Carr Hill	SE 6880 9835	SE	331m
2005	Rosedale - Sheriff's Pit	SE 6971 9626	SW	331m
2006	Rosedale - Sheriff's Pit (south)	SE 6979 9610	N	339m
2006	Rosedale - Dale Head (west)	NZ 6793 0080	E	362m
2006	Rosedale - Sheriff's Pit	SE 6971 9626	ESE	333m
2007	Rosedale - Reeking Gill (west)	NZ 6892 0066	N	321m
2007	Rosedale - Round Hill (south)	SE 6981 9664	NNE	297m
2007	Rosedale - Hob Crag	SE 7138 9546	E	313m
2007	Rosedale - Dale Head (west)	NZ 6794 0079	S	357m
2008	Rosedale - Round Hill (south)	SE 6981 9664	NNE	297m
2008	Rosedale - Hob Crag 1 st	SE 7144 9539	NNE	310m
2008	Rosedale - Hob Crag 2 nd	SE 7139 9545	NE	313m
2008	North Dale - West Gill	SE 7179 9957	NE	308m
2008	Rosedale - Dalehead (north)	NZ 6795 0102	NE	353m
2008	Rosedale - Sheriff's Pit	SE 6971 9626	SSE	331m
2008	Rosedale - Sturdy Bank 1 st	SE 6989 9991	W	307m
2008	Rosedale - Sturdy Bank 2 nd	SE 6986 9990	SSW	281m
2008	Rosedale - Reeking Gill	NZ 6914 0056	W	322m
2009	Rosedale - Reeking Gill	NZ 6924 0076	S	359m
2009	Rosedale - Sturdy Bank	SE 6987 9991	SW	282m
2009	Rosedale - Dale Head (west)	NZ 6794 0079	S	357m
2009	Rosedale - Round Hill (south)	SE 6953 9674	NE	330m
2009	Rosedale - Sheriff's Pit	SE 6972 9627	NE	345m
2010	Rosedale - Sturdy Bank	NZ 6988 0004	W	324m
2010	Rosedale - Hob Crag (1 st & 2 nd)	SE 7138 9544	NE	315m
2010	Rosedale - Sheriff's Pit	SE 6973 9627	NE	340m
2010	Rosedale - Round Hill (central)	SE 6943 9690	ENE	328m
2010	Rosedale - Reeking Gill	NZ 6908 0068	SE	317m
2010	Rosedale - Reeking Gill cutting 1 st	NZ 6879 0066	S	328m
2010	Rosedale - Reeking Gill cutting 2 nd	NZ 6886 0068	SE	329m
2010	Rosedale - Dalehead (quarry west)	NZ 6828 0082	S	281m
2010	Bransdale - Ousegill 1 st	SE 6400 9511	W	250m
2010	Bransdale - Ousegill 2 nd	SE 6398 9497	E	250m
2010	Bransdale - Ousegill Bridge	SE 6392 9444	W	225m
2011	Rosedale - Hob Crag (north)	SE 7123 9557	NW	313m
2011	Rosedale - Thorgill Bank	SE 7066 9580	NW	307m
2011	Rosedale - Sheriff's Pit	SE 6972 9627	SE	343m
2011	Rosedale - Round Hill (east)	SE 6945 9685	E	321m
2011	Rosedale - Round Hill (west)	SE 6926 9706	NE	352m
2011	Rosedale - Matty Carr	SE 6880 9836	NW	343m
2011	Rosedale - Dalehead (north)	NZ 6805 0125	SW	341m
2011	Rosedale - Dalehead (west) 1 st	NZ 6793 0081	SW	352m
2011	Rosedale - Dalehead (west) 2 nd	NZ 6794 0080	SW	347m
2011	Rosedale - Dalehead (east)	NZ 6865 0076	NE	328m
2011	Rosedale - Dalehead quarry (west) 1 st & 2 nd	NZ 6830 0085	E	296m
2011	Rosedale - Reeking Gill 1 st	NZ 6915 0072	S	333m
2011	Rosedale - Reeking Gill 2 nd	NZ 6917 0071	S	319m
2011	Rosedale - Nab Scar north 1 st	SE 6945 9996	SW	337m
2011	Rosedale - Nab Scar north 2 nd	NZ 6944 0000	SW	339m
2011	Rosedale - Sturdy Bank 1 st	NZ 6987 0005	E	343m
2011	Rosedale - Sturdy Bank 2 nd	SE 6987 9994	W	288m
2011	Bransdale - Ousegill	SE 6396 9475	E	240m

ANNEX 5 - Daily Max/Min Temperature & Rainfall for the Months March to July



Daily max/min temperature & rainfall recorded at Westerdale, NZ665058, altitude 225m, in 2011.



Daily max/min temperature & rainfall recorded at Westerdale, NZ665058, altitude 225m, in 2011.

ANNEX 6 - Nests Collected from Rosedale in 2011



Dalehead east NZ 6865 0075



Dalehead quarry NZ 6829 0085
Second nest built on top of first.



Hob Crag quarry SE 7138 9545
Showing Pied Wagtail nest attached.



Thorgill Bank SE 7065 9581
Showing adornment of rush stems.



Hob Crag north SE 7123 9558