

Eastern Moors Partnership



Burbage Moors Ring Ouzel Study 2016

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*Uplands of the future
for people and wildlife*

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Summary

- An intensive Ring Ouzel study program comprising nest finding and monitoring, was carried out across the Burbage Moors. This was completed alongside a standardised breeding survey of the wider Eastern Edges area (reported separately).
- The primary aims of the study were to locate all the Ring Ouzel territories in the area; find and monitor each nesting attempt; identify nests where there was significant potential for disturbance (by climbers or other visitors); and where necessary erect signs to protect these nests.
- Eleven territories were located across the Burbage Moors area, predominantly in and around the Burbage Valley.
- Nineteen breeding attempts were recorded and seventeen nests (from ten of the pairs) were located and monitored. Seven of the eleven pairs had two or more nesting attempts.
- Eleven of the seventeen nests hatched and nine nests (53%) successfully fledged young.
- In total, 31 young fledged, with an average of 3.44 fledged young per successful nest, and 3.1 young fledged per pair.
- Of the eight nests which failed to fledge young, two were abandoned at the egg stage (possible human disturbance), four were predated at the egg stage and two were predated at the chick stage.
- Signs were posted at six nest locations in order to help prevent disturbance by climbers, walkers and other visitors. Of these six, five were successful and one was predated.
- One pair at Higger Tor, nesting in one of the busiest locations in the valley, were the only pair to successfully fledge two broods.

1 Introduction

1.1 Overview

The Eastern Moors Partnership (EMP) commissioned a Ring Ouzel study, comprising a breeding survey of the wider “Eastern Edges” area, and a detailed study of the Burbage Moors area (soon to form part of the Eastern Moors Estate). Co-ordination of the breeding survey (with a number of partners/volunteers), fieldwork and reporting was carried out by Kim Leyland, a freelance bird surveyor and ecologist.

1.2 Burbage Moors Detailed Study

Intensive nest finding and monitoring work was carried out on the Burbage Moors (comprising the Burbage, Hathersage and Houndkirk Moors). Territories were identified, and nest attempts monitored, in order to establish breeding successes and failures.

Where considered necessary, and through liaison with the British Mountaineering Council (BMC), signs were erected at vulnerable nest locations in order to prevent disturbance by walkers and climbers. This work is based on similar work which has been carried out by Bill and Flo Gordon on the North Lees Estate over a number of years.

This study is detailed in Sections 2 to 8 below.

1.3 Eastern Edges Survey

The Eastern Edges Breeding Ring Ouzel Survey is designed to provide a baseline estimate of the breeding Ring Ouzel population for a survey area roughly comprising the Mosdale Estate south of the A57, the North Lees Estate, Burbage Moors and the Eastern Moors Estate.

The results of this survey are detailed in a separate document “Eastern Edges Ring Ouzel Survey 2016”.

2 The Burbage Moors Study

2.1 Aims

Observation and recording work was carried out across the Burbage Moors in order to locate and monitor all (if possible) territories and nests in the area. The main information to be determined was as follows:

- Number of nest attempts/broods per pair.
- Nest outcome and possible cause of any failure.
- Number of chicks fledged per nest/pair.
- Location of nests potentially vulnerable to human disturbance.

In addition, information was collected on a wide range of Ring Ouzel behaviour and activity including timing of territory establishment, egg laying/hatching dates, sensitivity to disturbance and foraging habits of birds.

For nests with potential for significant disturbance, signs were placed accordingly to restrict access to the area immediately surrounding the nest.

2.2 Study area

The Burbage Moors area is shown in Figure 1 and, as noted above, comprises Burbage Moor, Hathersage Moor and Houndkirk Moor. It is currently owned and managed by Sheffield City

Council but is scheduled to be transferred to the Eastern Moors Partnership in the near future.

3 Methodology

3.1 Nest Finding

Daily visits were carried out, and a mixture of walking and vantage point surveying was used to establish where territories were likely to be present. As territories were established, observation from vantage points generally became the most effective method of locating nests.

Nests were generally located by “watching back”, i.e. locating (usually) the female and following her back to the nest site. On occasions where female birds were observed carrying nesting material, nests were relatively easily located.

Where nests were not located during the construction phase, observing males, who would often be joined by the female on a feeding break (from incubating, was necessary. This was much more time consuming and usually gave only around one chance per hour or so to locate the female off the nest.

3.2 Nest Monitoring

Nest monitoring was carried out in general accordance with the BTO Nest Record Scheme (NRS) code of conduct, with particular emphasis put on avoiding unnecessary disturbance of birds due to the already sensitive (to disturbance) nature of this particular Ring Ouzel population.

At the incubation stage, once clutch size had been established, nests were generally checked from a distance by observing the female leaving and returning to the nest. Where necessary, nests could then be approached when the female was away from the nest thus minimising disturbance.

3.3 Nest Outcomes

Even with such an intensive level of fieldwork that likely fledging dates for most nests were known within a day or two, actually observing young leaving the nest was still unlikely (and proved to be so) and thus nest success was based on the BTO NRS criteria as follows:

- Fledged young near nest.
- Adult carrying food to fledged young near nest.
- Adult agitated/alarming as if fledged young nearby.
- Nest empty and undisturbed with well-trodden lining, containing feather scale and/or droppings.
- Young capable of leaving nest on previous visit.

3.4 Placement of Signs

Nest locations were assessed on a case-by-case basis as to the likelihood of disturbance by climbers and walkers, and whether restricting access would reduce the potential for disturbance. This was balanced with the fact that signs would also indicate the presence of the nest to other interested parties, who may (unintentionally or otherwise) have disturbed the birds.

Signs were generally intended for nests where disturbance was considered unavoidable by someone in the normal course of their activity (e.g. a nest located in, or next to, a climbing route).

Further discussion of the different signs used is presented in Sections 5 and 6.3.

4 Nest Monitoring Results

4.1 Nest Outcomes

A total of eleven territories were located and monitored over the course of the season. The approximate locations are shown in Figure 2. These were predominantly located in/around the Burbage Valley itself, with outliers on Houndkirk Moor and Millstone Edge. Within these territories nineteen breeding attempts were recorded, with seventeen nests found from ten pairs.

Table 1 shows the territories located, together with nests found and outcomes.

Table 1. Nest details and outcomes

Nest	First egg (Est.)	Clutch size	Hatched (Est. date)	Fledged chicks	Notes
Burbage West 1 st	30/4	4	Abandoned	-	Possible disturbance by visitors.
Burbage West 2 nd	?	4	Predated	-	Mammal? Possibly female too.
Burbage North 1 st	28/4	3	Abandoned	-	Possible disturbance by f/path.
Burbage North 2 nd	?	?	Predated?	-	Nest found empty.
Burbage North 3 rd	(30/5)	4	(13/6)	4	
Burbage Oaks 1 st	5/5	4	(20/5)	4	
*Burbage Oaks 2 nd	?	4	Predated	-	
Burbage Gully 1 st	17/5	4	(1/6)	2	Two lost at chick stage.
*Burbage Gully 2 nd	(17/6)	4	(2/7)	Predated	Chick remains nearby.
Burbage South	1/5	4	16/5	4	
Burbage Quarry 1 st	?	?	Abandoned?	-	Nest not located. Near footpath.
Burbage Quarry 2 nd	?	?	?	(Y)	Not located. Ads seen w/food.
Houndkirk	(29/4)	4	(13/5)	4	
Millstone 1 st	4/5?	?	?	Predated	Possibly by Jackdaws. 2+ chicks.
Millstone 2 nd	(25/6)	3	(10/7)	3	
Carl Wark	?	?	Predated	-	Likely at egg stage.
Higger Main	(29/4)	3	(14/5)	3	
Higger East 1 st	(5/5)	4	(19/5)	4	
Higger East 2 nd	(11/6)	3	(25/6)	3	Only pair to fledge two broods.

* Pairs responsible for these nests inferred, and not definitely attributable.

A more detailed version of this table can be found in Appendix A and a full report of activity in each territory is presented in Appendix B.

Four territories were found to have single nesting attempts (three successful, one failure) and one territory had 3 nesting attempts (only succeeding on the final attempt). The remaining six territories each had 2 nesting attempts recorded – and only one pair were successful in both.

In one territory (Burbage Gully) the first-egg date of the first nest suggests this was a second attempt after the failure of an earlier nest. This may therefore have been an additional 3-attempt territory. In three territories (Burbage Oaks, Millstone and Higger East) the first-egg date is slightly later than would be expected but probably not late enough to indicate a failed first attempt.

4.2 Nest Success

Further analysis of the overall breeding results is provided in Table 2. For the purposes of this analysis, the “Burbage Quarry” territory has not been included as neither nest was actually found in this territory. The evidence strongly indicates that in this territory one nest failed (at egg stage) and the other succeeded, so is unlikely to significantly alter the general picture of results.

The possible first nesting attempt in Burbage Gully (as discussed in the previous section) is also not included. The proportion of nests fledging young may therefore be slightly overestimated.

Table 2. Nest Success Analysis

Pairs	Nests	Clutches hatched	Nests fledged	Number of fledged young	Fledged young per successful nest	Fledged young per pair	Proportion of nests fledging young	Proportion of hatched nests fledging young
10	17	11	9	31	3.44	3.1	53 %	82 %

For comparison, results from a long term Ring Ouzel study over 15 years at Rosedale in the North York Moors gave an average of 3.75 young per successful nest and 3.23 young fledged per pair (Hutchinson K. & Fairbrother V., 2014).

The data in Table 1 and Table 2 indicate that those nests which fail are most likely to do so at the egg stage, and that predation accounts for the majority of failures. Once a nest reached hatching stage, the majority were likely to succeed.

4.3 Nest Failures

Nine nesting attempts are known to have failed before fledging, with a tenth inferred from the first egg date of the Burbage Gully pair. Predation was the likely cause of failure in six of these attempts (two confirmed by chick remains, four inferred from disappearance of nest contents) and disturbance the likely cause in two, possibly three, attempts (two nests abandoned with eggs, one abandoned from vulnerable location but nest not found).

Pairs which fail at their first attempt may be more likely to have a second breeding attempt than those which succeed. Only one pair of five which had a first nest failure (Carl Wark) were not found to have a second attempt (although the pair remained and were suspected of having a second nest, though no conclusive evidence was found).

Of six pairs successful at their first attempt, three were not found to have had a second attempt. It should be noted though, that second nests of successful pairs may be harder to find, as adult activity relating to the fledged first-brood juveniles deflects attention from a possibly well-hidden second nest.

5 Use of Signs & Disturbance

Traditionally, signs and climbing route closures have been more commonly used at Stanage - where the birds often nest directly in climbing routes. In Burbage this has only tended to happen (or be recorded) occasionally, so signs have typically been used less.

As the season progressed it became apparent that with many nests on the ground, disturbance was as likely from footpath users as climbers. The signs (and wording) evolved over the season accordingly and, with the benefit of hindsight, may have benefitted more nests had they been used differently earlier.

There were three nests where disturbance was considered a factor in their failure:

- Burbage West 1st (BW1) – this was actually 30m away from the nearest path, but within 150m of two busy car parks and in the bank of a river gully often used by groups studying hydrology. Abandoned with eggs.
- Burbage North 1st (BN1) – this was located at the top of a broken edge, with a deviation of the main crag-top path passing within 5m, and some boulder problems below within 20m. Abandoned with eggs.
- Burbage South 1st (BS1) – this was located at the very top of a quarry wall (unused by climbers) with a minor crag-top path running within 2m. Nest not found so actual fate unknown, but appeared deserted at egg stage.

Later successful uses of signs (prompted in part by the failure of the above nests) in similar situations, asked people to avoid walking through an area or to avoid approaching the crag edge, and it is possible this approach may have helped in these instances. It should also be noted that the two nests BW1 and BN1 were hit by an unusually cold and snowy spell during building and laying, and this may have contributed to the abandonment.

Table 3 overleaf shows the nest locations and outcomes, any considered risk of disturbance and where signs were placed.

Table 3. Use of signs

Nest	Signs	Risk	Nest Outcome	Notes
BW1	-	Near river	Abandoned	Possible disturbance. Busy area. River access by groups. Cold weather?
BW2	-	Footpath	Predated	Very close to footpath.
BN1	-	Footpath	Abandoned	Likely disturbance (+ cold weather?).
BN2	-	Climbers' path	Predated?	Nest found empty.
BN3	-	Climbers' path	Successful	Found late. Likely signed if found earlier.
BO1	Y	Climbers' path & routes	Successful	One route & descent restricted. Also signs at top to keep away from edge.
BO2	-	-	Predated	
BG1	-	-	Successful	
BG2	-	-	Predated	
BS	Y	Climbing routes	Successful	Nest site successful in past without signs.
BQ1	-	Footpath	Abandoned?	Nest not located (at top of quarry wall). Minor path ran very close.
BQ2	-	-	Successful?	Not located. Ads seen with food.
HK	-	-	Successful	
MS1	Y	Climbing routes	Predated	Adjacent routes restricted.
MS2	Y	Climbing routes	Successful	Adjacent routes restricted.
CW	-	-	Predated	
HM	-	Footpath	Successful	Close to minor path but in bracken – not "stopping" area.
HE1	Y	Group activity	Successful	Heavy use. Many signs to clear zone around nest (on ground at path junction).
HE2	Y	Group activity	Successful	Heavy use. Only found at chick stage. On crag.

Signs were used in six nest locations, five of which were subsequently successful. The sixth nest, at Millstone Edge, was predated, possibly by Jackdaws. The nature of the climbing restriction effectively left the small discreet bay containing the nest unused by people, and it is possible that the absence of people actually increased the use of that area by Jackdaws (who were typically noted to be wary of the presence of people along the edge).

6 Further Discussion

6.1 Nest Locations

Further analysis of the nest locations may shed some light on whether different locations are more or less vulnerable to predation, but there is no obvious pattern – some nests on the ground with little cover succeeded, while others in good cover higher up failed.

Disturbance levels do not seem to be a factor in choice of nest locations, as many pairs choose very busy locations for their nests. In fact the only pair to succeed with two broods nested in one of the most heavily used areas of the valley – an area frequented by many outdoor activity groups. The use of signs here was considered a significant factor – see also Section 6.3 below.

Individual pairs (or females) show a variety of choice in nesting locations, with pairs switching between ground and crag nesting locations between broods, or from exposed locations to better hidden ones.

Females also showed differing reactions to people approaching nests, with some flying off early, and others sitting tight, in some cases not moving at all despite very close presence of people. This may be a significant factor in the vulnerability of nests to both disturbance and predation (possibly more so than the amount of cover, or location of a nest).

6.2 Predation

For the majority of nests which were predated, the perpetrator is unknown, however fox, stoat and corvids are considered the most likely. The first nesting attempt on Millstone high on the crag, but not on a ledge, would only be vulnerable to bird predation. The presence of apparently-pecked chick remains in the nest and the presence of a number of Jackdaw pairs in the general vicinity, and using the bay following the failure, suggested they were the likely culprits.

All the remaining predated nests were either on the ground or on low boulders easily reached from the ground – with the possible exception of the Carl Wark nest which was slightly less accessible.

Predator surveys and/or camera trapping would likely be necessary in order to determine which predators were responsible. This would be technically feasible for many nest locations, however the security of the camera (due to the high public use and visibility of many nests) may be a practical concern.

6.3 Use of Signs

The use of signs to protect nests from disturbance has its roots in the habit of Ring Ouzels to nest in climbing routes. When this has occurred in the past, signs have been used to alert climbers and “ban” particular routes from being climbed during the breeding attempt.

Through the course of the season it became apparent that nests were not only at risk of disturbance when within a climbing route, but from general activity at and around the crags by climbers, walkers and other users.

While some birds were easily disturbed from the nest, they would soon return once the threat was perceived to have passed. A particular issue was people remaining (unaware) in the area of the nest, thus preventing the bird from returning (either to incubate or feed chicks); or simply from high numbers of people passing the nest having the same effect.

Where appropriate, signs were modified to ask people to move quickly through an area, or not proceed beyond a certain point (to divert round an area), while also indicating routes which should not be climbed.

Further consideration of the use of signs, and how best to work with climbers and walkers to protect Ring Ouzels, will be the subject of a further report commissioned by the BMC. This will look at this season’s extensive data from both the Burbage and Stanage areas.

7 Further Work

This study has provided a baseline to allow future studies to determine whether breeding success of Ring Ouzels in the area is increasing or decreasing.

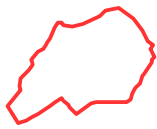
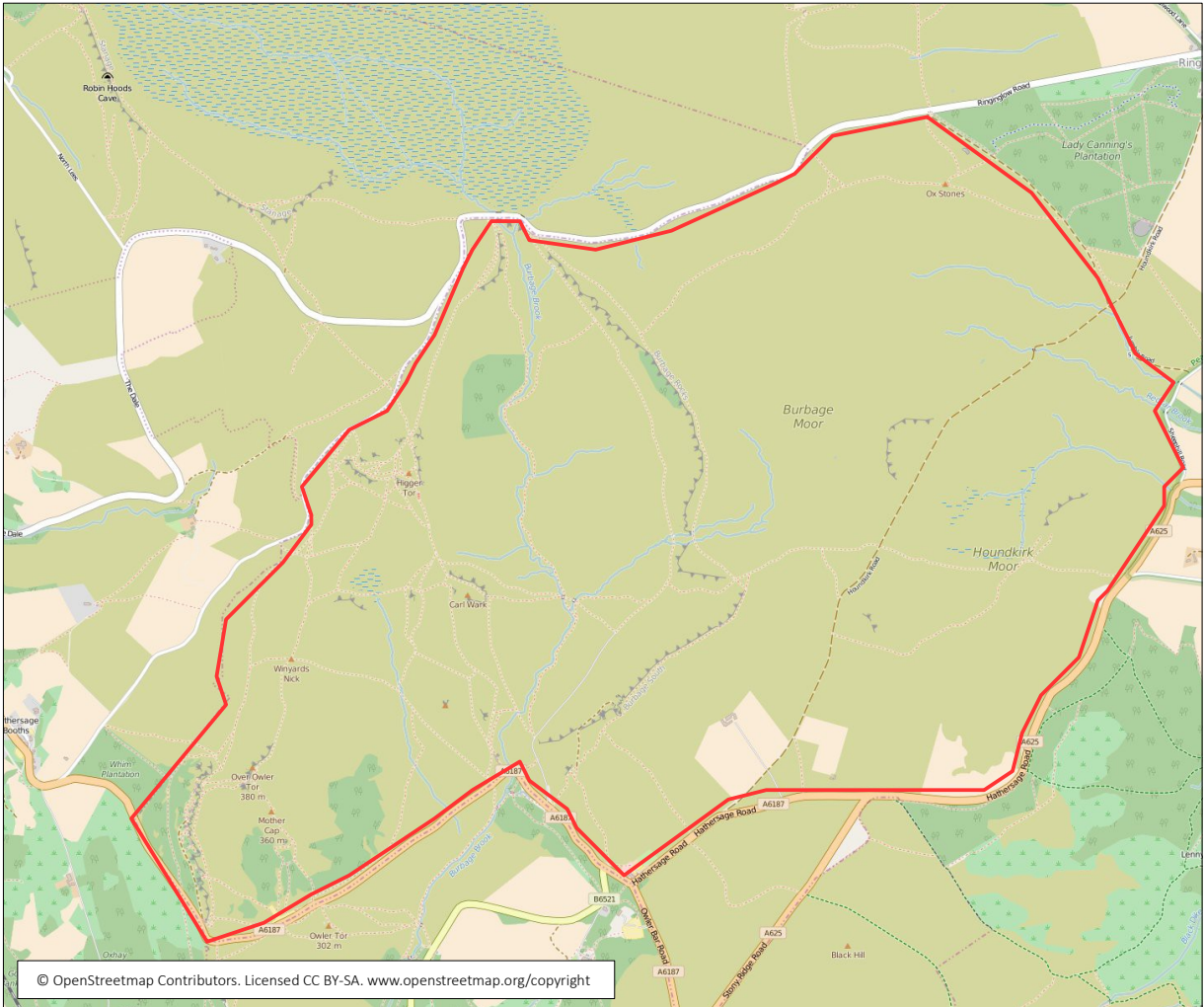
It is recommended that further work should primarily encompass:

- Identifying potentially vulnerable nest locations each season and providing appropriate signs, where necessary, to prevent disturbance to birds at the nest.
- In respect of the above, maintaining positive relationships with climber, walkers and other visitors, and representative bodies such as the BMC, is key.
- Annual nest monitoring, undertaken in conjunction with the above, will also allow relative predation and disturbance levels to be assessed. While the predominant factor this season appeared to be predation, the variability in nesting locations is likely to have a significant effect on how these factors, and the interplays between them, impact on nest success.

8 References

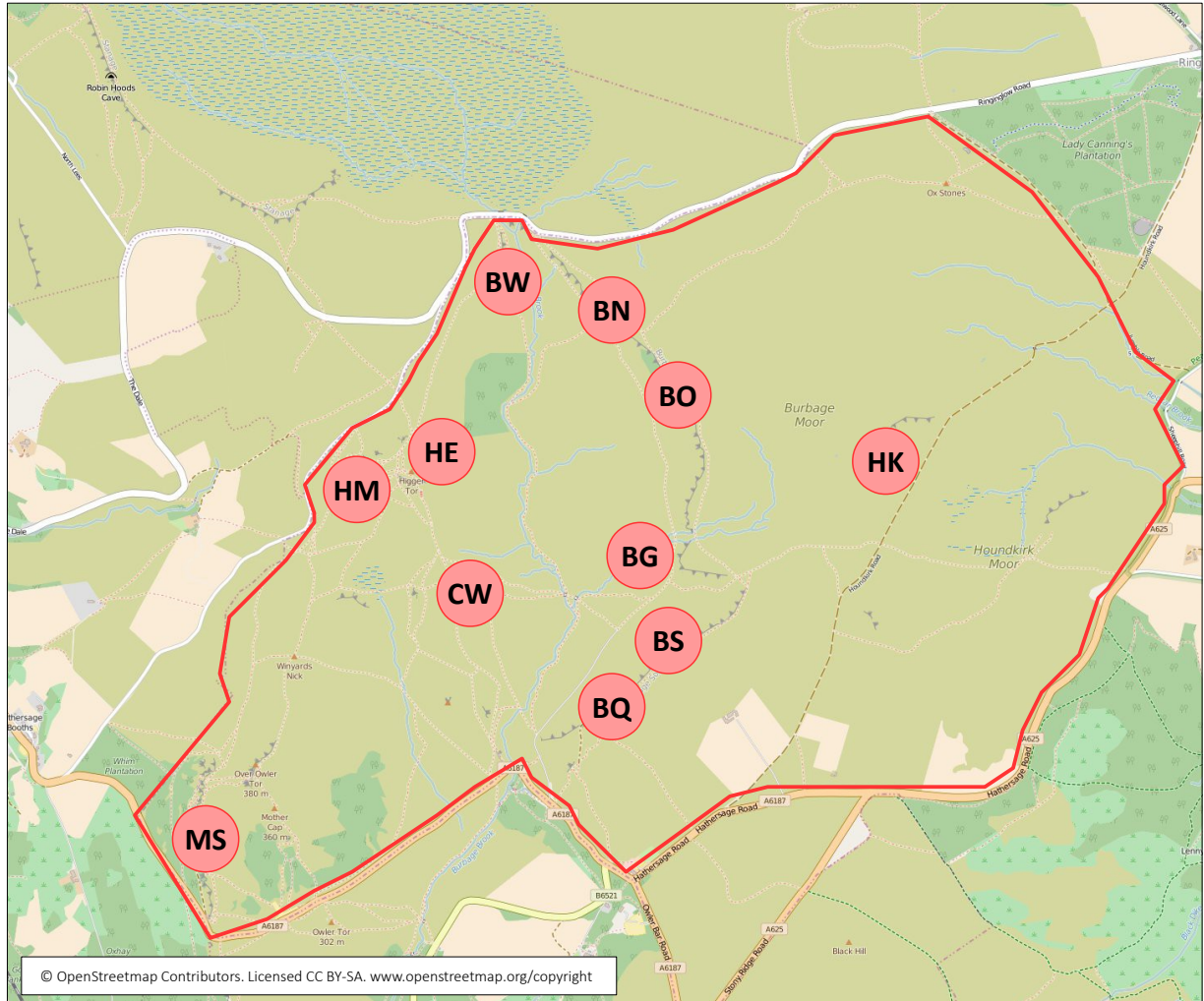
Hutchinson, K. & Fairbrother, V. (2014) Findings of a study of Ring Ouzel *Turdus torquatus* territories in Rosedale and other areas of the North York Moors. Accessed at <http://ringouzel.info/localstudies.html>.

Figures



Study area boundary

Figure 1. Study Area





-  MS Approximate territory location and letter code
-  Study area boundary

Figure 2. Territory Locations

Appendices

Appendix A

Nest Details

Territory	Nest	1 st Egg	Hatching	Fledging	Comments
Burbage West 1 st	BW1	30/4	Abandoned (by 5/5, 3 eggs)		Nest building on 24/4 & 25/4.
Burbage West 2 nd	BW2	Incubating on 17/5, 4 eggs 20/5.	Predated between 25/5 and 1/6.		On nest 17/5. 4 eggs 20/5, on 24/5
Burbage North 1 st	BN1	28/4	Abandoned (by 9/5, 3 eggs)		Nest building 23/4, Copulating 24/4
Burbage North 2 nd	BN2	Discovered empty on 21/6, likely predated at egg stage.			
Burbage North 3 rd	BN3	(30/5)	(14/6) Found with 4 chicks on 21/6.	Fledged 28-29/6.	Young seen 29/6.
Burbage Oaks 1 st	BO1	5/5	(20/5)	Fledged 1-3/6.	Nest building on 27/4.
Burbage Oaks 2 nd ?	BO2	Found with 4 eggs on 21/6.	Predated (by 26/6).		Visiting 14/6
Burbage Gully 1 st	BG1	17/5	(1/6) Four chicks 3/6, Two by 6/6.	By 14/6.	
Burbage Gully 2 nd ?	BG2	(17/6) Found with 4 eggs on 21/6.	(2/7) Two 2-day old chicks 4/7.	Predated by 10/7.	Partial remains by nest – corvid?
Burbage South	BS1	1/5	16/5	Fledged 31/5.	Nest building & copulating on 25/4.
Burbage Quarry 1 st	BQ1	Nest building 9/4. On nest 13/4.	On nest 26/4, disappeared by 30/4.		Nest area inaccessible.
Burbage Quarry 2 nd	BQ2?	(13/5)	(28/5) Bringing food to nest(?) 8/6 & 10/6.	(11/6)? Ads alarming not taking food to nest area.	Outcome unknown. Fledged juvs in area 25/6.
Houndkirk	HK1	(29/4)	(14/5) Found with 4 chicks on 20/5.	Fledged 28-29/5.	
Millstone 1 st	MS1	Around 4/5?	Abandoned/ predated (by 23/5)	Young chick remains found in nest (Jackdaw predation?)	Visiting nest site 28/4, on nest 6/5, 16/5
Millstone 2 nd	MS2	(25/6)	(10/7) 3 chicks found 12/7.	Still feeding 22/7, fledged by next week	Building 22/6, on nest 30/6.
Carl Wark	CW1	Nest checked 9/5, female sitting tight.	Predated (Nest empty on 17/5)	No additional visits, assume predated egg stage.	Nest building on 4/5.
Higger Main	HM1	(29/4) Nest found with 3 eggs 12/5.	(14/5)	Fledged 28-30/5.	Copulating 20/4, 21/4
Higger East 1 st	HE1	(5/5) Nest found with 4 eggs 12/5.	(20/5)	Fledged 3-4/6.	Copulating 18/4
Higger East 2 nd	HE2	(11/6)	(26/6) Found feeding young on 29/6. 3 chicks 4/7	Fledged 10/7.	On 29/6,

Dates in parentheses are estimated from known dates or age of chicks.

Appendix B

Individual Territory Reports

Burbage West

A male bird was singing regularly in this territory from 31st March, including on 5th April when a female was also present. In addition 4 other ring ouzels, presumably a recently arrived group were also present on this date (all flew to Cowperstone, Stanage).

On 10th April the presumed territory-holding pair were joined by a second pair including a female with an almost indistinguishable gorget (this bird was not recorded again but a similarly described bird was seen at Stanage later in the season).

On 18th April both male and female were present on the crag, appearing to investigate nest sites beneath heather. They were again present on the 21st with the female emerging from a clump of heather – this was checked but no nest was found.

On 24th April the female was spotted entering a heather/boulder cavity in the gully below the crag. Returning later in the day the female was observed carrying nesting material into the hole, including some large globs of mud. She continued nest building on the 25th, switching to long grass for the lining.

Both male and female were present in the area on 30th and on checking the nest later in the day, the first egg had been laid, presumably that morning (nest BW1). On 2nd of May both birds were observed feeding beneath the crag. On 7th May the male was singing softly near to the nest, and it was presumed this indicated the female was likely to be incubating.

However on 9th May the pair were observed copulating on two occasions an hour apart, and not visiting the nest. On checking the nest 3 cold eggs were found – it is not clear whether this was a small clutch or abandoned before incubation began.

On 17th May the male and female were feeding together, with the female then flying to a heather covered boulder very close to the footpath below the crag (around 40m from the first nest). A quick walk past showed the female sat on a nest (BW2). On 20th May the female and male were observed feeding above the crag, and a check of the nest revealed a full clutch of 4 warm eggs.

On 24th May the female was still incubating, however on 1st June the nest was found empty. One dropping was in the nest and one on the rim, the nest was untrampled and three ring ouzel tail feathers were also found nearby. It seems likely the female was startled, or caught, by a predator at the nest, with the eggs, or possibly newly hatched chicks, also taken.

The pair were not recorded at this territory again.

Burbage North

As for the previous territory, a male was singing here regularly from 31st March. Groups of 5 and 8 individuals were recorded on 31st March and 3rd April respectively, presumably representing arriving birds. Frequent interactions between males from this territory and the Burbage West territory were recorded in the first week of April.

A pair of birds were first recorded together in this territory on 10th April, when the male appeared to be presenting food and calling to the female while inspecting nest sites. They were recorded

together on the 11th, with the male also posturing to a 2nd male, and again on 14th. On the 17th they appeared to chase and then engage with a neighbouring pair before returning to Remergence Buttress.

On 23rd the female was spotted carrying nesting material near the top of the crag, and then repeatedly returning to this area with more material. During this time the male was singing nearby, with both birds appearing unbothered by a climber on the nearest climbing buttress (only around 10m away). A partially lined nest was located on a ledge with a little heather cover under a large overhung boulder (BN1).

On the 24th April the female was again observed carrying more nesting material, and on this occasion the male actually copulated with her on the way back to the nest! A period of cold wintry weather with snow followed and by the 27th the nest was still empty. By 30th April 3 eggs had been laid, however returning on 5th May the 3 eggs were cold and the nest had clearly been abandoned.

Over the next three weeks, despite numerous visits during which the male was recorded singing nearby (on 7th and 11th May) and male and female were sighted together (17th and 22nd), the pair were not giving up a second nest location.

On 31st May and 1st June both birds were vigorously mobbing a cuckoo and alarm calling, strongly suggesting a nest was present somewhere. Some false leads lead away from the first nest with the male being recorded singing softly (as if female on nest) on 6th, 12th and 18th June.

Eventually on 21st June, with the male located carrying food and watched back, two nests were located within 2m of each other, and within 20m of the original nest! One cup, on a very exposed ledge, was empty and some lining appeared to have been pulled out suggesting this had been predated – the appearance indicating this was likely at the egg stage (BN2).

Just above this, and within good cover, a third nest for this pair contained four approximately 7-day old chicks (BN3). On 26th June the female was observed brooding the chicks, and on 29th June the nest was found empty with adults feeding recently fledged young in the vicinity of the nest.

Burbage Oaks

A male was first confirmed singing in Burbage Oaks on 3rd April (a male singing at the northern edge on 31st March may have been the Burbage North bird). On 5th April 2 males and 3 unsexed birds were recorded in this territory.

A female was recorded at the northern edge of the Oaks on 10th April, and on 13th April both a male and female were recorded together. On 24th April the female was spotted carrying nesting material, but lost to view in the trees, while the male was singing nearby (this was to the north of the eventual nest site). On 27th April the female was carrying nesting material to a location on the crag, where a partially built nest was found (BO1).

On 1st May the nest was complete but empty. On 7th May the nest contained three eggs and by 9th of May there were four eggs being incubated. This indicates a first-egg date of 5th May, eleven days after the female was first noted nest building (possibly a nest started then abandoned) and at least 4 days after the nest was completed.

Signs advising walkers and climbers to avoid the area were put in place on 7th and 9th May.

On 22nd May the male was observed taking food into the nest and on 26th May both adults were observed taking food into the nest, where four young were confirmed to be present. The female was feeding chicks on 31st with the male singing nearby.

On 3rd June on approaching the nest there was a significant commotion, and a Tawny Owl was glimpsed flying from a tree near the nest. Both adult Ring Ouzels were alarm calling and mobbing the owl. On checking the nest it was empty – the well trampled lip and droppings both on the rim and along the surrounding ledge indicated the chicks had successfully fledged – though their fate with respect to the owl is unknown.

This pair (possibly as a result of the owl disturbance?) appeared to move a significant distance to attempt a second brood – they were no longer recorded in the Oaks and a pair appeared around 450m south (close to the still-occupied Burbage Gully territory). On 10th June the male was singing here and the female flew out of an area suggesting the presence of a nest, but none was found.

On 14th June the male and female visited another area suggesting a nest and one was found here on 21st June containing four eggs (BO2). On 26th June the nest was found to be empty, presumed predated at the egg stage.

Burbage Gully

Little activity was recorded in this area through the majority of April. An unsexed bird was noted calling in the gully on 23rd April, and a pair were recorded 200m south on 30th April. On 5th May a male flew in to sing in the gully, and was then involved in a dispute with a second male. On 13th May a male and female were recorded in the gully suggesting the presence of a nest site.

The female was noted observed leaving a probable nest site on 19th May and a nest was found containing three eggs (BG1). On 24th May the nest was checked again while the female was feeding nearby and contained four warm eggs (indicating first-egg date of 17th May).

With all other territory pairs still accounted for, the timing of this suggests it was a re-lay from a failed first nest.

Four chicks were present on 3rd June, being fed by the female, however by 6th of June only two chicks were present, again being fed by the female. On 10th June the chicks were well feathered and a male was singing on the ridge at the top of the gully. On 14th June the nest was found empty though signs were inconclusive as to the fate of the chicks (no droppings were noted) – however the female was then spotted taking food into a nearby bracken bed, indicating fledged young present.

A nest located on 21st June, to the north of the gully, is thought to be the second nest of this pair. On 25th June the nest contained 4 eggs being incubated (BO2). The nest was checked on 4th July and found to contain two 2-day old chicks (the fate of the other two eggs is unknown). This would indicate a first egg date of 17th June, possibly only three days after the previous nest fledged.

On 10th July the nest was found to have been predated, with intestine entrails and a single leg found outside the nest.

Burbage South

A male was first recorded singing in the vicinity (though not seen) on 1st April. On 20th April a male was posturing and displaying to a female, and occasionally squabbling with a second male, in the boulders below the eventual nest site. On 25th April male and female were observed copulating on Green Drive, approximately 200m from the nest, to where the female then flew with nesting material while the male sang nearby.

On 26th April a partially lined nest cup was found (BS1), well concealed in heather in a corner part way up the crag at the top of a bilberry slope (this is known to be a traditional nest site used in previous years). On 3rd May the nest was found to contain three eggs. Signs were put up asking climbers to avoid neighbouring routes.

On 6th and 9th May the female was observed leaving the nest to feed occasionally on nearby paths while the male sang nearby. On 13th May the nest was checked and four eggs were present, and on 16th May three eggs had hatched with one still to go.

Four chicks were present when the nest was checked on 24th May. Both adults were still bringing food to the nest on the 29th May, with only the male making sporadic visits on 30th May – possibly indicating some of the chicks had left the nest. The nest was checked on 31st May and found to be empty – well trampled and with droppings around the rim.

On 10th and 14th June the male was singing near the nest site. On 21st June the male and female were noted in and out of bracken, occasionally chasing, below the nest area. A fledged juvenile was also flushed at one point. The behaviour of the pair did not suggest a second nest was in the area, and it is considered that if they did attempt a second brood it did not succeed.

Burbage Quarry

This is a unique territory for the principle reason that both adults (in particular the female) are readily identifiable due to being part-pied. The female has a large white patch across the side of her head/neck and is known to have nested in the quarries for the past two years. The male also has a (less obvious but distinct) white spot on the back of his head.

This pair were the earliest to pair up (the pied female was the earliest female to appear in the valley), first recorded together on 29th March on the Green Drive then making their way up to the quarries. They were observed again chasing on 1st April, and the female was present on 5th April.

On 9th April the female was observed for an hour carrying nesting material to a heather clump at the top of the quarry wall (BQ1). On 13th April the male was singing nearby when the female was flushed from the heather clump (and now presumed nest) by a passing walker. Between 14th and 26th April the female was frequently observed leaving the nest to feed, before returning, however this activity ceased by 30th April and the adults were no longer recorded in the area – it is considered the nest had failed.

On 3rd May a male was singing loudly and frequently in a previously unused area over the stream at Toad's Mouth, and it was considered possible the female had been predated and the male was establishing a new territory. He was singing again back near the quarry on 6th May. However the pied female was sighted again with the male on 12th May just south of the quarries.

Despite sightings on 16th, 19th and 20th May in this area, no evidence of a second nest was found until 8th June, when both adults were observed repeatedly carrying food to an area of bracken to the north of the quarries, well below the edge (BQ2). This behaviour was still ongoing on 10th June, strongly indicating a nest, but due to the cover of well-grown bracken none was found. On 11th June both adults were present but not making feeding visits to this area – had the nest fledged? No nest was ever found unfortunately.

Two weeks later, on 25th June a juvenile bird was observed in a Rowan tree near the area, and on 30th June two juvenile birds were observed in bracken to the south of the quarries – suggesting, at least, that this pair had successfully fledged young at their second attempt.

Houndkirk

This territory was not confirmed until relatively late in the season – partly due to being visited less due to its location, but also this pair were generally less visible until they were feeding young.

On 21st April an unsexed bird was seen briefly on the track to the south of the territory, but it wasn't until 14th May that a pair were recorded on the track around 200m south of the nest location. On 20th May both adults were observed carrying food from the enclosure area to a nest site, where a nest with four chicks aged approximately 6 days old was discovered (HK1).

On 29th May the nest was found to be empty, well trampled and splattered with droppings, and the adults were observed repeatedly visiting four locations around the nest with food. A fledged chick could be seen at one location, and the evidence indicated all four had successfully fledged.

On 5th June both adults were observed carrying food to an area on the other side of the Houndkirk track, where a fledged juvenile was present, however this was the last activity recorded in this area.

Millstone

In the first half of April it appeared that two pairs were establishing territories in the Millstone area, with two males both singing, and occasionally facing off, across the area between Millstone Edge and Mother Cap Quarry (a nest site last year). However only one pair remained, and it is not known where the second pair moved to.

On 5th April a pair were noted in the Dexterity bay (the site of a later second nest) at the north end of Millstone edge, and again on the 14th and 15th April, apparently checking out nest sites. After going "missing" for a short period, they were eventually relocated leaving a possible nest site further south, in the Hell's Bells bay. This was under a large patch of heather about 8m up the crag (MS1).

Also on the 15th, a second pair were present in Mother Cap Quarry area, but were not subsequently recorded here again.

The female was observed leaving and returning to the Hell's Bells nest on 6th May, and could be seen incubating while the male was roosting nearby on 16th May. By 23rd May however, the nest appeared to have been abandoned. On 26th May the nest was checked by abseil and the partially eviscerated remains of at least two chicks were found inside. It is considered most likely that the nest was predated by the locally numerous Jackdaw population (Jackdaws were seen frequenting the grass area below the nest following its abandonment, where they had not previously been observed).

Little subsequent sign of the pair was noted again until 19th June, when they were found on the northern edge of the crag, where the male sang briefly. On 22nd June the female was observed carrying nesting material to a heather clump high in the corner of the Dexterity bay. On 30th June both male and female were seen visiting a second heather clump, slightly lower down the corner. After an hour the female left and returned once more to this clump.

On 8th July she was observed sat on the nest, just visible from the adjacent wall of the crag (MS2). On 12th July when the female left to feed, the nest was checked by abseil. Three chicks around 2 days old were in the nest, and the female was observed returning with food shortly after. Signs asking climbers to avoid adjacent routes and leave the area quickly were put out on 15th July, while the male and female were both observed taking food into the nest. Both parents were still feeding young on July 22nd, and when the nest was checked by abseil the following week it was found to be well trampled and spattered with droppings indicating a successful fledging.

Carl Wark

This territory was the location of the first Ring Ouzel sighting of the season in the Burbage Valley – a singing male on 23rd March which then flew to Higger Tor. Sightings were fairly infrequent after this date, with a male present on 19th and 20th April, and a pair present for the first time on 27th April, all on the northeast side of Carl Wark.

On 4th May the male was posturing and displaying to the female, he then sang while the female gathered some grass and flew to a presumed nest site, under a heather clump on top of a boulder on the northeast side of the bluff. On 9th May this was approached and the female was observed incubating (CW1). She didn't leave the nest so the contents were not observed.

As the nest location appeared relatively unlikely to be disturbed (away from paths and climbing routes) this pair were left to get on with it, as it were, however when the nest was next visited on 17th May it was found to be empty with no sign of disturbance (by young or otherwise). It is considered likely to have been predated at the egg stage.

The male was present and singing nearby on this date (17th May) and again on 19th, and also alarm calling and singing on 5th June, however no further activity was recorded in this area. It appears the pair moved over to the southwest side of the bluff, as they were both present on 4th June (when the female was observed flying off suggesting the presence of a nest), and the male again on 10th of June singing in the same area.

Despite further watches little activity was observed and no nest was located, but towards the end of the season, on 12th July a female was flushed feeding on the southwest side and a male was alarm calling in the same area as the possible second nest. It therefore remains a possibility that this pair at least attempted a second brood in this area.

Higger Main

As described above, the first Ring Ouzel (and first singing male of the season) on 24th March flew to Higger Tor, and the centre of this territory. Things were generally quiet though for the next couple of weeks, with a single female on the east edge of the territory on 5th April.

On 13th April the male was present alarm calling, with a female also seen briefly (and again on 18th). On 20th April a male and female flew in to the crag together, with the female landing in a prominent holly bush on the crag, and then copulated briefly three times before being lost to view. The following day (21st) the female visited the holly bush twice before joining the male below the crag, however after an inspection no nest was found.

Later on 21st the pair again copulated, with the female visiting a crack and ledge to the left of the Leaning Block, again no nest site as located.

Between 27th April and 9th May the male was frequently observed singing softly, and the female was observed feeding and flying in and out of areas suggesting a possible nest site, but no nest was found. On 12th May however the female was found incubating three eggs in a nest in a bracken bed below the Leaning Block (HM1). Back calculating from later dates suggested a first-egg date of around 29th April.

On a visit on 20th May the female sat tight on the nest and no inspection was made, but on 24th May the nest was checked and three young approximately 7 days old were in the nest. On 30th May the nest was found to be empty with many droppings and the adults alarm calling appeared to have

fledged successfully. The male and female were then observed collecting and carrying food to young hidden in bracken.

On 12th June the female was observed carrying nesting material into the holly tree previously mentioned, however an inspection on 14th June found no nest. Brief views of the pair in the area on 16th June but on 17th June (when no activity was recorded) Bill Gordon recorded two pairs with fledged young on Callow Bank (only one pair had been recorded nesting here).

With no further sightings of this pair it appears that they possibly moved across the road to Callow Bank with their fledged young.

Higger East

On 5th April a male and two females were present, before leaving across the valley, but this territory was generally quiet at the start of the season. On 13th April two males were involved in a territorial dispute (presumably the male from around the corner at the Leaning Block) with a female present. A second female and possibly a third male were also recorded shortly after.

On 18th April a pair were observed feeding together and then copulating, after which the male remained and sang. On 21st April only the male was seen, and on 25th April the male was singing with the female also present, in addition to another pair slightly further north.

On 27th April the male appeared agitated, singing occasionally and flitting amongst the boulders with no sign of the female. On 1st and 9th May the male was singing again with no sign of the female, however on 12th May both birds appeared alarm calling and the female was watched back to a nest containing four eggs (HE1).

This nest was on the ground, well hidden under bilberry, but at the junction of a series of heavily used paths. On that day a group of young people "weaselling" were seen to pass the nest at close range (a couple of feet) without her leaving! Signs were put up later that day asking people to skirt around the nest area.

On 20th May the female was observed feeding on top of the crag – the nest still contained four eggs – and on 24th May she was observed sat on the nest. On 30th May both adults were observed carrying food to the nest (despite the presence of a large group nearby correctly observing the signs) where four chicks were present.

By 4th June (possibly the day before) the nest was empty with droppings and trampling indicating a successful fledging, with adults and young heard calling nearby. The young (and adults) appeared to move down the hill into the cover of bracken with occasional sightings over the next week or two.

The activity down the hill was a false lead however as on 29th June the male was observed carrying food into a chimney on the crag, and on investigating the female could be seen sat on a nest (HE2). Signs were put up again asking people to avoid the area. A nest check carried out on 4th July found three chicks around 6 days old. On 8th July the now well-feathered young could be seen in the nest.

On 10th July the nest was empty with one very recently fledged chick sat nearby and both adults alarm calling. This was the only pair confirmed to have successfully raised two broods in the Burbage area.