



Glen Fruin Blairnairn

Breeding Bird Survey & Black Grouse Survey

Produced for RDS Forestry

By Applied Ecology Ltd

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1 Introduction

Background

- 1.1 In January 2022, Applied Ecology Ltd (AEL) was commissioned by RDS Forestry Ltd to carry out breeding bird and black grouse surveys of land at Blairnairn, Glen Fruin ("the Site"), east of Gareloch in Argyll and Bute. A plan showing the location of the Site is provided in **Figure 1.1**.
- 1.2 The study was required in order to establish the nature of the breeding bird assemblage at the Site so as to inform afforestation proposals ("the Development"). In particular there was a need to determine whether or not birds of nature conservation importance were nesting within the Site, and if so, how this could be accommodated in the design and execution of the Development.

Purpose of this report

- 1.3 This report provides details of black grouse and breeding bird surveys undertaken at the Site between April and July 2022. It includes a description of the survey methodologies adopted, and a summary of the findings. Recommendations for the design of the Development and precautionary actions to be taken during tree planting are also included, where these were considered relevant.

Report qualification

- 1.4 The surveys described here were undertaken in accordance with the best practice methodologies current at the time of commissioning. Site circumstances, scientific knowledge or methodological requirements can change during the course of a project, and these external factors may impact on the scope of subsequent work requirements.
- 1.5 All survey work and reporting were undertaken by experienced and qualified ecologists in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management (CIEEM) and BS 42020:2013 (Biodiversity).
- 1.6 All ecological surveys have an expected validity period, owing to the tendency of the natural environment to change over time. This validity period varies from feature to feature, and is also dependent on the degree of change in a site's management and overall landscape ecology. Where the potential for change is considered to be relevant to the Site, this is highlighted in the appropriate section.
- 1.7 This report does not purport to provide detailed, specialist legal advice. Where legislation is referenced, the reader should consult the original legal text, and/or the advice of a qualified environmental lawyer.



Glen Fruin Blairnairn

Site Location

 Site boundary

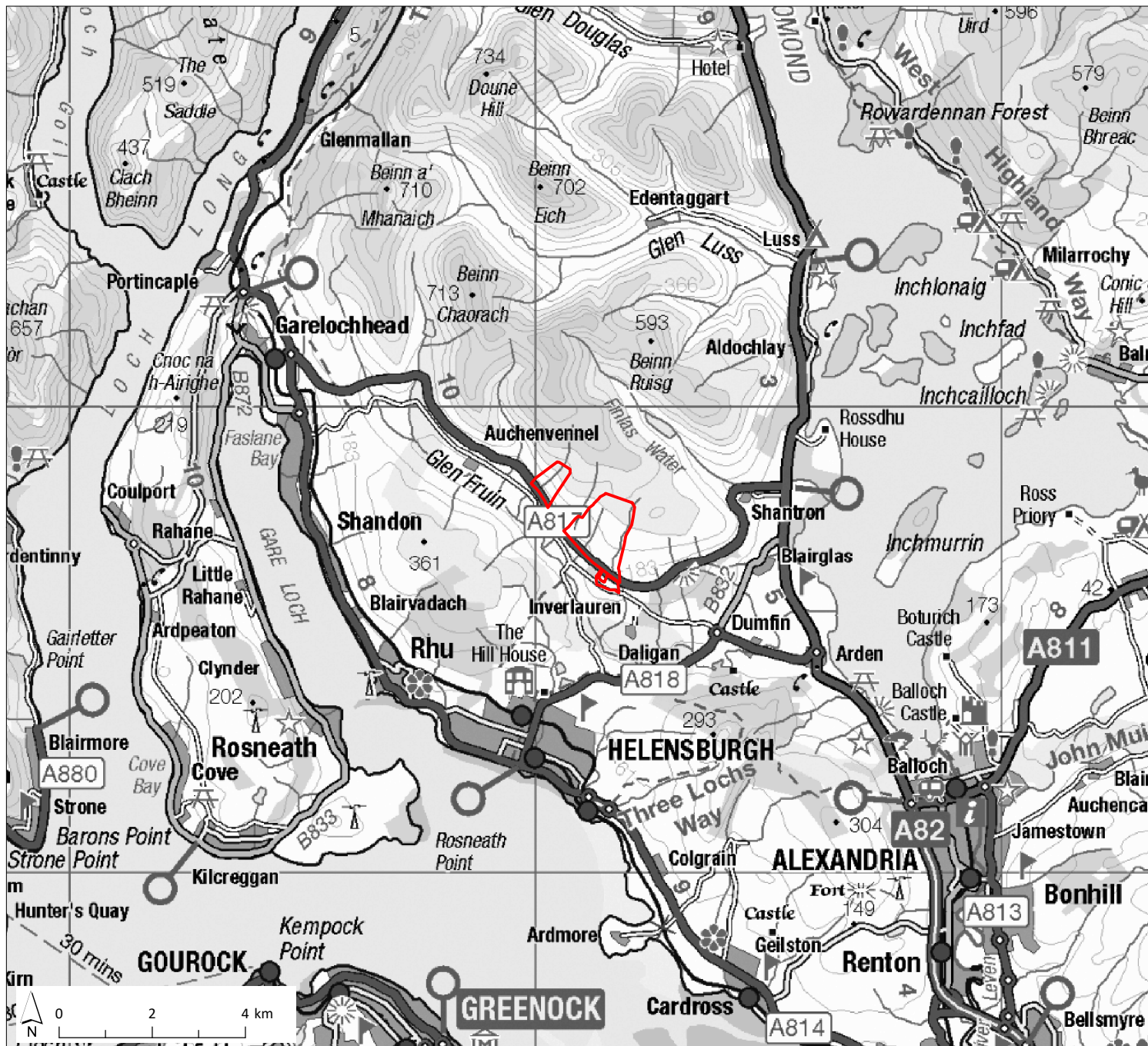


Figure 1.1

Map Scale @ A4: 1:125,000

Surveyed by: -

Survey date: -

Drawn by: RAH

Checked by: KD

Status: Final



Applied Ecology Ltd

2 Breeding Bird Survey

Methodology

- 2.1 The breeding bird surveys followed the standard SNH (Scottish Natural Heritage – as was)¹ method for upland waders devised by Brown and Shepherd (1993)², amended in 2014 to include the recommendations made by Calladine *et al.*³. The area included in the survey comprised the Site and a buffer up to 500 m around it (“the Study Area” - see **Figure 2.1**), in order to accommodate the potential presence of breeding scarce raptors such as hen harrier, and to provide context for the results for the Site itself.
- 2.2 The survey was repeated on four occasions between mid-April and mid-July 2022, and each visit comprised two or three survey days due to the size of the Study Area. The survey dates were:
 - 14 and 22 April 2022;
 - 07, 12 and 14 May 2022;
 - 07, 09 and 12 June 2022; and
 - 01, 04 and 05 July 2022.
- 2.3 The duration of visits ranged from 3-5 hrs.
- 2.4 Each 1 x 1 km square comprising the Study Area was divided into four 500 m x 500 m squares and the surveyor spent 20-25 mins recording birds in each of these, so that all land in the Study Area was covered to within 100 m with a standardised survey effort.
- 2.5 Where similar open or moorland habitats existed beyond the Site boundary, the Study Area was extended to include a 500 m buffer, but non-moorland habitats such as improved grassland and human habitation were not surveyed. Woodland habitats within the Study Area, such strips of trees along road verges and woodland in gullies, were surveyed but mature coniferous woodland blocks were not. The latter would have required an alternative survey technique and it was considered unlikely that these habitats would be affected by the Development.
- 2.6 The surveys were carried out during daylight hours, with emphasis on early morning and evening visits. Conditions such as strong winds, heavy rain, fog and low cloud were avoided where practicable to do so (see **Appendix B**). Walking, listening and scanning by eye and with binoculars were the primary methods used to locate birds, and particular attention was given to any topographical or vegetation features likely to influence bird distribution.
- 2.7 Birds were considered to be breeding if they were observed singing, displaying, carrying nest material, if nests or young were found, or evidence recorded of repeatedly alarmed adults, disturbance displaying, birds carrying food or birds in territorial dispute. All birds

¹ SNH is now known as NatureScot.

² Brown, A.F. and Shepherd, K.B. (1993) A Method for Censusing Upland Breeding Waders, *Bird Study*, **40(1)** pp89-195.

³ Calladine, J., Garner, G., Wernham, C. and Thiel, A. (2009) The influence of survey frequency on population estimates of moorland breeding birds, *Bird Study* **56:3**, pp381-88.



encountered were recorded on a field map using the standard BTO activity codes⁴. All species using the Site were recorded but some high-flying birds such as gulls were omitted.

- 2.8 After all of the visits had been completed, the field data were collated and digitised within a Geographical Information System (GIS). Their evaluation was based on analysis of species number, distribution and their allocated conservation status (e.g. according Stanbury *et al.*, 2021⁵). Where possible, maps were produced of species distribution across the Study Area.

Potential limitations of the breeding bird survey

- 2.9 Access permissions were granted for the whole of the Site, but the topography of the two cleuchs which ran through the Site and wider Study Area made accessing some parts difficult. This included steep areas of clear-fell. However, all parts could be approached close enough to detect audibly any bird species present.
- 2.10 In addition, herds of young cattle, and cows with calves, were free-ranging across parts of the Study Area, preventing direct access to that ground. Therefore, some areas were only visually scanned on some visits, from a distance greater than 100 m.
- 2.11 These limitations primarily affected the 500 m buffer area rather than the Site itself and were not considered significant enough to have affected the overall conclusions which were drawn from the survey results.

Results

- 2.12 Key locations within the Study Area for birds during the breeding season are summarised in a “heatmap” shown in **Figure 2.2**, and a summary of all species recorded is provided in **Appendix C**. Maps of Red- and Amber-listed Birds of Conservation Concern (BoCC - categorised according to Stanbury *et al.*, 2021) are shown in **Figures 2.3** and **2.4** respectively (see also **Appendix D** which provides a summary of the legal protection and conservation status of the species recorded). Raptors are shown in **Figure 2.5**, and grouse and waders in **Figure 2.6**. Meadow pipit and skylark, which were numerous and ubiquitous across the Site, are shown separately in **Figure 2.7** to avoid obliterating other important data.

Distribution of birds at Blairnairn

- 2.13 **Figure 2.2** shows that there were several key areas for bird activity at Blairnairn, but these were mainly outwith the Site. Three of these areas corresponded with the parts of the Study Area at higher elevations, especially in the north. Other areas of greater bird activity occurred in the southern and lower parts of the Site and wider Study Area, often quite close to the public roads. Most of the upper section of the eastern Site had a very low level of bird activity, while the western area had moderately high levels.

⁴ Due to the high number of post-breeding meadow pipits present during July, only individuals of that species still showing signs of breeding were recorded on that month's visit.

⁵ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.



Species assemblage

- 2.14 A summary of the number of bird species of conservation concern recorded at the Site is provided in **Table 2.1**. Of the 41 species recorded during the surveys, over 60 % were either Red- or Amber-listed species of conservation concern, and 17 of these species bred within the Site, comprising over 90 % of the breeding territories.

Table 2.1: Summary of breeding bird data by BoCC status.

BoCC status	Number of species	% of species	Breeding species		Breeding territories	
			Confirmed	% species	Confirmed	% territories
Red	13	31.7	9	39.1	123	36.2
Amber	13	31.7	8	34.8	187	55.1
Green	14	34.2	6	26.1	30	8.7
N/a	1	2.4	0	0.0	0	0.0
Total	41	100.0	23	100.0	340	100.0

- 2.15 Despite this relatively high proportion of species of conservation concern, the Study Area overall would still be considered as supporting a typical assemblage of upland and moorland birds, including **meadow pipit**, **skylark**, **wheatear**, **whinchat**, **stonechat** and **cuckoo**. Other smaller birds often associated with open and moorland habitats, such as **reed bunting**, and **grasshopper warbler**, were also widespread across the Study Area.
- 2.16 With regards to larger moorland species, corvids, namely **carriion crow** and **raven** were frequently recorded, the latter on the higher parts of the Study Area. However, only two **red grouse** were recorded (although one of these, in the north-east corner of the Study Area, was a female whose behaviour indicated she had young) and comparatively speaking the Study Area held few pairs of waders. Three **snipe** territories were located, and these were the only wader species that bred in the main Study Area. Two **curlew** were heard singing (see **Figure 2.6**), indicating the presence of birds on territory, but these were on the edge of the Study Area and were associated with the adjacent farmland habitats. Similarly, two displaying **lapwing**, and what was likely to be a family group of this species, were present at the edge of the farmland habitat.
- 2.17 The existing woodland and scrub areas within the Study Area contained a typical assemblage of woodland birds including **willow warbler**, **robin**, **wren**, **dunnock** and **chaffinch**. Areas of gorse and scrub also held **linnet**, **redpoll**, and **goldfinch**, and this variety of habitats increased the species diversity recorded for the Site.
- 2.18 There were few sightings of raptors other than **common buzzard** which were seen on every visit. There was a single sighting of a female **hen harrier** hunting along the ridge within the wider Study Area in July. On the same survey day, a male **peregrine** was seen hunting over the eastern part of the Site. Also in July, there was a single sighting of a male **kestrel** at the northern edge of the Study Area. A single sighting of a male **sparrowhawk** carrying prey suggested that this species had bred in one of the un-surveyed forest blocks. There were three *ad hoc* sightings of **barn owl** within the Study Area; these were made when arriving before dawn for black grouse surveys (see **Chapter 3**).






- 2.19 The Study Area was used by a number of other non-breeding bird species for feeding. These included **rook**, **swallow** and **swift**. Although over-flying gull species were generally not included in the results, one flock of 20 **common gulls** fed on insects in a grassy area in the centre of the Study Area on one occasion, leading to one of the hotspots of activity highlighted in **Figure 2.2**.



Glen Fruin Blairnairn

Breeding Bird Survey Study Area

-  Site boundary
-  Breeding bird survey Study Area
-  BBS study squares

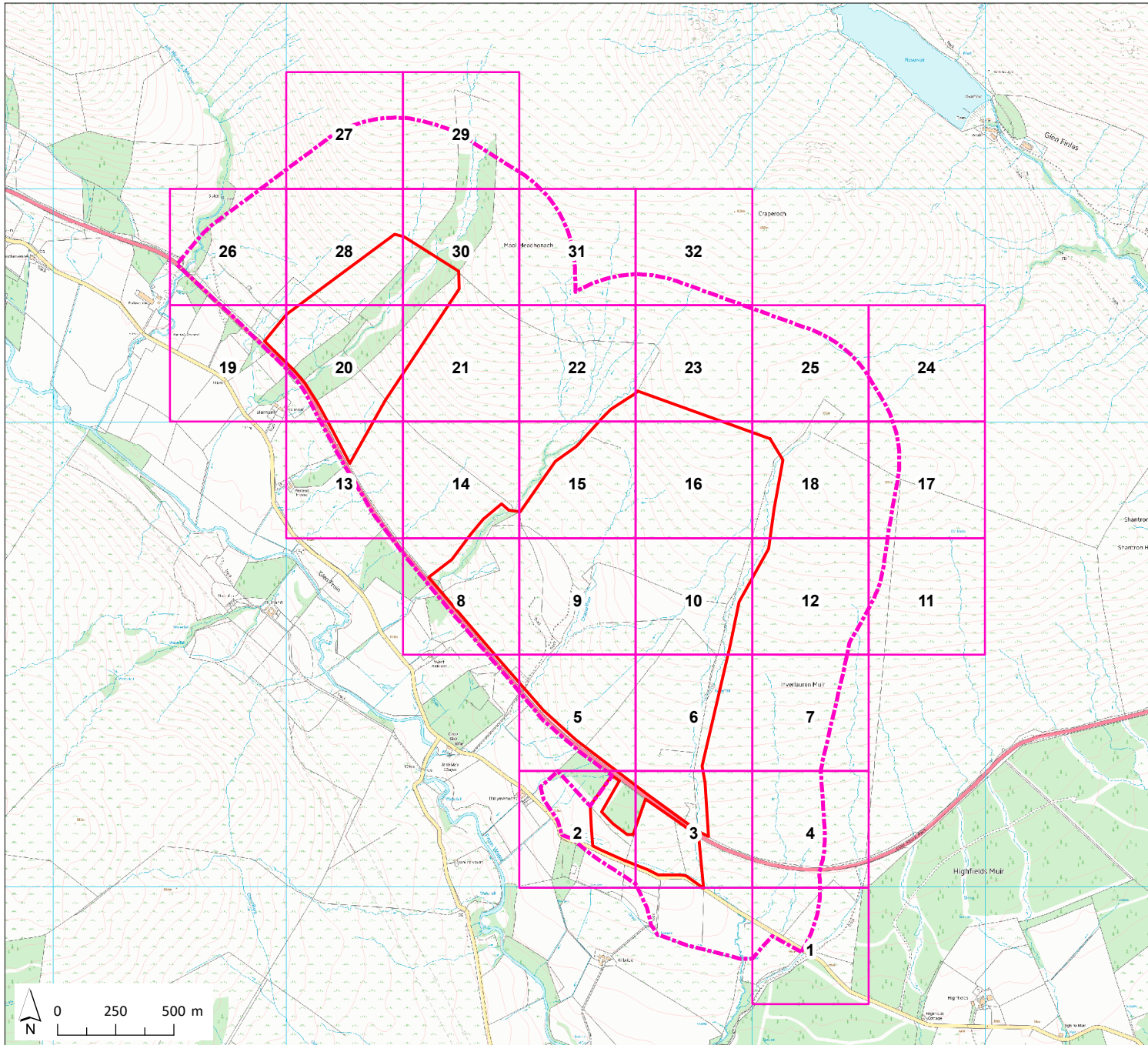



Figure 2.1

Map Scale @ A4: 1:25,000

Surveyed by: KD	
Survey date: April-July 2022	
Drawn by: RAH	
Checked by: KD	
Status: Final	

Glen Fruin Blairnairn

Key Areas During the Breeding Bird Season (Heatmap)

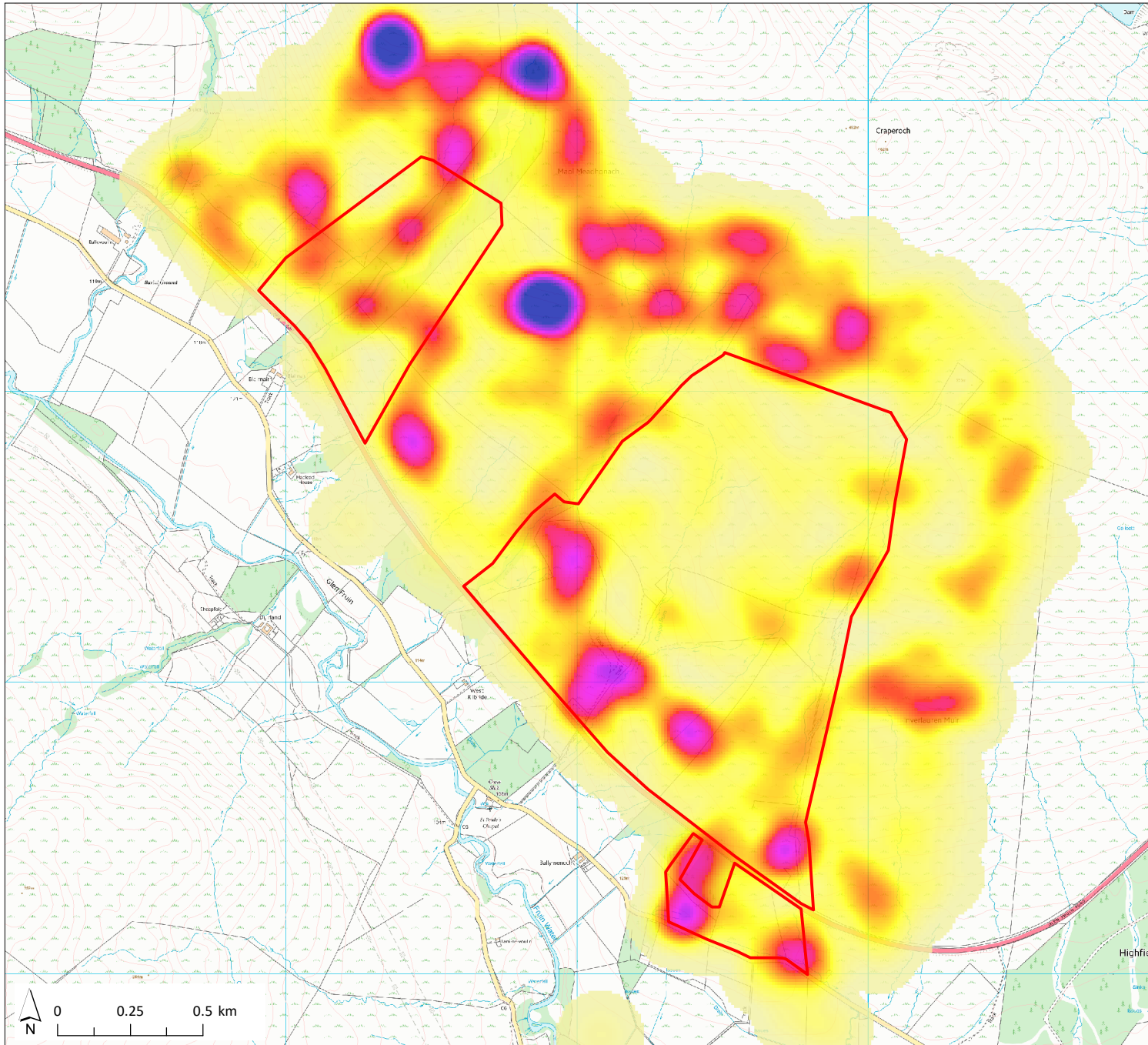
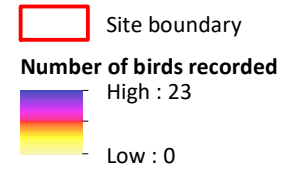


Figure 2.2

Map Scale @ A4: 1:20,000

Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



Glen Fruin Blairnairn

Red-Listed BoCC, Excluding Skylark, Grouse, Raptors and Waders

 Site boundary

Red-listed species:

-  Cuckoo
-  Grasshopper warbler
-  Lesser redpoll
-  Linnet
-  Mistle thrush
-  Swift
-  Tree pipit
-  Whinchat

Figure 2.3

Map Scale @ A4: 1:20,000

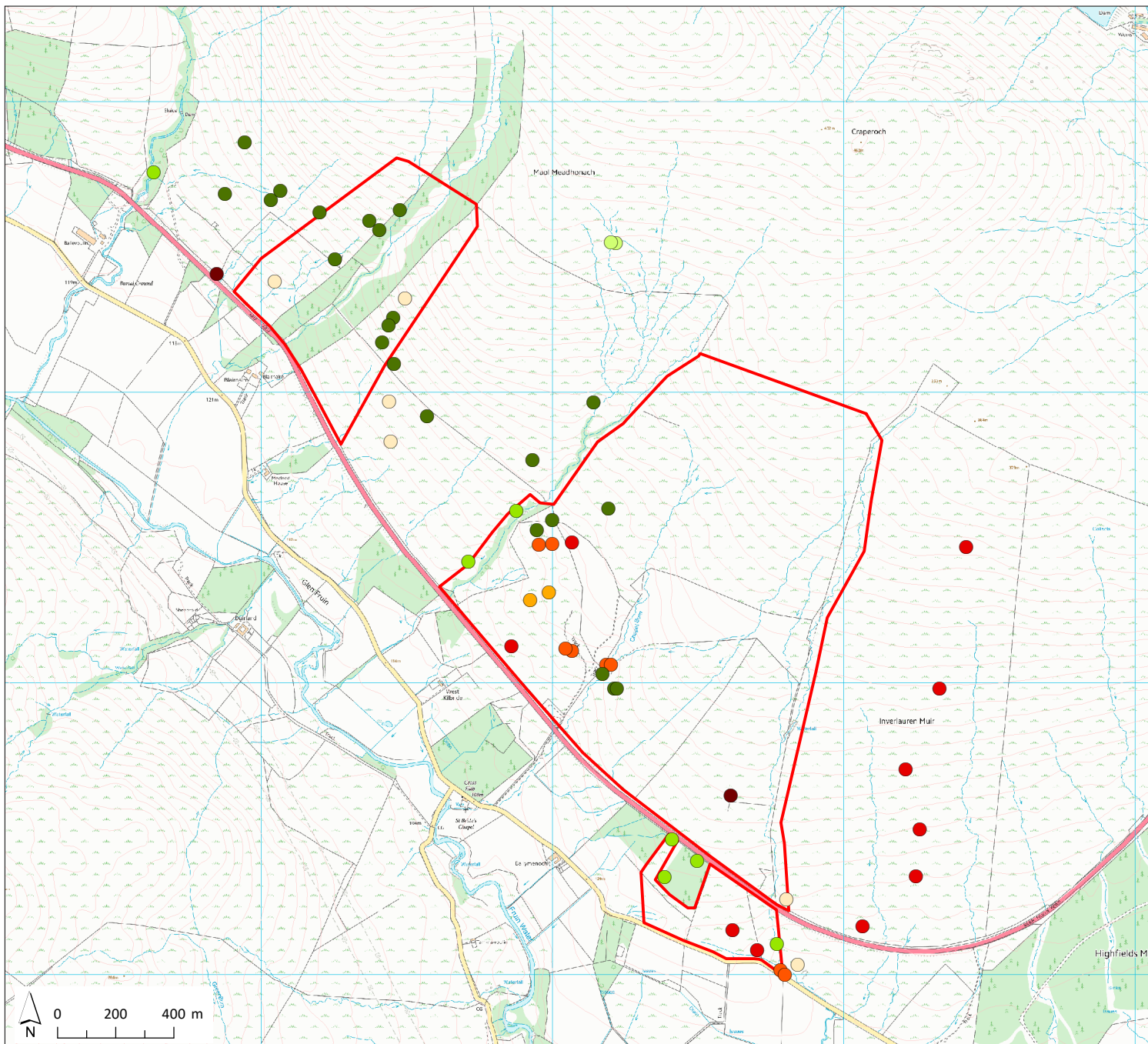
Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



Glen Fruin Blairnairn

Amber-Listed BoCC Excluding Meadow Pipit and Raptors

 Site boundary

Amber-listed species:

-  Common gull
-  Dunnock
-  Grey wagtail
-  Reed bunting
-  Wheatear
-  Willow warbler
-  Wren

Figure 2.4

Map Scale @ A4: 1:20,000

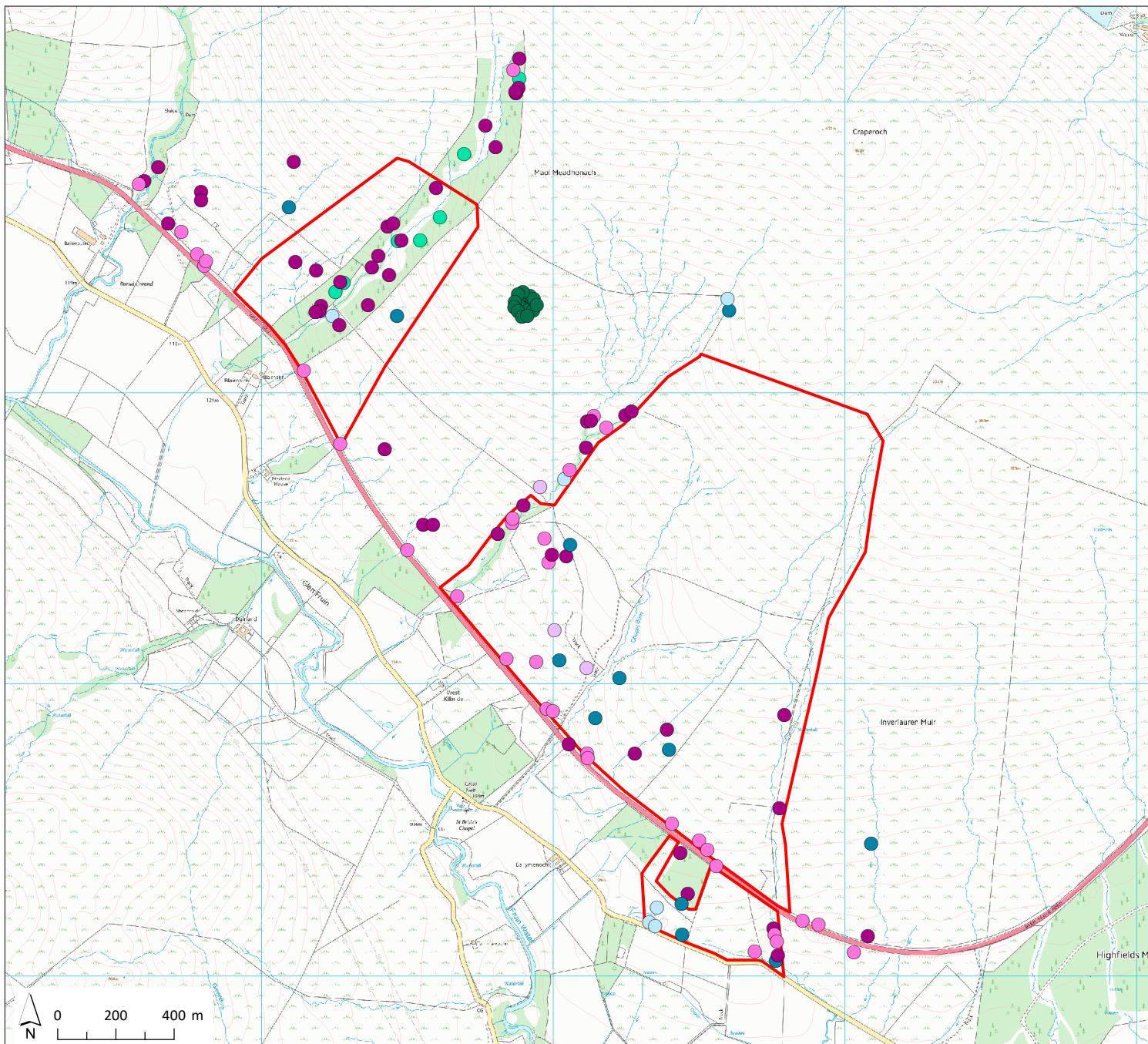
Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



Glen Fruin Blairnairn

Raptors (Excluding Common Buzzard)

 Site boundary

Raptors:

-  Hen harrier
-  Peregrine
-  Kestrel
-  Sparrowhawk

Figure 2.5

Map Scale @ A4: 1:20,000

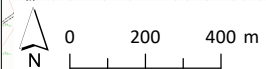
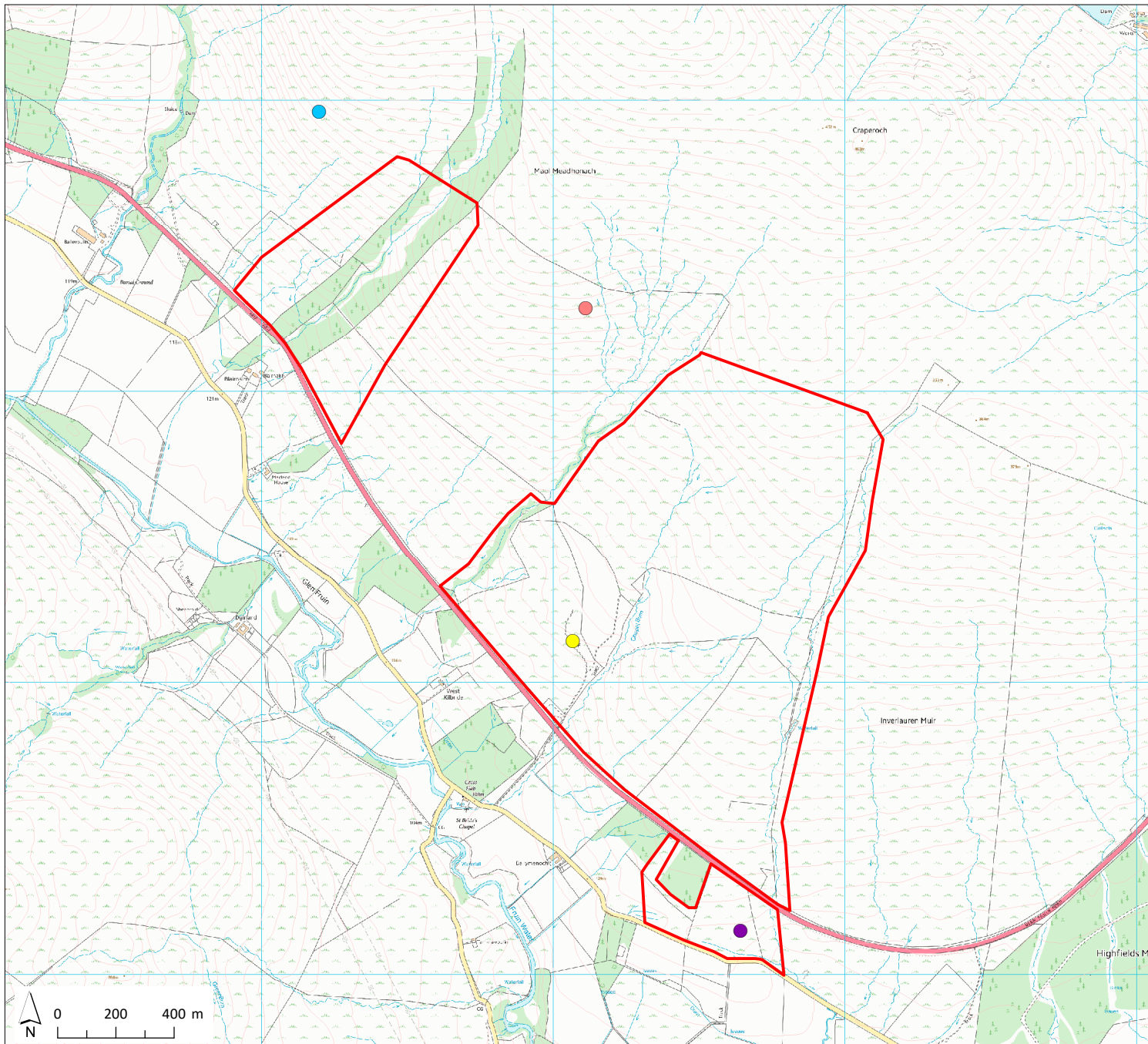
Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



Glen Fruin Blairnairn

Waders and Red Grouse

 Site boundary

Species:

-  Curlew
-  Lapwing
-  Red grouse
-  Snipe

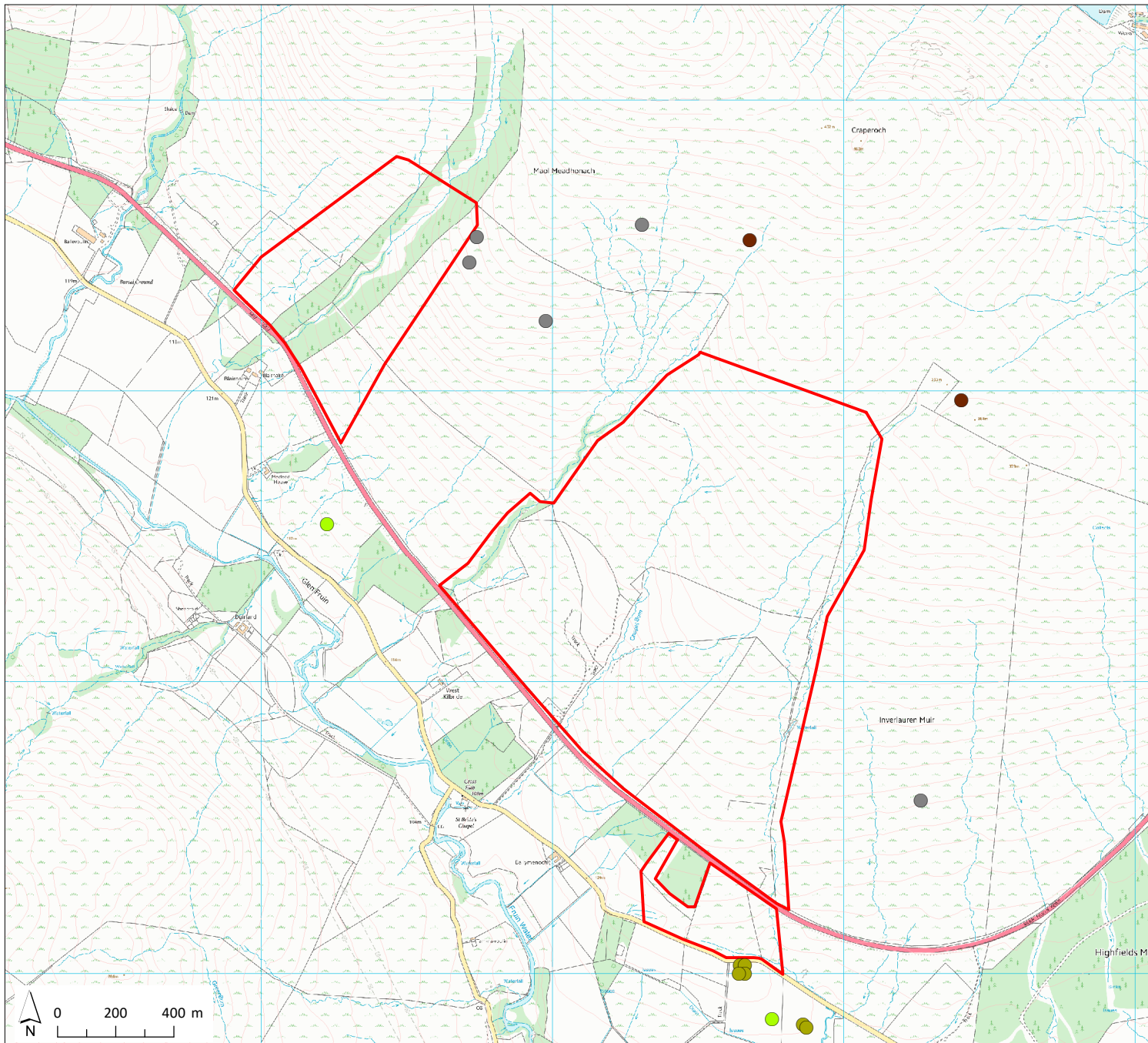


Figure 2.6

Map Scale @ A4: 1:20,000

Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final





Glen Fruin Blairnairn

Meadow Pipit and Skylark

 Site boundary

Species:

-  Meadow pipit
-  Skylark

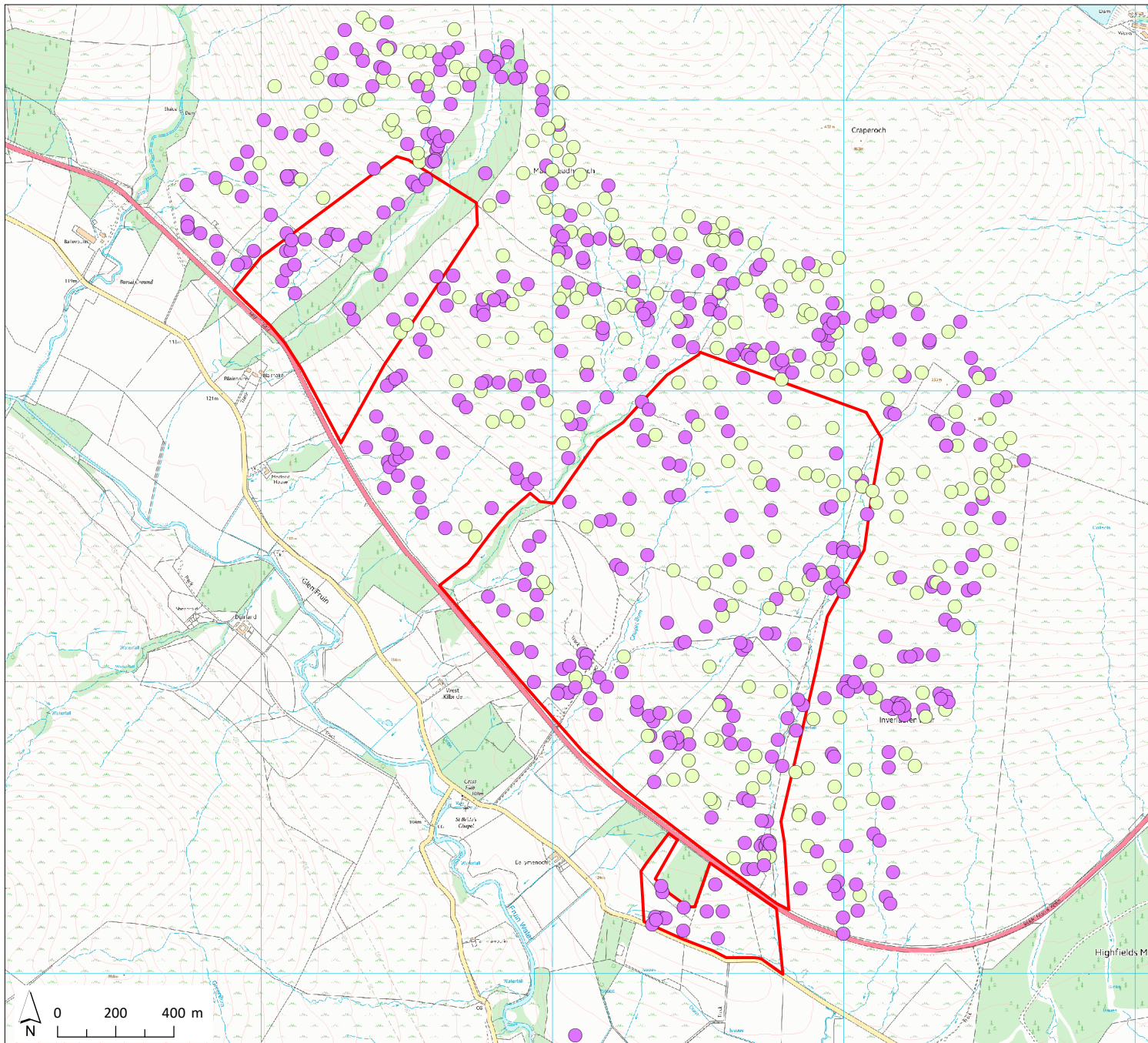


Figure 2.7

Map Scale @ A4: 1:20,000

Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



Discussion and recommendations

Relevant legislation

- 2.20 All wild birds in the UK, their nests and their eggs are protected by the Wildlife and Countryside Act 1981, (as amended), strengthened in Scotland by the Nature Conservation (Scotland) Act (2004). Under this legislation it is an offence, with certain exceptions, to:
- intentionally or recklessly kill, injure or take any wild bird;
 - intentionally or recklessly take, damage or destroy the nest of any wild birds while it is in use or being built;
 - intentionally or recklessly take or destroy the egg of any wild bird.
- 2.21 A number of bird species have been highlighted as priorities for bird conservation in the UK (Stanbury *et al.*, 2021⁶) and allocated Red or Amber status. All other species not of conservation concern are considered to be Green-listed. Certain wild birds listed in Schedule 1 of the Wildlife and Countryside Act receive special protection, such as osprey or red kite.
- 2.22 In addition to the offences listed previously for all wild birds, it is an offence to intentionally or recklessly:
- disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on or near a nest containing eggs or young or whilst lekking;
 - disturb the dependent young of any wild bird listed on Schedule 1.

Birds of conservation concern at Blairnairn

- 2.23 The Study Area held a typical assemblage of upland birds, and more than half of the 41 species recorded were species of conservation concern. This is because the BoCC Red- and Amber-lists contain a high proportion of species typical of these upland habitats, as land management practices and climate change are disproportionately impacting on the quality and extent of habitats used by these species, which in turn affects their population success rates and hence conservation status. Meadow pipit (Amber-listed) were fairly ubiquitous in their distribution across the Site, but skylark, which was the most frequently occurring Red-listed species, had a distribution more closely tied to the higher, grassier parts of the Study Area.
- 2.24 However, overall the eastern part of the Site itself was considered to be species-poor in terms of its bird assemblage, especially in its northern half. The grazing pressures within the predominantly grassland habitats here had resulted in this area being suitable for few species other than meadow pipit and skylark. The southern half of the Site had a wider variety of moorland and woodland passerines, due to its proximity to woodland edge habitats, and the presence of taller vegetation such as bracken and gorse. The western part of the Site also had a more diverse species assemblage due to the clear-fell habitat in

⁶Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.



the cleuch there. However, this generally included common and widespread woodland species such as wren and dunnock.

- 2.25 The two scarce diurnal raptors recorded in July, namely hen harrier and peregrine, were likely to be birds ranging to hunt prey for large young late in the nesting season, and this may have also been the case for the single kestrel sighting. There was little if any suitable ground cover for hen harrier to nest in within the Study Area. However, it is known that in 2022 hen harrier attempted to breed in an area to the west of Glen Fruin (Central Raptor study Group *pers. comm.*), and this was the likely origin of the individual seen. There were no suitable crags for nesting peregrine within the Study Area, suggesting that the bird seen was also a wide-ranging individual, late in the breeding season. The wooded cleuch running along the edge of the eastern part of the Site could have supported nesting kestrel and sparrowhawk (and potentially merlin), but no evidence was recorded to suggest that these species bred there.
- 2.26 Other than hen harrier and peregrine, the only Schedule 1 raptor species recorded in the Study Area was barn owl. This species was likely to have bred in buildings in the un-surveyed farms south and west of the A817.

Potential for other species of conservation interest

- 2.27 The Site may have had some potential for nesting short-eared owl, another scarce ground nesting raptor. However, this species is highly ephemeral in terms of its nesting distribution, being reliant on cyclical numbers of field voles. Short-eared owl can be difficult to detect but low numbers of voles in throughout Scotland in 2022 (*pers. obs.*) would suggest that it was very unlikely to have bred in the Study Area.

Distribution of birds at Blairnairn

- 2.28 There were a number of pronounced areas of bird activity within the Study Area which were due to a range of habitat factors.
- 2.29 Clusters of bird activity in the higher, northern and eastern parts of the Study Area were largely due to high levels of skylark and meadow pipit activity. This was especially so at two clusters at the northern end of the Study Area. The most intense area of activity closer to the centre of the Study Area was also partly due to a flock of 20 common gulls feeding on the Site. High flying gulls were not mapped during the surveys, but these birds were feeding on insects, and were frequently observed landing on the ground. This area also had high levels of meadow pipit and skylark activity, as well as other moorland bird species.
- 2.30 The two wooded cleuchs had elevated levels of activity compared to their surrounding areas, largely due to the presence of common songbirds. Other activity clusters along the lower, southern, and eastern parts of the Study Area were related to habitat features such as areas of gorse or mixtures of habitat including areas with impeded drainage, gorse, bracken, and scrub. These habitats were used by finches and willow warblers, as well as having high meadow pipit activity. One activity cluster at the southern edge of the Study Area was partly due to the presence of a wet habitat frequently used by wagtails, meadow pipits and other species.



- 2.31 The presence of cattle in the lower parts of the eastern Site may also have been a factor which increased the intensity of hotspots of bird activity, as cattle poaching can create and maintain wet and muddy areas suitable for insects and hence feeding birds.

Potential impacts of the Development

- 2.32 The Site was of largely of low value for nesting birds and had few species that would be impacted significantly by tree planting proposals. Some of the species recorded (notably whinchat, reed bunting, redpoll, and grasshopper warbler) would be unlikely to be affected by afforestation in the short term and could even benefit from the habitat changes which would occur immediately after planting. However, once canopy closure was reached, they would ultimately lose their breeding habitat. Scarce species such as hen harrier may also find increased feeding and nesting opportunities in the period following the initial planting, but this would decrease as canopy closure increased.
- 2.33 Barn owl was likely to be the only scarce raptor breeding close to the Site. However, due to the generalist nature of the habitat requirements of barn owl, and the availability of open habitats locally, it is unlikely the Development would impact on this species, and could even benefit it due to a potential increase in small mammals.

Recommendations

- 2.34 It is recommended that, wherever practicable, key areas for breeding birds should be avoided in the design of the planting scheme. The majority of such areas actually lie outwith the Site and would therefore not be relevant to the planting proposals. However, small pockets of key habitat in the lower part of the eastern Site could potentially be incorporated into open, unplanted ground, to retain some of these areas which in relative terms were of higher importance for nesting birds compared to the habitats in the north of the Site. Retention of some areas of marshy grassland in the wetter areas would continue to provide some feeding and nesting habitat for reed bunting and grasshopper warbler.
- 2.35 It is assumed that the planting plans will include some areas of native broad-leaved tree species such as birch and rowan. These will provide feeding and nesting opportunities for species such as whinchat (at least initially) as well as redpoll, willow warbler and tree pipit. Such tree species would also have benefit outside the breeding season, for example for thrushes in autumn. Providing a varied woodland edge would benefit a range of bird species, and unplanted buffers around watercourses would specifically be advantageous for grey wagtail. Grassy rides would continue to be beneficial to meadow pipit, and it is likely that this would remain a ubiquitous species across the Site as a result of the proposals, albeit in lower numbers than those reported here.
- 2.36 With regards to the timing of the Development, it is recommended that all tree planting occurs outwith the nesting bird season⁷. If this is not possible, any ground which may potentially be disturbed by the works will need to be inspected by a suitably qualified ecologist in advance, to ensure that no breeding birds are present. This may include areas outwith the Site boundary given that for some species the legislation extends to disturbance as well as physical harm. If nesting is noted or suspected, works will need to

⁷ The breeding bird season is usually considered to be mid-March through to mid-August, although some species can start to nest earlier than this, and some later. In all cases timings are dependent on the prevailing weather conditions each spring.



cease until it has been ascertained that all fledglings have hatched and have left the nest. The time required for this varies between bird species.

- 2.37 Recommendations regarding fencing (mainly of relevance to black grouse) are described in **Chapter 3**.



3 Black Grouse Survey

Methodology

- 3.1 The black grouse survey was carried out within the Site and a surrounding 1.5 km buffer where suitable habitat occurred, as shown in **Figure 3.1**.
- 3.2 Surveys for black grouse were based on the methodology recommended by Gilbert *et al.* (1998)⁸, involving a single dawn visit to a lek site between the end of March and mid-May, in favourable weather conditions. This methodology was extended at the Site to include three separate visits within this time period, to increase its robustness. The Site was consequently surveyed during dawn visits on 14 April 2022, 07 May 2022, and 12 May 2022, comprising a two-hour survey spanning the period between one hour before and one hour after sunrise. A summary of weather conditions on these dates can be found in **Appendix C**.
- 3.3 During each survey visit, the location and maximum number of male and female black grouse seen were recorded. Care was taken not to disturb lekking birds, which were observed from a distance using a car as a hide or at a distance, with the aid of binoculars.

Potential limitations of the black grouse survey

- 3.4 The size of the black grouse survey area meant that the remoter, north-eastern parts were difficult to access when surveys began in the dark. However, as it was possible to walk into these areas at first light and as black grouse can be heard lekking at a distance of a kilometre or more in good conditions, this was not considered to be a significant limitation to the survey.
- 3.5 The A817 and the Glen Fruin minor road provided useful listening points in the dark and good observation locations when light. As a result, full coverage of the western and southern parts of the black grouse survey area was achieved. Weather conditions for the black grouse surveys were also favourable, and therefore there were no significant limitations associated with the survey.

Results

- 3.6 The results of the black grouse surveys are shown in **Figure 3.2** with a summary of observations provided in **Table 3.1**.
- 3.7 Black grouse were recorded on two occasions, both during early May 2022. On 07 May 2022, a lekking bird was heard west of the minor Glen Fruin road. Five days later, a single lekking male black grouse was both heard and seen on the Site, close to the eastern boundary.

⁸ Gilbert, G., Gibbons, D.W., Evans, J. (1998) *Bird Monitoring Methods: A Manual of Techniques for Key UK Species*. RSPB, Sandy, Beds.



Table 3.1: Summary of black grouse observations.

Date	Number of males	Number of females	Behaviour	Notes
07/05/2022	1	0	Lekking	Heard only, west of the Glen Fruin minor road.
12/05/2022	1	0	Lekking	Seen and heard, east edge of main Site boundary.

Discussion and recommendations

Black grouse at the Site

- 3.8 Black grouse is a Red-listed species of conservation concern, and a species of Principal Importance on the Scottish Biodiversity List (SBL). Data quoted by the RSPB suggest that the range of black grouse across the UK had declined by 28 % between 1970 and 1990, and in some areas actual numbers of birds may be decreasing at a rate of 10-40 % each year⁹. It is a species with fairly complex habitat requirements, needing a mosaic of woodland, heathland and grassland so as to meet feeding and shelter requirements throughout the year, as well as suitable sites for lekking.
- 3.9 The confirmed presence of black grouse at the Site is notable but not surprising given the suitability of the habitats within the black grouse survey area, and that there are pre-existing records of the species occurring locally¹⁰. However, the low density of black grouse recorded in Glen Fruin also aligns with the continued decline of black grouse in this part of Scotland.
- 3.10 As there were other areas of favourable black grouse habitat surrounding Glen Fruin, the Site may also have a landscape-scale role for the species, supporting emigration from other areas. Therefore, measures to enhance the area for black grouse should be incorporated into the Development, especially along the eastern edge of the Site.

Recommendations

- 3.11 Best practice would dictate that the area in which the lekking male bird was seen should not be planted with trees, including a buffer of at least 100 m around this location to maintain good visibility for these birds. Maintenance of a relatively short sward in this area would also be beneficial. In addition, no planting, or preparation for planting should occur within 500 m of a known lek site during the lekking period, in accordance with the disturbance distances stated by Ruddock and Whitfield (2007)¹¹.
- 3.12 The use of deer fencing to protect young trees can for some species result in bird mortality through collisions, notably so for black grouse. If such fencing is used as part of the Development, it is advised that it is visibly marked with features to reduce grouse collisions. This could comprise the attachment of chestnut paling droppers as these have been shown

⁹ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/black-grouse/population-trends/#:~:text=Black%20grouse%20range%20contracted%20by,each%20year%20in%20some%20areas>. Accessed August 2022.

¹⁰ AEL (2019) *Glen Fruin Breeding Bird Report*. Unpublish contract report produced for RDS Forestry Ltd, August 2019.

¹¹ Ruddock, M. and Whitfield, D.P. (2007) *A Review of Disturbance Distances in Selected Bird Species*. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.





to reduce bird collisions while remaining visually non-intrusive in the landscape. Alternatively, biodegradable tree tubes could be used.

- 3.13 The planting of native woodland as part of the proposals would be beneficial for black grouse, in particular the use of willow, hawthorn, rowan, alder and Scots pine. A post-planting monitoring programme for black grouse on the Site is recommended.



Glen Fruin Blairnairn

Black Grouse Study Area

-  Site boundary
-  1.5 km search area for black grouse

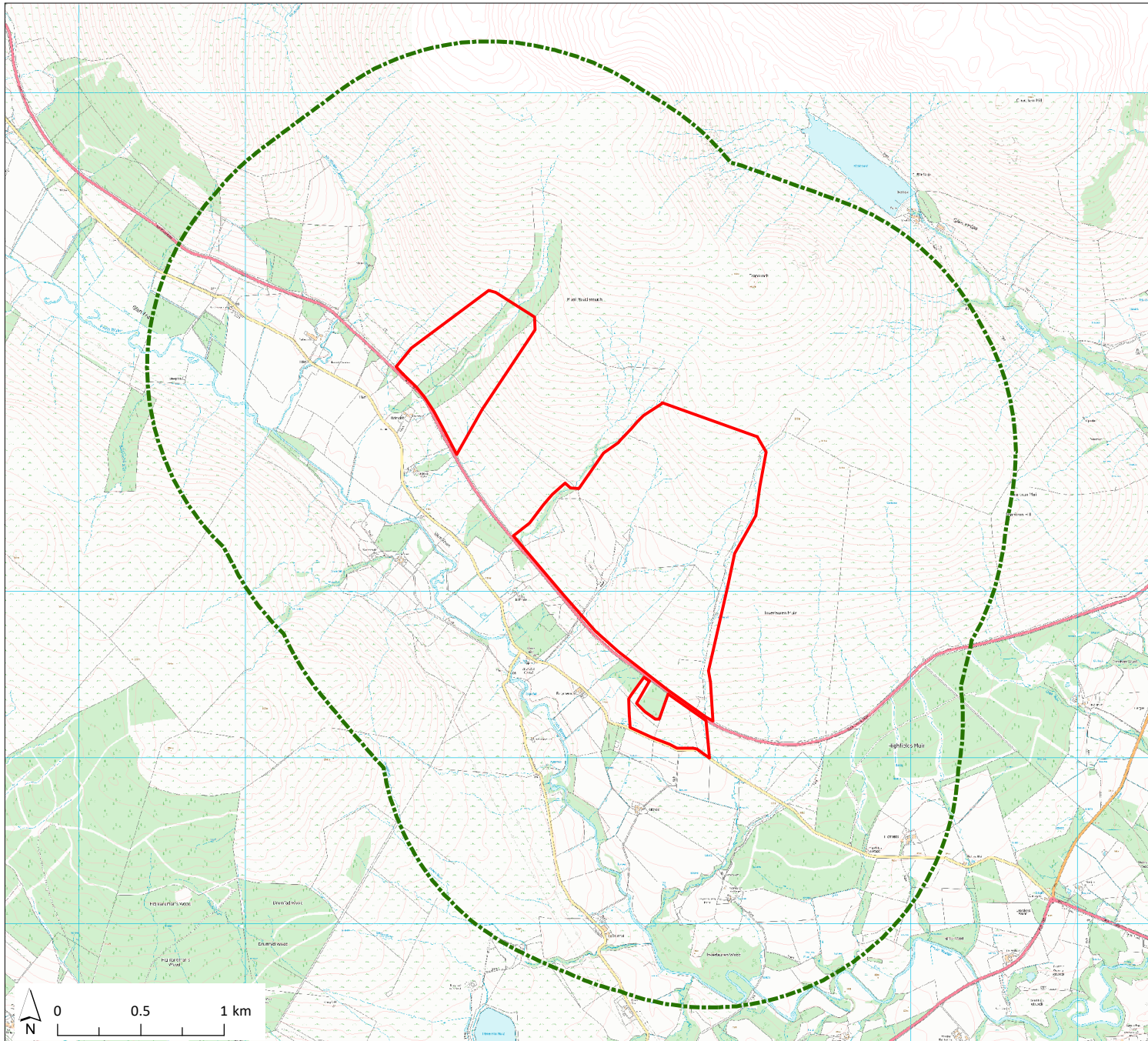


Figure 3.1

Map Scale @ A4: 1:35,000

Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH





Checked by: KD

Status: Final



Glen Fruin Blairnairn

Black Grouse Survey Results

-  Site boundary
-  1.5 km search area for black grouse
-  Lekking male black grouse
-  General area of lekking heard

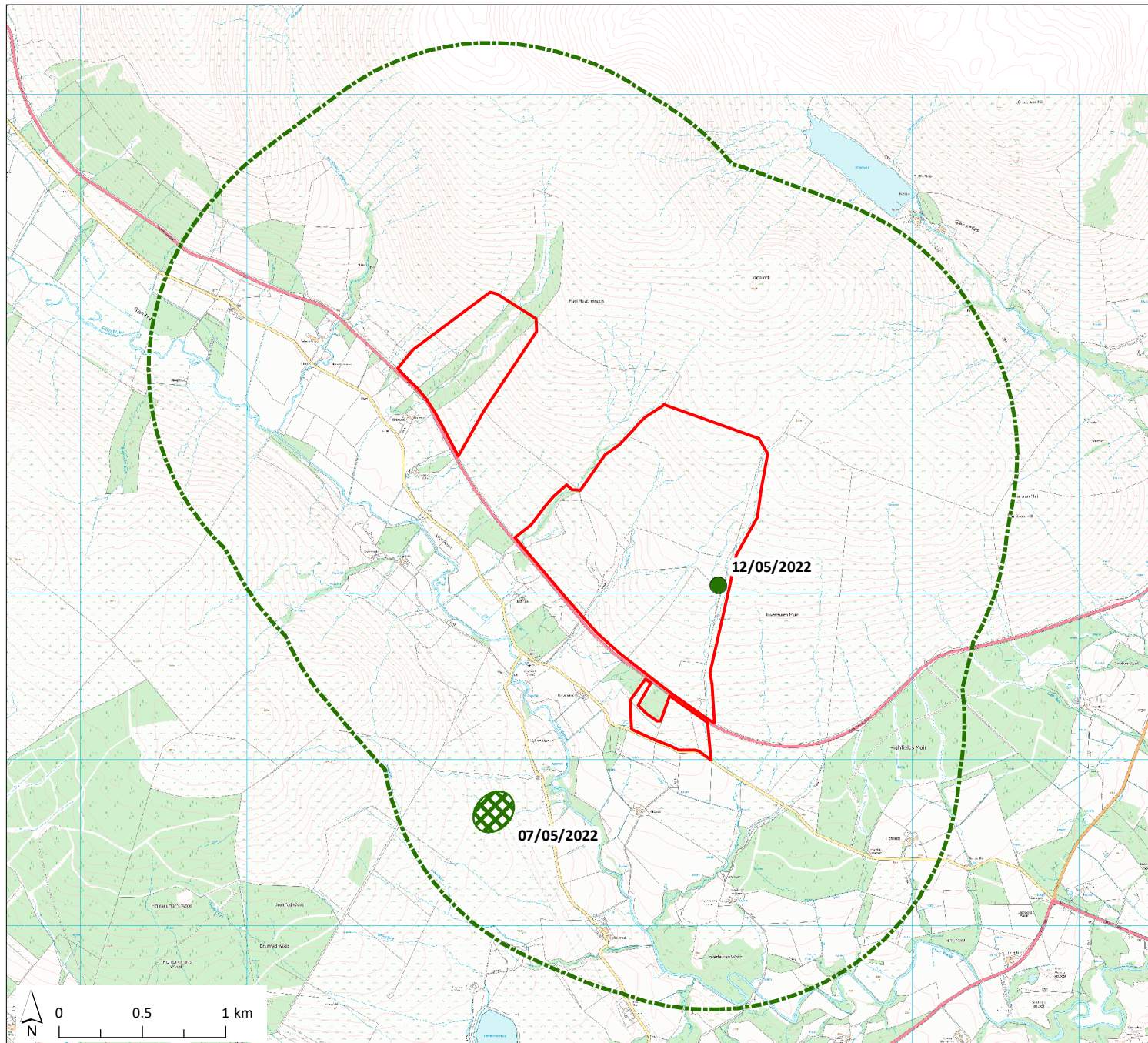


Figure 3.2

Map Scale @ A4: 1:35,000

Surveyed by: KD

Survey date: April-July 2022

Drawn by: RAH

Checked by: KD

Status: Final



4 Conclusions

- 4.1 A breeding bird survey and black grouse survey was undertaken during the spring and summer of 2022 for a Study Area at Blairnairn, Glen Fruin, in Argyll and Bute, in order to evaluate the potential implications of proposed forestry planting on nesting birds. The Study Area was found to hold assemblages of upland and woodland birds typical of its component habitats, and a number of these species were Red-listed or otherwise considered to be of conservation importance.
- 4.2 The Site itself held few larger breeding bird species; notably ground-nesting waders were uncommon, and there were only very occasional sightings of scarce raptors. There was little suitable habitat for ground-nesting raptors such as hen harrier within the Site or the wider Study Area, and it was considered unlikely that the Development would have any long-term negative impacts on locally breeding scarce raptors, waders or red grouse. In terms of smaller bird species, the planting of the Site may in the long-term have negative impacts for some species such as whinchat, but short-term benefits may also arise.
- 4.3 Black grouse was confirmed as being present on the Site, and this is notable in conservation terms. Measures to protect and potentially encourage this species have been outlined. In general, avoiding key areas used by nesting or lekking birds, strategic planting of broad-leaved trees and leaving open areas within modified bog and riparian habitats will continue to provide and, in some cases, enhance habitat for breeding birds. Precautionary methods of working to avoid contravention of the legislation protecting nesting birds have been outlined, and deer fences, should these be used, should be marked to reduce the risk of black grouse collisions. Adherence to these measures will ensure that potential effects on nesting birds will be minimised.
- 4.4 These conclusions and recommendations will remain valid for a period of approximately 12-18 months from the date of the survey reported here, after which time a review of their validity would be necessary.



Appendix A

Abbreviations Used in This Report



Abbreviation	Full terminology
AEL	Applied Ecology Limited
BTO	British Trust for Ornithology
BoCC	Birds of Conservation Concern
CIEEM	Chartered Institute of Ecology and Environmental Management
GIS	Geographical Information System
GPS	Global Positioning System
SBL	Scottish Biodiversity List
SNH	Scottish Natural Heritage (now known as NatureScot)
RSPB	Royal Society for the Protection of Birds



Appendix B

Summary of Breeding Bird Survey Weather Conditions



Date	Start time	Finish time	Wind direction	Wind speed	Cloud cover	Cloud base codes	Cloud base (m)	Visibility code	Visibility	Precipitation
14/04/2022	06:30	10:45	SE	2	8	1 - 2	150 - >500	2	Excellent	0
22/04/2022	11:20	16:55	E	4 - 5	1 - 2	2	>500	2	Excellent	0
07/05/2022	06:35	10:00	W	2	6 - 7	2	>500	2	Excellent	0
12/05/2022	04:40	08:40	W	2 - 3	7	1 - 2	150 - >500	2	Excellent	0 - 1
14/05/2022	09:05	13:05	W	2 - 3	7 - 8	1 - 2	150 - >500	2	Excellent	0
07/06/2022	09:20	12:10	SE	2 - 3	5 - 6	2	>500	2	Excellent	0
09/06/2022	10:30	14:45	S	2 - 3	7 - 8	1 - 2	150 - >500	2	Excellent	0 - 1
12/06/2022	15:35	17:55	W	3 - 4	6 - 7	1	150 - 500	2	Excellent	0 - 2
01/07/2022	10:55	14:25	W	3	4 - 5	2	>500	2	Excellent	0
04/07/2022	13:55	17:00	W	3 - 4	5 - 7	2	>500	2	Excellent	0
05/07/2022	12:30	16:40	W	3 - 4	4 - 5	2	>500	2	Excellent	0

n.b. Wind speeds refer to the Beaufort Scale. Cloud cover estimated in Octads. Cloud base and visibility codes as indicated. Precipitation codes are: 0: nil; 1: mist or drizzle; 2: light showers; 3: heavy showers.



Appendix C

Summary of Black Grouse Survey Weather Conditions



Date	Start time	Finish time	Wind direction	Wind speed	Cloud cover	Cloud base codes	Cloud base (m)	Visibility code	Visibility	Precipitation
14/04/2022	04:50	07:10	W	1	8	2	>500	2	Excellent	0
05/05/2022	04:14	06:30	W	1	7 - 8	2	>500	2	Excellent	0
12/05/2022	04:05	06:05	W	2	7	1 - 2	150 - >500	2	Excellent	1

n.b. Wind speeds refer to the Beaufort Scale. Cloud cover estimated in Octads. Cloud base and visibility codes as indicated. Precipitation codes are: 0 : nil; 1 : mist or drizzle; 2 : light showers; 3 : heavy showers.



Appendix D

Birds Recorded on the Site, April - July 2022



Species	BoCC status	Present/recorded				Bred ¹²	No. Territories	Comments
		April	May	June	July			
Barn owl	Green	✓	✓	-	-	No	0	Ad hoc sightings during black grouse surveys, likely bred in farm buildings.
Black grouse	Red	-	✓	-	-	Yes	1	Two lekking males, one territory assumed within Breeding Bird Study Area.
Buzzard	Green	✓	✓	✓	✓	No	0	Bred in woodland outwith the surveyed Study Area.
Carrion crow	Green	✓	✓	✓	✓	Yes	2	One active nest in wooded cleuch, one south Site.
Canada goose	N/a ¹³	-	-	✓	-	No	0	One record, flock 15 flew low over Site.
Chaffinch	Green	✓	✓	✓	-	Yes	11	Singing males in woodland areas and wooded strips by road, presumed bred.
Common gull	Amber	-	-	✓	-	No	0	One record of flock feeding on the Site.
Cuckoo	Red	-	✓	✓	-	Yes	2	Two singing birds, also heard just outside Study area.
Curlew	Red	-	✓	✓	-	No	0	Two singing birds on E & SE edge of surveyed Study Area.
Dunnock	Amber	✓	✓	-	✓	Yes	5	Restricted to clear-felled areas of northern cleuch.
Goldfinch	Green	-	-	-	✓	No	0	Post breeding birds seen only.
Grasshopper warbler	Red	-	✓	✓	-	Yes	10	Singing birds in suitable habitat.
Great tit	Green	✓	-	-	-	Yes	1	Singing bird in suitable habitat.
Grey wagtail	Amber	✓	✓	-	✓	Yes	3	Pairs in suitable habitat.
Hen harrier	Red	-	-	-	✓	No	0	Single sighting of hunting female.
Kestrel	Amber	-	-	-	✓	No	0	Single sighting, N Study Area.
Lapwing	Red	-	✓	✓	-	Yes	1	Two displaying males and likely family groups seen, southern of Study Area.
Linnet	Red	✓	-	-	✓	Yes	1	At least one pair in suitable habitat.
Meadow pipit	Amber	✓	✓	✓	✓	Yes	129	Widespread across Study Area, many successful pairs, estimated total.
Mistle thrush	Red	-	-	-	✓	No	0	One sighting of two birds, no evidence of breeding.
Peregrine	Green	-	-	-	✓	No	0	Single sighting of transient, hunting male.
Pied wagtail	Green	✓	✓	✓	-	Yes	1	One territory, southern edge of Study Area.
Raven	Green	✓	✓	✓	✓	No	0	No nest sites found in Study Area but bred locally.
Red grouse	Green	✓	-	-	✓	Yes	1	Female with young NE Study Area.
Redpoll	Red	-	-	✓	✓	Yes	2	Birds in suitable habitat, probably underestimate.
Reed bunting	Amber	✓	-	✓	✓	Yes	8	Singing males well distributed across Study Area possibly an underestimate.
Robin	Green	✓	✓	-	-	Yes	2	Singing birds in suitable habitat.
Rook	Amber	-	-	✓	-	No	0	One sighting of two foraging birds.

¹² 'Bred' indicates species proven to breed, or attempted breeding indicated by behaviour, signs or presence of fledged young.

¹³ N/a: not assessed under BOCC criteria.



Species	BoCC status	Present/recorded				Bred ¹²	No. Territories	Comments
		April	May	June	July			
Siskin	Green	-	-	✓	-	No	0	One sighting of transient birds, must have bred in un-surveyed forest blocks.
Skylark	Red	✓	✓	✓	✓	Yes	92	Widespread across Study Area, successfully bred.
Sparrowhawk	Amber	✓	-	-	-	No	0	Bred in un-surveyed forest blocks.
Snipe	Amber	✓	✓	-	✓	Yes	3	Displaying and calling birds in suitable habitat.
Swallow	Green	✓	✓	-	-	No	0	Foraging birds only, must have bred in nearby farm buildings.
Stonechat	Green	✓	✓	✓	✓	Yes	12	Widespread, four pairs seen with fledged young, others alarm calling.
Swift	Red	-	-	-	✓	No	0	One record of two foraging birds over Study Area.
Tree pipit	Red	-	✓	✓	-	Yes	5	Singing birds in suitable habitat.
Wheatear	Amber	✓	✓	-	✓	Yes	1	Fledged juvenile seen, number of pairs probably an underestimate.
Whinchat	Red	✓	✓	✓	✓	Yes	9	Adults seen with fledged young.
Willow warbler	Amber	✓	✓	✓	✓	Yes	18	Singing birds in suitable habitat, mainly in roadside tree lines and wooded cleuchs.
Wood pigeon	Amber	-	-	-	✓	No	0	One record. Bred in non-surveyed adjacent forestry. May have nested in wooded cleuchs but no evidence.
Wren	Amber	✓	✓	✓	✓	Yes	20	Singing birds in suitable habitat, mainly in roadside tree lines and wooded cleuchs.



Appendix E

Summary of the Legal Protection and Conservation Status of Species Recorded



Species	Legal Protection		Conservation Status			
	Annex 1	Schedule 1	SBL	Red	Amber	Green
Barn owl	x	x	x			x
Black grouse			x	x		
Buzzard						x
Canada goose						
Carrion crow						x
Chaffinch						x
Common gull					x	
Cuckoo			x	x		
Curlew			x	x		
Duncock			x		x	
Goldfinch						x
Great tit						x
Grasshopper warbler			x	x		
Grey wagtail					x	
Hen harrier	x	x	x	x		
Kestrel			x		x	
Lapwing			x	x		
Linnet			x	x		
Meadow pipit					x	
Mistle thrush				x		
Peregrine	x	x	x			x
Pied wagtail						x
Raven						x
Red grouse			x			x
Redpoll			x	x		
Reed bunting			x		x	
Robin						x
Rook						x
Siskin			x			x
Skylark			x	x		
Snipe					x	
Sparrowhawk					x	
Stonechat						x
Swallow						x
Swift			x	x		
Tree pipit			x	x		
Wheatear					x	
Whinchat				x		
Willow warbler					x	
Woodpigeon					x	
Wren					x	



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