Red Grouse

on The Long Mynd

Survey and Population Estimate

2016

Estimating the Red Grouse Population on The Long Mynd 2016

Contents

Strettons Area Community Wildlife Group

There are several Community Wildlife Groups in the Shropshire Hills Area of Outstanding Natural Beauty (AONB), including the Strettons Area Community Wildlife Group (SACWG), which was launched in February 2012.

The Groups

- Bring together people interested in wildlife
- Undertake survey work to establish the status of key bird and plant species and habitats
- Encourage and enhance local interest in wildlife
- Actively promote conservation.

SACWG helped promote this survey, and has organised it since 2013. Several members participated.

SACWG holds an Annual Public Meeting, at which this and other wildlife surveys are discussed.

More information can be found on the website, www.ShropsCWGs.co.uk

Introduction

Systematic monitoring of the Red Grouse population was carried out by the National Trust, through dawn counts of calling territorial males in winter, for several years. Two dawn counts in the winter of 2009–10, coupled with casual records, indicated a minimum of 32 territories, but, adding observations of birds only seen or heard once, the estimated population was around 51. Three dawn counts in the winter of 2010–11, coupled with casual records, indicated a minimum of 40 territories, but, adding observations of birds only seen or heard once, the estimated population was around 59 (Caroline Uff, *pers.comm*.).

This method did not produce a sufficiently accurate population estimate for such a scarce species, or to assess the effectiveness of the Trust's heather management. It was therefore decided to pilot a new survey method in 2011. Personal observations over many years have found that male birds also display at dusk, and a project was undertaken to estimate the Red Grouse population by mapping such displays.

Efforts were made to recruit as many participants as possible, and the project produced a population estimate of 60 – 63 territorial males. The project was considered a success, and has been repeated each year since 2012. The newly formed Strettons Area Community Wildlife Group helped organise the project in 2012, and has led on the organisation each year since.

A full report has been produced each year (*Red Grouse on The Long Mynd: Survey and Population Estimate (Year)).* These Reports can be found on the Community Wildlife Groups website, www.ShropsCWGs.org.uk

It is hoped to repeat the project each year to produce a population trend. For the 2016 survey, efforts were again made to recruit as many participants as possible. The 2016 publicity leaflet is attached as Appendix 1.

Everyone who offered to help with the project was invited to a briefing on Thursday 24 March 2016, though many people who participated in previous years felt it unnecessary to attend a further briefing. A PowerPoint presentation was made, explaining the objectives of the project, and what to look for and record. A video of displaying Grouse was shown.

A Project Brief was supplied to all participants. It is attached as Appendix 2. It has evolved since the first survey in 2011, incorporating the lessons learnt as set out in each annual Report.

Methodology

Sixty-seven watchpoints, selected to give a good field of view of part of the survey area, were identified, and marked on enlarged copies of 1-10,000 Ordnance Survey maps. The same watchpoints have been used since 2013, but they include seven that were added in the light of experience in 2012, including some new areas on the edge of the range, as they might be coming into suitable condition as a result of the heather management. There were 48 watchpoints used in the 2011 pilot project, and 60 in 2012.

There were 12 different survey maps altogether, and some of these are used as background to present the Project results (see pages 5 – 12). The 67 watchpoints are marked on these maps (There is no watchpoint 43).

It was intended to start the survey on 31 March, and hold it each Thursday until 5 May. This was similar to the timetable followed in the previous four years, which started two weeks earlier than the 2011 survey because more Grouse were observed on the earlier survey dates in 2011.

However, in view of the poor recording conditions on several surveys in 2012, the local weather forecast was again used, so a planned survey could be postponed in advance if conditions were likely to be unsuitable (rain or strong winds).

Ideally, a count should be made at each watchpoint three times. It was originally intended to record every Thursday between 31 March and 5 May. However, bad weather meant that three of those counts, on 7, 14 and 28 April, were cancelled, and additional counts were added on 19 April, and 3, 12 and 17 May, to try and ensure that three counts were carried out at each watchpoint. Unforunately, there were fewer participants on the new dates than there would have been on the dates planned originally.

A copy of all 12 numbered survey maps, together with a fieldwork recording sheet, was emailed to all participants before the first planned survey. Then, the day before each survey date, every participant was notified of their allocated watchpoint by email, together with the start and finish time and the map number they should print (together with a fieldwork recording sheet) and take to their watchpoint.

The fieldwork recording sheet is attached as Appendix 3. Participants were asked to record on the map all Grouse seen or heard, together with a number for each observation. The display flight of a territorial male often provokes a response from an immediate neighbour, often another display flight to the edge of the territory. There were several instances of two birds landing close together at the edge of their respective territories. On other occasions several birds were seen and heard concurrently, or nearly so. These are the most helpful observations in determining the boundary between territories, and participants were particularly asked to record all such events.

The time of each observation was entered on the fieldwork recording sheet, together with a description of what had been observed. The times were recorded to allow cross referencing of the same observation from adjacent watchpoints, and on some occasions to prove that concurrent records must have been due to different birds. The symbols used on the map were described in the project briefing, and were shown on the fieldwork recording sheet.

Participants were also requested to summarise their observations, with their own assessment of how many different territorial males they had observed.

Observations

The Project organised 63 individuals, including eight couples, who recorded the birds seen or heard from the 67 different watchpoints on seven separate evenings. Fieldwork recordings were made from every watchpoint. Nine had a count made on only one date, 19 had counts on two dates, the majority, 37, had counts on three dates, and two had counts on four dates.

It was initially hoped to cover all watchpoints at least three times, the level of coverage almost achieved in 2012, but the cancellations and re-arrangements meant there were fewer participants on the rescheduled dates. In addition, a few observers did not return survey maps, or did not report that they had not carried out surveys at their allocated watchpoints, so it was believed that surveys had been carried out at particular watchpoints when they had not been.

A total of 167 result sheets (117 maps with observations, plus 50 zero counts) were returned for analysis. These maps included 637 different observations of Red Grouse (some of which were concurrent observations of two or more birds). The coverage is summarised in Table 1, and compared with that of previous years. Compared with the previous two years, the number of counts, counts per watchpoint, total number of records and average records per count were all lower, while the number of counts with no Grouse recorded was

higher. More importantly, the weather conditions on, or immediately preceding the counts, was very poor on three of the seven dates, resulting in very low average counts on 31 March, 21 April and 17 May. The weather conditions on each count are described later.

Surveyors are allocated adjacent watchpoints on each evening, to increase the likelihood of the same observations being made from adjacent watchpoints, and display near one provoking a reaction near another, both helping to identify territory boundaries. However, that means that bad weather on a particular evening, or other factors which depress Grouse activity, affects results in particular areas, rather than uniformly across the whole area. If the results from the three evenings with very low average records per count are removed from the analysis, then six watchpoints had no effective count, and more than half (35) had only one. This disproportionately affected the northern and southern ends of the area. Watchpoints 1 – 19 and 52 - 68 all had one or no effective counts.

This, coupled with the higher than usual number of watchpoints with only one or two counts, meant coverage was very patchy.

Table 1. Summary of Survey Coverage and Results 2011 - 16

Year	2011	2012	2013	2014	2015	2016
Total Number of Watchpoints	38	60	67	67	67	67
Number of Surveyors	48	67	40	52	62	63
Number of Counts	147	204	122	181	184	167
Average Number of Counts / Watchpoint	3.9	3.4	1.8	2.7	2.7	2.5
Number of Records	818	816	460	865	839	637
Averegage Records / Count	5.6	4.0	3.8	4.8	4.6	3.8
Counts with no Grouse recorded	12	51	26	44	38	50

Table 2 provides a breakdown of the results on each of the seven Survey dates in 2016. A full breakdown is attached in Appendix 5.

Table 2. Summary of Observations of Red Grouse during 2016 survey.

Watchpoint Number	Survey Dates							Totals		
	March	April		May				Counts	Records	Average
	31	19	21	3	5	12	17			
Total Counts	27	16	28	16	38	26	16	167		
Counts of Zero	15	2	15	1	7	2	8	50		
Total Grouse Records	33	65	42	129	216	140	12		637	
Average Records / Count	1.2	4.1	1.5	8.1	5.7	5.4	0.8			3.8

Analysis

All observations were transcribed onto master maps, using a different colour for each date.

For all parts of the area these were A3 blow-up versions of the A4 survey maps. A sample map from a previous report, showing all the observations used for analysis, is shown in Appendix 6. It shows the dashed lines between birds observed concurrently, and these dashed lines are highlighted. There were 12 such maps used altogether.

The analysis was carried out using the territorial mapping method (*Bird Census Techniques* Bibby *et al* Academic Press, London 2006). This method uses concurrent observations of different birds exhibiting territorial behaviour (display flight, aggression or song) to identify boundaries between territories. Observers were also asked to record the times at which each activity was observed, and this data too has been used to identify different birds

calling concurrently against each other. The territory boundary passes between the positions of the males recorded concurrently. Similar observations on different dates identify the different sides of each territory, so that clusters of observations can be grouped into a territory.

Care was taken when transcribing the observations on the survey maps onto the Master Map to join each observation of two or more birds together with dashed lines. By the rules of the territory mapping method, observations of a bird at the same position twice in three visits constitutes a territory. The difficulty with utilising this method for Red Grouse is that each territorial male has a large territory, and moves around it. A lot of the calling and display activity is at the edge of the territory, as each male competes with his neighbours, and sometimes the birds actually invade the neighbouring territory. Thus each male may be recorded several times on the same evening by participants at several nearby watchpoints; and then again, in different locations, on subsequent survey visits. This difficulty is overcome by rigorously applying one of the rules of the territory mapping methodology – the data must be interpreted to produce the minimum population estimate.

Using the concurrent observations, joined by dashed lines, to define territory boundaries, all observations can be grouped into the different territories shown in the results section.

It must be stressed that there is not necessarily any correlation between the size and shape of each territory shown on the maps with the ground that each Grouse actually occupies. Many of the Grouse recorded cannot be assigned to a territory with any degree of certainty, and the maps represent notional territories, based on those observations which locate (often very approximately) a boundary between territories.

Also, if there are no observations to establish the boundary on one side of a territory, the analysis will show one territory when in fact there are two. The population estimate calculated by this method is therefore the minimum, and there may be more.

Results

The next eight pages each show one of the maps issued to the project fieldworkers, with all the territories found in 2016 on that map shown, based on the analysis described in the preceding section. (Only eight of the 12 maps are shown – the remaining four maps did not show any other territories that were not wholly on one or more of these nine)

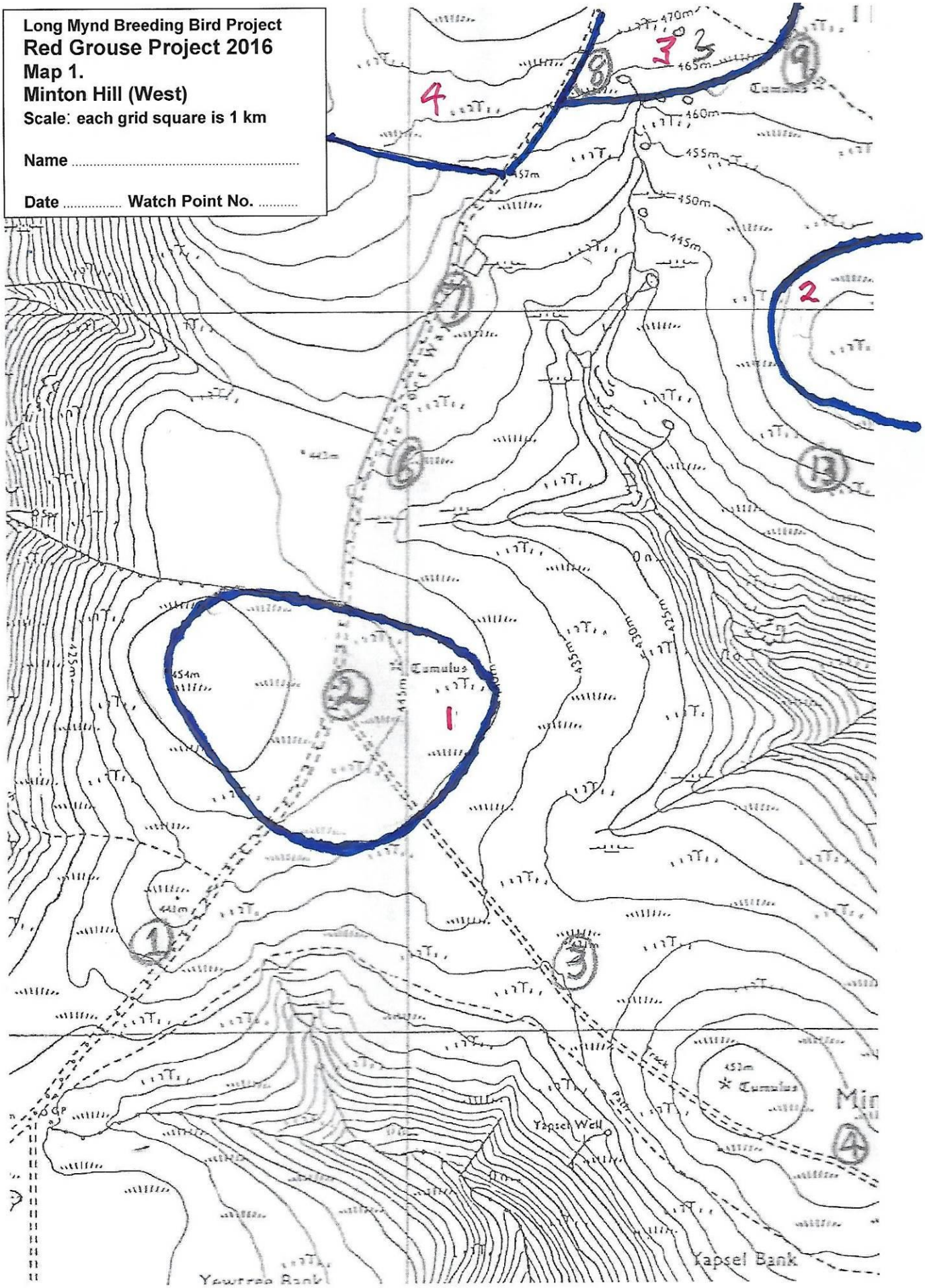
The watchpoints are the grey numbers in circles. All territories are numbered on each map (in red), to ensure all have been counted (1 – 41, + 29A), 42 in total. A single page summary map (Map 9) is shown on page 18.

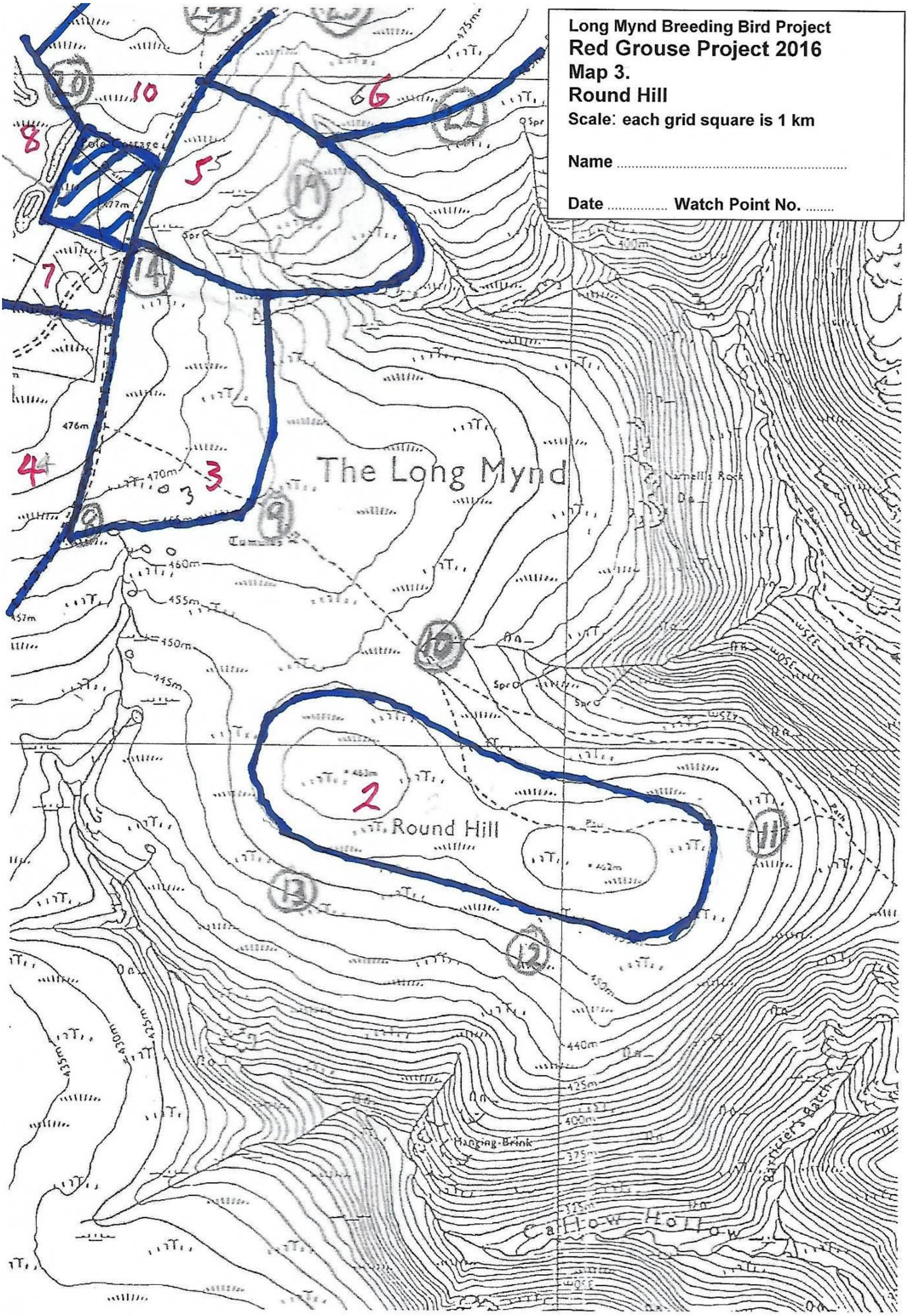
The total number estimated from the Survey maps is 42 territorial males. However, as outlined above, bad weather affected the number of Grouse recorded, and the number of territorial interactions, and this figure is likely to be an underestimate.

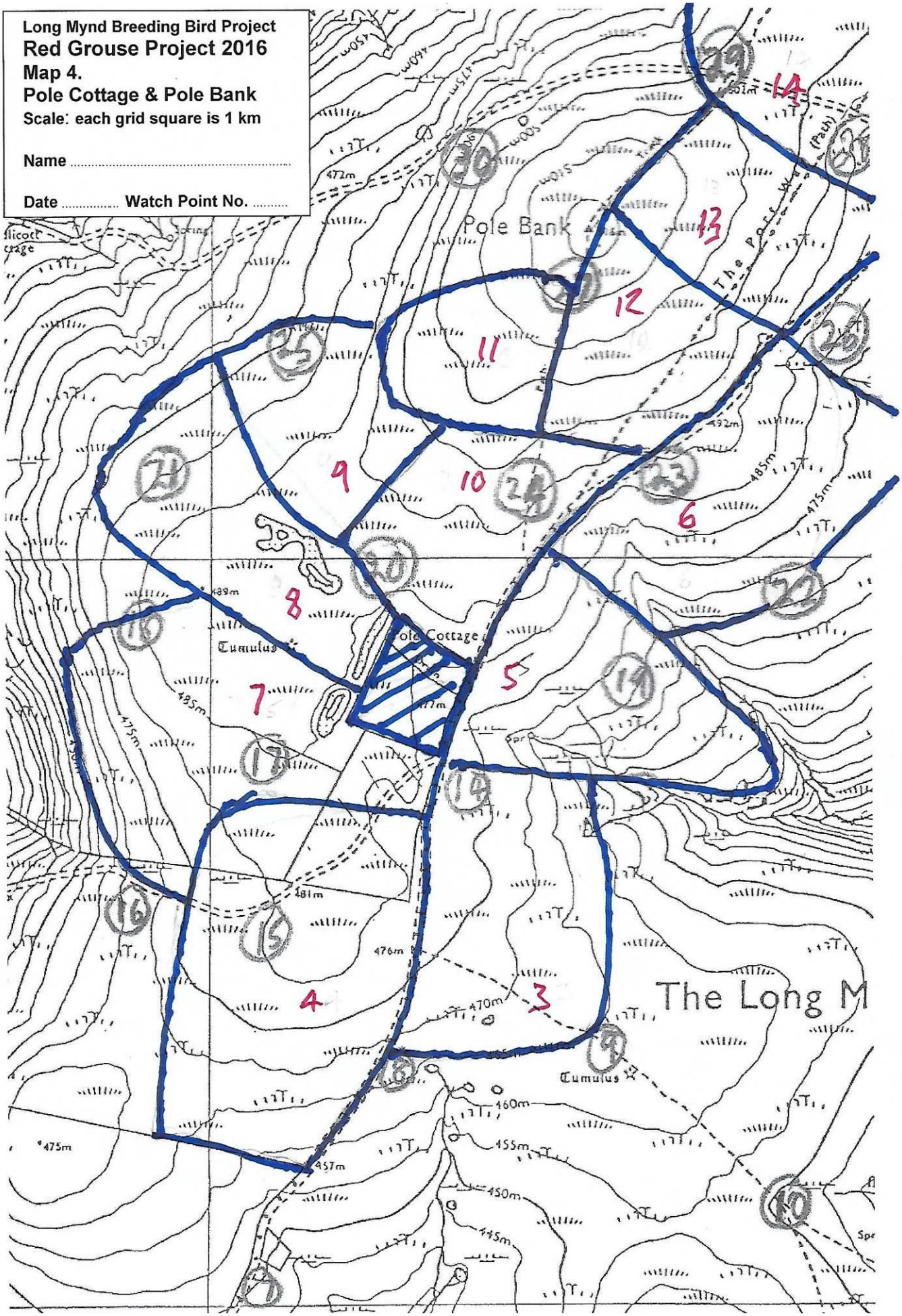
Comparison of Results with those from NT and Other Records

Once the results were finalised, and the territories were mapped, they were compared with the casual records collected by the Trust during 2016. These records fell within the area occupied by the Grouse found on the surveys, and did not identify any additional territories to those shown on the survey maps.

The total population estimate for 2016, derived from the survey results, is 42+ territorial males. The result was depressed by bad weather.


Long Mynd Breeding Bird Project
Red Grouse Project 2016
Map 1.
Minton Hill (West)
Scale: each grid square is 1 km
Name .....
Date ..... Watch Point No. .....
470m
465m
460m
455m
450m
445m
457m
454m
441m
Tumulus
Yapsel Well
Yapsel Bank
Yewtree Bank


Long Mynd Breeding Bird Project
Red Grouse Project 2016
Map 3.
Round Hill
Scale: each grid square is 1 km
Name ....
Date .... Watch Point No. ......
The Long Mynd
Round Hill
Hanging Brink
Callow Hollow
Tumulus
476m
470m
460m
455m
450m
440m
425m
400m
375m


Long Mynd Breeding Bird Project
Red Grouse Project 2016
Map 4.
Pole Cottage & Pole Bank
Scale: each grid square is 1 km
Name .....
Date ..... Watch Point No. .....
Pole Bank
Pole Cottage
Tumulus
Tumulus
The Long M
14
13
12
11
10
9
8
7
6
5
4
3
2
1

Long Mynd Breeding Bird Project

Red Grouse Project 2016

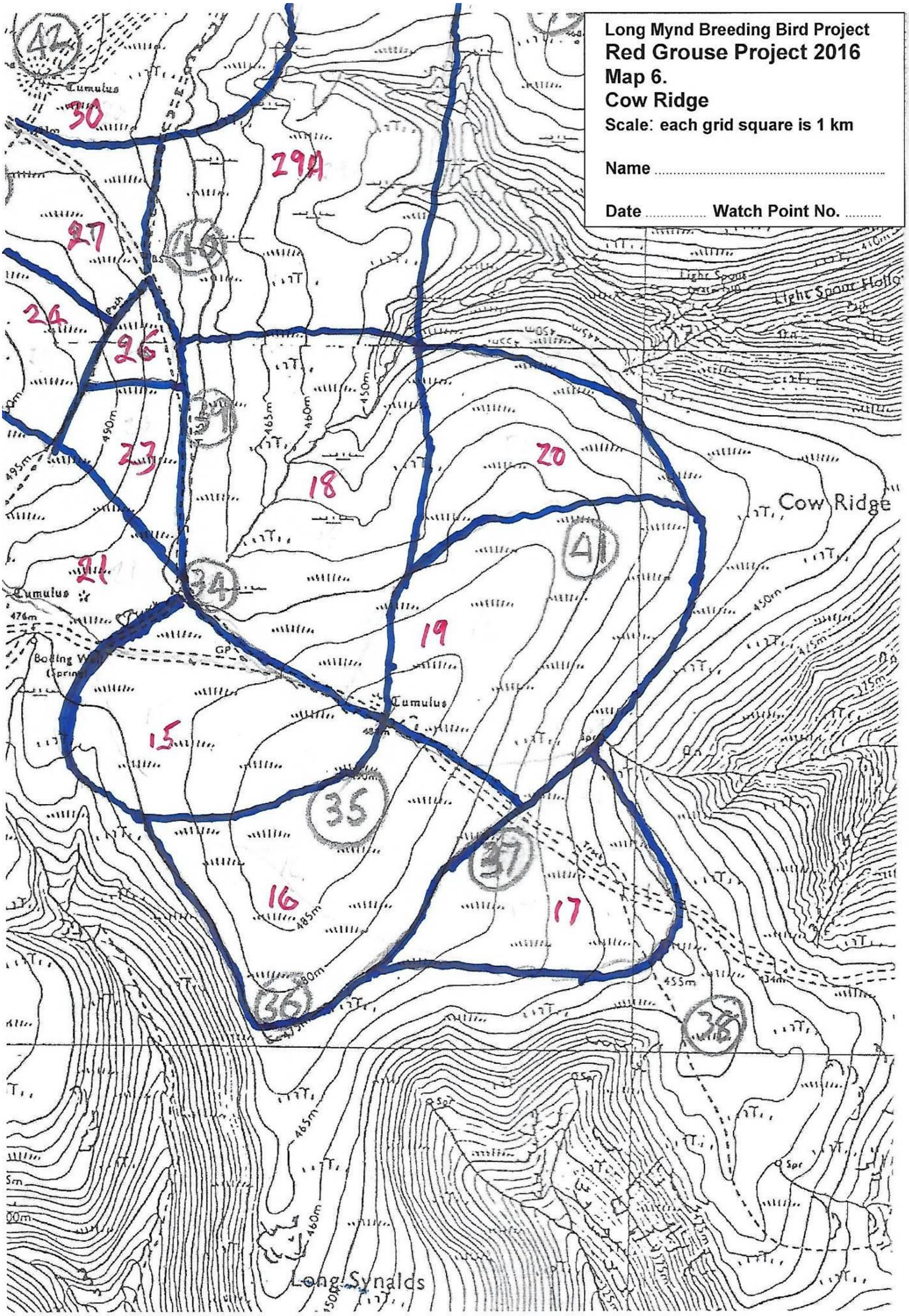
Map 6.

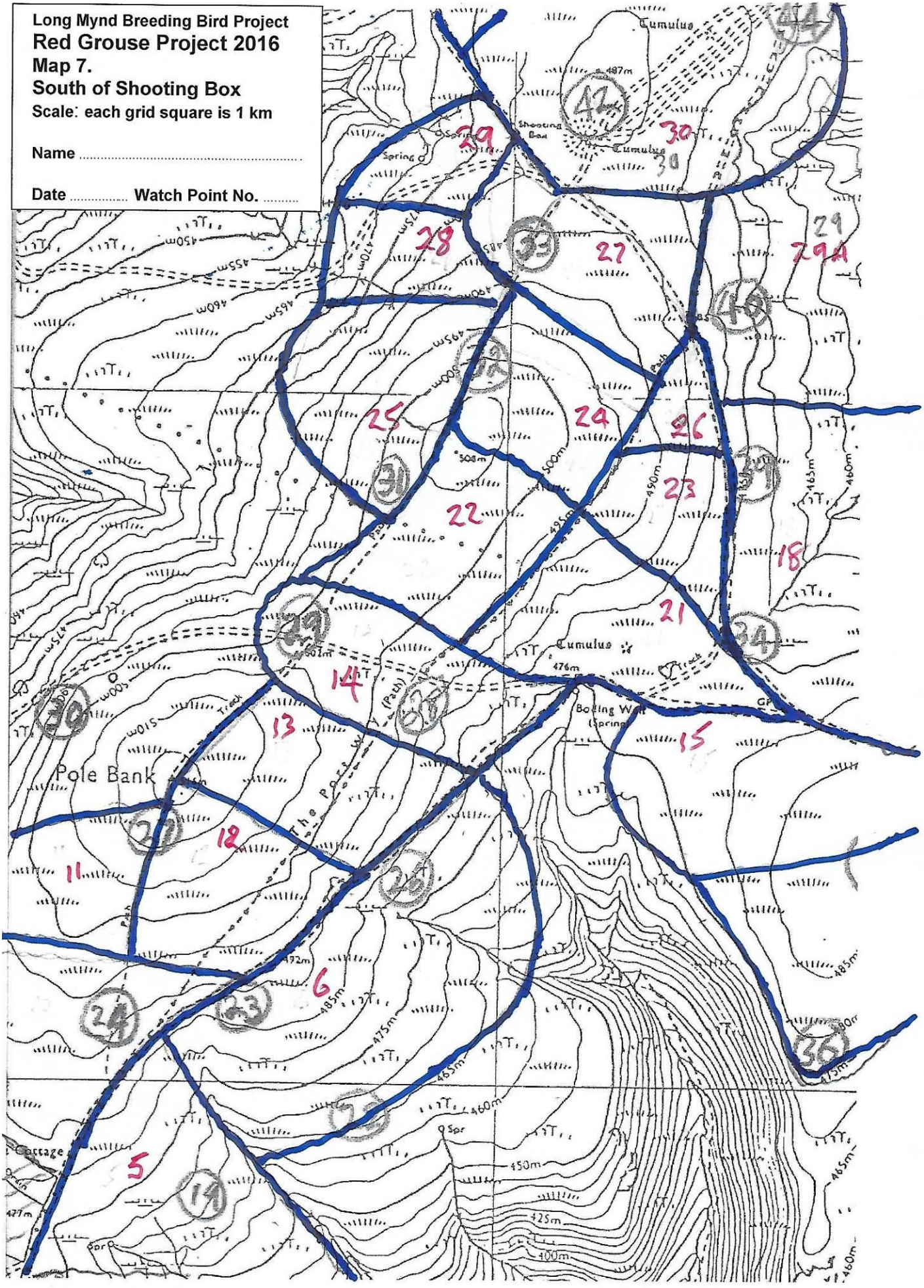
Cow Ridge

Scale: each grid square is 1 km

Name ....

Date .... **Watch Point No.** ....




Long Mynd Breeding Bird Project
Red Grouse Project 2016
Map 7.
South of Shooting Box
Scale: each grid square is 1 km
Name .....
Date ..... Watch Point No. .....
Pole Bank
Cumulus
Shooting Box
Spring
Boiling Well (Spring)
Cottage

Long Mynd Breeding Bird Project

Red Grouse Project 2016

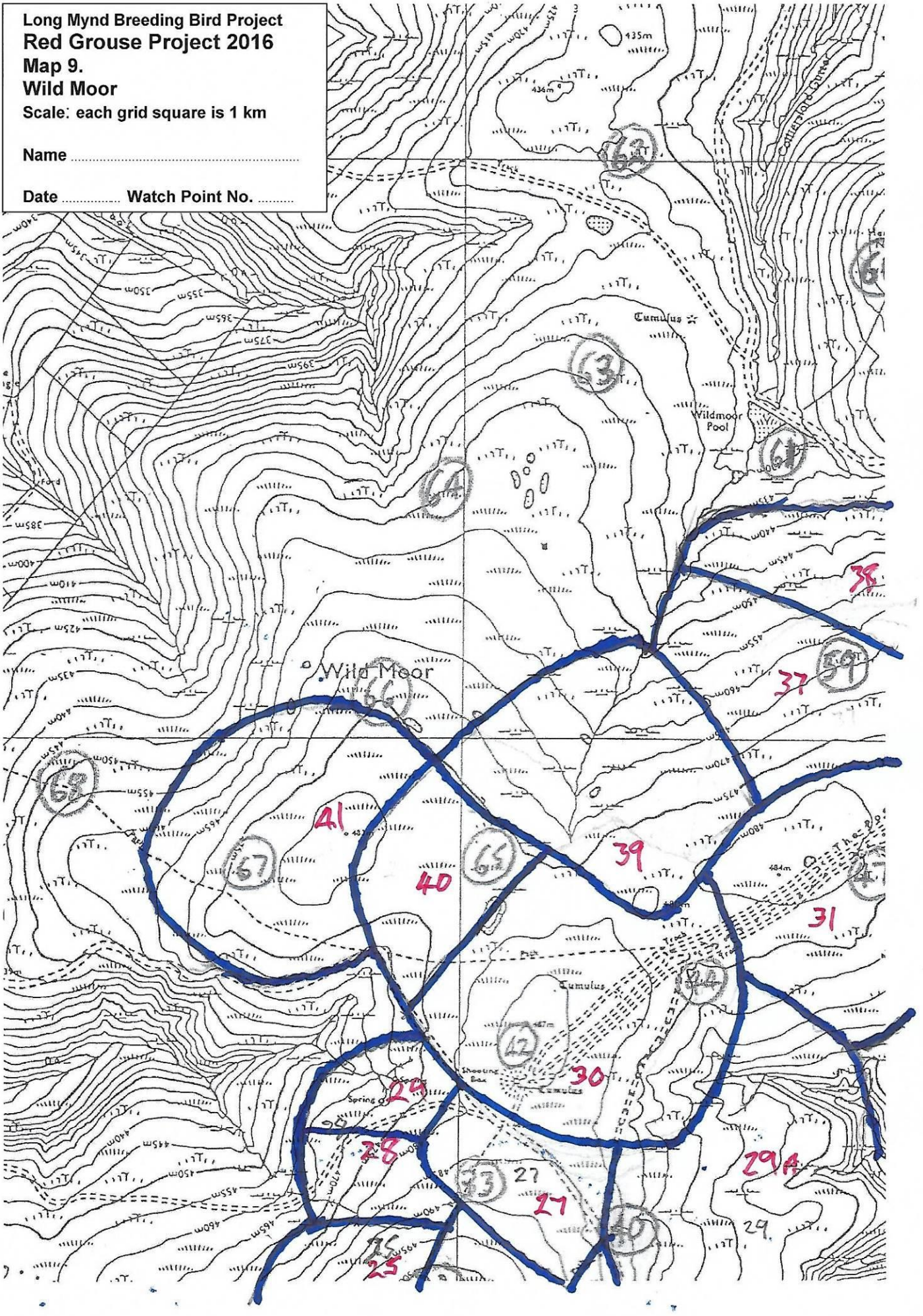
Map 9.

Wild Moor

Scale: each grid square is 1 km

Name .....

Date ..... **Watch Point No.** .....



Long Mynd Breeding Bird Project

Red Grouse Project 2016

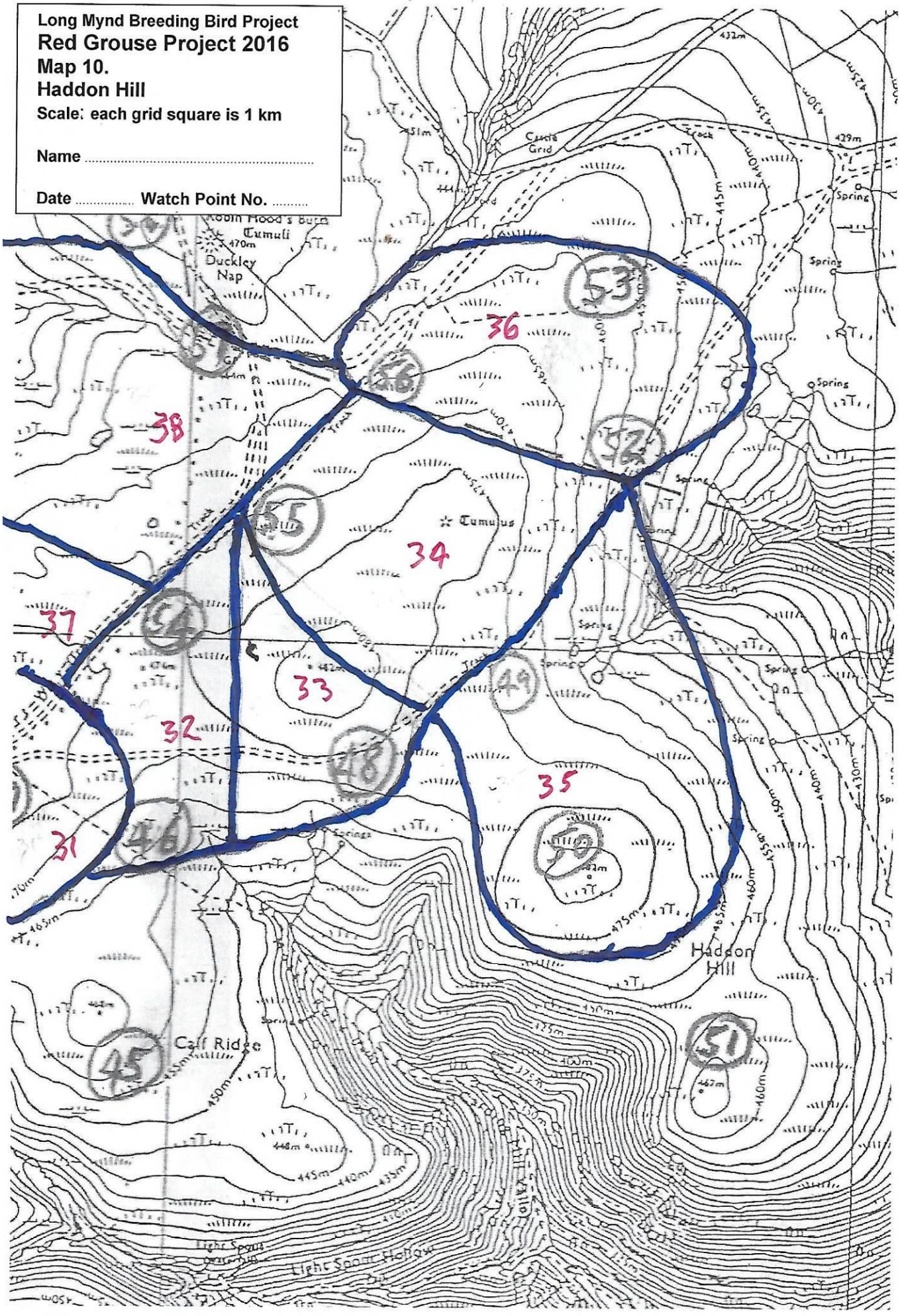
Map 10.

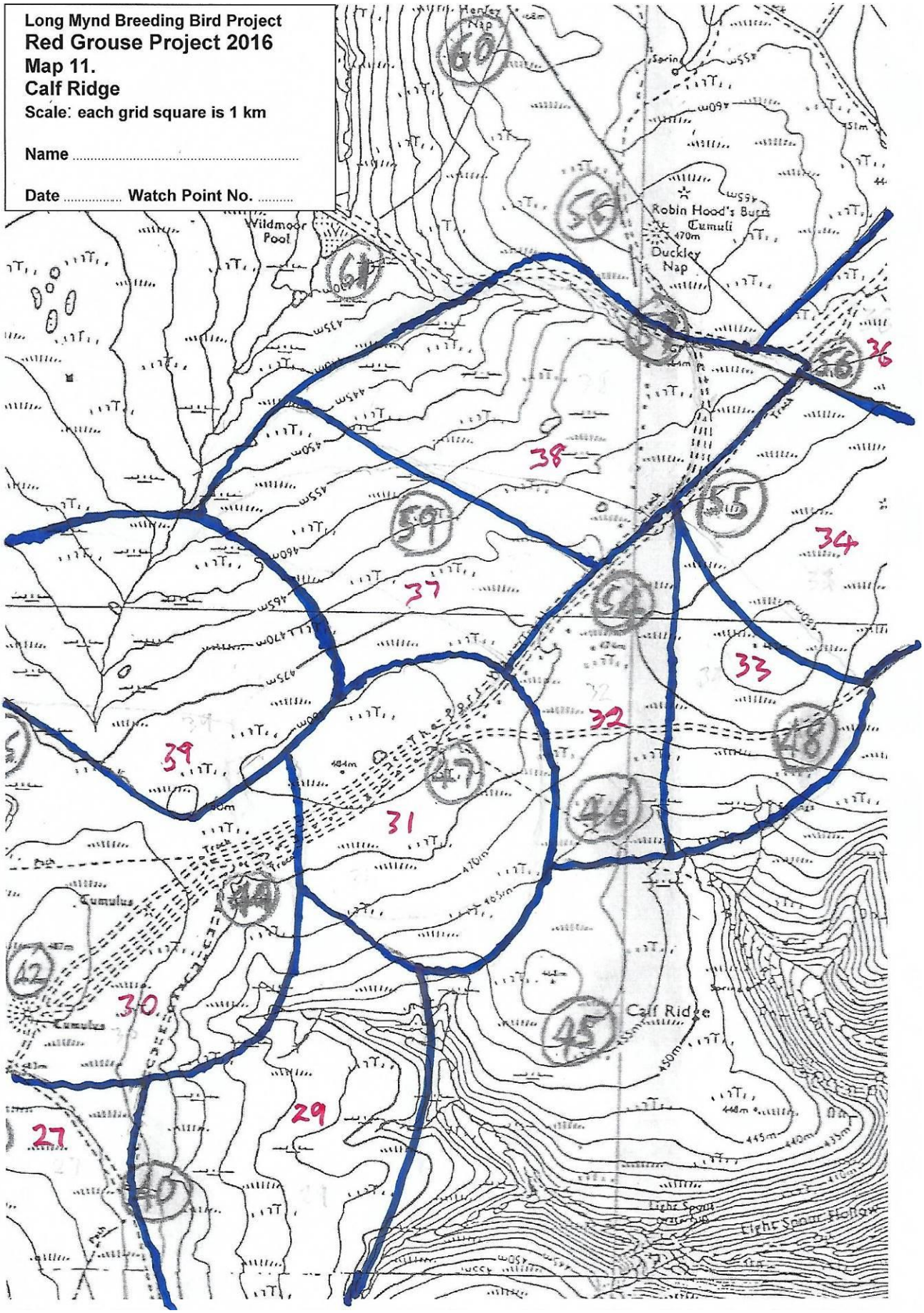
Haddon Hill

Scale: each grid square is 1 km

Name .....

Date ..... Watch Point No. .....




Long Mynd Breeding Bird Project
Red Grouse Project 2016
Map 11.
Calf Ridge
Scale: each grid square is 1 km
Name .....
Date ..... Watch Point No. .....
Wildmoor Pool
Robin Hood's Butts
Tumuli
Duckley Nap
Cumulus
Calf Ridge
Light Spout Hollow
27
29
30
31
32
33
34
36
37
38
39

Population Trends – Summary

The population estimate made in each year is shown in the Table

Table 3. Annual Population Estimate

Year	2011	2012	2013	2014	2015	2016
Population Estimate	60 - 63	63 - 66	52 - 54	56 - 58	57 - 59	42+

The 2013 survey was disrupted by bad weather, and the average number of records per count was the lowest for the five years, in spite of four of the six counts being disrupted by bad weather in 2012. Not surprisingly, the level of activity recorded in 2013 was lower than in other years. This may be because the Grouse were present but inactive, or because there were fewer to count, due to birds not coming into breeding condition because of the unusually late bad weather at the start of the season, or high mortality.

The 2014 and 2015 counts show an increase over the 2013 estimate, but the population still appears to be slightly less than that found in 2011 and 2012. Therefore it is likely that the bad weather at the start of the 2013 breeding season did have a real impact on the population, but it appeared to have almost recovered to the 2011 level by 2015.

The 2016 survey was also disrupted by bad weather, resulting in fewer Grouse, and fewer territorial interactions, being recorded. The most records per count was on 3 May, not a Thursday, so there were fewer participants. On evenings when there were several records of Grouse, there was still a shortage of interactions to prove the presence of several males, and several of the “territories” shown on the maps may hold more than one male. It is therefore highly likely that there were more than 42 territorial males, but breeding success on the Stiperstones was poor in 2015, resulting in fewer males being counted at the start of 2016 than in recent years (see p 22 and Annexe 2), so it is likely that the population on Long Mynd was lower in 2016 than in 2015 too.

It is not reasonable to infer that the population is unchanged because the occupied area of heathland was similar in 2015 and 2016. Many species occupy the same territories year after year, but it is difficult making such comparisons in the case of Grouse. The maps show notional territories, rather than the areas actually occupied by the Grouse, and there will be rearrangement of territories, year on year, reflecting the changing suitability of the heather: after burning it is initially unsuitable, and then it improves in subsequent years; but after the heather matures, it becomes too thick and overgrown.

It is hoped that weather conditions in 2017 allow a realistic estimate to be made.

Recording Conditions

The activity levels of the Grouse, and the likelihood of them being observed and recorded, vary according to the weather conditions. Although conditions may vary across the whole plateau, so they were not the same at every watchpoint, in general they were good on at least four of the seven survey dates. There was no rain during any count. In summary, the conditions during the survey periods were:-

31 March – Less than 33% cloud, sunny and warm, very light breeze
19 April – 100% blue sky, very slight breeze from NE, sound carried well
21 April – High cloud (almost 100%), stiff breeze from NNE, cold
3 May – Cloud < 33%, very high. Breeze light but cold, from NW. Very clear.
5 May – High thin cloud (> 66%), still and very warm.

12 May – Very warm, , high cloud (< 5%), but strong breeze from NE. Bright and sunny, good visibility, but breeze breaks up sound.
17 May – Wind far too strong. 75% high cloud, warm but dull and horrible.

Wind on 21 April and 17 May was stronger than forecast, and these counts would not have gone ahead if conditions had been anticipated.

Comparison with Recording Conditions in Previous Years

In 2011, there was no rain on any evening that the survey was conducted, although some of the evenings were quite windy. The total number of record sheets submitted was 147, containing 818 records. The average number of Grouse records per sheet was 5.66. No Grouse at all were recorded on only 12 (8.2%) record sheets.

In 2012, conditions on the first two dates were reasonably good (good visibility, slight breeze, no rain), on the third date conditions during the actual survey period were also reasonable, but heavy rain all day depressed Grouse activity. There was rain, mist and wind on the three final dates. The total number of record sheets submitted was 204, containing 816 records. The average number of Grouse records per sheet was 4.0. No Grouse at all were recorded on 51 (23.9%) record sheets. The poor weather meant that, although there were far more counts than in 2011, the number of records was virtually the same.

In 2013, heavy snow at the beginning of April, and then a prolonged period of cold wet weather, meant the first survey was not carried out until 25 April, and it was cold on that date. Indeed, nationally, this was the coldest spring for over 50 years. Several new dates were fixed and then cancelled, and the last three surveys were carried in the second half of May, well after the normal time of peak Grouse activity. Although conditions were good for all except the first date, the average number of Grouse recorded on each survey sheet was the lowest of the five years (see Table 1)

In 2014, in general conditions were good during six of the seven surveys, but the cancellation of several planned surveys (including rearranged dates) because of forecast bad weather meant that the period over which the counts were conducted was extended by a week, and three of the counts occurred in the second and third week in May, when Grouse activity has usually declined because territories have been established and egg-laying starts

In 2015, in general conditions were good on at least four of the seven survey dates. There was no rain during any count, but rain during the day depressed Grouse activity on two counts. On another, the wind was too strong (the forecast was for it to have dropped)

Peak Grouse Activity

The 2012 survey started two weeks earlier than in 2011, because the level of observed activity reached a peak at the end of April, and then declined considerably.

A similar timetable was planned for 2013, but the actual event was substantially different. That year had the worst weather, so more planned counts had to be rearranged, and the final survey was not undertaken until 30 May.

A similar timetable to 2012 was planned for 2014, but the first and last two planned surveys had to be cancelled and rearranged. However, one was rearranged for 28 April, and all were finished by 15 May.

In 2015, the first planned count was cancelled, and replaced by two in mid-May.

Table 4 shows the average number of Grouse records per survey sheet for all the survey dates over the six years of the project, in date order. Not surprisingly, the average depends

more on the weather conditions during the survey, and the area being covered (some parts of the area have higher densities of Grouse than others). However, in general, April counts recorded more Grouse than May counts, because territorial activity declines as territories are established and egg-laying starts. In 2016, efforts were made to reschedule any April dates that were cancelled within April, rather than add new dates onto the end of the survey period, and this was partially successful with another replacement survey added on 3 May.

Table 4 also shows the effect of carrying out counts in bad weather in 2012. The procedure of cancelling and rearranging counts when the Met Office forecasts rain or strong winds, introduced in 2013, has increased the number of records / count in general, but not in 2016, when the winds were stronger than forecast.

The low number of records / count on 17 April 2014 suggests that low temperatures may reduce Grouse activity too, although the location of the counts at the northern end of the hill, where densities are lower anyway, also contributed. In 2015, the lowest average count coincided with both cold conditions, and counts in the north.

Cold and strong winds contributed to low counts on 21 April, and even stronger winds to the low counts on 17 May. The low counts on 31 March are a mystery.

Table 4. Average number of Grouse records per survey sheet

Year	March		April														May												Ave
	29	31	9	10	12	14	16	17	19	21	23	24	25	26	28	30	2	3	5	7	10	12	13	14	15	16	17	19	21	30	
2011						6.1				6.3					7.3				5.0			5.2		14.0				2.9			5.6
2012	6.0				5.9				3.0					1.7				3.9			1.9										4.0
2013													1.6			3.6	5.1			4.1						7.8			3.7	1.0	3.8
2014				3.3				1.7				9.3			6.8							4.4	6.2		2.5						4.8
2015			3.7				2.2				5.9					6.1				4.6		6.3		2.3							4.6
2016		1.2							4.1	1.5								8.1				5.4					0.8				3.8
Average	6.0	1.2	3.7	3.3	5.9	6.1	2.2	1.7	3.6	3.9	5.9	9.3	1.6	1.7	7.0	4.9	5.1	6.0	5.0	4.4	1.9	5.3	6.2	8.2	2.5	7.8	0.8	2.9	3.7	1.0	4.4

Distribution of Territories and Heather Management areas

There are approximately 700 hectares of heather dominated heathland owned and managed by the National Trust on Long Mynd. Of this area, approximately 60% is targeted for active management by burning or cutting on a long rotation (a planned cycle of around 16 years). This management started in 2001. Up until 2012, approximately 160ha of heather have been cut or burnt in scattered patches. Burning can only take place in favourable conditions during a limited winter period, and none was possible in 2013. A further 25ha was burnt in the spring of 2014, 10ha in 2015 and 18.6ha in 2016, making a total of around 214ha since management began.

This is done primarily to add structural diversity to the heathland whilst maintaining heather as the dominant species. It benefits a range of wildlife species, but in particular the Red Grouse. The young areas of heather resulting from the management are also more accessible and nutritious to livestock than the old heather. The remaining 40% of heather dominated heathland is left as 'non-intervention' to support less mobile species which may be negatively affected by burning or cutting.

All the territories shown on the eight maps on pages 5 - 12 have been input into the National Trust's GIS system, *Map Info*, to produce a summary Map 9 as shown on page 18. This map also shows the contours, and confirms that the Red Grouse only inhabit the relatively flat plateau.

Map 10 shows the results for 2015, to facilitate comparison.

Map 11 shows all areas of heather, and the areas where management has been carried out since 1994.

Map 12 overlays the 2016 Territories Map onto the Heather Management map.

It will be seen that some areas which have been managed in the last six years, and have short heather, should be good for Grouse, but none were found there. Conversely, some apparently ‘unsuitable’ areas where there has been no management do have Grouse, such as south-west of Pole Cottage (not NT land).

While there are areas of managed heather outside the areas included on the Grouse territories map, there are watchpoints already in use which should be suitably placed to record any Grouse that move into them.

Comparison of Results with Previous Years

The 2016 results are summarised in Map 9, and a direct comparison can be made with the 2015 results in Map 10.

Comparison of the number of territories found each year, and their boundaries, is difficult, as the maps are a product of the methodology, rather than a reflection of the actual area occupied by each Grouse.

However, the number of territories found on the edge of the core area grew in 2012, reflecting the continued growth in the population since 1994.The apparently reduced population found by the 2013 survey was reflected mainly in the disappearance of many of the territories on the edge of the range. If the population really declined, then contraction of the range is likely. However, any birds occupying such territories are likely to be less active, as they have fewer neighbours to compete with (display against), so they are more likely to be overlooked.

More positively, it appears that a recent burn (2009) has allowed the creation of one or two new territories on Haddon Hill, where no Grouse were found in 2012.

In general most territories have some area of short heather in them. It appears that the heather management being carried out by the Trust is continuing to benefit Red Grouse.

Some of the recently managed areas of heather have probably not yet had sufficient time to regenerate into suitable habitat. Some additional watchpoints were added to the 2012 survey to monitor such areas, but, as outlined above, inspection of the heather management map suggests that no new watchpoints are needed in 2017.

Notes of Caution

In 2011, the survey produced a more accurate (and higher) population estimate than that obtained by the three counts made at dawn by National Trust staff and volunteers in the preceding winter. The large number of participants, with systematic coverage of the whole of the Long Mynd over six separate evenings, produced excellent results. However, the Report listed several notes of caution, some of which were addressed by changes in the methodology in 2012, but some of them still apply.

It should be noted that:-

1. Poor weather conditions during individual surveys, especially strengthening wind over the course of an evening, and rearranged dates for surveys which then occurred in May, after the peak of territorial activity, may have limited the number of occasions when two or more displaying males were recorded concurrently. Such observations are crucial for locating territory boundaries, so it is possible that there are two males in some of the larger “territories”, as no observations were made during the surveys to separate them.

2. Every effort was made to select watchpoints with a good field of view (some new watchpoints were added in the light of experience in 2011, and seven more were added in 2013), and participants were asked to move slightly if they could obtain a better field of view in the vicinity of the watchpoint, rather than at it. Even so, some watchpoints, particularly those on the hilltops, had fairly restricted fields of view. Records from these watchpoints were generally of calls, rather than of seen birds, with some resulting inaccuracy in the mapping.

3. There were watchpoints within hearing range of all places where Grouse had been seen prior to the start of the Survey, and the Heather Management map on page 20 shows some areas which should be suitable for Grouse, but where none were found. Grouse may perhaps have been overlooked there, and these areas should be monitored thoroughly in future years.

4. Concurrent observations of the same Grouse activity from different watchpoints would not necessarily have resulted in those observations being mapped in the same position. This is particularly true for records of calls heard faintly in the distance.

5. Although the scale of the maps provided to participants was increased after 2011, there were still a few occasions where the scale was too small – the observations could not all be clearly differentiated.

6. Participants' experience of Red Grouse, and their experience of bird watching generally, varied tremendously. Some may have missed birds, and / or were not confident enough to summarise their observations into the number of definitely different and probably different males.

However, inaccurate mapping of observations did not present any apparent problems during the analysis, and concurrent observation of (or hearing) adjacent males usually included one made from the nearest watchpoint, which was presumably reasonably accurate. Therefore the potential limitations of the survey methodology do not appear to be reflected in the mapping, although they may lead to the number of territories being underestimated.

Considerations for the Future

The method has generally produced excellent results, and it will be repeated annually, so long as sufficient volunteers can be recruited, to monitor the Red Grouse population on the Long Mynd.

The 2015 report highlighted two issues to stress to observers, as a result of lessons to date:-

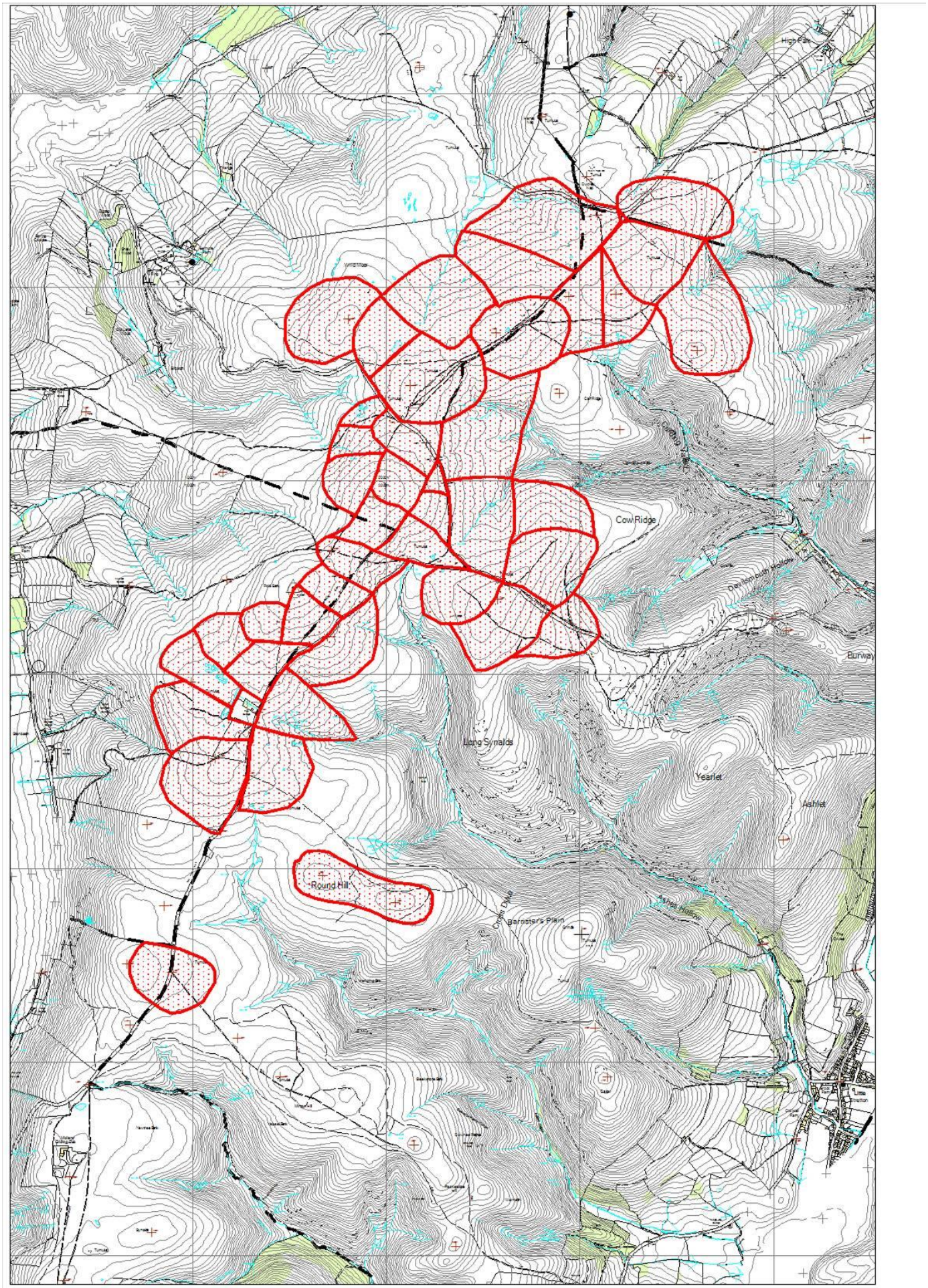
1. Even stronger encouragement will be given to observers in future years to summarise their observations, so they record which observations relate to each bird, and which are definitely different birds.
2. Observers will again be requested to notify the organisers as soon as possible if they do not carry out a survey at a watchpoint they have been allocated.

In the light of 2016 experience, these issues need to be stressed even more strongly, as well as the need to collect in all the survey maps as soon as possible.

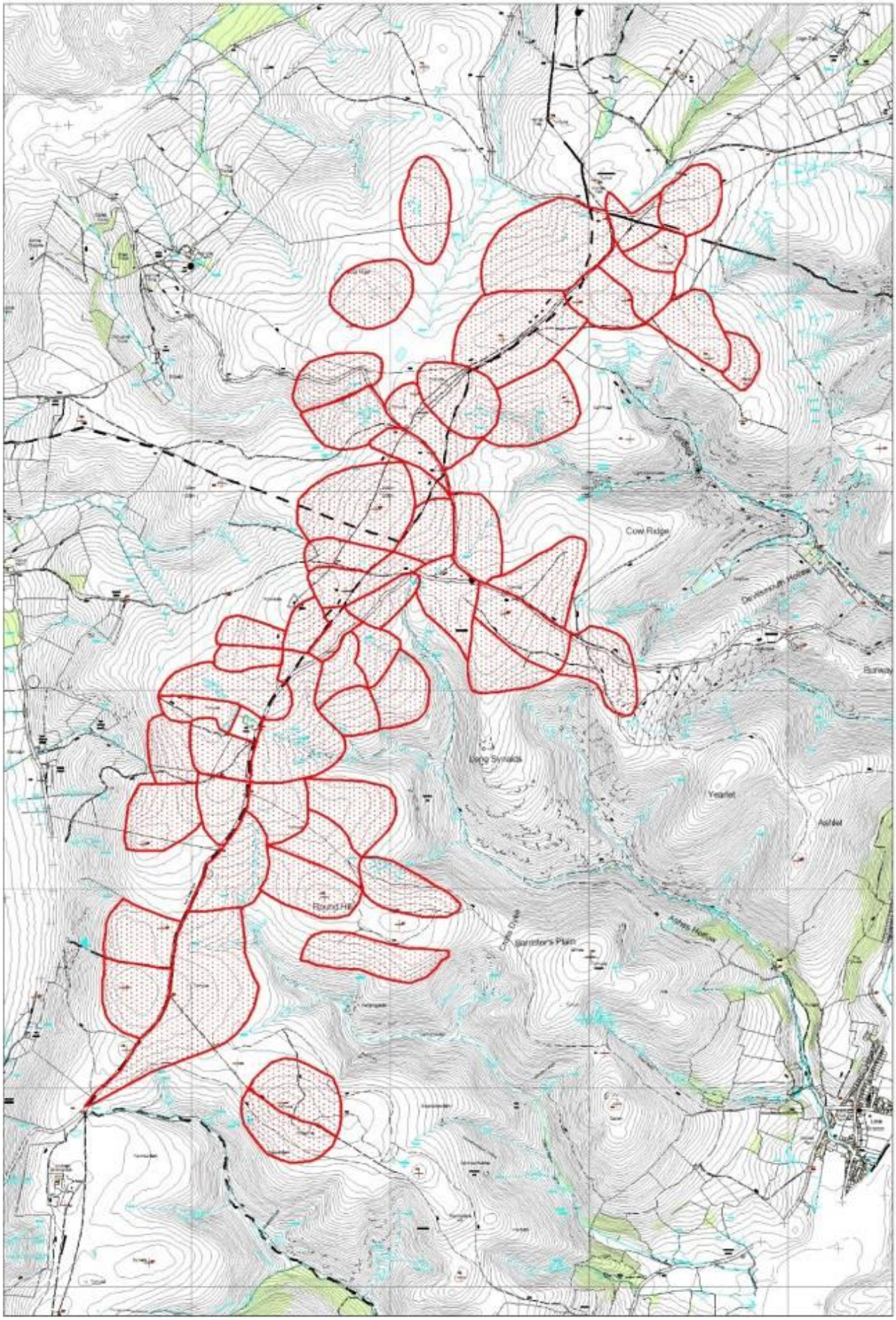
Enjoyment

Most participants said they enjoyed their time on the Long Mynd in the evening, not least for the birds, but also, for some, beautiful clear long distance views, spectacular sunsets and / or a moonlit walk home.

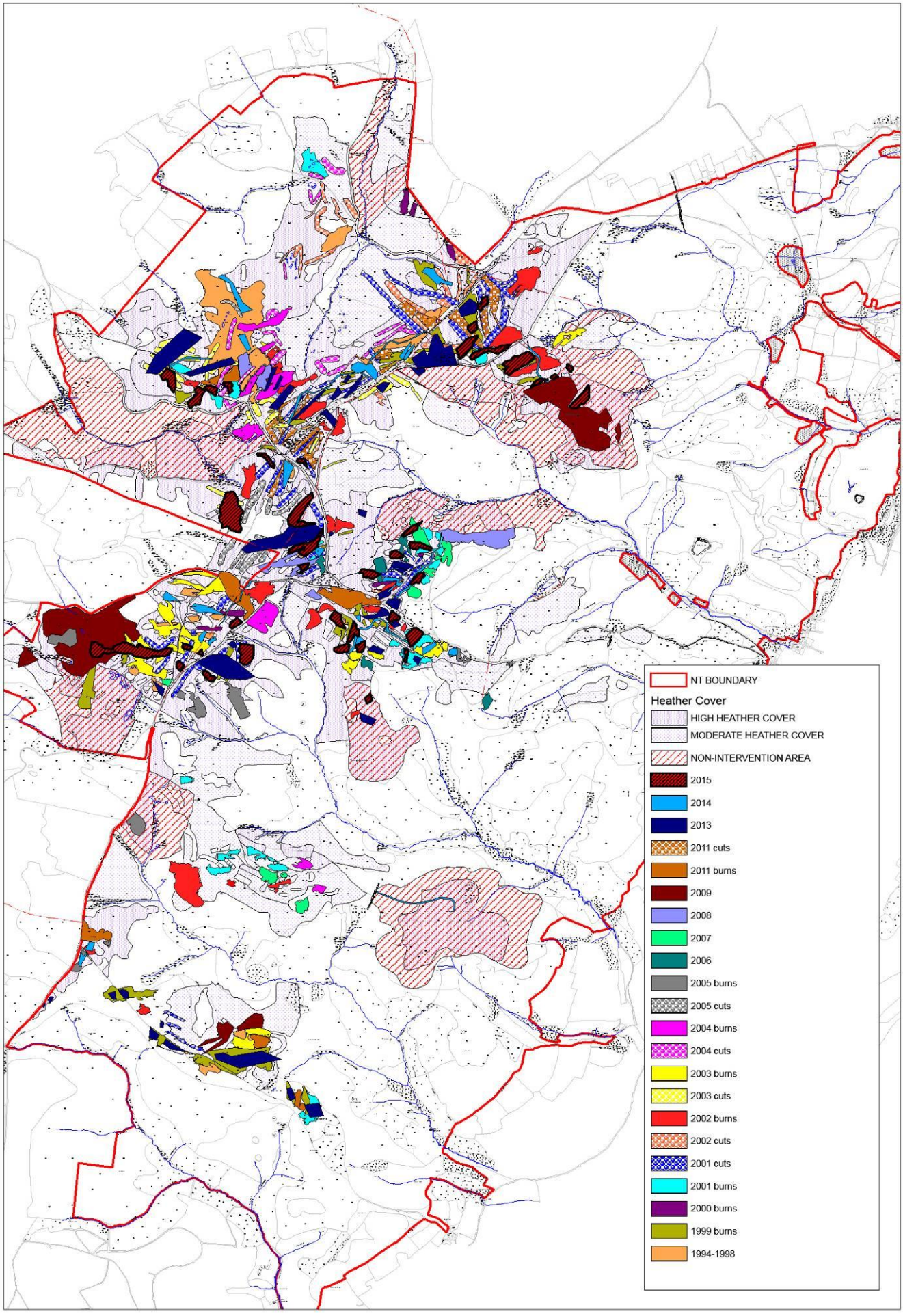
Map 9. Summary Map (with contours) – All Territories 2016



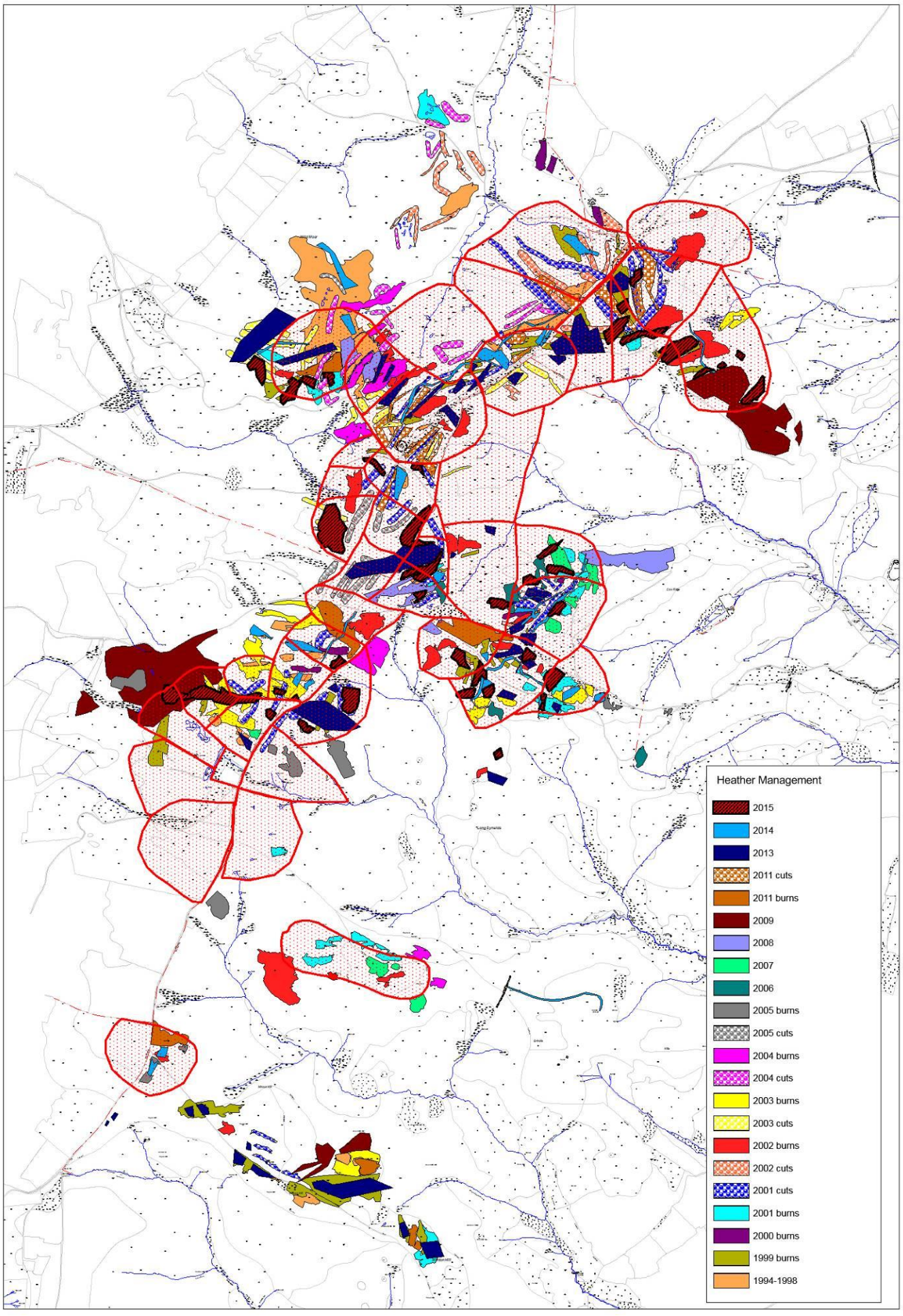
Map 10. Summary Map (with contours) – All Territories 2015



Map 11. Heather Management Areas 1994 - 2016



Map 12. Grouse Territories 2016 overlain on Heather Management Areas 1994-2016



Red Grouse Elsewhere in Shropshire

Apart from The Long Mynd, the only other established population of Red Grouse elsewhere in Shropshire is on The Stiperstones. Details of monitoring results there are shown in Annexe 2. The population in 2016 was estimated at 28-34 territorial males, compared to 35–37 in 2015, 33-38 in 2014, 18-21 in 2013, 18 in 2012 and 11 in 2011. 2014 was the first time more than 30 have been found since monitoring started in 1989. The total number of Grouse counted in August 2014, including fledged young, was the highest ever recorded, reaching over 100 for the first time, but in 2015 there were 58-75, significantly down from the previous year with no net recruitment This was probably due to wet weather through breeding season (other moors had similar poor years too). Conditions were better in 2016, and 78-91 were counted.

Red Grouse used to breed on Brown Clee (five pairs in 1989 - *Atlas 1992*), but none have done so there since the mid 1990s, and there are none there currently (information from the Game Keeper in 2011, via Gareth Thomas, *pers.comm*.). They have also bred on Heath Mynd in the past, but attempts to reintroduce them there have not been successful (Neil Wainwright, *pers.comm*.). The Bird Atlas survey 2007-13 found no Red Grouse during the breeding season anywhere other than on the Long Mynd and the Stiperstones, but during the winter period two were seen on Heath Mynd (in December 2008), as well as on the Long Mynd and the Stiperstones.

Other Species

Participants also recorded Curlew, Peregrine, Hobby, Merlin, Kestrel, Red Kite, Buzzard, Snipe, Short-eared Owl, Whinchat, Cuckoo, Grasshopper Warbler, Raven and Reed Bunting, as well as several other more common species.

Acknowledgements and Distribution

Most importantly, thanks to the 64 individuals who participated in the Project, and submitted survey maps:

John Arnfield
Lois Baker
Sam Bishop
Pete & Chrys Bonds
Lesley Brown
Simon Brown
John Burns
Sandy Burton
Jeremy Charlton
Chris Cooke
Judith Darling
Steve Darling
Sylvia Davidson
Malcolm Dixon
Mike Flavell
Bernard & Jane Ford
Greg & Sue Forster
Katy Foxford
Jeremy Freeland
Julian French
Dennis Greig
Helen Griffiths
Richard Halahan
Heather & John Hathaway
Frank Hinde
Pat Holbourn-Williams
David Holmes
Ruth Holmes
Peter & Jane Howsam
Peter Jackson
Abbi Knight
John Knowles
Jaclyn Lake
Lillie Lockwood
Edward Marvin
Helen Mayoh
Anna McCann
Rory McCann
Nigel McDonald
Stephen & Margaret Mitchell
Ron Parnell
Adrian Penney
Ray Philpotts
Kate Price
David Redford
Christopher Skeate
Leo Smith
Tony & Jo Stanley
Geoff Taylor
Lorna Taylor
Mate Vakarcs
Jennifer Vine
Tom Wall
Sandra & Peter Whitlock
Heather Williams

Thanks particularly to Kate Price, National Trust Assistant Ranger, for helping organise the survey, especially for allocating the observers to watchpoints for each count.

Thanks also to Caroline Uff, former National Trust Ecologist at Long Mynd, for providing the results of previous monitoring of Red Grouse on The Long Mynd, information about the Heather Management policy, and the maps up to 2014 from the Trust's GIS system, and Andrew Perry, the current ecologist, for the 2015 and 2016 maps and data.

Data in Annexe 2 has been provided by Simon Cooter, Stiperstones NNR Site Manager

The photograph on the cover is © Jenny Steel. Thanks to her for permission to use it.

An Electronic version (.pdf format) of this Report has been supplied to all the participants. A paper copy has been supplied to the National Trust, together with all the fieldwork observations and analysis.

The report can be viewed on, or downloaded from, the Strettons Area section of the Shropshire Community Wildlife Groups website, www.ShropsCWGs.org.uk

Summary and Conclusion

The total estimated population of Red Grouse in Shropshire in 2016 is therefore at least 70 territorial males (compared to at least 92-94 in 2015, 89 – 96 in 2014, 70 – 75 in 2013 and 81 - 84 in 2012), of which around two-thirds are on The Long Mynd.

It is likely that the Long Mynd estimate of 42 is too low, as counts in 2016 were depressed by bad weather on some counts.

It appears that the heather management being carried out by the National Trust is continuing to benefit Red Grouse, although the population growth has tailed off.

Leo Smith
Long Mynd Breeding Bird Project
February 2016

Appendix 1. Project Recruiting Leaflet (size reduced)

Strettons Area Community Wildlife Group

National Trust

www.shropshirebirds.com

Red Grouse Survey 2016

Introduction

For the last five years, the Red Grouse population on the Long Mynd has been counted by the co-ordinated efforts of volunteers at dusk on several evenings between late March and early May. Volunteers have included participants on the National Trust *Introduction to Bird Watching* courses, members of the local SOS, SWT and RSPB groups, National Trust Volunteers, members of the Strettons Area Community Wildlife Group, and other people interested in birds. Last year there were over 60 volunteers, and we need the same again this year.

The Strettons Area Community Wildlife Group is leading the project. We want to recruit as many helpers as possible for the 2016 survey. It's easy to do, and new participants will be very welcome. Counts will be held on six successive Thursdays in April and early May. Additional dates will be arranged on other days of the week, so please sign up even if Thursdays are inconvenient. Participants do not need to come to every count. Please come to as many as you can.

Method

Pairs are secretive in the breeding season, and stay in the deep heather, so they are difficult to count. However, territorial males display around sunset. Most territories are within sight and hearing distance of the road along the top, between the Gliding Station and the Shooting Box car park. The display flight is noisy, conspicuous and unmistakeable, and can be observed over long distances, so this is a suitable project for anyone interested in birds or conservation. No special knowledge or skills are needed. A full briefing, and training for anyone that wants it, will be provided

A number of Watch Points on or near the road are marked on large scale Ordnance Survey maps. Each participant will be allocated a Watch Point, and go to it around one and a half hours before sunset, and stay there until about 15 minutes after sunset. The location and activity of all Grouse seen or heard will be marked on a map (recording instructions and a map will be provided). A population estimate can be made by collating all the observations.

The methodology is very straightforward, and will be explained at the Briefing Meeting for new participants. In addition, if you want you can have "on the job" training on the first survey date you can attend, rather than go to a Watch Point on your own. A Briefing Note for all Participants will be distributed to everyone beforehand.

Project Briefing & Methodology
7.30pm – 8.30pm Thursday 24th March 2016
Carding Mill Valley Tea Room (Refreshments provided)

Planned Count Dates (Thursdays). Please be at your Watchpoint by the start time
Sunset is about 7.45pm on the first date, and gets later by 15 minutes per week

- 6.15pm, 31st March
- 6.30pm, 7th April
- 6.45pm, 14th April
- 7.00pm, 21st April
- 7.10pm, 28th April
- 7.20pm, 5th May

Surveys will be held on other days of the week in mid – late April, so even if Thursdays are difficult for you, please join in – you will still be able to help.

Watch Point allocations for each date will be sent to participants by email the day before. Wherever possible, participants should go straight to their Watch Point. Alternatively, you can meet at Pole Cottage Car Park (OS Grid Reference SO413937) on the first evening at the stated Start Time, to collect paperwork (if you don't use email) or receive training. After the first survey date it will only be possible to meet at Pole Cottage by prior arrangement.

People who want a lift up should meet at the car park in Carding Mill Valley just before the Tea Room half an hour earlier. N.B. Lifts must be booked in advance. Arrangements for doing this will be announced at the Briefing, and emailed to other participants.

Participant Form

So we can plan, every participant will be asked at the briefing to complete a form, indicating which of the Count dates you can attend, watchpoint preferences, and contact details. People who have helped before, and who do not wish to attend the briefing, can download the form from the Community Wildlife Group website, http://www.shropscwgs.org.uk/sample-page/strettons-area-community-wildlife-group/ Anyone can also request a form by email. All forms must be returned no later than Friday 25th March.

Weather Warning

It can get very cold or wet, so please bring plenty of warm and weatherproof clothing.

Why Count Red Grouse?

The Long Mynd holds most of the Shropshire population. Many years ago, numbers were considerably higher than they are now, but suffered a substantial decline. They now appear to be recovering as a result of the heather management carried out by the National Trust. This project helps the Trust assess the effectiveness of the management by providing annual population estimates, and a population trend. Therefore it is hoped to repeat the project each year.

Adding the result to The Stiperstones counts gives an estimate of the total Shropshire population.

Red Grouse was added to the *Amber List* of *Birds of Conservation Concern* in the 2009 review, as the population is dwindling across the Country as a whole. The Shropshire population is the most southerly in England, apart from a few on Dartmoor. The Exmoor population has recently died out. Monitoring the population is therefore important nationally as well as locally.

The usual survey method involves mapping territorial displaying males on several dawn visits in spring, and analysing the comparative results (the "Territory Mapping Method"). The Long Mynd is a large area, and the National Trust had difficulty organising three dawn counts between December and February each year (poor weather, and not enough helpers). This project method produced better results than the previous NT dawn counts in 2011, so it has replaced them.

A copy of the 2015 Survey Report will be supplied to everyone who participated last year. New participants will be able to download it from the Community Wildlife Group website, www.ShropsCWGs.org.uk. Previous reports since 2012 are also available on the website.

Other Bird Species

In previous years, some participants have been lucky enough to see or hear Hobby, Merlin, Peregrine, Hen Harrier, Red Kite, Short-eared Owl, Curlew, Snipe, Golden Plover, Cuckoo, Stonechat, Grasshopper Warbler and Reed Bunting. As an optional extra, participants are requested to record any Curlew, Snipe or Grasshopper Warbler seen or heard, if possible.

Bird monitoring on the Long Mynd

The project will be part of the bird monitoring on the Long Mynd carried out for the National Trust as part of their Environmental Stewardship Higher Level Scheme Agreement with Natural England, which is co-ordinated by *Leo Smith Ornithological Surveys and Consultancy*

Further Information

(up until end February, and from 28 March)
Kate Price (National Trust Assistant Ranger)
07972 115725
kate.price@nationaltrust.org.uk

Between these dates
Pete Carty (National Trust Manager)
07824 514564
Peter.Carty@nationaltrust.org.uk

Leo Smith
February 2016

Appendix 2. Project Briefing 2016

Strettons Area Community Wildlife Group & Long Mynd Breeding Bird Project

Estimating the Red Grouse Population on the Long Mynd

Project Briefing 2016

Complete the Participant Details Sheet

Which dates can you come? (Absolutely necessary for our planning)
Are you willing to cover a Watch Point on a main footpath, or on the open heath, rather than on the road?

Training is available in the field, if you want it, on the first evening you are able to attend.

N.B. Mobile Phone Number is important, if you have one. We will give it out to other participants, partly so you can confer with adjacent observers, and partly for health and safety reasons.

We will endeavour to provide lifts from Carding Mill Valley to Pole Cottage for those that want them, but that is conditional on other people being willing to offer them. If you want a lift, or can offer lifts, please complete the relevant parts of the Participant Details form.

Observation Dates (All Thursdays) and times

Sunset is about 7.45pm on the first date, and gets later by 15 minutes per week. Start times are:-

- 6.15pm, 31st March
- 6.30pm, 7th April
- 6.45pm, 14th April
- 7.00pm, 21st April
- 7.10pm, 28th April
- 7.20pm, 5th May

Watch Points

The survey will be carried out by watching and listening from a series of pre-determined Watch Points. All Watch Points are marked on the survey map which will be issued to you. You will be allocated a Watch Point number on each evening you have told us you can come on the Participants Form. Watch Point numbers and survey Maps will be sent out by email by Wednesday afternoon. Go directly to your Watch Point by the Start Time for that date. Otherwise meet at Pole Cottage Car Park (OS Grid Reference SO413937) on the first date, or meet just east of the Carding Mill Valley Tea Room (by the staff car park) half an hour earlier if you've booked a lift up. N.B. Lifts must be booked in advance. See above. If you need to meet up to collect maps, etc, this will need to be by prior arrangement with Kate Price after the first evening.

The Watch Points have been selected to give a good field of view over places where Grouse have been recorded before. At some Watch Points, note the contour lines on the map around the Watch Point to determine the direction you should be looking. They are not necessarily at the highest point, as that may offer a poor field of view. Use your discretion on where to stand / patrol – maximise your field of view. Stepping up onto the bank next to the road / path may provide a much better view.

If there is a particular hot-spot of Grouse activity, you may wish to leave the Watch Point to investigate. Be careful on rough terrain!

You don't need to stand still for the whole period (you'll need to keep warm!), but please spend almost all of your survey time within 50 metres of the Point marked on the map.

If possible, stay at the Watch Point until 15 minutes after sunset (but make sure you can get back to your car in daylight, if you don't have a torch).

Change of Plans

If you've said you're coming, but find you can't, please leave a message with Kate Price 07972 115725
N.B. If you are allocated a Watch Point on any date, but you cannot get there, for whatever reason, please tell Kate Price the following day. 07972 115725 email kate.price@nationaltrust.org.uk
This is **essential** in planning subsequent surveys, as we aim to cover each Watch Point three times, and if you don't tell us your Watch Point wasn't covered, we'll assume that it has been.

Estimating Distance

It is important that your observations are mapped as accurately as possible. Use the features on the map (especially the contours) to determine locations. If you aren't familiar with the terrain, or estimating distances, you may want to pace out 100 metres before you start to help you to estimating distance

What to Record on the Site Visits

Name, Date & Watching Point Number
Start Time and Finish Time at Watch Point
Mark your observations on your Survey Map as accurately as possible, particularly the landing point at the end of the Display Flight. Number each observation.
Use the symbols below (they are all reproduced on the Fieldwork Record sheet).
The most useful observations are of two birds seen or heard concurrently. **Therefore using the dotted line, to distinguish two separate birds, is particularly important.**

Symbols to use on Map

M = male Red Grouse (seen - position certain)
P = pair of Red Grouse (seen - position certain)
? = Unseen Male calling in distance, position uncertain
D = Display flight
→ = Direction Of Flight
→ = Bird disappeared from view
—X = Landing Place
—D = Landing Place

Two males seen concurrently

(M:M) Territorial Aggression

M — M = Same bird moved (solid line)

M - - - M = Two different birds (dotted line)

Clearly identify observations that are definitely different Males

Put the Map and the Fieldwork Record Sheet on separate pieces of paper. Put Name and WP Number on both. Write neatly – if the observations are illegible, there's no point in sending them in!!!!

Different Males heard Simultaneously

You are more likely to hear two male birds than see them, as they display against each other. These calls are usually not simultaneous, but the second will be heard a minute or so after the first. **If it's not physically possible for a single bird to fly the distance between the two different locations in the time interval, or if you have a clear field of view of the ground between the two calls and no Grouse flew across it, mark the two calls as definitely different birds with the dotted line. Use your judgement.**

Liaison with Neighbour

Are any of your observations also on your neighbour's map, or not (use mobile phone for contact – enter result in comments column "Also recorded from WPx". Check that your neighbour's watch says the same time as yours does!!!).

Other Species – Optional Extra

If you can, please record any Curlew, Snipe, Red Kite Whinchat and Grasshopper Warbler you see or hear.

What to bring

Coloured pen (fine felt tip best) & clipboard / book to rest on
Watch & Mobile phone. NB Check the watch is accurate, or adjust the times you record so they are correct.
Very Warm, Windproof and Waterproof Clothing (it can get very cold)
Possibly a Torch, if you volunteer to leave the road
Possibly a compass, if you have one, to help map the direction of your observations

Inclement Weather

We won't be able to have last – minute cancellation arrangements but the weather forecast will checked the day before, and information will be sent out via the email list when possible (this will necessarily be last minute). Check your email before setting off. If it's misty, please come – Grouse call more in the mist!!! If it's raining hard, or it's very windy, and it's not going to change, don't come. If in doubt, turn up. If you don't turn up, let us know the next day.

Handing in Survey Maps

If you can, hand them in to Leo Smith or Kate Price before going home.
If not, either bring them next week, or post to Kate Price, Assistant Ranger, National Trust, Cardingmill Valley, Church Stretton SY6 6JG

Casual Records

If you are on Long Mynd any other time, and see 2 male Grouse displaying against each other, or a pair, please mark the locations on a Survey Map.
If it's on the same map as you use for your next Survey, mark the locations on that (but clearly record that observation was on a separate date). If you want more maps for such records, please ask

More Information

If in doubt, ask – Kate Price 07972 115725 email kate.price@nationaltrust.org.uk

Feedback - Project Report

By comparing the information on all the maps at the end of the survey period, plus casual records collected between now and July, we hope to be able to define the different territories, and count them. The results will be presented in a report which will be sent to all participants, probably early next year.

Repeat Next Year

Long term monitoring is important, so hopefully participants will join in again next year.

Leo Smith
March 2016

Appendix 3. Fieldwork Recording Sheet

Strettons Area Community Wildlife Group & Long Mynd Breeding Bird Project

RED GROUSE SURVEY 2016

Name _____ **Date** _____ **Watch Point Number** _____

Start Time _____ **Finish Time** _____ (At Watch Point)

Symbols to use on Map

M	**= male Red Grouse (seen - position certain)**	**Two males seen concurrently**	
P	**= pair of Red Grouse (seen - position certain)**		
?	**= Unseen Male calling in distance, position uncertain**	**M:M**	**Territorial Aggression**
D	**= Display flight**		
→	**= Direction Of Flight**	**M — M**	**= Same bird moved (solid line)**
→	**= Bird disappeared from view**		
→**X**	**= Landing Place**	**M - - - M**	**= Two different birds (dotted line)**
—**D**	**= Landing Place**		

Number each observation recorded on the Survey Map , using the Ref. No. below

Ref No.	Ref Time	OBSERVATION	COMMENTS (Clearly identify observations that are definitely different Males)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Summary **(Please summarise the records above - Number of Definitely Different Males and Probably Different Males. Group the observation numbers that you think are the same bird e.g. 1, 4 & 5 same bird, 2 & 3 same bird, different from 1. 6 is another different bird. 7 may be the same as 3. Total definitely 3, possibly 4 different males)**

Contact Number: Kate Price 07972 115725

Appendix 4. Fieldwork Recording – Summary

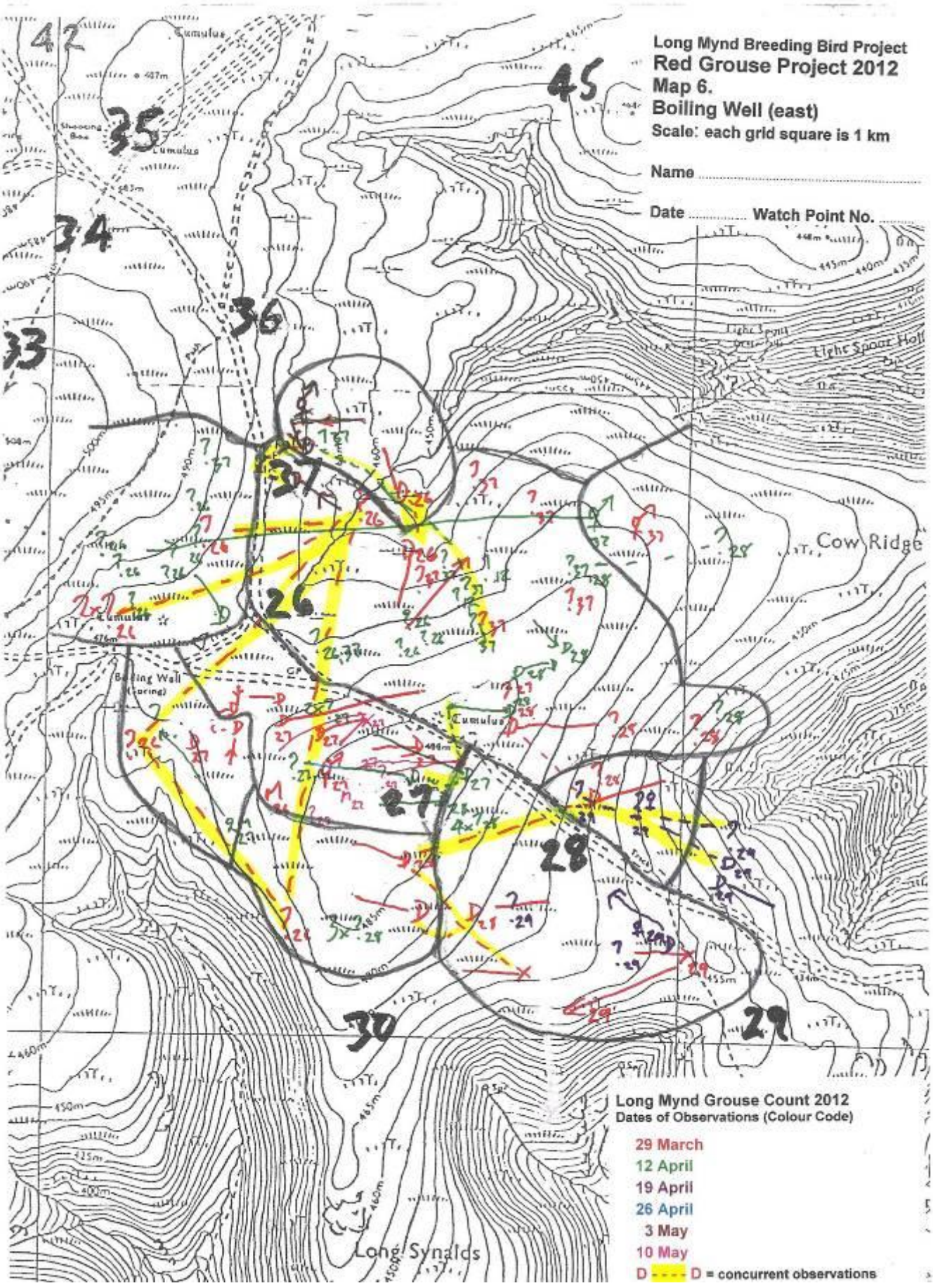
WP	31-Mar	19-Apr	21-Apr	03-May	05-May	12-May	17-May
1	Davidson		Jackson				
2	Arnfield		Davidson		Foxford		
3	Williams		Brown		Vine		
4	French		Burton		Knowles		
5	Redford		Darling		Lockwood		
6	Jackson				McCann, A		
7	Bonds		Flavell		McCann, R		
8	Freeland		Forster				
9	Holmes, R				McDonald		
10			Holbourn-Williams				
11	Forster		Holmes, D		Penney		
12					Wall		
13	Burton						
14	Knight		Price		Freeland		
15	Mitchell		Taylor, L		Hathaway		
16	Darling		Parnell		Greig		
17	Price					Williams	
18	Ford		Vine			French	
19	Hinde		Taylor, G			Mayoh	
20	Holbourn-Williams			Charlton		Philpotts	
21	Holmes, D			Darling		Lake	
22	Burns			Darling		Knight	
23	Whitlock			Bonds		Dixon	
24	Smith			Davidson		Smith	
25						Cooke	
26		Price		Dixon		Mitchell	
27	Penney			Taylor, G		Whitlock	
28				Holmes, D		Lockwood	
29	Skeate			Taylor, L			
30	Taylor, G			Vine		Ford	
31	Taylor, L			Williams		Bishop	
32	Vine			French		Baker	
33		Griffiths		Penney		Bonds	
34						McDonald	
35		Charlton		Smith			
36		Vakarcs				Howsam	
37		Williams		Griffiths		Darling	
38		French		McCann, A		Darling	
39						Taylor, L	
40		Smith			Davidson	Taylor, G	
41		McCann, A			Bonds	Vine	
42					Brown		
44		Redford			Lake	Griffiths	McCann, A
45		Howsam			Holmes, R	Holmes, D	
46		Penney			Knight	Marvin	Halahan
47		Stanley			Dixon		Lockwood
48		Taylor, G			Mitchell		Taylor, G
49		Taylor, L			Howsam		Taylor, L
50		Vine			Bishop		Darling
51		Holmes, D			Brown		Darling
52			Howsam		Williams		Williams
53			Williams		French		French
54			French		Taylor, G		Smith
55					Taylor, L		Mcdonald
56			Lake		Mayoh and Philpotts		
57			Bonds		Cooke		Arnfield
58			Freeland		Parnell		
59			Mdonald		Charlton		Vine
60			Knight				Greig
61							Charlton
62			Mitchell		Ford		
63			Griffiths		Griffiths		Holmes, D
64			Bishop		Forster		
65					Halahan		
66			Smith		Smith		
67			Charlton		Holmes, D		
68			Cooke		Knowles		

Appendix 5. Fieldwork Recording – All Observations

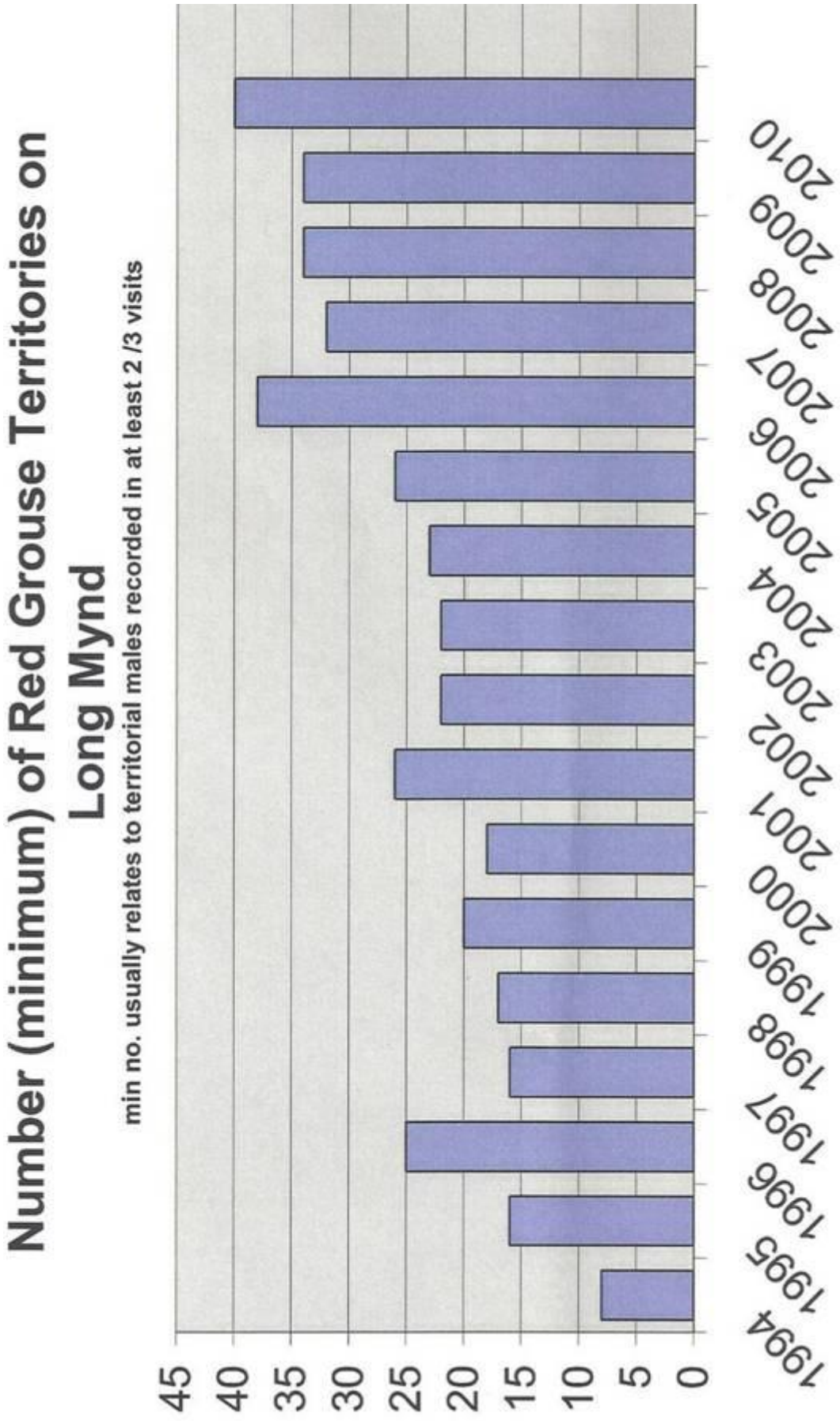
Watchpoint Number	Survey Dates							Totals		
	March	April		May				Counts	Records	Average
	31	19	21	3	5	12	17			
1	0		0					2	0	0.0
2	1		3		1			3	5	1.7
3	0		0		0			3	0	0.0
4	0		0		0			3	0	0.0
5	0		0		0			3	0	0.0
6	0				0			2	0	0.0
7	0		1		1			3	2	0.7
8	0		1					2	1	0.5
9	0				2			2	2	1.0
10			0					1	0	0.0
11	0		0		1			3	1	0.3
12					1			1	1	1.0
13	0							1	0	0.0
14	1		0		3			3	4	1.3
15	3		3		5			3	11	3.7
16	3		6		2			3	11	3.7
17	6					5		2	11	5.5
18	2		0			5		3	7	2.3
19	2		3			2		3	7	2.3
20	3			6		6		3	15	5.0
21	2			11		6		3	19	6.3
22	8			0		0		3	8	2.7
23	0			9		11		3	20	6.7
24	0			21		5		3	26	8.7
25						5		1	5	5.0
26		7		10		2		3	19	6.3
27	0			12		5		3	17	5.7
28				10		3		2	13	6.5
29	0			4				2	4	2.0
30	1			2		1		3	4	1.3
31	1			9		15		3	25	8.3
32	0			6		9		3	15	5.0
33		12		14		6		3	32	10.7
34						12		1	12	12.0
35		3		3				2	6	3.0
36		3				4		2	7	3.5
37		3		9		2		3	14	4.7
38		0		3		0		3	3	1.0
39						11		1	11	11.0
40		7			4	8		3	19	6.3
41		2			10	4		3	16	5.3
42					12			1	12	12.0
44		1			15	2	1	4	19	4.8
45		0			0	9		3	9	3.0
46		6			7	2	4	4	19	0.0
47		2			12		1	3	15	5.0
48		6			7		1	3	14	4.7
49		10			13		1	3	24	8.0
50		2			12		0	3	14	4.7
51		1			0		0	3	1	0.3
52			0		5		1	3	6	2.0
53			2		4		2	3	8	2.7
54			6		17		0	3	23	7.7
55					22		0	2	22	11.0
56			4		7			2	11	5.5
57			3		6		1	3	10	3.3
58			0		12			2	12	6.0
59			5		4		0	3	9	3.0
60			0				0	2	0	0.0
61							0	1	0	0.0
62			0		0			2	0	0.0
63			0		2		0	3	2	0.7
64			0		5			2	5	2.5
65					4			1	4	4.0
66			2		7			2	9	4.5
67			3		9			2	12	6.0
68			0		4			2	4	2.0
Total Counts	27	16	28	16	38	26	16	167		
Counts of Zero	15	2	15	1	7	2	8	50		
Total Grouse Records	33	65	42	129	216	140	12		637	
Average Records / Count	1.2	4.1	1.5	8.1	5.7	5.4	0.8			3.8

Note. Watchpoint number 43 was not used on any Survey Map

Appendix 6. Sample Master Map, showing all Fieldwork Observations



Annexe 1. Results of National Trust Dawn Counts on The Long Mynd



Annexe 2. Results of Natural England Monitoring on The Stiperstones

Natural England do two counts each year.

The first, mapping calling males at dawn in Spring, is similar to the monitoring previously carried out up until 2011 by the National Trust on The Long Mynd.

The second count involves several volunteers dragging a rope across the heather at the end of the breeding season, usually in August, but sometimes in September. Most of the Grouse habitat is covered, and the same area is covered each year. All flushed birds are counted, and the number of recently fledged young within the total are estimated. This provides an indication of breeding success.

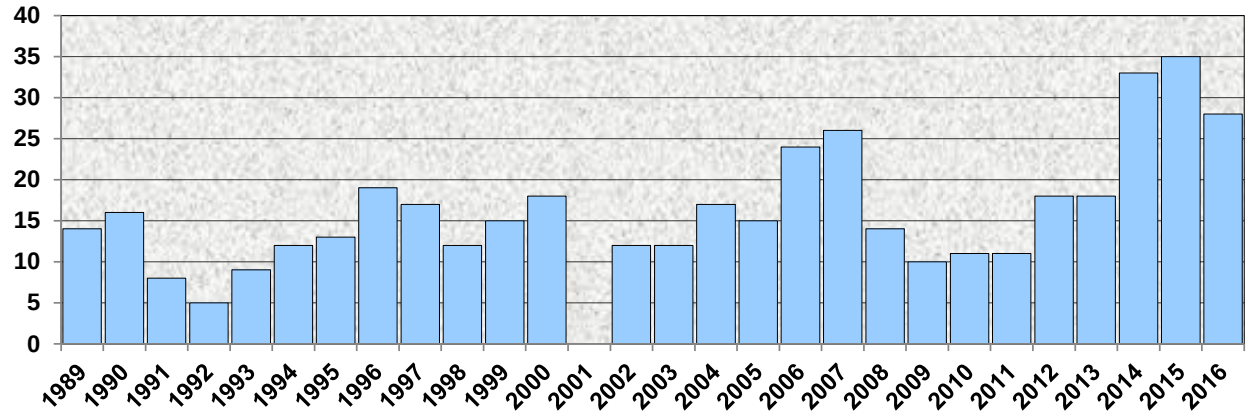
2013 was the best year for Grouse on the Stiperstones for 20 years, when English Nature first started monitoring. 2014 was better still, and the first time that over 100 have been counted in August.

In 2015, Between 35 and 37 territorial males were counted in spring, slightly higher than 2014. More might have been expected, given the good August count in 2014. In August, there were 58-75, significantly down from the previous two years with no net recruitment. This was probably due to wet weather through the breeding season (other moors had similar poor years).

Numbers in August 2016 improved, and 78 -91 were counted.

The charts show the results of these counts from when they were first started. The figures are the minimum in the counts, in years where a range was estimated

Minimum Spring Count (Calling Males at Dawn)



Minimum Summer/Autumn count (Whole Population)