Ring Ouzel

Survey & Monitoring Report

2021

Eastern Moors

&

Stanage-North Lees

Kim Leyland

Report to:

Eastern Moors Partnership

National Trust

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Contents

Summary

A repeat of the 2016 Eastern Edges Ring Ouzel survey, with some amendments, was carried out, alongside annual nest monitoring and protection work.

Overall, the number of pairs has declined since 2016, though this was not spread evenly across the area. While the survey suggested a small decline in numbers, further nest monitoring work indicated this was more significant in some areas – notably the Burbage Valley and surroundings.

Despite the decline in number of breeding pairs, productivity in 2021 was generally high for those pairs which were present. The majority of nests where signs were erected to prevent disturbance also fledged successfully, including all those on popular climbing buttresses.

On the Eastern Moors (south of Burbage area) Ring Ouzel breeding remains patchy, with the southern-most territory of the area (Curbar) occupied and successfully fledging two broods, while Barbrook Valley and White Edge did not hold pairs this year.

Stanage-North Lees held a small number of pairs, but all five nests, including two double-brooded pairs, successfully fledged. A number of nests were located on popular climbing buttresses, with signed restrictions well-observed as usual.

Weather and migration timings may have had an impact on ouzel numbers settling to breed this year, with conditions in April likely to have limited feeding opportunities in some areas – though it is unclear whether this had a significant effect.

There is no clear pattern to the occupation, or otherwise, of different territories – though those in the northern half of the area were more likely to be occupied – with the pair at Curbar a notable exception.

Nest failures were all judged to be due to predation, while successful nests were found in areas of both low and high visitor use (with signs where necessary).

1 Introduction

1.1 Overview

This report details the results of Ring Ouzel surveys and monitoring carried out in 2021 across the Eastern Moors Partnership and Stanage-North Lees estates.

The report has been structured so that results are presented for each land ownership area separately in the first instance, but are also considered in aggregate to provide conclusions and discussion relating to the Eastern Edges ouzel population as a whole.

This report replaces a previous version, in order to present only data from the landholdings of the two commissioning bodies, Eastern Moors Partnership and Peak District National Park Authority.

1.2 The Ring Ouzel

The Ring Ouzel *Turdus torquatus* is a migrant summer visitor to the UK, returning to upland areas from North Africa each spring. Ring Ouzels are typically associated with rocky moorland habitat, such as that found on the gritstone edges of the Peak District.

On the Peak District's eastern edges, the Ring Ouzel population is characterised by its close association with areas popular for recreation uses such as rock climbing and walking, and areas of high visitor numbers more generally.

The Ring Ouzel is of significant conservation concern in the UK due to severe breeding population declines, and moderate breeding range decline, over the last 25 years (Eaton et al., 2015).

1.3 Nest Monitoring and Protection

Each year I lead a team of volunteers who, along with EMP and PDNPA staff, help to locate and monitor Ring Ouzel nests. Nests which are considered at risk of disturbance are identified and, where necessary, signs are erected – either to temporarily restrict access to climbing routes, or divert people away from the nest area.

This builds on the work of Bill Gordon, the former Stanage-North Lees estate warden, who began signing nests in the early 2000s, and developed a collaboration with the British Mountaineering Council (BMC) to protect nests. BMC volunteers continue to play a key role in the nest monitoring, along with members of Sheffield Bird Study Group and other local "ouzelers".

Nest monitoring and nest protection for 2021 is reported in Sections 5 and 6.

2 Survey

2.1 Methodology

The survey methodology is based on that used in the full Eastern Edges survey in 2016. See also Appendix A. Transects nominally spaced 200m apart were walked along features of likely Ring Ouzel habitat, and all activity recorded on paper maps using standard BTO notation (Appendix B).

Three survey visits were carried out for each transect, timed to correspond with every other visit of the intensive 6-visit survey of 2016.

2.2 Survey Area

The survey areas for EMP and PDNPA are listed in Table 1 below with notes indicating their inclusion or otherwise in each survey. The survey areas are also shown in Figure 1.

Table 1. Survey Areas

Area	2016	2021	Notes
Eastern Moors Partnership			
Curbar Edge	Yes	Yes	
White Edge	Yes	Yes	
Barbrook Valley	Yes	Yes	
Birchen Edge	Yes	No	No sightings in 2016 or recent years.
Burbage Moors	Yes	Yes	Houndkirk/Hathersage/Burbage Moors
PDNPA Stanage-North Lees			
Stanage Edge	Yes	Yes	
Carhead Rocks	Yes	Yes	

2.3 Analysis

All fieldwork data was digitised using QGIS. Territories were assessed using standard BTO categories to determine breeding evidence as possible, probable or confirmed breeding.

Territory analysis was carried out on the combined data from all three visits using QGIS. Territories were identified by clusters of records containing at least one of the "probable" or "confirmed" breeding registrations (in the case of singing males, at least two registrations). Registrations of pairs/activity from different visits were considered to represent different territories (in the absence of other evidence) if they were greater than 200m apart.

Where nest finding work was also undertaken, breeding evidence was assessed independently of this work (i.e. only data from the transect survey results were taken into account).

3 Survey Results

The survey results are presented in Tables 2 to 3 below, with the total number of pairs for each area indicated – and taken as the combined total of "probable" and "confirmed" breeding records from the data analysis. The location of territories is also shown in Figure 2.

3.1 Eastern Moors Partnership

The survey covered the areas of Burbage, Hathersage and Houndkirk Moors (collectively Burbage Moors) together with White Edge, Curbar Edge and Barbrook Valley (Eastern Moors) and the results are presented in Table 2 below.

Table 2. Survey Results - EMP

Survey Area	Possible breeding (PO)	Probable breeding (PR)	Confirmed breeding (BR)	Total breeding (PR+BR)
Burbage Moors	4	3	1	**4**
Eastern Moors	0	1	1	**2**
Total	4	4	2	**6**

Two pairs were recorded in the main Burbage valley, while Higger Tor held one pair and an early pair were on Over Owler Tor, though were not recorded on subsequent visits. A number

of usual territories were vacant, including Millstone and Carl Wark, along with further birds expected in Burbage Valley. A singing male was present on Houndkirk Moor on the early visit, though was not recorded subsequent to this.

Across the Eastern Moors an early pair were present at White Edge, though were not recorded on later visits, with a single pair confirmed to have bred at Curbar Edge. There were no records from Barbook Valley this year.

With one pair on the Eastern Moors not confirmed by subsequent nest monitoring, the survey may have overestimated numbers by one pair. Analysis of survey results is presented in Section 4.1, and further details of territories confirmed (or otherwise) by nest monitoring are given in Section 5.1.

3.2 Stanage-North Lees

The survey covered the primary area of Stanage Edge itself, together with Carhead Rocks to the south and including the Sheepwash Bank area too (which may not have been covered in the original survey, although has been visited often over the years with no previous breeding records until 2020). Results are given in Table 3 below.

Table 3. Survey Results – Stanage-North Lees

Survey Area	Possible breeding (PO)	Probable breeding (PR)	Confirmed breeding (BR)	Total breeding (PR+BR)
Stanage Edge	1	1	3	**4**
Carhead Rocks	0	1	0	**1**
Sheepwash	1	0	0	**0**
Total	2	2	3	**5**

A total of four breeding pairs were recorded along Stanage Edge, though nest monitoring work (see Section 5.2) indicated that in fact one of these pairs moved some distance for their second brood, and actually only three pairs were confirmed to have bred. An early pair on Carhead Rocks, though not picked up on later visits, and single records of singing males at Sheepwash Bank and Overstones area were also noted.

With the pair on Carhead Rocks not confirmed by subsequent nest monitoring visits, the true number of pairs, as on Eastern Moors, may have been overestimated by the survey – further analysis is provided in Section 4.2.

3.3 Other Areas

Information provided by volunteers on Ring Ouzel sightings on publically accessible land in the surrounding area indicated an additional 10 probable or confirmed breeding pairs, and 4 possible breeding pairs

4 Survey Analysis

The survey was designed in order that a comparison could be made with the 2016 Eastern Edges survey. This comprised six survey visits (every two weeks) – Table 4 below shows how these correspond to this year's survey visits.

Table 4. Timing of survey visits

Month	Week	2016 - 6 Visit	2021 - 3 Visit
April	1	Visit 1	
April	2		
April	3	Visit 2	Visit (1)
April	4		
May	1	Visit 3	
May	2		
May	3	Visit 4	Visit (2)
May	4		
June	1	Visit 5	
June	2		
June	3	Visit 6	Visit (3)
June	4		

I have reanalysed the data from 2016 to include only records from the corresponding visits (2016 visits 2, 4 and 6) to enable a more equitable comparison to be drawn – though, as discussed further below and in Section 5, the relationship between the number of pairs surveyed, and those found by nest monitoring, is markedly different between 2016 and 2021.

For Eastern Moors Partnership, survey data is also available from 2018 and 2019. These were also from three survey visits, however some final visits may have fallen in early June. This is still considered an appropriate dataset for undertaking a comparison, and so these results are also presented below.

4.1 Eastern Moors Partnership

As shown in Table 5 below, a similar number of pairs were recorded to 2019, with a decrease from 2016/2018. A note of caution however – in previous years nest monitoring has generally revealed higher numbers of birds present than during the surveys, but this year nest monitoring work confirmed only 5 breeding pairs across the Eastern Moors and Burbage - actually one less than the survey recorded.

While the adjusted survey results therefore suggest a similar number of pairs to 2016, and a number of additional "possible" records, this was not reflected on the ground during the breeding season.

Table 5. Survey comparison – Eastern Moors Partnership

Burbage & Eastern Moors	Possible breeding (PO)	Probable breeding (PR)	Confirmed breeding (BR)	Total breeding (PR+BR)
2021	4	4	2	**6**
2019	5	4	1	**5**
2018	8	5	4	**9**
2016 (adjusted)	1	5	2	**7**
2016 (raw)	3	8	3	11

If only the survey work had been carried out this year, the high number of "possible" breeding records (usually indicating a single observation of a singing male), would have suggested further breeding unconfirmed by the survey. This appears unlikely to have happened this year, as indicated by the nest finding work – see Section 5.

The "possible" breeding records are largely due to singing males indicated by early survey visits, which then appeared to move on rather than stay to breed. Factors which may have contributed to this are discussed further in Section 7.

4.2 Stanage-North Lees

As with EMP, a similar number of pairs were recorded as in 2016, as shown in Table 6, and again, as above, the numbers confirmed by nest monitoring are lower than those recorded by the survey (see also Section 5.2).

Table 6. Survey comparison – Stanage-North Lees

Stanage North-Lees	Possible breeding (PO)	Probable breeding (PR)	Confirmed breeding (BR)	Total breeding (PR+BR)
2021	2	2	3	**5**
2016 (adjusted)	1	3	2	**5**
2016 (raw)	1	3	3	6

Two particular records accounted for an extra two pairs being recorded by the survey over the number confirmed by nest monitoring. A male carrying food was recorded in the survey a considerable distance from the only known nest at the time, but didn't fly in its direction – so is recorded in the analysis as a separate confirmed breeding record (survey data is analysed independently of nest monitoring data). An early pair recorded on Carhead Rocks were not picked up again, either on the survey or during nest monitoring, though this area is watched less regularly and so it is possible a pair did breed here.

5 Nest Monitoring

Nest monitoring work was carried out alongside the survey visits, across most of the areas surveyed, by myself and by volunteer nest monitors. This involves more intense recording efforts than during surveying, but efforts can become concentrated in specific areas, especially if behaviour indicates an as-yet unfound nesting attempt.

Overall, considering the amount of time, and especially volunteer hours put into this, I would usually consider it a fairly "true" indication of the number of breeding pairs across the area as a whole – though exceptions are often noted where nesting is suspected but not proved, and some less popular areas do not receive as in-depth coverage, so unrecorded pairs may persist.

It is a useful exercise to combine nest monitoring with the survey method, as this provides a check and comparison for the survey results.

This year, the survey slightly overestimated the number of breeding pairs compared with the nest monitoring results. The 2016 survey (six visits) was in broad agreement with the nest monitoring records – however if it had relied on just three visits (as this year), the 2016 survey would have *under*estimated the number of breeding pairs.

As mentioned in Section 4.1, a number of records of singing birds/pairs on territory on the first survey visit this year, which then did not appear to stay to breed, mainly account for the overestimate this year.

The nest monitoring results are summarised in Table 7 below for Eastern Moors & Burbage (EMP) and Stanage-North Lees. They are also shown in Figure 3. Further information and discussion is provided in the following sections. The total results shown include some nest records from neighbouring areas.

Table 7. Nest success analysis - Overall

	Pairs	Nests	Clutches hatched	Broods fledged	Fledged young	Fledged young per successful nest	Fledged young per pair	Nests fledging young	Hatched nests fledging young
EMP	5	7	7	6	21	3.5	4.2	86 %	86 %
Stanage North Lees	3	5	5	5	15+	3.0+	5.0+	100 %	100 %
2021 Total	13	19	18	15	50+	3.33+	3.85+	79 %	83 %
2020 Total	18	22	17	15	54	3.6	3.0	68 %	88 %
2019 Total	12	16	10	8	25	3.13	2.08	50 %	80 %

As will be detailed further below, the nest monitoring showed a largely successful year in terms of productivity on the Eastern Moors and Stanage-North Lees, where despite absolute ouzel numbers being lower, number of young fledged per pair was higher than usual.

5.1 Eastern Moors Partnership

Despite lower numbers of ouzel pairs than hoped for, breeding outcomes were generally positive, with two of the five pairs completing two broods and only one pair known to have failed to produce any young. Table 8 indicates the territory locations and outcomes.

Table 8. Ring Ouzel territories & outcomes - EMP

Territory	Breeding	Outcome
Burbage North	Confirmed	1: Fledged 4. 2: Fledged 4.
Burbage Oaks	Confirmed	Fledged 3.
Burbage South	Confirmed	Fledged 4.
Higger Main	Confirmed	Failed (chick stage, predation).
Curbar	Confirmed	1: Fledged 4. 2: Fledged 2.
Higger East	Possible	Activity through season but possibly other Higger pair.
Millstone	Possible	Early pair at Over Owler Tor, no further activity.
White Edge	Possible	Early pair present, no further breeding activity.
Houndkirk	Possible	Early singing male.
Carl Wark		No evidence of occupation this year.
Barbrook		No activity recorded this year.

At Burbage North, the pair used an identical nest site to 2019 for their first brood, and moved north just under 200m to a new site for their second brood.

At Burbage Oaks the pair also used a nest site from a previous year, 2016, in a location on the crag behind the trees. A small climbing restriction was put in place here (see Section 6).

At Burbage South the pair nested in a previously unknown location, though what is a typical situation for this area, under a shrub slightly elevated near the base of a short part of the crag. A climbing restriction was also used for this nest (see Section 6).

At Higger a nest site well-hidden in Bilberry, in a previously unused area of the crag, was considered prone to disturbance from people scrambling up a bouldery area, and also from people approaching from above, as it was just below a popular lookout spot. See Section 6 for further details of the signage used here. It is not known whether disturbance contributed to the nest failure, however it is considered unlikely, as the pair reached the chick stage before being predated.

At Curbar, two new nest locations were used, both situated on small buttresses of the crag, above a largely tree-covered area of slope at the northern extent of previous breeding attempts. As in previous years, this suggests that the habitat is available for at least two pairs at Curbar, considering the spread of nesting locations now recorded.

Table 9 below shows the number of pairs found through nest monitoring this season, and in previous years by way of comparison, and confirms that total numbers are down on previous years.

Table 9. Breeding pairs from nest monitoring - EMP

Year	Nesting possible (A)	Nesting likely (B)	Nesting confirmed (C)	Total nesting pairs (B+C)
2021	4	0	5	**5**
2020	2	3	7	**10**
2019	4	1	6	**7**
2018	4	3	8	**11**
2017	2	2	10	**12**
2016	2	0	11	**11**
2015*	5	0	8	**8**

*Less intensive monitoring this year

Table 10 below details the nest success analysis for the Eastern Moors Partnership, and shows that, despite the absolute low numbers of pairs, those that were present fledged more young per pair than is typical (though the low number of pairs mean the two double-broods have a more powerful effect on the statistics), and the fledged young per successful nest was in line with past years.

Table 10. Nest success analysis - EMP

Year	Pairs	Nests	Clutches hatched	Broods fledged	Fledged young	Fledged young per successful nest	Fledged young per pair	Nests fledging young	Hatched nests fledging young
2021	5	7	7	6	21	3.5	4.2	86 %	86 %
2020	7	9	7	6	22	3.67	3.14	67 %	86 %
2019	6*	7**	5	4	13	3.25	2.17#	57 %	80 %
2018	5*	6**	5	5	19	3.83	3.8	83 %	100 %
2017	10	15	10	9	32	3.56	3.2	60 %	90 %
2016	10	17	11	9	31	3.44	3.1	53 %	82 %
2015	7	8***	7	6	21	3.5	3.0	75 %	86%

* Other pairs known to have bred but nests not found. ** Other nests fledged young but inaccessible. *** Two further nests likely to have fledged young, but not monitored. # Likely higher

5.2 Stanage-North Lees

As with the Eastern Moors Partnership, breeding outcomes for known nests were very successful, with no nest failures recorded at Stanage-North Lees this year. Table 11 below shows the nest outcomes in more detail.

Table 11. Ring Ouzel territories & outcomes – Stanage-North Lees

Territory	Breeding	Outcome
Wall End Slab	Confirmed	Fledged 3+.
Wall Buttress	Confirmed	1: Fledged 4. 2: Fledged 3 (Popular End).
Apparent North	Confirmed	1: Fledged 3. 2: Fledged 2+.
Carhead Rocks	Possible	Pair present early season.
Count's Buttress	Possible	Late season activity.
Popular End	Possible	Occupied by Wall Buttress pair for 2nd nest.
Overstones	Possible	Probably occupied by Apparent North pair for 2nd nest.

The pair at Wall End Slab nested late for a first attempt, though may of course have had an unfound failure previously. They used a new nest site but in a regularly used area – a popular climbing spot where a restriction was put in place (see Section 6 for discussion of all climbing restrictions).

The Wall Buttress pair (where the female had a distinctive, well-marked breast band) were tracked moving south with their fledged young, strongly indicating that this was the same pair who nested at Popular End (Green Crack) later in the season. Green Crack is a traditional nest site which though used regularly in the past, had not seen a nesting attempt since 2017. Both these sites needed climbing restrictions (see Section 6).

For the early part of the season Popular End remained unoccupied – and was well-watched – with the second survey visit marking a sudden burst of sightings. At this point there was no evidence of a pair occupying Popular End, and so the male recorded carrying food is considered likely to be the Wall Buttress male on a foraging visit (see also Discussion, Section 7 – there were a number of notable records of ouzels foraging a significant distance from their nests this year, possibly reflecting patchy food availability due to weather conditions).

The pair at Apparent North nested on the ground for both successful nests (the second, given the location and movement of the birds is considered the same pair, though this is not entirely certain). The first nest was very close to a main footpath, over the top of the edge. The second nest, only found on the day of fledging was in an entirely new location, south of the main edge, very close to a big and well-used footpath, and only 60m from the road and a busy parking location.

Table 12 below, and similarly to EMP again, shows the actual number of pairs recorded by nest monitoring is down on the previous high point of 2016, when six pairs were confirmed to have nested.

Table 12. Nest success analysis – Stanage-North Lees

Year	Pairs	Nests	Clutches hatched	Broods fledged	Fledged young	Fledged young per successful nest	Fledged young per pair	Nests fledging young	Hatched nests fledging young
2021	3	5	5	5	15+	3+	5+	100 %	100 %
2020	4	4	3	2	6+	3+	1.50	50 %	67 %
2019	5	7	3	3	11	3.67	2.20	43 %	100 %

Despite the low number of pairs, there was a 100 % fledging rate for found nests, and this may have been higher still had one brood been fully counted before it fledged. As stated further above, the small number of pairs gives greater power to the double broods, but even so, the absolute number of chicks fledged this year is also in excess of the previous two years.

6 Signing and Disturbance

Signing of nests was carried out as in previous years, with nests assessed on a case-by-case basis as to the potential for significant disturbance to occur. As always, a balanced judgement on the benefits of signs, versus the increased attention signs may also bring, is made.

Signs were erected for three nests on EMP and three nests on Stanage-North Lees over the course of the season. Table 13, below, details those territories where signs were used. A very successful year overall for nest protection, considering the number of nests in proximity to popular climbing routes this year, all of which fledged successfully.

Table 13. Ring Ouzel territories where signs erected (EMP/PDNPA)

Territory	Outcome	Notes
Burbage South	Successfully fledged.	Boulder problems near nest and adjacent buttress. Signs up at incubation.
Burbage Oaks	Successfully fledged.	One route and descent near nest. Signs up at chicks 8 days old (when nest found).
Higger	Failed (predated chick stage).	Amongst boulders. Signs to divert people round, and on top. Signs up at first egg.
Stanage, Wall Buttress	Successfully fledged.	Climbing restriction on whole buttress. Signs up from nest building.
Stanage, Green Crack	Successfully fledged.	Very popular area. Climbing restriction on most of buttress. Signs up from nest building.
Stanage, Wall End Slab	Successfully fledged.	Popular area. Climbing restriction on boulder problems and adjacent buttress. Signs up from incubation.

After very few restrictions were required in 2020, this year had a high proportion of crag-nesting pairs, including on some popular climbing buttresses. On Stanage-North Lees, the three nests on the crag itself were all in popular climbing locations. They required relatively simple (and, in the case of Wall End Slab and Green Crack, well known) restrictions around the nest area – and were observed to be well respected by climbers whenever the locations were checked. At Burbage South a simple climbing restriction was also put in place.

At Burbage Oaks, the nest was at a well-advanced stage when found, but a single sign was put up as a precaution, as one climb and a descent route are very close to the nest, though in a relatively quiet area of crag. At the same nest in 2016, when it was last used, I noted the female was vulnerable to disturbance from people appearing on the crag at the top, and placed a sign above. This evidently was not a significant issue this year and no sign was placed on top.

At Higger, a new nest location was vulnerable to people scrambling up and down a blocky area (not one of the most popular "weaselling" locations, but still used) and also from a popular lookout/picnic spot on top. Signs were placed to direct people around the area and away from the edge. This appeared to have worked at first, but the nest failed late in the chick stage, despite being well concealed in bilberry (though at ground level) – with predation the most likely cause.

7 Discussion

7.1 Breeding Population

The analysis of the survey results suggests a slight decrease in numbers of pairs across the Eastern Edges area since 2016. The adjusted figures may mask a more significant decrease across the Burbage area – where the actual number of nests found showed a sharper decline from 2016.

Adding in a comparison of the raw 2016 data and the nest monitoring data suggests that while numbers have held up at Stanage, further south (Burbage particularly, and Eastern Moors to some extent, though see next paragraph) numbers dropped more substantially this year.

In the intervening years since 2016, when a single pair was recorded at Curbar Edge, there have been two or more pairs breeding each year on Eastern Moors, at either White Edge, Barbrook Valley or Curbar Edge. Thus while this year is on par with 2016, it is the first year that only a single pair have been confirmed breeding on Eastern Moors since then.

For the Burbage area, this year represents a sizeable drop in numbers, with only four pairs confirmed breeding by nest monitoring, compared with eleven pairs in 2016.

7.2 Breeding Success

Despite the lower numbers of breeding pairs, in terms of productivity this was one of the most successful seasons since monitoring began. The breakdown of results also shows that the areas where the number of pairs were lower than expected had higher productivity rates.

7.3 Survey/Monitoring Effort

The adjusted survey numbers from 2016 take into account the differing survey efforts, and these do suggest a smaller drop in numbers than the raw data. While nest monitoring efforts are difficult to assess (and thus why the standardised survey is undertaken), Burbage was extensively covered this year, both by myself and volunteers, and I consider it unlikely that significant numbers of pairs were missed. Survey timing, in relation to migration movements and weather events, may have a strong influence on results, though this is of course difficult to control for.

7.4 Weather

The weather this year at the critical early stage of the breeding season in April and May was unusual in a number of aspects, although this of course applies across the different areas of the Eastern Edges. April was unusually dry and cold, and dominated by high pressure, with a significant number of days of frost. May was exceptionally wet, and also colder than usual, dominated by wind and low pressure systems.

My overall impression this year was that birds started arriving in good numbers in late March, but then arrivals dropped off for much of April, until the final week when arrivals suddenly increased again – though perhaps without a significant corresponding increase in occupied territories.

Birds appeared to be congregating together to feed more often than usual through late April, and the dry, cold ground may have limited foraging opportunities – and it may be that some birds moved on during this period, which may otherwise have stayed.

It seems likely that the cold, dry April, with a record number of days of frost would have had a significant impact on food (e.g. earthworm) availability – this may have impacted whether birds chose to stay in particular areas, and also whether the females in particular were able to get into breeding condition.

The nest monitoring results showed only one early nest without a full clutch of four eggs, with one other known nest failing to hatch one of a clutch of four. This suggests most females were able to produce the typical number of eggs. The majority of clutches fledged all their chicks, with failures usually being a full brood failure.

Not related to early season weather, but the second nest at Curbar suffered from a spell of significant rain near to fledging, which may have contributed to at least one chick not surviving to fledging.

7.5 Habitat

No significant changes in management or grazing intensity are known of across the majority of the Eastern Edges area since 2016.

While the habitat for the whole of the Eastern Edges can broadly be described as dry heath and heather moorland, there are of course many local differences.

Along Stanage Edge, the northern half is managed grouse moor, and is strongly heather and dwarf shrub dominated with only isolated trees along the edge. Further south, on Stanage North-Lees where sheep tend to congregate, footpaths are more heavily used and the crags are climbed more frequently, heather cover is much reduced and significant bilberry stands much less frequent, both on and below the edge. There are few trees here as well, with the exception of the Plantation – and one nest site was within 10m of this significant block of trees.

At Burbage, while the majority of the edges do not have any tree cover, two nest locations in the north of the valley were very close to two of the main stands of trees. Burbage Oaks is a small oak woodland which butts up to the crag, and one successful nest was on the crag in this area. At Ash Tree Wall, a small group of trees is present and the nest was amongst boulders in the shadow of these trees (a popular nesting location, used multiple times in the previous four years).

At Curbar, the southern end of the edge is open, with scattered trees, while the woodland below gradually rises to meet the edge as you move north. Both successful nests this year were at the northern end of the area, close to where the woodland comes close to the crag (the male was noted singing from within the woodland area on a number of occasions).

These records suggest that ouzels are happy nesting in the vicinity of tree cover, and appear to have chosen nest sites in close proximity to trees over other nearby suitable sites without (which remained unoccupied through the season).

Ring Ouzels tend to forage in areas of short grass, such as those typically created by grazing livestock. Grazing types and levels vary across the area, and the typical vegetation mosaic along the edges includes areas of short vegetation, particularly along footpaths, where the ouzels are often observed feeding. These path areas tend to remain as short grass even when sheep grazing is removed (e.g. at Curbar), presumably by the repeated passage of feet.

This may be a reason why ouzels repeatedly choose popular areas of crag to nest, as there are invariably significant numbers of footpaths (both formal and informal) leading to and from these areas. When incubating, female ouzels appear to preferentially forage a very short distance from the nest – presumably reducing the time spent away with their eggs uncovered.

While ouzels typically prefer to forage within around 200m of their nest site, they will travel further and, as mentioned earlier, this year some birds were observed travelling considerable distances to feed (over 700m on one occasion at Curbar). From personal observations, they still appear to prefer short grass within the moorland mosaic, even when, for example, in-bye fields are located within similar distances.

7.6 Disturbance

Territories were occupied in areas comprising a broad spectrum of human activity, with the same true for unoccupied territories. In the Burbage area, the busy areas of Burbage North

and Higger both held pairs, whereas Carl Wark and Houndkirk, much quieter in terms of visitor numbers and activities did not hold confirmed pairs this year. Conversely, the very busy Higger East did not hold a confirmed breeding attempt, while the quieter Burbage Oaks area did.

At Stanage, while some less-visited Stanage territories were occupied, further south at Plantation and Popular End some of the busiest climbing buttresses on the edge also held breeding pairs.

Signs were used on half of all the recorded nests this year, indicating that some degree of disturbance was considered likely for these nests.

There were no incidents of disturbance leading to nest failure recorded this year, and no reported incidents of signs or restrictions being ignored by the public.

7.7 Predation

No evidence of specific predators was noted during the monitoring. As usual, corvids and mustelids are considered the most likely predators, with stoat sightings at Stanage noted. There was a slight increase in predation events at the chick stage this season – typically a much greater proportion of nests are predated at the egg stage than the chick stage (not known why this is so).

7.8 Past Breeding & Migration/Returning Birds

While some general observations can be made on arrival times, there may be numerous factors which affect the numbers of birds arriving in the area in the spring. As mentioned in the weather section, this year migration appeared to be held up somewhat by the high pressure system over the country in April. There is some limited evidence to support this on the BTO Birdtrack database, with a peak for the Ring Ouzel "reporting rate" one week later than the historical average.

As can be seen from Table 7, Section 5, in 2019 the fledging rate was significantly lower than in other years (see also Table 10, Section 5.1 for further data), with the number of fledged young per pair being below three for the only year on record. It is possible lower numbers this year are a knock-on effect from a previous year's low productivity – though the observation of early birds arriving which did not appear to stay to breed, suggests this is not necessarily the determining factor.

7.9 Further Monitoring

The nest monitoring and protection work provides a significant amount of data on both ouzel numbers and productivity and, due to the level of effort currently employed (including significant volunteer time), allows numbers to be tracked in sometimes better detail than the transect surveys – as the comparison between survey/monitoring in this year and 2016 shows.

The continuation of the nest protection work, vital to both the breeding success of a significant number of pairs and to the continued good relationships between recreation and conservation interests, also therefore provides an annual check on ouzel numbers.

The nest monitoring can provide some, albeit limited, information on the movement of birds within and between areas – though only for pairs which are regularly watched. It cannot provide information on between-season movements (how close an area do birds return to those in which they have bred previously?) and return rates of birds (indicating survival

through migration) – both of which could help us understand more about how and why the changes in distribution and numbers of breeding pairs are occurring.

A colour-ringing scheme (ringing chicks in the nest), continued over a number of years, would provide valuable data to help answer these questions and allow further conclusions to be drawn on the changes in population and distribution over time.

8 References

Leyland, K. (2016) *Eastern Edges Ring Ouzel Survey*. Eastern Moors Partnership.

Eaton *et al.* (2015) Birds of Conservation Concern 4: The population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108: 708-746.

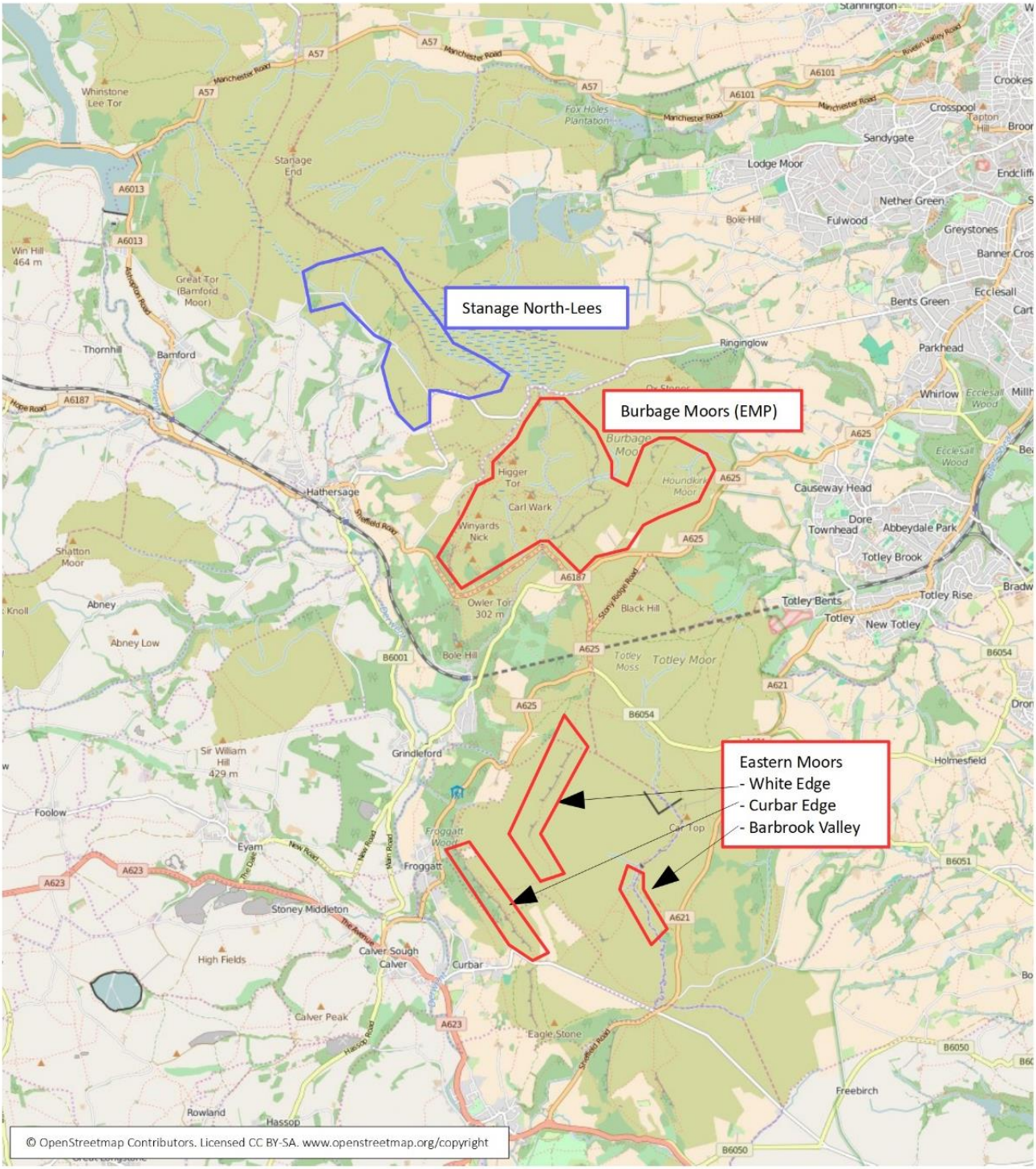

Figure 1. Survey Area Locations

Eastern Moors Partnership

Peak District National Park Authority

Eastern Edges Ring Ouzel Survey 2021

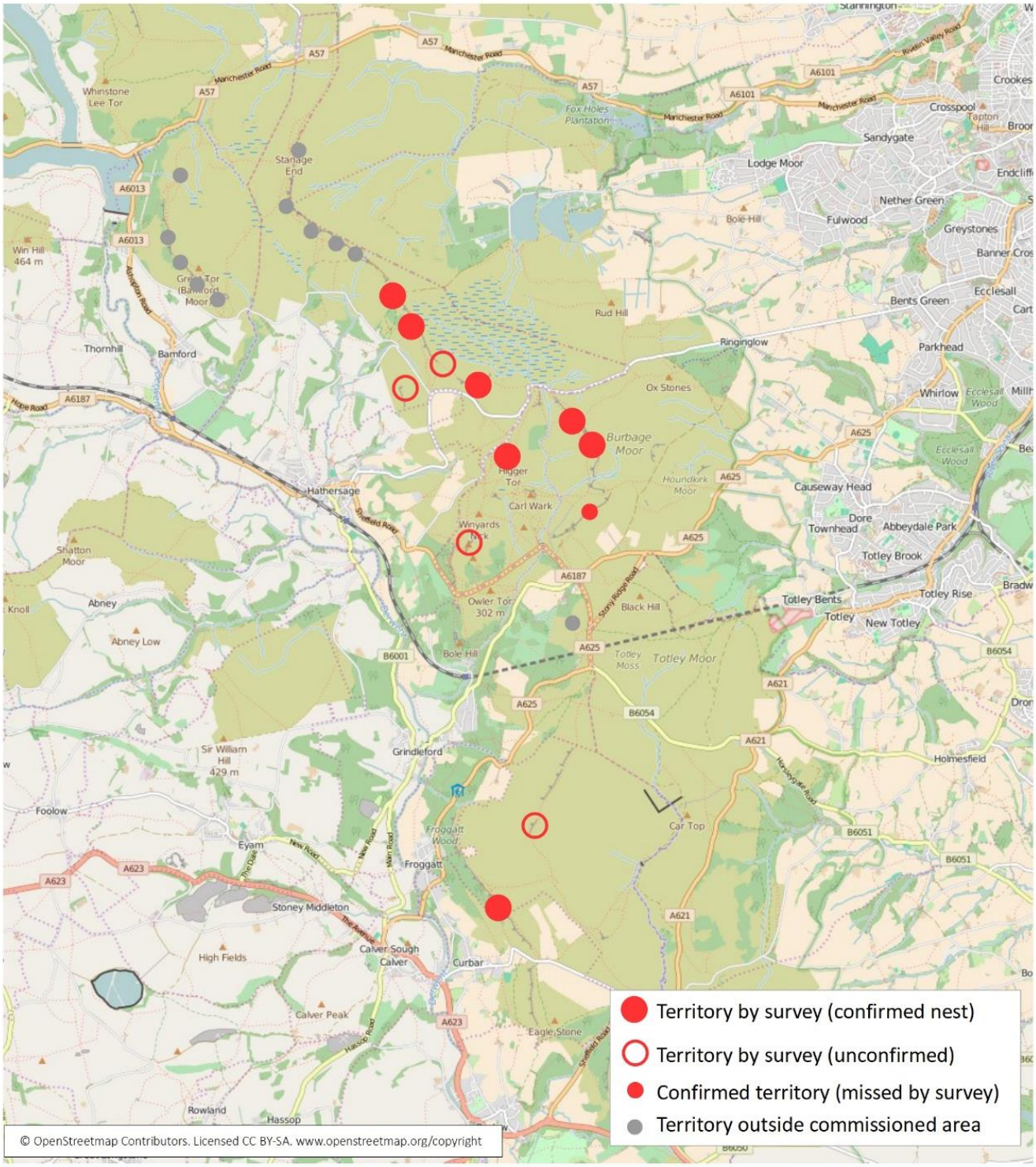

Figure 2. Ring Ouzel Territories

Eastern Edges Ring Ouzel Survey 2021

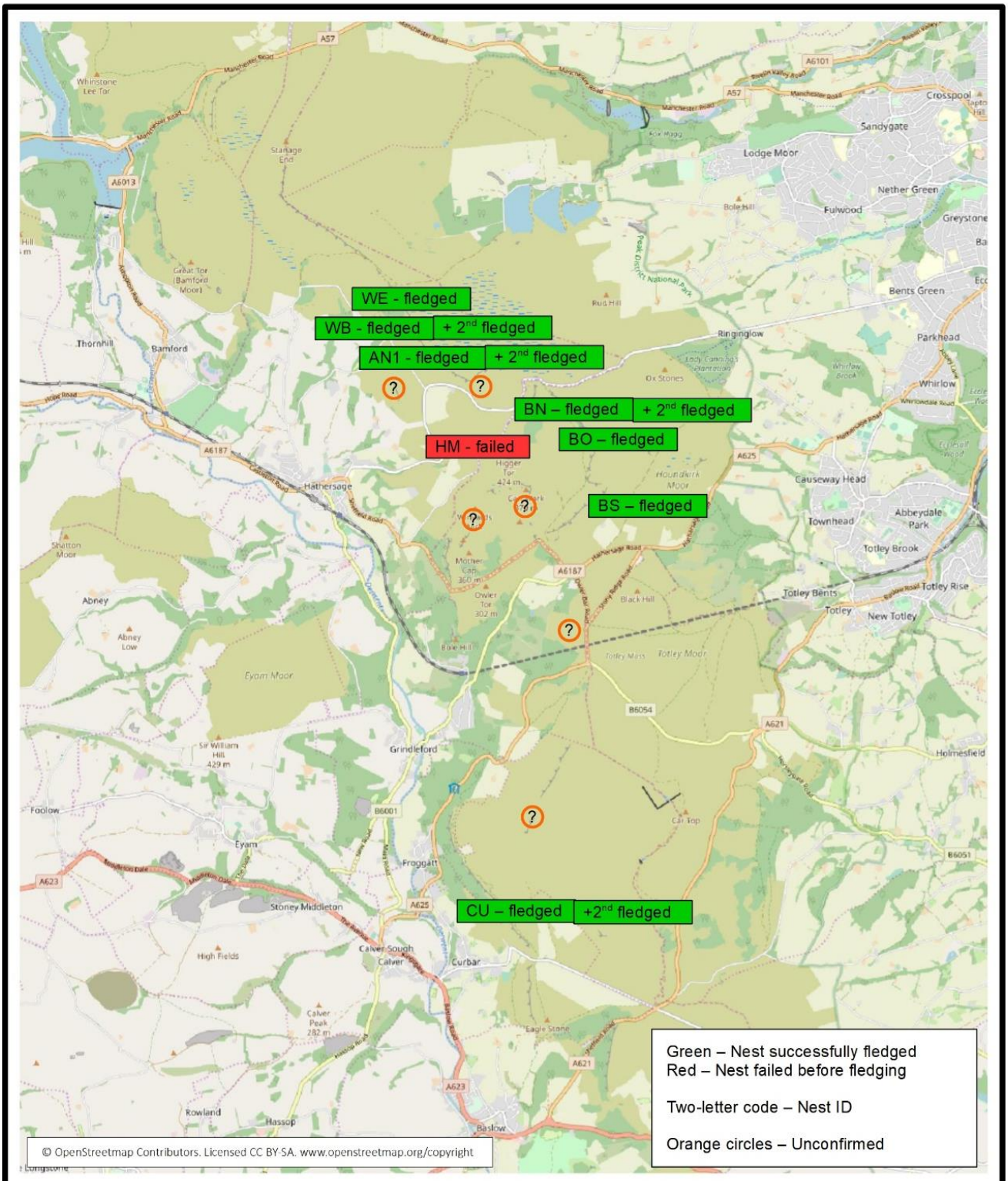

Figure 3. Ring Ouzel nest success / failure summary

Eastern Edges Ring Ouzel Survey 2021

Appendix A

Ring Ouzel Survey 2021 - Methodology

This methodology has been developed using the "Standardisation of Ring Ouzel Recording" document produced by the Ring Ouzel Study Group, and following discussion with Innes Sim and RSPB staff. The method has mainly been adapted to be used without tape playback.

Defining transect lines

Most sites have known/suspected territories and most are defined by the presence of a crag/rocky edge.

Primary transects should aim to follow these features with secondary and further transect lines added alongside as is necessary/practical to cover potential habitat.

Transects should be spaced approximately 200m apart, following contours where possible (this is also likely to be the most practical route in most cases).

On the first, or recce, visit, mark the transect line on a separate map and use this same route on each subsequent visit.

Method

Walk slowly along transects stopping at regular intervals (at least every 200m) and scan suitable grassy feeding areas and song perches for birds.

Mark all sightings on maps using BTO symbols (see attached sheet), preferably in red ink.

Use dashed or solid lines to distinguish different/moving birds (simultaneous registrations are very useful).

Where multiple birds are heard/sighted, take time to establish locations and numbers.

Especially later in the season, take time to watch foraging birds (especially females) returning to likely nest sites.

Visits should ideally be started within 1 hour of dawn, and completed by 11am.

Visits should be at least one week apart.

Visits should not be undertaken in excessively wet or windy weather.

Number of visits/timing

Minimum requirement is 2 visits, as per "RSPB Standard" below (i.e. Visit 2 or 3 AND Visit 4 or 5 or 6).

The three visit schedule will provide the most useful results – so a rough guide is one visit in the second half of each month (April, May, June).

Any additional visits will improve detection and help locate early/late birds, re-lays and second broods.

Month	Week	Dates	6+ Visit	3 visit	RSPB standard Ring Ouzel 2-visit
April	1	5th – 18th April	Visit 1		
April	2				
April	3	19th April – 2nd May	Visit 2	Visit (1)	Visit 1 mid-April - mid-May
April	4				
May	1	3rd – 16th May	Visit 3		
May	2				
May	3	17th – 30th May	Visit 4	Visit (2)	Visit 2 mid-May - June
May	4				
June	1	31st May – 13th June	Visit 5		
June	2				
June	3	14th – 27th June	Visit 6	Visit (3)	
June	4				
July	1	Early July	(Visit 7)		
July	2				
July	3	Late July	(Visit 8)		
July	4				

Nest finding

If it is possible to locate nests without deviating significantly from the survey method, then please do so, and let me know as soon as possible.

Please don't record any birds which you "know" are there (e.g. from nest monitoring activities) but which you do not see on the survey day. You can make an additional note that a pair is known to be present but were not seen.

Appendix B

BTO Breeding Status Codes

Possible breeder

H Species observed in breeding season in suitable nesting Habitat

S Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat

Probable breeding

P Pair observed in suitable nesting habitat in breeding season

T Permanent Territory presumed through registration of territorial behaviour (song etc) on at least two different days a week or more apart at the same place or many individuals on one day

D Courtship and Display (judged to be in or near potential breeding habitat)

N Visiting probable Nest site

A Agitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby

I Brood patch on adult examined in the hand, suggesting Incubation

B Nest Building or excavating nest-hole

Confirmed breeding

DD Distraction-Display or injury feigning

UN Used Nest or eggshells found (occupied or laid within period of survey)

FL Recently FLedged young). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitat.

ON Adults entering or leaving nest-site in circumstances indicating Occupied Nest (including high nests or nest holes, the contents of which cannot be seen) or adults seen incubating

FF Adult carrying Faecal sac or Food for young

NE Nest containing Eggs

NY Nest with Young seen or heard

Reproduced from:

https://www.bto.org/volunteer-surveys/birdatlas/methods/breeding-evidence

KL 31/03/2021