

Appendix 9.1: Technical Ornithology Appendix

2023

Loch Liath Wind Farm

Appendix 9.1: Ornithology Technical Report



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LOCH LIATH WIND FARM

REPORT ON ORNITHOLOGICAL SURVEYS – SEPTEMBER 2019 TO AUGUST 2021

Introduction

1. This report details the results of ornithological survey work undertaken by Natural Research (Projects) Ltd (NRP) on and around the site of the proposed Loch Liath Wind Farm (“the proposed Development”) during the period September 2019 to August 2021.
2. The objectives of the study were to:
 - Map the distributions of breeding birds, including scarce species listed in Annex 1 of the EU Birds Directive (2009/147/EC) on the Conservation of Wild Birds (the Birds Directive) or Schedule 1 of the Wildlife and Countryside Act 1981 (WCA).
 - Quantify the level of bird flight activity by breeding, wintering and foraging birds of potential conservation importance.
 - Record the presence and abundance of other birds of conservation importance (those listed in Biodiversity Action Plans (BAP), on the Red List of Birds of Conservation Concern (BoCC) (Eaton *et al.*, 2015)¹ or the IUCN Red list of Threatened Species (IUCN, 2021)² throughout the study period.

Field Survey Methods

3. The baseline surveys detailed here commenced in September 2019 and continued until end of August 2021 (‘the study period’).
4. The Study Area was defined with reference to the Ornithology Study Area (OSA) and encompasses a series of buffers of up to 6 km radius; with buffer size dependent on the sensitivity of key species to potential effects associated with the proposed Development (**Figure 1**). The OSA was designed prior to the commencement of ornithology surveys in 2019 and

¹ Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708-746.

² IUCN. (2021). IUCN Red List of Threatened Species (ver. 2021-2). Available at: <http://www.iucnredlist.org>. (Accessed: October 2021).

took into consideration a wider developable area. The various survey areas, which make up the Study Area, are defined in this report as follows:

- ‘Site’ refers to the area enclosed by the OSA boundary;
 - ‘moorland breeding bird survey area’, ‘winter walkover survey area’ or ‘core survey area’ refers to the Site plus an additional 500 m wide strip around the site area;
 - ‘black grouse survey area’ refers to the Site plus an additional 1.5 km wide strip;
 - ‘scarce breeding bird survey area’ refers to the Site plus an additional 2-6 km wide strip depending on the focal species and presence of contiguous suitable habitat outside of the core survey area.
 - ‘flight activity survey area’ or ‘FASA’ refers to a polygon around the outermost turbines plus an additional 500 m strip around the polygon
5. Field surveyors were Bob Stakim (RAS), Alex Ash (AA), John Halliday (JH), Rhodri Evetts (RE), Malcolm Henderson (MH), Stephen Bentall (SB), Garry Riddoch (GAR), David Andrews (DA), Julie Murray (JM), William Robertson (WR), Janice Duke (JD), Fiona Newcome (FN), Paul Stagg (PS) and Blair Urquhart (BU). All field surveyors are trained ornithologists with extensive experience in surveying birds. Field surveyors received training prior to and during survey work to maintain professional standards.

Flight Activity Survey

6. Information on bird flight activity was collected during timed watches from strategic Generic Vantage Points (GVPs) using the methods described by Band *et al.* (2007)³. GVPs were selected through a mix of GIS analysis and field trials, with the aim of maximising ground visibility within the Site using the minimum number of points. A total of 13 GVPs were used providing coverage of the Site and associated 500 m buffer. Viewsheds from each GVP are derived using a 20 m vertical cut-off and truncated horizontally at 2 km (**Figure 2a**).
7. Observers at GVPs positioned themselves to minimise their effects on bird behaviour. A viewing arc not exceeding 180 degrees was scanned. Watches were undertaken during daylight hours by

³ Band, W., Madders, M. & Whitfield, D.P. (2007) Developing field and analytical methods to assess avian collision risk at wind farms. In de Lucas, M, Janss, G.F.E. and Ferrer, M. (Eds.) Birds and Wind Farms: Risk assessment and Mitigation, pp. 259 - 275. Quercus, Madrid.

a single observer in a wide range of weather conditions, mainly in conditions of good ground visibility (> 2km)⁴.

8. Between September 2019 and August 2021, a total of 1,879 hours of Vantage Point watches were undertaken (**Tables 1 and 2**).

Table 1. Summary of monthly GVP observations, September 2019 to August 2020. Data are hours of observation.

| GVP No. | 2019 | | | | 2020 | | | | | | | | Total |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|---------------|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | |
| GVP1 | 6.00 | 6.00 | 4.00 | 4.00 | 2.00 | - | 14.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP2 | 6.00 | 6.00 | 4.00 | 4.00 | 2.00 | - | 14.00 | 5.50 | 12.50 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP3 | 6.00 | 6.00 | 4.00 | 2.00 | 6.00 | 7.00 | 5.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP4 | 6.00 | 6.00 | 4.00 | 2.00 | 6.00 | 8.00 | 4.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP5 | 6.00 | 6.00 | 3.50 | 4.50 | 5.00 | 6.00 | 5.00 | 6.00 | 12.00 | 6.00 | 6.50 | 6.00 | 72.50 |
| GVP12 | 6.00 | 6.00 | 4.00 | 4.00 | 4.00 | 6.00 | 6.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP13 | 6.00 | 9.00 | 7.00 | 4.00 | 2.00 | 3.00 | 11.00 | - | 12.00 | 12.00 | 6.00 | 6.00 | 78.00 |
| GVP14 | 6.00 | 6.00 | 4.00 | 4.00 | 2.00 | 5.00 | 3.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 66.00 |
| GVP15 | 6.00 | 6.00 | 4.00 | 4.00 | 2.00 | 4.00 | 6.00 | - | 18.00 | - | 12.00 | 6.00 | 68.00 |
| GVP16 | 6.00 | 5.00 | 5.00 | 4.00 | 2.00 | 2.00 | 6.00 | - | 18.00 | 6.00 | 6.00 | 6.00 | 66.00 |
| GVP17 | 6.00 | 5.00 | 5.00 | 4.00 | 4.00 | 6.50 | 2.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 68.50 |
| GVP18 | 6.00 | 6.00 | 4.00 | 4.00 | 2.00 | - | 14.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP19 | - | - | 8.00 | 5.50 | 11.50 | 6.00 | 5.00 | 6.00 | 12.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| Total | 72.00 | 73.00 | 60.50 | 50.00 | 50.50 | 53.50 | 95.00 | 62.50 | 165.50 | 78.00 | 84.50 | 78.00 | 923.00 |

Table 2. Summary of monthly GVP observations, September 2020 to August 2021. Data are hours of observation.

| GVP No. | 2020 | | | | 2021 | | | | | | | | Total |
|--------------|--------------|--------------|--------------|--------------|--------------|-------------|---------------|---------------|---------------|--------------|--------------|--------------|---------------|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | |
| GVP1 | 12.00 | - | 8.00 | 4.00 | - | - | 12.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP2 | 6.00 | 9.00 | 6.00 | 4.00 | 2.00 | - | 9.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP3 | 6.00 | 6.00 | 5.00 | 5.00 | 4.00 | - | 11.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 73.00 |
| GVP4 | 6.00 | 6.00 | 5.00 | 5.00 | 4.00 | - | 10.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP5 | 12.00 | - | 7.00 | 2.00 | 4.00 | - | 11.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP12 | 3.00 | 11.08 | 5.00 | 4.00 | 4.00 | - | 9.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.08 |
| GVP13 | 12.00 | - | 7.00 | 4.00 | 4.00 | - | 9.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP14 | 6.00 | 8.00 | 7.00 | 5.00 | 2.00 | - | 14.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 78.00 |
| GVP15 | 6.00 | 8.00 | 7.00 | 5.00 | 2.00 | - | 12.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 76.00 |
| GVP16 | 6.00 | 12.50 | 4.00 | 4.00 | 3.00 | - | 12.00 | 9.00 | 9.00 | - | 12.00 | 6.00 | 77.50 |
| GVP17 | 6.00 | 12.00 | 5.00 | 4.00 | 4.00 | - | 8.50 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 75.50 |
| GVP18 | 6.00 | 7.00 | 7.00 | 4.00 | 1.00 | - | 11.00 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| GVP19 | 3.00 | 9.50 | 7.00 | 2.00 | 4.00 | - | 10.50 | 9.00 | 9.00 | 6.00 | 6.00 | 6.00 | 72.00 |
| Total | 90.00 | 89.08 | 80.00 | 52.00 | 38.00 | 0.00 | 139.00 | 117.00 | 117.00 | 72.00 | 84.00 | 78.00 | 956.08 |

9. During each watch, hierarchical recording methods were used, as follows:

⁴ GVP and FVP weather data is available upon request.

- **Focal bird sampling - timed.** The viewing arc was scanned constantly until a *Target A Species*⁵ was detected in flight. Once detected, the bird was followed until it ceased flying or was lost to view. The time the bird was initially detected and the time it spent flying (to the nearest second) were recorded. The route followed by the bird was plotted in the field onto an enlarged 1:25,000 scale map, with the direction of flight indicated. The bird's flying elevation above the ground was estimated at the point of detection and at 15 second intervals thereafter, using a countdown timer with an audible alarm. Flying elevation was classified as <20 m, 20-50 m, 50-100 m, 100-150 m, 150-200 m or >200 m.

In some circumstances, instead of mapping a flight line, a 'flight area' denoting the area in which a bout of flight activity occurred was plotted on the field map. Recording the spatial extent of a flight bout with a flight area was preferable in circumstance where;

- simultaneous flight activity by a number of birds was observed;
 - an individual flight bout is observed over a long period of time;
 - an individual flight bout is too complicated, i.e. a display flight, or
 - any combination of the above.
- **Focal bird sampling – untimed.** The same scanning procedure as described above was used. However, flights of *Target B Species* were not timed, instead the flight path was mapped and flying elevation was recorded at the start and when it changed during the recorded bout. Where a flock was observed a central flight line representative of the route was estimated.
 - **Activity summaries.** At the end of each 5-min period, flight activity within the survey area by species of lesser conservation importance (*Secondary Species*) was summarised. Each VP watch was sub-divided into 5-minute periods and at the end of each 5-minute period the total number of individuals of each secondary target species seen flying in the study area was recorded. The height, direction and number of individuals involved in notable bird movements were recorded.

10. Data were entered in the field onto recording sheets and later transferred to Excel spreadsheets. Maps of flight activity by *Target Species* were compiled for each watch. Each flying bout was numbered consecutively and cross-referenced to the relevant flightpath on the map.

⁵ Target species were drawn from those listed in Annex 1 of the Birds Directive and Schedule 1 of the WCA. Other species considered important in a regional or local context may also be included. These are listed in Appendix 1.

Focal Vantage Point (FVP) Watches

11. Observers at FVPs positioned themselves to minimise their effects on bird behaviour. A viewing arc not exceeding 180 degrees was scanned (**Figures 2b** and **2c**). Watches were undertaken by a single observer in a wide range of weather conditions, mainly in conditions of good ground visibility (>2 km)⁶ and when the cloud base was higher than the most elevated parts of the survey area. During each watch, the same scanning procedure as the timed focal bird sampling, described above, was used.
12. During the 2020 and 2021 breeding seasons, five FVPs were selected to gather species-specific data on red-throated diver (*Gavia stellata*) movements. In total, 277 hours of observation was undertaken from FVPs (D1-D7) (**Table 3**).

| Year | FVP no. | May | Jun | Jul | Aug | Grand Total |
|--------------------|------------------|--------------|--------------|--------------|--------------|---------------|
| 2020 | D1 | 9.00 | 9.00 | - | - | 18.00 |
| | D2 | 9.00 | 3.00 | 6.00 | 9.00 | 27.00 |
| | D3 | 9.00 | 6.00 | - | - | 15.00 |
| | D4 | - | 18.00 | 15.00 | 9.00 | 42.00 |
| | D5 | - | 12.00 | 21.00 | 9.00 | 42.00 |
| | FVP Total | 27.00 | 48.00 | 42.00 | 27.00 | 144.00 |
| 2021 | D2 | 12.00 | - | - | - | 12.00 |
| | D4 | 12.00 | 3.00 | 6.00 | - | 21.00 |
| | D5 | - | 9.00 | - | - | 9.00 |
| | D6 | - | 15.00 | 16.00 | 18.00 | 49.00 |
| | D7 | - | 9.00 | 16.00 | 17.00 | 42.00 |
| | FVP Total | 24.00 | 36.00 | 38.00 | 35.00 | 133.00 |
| Grand Total | | 51.00 | 84.00 | 80.00 | 62.00 | 277.00 |

Scarce Breeding Raptors and Owls

13. Priority was given to detecting the species considered most likely to occur; golden eagle (*Aquila chrysaetos*), hen harrier (*Circus cyaneus*), peregrine (*Falco peregrinus*), merlin (*F. columbarius*) and hobby (*F. subbuteo*).
14. Due to the iterative nature of the study four further species were identified during the course of fieldwork as possibly breeding within the study area: red kite (*Milvus milvus*), osprey (*Pandion haliaetus*), goshawk (*Accipiter gentilis*) and honey buzzard (*Pernis apivorus*).
15. Surveys for golden eagle focused on areas suitable for nesting and foraging within the 6 km buffer of the Site. Surveys for hen harrier, peregrine, merlin, hobby, red kite, osprey, goshawk

⁶ GVP and FVP weather data is available upon request.

and honey buzzard focused on areas or sites suitable for nesting and foraging within the 2 km buffer of the Site (**Figure 1**). Surveyors conducted 193 separate searches or watches during the study period, totalling over 556 hours, to search for scarce breeding species (**Table 4**). These visits complemented search effort accrued during VP watches. Methods used for individual species are summarised below;

- **Golden eagle (EA)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed.
- **Hen harrier (HH)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed. Emphasis was given to searching habitats considered potentially suitable for nesting, in this case limited to areas of heath/bog with stands > 0.4m tall and areas of re-stock plantation.
- **Peregrine (PE)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed. Potential and known nest sites were searched for in spring to look for the evidence of occupancy (presence of birds, faeces, fresh prey remains).
- **Merlin (ML)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed. Within suitable habitats, old crow nests (which could be re-used by merlin), fenceposts, hummocks, bushes and trees were checked for signs of occupation (e.g. plucked prey, moulted feathers, pellets and faeces). Emphasis was given to heath bog habitats with stands of heather >0.4m tall and edges of closed canopy forestry plantations.
- **Hobby (HY)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed. Within suitable habitats, old nests and squirrel dreys (which are often re-used by hobby) were checked for signs of occupation (e.g. plucked prey, moulted feathers, pellets and faeces). Emphasis was given to single trees, small clumps of trees, small open woodlands and edges of closed canopy forestry plantations within 300 m of open ground.
- **Red kite (KT), osprey (OP), goshawk (GI) and honey buzzard (HZ)**. Survey methods based on Hardey *et al.* (2013)⁷ were followed.

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 11/02/2020 | 1215 | 1500 | 2.75 | RAS | 9 | 600 | SW | 6 | IHS | 4 | EA |
| 11/02/2020 | 1150 | 1650 | 5.00 | SB | 8 | 700 | SW | 2 | IHS | 2 | EA |
| 11/02/2020 | 1230 | 1650 | 4.33 | BU | 8 | 700 | SW | 2 | IHS | 4 | EA |
| 12/02/2020 | 0830 | 1230 | 4.00 | RAS | 7 | 900 | SW | 6 | ILS | 5 | EA |

⁷ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). Raptors, a field guide to survey and monitoring. The Stationery Office, Edinburgh.

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 12/02/2020 | 1120 | 1540 | 4.33 | SB | 4 | 800 | W | 6 | nil | 5 | EA |
| 12/02/2020 | 1120 | 1540 | 4.33 | BU | 4 | 800 | W | 4 | nil | 10 | EA |
| 19/02/2020 | 0805 | 0935 | 1.50 | AA | 3 | 1000 | SW | 4 | nil | 20 | EA |
| 26/02/2020 | 0915 | 1100 | 1.75 | RAS | 8 | 800 | W | 4 | ILS | 5 | EA |
| 26/02/2020 | 1300 | 1615 | 3.25 | RAS | 4 | 900 | WNW | 5 | ILS | 5 | EA |
| 28/02/2020 | 0830 | 1230 | 4.00 | SB | 10 | 900 | SW | 1 | nil | 5 | EA |
| 28/02/2020 | 0900 | 1200 | 3.00 | RAS | 10 | 900 | SW | 5 | nil | 5 | EA |
| 10/03/2020 | 1445 | 1530 | 0.75 | AA | 10 | 1000 | SW | 5 | nil | 20 | EA |
| 12/03/2020 | 1335 | 1635 | 3.00 | AA | 10 | 1000 | SW | 4 | CLR | 20 | EA |
| 13/03/2020 | 0735 | 1135 | 4.00 | AA | 2 | 1000 | NE | 1 | nil | 20 | EA |
| 23/03/2020 | 0815 | 1315 | 5.00 | SB | 3 | 1000 | SW | 3 | nil | 4 | EA |
| 23/03/2020 | 1000 | 1200 | 2.00 | RAS | 10 | 1000 | SW | 7 | nil | 5 | EA |
| 23/04/2020 | 0715 | 1315 | 6.00 | GAR | 0 | - | SE | 1 | nil | 20 | EA HH ML |
| 24/04/2020 | 1210 | 1510 | 3.00 | DA | 1 | 500 | E | 1 | nil | 20 | EA HH ML HY |
| 24/04/2020 | 1250 | 1500 | 2.17 | GAR | 0 | - | E | 2 | nil | 20 | EA |
| 26/04/2020 | 0950 | 1350 | 4.00 | JM | 8 | 1200 | W | 3 | ILR | 25 | EA HH ML |
| 26/04/2020 | 1100 | 1400 | 3.00 | GAR | 5 | 1000 | SW | 3 | nil | 15 | EA HH ML |
| 28/04/2020 | 0830 | 1030 | 2.00 | JM | 7 | 800 | NE | 1 | nil | 25 | EA |
| 28/04/2020 | 1230 | 1330 | 1.00 | GAR | 5 | 900 | NE | 1 | nil | 15 | EA |
| 28/04/2020 | 0800 | 1100 | 3.00 | WR | 5 | 1000 | NE | 1 | nil | 15 | EA HH ML |
| 30/04/2020 | 0930 | 1100 | 1.50 | JM | 9 | 900 | NE | 4 | nil | 20 | EA |
| 30/04/2020 | 1315 | 1615 | 3.00 | WR | 7 | 800 | NW | 3 | ILR | 15 | EA ML |
| 01/05/2020 | 0835 | 1135 | 3.00 | JM | 10 | 700 | NE | 1 | nil | 15 | HH ML EA |
| 04/05/2020 | 1000 | 1400 | 4.00 | GAR | 5 | 900 | NE | 2 | nil | 15 | EA |
| 04/05/2020 | 1315 | 1615 | 3.00 | DA | 5 | 500 | NE | 1 | nil | 20 | EA HH ML |
| 04/05/2020 | 1335 | 1635 | 3.00 | WR | 3 | 1100 | NE | 3 | nil | 15 | ML EA PE |
| 06/05/2020 | 1445 | 1745 | 3.00 | WR | 0 | - | SW | 1 | nil | 15 | ML HY EA |
| 07/05/2020 | 0800 | 1400 | 6.00 | PS | 0 | - | W | 2 | nil | 3 | HH ML KT |
| 07/05/2020 | 0810 | 1110 | 3.00 | DA | 0 | - | SW | 2 | nil | 10 | HH ML KT |
| 08/05/2020 | 0705 | 1005 | 3.00 | DA | 10 | 300 | SW | 1 | ILR | 5 | HH ML EA HY |
| 08/05/2020 | 1020 | 1120 | 1.00 | WR | 10 | 500 | W | 2 | ILR | 5 | RAPTORS |
| 11/05/2020 | 0900 | 1500 | 6.00 | PS | 8 | 1000 | NE | 1 | nil | 3 | HH ML EA |
| 12/05/2020 | 1335 | 1635 | 3.00 | WR | 9 | 600 | NW | 2 | ILR | 12 | EA HY ML |
| 13/05/2020 | 0840 | 1140 | 3.00 | WR | 9 | 1100 | N | 2 | nil | 15 | HH ML HY EA |
| 13/05/2020 | 1210 | 1510 | 3.00 | WR | 10 | 1100 | NW | 2 | nil | 15 | HH HY ML PE |
| 14/05/2020 | 1130 | 1430 | 3.00 | FN | 9 | 500 | WNW | 4 | IHR | 2 | ML HH PE |
| 14/05/2020 | 1145 | 1445 | 3.00 | DA | 6 | 500 | NW | 2 | ILR | 10 | ML KT |
| 19/05/2020 | 0615 | 0915 | 3.00 | FN | 9 | 500 | NW | 1 | nil | 15 | ML HY KT EA |
| 19/05/2020 | 0945 | 1245 | 3.00 | FN | 10 | 500 | SW | 3 | ILR | 2 | ML HY KT EA |
| 19/05/2020 | 1440 | 1740 | 3.00 | PS | 9 | 1000 | SW | 3 | nil | 3 | HH ML EA |
| 19/05/2020 | 1440 | 1740 | 3.00 | JD | 8 | 1000 | SW | 3 | nil | 5 | HH |
| 20/05/2020 | 0830 | 1130 | 3.00 | WR | 5 | 1100 | S | 3 | nil | 15 | HY ML HH EA |
| 20/05/2020 | 1200 | 1500 | 3.00 | WR | 4 | 1100 | S | 3 | nil | 15 | HY ML HH EA |
| 21/05/2020 | 0820 | 1120 | 3.00 | FN | 10 | 500 | SW | 1 | nil | 15 | EA |

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 21/05/2020 | 1450 | 1750 | 3.00 | WR | 4 | 1100 | SW | 2 | nil | 15 | EA HH ML |
| 24/05/2020 | 0805 | 1105 | 3.00 | WR | 10 | 700 | SW | 3 | ILR | 12 | HY HH ML EA |
| 25/05/2020 | 0750 | 1050 | 3.00 | FN | 5 | 500 | S | 2 | nil | 15 | EA ML HY |
| 25/05/2020 | 0740 | 1040 | 3.00 | WR | 1 | 1100 | S | 3 | nil | 15 | HH ML HY EA |
| 26/05/2020 | 0715 | 1015 | 3.00 | FN | 5 | 500 | SW | 4 | nil | 15 | HY ML HH EA |
| 26/05/2020 | 1045 | 1345 | 3.00 | FN | 5 | 500 | SW | 3 | nil | 15 | HY ML HH EA |
| 28/05/2020 | 1500 | 1800 | 3.00 | FN | 6 | 500 | W | 1 | nil | 15 | ML HH PE |
| 07/05/2020 | 0715 | 1015 | 3.00 | JM | 0 | - | W | 2 | nil | 30 | RAPTORS |
| 01/06/2020 | 1530 | 1830 | 3.00 | WR | 2 | 1000 | SW | 2 | nil | 15 | ML |
| 04/06/2020 | 0845 | 1145 | 3.00 | WR | 9 | 500 | N | 1 | ILR | 10 | ML HH |
| 04/06/2020 | 1230 | 1530 | 3.00 | FN | 10 | 500 | N | 1 | CLR | 15 | RAPTORS |
| 06/06/2020 | 1515 | 1815 | 3.00 | FN | 10 | 500 | NW | 2 | ILR | 15 | RAPTORS |
| 12/06/2020 | 1300 | 1600 | 3.00 | WR | 3 | 1100 | NE | 4 | nil | 15 | ML HH |
| 13/06/2020 | 0745 | 1045 | 3.00 | WR | 10 | 800 | E | 3 | nil | 4 | ML HH |
| 15/06/2020 | 1215 | 1515 | 3.00 | WR | 10 | 900 | E | 1 | nil | 2 | ML |
| 12/06/2020 | 1245 | 1545 | 3.00 | JM | 9 | 1500 | NE | 4 | nil | 25 | ML HH EA KT |
| 22/06/2020 | 0930 | 1230 | 3.00 | JM | 10 | 1000 | S | 7 | ILR | 15 | ML EA OP KT |
| 15/06/2020 | 1215 | 1515 | 3.00 | JM | 10 | 400 | NE | 1 | nil | 1.5 | ML HH EA KT |
| 27/06/2020 | 1045 | 1245 | 2.00 | JM | 8 | 900 | SE | 3 | nil | 15 | ML HH |
| 20/07/2020 | 1700 | 1800 | 1.00 | RE | 10 | 1000 | SW | 4 | nil | 5 | RAPTORS |
| 21/07/2020 | 0745 | 0900 | 1.25 | RAS | 7 | 1000 | W | 4 | nil | 5 | GI HH ML EA |
| 21/07/2020 | 1230 | 1600 | 3.50 | RE | 7 | 1000 | SW | 4 | nil | 10 | RAPTORS |
| 21/07/2020 | 1605 | 1705 | 1.00 | RE | 8 | 1000 | SW | 4 | nil | 10 | EA PE |
| 22/07/2020 | 1430 | 1915 | 4.75 | RAS | 10 | 700 | S | 2 | nil | 5 | EA ML HH |
| 22/07/2020 | 1030 | 1130 | 1.00 | RE | 10 | 1000 | nil | 0 | nil | 5 | RAPTORS |
| 22/07/2020 | 1630 | 1830 | 2.00 | RE | 10 | 700 | E | 3 | IHR | 3 | RAPTORS |
| 23/07/2020 | 1215 | 1315 | 1.00 | RAS | 8 | 900 | NW | 4 | nil | 5 | EA ML HH |
| 23/07/2020 | 1615 | 1745 | 1.50 | RAS | 6 | 900 | NW | 5 | nil | 5 | EA ML HH |
| 24/07/2020 | 0730 | 0830 | 1.00 | RE | 2 | 1500 | SW | 1 | nil | 8 | ML |
| 27/07/2020 | 1300 | 1500 | 2.00 | RE | 10 | 600 | NW | 2 | CHR | 2 | RAPTORS |
| 28/07/2020 | 0800 | 0850 | 0.83 | RAS | 10 | 500 | NW | 4 | ILR | 5 | ML EA |
| 28/07/2020 | 1540 | 1645 | 1.08 | RAS | 9 | 900 | NW | 5 | ILR | 5 | ML EA PE |
| 28/07/2020 | 0730 | 0845 | 1.25 | RE | 10 | 600 | NW | 4 | IHR | 2 | RAPTORS |
| 29/07/2020 | 0800 | 1200 | 4.00 | RAS | 9 | 800 | WNW | 5 | ILR | 5 | EA ML HH |
| 29/07/2020 | 0700 | 0845 | 1.75 | RE | 5 | 1000 | NW | 4 | nil | 5 | RAPTORS |
| 30/07/2020 | 0730 | 0830 | 1.00 | RAS | 10 | 900 | SE | 2 | ILR | 5 | ML EA |
| 30/07/2020 | 1130 | 1215 | 0.75 | RAS | 10 | 800 | SSE | 2 | ILR | 4 | ML EA |
| 30/07/2020 | 0730 | 0830 | 1.00 | RE | 10 | 800 | W | 3 | ILR | 3 | RAPTORS |
| 31/07/2020 | 0720 | 0920 | 2.00 | RAS | 6 | 1500 | SSW | 5 | nil | 5 | EA ML |
| 05/08/2020 | 1205 | 1250 | 0.75 | AA | 10 | 600 | SW | 4 | ILR | 20 | ML HH |
| 05/08/2020 | 1600 | 1625 | 0.42 | AA | 10 | 600 | SW | 4 | ILR | 20 | ML HH |
| 06/08/2020 | 0805 | 0900 | 0.92 | AA | 3 | 1000 | S | 3 | nil | 20 | EA ML HH |
| 06/08/2020 | 1540 | 1615 | 0.58 | AA | 3 | 1000 | S | 3 | nil | 20 | EA ML HH |
| 10/08/2020 | 1720 | 1750 | 0.50 | RAS | 4 | 1500 | NE | 4 | nil | 5 | ML |

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 11/08/2020 | 1045 | 1135 | 0.83 | RAS | 10 | 400 | ENE | 1 | ILF | 2 | EA ML HH |
| 11/08/2020 | 1130 | 1230 | 1.00 | RE | 9 | 600 | NE | 3 | ILF | 3 | EA ML HH |
| 12/08/2020 | 1605 | 1755 | 1.83 | RAS | 4 | 1000 | NE | 3 | nil | 5 | EA ML HH |
| 12/08/2020 | 1200 | 1300 | 1.00 | RE | 3 | 1500 | NE | 2 | nil | 5 | EA ML HH |
| 13/08/2020 | 1615 | 1745 | 1.50 | RE | 10 | 800 | NE | 3 | nil | 5 | EA ML HH |
| 17/08/2020 | 1245 | 1330 | 0.75 | RE | 10 | 700 | NE | 3 | ILF | 4 | HH ML |
| 17/08/2020 | 1530 | 1615 | 0.75 | RE | 10 | 600 | NE | 3 | ILF | 2 | HH ML |
| 18/08/2020 | 0845 | 1545 | 7.00 | RAS | 6 | 600 | NE | 3 | nil | 5 | EA ML HH PE |
| 20/08/2020 | 1500 | 1530 | 0.50 | RAS | 7 | 1000 | S | 5 | nil | 5 | ML |
| 16/03/2021 | 0800 | 1100 | 3.00 | KC | 2 | 900 | NW | 6 | nil | 15 | EA |
| 16/03/2021 | 1200 | 1600 | 4.00 | RE | 3 | 1000 | NW | 6 | nil | 4 | EA |
| 17/03/2021 | 0940 | 1210 | 2.50 | KC | 4 | 900 | NW | 3 | nil | 15 | EA |
| 18/03/2021 | 1130 | 1145 | 0.25 | KC | 3 | 800 | NW | 7 | nil | 15 | EA |
| 18/03/2021 | 1545 | 1600 | 0.25 | KC | 4 | 800 | NW | 7 | nil | 15 | EA |
| 23/03/2021 | 1030 | 1330 | 3.00 | KC | 10 | 700 | SW | 7 | nil | 10 | EA |
| 24/03/2021 | 1200 | 1400 | 2.00 | RAS | 10 | 600 | SW | 5 | IHR | 5 | EA |
| 24/03/2021 | 1420 | 1520 | 1.00 | RAS | 10 | 600 | SW | 5 | CHR | 1 | EA |
| 25/03/2021 | 0700 | 1400 | 7.00 | KC | 10 | 500 | SW | 4 | CHS | 10 | EA |
| 25/03/2021 | 0915 | 1215 | 3.00 | RAS | 10 | 600 | SW | 4 | CLR | 3 | EA |
| 26/03/2021 | 0615 | 0715 | 1.00 | KC | 10 | 400 | SW | 4 | CHR | 5 | EA |
| 26/03/2021 | 0715 | 0915 | 2.00 | KC | 10 | 500 | SW | 4 | CHR | 5 | GI |
| 29/03/2021 | 0815 | 0915 | 1.00 | KC | 8 | 600 | SW | 5 | nil | 5 | EA |
| 29/03/2021 | 1220 | 1420 | 2.00 | KC | 10 | 600 | SW | 4 | CHR | 10 | EA |
| 31/03/2021 | 0630 | 0930 | 3.00 | KC | 10 | 400 | NE | 5 | CHR | 1 | EA |
| 01/04/2021 | 0900 | 1200 | 3.00 | KC | 0 | - | S | 4 | nil | 20 | EA |
| 01/04/2021 | 1200 | 1600 | 4.00 | KC | 0 | - | S | 4 | nil | 20 | EA |
| 05/04/2021 | 0830 | 1430 | 6.00 | KC | 10 | 600 | N | 4 | IHS | 10 | EA |
| 05/04/2021 | 0845 | 1145 | 3.00 | JM | 7 | 100 | N | 6 | ILS | 2 | RAPTORS |
| 05/04/2021 | 1200 | 1500 | 3.00 | WR | 7 | 200 | NW | 5 | ILS | 5 | RAPTORS |
| 06/04/2021 | 0840 | 1140 | 3.00 | KC | 10 | 600 | N | 4 | CHS | 5 | EA |
| 08/04/2021 | 1300 | 1600 | 3.00 | KC | 10 | 400 | NW | 4 | CHR | 10 | EA |
| 12/04/2021 | 1015 | 1315 | 3.00 | KC | 0 | - | N | 2 | nil | 20 | EA |
| 12/04/2021 | 1330 | 1630 | 3.00 | KC | 0 | - | N | 2 | nil | 20 | EA |
| 12/04/2021 | 1025 | 1625 | 6.00 | FN | 1 | 500 | N | 1 | nil | 10 | RAPTORS |
| 15/04/2021 | 1700 | 1800 | 1.00 | KC | 5 | 1000 | SE | 3 | nil | 20 | EA |
| 16/04/2021 | 0540 | 1140 | 6.00 | KC | 0 | - | S | 3 | nil | 10 | EA |
| 19/04/2021 | 0930 | 1030 | 1.00 | KC | 10 | 1000 | S | 3 | nil | 20 | EA |
| 19/04/2021 | 1230 | 1530 | 3.00 | KC | 10 | 1000 | S | 3 | nil | 20 | EA |
| 20/04/2021 | 1300 | 1500 | 2.00 | KC | 10 | 800 | S | 3 | ILS | 15 | GI |
| 20/04/2021 | 1700 | 2100 | 4.00 | KC | 4 | 1000 | S | 4 | nil | 15 | EA |
| 20/04/2021 | 1330 | 1630 | 3.00 | CT | 9 | 800 | SW | 1 | nil | 10 | RAPTORS |
| 22/04/2021 | 0830 | 1025 | 1.92 | KC | 3 | 2000 | SW | 3 | nil | 20 | ML EA |
| 22/04/2021 | 1230 | 1730 | 5.00 | KC | 2 | 2000 | SW | 3 | nil | 20 | EA |
| 23/04/2021 | 1025 | 1225 | 2.00 | KC | 0 | - | SE | 2 | nil | 10 | ML |

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 26/04/2021 | 1315 | 1915 | 6.00 | KC | 10 | 700 | SW | 4 | nil | 15 | HH ML OP |
| 28/04/2021 | 0740 | 1040 | 3.00 | KC | 10 | 500 | N | 4 | IHR | 10 | ML EA |
| 29/04/2021 | 0745 | 1045 | 3.00 | KC | 8 | 600 | N | 4 | IHS | 10 | EA |
| 29/04/2021 | 1045 | 1245 | 2.00 | KC | 10 | 600 | N | 4 | nil | 10 | HZ KT |
| 03/05/2021 | 1200 | 1500 | 3.00 | KC | 10 | 600 | E | 4 | nil | 15 | EA |
| 03/05/2021 | 1500 | 1800 | 3.00 | KC | 10 | 600 | E | 5 | IHR | 10 | EA |
| 05/05/2021 | 0735 | 1035 | 3.00 | KC | 10 | 700 | N | 3 | IHS | 10 | HZ |
| 06/05/2021 | 1200 | 1300 | 1.00 | KC | 10 | 600 | N | 5 | IHR | 5 | EA |
| 06/05/2021 | 1300 | 1700 | 4.00 | KC | 10 | 600 | N | 5 | CHR | 10 | EA |
| 07/05/2021 | 0730 | 1030 | 3.00 | KC | 9 | 800 | N | 4 | nil | 15 | EA |
| 10/05/2021 | 1400 | 1600 | 2.00 | KC | 10 | 800 | SE | 2 | nil | 20 | EA |
| 11/05/2021 | 1230 | 1430 | 2.00 | KC | 5 | 1000 | S | 4 | nil | 20 | EA |
| 11/05/2021 | 1500 | 2130 | 6.50 | KC | 6 | 1000 | S | 4 | nil | 20 | EA |
| 13/05/2021 | 1610 | 1810 | 2.00 | KC | 10 | 600 | NE | 4 | nil | 15 | ML |
| 18/05/2021 | 0825 | 1125 | 3.00 | KC | 10 | 800 | SW | 3 | IHR | 20 | EA |
| 18/05/2021 | 1125 | 1525 | 4.00 | KC | 9 | 800 | SW | 3 | IHR | 20 | EA PE |
| 25/05/2021 | 0800 | 1000 | 2.00 | KC | 10 | 500 | W | 2 | CHR | 10 | EA |
| 26/05/2021 | 1055 | 1255 | 2.00 | KC | 10 | 400 | N | 2 | IHR | 10 | EA |
| 28/05/2021 | 0745 | 1145 | 4.00 | KC | 8 | 800 | S | 2 | nil | 10 | EA ML |
| 01/06/2021 | 1215 | 1515 | 3.00 | JM | 9 | 200 | S | 5 | nil | 30 | RAPTORS |
| 02/06/2021 | 0930 | 1230 | 3.00 | WR | 3 | 600 | SE | 3 | nil | 10 | EA PE ML |
| 08/06/2021 | 1545 | 1845 | 3.00 | WR | 6 | 600 | S | 2 | nil | 10 | EA |
| 14/06/2021 | 1230 | 1530 | 3.00 | JM | 8 | 500 | W | 6 | nil | 30 | RAPTORS |
| 23/06/2021 | 0810 | 1110 | 3.00 | WR | 10 | 300 | NW | 2 | nil | 10 | EA ML PE |
| 28/06/2021 | 1120 | 1420 | 3.00 | FN | 1 | 500 | SW | 1 | nil | 20 | RAPTORS |
| 29/06/2021 | 0500 | 1100 | 6.00 | CT | 2 | 1000 | nil | 0 | nil | 5 | RAPTORS |
| 29/06/2021 | 0500 | 1100 | 6.00 | MM | 2 | 1000 | nil | 0 | nil | 20 | RAPTORS |
| 01/06/2021 | 0515 | 1015 | 5.00 | KC | 8 | 1000 | nil | 0 | nil | 20 | HZ OP |
| 02/06/2021 | 1245 | 1345 | 1.00 | KC | 6 | 1000 | S | 4 | nil | 20 | GI |
| 02/06/2021 | 1445 | 1645 | 2.00 | KC | 2 | 1000 | S | 3 | nil | 20 | GI |
| 04/06/2021 | 1040 | 1440 | 4.00 | KC | 10 | 1000 | S | 3 | nil | 20 | EA |
| 16/06/2021 | 1010 | 1310 | 3.00 | KC | 8 | 800 | SW | 4 | IHR | 10 | HZ OP ML |
| 16/06/2021 | 1330 | 1630 | 3.00 | KC | 6 | 800 | SW | 5 | ILR | 20 | EA |
| 29/06/2021 | 0730 | 1330 | 6.00 | KC | 10 | 600 | S | 2 | nil | 10 | OP HY |
| 30/06/2021 | 1100 | 1130 | 0.50 | KC | 9 | 1000 | NE | 3 | nil | 20 | GI |
| 30/06/2021 | 1805 | 1835 | 0.50 | KC | 4 | 1000 | E | 3 | nil | 20 | GI |
| 03/05/2021 | 0720 | 1020 | 3.00 | FN | 10 | 500 | E | 1 | nil | 30 | RAPTORS |
| 04/05/2021 | 1115 | 1245 | 1.50 | JM | 10 | 100 | NNE | 5 | ILR | 10 | RAPTORS |
| 05/05/2021 | 0750 | 1050 | 3.00 | WR | 5 | 400 | NNE | 3 | ILS | 7 | RAPTORS |
| 10/05/2021 | 1230 | 1530 | 3.00 | JM | 9 | 100 | E | 4 | ILR | 15 | RAPTORS |
| 11/05/2021 | 1400 | 1700 | 3.00 | JM | 5 | 500 | SW | 4 | nil | 30 | RAPTORS |
| 11/05/2021 | 1430 | 2030 | 6.00 | FN | 6 | 500 | SW | 2 | nil | 30 | RAPTORS |
| 24/05/2021 | 1050 | 1220 | 1.50 | JM | 10 | 100 | NW | 4 | ILR | 5 | RAPTORS |
| 26/05/2021 | 0945 | 1245 | 3.00 | WR | 10 | 300 | NE | 3 | ILR | 10 | OD RH GK |

| Table 4. Details of Scarce Breeding Raptor and Owl surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 26/05/2021 | 1345 | 1645 | 3.00 | JM | 10 | 500 | NW | 4 | nil | 25 | RAPTORS |
| 07/07/2021 | 0830 | 1430 | 6.00 | FN | 7 | 500 | N | 2 | nil | 20 | RAPTORS |
| 08/07/2021 | 0810 | 1410 | 6.00 | FN | 8 | 500 | NE | 1 | nil | 20 | RAPTORS |
| 12/07/2021 | 0925 | 1025 | 1.00 | KC | 8 | 1000 | N | 2 | nil | 20 | GI |
| 12/07/2021 | 1025 | 1425 | 4.00 | KC | 7 | 1000 | N | 2 | nil | 20 | HZ |
| 02/08/2021 | 1320 | 1620 | 3.00 | KC | 5 | 1000 | SW | 2 | nil | 15 | EA |
| 16/08/2021 | 0925 | 1425 | 5.00 | KC | 8 | 800 | SW | 2 | nil | 15 | HZ |
| 18/08/2021 | 0830 | 1630 | 8.00 | MH | 2 | 1000 | W | 3 | nil | 10 | HZ |
| 18/08/2021 | 0900 | 1700 | 8.00 | RAS | 5 | 900 | NW | 4 | nil | 5 | HZ KT |
| 19/08/2021 | 1300 | 1530 | 2.50 | MH | 10 | 800 | E | 1 | nil | 10 | HZ |
| 19/08/2021 | 0940 | 1240 | 3.00 | KC | 10 | 600 | S | 1 | nil | 15 | HZ |
| 19/08/2021 | 1250 | 1620 | 3.50 | KC | 10 | 600 | S | 1 | nil | 15 | HZ |
| 26/08/2021 | 1430 | 1830 | 4.00 | JH | 0 | - | SE | 2 | nil | 10 | HZ |
| Total (hrs) | | | 556.08 | | | | | | | | |

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog

Breeding Divers and Slavonian Grebe

16. Surveyors conducted 125 separate searches or watches during the study period, totalling over 358 hours, to search for red-throated diver and black-throated diver (*Gavia arctica*) and Slavonian grebe (*Podiceps auratus*) (Table 5). These visits complemented search effort accrued during VP and FVP watches. Methods used for individual species are summarised below.
17. For black-throated diver (BV) and red-throated diver (RH), all potential breeding sites within 2 km of the Site were checked for suitability (Figure 1) and if suitable, further checks for occupancy were made at least twice per calendar month in May-July. The methods employed were based on those described in Gilbert *et al.* (1998)⁸. Wherever possible lochs were scanned from a distance to search for incubating birds or other evidence of breeding. Care was taken to record possible re-lay attempts by failed pairs.
18. For Slavonian grebe (SZ), the methods described in Gilbert *et al.* (1998)⁸ were used. Known breeding sites within the Site plus 500 m buffer were visited in late May to confirm breeding. If breeding was confirmed, then no further visits were required. If breeding was not confirmed, then a second visit before 10 June was required to confirm occupancy. If occupancy was not confirmed, then two further visits were undertaken before July. Other potential Slavonian grebe sites within 500 m of the Site were visited twice: once in late May and once in early July.

⁸ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird monitoring methods. RSPB Sandy, Bedfordshire.

| Table 5. Details of Breeding Divers and Slavonian Grebe surveys. | | | | | | | | | | | |
|--|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 24/04/2020 | 0835 | 1135 | 3.00 | DA | 1 | 500 | E | 1 | nil | 20 | SZ |
| 24/04/2020 | 0800 | 1250 | 4.83 | GAR | 0 | - | E | 2 | nil | 20 | RH SZ |
| 26/04/2020 | 1025 | 1325 | 3.00 | WR | 8 | 1100 | SW | 2 | nil | 15 | RH |
| 26/04/2020 | 1420 | 1620 | 2.00 | JM | 7 | 1200 | W | 4 | ILR | 25 | RH SZ |
| 27/04/2020 | 0930 | 1530 | 6.00 | DA | 7 | 500 | NE | 2 | ILR | | EA RH |
| 28/04/2020 | 0730 | 0830 | 1.00 | JM | 9 | 700 | NE | 1 | nil | 15 | SZ |
| 28/04/2020 | 0845 | 1230 | 3.75 | GAR | 9 | 800 | NNE | 1 | nil | 15 | RH |
| 28/04/2020 | 1400 | 1500 | 1.00 | GAR | 5 | 900 | NE | 2 | nil | 15 | RH SZ |
| 29/04/2020 | 1430 | 1600 | 1.50 | WR | 10 | 800 | NE | 3 | nil | 15 | RH |
| 01/05/2020 | 0910 | 1210 | 3.00 | WR | 10 | 700 | SE | 1 | nil | 8 | RH SZ |
| 04/05/2020 | 0945 | 1545 | 6.00 | PS | 7 | 1000 | E | 2 | nil | 3 | RH |
| 05/05/2020 | 1345 | 1645 | 3.00 | JM | 5 | 2000 | SE | 1 | nil | 30 | RH |
| 07/05/2020 | 1220 | 1520 | 3.00 | WR | 7 | 1000 | SE | 3 | nil | 15 | RH |
| 08/05/2020 | 0915 | 1515 | 6.00 | FN | 10 | 1000 | WSW | 3 | ILR | 20 | RH |
| 12/05/2020 | 1130 | 1430 | 3.00 | DA | 9 | 500 | W | 3 | nil | 10 | RH |
| 14/05/2020 | 0750 | 1050 | 3.00 | WR | 9 | 1000 | NW | 3 | nil | 12 | RH |
| 14/05/2020 | 0800 | 1100 | 3.00 | FN | 9 | 500 | WNW | 2 | ILR | 2 | RH |
| 14/05/2020 | 0945 | 1245 | 3.00 | PS | 9 | 1000 | WNW | 3 | ILR | 3 | RH |
| 19/05/2020 | 0750 | 1050 | 3.00 | DA | 6 | 500 | WSW | 1 | nil | 10 | RH |
| 19/05/2020 | 1105 | 1305 | 2.00 | WR | 10 | 800 | SW | 3 | ILR | 10 | RH |
| 22/05/2020 | 0920 | 1220 | 3.00 | FN | 10 | 500 | S | 4 | CLR | 2 | RH SZ |
| 22/05/2020 | 1250 | 1550 | 3.00 | FN | 10 | 500 | S | 7 | ILR | 2 | RH SZ |
| 23/05/2020 | 0930 | 1230 | 3.00 | WR | 6 | 900 | SW | 6 | ILR | 12 | RH SZ |
| 23/05/2020 | 1300 | 1600 | 3.00 | WR | 10 | 900 | SW | 6 | ILR | 10 | RH SZ |
| 24/05/2020 | 1100 | 1400 | 3.00 | PS | 10 | 1000 | NW | 4 | ILR | 3 | RH SZ |
| 24/05/2020 | 1130 | 1430 | 3.00 | JD | 10 | 1000 | SW | 3 | ILR | 5 | RH SZ |
| 24/05/2020 | 1135 | 1435 | 3.00 | WR | 10 | 700 | SW | 2 | ILR | 8 | RH SZ |
| 26/05/2020 | 0920 | 1150 | 2.50 | WR | 3 | 1100 | SW | 3 | nil | 15 | RH SZ |
| 01/06/2020 | 1530 | 1830 | 3.00 | FN | 5 | 500 | SW | 1 | nil | 15 | RH SZ |
| 08/06/2020 | 1005 | 1305 | 3.00 | WR | 2 | 1100 | NE | 2 | nil | 15 | RH SZ |
| 11/06/2020 | 0920 | 1220 | 3.00 | WR | 10 | 1000 | E | 3 | nil | 15 | RH SZ |
| 15/06/2020 | 0845 | 1145 | 3.00 | WR | 10 | 500 | E | 1 | nil | 2 | RH SZ |
| 08/06/2020 | 1015 | 1315 | 3.00 | JM | 8 | 1500 | SE | 3 | nil | 30 | RH SZ |
| 11/06/2020 | 0930 | 1230 | 3.00 | JM | 10 | 900 | NE | 5 | nil | 25 | RH SZ |
| 15/06/2020 | 0900 | 1200 | 3.00 | JM | 10 | 200 | NE | 2 | nil | 0.5 | RH SZ |
| 27/06/2020 | 0945 | 1045 | 1.00 | JM | 7 | 900 | SE | 3 | nil | 15 | RH SZ |
| 21/07/2020 | 1200 | 1715 | 5.25 | RAS | 7 | 1000 | W | 4 | nil | 5 | RH SZ |
| 21/07/2020 | 0830 | 1230 | 4.00 | RE | 5 | 1000 | SW | 3 | nil | 10 | RH SZ |
| 22/07/2020 | 1015 | 1130 | 1.25 | RAS | 10 | 800 | S | 2 | nil | 5 | RH SZ |
| 22/07/2020 | 1130 | 1630 | 5.00 | RE | 10 | 1000 | E | 1 | ILR | 5 | RH SZ |
| 23/07/2020 | 0815 | 0915 | 1.00 | RAS | 10 | 700 | SW | 3 | nil | 5 | RH SZ |
| 23/07/2020 | 0730 | 0845 | 1.25 | RE | 10 | 700 | SW | 2 | nil | 3 | RH SZ |
| 28/07/2020 | 1150 | 1240 | 0.83 | RAS | 9 | 900 | NW | 5 | ILR | 5 | RH SZ |
| 28/07/2020 | 1200 | 1500 | 3.00 | RE | 10 | 900 | NW | 6 | IHR | 2 | RH SZ |

| Table 5. Details of Breeding Divers and Slavonian Grebe surveys. | | | | | | | | | | | |
|--|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 29/07/2020 | 1500 | 1745 | 2.75 | RAS | 9 | 1000 | W | 3 | nil | 5 | RH SZ |
| 29/07/2020 | 1530 | 1730 | 2.00 | RE | 10 | 1000 | NW | 5 | nil | 5 | RH SZ |
| 30/07/2020 | 0900 | 1130 | 2.50 | RE | 10 | 800 | SW | 2 | CLR | 2 | RH SZ |
| 31/07/2020 | 1220 | 1405 | 1.75 | RAS | 8 | 1500 | SSE | 5 | nil | 5 | RH SZ |
| 05/08/2020 | 0740 | 0855 | 1.25 | AA | 10 | 600 | SW | 4 | ILR | 20 | RH SZ |
| 05/08/2020 | 1430 | 1530 | 1.00 | JH | 10 | 600 | SW | 5 | ILR | 5 | RH BV |
| 06/08/2020 | 1210 | 1230 | 0.33 | AA | 3 | 1000 | S | 3 | nil | 20 | RH SZ |
| 10/08/2020 | 1320 | 1350 | 0.50 | RAS | 5 | 1500 | E | 3 | nil | 5 | RH SZ |
| 11/08/2020 | 1435 | 1505 | 0.50 | RAS | 7 | 900 | ENE | 1 | nil | 5 | RH SZ |
| 11/08/2020 | 1805 | 1845 | 0.67 | RAS | 8 | 1000 | ENE | 2 | nil | 5 | RH SZ |
| 11/08/2020 | 1845 | 1915 | 0.50 | RE | 8 | 1000 | NE | 1 | nil | 4 | RH SZ |
| 12/08/2020 | 1130 | 1305 | 1.58 | RAS | 5 | 1000 | NNE | 3 | nil | 5 | RH SZ |
| 12/08/2020 | 0745 | 0845 | 1.00 | RE | 8 | 500 | NE | 1 | IHF | 1 | RH SZ |
| 13/08/2020 | 1230 | 1300 | 0.50 | RE | 10 | 700 | NE | 3 | ILF | 2.5 | RH SZ |
| 19/08/2020 | 0930 | 1030 | 1.00 | RE | 3 | 800 | NE | 1 | nil | 8 | RH SZ |
| 19/08/2020 | 1245 | 1400 | 1.25 | RAS | 8 | 500 | NNE | 3 | ILF | 5 | RH SZ |
| 20/08/2020 | 0900 | 1045 | 1.75 | RE | 7 | 1000 | S | 6 | nil | 7 | RH SZ |
| 20/08/2020 | 1230 | 1300 | 0.50 | RAS | 8 | 1000 | S | 5 | nil | 5 | RH SZ |
| 07/04/2021 | 0830 | 1430 | 6.00 | JM | 4 | 200 | NW | 3 | nil | 25 | RH BV SZ |
| 10/04/2021 | 1100 | 1400 | 3.00 | JM | 5 | 100 | N | 5 | nil | 25 | RH BV SZ |
| 10/04/2021 | 1110 | 1410 | 3.00 | WR | 5 | 400 | NE | 4 | nil | 10 | RH BV SZ |
| 12/04/2021 | 1015 | 1315 | 3.00 | WR | 3 | 600 | NW | 2 | nil | 10 | RH BV SZ |
| 12/04/2021 | 1030 | 1330 | 3.00 | JM | 4 | 100 | NW | 2 | nil | 30 | RH BV SZ |
| 15/04/2021 | 0900 | 1700 | 8.00 | KC | 3 | 1000 | SE | 3 | nil | 25 | RH BV SZ |
| 16/04/2021 | 0800 | 1100 | 3.00 | JM | 1 | 500 | SW | 4 | nil | 30 | RH BV SZ |
| 19/04/2021 | 1130 | 1330 | 2.00 | KC | 10 | 1000 | S | 4 | nil | 20 | RH BV SZ |
| 20/04/2021 | 0830 | 1130 | 3.00 | FN | 10 | 100 | SSW | 2 | ILR | 1 | RH BV SZ |
| 20/04/2021 | 1500 | 1700 | 2.00 | KC | 6 | 1000 | S | 4 | nil | 20 | RH BV SZ |
| 27/04/2021 | 0740 | 1140 | 4.00 | KC | 10 | 500 | N | 4 | CHR | 5 | RH BV SZ |
| 04/05/2021 | 0730 | 1130 | 4.00 | KC | 10 | 500 | N | 5 | IHS | 5 | RH SZ |
| 10/05/2021 | 1000 | 1400 | 4.00 | KC | 10 | 800 | SE | 2 | ILR | 20 | RH SZ |
| 12/05/2021 | 1200 | 1700 | 5.00 | KC | 10 | 500 | E | 3 | IHR | 5 | RH SZ |
| 20/05/2021 | 1315 | 1515 | 2.00 | KC | 10 | 500 | E | 4 | IHH | 10 | RH |
| 25/05/2021 | 0745 | 1545 | 8.00 | RAS | 10 | 500 | NNE | 3 | CLR | 4 | RH |
| 25/05/2021 | 1000 | 1430 | 4.50 | KC | 10 | 500 | W | 2 | CHR | 5 | RH SZ |
| 28/05/2021 | 0545 | 0745 | 2.00 | KC | 3 | 800 | S | 2 | nil | 20 | RH SZ |
| 01/06/2021 | 0820 | 1120 | 3.00 | WR | 8 | 600 | N | 4 | nil | 10 | SZ RH BV |
| 01/06/2021 | 0915 | 1515 | 6.00 | FN | 10 | 500 | S | 2 | nil | 10 | SZ RH |
| 02/06/2021 | 0955 | 1255 | 3.00 | JM | 4 | 500 | SE | 5 | nil | 30 | SZ RH |
| 07/06/2021 | 0910 | 1110 | 2.00 | JM | 7 | 200 | SW | 4 | nil | 30 | SZ RH |
| 07/06/2021 | 1410 | 1510 | 1.00 | JM | 7 | 200 | SW | 4 | nil | 30 | SZ RH |
| 08/06/2021 | 1100 | 1400 | 3.00 | CT | 8 | 800 | N | 2 | nil | 10 | RH |
| 08/06/2021 | 1130 | 1430 | 3.00 | MM | 8 | 800 | N | 2 | nil | 5 | RH |
| 08/06/2021 | 1500 | 1800 | 3.00 | JM | 7 | 200 | SW | 5 | nil | 30 | RH SZ |

| Table 5. Details of Breeding Divers and Slavonian Grebe surveys. | | | | | | | | | | | |
|--|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Target species |
| 14/06/2021 | 0930 | 1230 | 3.00 | JM | 8 | 500 | W | 6 | nil | 30 | RH SZ |
| 28/06/2021 | 0820 | 1120 | 3.00 | FN | 1 | 500 | SW | 1 | nil | 20 | SZ RH |
| 28/06/2021 | 0820 | 1420 | 6.00 | JM | 2 | 500 | SSW | 3 | nil | 30 | SZ RH |
| 29/06/2021 | 0730 | 1330 | 6.00 | JM | 1 | 500 | NE | 2 | nil | 30 | SZ RH |
| 29/06/2021 | 0730 | 1330 | 6.00 | FN | 1 | 500 | nil | 0 | nil | 20 | SZ RH |
| 02/06/2021 | 0945 | 1245 | 3.00 | KC | 3 | 1000 | S | 3 | nil | 20 | RH SZ |
| 02/06/2021 | 1345 | 1445 | 1.00 | KC | 2 | 1000 | S | 4 | nil | 20 | RH SZ |
| 04/06/2021 | 0830 | 1030 | 2.00 | KC | 8 | 1000 | W | 3 | nil | 20 | RH SZ |
| 28/06/2021 | 0955 | 1655 | 7.00 | KC | 0 | - | S | 2 | nil | 20 | RH SZ |
| 03/05/2021 | 0725 | 1025 | 3.00 | JM | 9 | 500 | SE | 2 | nil | 25 | SZ RH |
| 04/05/2021 | 0945 | 1115 | 1.50 | JM | 10 | 100 | NNE | 5 | ILR | 10 | SZ RH |
| 04/05/2021 | 1030 | 1100 | 0.50 | FN | 9 | 500 | N | 2 | ILR | 30 | LOCHANS |
| 04/05/2021 | 1400 | 1630 | 2.50 | FN | 9 | 500 | N | 2 | ILR | 30 | LOCHANS |
| 05/05/2021 | 0725 | 1025 | 3.00 | JM | 5 | 100 | N | 4 | nil | 25 | SZ RH |
| 10/05/2021 | 1545 | 1845 | 3.00 | JM | 8 | 100 | SE | 3 | ILR | 15 | SZ RH |
| 24/05/2021 | 0920 | 1050 | 1.50 | JM | 10 | 100 | NW | 3 | ILR | 5 | SZ RH |
| 25/05/2021 | 0920 | 1220 | 3.00 | JM | 10 | 100 | NE | 5 | CLR | 5 | SZ RH |
| 25/05/2021 | 1330 | 1630 | 3.00 | WR | 9 | 300 | NE | 2 | nil | 10 | SZ RH |
| 01/07/2021 | 1110 | 1640 | 5.50 | KC | 1 | 1500 | E | 2 | nil | 20 | RH SZ |
| 15/07/2021 | 0930 | 1530 | 6.00 | FN | 2 | 500 | SW | 3 | nil | 20 | LOCHANS |
| 16/07/2021 | 0915 | 1515 | 6.00 | FN | 8 | 500 | SW | 3 | nil | 20 | LOCHANS |
| 16/07/2021 | 1325 | 1625 | 3.00 | KC | 5 | 700 | S | 5 | nil | 20 | RH SZ |
| 23/07/2021 | 0645 | 0745 | 1.00 | KC | 0 | - | nil | 0 | nil | 10 | RH SZ |
| 23/07/2021 | 1150 | 1250 | 1.00 | KC | 0 | - | nil | 0 | nil | 10 | RH SZ |
| 26/07/2021 | 1200 | 1800 | 6.00 | FN | 3 | 500 | nil | 0 | nil | 20 | LOCHANS |
| 04/08/2021 | 0650 | 0720 | 0.50 | KC | 9 | 1000 | SW | 2 | nil | 20 | RH SZ |
| 04/08/2021 | 1325 | 1355 | 0.50 | KC | 10 | 1000 | SW | 5 | nil | 20 | RH SZ |
| 06/08/2021 | 0845 | 1145 | 3.00 | KC | 10 | 400 | E | 5 | CHR | 2 | RH SZ |
| 17/08/2021 | 0745 | 1545 | 8.00 | RE | 7 | 800 | W | 4 | nil | 4 | RH SZ |
| 17/08/2021 | 0800 | 0930 | 1.50 | RAS | 7 | 800 | W | 3 | nil | 5 | RH SZ |
| 17/08/2021 | 1620 | 1750 | 1.50 | RAS | 7 | 900 | W | 4 | nil | 5 | RH SZ |
| 17/08/2021 | 1200 | 1415 | 2.25 | MH | 7 | 1000 | NW | 4 | nil | 10 | RH |
| 18/08/2021 | 0625 | 0725 | 1.00 | KC | 0 | - | S | 0 | nil | 10 | RH SZ |
| 18/08/2021 | 1030 | 1330 | 3.00 | KC | 1 | 1000 | S | 5 | nil | 10 | RH SZ |
| 18/08/2021 | 0745 | 0845 | 1.00 | RE | 3 | 2000 | W | 3 | nil | 3 | RH SZ |
| 19/08/2021 | 0745 | 1145 | 4.00 | RAS | 10 | 500 | NE | 2 | nil | 4 | RH SZ |
| 19/08/2021 | 0800 | 1300 | 5.00 | MH | 10 | 800 | E | 2 | nil | 10 | RH SZ |
| Total (hrs) | | | 358.25 | | | | | | | | |

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Eog

Winter Walked Transects

19. Walk-over surveys were undertaken between September and March 2019/2020 and 2020/2021 and occurred within the 500 m buffer of the Site (Figure 1).

20. Walk routes meandered to closely examine as much ground as practical, in particular features of potential ornithological importance such as woodland edges, rocky outcrops, mires and streams. Where practicable, observers used a different route on each visit to maximise the eventual spatial coverage of the Site. Observers frequently paused to scan for birds.

21. Three hundred and twenty-four walked transects, totalling over 356 hours, were undertaken. A range of meteorological conditions were sampled, although wind speeds above Beaufort F6 were avoided to improve aural detection of species (Table 6).

22. The walked transects were effectively mobile VP watches. The procedure employed was as follows:

- For *Target Species* the time each individual was first detected was recorded along with details of age, sex and behaviour. These details were cross-referenced to a 1:25,000 scale map where the location and flight route (if applicable) were plotted.
- For all other species, the number of individuals was recorded and locations they were first detected were plotted on the map.

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|--|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | |
| 14/09/2019 | 0835 | 1335 | 5.00 | AA | 10 | 600 | W | 6 | CHR | 10 | |
| 14/09/2019 | 0830 | 1040 | 2.17 | BU | 10 | 600 | SW | 6 | CLR | 5 | |
| 14/09/2019 | 1140 | 1500 | 3.33 | BU | 10 | 600 | SW | 6 | CLR | 5 | |
| 14/09/2019 | 0800 | 0910 | 1.17 | RAS | 10 | 500 | SW | 6 | CLR | 2 | |
| 14/09/2019 | 1010 | 1045 | 0.58 | RAS | 10 | 500 | SW | 6 | CLR | 2 | |
| 14/09/2019 | 1145 | 1400 | 2.25 | RAS | 10 | 500 | SW | 6 | CLR | 2 | |
| 15/09/2019 | 0800 | 0940 | 1.67 | AA | 8 | 900 | W | 6 | nil | 20 | |
| 15/09/2019 | 1045 | 1220 | 1.58 | AA | 8 | 900 | W | 6 | nil | 20 | |
| 15/09/2019 | 1330 | 1530 | 2.00 | AA | 8 | 900 | W | 6 | nil | 20 | |
| 15/09/2019 | 1630 | 1645 | 0.25 | AA | 8 | 900 | W | 6 | nil | 20 | |
| 15/09/2019 | 0845 | 0915 | 0.50 | RAS | 10 | 600 | W | 4 | nil | 4 | |
| 15/09/2019 | 1015 | 1100 | 0.75 | RAS | 10 | 700 | W | 5 | nil | 5 | |
| 15/09/2019 | 1200 | 1230 | 0.50 | RAS | 8 | 800 | W | 6 | nil | 5 | |
| 15/09/2019 | 1330 | 1600 | 2.50 | RAS | 7 | 800 | W | 6 | nil | 5 | |
| 17/09/2019 | 0700 | 0815 | 1.25 | RAS | 10 | 900 | NW | 3 | ILR | 5 | |
| 17/09/2019 | 1115 | 1200 | 0.75 | RAS | 8 | 1000 | NW | 4 | nil | 5 | |
| 17/09/2019 | 1500 | 1700 | 2.00 | RAS | 9 | 1000 | NW | 3 | nil | 5 | |
| 20/09/2019 | 0800 | 1010 | 2.17 | RAS | 1 | 1500 | SW | 3 | nil | 5 | |
| 20/09/2019 | 1310 | 1415 | 1.08 | RAS | 0 | - | SW | 3 | nil | 5 | |
| 20/09/2019 | 1715 | 1830 | 1.25 | RAS | 0 | - | SW | 3 | nil | 5 | |
| 20/09/2019 | 0830 | 0845 | 0.25 | MH | 0 | - | SE | 1 | nil | 10 | |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 20/09/2019 | 0945 | 1015 | 0.50 | MH | 0 | - | SW | 3 | nil | 10 |
| 20/09/2019 | 1215 | 1315 | 1.00 | MH | 0 | - | SW | 2 | nil | 10 |
| 20/09/2019 | 1615 | 1830 | 2.25 | MH | 0 | - | SW | 2 | nil | 10 |
| 21/09/2019 | 0750 | 0920 | 1.50 | SB | 0 | - | S | 3 | nil | 20 |
| 21/09/2019 | 1020 | 1155 | 1.58 | SB | 0 | - | SE | 3 | nil | 20 |
| 21/09/2019 | 1455 | 1545 | 0.83 | SB | 0 | - | SE | 4 | nil | 20 |
| 21/09/2019 | 1745 | 1900 | 1.25 | SB | 0 | - | SE | 3 | nil | 20 |
| 21/09/2019 | 0800 | 0945 | 1.75 | MH | 0 | - | S | 2 | nil | 10 |
| 21/09/2019 | 1245 | 1345 | 1.00 | MH | 0 | - | S | 2 | nil | 10 |
| 21/09/2019 | 1645 | 1730 | 0.75 | MH | 0 | - | S | 3 | nil | 10 |
| 22/09/2019 | 0800 | 0900 | 1.00 | MH | 10 | 1000 | S | 1 | nil | 10 |
| 22/09/2019 | 1200 | 1315 | 1.25 | MH | 10 | 1000 | S | 3 | nil | 10 |
| 22/09/2019 | 1515 | 1545 | 0.50 | MH | 10 | 1000 | S | 1 | nil | 10 |
| 22/09/2019 | 1745 | 1815 | 0.50 | MH | 10 | 1000 | S | 1 | nil | 10 |
| 22/09/2019 | 1145 | 1315 | 1.50 | RAS | 9 | 1000 | SW | 1 | nil | 5 |
| 22/09/2019 | 1615 | 1730 | 1.25 | RAS | 10 | 1000 | SE | 2 | ILR | 5 |
| 20/10/2019 | 0930 | 1010 | 0.67 | RAS | 9 | 1000 | N | 3 | nil | 5 |
| 20/10/2019 | 1210 | 1250 | 0.67 | RAS | 8 | 1000 | N | 4 | nil | 5 |
| 20/10/2019 | 1450 | 1745 | 2.92 | RAS | 7 | 1000 | N | 4 | nil | 5 |
| 20/10/2019 | 0930 | 1100 | 1.50 | SB | 9 | 1000 | NW | 3 | nil | 5 |
| 20/10/2019 | 1300 | 1420 | 1.33 | SB | 9 | 1000 | N | 4 | nil | 5 |
| 20/10/2019 | 1620 | 1745 | 1.42 | SB | 7 | 1000 | N | 3 | nil | 5 |
| 21/10/2019 | 0830 | 1040 | 2.17 | BU | 10 | 1500 | SW | 2 | nil | 20 |
| 21/10/2019 | 1340 | 1420 | 0.67 | BU | 7 | 1500 | SW | 3 | nil | 20 |
| 21/10/2019 | 1720 | 1800 | 0.67 | BU | 8 | 1000 | SW | 4 | nil | 20 |
| 21/10/2019 | 0845 | 1045 | 2.00 | RAS | 9 | 900 | SW | 2 | nil | 5 |
| 21/10/2019 | 1345 | 1445 | 1.00 | RAS | 8 | 1000 | SW | 4 | nil | 5 |
| 21/10/2019 | 1745 | 1845 | 1.00 | RAS | 10 | 900 | SW | 5 | nil | 3 |
| 21/10/2019 | 0840 | 1005 | 1.42 | SB | 8 | 900 | SW | 3 | nil | 5 |
| 21/10/2019 | 1305 | 1335 | 0.50 | SB | 7 | 900 | SW | 4 | nil | 5 |
| 21/10/2019 | 1635 | 1800 | 1.42 | SB | 10 | 900 | SW | 5 | nil | 5 |
| 22/10/2019 | 0845 | 0955 | 1.17 | BU | 10 | 500 | SW | 3 | nil | 10 |
| 22/10/2019 | 1255 | 1350 | 0.92 | BU | 10 | 600 | SW | 3 | nil | 5 |
| 22/10/2019 | 1650 | 1730 | 0.67 | BU | 8 | 800 | SW | 2 | ILR | 10 |
| 22/10/2019 | 0815 | 0910 | 0.92 | RAS | 10 | 500 | SW | 5 | nil | 3 |
| 22/10/2019 | 1210 | 1320 | 1.17 | RAS | 9 | 600 | SW | 5 | nil | 5 |
| 22/10/2019 | 1620 | 1730 | 1.17 | RAS | 9 | 600 | SW | 5 | ILR | 4 |
| 22/10/2019 | 0835 | 0925 | 0.83 | SB | 10 | 700 | SW | 3 | nil | 4 |
| 22/10/2019 | 1545 | 1635 | 0.83 | SB | 10 | 600 | SW | 4 | ILR | 3 |
| 23/10/2019 | 0815 | 1010 | 1.92 | RAS | 10 | 700 | SW | 5 | ILR | 3 |
| 23/10/2019 | 1310 | 1400 | 0.83 | RAS | 10 | 800 | SW | 4 | nil | 5 |
| 23/10/2019 | 1700 | 1800 | 1.00 | RAS | 10 | 700 | SW | 4 | ILR | 3 |
| 23/10/2019 | 0815 | 0855 | 0.67 | SB | 10 | 700 | S | 2 | nil | 4 |
| 23/10/2019 | 1155 | 1220 | 0.42 | SB | 10 | 900 | S | 3 | nil | 5 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 23/10/2019 | 1520 | 1800 | 2.67 | SB | 10 | 1000 | S | 5 | nil | 5 |
| 24/10/2019 | 0825 | 0900 | 0.58 | AA | 7 | 1000 | W | 5 | ILR | 10 |
| 24/10/2019 | 1205 | 1245 | 0.67 | AA | 7 | 1000 | W | 5 | ILR | 10 |
| 24/10/2019 | 1545 | 1700 | 1.25 | AA | 7 | 1000 | W | 5 | ILR | 10 |
| 24/10/2019 | 1215 | 1415 | 2.00 | RAS | 6 | 900 | W | 3 | nil | 5 |
| 24/10/2019 | 0800 | 0835 | 0.58 | SB | 5 | 1000 | SW | 5 | nil | 5 |
| 24/10/2019 | 1135 | 1240 | 1.08 | SB | 8 | 900 | W | 3 | nil | 5 |
| 24/10/2019 | 1540 | 1725 | 1.75 | SB | 3 | 1000 | W | 3 | nil | 5 |
| 25/10/2019 | 0900 | 1020 | 1.33 | SB | 9 | 900 | SW | 6 | ILS | 3 |
| 25/10/2019 | 1320 | 1400 | 0.67 | SB | 6 | 900 | SW | 6 | ILS | 5 |
| 25/10/2019 | 1700 | 1800 | 1.00 | SB | 5 | 900 | SW | 5 | ILS | 3 |
| 25/10/2019 | 0855 | 0930 | 0.58 | AA | 5 | 1000 | SW | 4 | IHS | 10 |
| 25/10/2019 | 1240 | 1335 | 0.92 | AA | 5 | 1000 | SW | 4 | IHS | 10 |
| 25/10/2019 | 1645 | 1720 | 0.58 | AA | 5 | 1000 | SW | 4 | IHS | 10 |
| 25/10/2019 | 0745 | 0920 | 1.58 | RAS | 5 | 600 | SW | 5 | ILS | 4 |
| 25/10/2019 | 1220 | 1300 | 0.67 | RAS | 5 | 800 | SW | 5 | ILS | 4 |
| 25/10/2019 | 1600 | 1815 | 2.25 | RAS | 6 | 900 | WSW | 5 | ILS | 5 |
| 26/10/2019 | 0845 | 1030 | 1.75 | RAS | 8 | 500 | SW | 5 | ILS | 5 |
| 26/10/2019 | 1330 | 1350 | 0.33 | RAS | 7 | 700 | SW | 5 | nil | 5 |
| 26/10/2019 | 1650 | 1745 | 0.92 | RAS | 8 | 500 | SW | 5 | ILF | 4 |
| 27/10/2019 | 1045 | 1210 | 1.42 | RAS | 9 | 700 | NW | 3 | CLR | 4 |
| 27/10/2019 | 1510 | 1600 | 0.83 | RAS | 7 | 800 | NW | 4 | nil | 4 |
| 11/11/2019 | 1325 | 1405 | 0.67 | SB | 10 | 600 | W | 2 | CLR | 3 |
| 11/11/2019 | 1605 | 1645 | 0.67 | SB | 10 | 600 | W | 2 | CLR | 3 |
| 12/11/2019 | 0815 | 0930 | 1.25 | SB | 10 | 500 | NW | 3 | nil | 1 |
| 12/11/2019 | 1230 | 1400 | 1.50 | SB | 10 | 800 | NW | 3 | nil | 3 |
| 12/11/2019 | 1600 | 1645 | 0.75 | SB | 10 | 900 | NW | 3 | nil | 5 |
| 12/11/2019 | 0815 | 0940 | 1.42 | RAS | 10 | 500 | NNE | 3 | nil | 2 |
| 12/11/2019 | 1240 | 1320 | 0.67 | RAS | 8 | 700 | NNW | 3 | nil | 5 |
| 12/11/2019 | 1520 | 1645 | 1.42 | RAS | 4 | 900 | NNW | 3 | nil | 4 |
| 12/11/2019 | 0830 | 1010 | 1.67 | BU | 10 | 600 | N | 4 | ILR | 5 |
| 12/11/2019 | 1210 | 1310 | 1.00 | BU | 10 | 800 | N | 5 | nil | 10 |
| 12/11/2019 | 1510 | 1630 | 1.33 | BU | 6 | 1000 | N | 2 | nil | 15 |
| 13/11/2019 | 0830 | 0900 | 0.50 | SB | 0 | - | nil | 0 | nil | 5 |
| 13/11/2019 | 1100 | 1130 | 0.50 | SB | 4 | 1500 | NE | 1 | nil | 5 |
| 13/11/2019 | 1330 | 1445 | 1.25 | SB | 5 | 1500 | NE | 2 | nil | 5 |
| 13/11/2019 | 1615 | 1635 | 0.33 | SB | 6 | 1500 | N | 3 | nil | 4 |
| 13/11/2019 | 0830 | 0935 | 1.08 | RAS | 4 | 1500 | SE | 1 | nil | 5 |
| 13/11/2019 | 1135 | 1220 | 0.75 | RAS | 5 | 1500 | E | 2 | nil | 5 |
| 13/11/2019 | 1420 | 1645 | 2.42 | RAS | 6 | 1500 | N | 3 | nil | 5 |
| 13/11/2019 | 0930 | 1055 | 1.42 | BU | 3 | 1000 | E | 1 | nil | 20 |
| 13/11/2019 | 1255 | 1330 | 0.58 | BU | 5 | 1000 | E | 1 | nil | 20 |
| 13/11/2019 | 1530 | 1605 | 0.58 | BU | 5 | 1000 | NE | 1 | nil | 15 |
| 18/11/2019 | 1240 | 1310 | 0.50 | JH | 1 | - | nil | 0 | nil | 10 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 18/11/2019 | 1510 | 1540 | 0.50 | JH | 1 | - | S | 1 | nil | 10 |
| 19/11/2019 | 0755 | 0925 | 1.50 | AA | 10 | 1000 | S | 1 | nil | 20 |
| 19/11/2019 | 1130 | 1205 | 0.58 | AA | 10 | 1000 | S | 1 | nil | 20 |
| 19/11/2019 | 1415 | 1550 | 1.58 | AA | 10 | 1000 | S | 1 | nil | 20 |
| 19/11/2019 | 0830 | 0915 | 0.75 | JH | 5 | 1500 | S | 3 | nil | 10 |
| 19/11/2019 | 1130 | 1215 | 0.75 | JH | 5 | 1500 | SE | 3 | nil | 10 |
| 20/11/2019 | 0730 | 0815 | 0.75 | JH | 8 | 800 | SE | 4 | nil | 10 |
| 20/11/2019 | 1030 | 1200 | 1.50 | JH | 8 | 800 | SE | 5 | nil | 10 |
| 20/11/2019 | 1400 | 1430 | 0.50 | JH | 9 | 800 | SE | 5 | nil | 10 |
| 20/11/2019 | 0725 | 0755 | 0.50 | AA | 10 | 1000 | SE | 3 | nil | 20 |
| 20/11/2019 | 1105 | 1200 | 0.92 | AA | 10 | 1000 | SE | 3 | nil | 20 |
| 20/11/2019 | 1405 | 1435 | 0.50 | AA | 10 | 1000 | SE | 3 | nil | 20 |
| 03/12/2019 | 0800 | 0940 | 1.67 | SB | 4 | 1000 | SW | 5 | nil | 5 |
| 03/12/2019 | 1140 | 1215 | 0.58 | SB | 7 | 1000 | SW | 6 | nil | 5 |
| 03/12/2019 | 1415 | 1535 | 1.33 | SB | 4 | 1000 | SW | 6 | nil | 5 |
| 03/12/2019 | 0815 | 0950 | 1.58 | RAS | 7 | 800 | SW | 5 | nil | 4 |
| 03/12/2019 | 1150 | 1230 | 0.67 | RAS | 5 | 900 | SW | 5 | nil | 5 |
| 03/12/2019 | 1430 | 1545 | 1.25 | RAS | 4 | 1000 | SW | 6 | nil | 5 |
| 03/12/2019 | 1050 | 1130 | 0.67 | JH | 4 | 100 | SW | 7 | nil | 10 |
| 03/12/2019 | 1330 | 1415 | 0.75 | JH | 3 | 100 | SW | 6 | nil | 10 |
| 04/12/2019 | 0815 | 0910 | 0.92 | SB | 10 | 400 | SW | 4 | CLR | 1 |
| 04/12/2019 | 1110 | 1230 | 1.33 | SB | 9 | 500 | SW | 4 | ILR | 2 |
| 04/12/2019 | 1430 | 1550 | 1.33 | SB | 9 | 600 | SW | 5 | CHR | 2 |
| 04/12/2019 | 0830 | 0945 | 1.25 | RAS | 10 | 400 | SW | 5 | CLR | 2 |
| 04/12/2019 | 0845 | 0945 | 1.00 | JH | 10 | 500 | SW | 5 | CLR | 1 |
| 04/12/2019 | 1145 | 1215 | 0.50 | JH | 8 | 800 | SW | 6 | nil | 10 |
| 04/12/2019 | 1415 | 1445 | 0.50 | JH | 5 | 800 | SW | 6 | nil | 10 |
| 05/12/2019 | 0815 | 0845 | 0.50 | JH | 3 | 700 | SW | 5 | nil | 8 |
| 05/12/2019 | 1045 | 1115 | 0.50 | JH | 10 | 500 | SW | 5 | CLR | 3 |
| 06/12/2019 | 0805 | 0845 | 0.67 | RAS | 10 | 800 | W | 4 | ILR | 2 |
| 06/12/2019 | 1045 | 1120 | 0.58 | RAS | 9 | 800 | WSW | 3 | nil | 5 |
| 06/12/2019 | 1320 | 1535 | 2.25 | RAS | 4 | 900 | W | 3 | nil | 5 |
| 06/12/2019 | 0805 | 0915 | 1.17 | SB | 10 | 900 | W | 3 | nil | 5 |
| 06/12/2019 | 1115 | 1220 | 1.08 | SB | 10 | 700 | W | 3 | CLR | 3 |
| 06/12/2019 | 1420 | 1540 | 1.33 | SB | 6 | 800 | W | 3 | nil | 5 |
| 06/12/2019 | 0815 | 0845 | 0.50 | JH | 10 | 700 | W | 5 | ILR | 8 |
| 06/12/2019 | 1150 | 1240 | 0.83 | JH | 8 | 800 | W | 5 | IHR | 10 |
| 06/12/2019 | 1440 | 1510 | 0.50 | JH | 3 | 900 | W | 5 | nil | 10 |
| 07/12/2019 | 0800 | 0815 | 0.25 | JH | 10 | 500 | SW | 2 | nil | 2 |
| 07/12/2019 | 1020 | 1035 | 0.25 | JH | 10 | 400 | SW | 2 | nil | 2 |
| 17/01/2020 | 0945 | 1020 | 0.58 | SB | 10 | 800 | SW | 5 | CHS | 0.5 |
| 17/01/2020 | 1420 | 1445 | 0.42 | SB | 8 | 900 | W | 4 | ILS | 5 |
| 17/01/2020 | 0945 | 1100 | 1.25 | RAS | 10 | 500 | SW | 5 | CHS | 1 |
| 17/01/2020 | 1500 | 1545 | 0.75 | RAS | 7 | 700 | SW | 5 | nil | 5 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 18/01/2020 | 0920 | 0950 | 0.50 | RAS | 10 | 500 | W | 4 | CHS | 1 |
| 18/01/2020 | 1150 | 1220 | 0.50 | RAS | 5 | 900 | W | 5 | nil | 5 |
| 20/01/2020 | 1100 | 1120 | 0.33 | JH | 9 | 700 | SW | 6 | nil | 10 |
| 20/01/2020 | 1420 | 1500 | 0.67 | JH | 9 | 700 | SW | 6 | nil | 10 |
| 20/01/2020 | 1210 | 1240 | 0.50 | AA | 2 | 1000 | SW | 5 | nil | |
| 20/01/2020 | 1550 | 1610 | 0.33 | AA | 2 | 1000 | SW | 5 | nil | |
| 21/01/2020 | 0920 | 1030 | 1.17 | AA | 10 | 500 | SW | 3 | nil | 4 |
| 21/01/2020 | 1510 | 1545 | 0.58 | AA | 10 | 500 | SW | 3 | nil | 4 |
| 21/01/2020 | 1130 | 1230 | 1.00 | JH | 10 | 500 | SW | 4 | nil | 1 |
| 21/01/2020 | 1430 | 1530 | 1.00 | JH | 10 | 500 | SW | 4 | nil | 1 |
| 22/01/2020 | 0820 | 0920 | 1.00 | JH | 3 | 800 | SW | 3 | nil | 10 |
| 22/01/2020 | 1130 | 1230 | 1.00 | JH | 5 | 800 | SW | 3 | nil | 10 |
| 22/01/2020 | 1430 | 1530 | 1.00 | JH | 6 | 800 | SW | 3 | nil | 10 |
| 22/01/2020 | 0840 | 0950 | 1.17 | AA | 4 | 700 | SW | 3 | nil | 20 |
| 22/01/2020 | 1155 | 1220 | 0.42 | AA | 4 | 700 | SW | 3 | nil | 20 |
| 22/01/2020 | 1430 | 1545 | 1.25 | AA | 4 | 700 | SW | 3 | nil | 20 |
| 23/01/2020 | 0750 | 0820 | 0.50 | JH | 6 | 800 | SW | 4 | nil | 10 |
| 23/01/2020 | 1050 | 1120 | 0.50 | JH | 8 | 700 | SW | 4 | nil | 10 |
| 10/02/2020 | 1230 | 1310 | 0.67 | BU | 10 | 600 | SW | 2 | ILS | 6 |
| 10/02/2020 | 1610 | 1640 | 0.50 | BU | 8 | 800 | SW | 3 | ILS | 10 |
| 11/02/2020 | 0815 | 1145 | 3.50 | RAS | 9 | 500 | W | 6 | IHS | 3 |
| 12/02/2020 | 0830 | 1020 | 1.83 | SB | 8 | 700 | W | 5 | ILS | 4 |
| 13/02/2020 | 0850 | 1040 | 1.83 | SB | 10 | 400 | NE | 3 | CLF | 2 |
| 13/02/2020 | 1210 | 1315 | 1.08 | SB | 8 | 600 | N | 1 | nil | 5 |
| 13/02/2020 | 1445 | 1630 | 1.75 | SB | 6 | 700 | NW | 2 | nil | 5 |
| 13/02/2020 | 0830 | 1010 | 1.67 | RAS | 10 | 400 | NE | 3 | CLF | 2 |
| 13/02/2020 | 1140 | 1230 | 0.83 | RAS | 6 | 1000 | NE | 2 | ILF | 5 |
| 13/02/2020 | 1430 | 1630 | 2.00 | RAS | 6 | 700 | NW | 2 | nil | 5 |
| 19/02/2020 | 0620 | 0800 | 1.67 | AA | 4 | 1000 | SW | 4 | nil | 20 |
| 19/02/2020 | 1310 | 1445 | 1.58 | AA | 4 | 1000 | SW | 4 | nil | 20 |
| 19/02/2020 | 0645 | 0900 | 2.25 | JH | 5 | 1000 | W | 4 | nil | 10 |
| 19/02/2020 | 1200 | 1345 | 1.75 | JH | 10 | 700 | SW | 5 | nil | 8 |
| 25/02/2020 | 0815 | 0945 | 1.50 | RAS | 7 | 800 | SW | 4 | nil | 5 |
| 25/02/2020 | 1245 | 1320 | 0.58 | RAS | 10 | 300 | SW | 3 | CHF | 0.2 |
| 25/02/2020 | 1520 | 1715 | 1.92 | RAS | 9 | 500 | SW | 3 | ILS | 4 |
| 19/02/2020 | 0700 | 0830 | 1.50 | MH | 2 | 1000 | W | 1 | nil | 5 |
| 19/02/2020 | 1300 | 1400 | 1.00 | MH | 10 | 1000 | W | 4 | nil | 5 |
| 10/03/2020 | 1120 | 1210 | 0.83 | JH | 10 | 700 | W | 5 | CHR | 5 |
| 10/03/2020 | 1510 | 1600 | 0.83 | JH | 5 | 700 | W | 5 | nil | 10 |
| 11/03/2020 | 0800 | 1000 | 2.00 | JH | 8 | 600 | SW | 4 | IHS | 5 |
| 11/03/2020 | 1300 | 1400 | 1.00 | JH | 8 | 600 | SW | 5 | ILS | 8 |
| 11/03/2020 | 1600 | 1700 | 1.00 | JH | 6 | 600 | SW | 5 | nil | 8 |
| 11/03/2020 | 0810 | 0940 | 1.50 | AA | 8 | 1000 | SW | 6 | IHS | 20 |
| 11/03/2020 | 1250 | 1325 | 0.58 | AA | 8 | 1000 | SW | 6 | IHS | 20 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 11/03/2020 | 1635 | 1745 | 1.17 | AA | 8 | 1000 | SW | 6 | IHS | 20 |
| 17/03/2020 | 0615 | 0820 | 2.08 | SB | 7 | 900 | SW | 5 | IHS | 3 |
| 17/03/2020 | 1120 | 1315 | 1.92 | SB | 10 | 700 | W | 5 | ILS | 3 |
| 17/03/2020 | 0615 | 0840 | 2.42 | RAS | 7 | 900 | W | 6 | IHS | 5 |
| 17/03/2020 | 1140 | 1315 | 1.58 | RAS | 10 | 700 | W | 5 | ILS | 3 |
| 18/03/2020 | 0745 | 1000 | 2.25 | SB | 9 | 500 | SW | 4 | IHS | 2 |
| 18/03/2020 | 1300 | 1345 | 0.75 | SB | 5 | 900 | SW | 6 | nil | 5 |
| 18/03/2020 | 1645 | 1745 | 1.00 | SB | 5 | 900 | SW | 6 | nil | 5 |
| 18/03/2020 | 0745 | 0930 | 1.75 | RAS | 9 | 500 | SW | 3 | IHS | 2 |
| 18/03/2020 | 1230 | 1300 | 0.50 | RAS | 7 | 900 | SW | 5 | nil | 5 |
| 18/03/2020 | 1600 | 1745 | 1.75 | RAS | 5 | 900 | SW | 6 | nil | 5 |
| 19/03/2020 | 0830 | 0940 | 1.17 | SB | 5 | 900 | W | 1 | nil | 5 |
| 19/03/2020 | 1240 | 1310 | 0.50 | SB | 7 | 900 | W | 1 | nil | 5 |
| 19/03/2020 | 1610 | 1700 | 0.83 | SB | 6 | 900 | W | 2 | nil | 5 |
| 19/03/2020 | 0830 | 0850 | 0.33 | RAS | 8 | 900 | SW | 2 | nil | 5 |
| 19/03/2020 | 1150 | 1240 | 0.83 | RAS | 5 | 1000 | W | 3 | nil | 5 |
| 19/03/2020 | 1540 | 1700 | 1.33 | RAS | 5 | 1000 | WNW | 3 | nil | 5 |
| 20/03/2020 | 0845 | 0955 | 1.17 | SB | 0 | - | E | 1 | nil | 5 |
| 20/03/2020 | 1255 | 1340 | 0.75 | SB | 5 | 1200 | SE | 1 | nil | 5 |
| 20/03/2020 | 1640 | 1700 | 0.33 | SB | 2 | 1200 | E | 1 | nil | 5 |
| 20/03/2020 | 0845 | 0930 | 0.75 | RAS | 1 | 1000 | NE | 2 | nil | 5 |
| 20/03/2020 | 1230 | 1250 | 0.33 | RAS | 5 | 1000 | SE | 3 | nil | 5 |
| 20/03/2020 | 1550 | 1700 | 1.17 | RAS | 4 | 1000 | SE | 2 | nil | 5 |
| 21/03/2020 | 0830 | 0935 | 1.08 | SB | 10 | 1000 | SE | 4 | nil | 5 |
| 21/03/2020 | 1235 | 1300 | 0.42 | SB | 10 | 1000 | SE | 6 | nil | 5 |
| 21/03/2020 | 1600 | 1700 | 1.00 | SB | 10 | 1000 | S | 5 | nil | 5 |
| 22/03/2020 | 1530 | 1700 | 1.50 | RAS | 9 | 1000 | SW | 5 | nil | 5 |
| 08/09/2020 | 0800 | 0830 | 0.50 | RAS | 5 | 900 | SW | 5 | nil | 5 |
| 08/09/2020 | 1130 | 1215 | 0.75 | RAS | 7 | 1000 | SW | 5 | nil | 5 |
| 08/09/2020 | 1520 | 1550 | 0.50 | RAS | 10 | 800 | SW | 5 | nil | 5 |
| 08/09/2020 | 0730 | 0900 | 1.50 | RE | 9 | 900 | SW | 5 | IHR | 3 |
| 08/09/2020 | 1200 | 1230 | 0.50 | RE | 7 | 1000 | SW | 6 | ILR | 5 |
| 10/09/2020 | 0815 | 0915 | 1.00 | RAS | 10 | 700 | SW | 4 | nil | 4 |
| 10/09/2020 | 0820 | 0950 | 1.50 | RE | 10 | 900 | SW | 4 | ILR | 3 |
| 15/09/2020 | 0815 | 0900 | 0.75 | RE | 10 | 1000 | SW | 3 | nil | 4 |
| 15/09/2020 | 1520 | 1620 | 1.00 | RE | 7 | 1500 | SW | 5 | nil | 6 |
| 15/09/2020 | 0845 | 1000 | 1.25 | RAS | 10 | 1000 | SW | 3 | nil | 5 |
| 15/09/2020 | 1300 | 1400 | 1.00 | RAS | 7 | 1000 | SW | 4 | nil | 5 |
| 15/09/2020 | 1700 | 1730 | 0.50 | RAS | 10 | 900 | SW | 4 | nil | 5 |
| 16/09/2020 | 0715 | 0840 | 1.42 | RE | 10 | 500 | NE | 3 | nil | 3 |
| 16/09/2020 | 1140 | 1240 | 1.00 | RE | 10 | 700 | NE | 3 | nil | 5 |
| 16/09/2020 | 1540 | 1610 | 0.50 | RE | 10 | 1000 | NE | 3 | nil | 5 |
| 16/09/2020 | 0745 | 0915 | 1.50 | RAS | 10 | 300 | ENE | 3 | CLF | 1 |
| 16/09/2020 | 1215 | 1250 | 0.58 | RAS | 10 | 900 | NE | 4 | nil | 5 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 16/09/2020 | 1550 | 1730 | 1.67 | RAS | 10 | 900 | SE | 3 | nil | 5 |
| 17/09/2020 | 0800 | 0835 | 0.58 | RAS | 6 | 900 | SW | 3 | nil | 5 |
| 17/09/2020 | 1135 | 1245 | 1.17 | RAS | 5 | 900 | SW | 3 | nil | 5 |
| 17/09/2020 | 1545 | 1700 | 1.25 | RAS | 3 | 1000 | SW | 3 | nil | 5 |
| 18/09/2020 | 0745 | 0820 | 0.58 | RAS | 2 | 1000 | S | 1 | nil | 5 |
| 18/09/2020 | 1120 | 1130 | 0.17 | RAS | 1 | 1000 | NE | 1 | nil | 5 |
| 21/10/2020 | 0800 | 1000 | 2.00 | JH | 10 | 300 | NE | 2 | CLR | 0.1 |
| 21/10/2020 | 0845 | 0945 | 1.00 | RAS | 10 | 700 | E | 1 | ILR | 4 |
| 21/10/2020 | 1245 | 1330 | 0.75 | RAS | 10 | 500 | ENE | 3 | ILR | 2 |
| 22/10/2020 | 0800 | 0930 | 1.50 | RE | 10 | 500 | N | 4 | CLR | 0.5 |
| 22/10/2020 | 0815 | 0915 | 1.00 | RAS | 10 | 400 | NNE | 4 | CLR | 1 |
| 22/10/2020 | 1215 | 1315 | 1.00 | RAS | 10 | 700 | NE | 3 | nil | 5 |
| 22/10/2020 | 1615 | 1715 | 1.00 | RAS | 10 | 700 | SE | 1 | nil | 5 |
| 22/10/2020 | 1115 | 1215 | 1.00 | JH | 10 | 600 | N | 3 | nil | 5 |
| 22/10/2020 | 1515 | 1600 | 0.75 | JH | 10 | 600 | N | 3 | nil | 5 |
| 23/10/2020 | 0800 | 0945 | 1.75 | RE | 10 | 700 | SW | 5 | CLR | 1 |
| 23/10/2020 | 1115 | 1200 | 0.75 | JH | 4 | 900 | SW | 4 | nil | 10 |
| 23/10/2020 | 1500 | 1530 | 0.50 | JH | 5 | 1000 | SW | 5 | nil | 10 |
| 24/10/2020 | 0915 | 0930 | 0.25 | JH | 9 | 900 | S | 5 | CLR | 8 |
| 24/10/2020 | 1230 | 1315 | 0.75 | JH | 3 | 800 | S | 6 | nil | 10 |
| 25/10/2020 | 0745 | 0815 | 0.50 | JH | 9 | 800 | SW | 2 | CLR | 8 |
| 25/10/2020 | 1115 | 1145 | 0.50 | JH | 9 | 800 | SW | 3 | ILR | 8 |
| 03/11/2020 | 0830 | 1000 | 1.50 | BU | 8 | 1000 | W | 2 | nil | 15 |
| 03/11/2020 | 1530 | 1700 | 1.50 | BU | 6 | 1000 | W | 2 | ILR | 15 |
| 04/11/2020 | 0745 | 0930 | 1.75 | RAS | 8 | 800 | W | 2 | ILR | 5 |
| 04/11/2020 | 1230 | 1250 | 0.33 | RAS | 6 | 800 | W | 4 | nil | 5 |
| 04/11/2020 | 1450 | 1545 | 0.92 | RAS | 10 | 700 | W | 4 | nil | 4 |
| 04/11/2020 | 0830 | 1055 | 2.42 | BU | 6 | 1000 | SW | 3 | nil | 20 |
| 04/11/2020 | 1525 | 1725 | 2.00 | BU | 10 | 800 | SW | 4 | nil | 15 |
| 05/11/2020 | 0830 | 0850 | 0.33 | RAS | 7 | 900 | WSW | 3 | nil | 5 |
| 05/11/2020 | 1050 | 1200 | 1.17 | RAS | 3 | 1000 | WSW | 6 | nil | 5 |
| 05/11/2020 | 1500 | 1600 | 1.00 | RAS | 2 | 1000 | WSW | 6 | nil | 5 |
| 09/11/2020 | 1120 | 1145 | 0.42 | AA | 2 | 1000 | S | 2 | nil | 20 |
| 09/11/2020 | 1450 | 1505 | 0.25 | AA | | | | | | |
| 10/11/2020 | 0805 | 0915 | 1.17 | AA | 7 | 1000 | SE | 2 | nil | 20 |
| 10/11/2020 | 1125 | 1150 | 0.42 | AA | | | | | | |
| 10/11/2020 | 1500 | 1610 | 1.17 | AA | | | | | | |
| 11/11/2020 | 0815 | 0900 | 0.75 | AA | 10 | 1000 | S | 4 | CLR | 20 |
| 11/11/2020 | 1335 | 1410 | 0.58 | AA | | | | | | |
| 12/11/2020 | 0730 | 0910 | 1.67 | AA | 10 | 700 | SW | 4 | nil | 20 |
| 12/11/2020 | 1325 | 1450 | 1.42 | AA | | | | | | |
| 01/12/2020 | 0815 | 0940 | 1.42 | RAS | 10 | 800 | SW | 2 | nil | 4 |
| 01/12/2020 | 1140 | 1200 | 0.33 | RAS | 10 | 600 | SW | 4 | ILF | 4 |
| 01/12/2020 | 1400 | 1500 | 1.00 | RAS | 10 | 400 | SW | 4 | ILF | 3 |

| Table 6. Details of Winter Walked Transect surveys. | | | | | | | | | | |
|---|---------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) |
| 01/12/2020 | 0825 | 0955 | 1.50 | RE | 9 | 1500 | W | 5 | nil | 2 |
| 01/12/2020 | 1200 | 1230 | 0.50 | RE | 8 | 700 | SW | 6 | nil | 1 |
| 02/12/2020 | 0830 | 0930 | 1.00 | RE | 5 | 1000 | SW | 5 | ILS | 2 |
| 03/12/2020 | 0855 | 1005 | 1.17 | RE | 5 | 1000 | SW | 4 | ILS | 3 |
| 03/12/2020 | 1210 | 1310 | 1.00 | RE | 3 | 1000 | SW | 3 | nil | 5 |
| 08/12/2020 | 0845 | 0930 | 0.75 | RAS | 10 | 800 | NW | 4 | nil | 5 |
| 08/12/2020 | 1330 | 1345 | 0.25 | RAS | 9 | 800 | NW | 5 | nil | 5 |
| 09/12/2020 | 0800 | 1000 | 2.00 | MH | 5 | 500 | SW | 3 | nil | 6 |
| 09/12/2020 | 1300 | 1500 | 2.00 | MH | 10 | 500 | SW | 3 | nil | 5 |
| 10/12/2020 | 0800 | 1000 | 2.00 | RAS | 10 | 800 | SW | 4 | nil | 4 |
| 10/12/2020 | 1300 | 1500 | 2.00 | RAS | 10 | 700 | SW | 4 | nil | 5 |
| 11/01/2021 | 1145 | 1245 | 1.00 | JH | 10 | 400 | N | 3 | CLR | 0.5 |
| 12/01/2021 | 0800 | 1000 | 2.00 | JH | 5 | 1000 | W | 3 | nil | 10 |
| 12/01/2021 | 1300 | 1500 | 2.00 | JH | 1 | - | W | 3 | nil | 10 |
| 12/01/2021 | 0900 | 1035 | 1.58 | RAS | 3 | 1000 | N | 2 | nil | 5 |
| 12/01/2021 | 1235 | 1300 | 0.42 | RAS | 3 | 1000 | NW | 3 | nil | 5 |
| 12/01/2021 | 1400 | 1530 | 1.50 | RAS | 2 | 1000 | NW | 2 | nil | 5 |
| 13/01/2021 | 0800 | 0930 | 1.50 | JH | 9 | 1000 | NE | 2 | nil | 10 |
| 13/01/2021 | 1130 | 1200 | 0.50 | JH | 9 | 1000 | NE | 2 | nil | 10 |
| 13/01/2021 | 1400 | 1530 | 1.50 | JH | 10 | 800 | NE | 3 | nil | 10 |
| 15/03/2021 | 1100 | 1200 | 1.00 | JH | 10 | 900 | W | 4 | nil | 10 |
| 15/03/2021 | 1500 | 1600 | 1.00 | JH | 10 | 900 | W | 3 | nil | 10 |
| 16/03/2021 | 0600 | 0800 | 2.00 | JH | 6 | 1000 | NW | 5 | nil | 10 |
| 16/03/2021 | 1100 | 1130 | 0.50 | JH | 4 | 1200 | NW | 5 | nil | 10 |
| 16/03/2021 | 1430 | 1530 | 1.00 | JH | 1 | - | NW | 4 | nil | 10 |
| 17/03/2021 | 0600 | 0730 | 1.50 | JH | 9 | 1000 | W | 3 | nil | 10 |
| 17/03/2021 | 1030 | 1100 | 0.50 | JH | 9 | 1200 | NW | 4 | nil | 10 |
| 17/03/2021 | 1400 | 1530 | 1.50 | JH | 7 | 1000 | NW | 3 | nil | 10 |
| 18/03/2021 | 0950 | 1100 | 1.17 | JH | 1 | - | NW | 5 | nil | 10 |
| 18/03/2021 | 1400 | 1450 | 0.83 | JH | 1 | - | NW | 5 | nil | 10 |
| 18/03/2021 | 1750 | 1820 | 0.50 | JH | 1 | - | NW | 5 | nil | 10 |
| 19/03/2021 | 0545 | 0615 | 0.50 | JH | 9 | 1200 | NW | 1 | nil | 10 |
| 19/03/2021 | 0945 | 1015 | 0.50 | JH | 1 | - | NW | 1 | nil | 10 |
| 23/03/2021 | 0730 | 0900 | 1.50 | MH | 10 | 800 | SW | 5 | nil | 10 |
| 23/03/2021 | 1200 | 1245 | 0.75 | MH | 8 | 1000 | SW | 6 | nil | 10 |
| 23/03/2021 | 1545 | 1630 | 0.75 | MH | 10 | 800 | SW | 6 | ILR | 10 |
| 25/03/2021 | 0630 | 0815 | 1.75 | MH | 10 | 600 | W | 4 | nil | 8 |
| 25/03/2021 | 1115 | 1145 | 0.50 | MH | 10 | 600 | SW | 4 | ILR | 6 |
| 25/03/2021 | 1445 | 1630 | 1.75 | MH | 10 | 800 | SW | 6 | nil | 8 |
| Total (hrs) | 356.58 | | | | | | | | | |
| *Precipitation codes: <u>C</u> ontinuous/ <u>I</u> ntermittent + <u>L</u> ight/ <u>H</u> eavy + <u>R</u> ain/ <u>S</u> now/ <u>H</u> ail/ <u>E</u> og | | | | | | | | | | |

Upland Moorland Birds

23. Moorland breeding bird territories were surveyed between April and July 2021⁹, within the 500 m moorland breeding bird survey area (**Figure 1**). The Brown & Shepherd (1993)¹⁰ method for upland waders was modified to also provide reliable estimates for some breeding moorland passerines by undertaking some surveys during the first few hours of daylight. All bird species listed in Appendix 1 were recorded. Fieldwork was not undertaken in conditions considered likely to affect bird detection, for example strong winds (greater than Beaufort Scale Force 6), persistent precipitation, poor visibility (less than 300 m), or in unusually hot or cold temperatures (**Table 7**).
24. The survey aimed to cover the ground systematically with a constant search effort. All suitable ground within the 500 m survey boundary was approached closely, typically to within 100 m. Water bodies and isolated trees were examined carefully. Ditches and streams were followed. Surveyors paused at regular intervals to scan and listen for calling and singing birds.
25. Careful attention was given to recording behaviour indicative of breeding and care was taken to avoid counting the same individual more than once. Where necessary, surveyors retraced their steps in order to check the continued presence of previously recorded birds.
26. The location and activity of birds were mapped onto enlarged 1:25,000 scale OS maps using standard BTO codes (Marchant, 1983)¹¹. The position of each bird was mapped at the point it was first detected. The flight lines of birds seen flying over were recorded.

| Table 7. Details of Upland Moorland Bird surveys. | | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|-----------|--|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Visit No. | |
| 26/04/2021 | 0845 | 1445 | 6.00 | WR | 10 | 200 | SW | 4 | ILR | 10 | Visit 1 | |
| 26/04/2021 | 0900 | 1450 | 5.83 | JM | 8 | 200 | W | 5 | ILR | 10 | Visit 1 | |
| 26/04/2021 | 0900 | 1500 | 6.00 | FN | 10 | 500 | S | 3 | ILR | 2 | Visit 1 | |
| 26/04/2021 | 0900 | 1500 | 6.00 | CT | 9 | 700 | NE | 4 | ILR | 5 | Visit 1 | |
| 26/04/2021 | 0930 | 1530 | 6.00 | MM | 10 | 100 | NE | 2 | ILR | 20 | Visit 1 | |
| 27/04/2021 | 0900 | 1500 | 6.00 | FN | 10 | 100 | NE | 4 | ILR | 1 | Visit 1 | |
| 27/04/2021 | 0900 | 1440 | 5.67 | JM | 10 | 100 | NE | 6 | ILR | 1.5 | Visit 1 | |
| 27/04/2021 | 0900 | 1500 | 6.00 | WR | 10 | 100 | NE | 5 | ILR | 1 | Visit 1 | |
| 27/04/2021 | 1115 | 1615 | 5.00 | CT | 10 | 400 | NE | 2 | ILR | 1.5 | Visit 1 | |
| 28/04/2021 | 0850 | 1450 | 6.00 | FN | 8 | 500 | NE | 2 | nil | 10 | Visit 1 | |
| 28/04/2021 | 0850 | 1440 | 5.83 | JM | 9 | 500 | NE | 2 | nil | 30 | Visit 1 | |

⁹ No Moorland Bird Surveys were undertaken in 2020 due to COVID-19 restrictions. It was agreed, in consultation with NatureScot, that one year of survey would be acceptable provided there was no nationally important numbers of breeding waders of conservation concern.

¹⁰ Brown, A.F. & Shepherd, K.B. (1993) A method for censusing upland breeding waders. Bird Study 40: 3 pp 189 -195.

¹¹ Marchant, J.H. (1983). BTO Common Birds Census Instructions. British Trust for Ornithology, Thetford.

| Table 7. Details of Upland Moorland Bird surveys. | | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|----------------|----------------|------------|---------|-----------------|-----------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base (m) | Wind direction | Wind force | Precip* | Visibility (km) | Visit No. |
| 28/04/2021 | 0850 | 1450 | 6.00 | WR | 9 | 400 | NE | 3 | nil | 10 | Visit 1 |
| 28/04/2021 | 0900 | 1500 | 6.00 | MM | 8 | 700 | NE | 1 | nil | 30 | Visit 1 |
| 28/04/2021 | 0900 | 1500 | 6.00 | CT | 7 | 800 | E | 2 | nil | 10 | Visit 1 |
| 17/05/2021 | 0845 | 1445 | 6.00 | WR | 10 | 600 | W | 2 | nil | 10 | Visit 2 |
| 17/05/2021 | 0930 | 1500 | 5.50 | JM | 10 | 500 | W | 3 | nil | 30 | Visit 2 |
| 17/05/2021 | 1000 | 1600 | 6.00 | MM | 9 | 900 | N | 1 | nil | 20 | Visit 2 |
| 17/05/2021 | 1000 | 1600 | 6.00 | CT | 8 | 1000 | N | 1 | nil | 20 | Visit 2 |
| 17/05/2021 | 0900 | 1500 | 6.00 | FN | 9 | 500 | N | 1 | nil | 2 | Visit 2 |
| 18/05/2021 | 0845 | 1445 | 6.00 | FN | 10 | 500 | N | 2 | ILR | 2 | Visit 2 |
| 18/05/2021 | 0900 | 1430 | 5.50 | JM | 5 | 500 | SW | 3 | ILR | 30 | Visit 2 |
| 18/05/2021 | 0850 | 1450 | 6.00 | WR | 10 | 400 | N | 1 | ILR | 10 | Visit 2 |
| 18/05/2021 | 1000 | 1600 | 6.00 | CT | 6 | 1000 | SE | 1 | ILR | 20 | Visit 2 |
| 18/05/2021 | 1000 | 1600 | 6.00 | MM | 9 | 800 | SE | 1 | ILR | 5 | Visit 2 |
| 19/05/2021 | 0915 | 1515 | 6.00 | WR | 9 | 200 | NE | 2 | ILR | 8 | Visit 2 |
| 19/05/2021 | 0930 | 1330 | 4.00 | JM | 10 | 500 | SE | 1 | ILR | 10 | Visit 2 |
| 19/05/2021 | 1000 | 1600 | 6.00 | CT | 8 | 500 | S | 1 | ILR | 5 | Visit 2 |
| 19/05/2021 | 1000 | 1600 | 6.00 | MM | 9 | 500 | S | 1 | nil | 5 | Visit 2 |
| 14/06/2021 | 0915 | 1515 | 6.00 | FN | 10 | 500 | SW | 4 | nil | 20 | Visit 3 |
| 14/06/2021 | 0920 | 1520 | 6.00 | WR | 9 | 400 | SW | 4 | nil | 10 | Visit 3 |
| 15/06/2021 | 0900 | 1500 | 6.00 | MM | 8 | 1000 | SW | 3 | nil | 10 | Visit 3 |
| 15/06/2021 | 0900 | 1500 | 6.00 | CT | 8 | 1000 | SW | 5 | nil | 15 | Visit 3 |
| 15/06/2021 | 0915 | 1415 | 5.00 | JM | 8 | 500 | SW | 4 | nil | 30 | Visit 3 |
| 15/06/2021 | 0915 | 1515 | 6.00 | FN | 7 | 500 | SW | 4 | nil | 20 | Visit 3 |
| 15/06/2021 | 0930 | 1530 | 6.00 | WR | 8 | 400 | SW | 3 | nil | 10 | Visit 3 |
| 16/06/2021 | 0845 | 1445 | 6.00 | WR | 9 | 500 | S | 3 | nil | 10 | Visit 3 |
| 16/06/2021 | 0910 | 1510 | 6.00 | JM | 9 | 500 | S | 5 | ILR | 30 | Visit 3 |
| 16/06/2021 | 0920 | 1520 | 6.00 | FN | 4 | 500 | SW | 4 | nil | 20 | Visit 3 |
| 16/06/2021 | 1200 | 1800 | 6.00 | CT | 7 | 800 | SW | 5 | nil | 20 | Visit 3 |
| 16/06/2021 | 1200 | 1800 | 6.00 | MM | 7 | 800 | SW | 3 | nil | 20 | Visit 3 |
| 17/06/2021 | 0800 | 1400 | 6.00 | CT | 8 | 1000 | S | 3 | nil | 10 | Visit 3 |
| 17/06/2021 | 0800 | 1400 | 6.00 | MM | 9 | 800 | S | 3 | nil | 20 | Visit 3 |
| 12/07/2021 | 0930 | 1530 | 6.00 | FN | 5 | 500 | NE | 1 | nil | 20 | visit 4 |
| 12/07/2021 | 0930 | 1530 | 6.00 | JM | 6 | 500 | NNE | 3 | nil | 30 | visit 4 |
| 12/07/2021 | 0930 | 1530 | 6.00 | WR | 9 | 300 | NE | 2 | nil | 10 | visit 4 |
| 13/07/2021 | 0920 | 1520 | 6.00 | FN | 8 | 500 | E | 1 | nil | 20 | visit 4 |
| 13/07/2021 | 0920 | 1520 | 6.00 | JM | 9 | 500 | NW | 1 | nil | 30 | visit 4 |
| 13/07/2021 | 0925 | 1525 | 6.00 | WR | 7 | 400 | N | 1 | nil | 10 | visit 4 |
| 14/07/2021 | 0900 | 1500 | 6.00 | MM | 3 | 1000 | S | 1 | nil | 5 | visit 4 |
| 14/07/2021 | 0935 | 1535 | 6.00 | FN | 5 | 500 | E | 1 | nil | 20 | visit 4 |
| 14/07/2021 | 0935 | 1535 | 6.00 | JM | 9 | 300 | W | 4 | nil | 30 | visit 4 |
| 14/07/2021 | 0935 | 1535 | 6.00 | WR | 7 | 400 | SW | 3 | nil | 10 | visit 4 |
| 14/07/2021 | 0900 | 1500 | 6.00 | CT | 5 | 900 | NE | 2 | nil | 15 | visit 4 |
| 15/07/2021 | 0930 | 1530 | 6.00 | MM | 2 | 1000 | nil | 0 | nil | 5 | visit 4 |
| 16/07/2021 | 0930 | 1530 | 6.00 | MM | 8 | 800 | SW | 3 | nil | 5 | visit 4 |
| 16/07/2021 | 0930 | 1530 | 6.00 | CT | 7 | 700 | SW | 6 | nil | 10 | visit 4 |
| Total (hrs) | | | 330.33 | | | | | | | | |

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Eog

Black Grouse

27. Searches for black grouse (*Tetrao tetrix*) were undertaken within suitable habitat in the 1.5 km survey buffer (**Figure 1**) during the peak period for display activity (lekking) by males between April and May. The methods employed were based on those described in Gilbert *et al.* (1998)⁸. Surveys were undertaken during the early morning in calm, dry weather with good visibility. Observers listened and scanned the areas considered suitable for lekking. In total, over 99 hours was spent searching for black grouse (**Table 8**).

| Table 8. Details of Black Grouse Lek surveys. | | | | | | | | | | |
|---|------------|----------|----------------|----------|---------------|------------|----------------|------------|---------|-----------------|
| Date | Start time | End time | Duration (hrs) | Observer | Cloud (10ths) | Cloud base | Wind direction | Wind force | Precip* | Visibility (km) |
| 28/04/2020 | 0430 | 0730 | 3.00 | WR | 8 | 1100 | NE | 1 | nil | 15 |
| 28/04/2020 | 0430 | 0730 | 3.00 | JM | 10 | 600 | NE | 1 | nil | 15 |
| 01/05/2020 | 0540 | 0840 | 3.00 | WR | 10 | 500 | N | 1 | nil | 3 |
| 07/05/2020 | 0440 | 0740 | 3.00 | PS | 0 | - | nil | 0 | nil | 3 |
| 07/05/2020 | 0510 | 0810 | 3.00 | DA | 0 | - | SW | 2 | nil | 10 |
| 07/05/2020 | 0415 | 0715 | 3.00 | JM | 0 | - | N | 1 | nil | 30 |
| 08/05/2020 | 0440 | 0740 | 3.00 | WR | 10 | 600 | SW | 1 | nil | 15 |
| 15/05/2020 | 0415 | 0715 | 3.00 | WR | 10 | 1100 | W | 3 | nil | 10 |
| 19/05/2020 | 0450 | 0750 | 3.00 | DA | 10 | 200 | SW | 1 | ILR | 10 |
| 21/05/2020 | 0450 | 0750 | 3.00 | FN | 10 | 500 | SW | 1 | nil | 15 |
| 25/05/2020 | 0420 | 0720 | 3.00 | FN | 4 | 500 | S | 2 | nil | 15 |
| 25/05/2020 | 0410 | 0710 | 3.00 | WR | 2 | 1100 | S | 3 | nil | 15 |
| 16/04/2021 | 0450 | 0750 | 3.00 | WR | 0 | - | E | 1 | nil | 10 |
| 16/04/2021 | 0500 | 0800 | 3.00 | CT | 0 | - | SW | 1 | nil | 30 |
| 16/04/2021 | 0500 | 0800 | 3.00 | JM | 1 | 500 | SW | 4 | nil | 30 |
| 20/04/2021 | 0515 | 0815 | 3.00 | FN | 10 | 100 | SSW | 1 | ILR | 2 |
| 21/04/2021 | 0445 | 0754 | 3.15 | MM | 0 | - | N | 1 | nil | 30 |
| 21/04/2021 | 0500 | 0800 | 3.00 | JM | 0 | - | NE | 2 | nil | 30 |
| 27/04/2021 | 0440 | 0740 | 3.00 | KC | 10 | 500 | N | 4 | CHR | 1 |
| 28/04/2021 | 0435 | 0735 | 3.00 | KC | 10 | 500 | N | 5 | IHR | 5 |
| 29/04/2021 | 0430 | 0730 | 3.00 | KC | 10 | 600 | N | 3 | nil | 10 |
| 30/04/2021 | 0430 | 0730 | 3.00 | CT | 9 | 800 | SW | 1 | nil | 10 |
| 30/04/2021 | 0430 | 0730 | 3.00 | MM | 9 | 800 | NE | 1 | nil | 30 |
| 30/04/2021 | 0435 | 0735 | 3.00 | KC | 10 | 600 | N | 4 | IHS | 5 |
| 04/05/2021 | 0425 | 0725 | 3.00 | KC | 10 | 500 | N | 4 | IHR | 5 |
| 05/05/2021 | 0430 | 0730 | 3.00 | KC | 2 | 800 | N | 3 | nil | 10 |
| 07/05/2021 | 0425 | 0725 | 3.00 | KC | 5 | 800 | N | 2 | nil | 15 |
| 03/05/2021 | 0420 | 0720 | 3.00 | FN | 8 | 500 | E | 1 | nil | 30 |
| 03/05/2021 | 0425 | 0725 | 3.00 | JM | 8 | 500 | S | 1 | nil | 25 |
| 03/05/2021 | 0430 | 0730 | 3.00 | WR | 10 | 300 | E | 1 | nil | 10 |
| 05/05/2021 | 0425 | 0725 | 3.00 | JM | 4 | 100 | N | 3 | nil | 25 |
| 08/05/2021 | 0415 | 0715 | 3.00 | CT | 2 | 1000 | NW | 1 | nil | 30 |
| 08/05/2021 | 0445 | 0745 | 3.00 | MM | 5 | 800 | NE | 3 | nil | 30 |
| Total (hrs) | | | 99.15 | | | | | | | |

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Eog

Field Survey Results

28. Observed flight activity, timings and heights refer to all flights observed in the field from all GVPs.

It should be noted that flight activity and timings will reduce, due to clipping flights to the 500 m flight activity survey area buffer and viewshed, from that recorded in the field when it comes to analysing these data in a Collision Risk Model (CRM) (**Appendix 9.2: Collision Risk Modelling**).

Divers

Occurrence and status

29. One species of conservation concern was recorded during the study period: **red-throated diver**.

30. **Red-throated diver** (Annex 1 and Schedule 1) were present throughout the breeding season and were recorded in flight and on a number of waterbodies in and around the Site (**Figures 3 - 6; Tables 7, 8, 27, 29 -31; Appendix 9.4: Confidential Figures 1 and 2**).

31. During 2020, four pairs of **red-throated diver** were confirmed to have attempted to breed within 2 km of the Site; three pairs were successful, fledging five juveniles and one pair failed. A further pair was considered to have probably bred based on observations of behaviour conducive to breeding, e.g. territorial behaviour and displaying. The species was recorded using at least 21 different waterbodies of the 78 checked within 2 km of the Site (**Figure 5; Appendix 9.4: Confidential Figure 1**).

32. During 2021, four pairs of **red-throated diver** were confirmed to have attempted to breed within 2 km of the Site; two pairs were successful, fledging three juveniles whilst the other two pairs failed. The species was recorded using at least 15 different waterbodies of the 78 checked within 2 km of the Site (**Figure 6; Appendix 9.4: Confidential Figure 2**).

Flight activity

33. Forty-one flights involving fifty-five **red-throated divers** were recorded from GVP watches during the study period. A total duration of 5,132 seconds of flight activity was recorded. Of that time 3,955 seconds (77%) was spent between 20 m and 200 m in height, i.e. at potential collision risk height (**Figures 3 & 4; Table 7**).

| Period | GVP No. | No. of flights | No. of birds | Total flying time (s) | Time in height class (s) | | | | | |
|--------------|---------|----------------|--------------|-----------------------|--------------------------|-------------|-------------|------------|------------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP1 | 4 | 5 | 428 | 46 | 155 | 227 | | | |
| | GVP2 | 1 | 2 | 790 | 92 | 182 | 122 | 60 | 334 | |
| | GVP3 | 4 | 7 | 1462 | 438 | 880 | | | 144 | |
| | GVP4 | 2 | 3 | 50 | | | 50 | | | |
| | GVP12 | 2 | 3 | 235 | | | 114 | | 121 | |
| | GVP13 | 4 | 7 | 824 | 30 | 258 | 536 | | | |
| | GVP15 | 3 | 5 | 128 | 50 | 78 | | | | |
| | GVP16 | 6 | 7 | 173 | 92 | 48 | | 33 | | |
| Sep-Mar | GVP1 | 2 | 2 | 380 | 48 | 190 | 142 | | | |
| | GVP3 | 2 | 2 | 93 | | | 93 | | | |
| | GVP16 | 3 | 3 | 47 | 25 | | 22 | | | |
| | GVP18 | 1 | 1 | 67 | | | | 67 | | |
| Total | | 41 | 55 | 5132 | 1177 | 1871 | 1325 | 160 | 599 | |

34. Forty-two flights involving forty-nine **red-throated divers** were recorded from FVP watches. A total duration of 4,252 seconds of flight activity was recorded. Of that time 3,011 seconds (71%) was spent between 20 – 200 m in height, i.e. at potential collision risk height (**Figures 5 & 6; Table 8**).

| Period | FVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------------------|-------------|------------|------------|------------|------------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | DVP1 | 3 | 3 | 157 | 32 | 125 | | | | |
| | DVP2 | 6 | 7 | 1326 | 111 | 264 | 166 | 196 | 317 | 272 |
| | DVP3 | 2 | 2 | 47 | 47 | | | | | |
| | DVP4 | 8 | 12 | 756 | 172 | 127 | 394 | 63 | | |
| | DVP5 | 12 | 14 | 1237 | 490 | 294 | 220 | 171 | 62 | |
| | DVP6 | 3 | 3 | 270 | 15 | 39 | 123 | 31 | 62 | |
| | DVP7 | 8 | 8 | 459 | 102 | 181 | 81 | 95 | | |
| Total | | 42 | 49 | 4252 | 969 | 1030 | 984 | 556 | 441 | 272 |

Grebes

Occurrence and status

35. One species of conservation concern was recorded during the study period: **Slavonian grebe**.

36. **Slavonian grebe** (Annex 1 and Schedule 1) was present throughout the breeding season and was recorded on a number of waterbodies in and around the Site (**Tables 29 and 30; Appendix 9.4: Confidential Figures 1 and 2**).
37. During 2020, four pairs of **Slavonian grebe** attempted to breed within 2 km of the Site. A further breeding pair was recorded on a component loch of the North Inverness Lochs Special Protection Area (SPA) at a distance greater than 2 km from the Site (**Appendix 9.4: Confidential Figure 1**).
38. During 2021, five pairs of **Slavonian grebe** attempted to breed within 2 km of the Site. A further breeding pair was recorded on a component loch of the North Inverness Lochs SPA at a distance greater than 2 km from the Site (**Appendix 9.4: Confidential Figure 2**).
39. Although no successful breeding attempts were recorded in either year both the young and adults can be extremely elusive during chick rearing.

Flight activity

40. No flights involving **Slavonian grebe** were recorded during the study period.

Wildfowl

Occurrence and status

41. One species of conservation concern was recorded during the study period: **whooper swan** (*Cygnus cygnus*). Other wildfowl species recorded of lesser conservation concern included greylag goose (*Anser anser*), pink-footed goose (*A. brachyrhynchus*), gadwall (*Anas strepera*), mallard (*A. platyrhynchos*) and teal (*A. crecca*) (**Figures 7 - 10; Tables 9 – 12 and 27 - 30**).
42. Twelve observations involving a total of 76 **whooper swans** (Annex 1 and Schedule 1) were made during the course of all surveys.
43. Fourteen flights involving a total of 291 greylag geese were recorded during the course of all surveys.
44. Twenty-eight flights involving a total of 1,533 pink-footed geese were recorded during the course of all surveys.
45. A pair of gadwall flew off Loch a' Choire Bhuidhe on 28 April 2020. Small numbers of breeding mallard and teal were recorded within the Site during both breeding seasons (**Tables 28 - 30**).

Flight activity

46. Six flights by 38 **whooper swans** were recorded during GVP watches. Flights varied in height between less than 20 m and greater than 200 m above ground level (**Figures 7 and 8; Table 9**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Sep-Mar | GVP3 | 2 | 4 | | * | * | * | | | |
| | GVP4 | 1 | 2 | | | | | | | * |
| | GVP12 | 1 | 28 | | | | | | * | * |
| | GVP15 | 1 | 2 | | * | * | | | | |
| | GVP18 | 1 | 2 | | * | * | * | | | |
| Total | | 6 | 38 | | * | * | * | | * | * |

47. Eleven flights by greylag geese were recorded during GVP watches involving 251 individuals. Flights varied in height between 20 m and greater than 200 m above ground level (**Figures 7 and 8; Table 10**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP3 | 1 | 14 | | | * | | | | |
| | GVP12 | 3 | 125 | | | | | | * | * |
| Sep-Mar | GVP1 | 1 | 14 | | | | | * | | |
| | GVP2 | 1 | 14 | | | | | | * | |
| | GVP13 | 2 | 27 | | | | * | * | * | * |
| | GVP15 | 2 | 24 | | | | | * | * | * |
| | GVP18 | 1 | 33 | | | | * | * | | |
| Total | | 11 | 251 | | | * | * | * | * | * |

48. Twenty flights by pink-footed geese were recorded during GVP watches involving 1,120 individuals. Flights varied in height between 50 m and greater than 200 m above ground level (**Figures 7 and 8; Table 11**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|---------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP5 | 1 | 200 | | | | | | | * |
| | GVP13 | 1 | 75 | | | | | | | * |
| | GVP18 | 1 | 130 | | | | | | | * |

| Table 11. Details of pink-footed goose flights recorded from GVPs. | | | | | | | | | | |
|--|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| | GVP19 | 1 | 30 | | | | | | | * |
| Sep-Mar | GVP1 | 2 | 120 | | | | | | * | * |
| | GVP12 | 1 | 20 | | | | * | * | | |
| | GVP14 | 5 | 193 | | | | | * | * | |
| | GVP15 | 2 | 135 | | | * | * | * | | |
| | GVP17 | 5 | 183 | | | * | * | * | * | |
| | GVP18 | 1 | 34 | | | | | * | | |
| Total | | 20 | 1120 | | | * | * | * | * | |

49. Three flights by nineteen unidentified 'grey geese' were recorded from GVPs during the study period. Flight height varied between 20 m and greater than 200 m in height (Figures 7 and 8; Table 12).

| Table 12. Details of unidentified goose flights recorded from GVPs. | | | | | | | | | | |
|---|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Sep-Mar | GVP2 | 1 | 6 | | | | | | | * |
| | GVP5 | 1 | 1 | | | * | * | | | |
| | GVP14 | 1 | 12 | | | | * | * | * | * |
| Total | | 3 | 19 | | | * | * | * | * | * |

Waders

Occurrence and status

50. Seven species of wader of conservation concern were recorded during the study period: **wood sandpiper** (*Tringa glareola*), **greenshank** (*T. nebularia*), **golden plover** (*Pluvialis apricaria*), **dunlin** (*Calidris alpina*), **lapwing** (*Vanellus vanellus*), **curlew** (*Numenius arquata*) and **woodcock** (*Scolopax rusticola*). Species of lesser conservation concern that were recorded included common sandpiper (*Actitis hypoleucos*) and snipe (*Gallinago gallinago*) (Figures 11 - 15; Tables 13 - 15 and 27 - 31).

51. **Wood sandpiper** (Annex 1 and Schedule 1) was recorded on two occasions in 2021, on 17 May and 27 May. No evidence of breeding by **wood sandpiper** was recorded during baseline surveys, despite searches in potential breeding habitat; and it was suspected these birds were on passage to their breeding grounds further north (Figure 14).

52. **Greenshank** (Annex 1 and Schedule 1) was recorded regularly throughout the breeding season during the study period. During the 2020 breeding season, a nest with four eggs was located and adults with chicks were observed at two breeding sites; these records coupled with additional records of breeding behaviour, including display flights, agitated alarm calling and territorial singing, suggested a minimum of five breeding pairs within the Site. During the 2021 breeding season, five breeding territories were located and chicks were confirmed at one of these locations. Results of the 2021 Moorland Bird Survey indicate that two territories lie within the 500 m turbine buffer (Figure 15).

53. **Golden plover** (Annex 1) was recorded throughout the breeding season during the study period. The majority of records were made of single and paired birds between March and June. During the 2020 breeding season, bird behaviour, including display flights, agitated alarm calling and territorial singing, suggested a minimum of eight breeding pairs within the Site. During the 2021 breeding season, 22 breeding territories were located. A flock of 50 birds seen on 15 September 2019 were probably birds on their southward migration. Results of the 2021 Moorland Bird Survey indicate that two territories lie within the 500 m turbine buffer (Figure 15).

54. **Dunlin** (Annex 1) was recorded infrequently during the study period. During the 2020 breeding season, breeding behaviour, including display and agitated alarm calling, suggested a minimum of two breeding pairs within the Site. During the 2021 breeding season, six dunlin territories were identified. Results of the 2021 Moorland Bird Survey indicate that two territories lie within the 500 m turbine buffer (Figure 15).

55. **Lapwing** (Red list) was recorded infrequently during the study period. On 8 May 2020 a pair of lapwing were observed displaying at Lochan Dubh and a single bird was seen in the same location later in the day. Behaviour, including display, suggests one breeding pair within the Site (Table 29). During 2021, a pair of lapwing, recorded in the same location, showed signs of breeding behaviour indicating one breeding pair within the Site. No evidence of breeding was found within the 500 m turbine buffer.

56. **Curlew** (Red list) was recorded once during the study period. On 14 May 2020 a flight by a single bird was observed. No evidence of breeding was found during the study period.

57. Eleven **woodcock** (Red list) were flushed during the course of winter walked transects (Table 28). No evidence of breeding was found during the study period.

Flight activity

58. No flights by **wood sandpiper** were recorded from GVPs.

59. Twenty-two flights by **greenshank** were recorded from GVPs during the study period. Flight height varied between less than 20 m to 150 m in height (**Figures 11 and 12; Table 13**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP2 | 7 | 9 | | * | * | * | * | | |
| | GVP3 | 2 | 2 | | * | * | | | | |
| | GVP4 | 2 | 2 | | * | | | * | | |
| | GVP12 | 2 | 3 | | | | * | * | | |
| | GVP13 | 2 | 2 | | | * | * | * | | |
| | GVP15 | 4 | 5 | | * | | | | | |
| | GVP16 | 3 | 3 | | * | | | | | |
| Total | | 22 | 26 | | * | * | * | * | | |

60. Thirty-five flights by **golden plover** were recorded from GVPs during the study period. Flight height varied between less than 20 m to 200 m in height (**Figures 11 and 12; Table 14**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP12 | 4 | 5 | | * | * | * | * | | |
| | GVP14 | 8 | 12 | | * | | | | | |
| | GVP15 | 3 | 5 | | * | | | | | |
| | GVP16 | 2 | 2 | | * | | | | | |
| | GVP17 | 3 | 5 | | * | | | | | |
| | GVP19 | 2 | 2 | | * | | | | | |
| Sep-Mar | GVP1 | 3 | 9 | | * | * | * | | | |
| | GVP3 | 4 | 12 | | | | | | | |
| | GVP4 | 1 | 50 | | | | | | * | |
| | GVP12 | 1 | 2 | | | | * | | | |
| | GVP16 | 1 | 1 | | * | | | | | |
| | GVP19 | 2 | 3 | | | | * | * | * | |
| Total | | 35 | 109 | | * | * | * | * | * | |

61. Three flights by **dunlin** were recorded from GVPs during the study period. All flights were less than 20 m in height (**Figures 11 and 12; Table 15**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP15 | 3 | 5 | | * | | | | | |
| Total | | 3 | 5 | | * | | | | | |

Scarce raptors and owls*Occurrence and status*

62. Ten species of scarce raptor were recorded during surveys: **golden eagle**, **white-tailed eagle** (*Haliaeetus albicilla*), **honey buzzard** (*Pernis apivorus*), **red kite** (*Milvus milvus*), **goshawk** (*Accipiter gentilis*), **hen harrier**, **osprey** (*Pandion haliaetus*), **peregrine**, **merlin** and **hobby**. No scarce species of owl was recorded. Other raptor species of lesser conservation concern were also recorded, including buzzard (*Buteo buteo*) and common kestrel (*Falco tinnunculus*) (**Figures 16 - 23; Tables 16 - 24, and 27 – 31; Appendix 9.4: Confidential Figures 3 and 4**).

63. **Golden eagle** (Annex 1 and Schedule 1) was present throughout the study period and was recorded regularly in flight in and around the Site. A known breeding site is located within the Site boundary and a second territory is located within 6 km of the Site. Territory A failed to breed in 2020 and in 2021 evidence suggested the pair attempted to breed but failed. Territory B did not attempt to breed at the known nest location; they may have bred elsewhere. In 2021, the pair built a new eyrie close to the known breeding location. The attempt failed at the early chick stage (**Figures 16 - 19; Appendix 9.4: Confidential Figures 3 and 4**).

64. **White-tailed eagle** (Annex 1 and Schedule 1) was recorded on ten occasions during the study period. The majority of observations were made during the non-breeding period. No evidence of breeding by white-tailed eagle was obtained during baseline surveys (**Figures 20 - 23**).

65. **Honey buzzard** (Annex 1 and Schedule 1) was recorded on seven occasions during the 2021 breeding season. Although a nesting area had been identified, no breeding site was found despite extensive searches in potential breeding habitat within 2 km of the Site (**Figure 23**).

66. **Red kite** (Annex 1 and Schedule 1) was recorded on forty-two occasions during the study period, with 17 records made during the non-breeding season and 25 records during the breeding season. No evidence of breeding or roosting by red kite was obtained during baseline surveys, despite extensive searches in potential breeding/roosting habitat (**Figures 20 - 23**).

67. **Goshawk** (Schedule 1) was recorded on six occasions during the study period. In 2021, a breeding site was located however the attempt had failed by 12 July 2021 (**Figures 21 - 23; Appendix 9.4: Confidential Figure 4**).
68. **Hen harrier** (Annex 1 and Schedule 1) was observed irregularly during the study period with the majority of observations being made late in the 2020 breeding season. There was no evidence of breeding despite extensive searches in potential breeding habitat within 2 km of the Site; however, a juvenile was recorded hunting on three occasions on 12 August 2020 suggesting breeding could have occurred just beyond the 2 km buffer. No hen harriers were observed after 12 August 2020 (**Figures 20 and 22**).
69. **Osprey** (Annex 1 and Schedule 1) was recorded infrequently during the breeding season. No evidence of breeding by osprey was obtained, despite searches in potential breeding habitat within 2 km of the Site. Osprey was recorded on 14 occasions during the study period, including a flight by an adult and two juveniles on 18 August 2021 (**Figures 20, 21 and 23**).
70. **Peregrine** (Annex 1 and Schedule 1) was recorded on seventeen occasions during the study period. Thirteen records involved adult birds and an immature bird was seen on 24 April 2020, the remaining three records were unaged. No evidence of breeding by peregrine was obtained during baseline surveys, despite extensive searches in potential breeding habitat (**Figures 20 - 23**).
71. **Merlin** (Annex 1 and Schedule 1) was recorded regularly during the study period, in total 36 observations were made. During the 2020 breeding season, evidence of breeding by merlin was obtained in potential breeding habitat within 2 km of the Site, however no nest sites were located. Juveniles were recorded on five occasions indicating successful breeding had occurred within the Site. During the 2021 breeding season, evidence of breeding by merlin was obtained in potential breeding habitat within 2 km of the Site, however no nest sites were located. Juveniles were recorded on two occasions indicating successful breeding had occurred within the Site, including two juveniles seen together on 6 August 2021 (**Figures 20 - 23**).
72. **Hobby** (Annex 1 and Schedule 1) was recorded on three occasions in September 2019; records involved one adult and two juveniles. No evidence of breeding by hobby was obtained, despite searches in potential breeding habitat within 2 km of the Site (**Figure 20**).

Flight activity

73. Two hundred and ten flights by **golden eagles** were recorded from GVPs during the study period. A total duration of 49,205 seconds of flight activity was recorded, of which 31,053 seconds (63%) was spent at potential collision risk height (**Figures 16 and 17; Table 16**).

| Table 16. Details of golden eagle flights recorded from GVPs. | | | | | | | | | | |
|---|---------|---------------|-------------|--------------------|--------------------------|-------------|--------------|-------------|-------------|--------------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP1 | 4 | 4 | 498 | | 283 | 154 | 61 | | |
| | GVP2 | 4 | 5 | 1606 | 41 | 335 | 318 | 166 | 260 | 486 |
| | GVP3 | 6 | 6 | 3865 | | | 881 | 147 | 165 | 2672 |
| | GVP4 | 12 | 14 | 2799 | 190 | 461 | 1711 | 45 | 392 | |
| | GVP5 | 8 | 8 | 1368 | 77 | 76 | 370 | 339 | 138 | 368 |
| | GVP12 | 10 | 12 | 4897 | 259 | 401 | 619 | 405 | 197 | 3016 |
| | GVP13 | 9 | 10 | 1553 | | 587 | 315 | 136 | 288 | 227 |
| | GVP14 | 9 | 10 | 1903 | 364 | 896 | 336 | 60 | 30 | 217 |
| | GVP15 | 1 | 1 | 49 | | 49 | | | | |
| | GVP16 | 7 | 7 | 1757 | 16 | 218 | 273 | 334 | 183 | 733 |
| | GVP17 | 6 | 6 | 1619 | 78 | 302 | 106 | 482 | 45 | 606 |
| | GVP18 | 20 | 23 | 5918 | 576 | 1634 | 432 | 168 | 170 | 2938 |
| | GVP19 | 1 | 1 | 75 | 15 | 45 | 15 | | | |
| Sep-Mar | GVP1 | 10 | 11 | 2550 | 218 | 1091 | 736 | 474 | 31 | |
| | GVP2 | 15 | 15 | 3542 | 490 | 1241 | 457 | 784 | 195 | 375 |
| | GVP3 | 8 | 8 | 1220 | 45 | 220 | 311 | 137 | 204 | 303 |
| | GVP4 | 9 | 10 | 1188 | 127 | 322 | 356 | 96 | 111 | 176 |
| | GVP5 | 17 | 19 | 3205 | 181 | 91 | 796 | 521 | 1412 | 204 |
| | GVP12 | 3 | 3 | 855 | 82 | 146 | 46 | 107 | 153 | 321 |
| | GVP13 | 14 | 16 | 4388 | 447 | 601 | 1238 | 595 | 15 | 1492 |
| | GVP15 | 2 | 2 | 402 | 16 | 16 | 158 | 30 | 30 | 152 |
| | GVP16 | 9 | 9 | 419 | 151 | 125 | 143 | | | |
| | GVP17 | 9 | 8 | 1178 | 133 | 126 | 454 | 282 | 137 | 46 |
| GVP18 | 17 | 18 | 2351 | 96 | 161 | 1095 | 357 | 424 | 218 | |
| Total | | 210 | 226 | 49205 | 3602 | 9427 | 11320 | 5726 | 4580 | 14550 |

74. Five flights by **white-tailed eagle** were recorded from GVPs during the study period. A total duration of 3,548 seconds of flight activity was recorded, of which 2,549 seconds (72%) was spent at potential collision risk height (**Figures 20 and 21; Table 17**).

| Table 17. Details of white-tailed eagle flights recorded from GVPs. | | | | | | | | | | |
|---|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP5 | 1 | 1 | 1361 | | | | 227 | 499 | 635 |

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|------------|------------|-------------|-------------|------------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Sep-Mar | GVP2 | 1 | 1 | 125 | | 16 | 31 | 78 | | |
| | GVP4 | 1 | 1 | 827 | 60 | 45 | 150 | 241 | 331 | |
| | GVP17 | 2 | 2 | 1235 | 15 | 106 | 45 | 489 | 291 | 289 |
| Total | | 5 | 5 | 3548 | 75 | 167 | 226 | 1035 | 1121 | 924 |

75. No flights by **honey buzzard** were recorded from GVPs.

76. Thirty-one flights involving 36 **red kites** were recorded from GVPs during the study period. A total duration of 9,454 seconds of flight activity was recorded, of which 7,494 seconds (79%) was spent at potential collision risk height (**Figures 20 and 21; Table 18**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP3 | 2 | 2 | 142 | | | 127 | 15 | | |
| | GVP4 | 1 | 1 | 1213 | | | | | | 1213 |
| | GVP12 | 1 | 1 | 167 | | | 167 | | | |
| | GVP13 | 1 | 1 | 222 | | 95 | 16 | 79 | 32 | |
| | GVP14 | 1 | 1 | 191 | | 32 | 32 | 32 | 95 | |
| | GVP16 | 1 | 1 | 408 | 121 | 121 | | | 166 | |
| | GVP17 | 2 | 2 | 341 | | | 79 | 64 | 198 | |
| | GVP18 | 1 | 1 | 105 | | 75 | 30 | | | |
| | GVP19 | 6 | 8 | 1363 | | 198 | 520 | 281 | 242 | 122 |
| Sep-Mar | GVP1 | 1 | 1 | 513 | | | | | 226 | 287 |
| | GVP3 | 1 | 1 | 262 | | 154 | 31 | 46 | 31 | |
| | GVP5 | 1 | 1 | 750 | | 375 | 195 | 105 | 75 | |
| | GVP13 | 4 | 4 | 598 | 79 | 489 | 30 | | | |
| | GVP15 | 2 | 5 | 988 | | | 864 | 124 | | |
| | GVP17 | 4 | 4 | 1742 | 123 | 744 | 468 | 271 | 136 | |
| GVP19 | 2 | 2 | 449 | 15 | 62 | 170 | 47 | 155 | | |
| Total | | 31 | 36 | 9454 | 338 | 2345 | 2729 | 1064 | 1356 | 1622 |

77. Two flights by **goshawk** were recorded from GVPs during the study period. A total duration of 27 seconds of flight activity was recorded; all of which was below potential collision risk height (**Figure 21; Table 19**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|--------|---------|----------|----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Sep-Mar | GVP4 | 1 | 1 | 9 | 9 | | | | | |
| | GVP19 | 1 | 1 | 18 | 18 | | | | | |
| Total | | 2 | 2 | 27 | 27 | | | | | |

78. Six flights by **hen harrier** were recorded from GVPs during the study period. A total duration of 727 seconds of flight activity was recorded. The majority of the flight duration, 438 seconds, (60%) was spent below 20 m in height and therefore not at risk of potential collision. The remaining 290 seconds (40%) was spent at potential collision risk height (**Figure 20; Table 20**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Height class | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------|-----------|------------|-----------|-----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP15 | 2 | 2 | 178 | 178 | | | | | |
| | GVP17 | 2 | 2 | 260 | 260 | | | | | |
| Sep-Mar | GVP4 | 1 | 1 | 32 | | 16 | | | 16 | |
| | GVP5 | 1 | 1 | 258 | | | 152 | 76 | 30 | |
| Total | | 6 | 6 | 728 | 438 | 16 | 152 | 76 | 46 | |

79. Nine flights by **osprey** were recorded from GVPs during the study period. A total of 2,297 seconds of flight was recorded, of which 2,100 seconds (91%) was spent at potential collision risk height (**Figures 20 and 21; Table 21**).

| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
|--------------|---------|---------------|-------------|--------------------|--------------------------|------------|------------|------------|-----------|-------|
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP1 | 1 | 1 | 110 | 47 | 63 | | | | |
| | GVP3 | 1 | 1 | 60 | | | 60 | | | |
| | GVP4 | 1 | 1 | 225 | | | 225 | | | |
| | GVP5 | 1 | 1 | 844 | | 226 | 558 | 60 | | |
| | GVP16 | 4 | 4 | 939 | 150 | 602 | 16 | 109 | 62 | |
| | GVP19 | 1 | 1 | 119 | | 17 | 34 | 68 | | |
| Total | | 9 | 9 | 2297 | 197 | 908 | 893 | 237 | 62 | |

80. Nine flights by **peregrine** were recorded from GVPs during the study period. A total of 690 seconds of flight was recorded, of which 543 seconds (79%) was spent at potential collision risk height (**Figures 20 and 21; Table 22**).

| Table 22. Details of peregrine flights recorded from GVPs. | | | | | | | | | | |
|--|---------|---------------|-------------|--------------------|--------------------------|------------|------------|------------|-----------|-----------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP3 | 1 | 1 | 60 | | | 60 | | | |
| | GVP5 | 1 | 1 | 138 | | | 31 | 107 | | |
| | GVP16 | 1 | 1 | 12 | 12 | | | | | |
| | GVP17 | 1 | 1 | 128 | | | | 64 | 48 | 16 |
| Sep-Mar | GVP3 | 2 | 2 | 102 | 86 | 16 | | | | |
| | GVP10 | 1 | 1 | 131 | 33 | 49 | 49 | | | |
| | GVP12 | 1 | 1 | 75 | | 30 | 45 | | | |
| | GVP19 | 1 | 1 | 44 | | 22 | 22 | | | |
| Total | | 9 | 9 | 690 | 131 | 117 | 207 | 171 | 48 | 16 |

81. Eighteen flights by nineteen **merlin** were recorded from GVPs during the study period. A total duration of 869 seconds of flight activity was recorded, of which 509 seconds (59%) was spent at potential collision risk height (**Figures 20 and 21; Table 23**).

| Table 23. Details of merlin flights recorded from GVPs. | | | | | | | | | | |
|---|---------|---------------|-------------|--------------------|--------------------------|------------|-----------|------------|-----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP3 | 1 | 1 | 16 | 16 | | | | | |
| | GVP14 | 2 | 2 | 101 | 62 | 39 | | | | |
| | GVP17 | 2 | 3 | 73 | 17 | 56 | | | | |
| | GVP18 | 2 | 2 | 223 | 7 | | 62 | 139 | 15 | |
| | GVP19 | 1 | 1 | 11 | | 11 | | | | |
| Sep-Mar | GVP1 | 2 | 2 | 227 | 136 | 76 | 15 | | | |
| | GVP4 | 2 | 2 | 49 | 33 | | 16 | | | |
| | GVP12 | 1 | 1 | 46 | 15 | 31 | | | | |
| | GVP16 | 2 | 2 | 70 | 21 | 49 | | | | |
| | GVP17 | 1 | 1 | 21 | 21 | | | | | |
| | GVP18 | 1 | 1 | 14 | 14 | | | | | |
| GVP19 | 1 | 1 | 18 | 18 | | | | | | |
| Total | | 18 | 19 | 869 | 360 | 262 | 93 | 139 | 15 | |

82. Three flights by **hobby** were recorded from GVPs during the study period. A total duration of 44 seconds of flight was recorded, of which 26 seconds (59%) was spent at potential collision risk height (**Figure 20; Table 24**).

| Table 24. Details of hobby flights recorded from GVPs. | | | | | | | | | | |
|--|---------|---------------|-------------|--------------------|--------------------------|-----------|---------|----------|----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Sep-Mar | GVP2 | 1 | 1 | 2 | 2 | | | | | |
| | GVP5 | 1 | 1 | 26 | | 26 | | | | |
| | GVP18 | 1 | 1 | 16 | 16 | | | | | |
| Total | | 3 | 3 | 44 | 18 | 26 | | | | |

Black grouse

Occurrence and status

83. **Black grouse** (Red list) were recorded within the Site and study area (i.e. within 1.5 km of the Site) throughout the study period (**Figures 24 and 25; Tables 25 - 27 and 29 - 31**).

84. Targeted surveys for 'lekking' (displaying) birds in April and May 2020, located five 'core' lekking areas. The maximum count of males attending these lek sites was 13, 7, 7, 6 and 2, totalling 35 males. Observations were also made of highly dispersed and mobile single displaying males, so called 'singletons'. Therefore, the population of male black grouse within the study area is likely to be in the region of 40 males (**Figure 24; Table 25**).

85. Targeted surveys for lekking birds in April and May 2021, located six 'core' lekking areas. The maximum count of males attending these lek sites was 19, 9, 9, 6, 6 and 6, totalling 56 males. Fewer observations of singletons were made in 2021, however the population of male black grouse within the study area is likely to be in the region of 60 males (**Figure 25; Table 25**).

| Table 25. Results of black grouse lek survey, 2020 and 2021 | | | | | | |
|---|------|--------|--------|-----------|----------|----------------------------------|
| Date | Time | Number | Sex | Behaviour | Signs | Comments |
| 28/04/2020 | 0602 | 1 | M | Vocalise | | Seen briefly |
| 28/04/2020 | 0614 | 1 | F | Flying | | |
| 28/04/2020 | 0713 | 1 | M | | Lek site | Lekking at distance from 4 |
| 28/04/2020 | 0722 | 1 | M | | Lek site | Lekking at distance from 3 |
| 28/04/2020 | 0547 | 1 | M | Display | | Lekking on track verge |
| 28/04/2020 | 0609 | 5 | 5M | Display | Lek site | |
| 01/05/2020 | 0540 | 7 | 7M | Display | Lek site | |
| 01/05/2020 | 0548 | 4 | 4M | Flying | Lek site | 4 of 7 from lek |
| 07/05/2020 | 0545 | 17 | 13M 4F | Display | Lek site | |
| 07/05/2020 | 0600 | 1 | M | Display | Lek site | |
| 07/05/2020 | 0610 | 4 | 4M | | Lek site | |
| 07/05/2020 | 0630 | 8 | 8M | | | Probably disturbed from lek site |
| 07/05/2020 | 0630 | 2 | 2M | | | Probably disturbed from lek site |
| 07/05/2020 | 0520 | 1 | 1M | | Lek site | On ridge above track |
| 07/05/2020 | 0544 | 3 | 3F | Flying | | |
| 07/05/2020 | 0555 | 1 | M | Flying | | Flushed from track |

| Table 25. Results of black grouse lek survey, 2020 and 2021 | | | | | | |
|---|------|--------|-----|-----------------|----------|------------------------------------|
| Date | Time | Number | Sex | Behaviour | Signs | Comments |
| 07/05/2020 | 0634 | 6 | 6M | | Lek site | |
| 08/05/2020 | 0445 | 1 | F | | | On track |
| 08/05/2020 | 0504 | 1 | M | | | |
| 08/05/2020 | 0518 | 1 | M | | | |
| 15/05/2020 | 0440 | 3 | 3M | | | On obvious grassy area |
| 15/05/2020 | 0643 | 4 | 4M | | | Either side of fence |
| 21/05/2020 | 0532 | 1 | M | Flying | | |
| 21/05/2020 | 0635 | 1 | M | Flying | | |
| 21/05/2020 | 0651 | 1 | M | Flying | | |
| 25/05/2020 | 0610 | 1 | M | Flying | | |
| 25/05/2020 | 0429 | 1 | M | Display | Lek site | |
| 25/05/2020 | 0431 | 2 | 2M | Display | Lek site | |
| 25/05/2020 | 0502 | 1 | M | Display | Lek site | |
| 16/04/2021 | 0510 | 1 | M | Display | | |
| 16/04/2021 | 0520 | 1 | F | Flying | | flushed |
| 16/04/2021 | 0524 | 4 | 4M | Display | Lek site | |
| 16/04/2021 | 0610 | 2 | 2F | Flying | | flew across track |
| 21/04/2021 | 0558 | 1 | M | | | heard only |
| 21/04/2021 | 0612 | 2 | 2M | | | heard only |
| 21/04/2021 | 0652 | 1 | M | | | heard only |
| 21/04/2021 | 0729 | 1 | F | | | flushed, flew into woods |
| 21/04/2021 | 0514 | 1 | F | Flying | | |
| 21/04/2021 | 0552 | 16 | 16M | Display | Lek site | |
| 21/04/2021 | 0628 | 1 | M | Display | | |
| 21/04/2021 | 0702 | 1 | M | Display | | heard only, location approximate |
| 27/04/2021 | 0510 | 5 | 5M | Display | Lek site | conditions too poor to see any F |
| 28/04/2021 | 0540 | 19 | 19M | Territorial | Lek site | poor weather, unable to see any Fs |
| 28/04/2021 | 0440 | 1 | F | Territorial | | sitting on track on way into site |
| 28/04/2021 | 0614 | 19 | 19M | Flying | | left LK, returned @0618 |
| 28/04/2021 | 0620 | 6 | 6M | Territorial | Lek site | scoped lek from distance |
| 30/04/2021 | 0542 | 1 | M | | | heard lek |
| 30/04/2021 | 0550 | 1 | M | | | heard lek, second bird |
| 30/04/2021 | 0617 | 1 | M | | Lek site | heard lek, one male seen |
| 30/04/2021 | 0553 | 1 | M | | | heard |
| 30/04/2021 | 0620 | 1 | F | | | flushed near felled area |
| 30/04/2021 | 0455 | 8 | 8M | Display | Lek site | |
| 30/04/2021 | 0455 | 6 | 6M | Display | Lek site | lek occupied at same time as 1 |
| 03/05/2021 | 0502 | 1 | M | Display, Flying | | lekking then flew |
| 03/05/2021 | 0515 | 1 | M | Flying | | |
| 03/05/2021 | 0549 | 1 | M | Flying | | |
| 03/05/2021 | 0458 | 1 | F | Vocalise | | |
| 03/05/2021 | 0809 | 1 | F | Flying | | |
| 03/05/2021 | 0530 | 17 | 17M | Display | Lek site | |
| 03/05/2021 | 0536 | 1 | M | Display | | |
| 03/05/2021 | 0558 | 1 | M | Display | | |
| 03/05/2021 | 0607 | 1 | F | Flying | | |
| 03/05/2021 | 0617 | 1 | M | Display | | heard only, location approximate |
| 04/05/2021 | 0651 | 1 | M | | | flushed from beside track |

| Table 25. Results of black grouse lek survey, 2020 and 2021 | | | | | | |
|---|------|--------|-----|-----------|----------|---|
| Date | Time | Number | Sex | Behaviour | Signs | Comments |
| 05/05/2021 | 0705 | | M | Display | | heard only, difficult to see due to trees |
| 05/05/2021 | 0441 | 9 | 9M | Display | Lek site | |
| 07/05/2021 | 0425 | 6 | 6M | Display | Lek site | on known lek |
| 07/05/2021 | 0440 | 4 | 4M | Display | Lek site | on known lek |
| 07/05/2021 | 0605 | 4 | 4M | Display | Lek site | |
| 07/05/2021 | 0610 | 1 | M | Display | | |
| 08/05/2021 | 0509 | 10 | 10M | | Lek site | |
| 08/05/2021 | 0610 | 1 | M | Flying | | flyover into woods |

Flight activity

86. Sixteen flights by **black grouse** were recorded, involving 51 birds. Total flight duration was 1,198 seconds; the majority of which 1,003 seconds (84%), was below 20 m in height and therefore not at risk of collision (**Figures 24 and 25; Table 26**).

| Table 26. Details of black grouse flights recorded from GVPs. | | | | | | | | | | |
|---|---------|---------------|-------------|--------------------|--------------------------|------------|---------|----------|----------|-------|
| Period | GVP No. | No of flights | No of birds | Total fly time (s) | Time in height class (s) | | | | | |
| | | | | | <20m | 20-50m | 50-100m | 100-150m | 150-200m | >200m |
| Apr-Aug | GVP4 | 1 | 4 | 88 | 88 | | | | | |
| | GVP5 | 1 | 2 | 160 | 32 | 128 | | | | |
| | GVP19 | 3 | 6 | 129 | 129 | | | | | |
| Sep-Mar | GVP5 | 3 | 6 | 107 | 59 | 48 | | | | |
| | GVP19 | 8 | 33 | 714 | 695 | 19 | | | | |
| Total | | 16 | 51 | 1198 | 1003 | 195 | | | | |

Other species

87. Other species recorded during flight activity surveys included raven (*Corvus corax*), red grouse (*Lagopus lagopus scotica*), snipe, buzzard, common kestrel, cuckoo (*Cuculus canorus*), common sandpiper and grey heron (*Ardea cinerea*). All these species are common and distributed throughout Scotland (**Table 27**).

Tables 27-31

| Table 27. The percentage of five-minute recording periods in which each species was encountered during watches from all GVPs during the study period. | | |
|--|---|------------------------|
| Species | No. of 5-minute periods recorded | Occurrence (%)* |
| Raven | 259 | 1.149% |
| Golden eagle | 249 | 1.104% |
| Buzzard | 95 | 0.421% |
| Red grouse | 80 | 0.355% |
| Golden plover | 74 | 0.328% |
| Red-throated diver | 67 | 0.297% |
| Snipe | 63 | 0.279% |
| Kestrel | 61 | 0.271% |
| Greenshank | 56 | 0.248% |
| Red kite | 52 | 0.231% |
| Black grouse | 24 | 0.106% |
| Cuckoo | 24 | 0.106% |
| Pink-footed goose | 22 | 0.098% |
| Merlin | 19 | 0.084% |
| Common sandpiper | 19 | 0.084% |
| White-tailed eagle | 17 | 0.075% |
| Greylag goose | 11 | 0.049% |
| Snow bunting | 11 | 0.049% |
| Peregrine | 9 | 0.040% |
| Osprey | 9 | 0.040% |
| Hen harrier | 8 | 0.035% |
| Whooper swan | 7 | 0.031% |
| Grey heron | 6 | 0.027% |
| Dunlin | 6 | 0.027% |
| Fieldfare | 4 | 0.018% |
| Goose sp. | 4 | 0.018% |
| Hooded crow | 4 | 0.018% |
| Hobby | 3 | 0.013% |
| Swift | 3 | 0.013% |
| Bullfinch | 2 | 0.009% |
| Goosander | 2 | 0.009% |
| Curlew | 2 | 0.009% |
| Falcon sp. | 2 | 0.009% |
| Sparrowhawk | 2 | 0.009% |
| Goshawk | 2 | 0.009% |
| Carrion crow | 2 | 0.009% |
| Redpoll | 1 | 0.004% |
| Woodcock | 1 | 0.004% |
| Eagle sp. | 1 | 0.004% |
| Twite | 1 | 0.004% |
| Little grebe | 1 | 0.004% |
| Teal | 1 | 0.004% |
| Great black-backed gull | 1 | 0.004% |

Birds listed in Annex 1 of the Birds Directive or Schedule 1 of the WCA are shown in bold.

* Total number of 5-minute recording intervals was 22,549.

| Table 28. Results of winter walked transects, September to March 2019/20 and 2020/21 | | | | | | | | |
|---|------------------|----------------|-----------------|-----------------|----------------|-----------------|--------------|--------------------|
| Species | Month | | | | | | | Grand Total |
| | September | October | November | December | January | February | March | |
| Black grouse | 10 | 34 | 14 | 17 | 2 | 5 | 23 | 105 |
| Bullfinch | | 33 | 2 | 5 | | | | 40 |
| Buzzard | | 4 | | | 1 | | 1 | 6 |
| Crossbill | | | | | 1 | 1 | | 2 |
| Cuckoo | 1 | | | | | | | 1 |
| Dunnock | | 2 | | | | | | 2 |
| Fieldfare | | 63 | | | | | | 63 |
| Golden eagle | 1 | 3 | 5 | 2 | 2 | | 7 | 20 |
| Golden plover | | | | 9 | | | 20 | 29 |
| Goosander | | 4 | | | | | | 4 |
| Goshawk | | | 1 | | | | | 1 |
| Greylag goose | | 24 | | | | | | 24 |
| Hen harrier | | | | | | | 1 | 1 |
| Kestrel | 2 | | | | | | | 2 |
| Little grebe | 2 | | | | | | | 2 |
| Merlin | 3 | 1 | | | | | | 4 |
| Pink-footed goose | 316 | | | | | | | 316 |
| Raven | 14 | 38 | 6 | 13 | 1 | | 2 | 74 |
| Red grouse | 109 | 75 | 42 | 28 | 25 | 19 | 43 | 341 |
| Red kite | | 1 | 1 | | | | | 2 |
| Redpoll | | 8 | 7 | 50 | | | | 65 |
| Ring ouzel | | | | 1 | | | | 1 |
| Snipe | 1 | 5 | 1 | | | | 2 | 9 |
| Snow bunting | | | 6 | 4 | 27 | 60 | 25 | 122 |
| Stonechat | | 1 | | | | | | 1 |
| Twite | 1 | 1 | | | | | | 2 |
| Wheatear | 1 | | | | | | | 1 |
| White-tailed eagle | | 1 | 1 | | | | | 2 |
| Whooper swan | | 27 | 6 | 5 | | | | 38 |
| Woodcock | | 3 | 2 | 4 | | 1 | 1 | 11 |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|------------------|--------|-----|-----|------------------------|---------------------------------------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 28/04/2020 | 0742 | Common sandpiper | 1 | M | A | Sing | |
| 28/04/2020 | 0801 | Common sandpiper | 1 | M | A | Sing | |
| 28/04/2020 | 0950 | Common sandpiper | 1 | | A | | |
| 01/05/2020 | 0948 | Common sandpiper | 2 | MF | | Flying | |
| 01/05/2020 | 1000 | Common sandpiper | 2 | MF | | | |
| 01/05/2020 | 1036 | Common sandpiper | 1 | | | | |
| 01/05/2020 | 1050 | Common sandpiper | 2 | MF | | | |
| 07/05/2020 | 1348 | Common sandpiper | 2 | MF | | | |
| 14/05/2020 | 0913 | Common sandpiper | 1 | | | Flying, Agitated/alarm | |
| 14/05/2020 | 1003 | Common sandpiper | 2 | | | Flying | |
| 19/05/2020 | 1228 | Common sandpiper | 2 | | | Flying | |
| 23/05/2020 | 1029 | Common sandpiper | 1 | | | | |
| 23/05/2020 | 1142 | Common sandpiper | 1 | | | Flying | |
| 24/05/2020 | 1315 | Common sandpiper | 2 | | | | |
| 24/05/2020 | 1345 | Common sandpiper | 2 | | | | |
| 08/06/2020 | 1219 | Common sandpiper | 2 | | | | |
| 08/05/2020 | 1006 | Dunlin | 1 | | | Agitated/alarm | |
| 28/04/2020 | 0906 | Gadwall | 2 | MF | 2A | Flying | |
| 27/04/2020 | 1032 | Golden eagle | 2 | | 2A | Flying | |
| 08/05/2020 | 1054 | Golden eagle | 1 | | | Flying | Flew from ridge |
| 24/05/2020 | 1150 | Golden eagle | 1 | M | A | Hunt/feed | |
| 21/07/2020 | 1445 | Golden eagle | | | | Roost | Recent moulted feathers, faeces |
| 21/07/2020 | 1615 | Golden eagle | | | | Roost | Nest base unchanged Signs of roosting |
| 28/07/2020 | 1411 | Golden eagle | | | | Perch | Well used perch |
| 29/07/2020 | 1642 | Golden eagle | 1 | F | IMM | Flying | |
| 28/04/2020 | 0933 | Golden plover | 2 | MF | 2A | | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|---------------|--------|-----|---------|---------------------------|--|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 08/05/2020 | 0945 | Golden plover | 1 | | | Agitated/alarm | |
| 08/05/2020 | 0956 | Golden plover | 1 | | | Agitated/alarm | |
| 24/05/2020 | 1116 | Golden plover | 1 | | | Vocalise, Agitated/alarm | |
| 24/05/2020 | 1228 | Golden plover | 1 | | | Vocalise, Agitated/alarm | |
| 24/04/2020 | 1137 | Greenshank | 1 | | | Vocalise | |
| 26/04/2020 | 1111 | Greenshank | 2 | MF | | Flying, Agitated/alarm | Flew from one lochan to another and back |
| 26/04/2020 | 1422 | Greenshank | 1 | M | A | Sing | |
| 28/04/2020 | 0934 | Greenshank | 1 | | A | Flying | |
| 28/04/2020 | 1145 | Greenshank | 1 | | | | |
| 29/04/2020 | 1517 | Greenshank | 1 | | | Flying, Agitated/alarm | |
| 01/05/2020 | 1031 | Greenshank | 1 | | | Flying, Agitated/alarm | |
| 01/05/2020 | 1038 | Greenshank | 1 | | | Flying | Possibly same bird as at 1031 |
| 05/05/2020 | 1416 | Greenshank | 1 | M | | Agitated/alarm | |
| 14/05/2020 | 1002 | Greenshank | 1 | | | Flying, Agitated/alarm | |
| 14/05/2020 | 1105 | Greenshank | 2 | | 2A | Flying, Vocalise, Nest | 4 eggs |
| 19/05/2020 | 1128 | Greenshank | 2 | | | Flying | |
| 23/05/2020 | 1331 | Greenshank | 1 | | | Flying, Agitated/alarm | |
| 23/05/2020 | 1353 | Greenshank | 1 | | | Flying, Agitated/alarm | Flushed from small island |
| 24/05/2020 | 1330 | Greenshank | 3 | | 1A 2JUV | Chick tend | |
| 26/05/2020 | 1040 | Greenshank | 1 | | | Agitated/alarm | |
| 26/05/2020 | 1116 | Greenshank | 1 | | | Flying, Agitated/alarm | |
| 08/06/2020 | 1037 | Greenshank | 2 | | | Flying, Agitated/alarm | |
| 22/07/2020 | 1050 | Greenshank | 2 | | A+JUV | Agitated/alarm | |
| 29/07/2020 | 1503 | Greylag goose | 16 | | | Flying | |
| 08/05/2020 | 0941 | Lapwing | 2 | | | Flying, Display, Vocalise | Tumbling and calling |
| 08/05/2020 | 1440 | Lapwing | 1 | | | Flying, Vocalise | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|--------------------|--------|-----|------|-----------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 22/05/2020 | 1003 | Mallard | 2 | MF | | | |
| 23/05/2020 | 1002 | Mallard | 2 | MF | | Flying | |
| 01/06/2020 | 1602 | Mallard | 2 | MF | | | Swimming |
| 21/07/2020 | 1210 | Merlin | 1 | F | JUV | Flying | |
| 22/07/2020 | 1050 | Merlin | 1 | F | | Hunt/feed | Hunting GK adult & juv |
| 22/07/2020 | 1110 | Merlin | 1 | F | | Hunt/feed | Possibly same ML |
| 24/04/2020 | 0833 | Peregrine | 1 | | SUBA | Flying | |
| 08/05/2020 | 1043 | Red grouse | 1 | | | Agitated/alarm | |
| 08/05/2020 | 1127 | Red grouse | 1 | | | Agitated/alarm | |
| 24/04/2020 | 0834 | Red-throated diver | 2 | | | Flying, Vocalise | |
| 24/04/2020 | 0836 | Red-throated diver | 2 | | | Flying | Different pair to 2 |
| 24/04/2020 | 0945 | Red-throated diver | 1 | | | Flying, Vocalise | Heard calling then descended onto loch |
| 24/04/2020 | 1023 | Red-throated diver | 1 | | | Flying, Vocalise | Calling then on to loch at N end with 4 |
| 26/04/2020 | 1039 | Red-throated diver | 1 | | | Loafing, Hunt/feed | |
| 27/04/2020 | 1050 | Red-throated diver | 2 | | 2A | | |
| 29/04/2020 | 1545 | Red-throated diver | 1 | | | Loafing | |
| 01/05/2020 | 0948 | Red-throated diver | 2 | MF | | | |
| 01/05/2020 | 1115 | Red-throated diver | 2 | MF | | Flying | Same pair as at 0948 |
| 04/05/2020 | 1030 | Red-throated diver | 2 | | | Sing, Territorial, Vocalise | |
| 04/05/2020 | 1030 | Red-throated diver | 2 | | | Flying | |
| 04/05/2020 | 1210 | Red-throated diver | 2 | | | Sing, Territorial, Vocalise | |
| 04/05/2020 | 1440 | Red-throated diver | 2 | | | Sing, Territorial, Vocalise | |
| 14/05/2020 | 1120 | Red-throated diver | 2 | | | Flying, Vocalise | |
| 19/05/2020 | 0755 | Red-throated diver | 1 | | | Flying | Believe to have taken off from loch |
| 19/05/2020 | 0824 | Red-throated diver | 1 | | | Flying | |
| 19/05/2020 | | Red-throated diver | 1 | | | | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|--------------------|--------|-----|---------|-------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 22/05/2020 | 1013 | Red-throated diver | 1 | | | Flying | |
| 23/05/2020 | 1504 | Red-throated diver | 2 | MF | 2A | | |
| 24/05/2020 | 1356 | Red-throated diver | 2 | | | | Not present on previous visits |
| 26/05/2020 | 1011 | Red-throated diver | 1 | | | Loafing | |
| 26/05/2020 | 1040 | Red-throated diver | 1 | | | Agitated/alarm | |
| 26/05/2020 | 1124 | Red-throated diver | 2 | | | | |
| 08/06/2020 | 1020 | Red-throated diver | 2 | MF | 2A | Incubate | On island |
| 11/06/2020 | 1017 | Red-throated diver | 1 | | | Loafing | On loch 1017-1215 Alarmed at EA at 1058 |
| 11/06/2020 | 1015 | Red-throated diver | 1 | | A | Incubate | In sedge at south end |
| 15/06/2020 | 0950 | Red-throated diver | 1 | | | Incubate | On island on nest |
| 27/06/2020 | 0958 | Red-throated diver | 2 | | A+CHICK | Loafing, Chick tend | Chick 2-3 days old |
| 21/07/2020 | 1320 | Red-throated diver | 2 | MF | 2A | Hunt/feed | |
| 22/07/2020 | 1251 | Red-throated diver | 2 | MF | 2A | Not breeding | |
| 22/07/2020 | 1441 | Red-throated diver | 2 | MF | 2A | Hunt/feed, Not breeding | |
| 23/07/2020 | 0910 | Red-throated diver | 1 | | A | Roost | |
| 23/07/2020 | 0831 | Red-throated diver | 2 | | 2JUV | Agitated/alarm | |
| 28/07/2020 | 1215 | Red-throated diver | 0 | | | Failed nest | Egg predation |
| 28/07/2020 | 1240 | Red-throated diver | 2 | MF | 2A | Display | |
| 10/08/2020 | 1350 | Red-throated diver | 4 | MF | 2A+2J | Hunt/feed | Juvs learning to fly and hunt |
| 12/08/2020 | 0828 | Red-throated diver | 1 | | A | Roost | |
| 24/04/2020 | 1030 | Ring ouzel | 1 | | | Sing | |
| 14/05/2020 | 0915 | Ring ouzel | 1 | M | | | |
| 24/04/2020 | 1100 | Slavonian grebe | 2 | MF | | | |
| 24/04/2020 | 1100 | Slavonian grebe | 2 | MF | | | |
| 28/04/2020 | 0732 | Slavonian grebe | 2 | MF | 2A | Nest | Prospecting |
| 28/04/2020 | 0759 | Slavonian grebe | 2 | MF | 2A | Hunt/feed | Different pair to above |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|------------------|--------|-----|-----|----------------|----------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 07/05/2020 | 1317 | Slavonian grebe | 2 | | | | |
| 07/05/2020 | 1341 | Slavonian grebe | 1 | | | | |
| 08/05/2020 | 1130 | Slavonian grebe | 2 | | | Hunt/feed | |
| 12/05/2020 | 1210 | Slavonian grebe | 2 | | 2A | | |
| 24/05/2020 | 1203 | Slavonian grebe | 2 | | | Loafing | |
| 26/05/2020 | 1011 | Slavonian grebe | 2 | | | Loafing | |
| 01/06/2020 | 1602 | Slavonian grebe | 2 | MF | | Hunt/feed | Swimming |
| 01/06/2020 | 1800 | Slavonian grebe | 2 | MF | | | Swimming |
| 15/06/2020 | 1110 | Slavonian grebe | 2 | MF | 2A | Incubate | |
| 26/04/2020 | 1420 | Snipe | 1 | M | A | Sing | |
| 26/04/2020 | 1123 | Teal | 2 | MF | | Vocalise | |
| 28/04/2020 | 1058 | Teal | 2 | MF | 2A | | |
| 29/04/2020 | 1412 | Teal | 2 | | | | |
| 01/05/2020 | 0948 | Teal | 3 | 3M | | | |
| 07/05/2020 | 1351 | Teal | 1 | M | | | |
| 14/05/2020 | 1019 | Teal | 1 | | | Flying | |
| 19/05/2020 | 1116 | Teal | 3 | 3M | | Flying | |
| 01/06/2020 | 1602 | Teal | 1 | M | | | Swimming |
| 05/08/2020 | 1430 | Teal | 1 | M | | | |
| 08/05/2020 | 1215 | Tufted duck | 2 | MF | | Loafing | |
| 20/04/2021 | 1036 | Common sandpiper | 1 | | A | Vocalise | |
| 05/05/2021 | 0755 | Common sandpiper | 1 | M | A | Display | |
| 10/05/2021 | 1632 | Common sandpiper | 2 | MF | 2A | Display | |
| 01/06/2021 | 1014 | Common sandpiper | 1 | | A | Agitated/alarm | |
| 16/07/2021 | 1115 | Common sandpiper | 1 | | A | | |
| 28/06/2021 | | Dunlin | 1 | | A | Agitated/alarm | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|---------------|--------|-----|-----|---------------------------------------|----------------------------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 04/05/2021 | 1500 | Golden eagle | 1 | | SUB | Flying | |
| 01/06/2021 | 1305 | Golden eagle | 1 | M | A | Flying | |
| 17/08/2021 | 0913 | Golden eagle | 1 | M? | IMM | Flying | |
| 18/08/2021 | 1133 | Golden eagle | 1 | | A | Flying | |
| 03/05/2021 | 0947 | Golden plover | 1 | M | A | Vocalise | |
| 04/05/2021 | 1051 | Goldeneye | 1 | F | A | Loafing | |
| 04/05/2021 | 1429 | Goosander | 2 | MF | 2A | | Swimming on lochan |
| 12/04/2021 | 1130 | Greenshank | 1 | | | Agitated/alarm | |
| 12/04/2021 | 1227 | Greenshank | 2 | MF | | Agitated/alarm | |
| 12/04/2021 | 1149 | Greenshank | 1 | M | A | Vocalise | |
| 12/04/2021 | 1202 | Greenshank | 1 | M | A | Display | |
| 15/04/2021 | | Greenshank | 1 | | A | Territorial | Flushed from loch |
| 15/04/2021 | | Greenshank | 2 | | 2A | Agitated/alarm, Vocalise | Flushed from bog |
| 15/04/2021 | | Greenshank | 1 | | A | Territorial, Vocalise | Flushed |
| 19/04/2021 | | Greenshank | 1 | | | Agitated/alarm | |
| 20/04/2021 | 1055 | Greenshank | 1 | | A | Vocalise | |
| 27/04/2021 | | Greenshank | 2 | | 2A | Territorial, Agitated/alarm, Vocalise | |
| 27/04/2021 | | Greenshank | 1 | | A | Territorial, Agitated/alarm | |
| 03/05/2021 | 0827 | Greenshank | 1 | M | A | Display | |
| 03/05/2021 | 0854 | Greenshank | 1 | M | A | Display | |
| 03/05/2021 | 0924 | Greenshank | 1 | M | A | Agitated/alarm | |
| 10/05/2021 | | Greenshank | 1 | | A | Territorial, Agitated/alarm | Possible breeding location |
| 10/05/2021 | | Greenshank | 1 | | A | Territorial, Agitated/alarm | |
| 10/05/2021 | 1548 | Greenshank | 1 | M | A | Display | |
| 10/05/2021 | 1648 | Greenshank | 1 | M | A | Display | |
| 12/05/2021 | | Greenshank | 1 | | A | Agitated/alarm, Territorial | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|------------------------|--------|-------|--------|---------------------------------------|--|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 12/05/2021 | | Greenshank | 1 | | A | Agitated/alarm, Territorial | |
| 25/05/2021 | 0830 | Greenshank | 1 | | A | Agitated/alarm | |
| 01/06/2021 | 1056 | Greenshank | 1 | | A | Agitated/alarm | |
| 08/06/2021 | 1210 | Greenshank | 2 | | A | Agitated/alarm, Flying | |
| 04/08/2021 | 0710 | Greenshank | 3 | | A+2JUV | Territorial | Ad GK distraction behaviour, 2 chicks present by loch side |
| 01/06/2021 | 1249 | Kestrel | 1 | | A | Flying | |
| 04/05/2021 | 1043 | Lapwing | 1 | M | A | Agitated/alarm | |
| 12/05/2021 | | Lapwing | 1 | | A | Territorial | Calling |
| 19/04/2021 | | Little grebe | 1 | | | Territorial | |
| 04/05/2021 | 1032 | Mallard | 2 | M | 2A | | Swimming on lochan |
| 01/06/2021 | 1350 | Mallard | 1 | F | A | Incubate | Appeared to be sitting on nest |
| 07/04/2021 | 1320 | Merlin | 1 | M | A | Flying | |
| 19/04/2021 | | Merlin | 1 | F | A | Hunt/feed | |
| 06/08/2021 | | Merlin | 2 | | 2JUV | Flying | 1st year JUVs play fighting |
| 04/05/2021 | 1426 | Osprey | 1 | | A | Hunt/feed | |
| 02/06/2021 | 1048 | Osprey | 1 | | A | Hunt/feed | Caught fish in loch |
| 04/06/2021 | | Osprey | 1 | | A | Hunt/feed | |
| 18/08/2021 | 1041 | Osprey | 3 | | A+2JUV | Flying, Hunt/feed | Following each other, hunting |
| 29/06/2021 | 1225 | Peregrine | 1 | M | A | Territorial | Carrying prey |
| 20/04/2021 | 0945 | Red grouse | 2 | | 2A | | |
| 07/04/2021 | 1116 | Red-breasted merganser | 4 | 1M 3F | 4A | Loafing | |
| 07/04/2021 | 1300 | Red-breasted merganser | 2 | MF | 2A | Loafing | |
| 20/04/2021 | 0850 | Red-throated diver | 1 | | A | | |
| 27/04/2021 | | Red-throated diver | 1 | | A | Territorial | Sitting on loch |
| 04/05/2021 | | Red-throated diver | 1 | | A | Agitated/alarm, Territorial, Vocalise | |
| 04/05/2021 | 1032 | Red-throated diver | 2 | MF | 2A | Loafing | |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|--------------------|--------|-----|-----------|--------------------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 04/05/2021 | 1030 | Red-throated diver | 2 | | 2A | | Swimming on lochan |
| 04/05/2021 | 1425 | Red-throated diver | 2 | | 2A | | Swimming on lochan |
| 05/05/2021 | 0840 | Red-throated diver | 2 | MF | 2A | Loafing | |
| 10/05/2021 | | Red-throated diver | 1 | | A | Territorial, Loafing, Agitated/alarm | Suitable breeding loch |
| 25/05/2021 | 1055 | Red-throated diver | 2 | MF | 2A | Territorial | |
| 25/05/2021 | 1305 | Red-throated diver | 1 | | A | Incubate | |
| 01/06/2021 | 1036 | Red-throated diver | 1 | | | Loafing, Flying | Loafing on loch for 15mins, flies off south |
| 04/06/2021 | | Red-throated diver | 1 | | A | Nest | 1 egg |
| 07/06/2021 | 1040 | Red-throated diver | 1 | | A | Incubate | Nest on west side of island |
| 08/06/2021 | 1235 | Red-throated diver | 2 | | A | Flying, Vocalise | |
| 08/06/2021 | 1545 | Red-throated diver | 2 | MF | 2A | | Landed on loch, remained til end of survey |
| 14/06/2021 | 1040 | Red-throated diver | 1 | | A | Incubate | Single egg in nest |
| 28/06/2021 | 1006 | Red-throated diver | 1 | | A | Agitated/alarm, incubate | Swam to middle of loch, calling |
| 28/06/2021 | 0915 | Red-throated diver | 2 | MF | 2A | Loafing | Nest scrape with no eggs |
| 28/06/2021 | | Red-throated diver | 1 | | | | On and off lochan so possibly on nest still |
| 28/06/2021 | | Red-throated diver | 1 | | A | Flying, Loafing | Loafing then flew off |
| 28/06/2021 | | Red-throated diver | 1 | | A | Loafing | No sign of nest or chicks |
| 29/06/2021 | 0810 | Red-throated diver | 1 | | A | Incubate | Second nesting attempt on this loch this season |
| 29/06/2021 | 0825 | Red-throated diver | 1 | | A | Incubate | A left nest to swim to middle of lochan |
| 29/06/2021 | 0827 | Red-throated diver | 1 | | A | Agitated/alarm, Flying | same bird flew W |
| 29/06/2021 | 0933 | Red-throated diver | 2 | | 2A | Flying | 2 birds flew |
| 29/06/2021 | 0955 | Red-throated diver | 1 | | A | Agitated/alarm, Flying | Single bird flew calling |
| 01/07/2021 | | Red-throated diver | 0 | | | | Dead chick, no sign of other adults or chicks |
| 26/07/2021 | 1232 | Red-throated diver | 3 | | A+2CHICKS | Hunt/feed | |
| 30/07/2021 | 0900 | Red-throated diver | 3 | | A+2JUV | Loafing | |
| 30/07/2021 | 0945 | Red-throated diver | 1 | | A | Flying, Chick tend | 2nd adult came in with fish, feeding juvs |

| Table 29. Results of Diver and Slavonian Grebe surveys. | | | | | | | |
|---|------|--------------------|--------|-------|--------|-----------------------------|--|
| Date | Time | Species | Number | Sex | Age | Behaviour | Comments |
| 06/08/2021 | | Red-throated diver | 1 | | A | Hunt/feed, Loafing | Loafing adult on loch |
| 06/08/2021 | 1056 | Red-throated diver | 1 | | A | Flying | Caught fish, flew off with fish in beak |
| 17/08/2021 | 1325 | Red-throated diver | 1 | | JUV | Roost | Full size chick coming into 'adult' plumage |
| 17/08/2021 | 1210 | Red-throated diver | 3 | | A+2JUV | Chick tend | |
| 18/08/2021 | | Red-throated diver | 1 | | A | Hunt/feed | |
| 16/04/2021 | 0840 | Ring ouzel | 1 | | A | Vocalise | Heard only |
| 15/04/2021 | | Slavonian grebe | 2 | | 2A | Territorial | Suitable breeding lochan |
| 16/04/2021 | 0935 | Slavonian grebe | 1 | | A | Hunt/feed | |
| 20/04/2021 | 0835 | Slavonian grebe | 2 | | 2A | | Swimming together |
| 03/05/2021 | 0756 | Slavonian grebe | 2 | MF | 2A | Loafing | |
| 25/05/2021 | | Slavonian grebe | 1 | | A | Agitated/alarm, Territorial | |
| 01/06/2021 | 0940 | Slavonian grebe | 2 | | | Loafing | 1 bird on nest in sedge, 1 loafing |
| 01/06/2021 | 1320 | Slavonian grebe | 1 | | A | | Moved in/out of long vegetation NE of island |
| 01/06/2021 | 1340 | Slavonian grebe | 1 | | A | Vocalise | Called from vegetation in SE corner |
| 02/06/2021 | 1400 | Slavonian grebe | 1 | | A | Agitated/alarm, Territorial | Probably breeding, suitable lochan |
| 28/06/2021 | 1240 | Slavonian grebe | 1 | | A | Hunt/feed | |
| 28/06/2021 | 1255 | Slavonian grebe | 1 | | A | Loafing | |
| 15/07/2021 | 1400 | Slavonian grebe | 2 | | 2A | | Preening on loch |
| 07/04/2021 | 1306 | Snipe | 1 | | A | | |
| 03/05/2021 | 0739 | Snipe | 1 | M | A | Display | |
| 01/06/2021 | 1000 | Snipe | 2 | | 2A | | |
| 15/04/2021 | | Teal | 2 | MF | 2A | Territorial | Suitable breeding area |
| 20/04/2021 | 0838 | Teal | 2 | 2M | 2A | | |
| 20/04/2021 | 1045 | Teal | 4 | 2M 2F | 4A | | |
| 16/07/2021 | 1118 | Teal | 3 | 3F | 3A | | |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------|--------|-----|-----|----------------|-------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 28/02/2020 | 1002 | Black grouse | 2 | 2M | 2A | Flying | | Lands after flight |
| 28/02/2020 | 1002 | Black grouse | 2 | 2M | 2A | | | Lands after flight |
| 13/03/2020 | 0742 | Black grouse | 1 | M | A | Perch | | Perched in tree |
| 13/08/2020 | 1729 | Black grouse | 3 | 3F | 3A | Flying | | Flushed into forestry |
| 17/08/2020 | 1259 | Black grouse | 2 | 2M | 2A | Flying | | |
| 19/05/2020 | 0748 | Buzzard | 1 | | | Flying | | |
| 28/04/2020 | 1014 | Cuckoo | 1 | | A | Hunt/feed | | Flew onto deer fence |
| 12/02/2020 | 1401 | Golden eagle | 1 | F | A | Flying | | |
| 26/02/2020 | 0930 | Golden eagle | 2 | MF | 2A | Territorial | | Perched + Short flight |
| 26/02/2020 | 0942 | Golden eagle | 1 | F | A | Flying | | Leaving area |
| 28/02/2020 | 1014 | Golden eagle | 1 | M | IMM | Flying | | |
| 28/02/2020 | 1127 | Golden eagle | 1 | M | A | Flying | | Displays before landing |
| 28/02/2020 | 1127 | Golden eagle | 1 | M | A | | | |
| 28/02/2020 | 1129 | Golden eagle | 1 | M | A | Flying | | Short return flight to same perch Failed at collecting nesting material |
| 28/02/2020 | 1129 | Golden eagle | 1 | M | A | Perch | | |
| 28/02/2020 | 1129 | Golden eagle | 1 | F | A | Flying | | Seen briefly |
| 10/03/2020 | 1445 | Golden eagle | 2 | MF | 2A | Perch | | Perched in dead tree First seen during VP |
| 10/03/2020 | 1453 | Golden eagle | 1 | M | A | Flying | | Male took flight Female lost from sight |
| 12/03/2020 | 1541 | Golden eagle | 1 | | A | Perch | | Perched in dead tree until end of survey |
| 13/03/2020 | 0851 | Golden eagle | 1 | | A | Agitated/alarm | | Flew out from trees and chased ravens and landed in dead tree |
| 13/03/2020 | 0856 | Golden eagle | 1 | | A | Flying | | Took off and flew up hill |
| 13/03/2020 | 0932 | Golden eagle | 1 | | A | Flying | | |
| 13/03/2020 | 0955 | Golden eagle | 1 | | A | Flying | | |
| 23/03/2020 | 1021 | Golden eagle | 1 | | | Flying | | |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------|--------|-----|------|-------------|-------------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 23/03/2020 | 1034 | Golden eagle | 2 | ? | A | Territorial | Used nest (this yr) | Nest built up now with fresh material |
| 23/03/2020 | 1107 | Golden eagle | 2 | MF | 2A | Display | Used nest (this yr) | Nest built up now with fresh material |
| 23/03/2020 | 1140 | Golden eagle | 1 | F | IMM | Flying | | Possible reason for display by prev pair |
| 23/04/2020 | 0715 | Golden eagle | | | | | Old nest (prev. yr), No signs | Not been built up since last year |
| 23/04/2020 | 0715 | Golden eagle | | | | | Old nest (prev. yr), No signs | No activity near nest |
| 23/04/2020 | 1230 | Golden eagle | 2 | | 2A | Flying | | Some displaying by male 17min 10sec flight |
| 23/04/2020 | 1255 | Golden eagle | 2 | | 2A | Flying | | Same birds as 1230 8min 55sec flight |
| 24/04/2020 | 1250 | Golden eagle | | | | | Old nest (prev. yr), No signs | Nest not in use |
| 26/04/2020 | 1400 | Golden eagle | | | | | Old nest (prev. yr), No signs | Historic nest location Not in use |
| 28/04/2020 | 0800 | Golden eagle | | | | | Old nest (prev. yr), No signs | |
| 04/05/2020 | 1139 | Golden eagle | | | | | Roost, Feathers, Faeces | Mature pine Splashes below & feathers No nest structure |
| 04/05/2020 | 1414 | Golden eagle | 1 | | | Flying | | |
| 06/05/2020 | 1645 | Golden eagle | 1 | | SUBA | Flying | | Mobbed by HC |
| 12/05/2020 | 1552 | Golden eagle | 1 | | | Flying | | |
| 14/05/2020 | 1337 | Golden eagle | 2 | | 2A | Flying | | |
| 21/05/2020 | 1028 | Golden eagle | 1 | | A | Flying | | Mobbed by crow |
| 21/05/2020 | 1610 | Golden eagle | 1 | | SUBA | Flying | | High circling |
| 21/05/2020 | 1614 | Golden eagle | 1 | | | Flying | | Joined 1st bird then followed with direct flight |
| 25/05/2020 | 0743 | Golden eagle | 1 | | | Flying | | |
| 25/05/2020 | 0834 | Golden eagle | 2 | | 2A | Flying | | |
| 12/06/2020 | 1352 | Golden eagle | 1 | | | Flying | | Circling high |
| 22/07/2020 | 1640 | Golden eagle | 0 | | | | Old nest (prev. yr), Feathers | 2 moulted feathers |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------------|--------|-----|------|------------------------|-----------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 22/07/2020 | 1745 | Golden eagle | 0 | | | | Nest failed, Feathers | Nest lined No evidence of breeding |
| 06/08/2020 | 1540 | Golden eagle | 1 | | A | Hunt/feed | | |
| 10/08/2020 | 1320 | Golden eagle | 1 | M | SUBA | Hunt/feed | | |
| 30/04/2020 | 1005 | Golden plover | 1 | M | A | Sing | | Heard |
| 19/05/2020 | 1545 | Golden plover | 1 | | | Flying | | |
| 30/04/2020 | 1041 | Greenshank | 1 | M | A | Sing | | Heard |
| 21/07/2020 | 0850 | Greenshank | 1 | M? | A | Agitated/alarm | | |
| 23/07/2020 | 1300 | Greenshank | 1 | | A | Agitated/alarm | | |
| 23/07/2020 | 1625 | Greenshank | 2 | | 2A | Agitated/alarm | | |
| 04/05/2020 | 1534 | Hen harrier | 1 | M | | Flying | | Circled very high |
| 12/08/2020 | 1715 | Hen harrier | 1 | M | JUV | Hunt/feed | | |
| 23/04/2020 | 1310 | Merlin | 1 | | | Flying | | Soaring V distant Stoooped V fast twice 4min 50sec flight Lost to sight |
| 26/05/2020 | 1143 | Merlin | 1 | F | | Flying, Vocalise | | Flew up gully |
| 21/07/2020 | 1418 | Merlin | 1 | M | A | Agitated/alarm, Flying | | |
| 21/07/2020 | 1424 | Merlin | 1 | F | A | Agitated/alarm, Flying | | |
| 24/07/2020 | 0749 | Merlin | 1 | | JUV | Agitated/alarm, Flying | | |
| 24/07/2020 | 0749 | Merlin | 1 | | JUV | Agitated/alarm, Flying | | |
| 20/05/2020 | 1034 | Peregrine | 1 | | | Flying | | Low flight |
| 18/08/2020 | 1200 | Peregrine | 1 | | | Hunt/feed | | Seen with 5 BZ |
| 06/08/2020 | 0843 | Red kite | 1 | | A | Flying | | |
| 30/04/2020 | 1026 | Red-throated diver | 1 | | A | Hunt/feed | | |
| 06/08/2020 | 0900 | Red-throated diver | 2 | | | | | Distant could be 2 Adults or Ad and large chick |
| 24/04/2020 | 1500 | Teal | 2 | MF | 2A | | | |
| 25/03/2021 | 0719 | Black grouse | 6 | 6M | 6A | Display | Lek site | Active lek |
| 08/04/2021 | 1505 | Black grouse | 1 | F | A | | | Feeding beside track |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------|--------|-----|---------|-------------------------|----------------------------|--|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 26/04/2021 | | Black grouse | 1 | M | A | Territorial | | Flushed |
| 26/04/2021 | | Black grouse | 1 | M | A | Territorial | | Flushed |
| 26/04/2021 | | Black grouse | 0 | | | | Lek site, Feathers, Faeces | Good signs of lek site |
| 05/05/2021 | 0811 | Black grouse | 2 | 2M | 2A | Flying, Territorial | | Appeared beside VP, flew away to N |
| 01/06/2021 | 0525 | Black grouse | | M | | Display | | Heard only, SW of VP |
| 20/04/2021 | 1524 | Buzzard | 1 | | A | Flying | | Circling/hovering |
| 01/06/2021 | 1345 | Buzzard | 1 | | A | Flying | | |
| 29/06/2021 | 0940 | Buzzard | 1 | | A | | | |
| 07/07/2021 | 1035 | Buzzard | 1 | | A | | | |
| 08/07/2021 | 1405 | Buzzard | 1 | | A | | | |
| 16/03/2021 | | Golden eagle | 0 | | | | Feathers, Faeces | Roost, fresh signs |
| 16/03/2021 | 1328 | Golden eagle | 1 | | | Flying, Display | | Displayed briefly before turning east |
| 24/03/2021 | 1235 | Golden eagle | 1 | F? | JUV/IMM | Flying | | |
| 24/03/2021 | 1240 | Golden eagle | 2 | MF? | 2A? | Display | | Both displaying, lost in rain shower |
| 25/03/2021 | 0817 | Golden eagle | 2 | | 2A | Display, Vocalise | | Both near known nesting location, calling, eyrie not found |
| 01/04/2021 | 1109 | Golden eagle | 1 | | | Display | | |
| 01/04/2021 | 1219 | Golden eagle | 1 | | | Flying | | Soaring |
| 01/04/2021 | 1319 | Golden eagle | 1 | | A | | | Mobbing WE, lost in sun |
| 01/04/2021 | 1430 | Golden eagle | 1 | | A | | | |
| 01/04/2021 | 1505 | Golden eagle | 2 | | 2A | | Nest | Attending nest, eyrie on crag at base of tree |
| 05/04/2021 | | Golden eagle | 1 | F | A | Nest build, Territorial | | frequent nest visits, not incubating yet |
| 08/04/2021 | 1350 | Golden eagle | 1 | F | A | Incubate | Nest with eggs | Sitting on nest |
| 12/04/2021 | 1054 | Golden eagle | 2 | MF | 2A | Incubate | Nest with eggs | Female incubating, nest change-over w/ M, F back @1104 |
| 12/04/2021 | 1132 | Golden eagle | 1 | | SUB | Not breeding | | Flying close to nest |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------|--------|-----|---------|------------------------|---------------------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 12/04/2021 | 1505 | Golden eagle | 1 | | A | Flying | | Circling, gained height, 5mins 15secs |
| 16/04/2021 | | Golden eagle | 0 | | | | Used nest (this yr), Feathers, Faeces | Nest is lined, cup present, lots of feathers, droppings, fresh vegetation |
| 16/04/2021 | | Golden eagle | 0 | | | Roost | Feathers, Faeces | Roost, lots of feathers, fresh droppings |
| 16/04/2021 | | Golden eagle | 0 | | | Roost | Old nest (prev. yr), Feathers | Roost on old eyrie, fresh feathers |
| 19/04/2021 | 1256 | Golden eagle | 1 | | A | Hunt/feed, Territorial | | Landed on hillside for 12 mins before continuing flight |
| 19/04/2021 | 1341 | Golden eagle | 1 | | | | | Saw briefly before diving out of sight |
| 19/04/2021 | 1346 | Golden eagle | 1 | | | | | |
| 19/04/2021 | 1408 | Golden eagle | 1 | F | SUB | | | No sat tag |
| 19/04/2021 | 1411 | Golden eagle | 1 | M | A | Territorial, Display | | |
| 19/04/2021 | 1001 | Golden eagle | 1 | | | | | Flying above, out to NW |
| 19/04/2021 | 1030 | Golden eagle | 1 | | | | | Still sitting on nest, not mapped |
| 20/04/2021 | 1700 | Golden eagle | 0 | | | | Feathers | feathers on eyrie @ NH 409 231 (not present on prev visit) |
| 20/04/2021 | 1540 | Golden eagle | 1 | | A | Flying | | Circling |
| 22/04/2021 | 1320 | Golden eagle | 1 | | A | Flying | | Flying through |
| 22/04/2021 | 1357 | Golden eagle | 1 | | | Flying | | Soaring |
| 22/04/2021 | 1410 | Golden eagle | 1 | | A | Hunt/feed | | Hunting RG |
| 22/04/2021 | 1525 | Golden eagle | 1 | | A | Display | | |
| 22/04/2021 | 1525 | Golden eagle | 1 | | SUB | | | |
| 29/04/2021 | 0745 | Golden eagle | 1 | M | A | Flying | | Flushed from beside track |
| 29/04/2021 | 0805 | Golden eagle | 2 | | A + SUB | Display | | Talon touching |
| 29/04/2021 | 0935 | Golden eagle | 1 | | | Perch | | Perched |
| 29/04/2021 | 0945 | Golden eagle | 1 | | | Flying | | Same as perched EA |
| 03/05/2021 | 1200 | Golden eagle | 1 | M | A | Territorial | | Male sitting above nest |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------|--------|-----|------|------------------------------|------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 03/05/2021 | 1205 | Golden eagle | 1 | F | A | Incubate | | Female off nest, brief flight then returned to nest |
| 06/05/2021 | 1251 | Golden eagle | 1 | F | A | Incubate | Nest with eggs | Off nest, brief flight before returning to nest, settled onto nest for incubation |
| 06/05/2021 | 1425 | Golden eagle | 1 | | A | Flying | | Flying through |
| 06/05/2021 | 1600 | Golden eagle | 1 | | | Flying | | |
| 10/05/2021 | | Golden eagle | 0 | | | | | checked out eyrie, found new ledge with a few sticks deposited |
| 11/05/2021 | 1536 | Golden eagle | 1 | F | A | Flying | | Onto nest |
| 11/05/2021 | 1636 | Golden eagle | 2 | MF | 2A | | | Nest changeover |
| 11/05/2021 | 1652 | Golden eagle | 2 | MF | 2A | | | Nest changeover |
| 11/05/2021 | 1809 | Golden eagle | 1 | F | A | Flying, Incubate | | Brief flight, returned to nest 1810 |
| 11/05/2021 | 1609 | Golden eagle | 2 | | 2SUB | Flying | | Soaring, 1 bird yr 1 or 2, 2nd bird almost full A plumage |
| 18/05/2021 | 0943 | Golden eagle | 1 | F | A | Incubate | Nest with eggs | Off nest, brief flight, returned |
| 18/05/2021 | 1004 | Golden eagle | 1 | M | A | Display, Incubate | Nest with eggs | Overhead, then nest changeover |
| 18/05/2021 | 1014 | Golden eagle | 1 | F | A | Incubate | Nest with eggs | Back on nest, male away out of sight |
| 18/05/2021 | 1203 | Golden eagle | 1 | M | A | Flying | | |
| 18/05/2021 | 1204 | Golden eagle | 1 | M | A | Flying | | |
| 18/05/2021 | 1208 | Golden eagle | 1 | | A | Flying, Display, Territorial | | |
| 02/06/2021 | 1530 | Golden eagle | 0 | | | Roost | Faeces, Feathers | |
| 16/06/2021 | 1447 | Golden eagle | 1 | | | Flying | | Flying through |
| 28/06/2021 | 1140 | Golden eagle | 1 | | A | Flying | | |
| 28/06/2021 | 1300 | Golden eagle | 1 | | SUB | Flying | | |
| 02/08/2021 | 1323 | Golden eagle | 1 | | | Flying | | Skyline flight not able to see any features to determine age |
| 02/08/2021 | 1402 | Golden eagle | 1 | | | Flying | | Soaring, lost in heat haze |
| 02/08/2021 | 1437 | Golden eagle | 1 | F | SUB | Flying | | Circling up, >800m, then maintaining height |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|---------------|--------|-----|-----|-------------|----------------------------------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 26/08/2021 | 1650 | Golden eagle | 2 | MF | | Flying | | |
| 20/04/2021 | 1305 | Goshawk | 0 | | | | Nest | Active nest located |
| 12/07/2021 | | Goshawk | 0 | | | | Used nest (this yr), Nest failed | Failed nest, lots of forestry works close by, no sign of activity on or near nest |
| 29/03/2021 | 1227 | Greenshank | 1 | | | Territorial | | Heard only |
| 26/04/2021 | | Greenshank | 2 | | 2A | Territorial | | On edge of loch |
| 29/04/2021 | 1047 | Honey buzzard | 1 | | | Flying | | Soaring |
| 29/04/2021 | 1215 | Honey buzzard | 1 | | | Flying | | Soaring in area then NE |
| 16/08/2021 | 1107 | Honey buzzard | 1 | | | Flying | | Carrying something (food or materials) not sure |
| 18/08/2021 | 1041 | Honey buzzard | 1 | | | Display | | |
| 18/08/2021 | 1015 | Honey buzzard | 1 | | A? | Territorial | | Interacting with BZ |
| 19/08/2021 | 1053 | Honey buzzard | 1 | F | A | Flying | | Low over canopy, lost in trees |
| 19/08/2021 | 1102 | Honey buzzard | 1 | F | A | Flying | | Flying away from above location |
| 26/03/2021 | 0727 | Merlin | 1 | M | A | Flying | | Flying through |
| 13/05/2021 | 1610 | Merlin | 1 | M | A | Territorial | Kill/prey | Flushed off fence post, flew off carrying prey |
| 29/06/2021 | 0836 | Merlin | 1 | | A | | | |
| 23/03/2021 | 1137 | Peregrine | 1 | M | A | Flying | | Flying through |
| 03/05/2021 | 1650 | Peregrine | 1 | M | A | | | Perched on a rock |
| 02/06/2021 | 1300 | Peregrine | 1 | M | A | | | Flushed from hillside |
| 23/06/2021 | 1020 | Peregrine | 1 | | | | | |
| 03/05/2021 | 0830 | Raven | 1 | | A | Flying | | |
| 29/04/2021 | 1039 | Red kite | 1 | | A | Flying | | Flushed |
| 02/08/2021 | 1355 | Red kite | 1 | | | Flying | | |
| 16/08/2021 | 1402 | Red kite | 1 | | A | Flying | | Carrying nesting material |
| 16/08/2021 | | Red kite | 1 | | A | Flying | | |
| 18/08/2021 | 1055 | Red kite | 1 | | A | Hunt/feed | | |

| Table 30. Results of Scarce Breeding Raptor and Owl surveys. | | | | | | | | |
|--|------|--------------------|--------|-----|-----|-------------|-------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 18/08/2021 | 1125 | Red kite | 1 | | A | Hunt/feed | | |
| 26/08/2021 | 1717 | Red kite | 1 | | | Flying | | |
| 16/04/2021 | 0701 | Red-throated diver | 2 | | 2A | Territorial | | On loch |
| 07/05/2021 | 0826 | Red-throated diver | 1 | | | Flying | | |
| 07/05/2021 | 0851 | Red-throated diver | 1 | | | Flying | | |
| 19/08/2021 | 1135 | Red-throated diver | 1 | | A | Flying | | Calling overhead |
| 03/05/2021 | 0735 | Slavonian grebe | 2 | | 2A | Display | | Preening, swimming on loch, penguin dance |
| 07/07/2021 | 1015 | Teal | 4 | F | 4A | | | |
| 01/04/2021 | 1319 | White-tailed eagle | 1 | | A | | | Lost in sun, flying through |
| 20/04/2021 | 1500 | White-tailed eagle | 1 | | JUV | Flying | | Mobbed by crows |

| Table 31. Incidental records, September 2019 to August 2021. | | | | | | | | |
|--|------|--------------|--------|------|-------|----------------------|----------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 20/09/2019 | 1856 | Black grouse | 1 | M | A | Flying | | |
| 19/11/2019 | 0745 | Black grouse | 1 | | | Flying | | Flushed from track |
| 20/11/2019 | 0735 | Black grouse | 1 | | | Hunt/feed | | Flushed off hill road |
| 05/12/2019 | 0905 | Black grouse | 1 | M | A | Roost | | |
| 23/01/2020 | 0910 | Black grouse | 7 | 7M | | Display, Hunt/feed | Lek site | Seen during VP19. Probable lek 2 cocks briefly displaying. Joined by 3 more + 2 concealed in heather. 7 birds flew to forest edge at 0945 |
| 09/06/2020 | 0415 | Black grouse | 2 | 2M | | Display | Lek site | |
| 04/08/2020 | 1210 | Black grouse | 1 | F | | Flying | | Flushed |
| 13/11/2020 | 1057 | Black grouse | 9 | 7M2F | 9A | | | |
| 19/03/2021 | 0555 | Black grouse | 5 | 5M | | Display | Lek site | lek area |
| 24/03/2021 | 1240 | Black grouse | 1 | M | | | | sitting in heather |
| 29/03/2021 | 1050 | Black grouse | 1 | M | A | | | |
| 09/04/2021 | 0620 | Black grouse | 6 | M | | | Lek site | 6M still on lek until 0757 |
| 15/04/2021 | | Black grouse | 1 | F | A | Territorial | | same place exactly as prev sighting |
| 21/04/2021 | 1030 | Black grouse | 2 | 2M | 2A | | | near track |
| 27/04/2021 | | Black grouse | 3 | 3F | 3A | | | flushed beside track |
| 13/05/2021 | 0910 | Black grouse | 9 | 9M | 9A | Display, Territorial | Lek site | |
| 16/09/2019 | 1317 | Golden eagle | 1 | M | | Perch | | |
| 20/09/2019 | 1330 | Golden eagle | 1 | F | A | Perch | | |
| 19/11/2019 | 0820 | Golden eagle | 1 | | | Flying | | Very brief flight |
| 19/03/2020 | 1202 | Golden eagle | 1 | | | Flying | | Seen at distance from VP18 |
| 21/03/2020 | 1456 | Golden eagle | 1 | | | Flying | | Observed at distance during VP2 |
| 21/03/2020 | 1547 | Golden eagle | 1 | | | Flying | | Observed at distance during VP2 |
| 23/06/2020 | 1342 | Golden eagle | 1 | | 3-4YR | Flying | | 48 sec flight 30 at 50-100m 18 at 20-50m |

| Table 31. Incidental records, September 2019 to August 2021. | | | | | | | | |
|--|------|---------------|--------|-----|--------|-----------------------------|-------|------------------------------------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 11/08/2020 | 1341 | Golden eagle | 1 | M | SUBA/A | Perch | | Either Sub Ad or Adult |
| 19/08/2020 | 1615 | Golden eagle | 1 | F | A | Flying | | |
| 19/08/2020 | 1615 | Golden eagle | 1 | ? | ? | Flying | | |
| 21/08/2020 | 1030 | Golden eagle | 1 | M | SUBA | Roost | | |
| 10/11/2020 | 0950 | Golden eagle | 1 | | | Perch | | flies away @1030 |
| 12/01/2021 | 1355 | Golden eagle | 1 | | | Perch | | seen from VP18 |
| 21/04/2021 | 1021 | Golden eagle | 1 | | SUB | | | flushed on way to VP |
| 30/06/2021 | 1330 | Golden eagle | 1 | | | Perch | | |
| 17/03/2020 | 1035 | Golden plover | 1 | | | Vocalise | | Short display call heard from VP16 |
| 13/06/2020 | 0648 | Golden plover | 1 | | A | Vocalise | | Heard |
| 22/03/2021 | 1205 | Golden plover | 1 | | | Perch | | perched by VP during VP14 watch |
| 30/03/2021 | 1437 | Golden plover | 2 | MF | 2A | Agitated/alarm, Vocalise | | |
| 16/04/2021 | 0804 | Golden plover | 1 | | | Vocalise | | |
| 16/04/2021 | 0827 | Golden plover | 2 | MF | | Vocalise | | |
| 20/07/2020 | 1740 | Goshawk | 1 | | JUV | Hunt/feed | | |
| 06/08/2020 | 0650 | Goshawk | 1 | M | A | Flying | | |
| 24/03/2021 | 0612 | Goshawk | 1 | F | A | | | flushed from trees |
| 29/04/2020 | 1551 | Greenshank | 1 | M | A | Sing | | |
| 29/04/2020 | 1615 | Greenshank | 1 | M | A | Sing | | |
| 29/04/2020 | 1636 | Greenshank | 1 | M | A | Sing | | |
| 29/04/2020 | 1649 | Greenshank | 1 | M | A | Sing | | |
| 29/04/2020 | 1836 | Greenshank | 1 | | A | Sing | | |
| 05/05/2020 | 0936 | Greenshank | 1 | M | | Sing | | |
| 05/05/2020 | 0958 | Greenshank | 1 | M | | Sing | | |
| 05/05/2020 | 1032 | Greenshank | 1 | M | | Sing | | Out of view |
| 05/05/2020 | 1209 | Greenshank | 1 | M | | Sing | | Out of view |

| Table 31. Incidental records, September 2019 to August 2021. | | | | | | | | |
|--|------|--------------------|--------|-----|-------|-------------------|----------------|-------------------------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 13/06/2020 | 0523 | Greenshank | 1 | M | A | Vocalise | | Heard |
| 30/03/2021 | 1325 | Greenshank | | | | Vocalise | | Heard only |
| 16/04/2021 | 0848 | Greenshank | 1 | | | Vocalise | | |
| 27/05/2021 | 1015 | Greenshank | 1 | | | Incubate | Nest | |
| 09/09/2020 | 1245 | Merlin | 1 | F | A | Perch | | |
| 20/11/2019 | 1407 | Red grouse | 3 | | | Flying | | Flushed |
| 20/11/2019 | 1410 | Red grouse | 1 | | | Flying | | Flushed |
| 06/08/2020 | 1800 | Red kite | 2 | | 2A | Hunt/feed | | Feeding on cut silage |
| 22/03/2020 | 1410 | Red-throated diver | 2 | MF | 2A | Vocalise, Display | | |
| 24/04/2020 | | Red-throated diver | 2 | | | | | |
| 29/04/2020 | 2013 | Red-throated diver | 1 | | | Loafing | | Seen on loch during VP1 |
| 30/04/2020 | 1316 | Red-throated diver | 1 | | A | | | Seen on loch during VP1 |
| 11/05/2020 | 0913 | Red-throated diver | 1 | | | | | |
| 12/05/2020 | | Red-throated diver | 1 | | | | | |
| 12/05/2020 | 0948 | Red-throated diver | 1 | | | | | |
| 15/05/2020 | 0744 | Red-throated diver | 1 | | | | | |
| 28/05/2020 | 1610 | Red-throated diver | 1 | | | Loafing | | |
| 04/06/2020 | 1037 | Red-throated diver | 1 | | | Loafing | | |
| 08/06/2020 | 1501 | Red-throated diver | 1 | | A | Hunt/feed | | |
| 12/06/2020 | 0930 | Red-throated diver | 1 | | A | Incubate | Nest with eggs | |
| 21/06/2020 | 0800 | Red-throated diver | 1 | | | Vocalise | | Heard |
| 27/06/2020 | 0635 | Red-throated diver | 1 | | A | Incubate | Nest with eggs | |
| 11/07/2020 | 1617 | Red-throated diver | 3 | | A+2Y | Chick tend | | |
| 11/07/2020 | 1945 | Red-throated diver | 3 | | A+2Y | Chick tend | | |
| 13/07/2020 | 0830 | Red-throated diver | 1 | | | Loafing | | |
| 29/07/2020 | 0850 | Red-throated diver | 3 | | A+2Y | Chick tend | | |
| 29/07/2020 | 1200 | Red-throated diver | 4 | | 2A+2C | Chick tend | | |

| Table 31. Incidental records, September 2019 to August 2021. | | | | | | | | |
|--|------|--------------------|--------|-----|-----------|------------------|-------|---|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 06/08/2020 | 1155 | Red-throated diver | 1 | | A | | | |
| 10/08/2020 | 1350 | Red-throated diver | 4 | | 2A+2J | Loafing | | |
| 11/08/2020 | 1232 | Red-throated diver | 3 | | A+2J | Roost, Hunt/feed | | Very mobile swimming |
| 21/08/2020 | 0850 | Red-throated diver | 1 | | A | Roost, Hunt/feed | | |
| 17/03/2021 | 1235 | Red-throated diver | 1 | | | Hunt/feed | | seen from VP1 |
| 30/03/2021 | 1145 | Red-throated diver | | | | Vocalise | | Heard only |
| 11/05/2021 | 1640 | Red-throated diver | 2 | MF | | | | On Loch nam Meur |
| 28/05/2021 | 1015 | Red-throated diver | 2 | MF | 2A | Vocalise | | |
| 31/05/2021 | 0550 | Red-throated diver | 1 | | | | Nest | On nest |
| 31/05/2021 | 0920 | Red-throated diver | 1 | | | | Nest | On nest |
| 18/06/2021 | 1145 | Red-throated diver | 1 | | | Loafing | Nest | Off nest @1205, loafing, back on nest @1230 |
| 18/06/2021 | 0815 | Red-throated diver | 1 | | | | Nest | On nest for whole FVP survey (3hrs) |
| 30/06/2021 | 1140 | Red-throated diver | 1 | | | Loafing | Nest | Loafing on loch, returned to nest @1200 |
| 30/06/2021 | 1505 | Red-throated diver | 1 | | | | Nest | |
| 05/07/2021 | 1304 | Red-throated diver | 1 | | A | | | Alert on loch, no call |
| 16/07/2021 | 1005 | Red-throated diver | 1 | | | | Nest | On nest |
| 03/08/2021 | 0820 | Red-throated diver | 3 | | A+2CHICKS | Loafing | | |
| 03/08/2021 | 1100 | Red-throated diver | 1 | | A | | | |
| 04/08/2021 | 0730 | Red-throated diver | 1 | | CHICK | | | Lots of activity - practice flights/take offs from loch, close to fledging, still on loch @1025 |
| 04/08/2021 | 1030 | Red-throated diver | 1 | | CHICK | | | Still on loch @1325 |
| 17/08/2021 | 0915 | Red-throated diver | 3 | | A+2CHICKS | | | No flight activity observed |
| 17/08/2021 | 1430 | Red-throated diver | 3 | | A+2CHICKS | | | No flight activity observed |
| 18/08/2021 | 0942 | Red-throated diver | 1 | | A | | | |
| 20/08/2021 | 0745 | Red-throated diver | 2 | | 2CHICKS | | | Still on loch @1045 |
| 20/08/2021 | 1050 | Red-throated diver | 2 | | 2CHICKS | | | |
| 05/07/2021 | 1151 | Ring ouzel | 1 | | JUV | Hunt/feed | | On track |

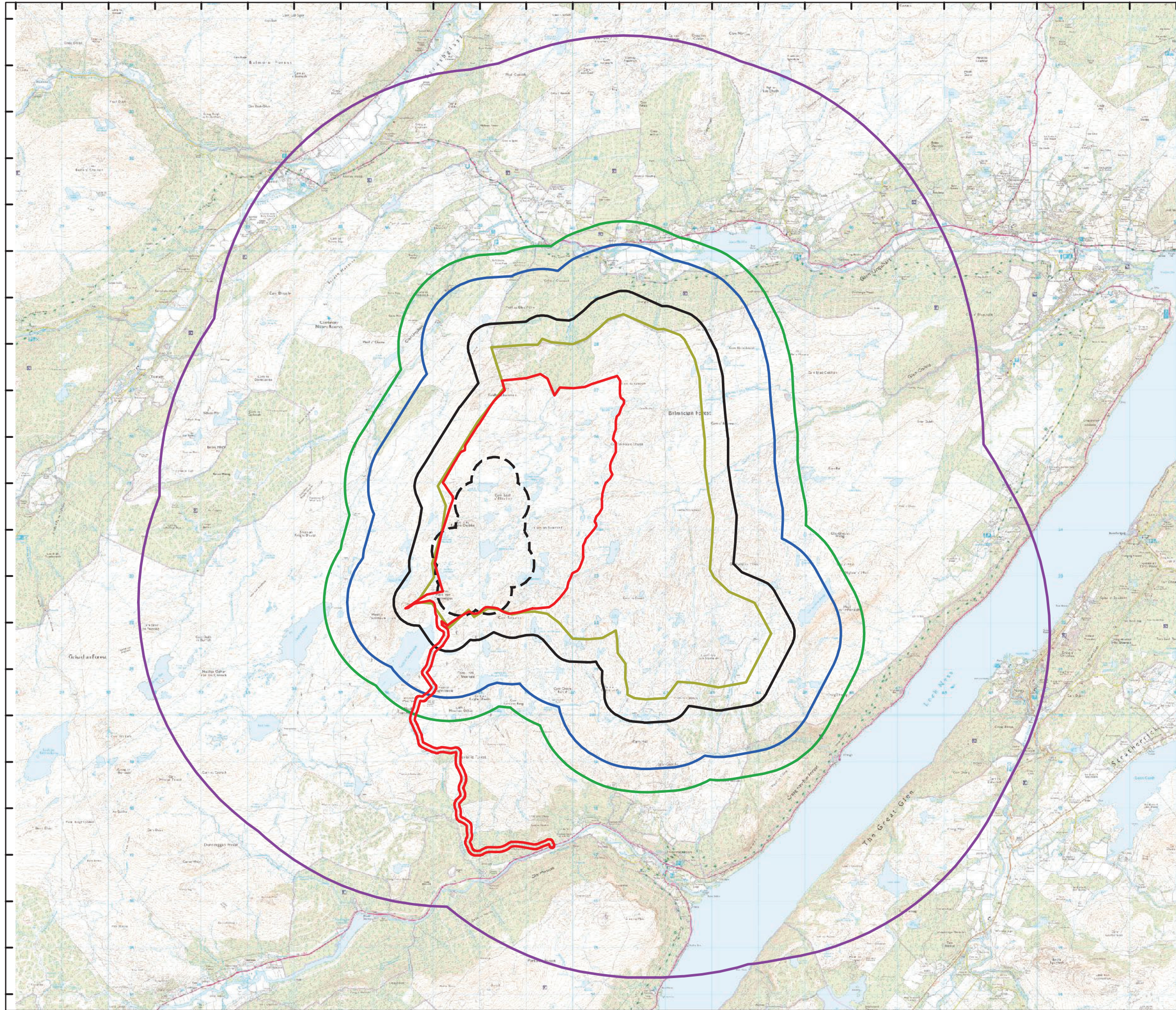
| Table 31. Incidental records, September 2019 to August 2021. | | | | | | | | |
|--|------|--------------------|--------|-----|------|-----------|-------|-------------------|
| Date | Time | Species | Number | Sex | Age | Behaviour | Signs | Comments |
| 16/04/2021 | 0859 | Snipe | 1 | | | | | Drumming |
| 20/11/2019 | 1120 | Snow bunting | 1 | | | Flying | | |
| 20/11/2019 | 1125 | Snow bunting | 1 | | | Flying | | |
| 19/02/2020 | 0946 | Snow bunting | 1 | F | | Hunt/feed | | |
| 19/02/2020 | 1106 | Snow bunting | 1 | F | | Hunt/feed | | |
| 20/06/2020 | 1405 | White-tailed eagle | 1 | | 2YR? | Flying | | 85 sec at 50-100m |

Appendix 1: Bird species to be recorded during surveys.








| SPECIES RECORDED FOR ASSESSMENT OF FLIGHT ACTIVITY | | | Additional species (e.g. breeding and/or wintering) |
|---|-------------------------|--------------------------|--|
| Target A species | Target B species | Secondary species | |
| Diver species | Whooper swan | Cormorant | Tree pipit |
| Common Scoter | Greylag goose | Grey heron | Dunnock |
| White-tailed eagle | Barnacle goose | Kestrel | Song thrush |
| Golden eagle | White-fronted goose | Buzzard | Grasshopper warbler |
| Hen harrier | Pink-footed goose | Sparrowhawk | Wood warbler |
| Goshawk | Brent goose | Red grouse | Spotted flycatcher |
| Red kite | Bean goose | Grey partridge | Marsh tit |
| Osprey | Golden plover | Lapwing | Willow tit |
| Merlin | Dunlin | Redshank | Crested tit |
| Peregrine | Greenshank | Common sandpiper | Starling |
| Hobby | Whimbrel | Oystercatcher | House sparrow |
| Barn owl | Curlew | Snipe | Tree sparrow |
| Short-eared owl | Wood sandpiper | Woodcock | Linnet |
| Black grouse | Tern species | Herring gull | Twite |
| Capercaillie | Arctic skua | Cuckoo | Lesser redpoll |
| Nightjar | Great skua | Ring ouzel | Crossbill species |
| Chough | | Raven | Bullfinch |
| | | (Any flocks >30) | Hawfinch |
| (Other rare raptors) | | | Yellow hammer |
| | | | Reed bunting |
| | | | Corn bunting |
| | | | Mute swan |
| | | | Mallard |
| | | | Goosander |
| | | | Teal |

228000 229000 230000 231000 232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000

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Key

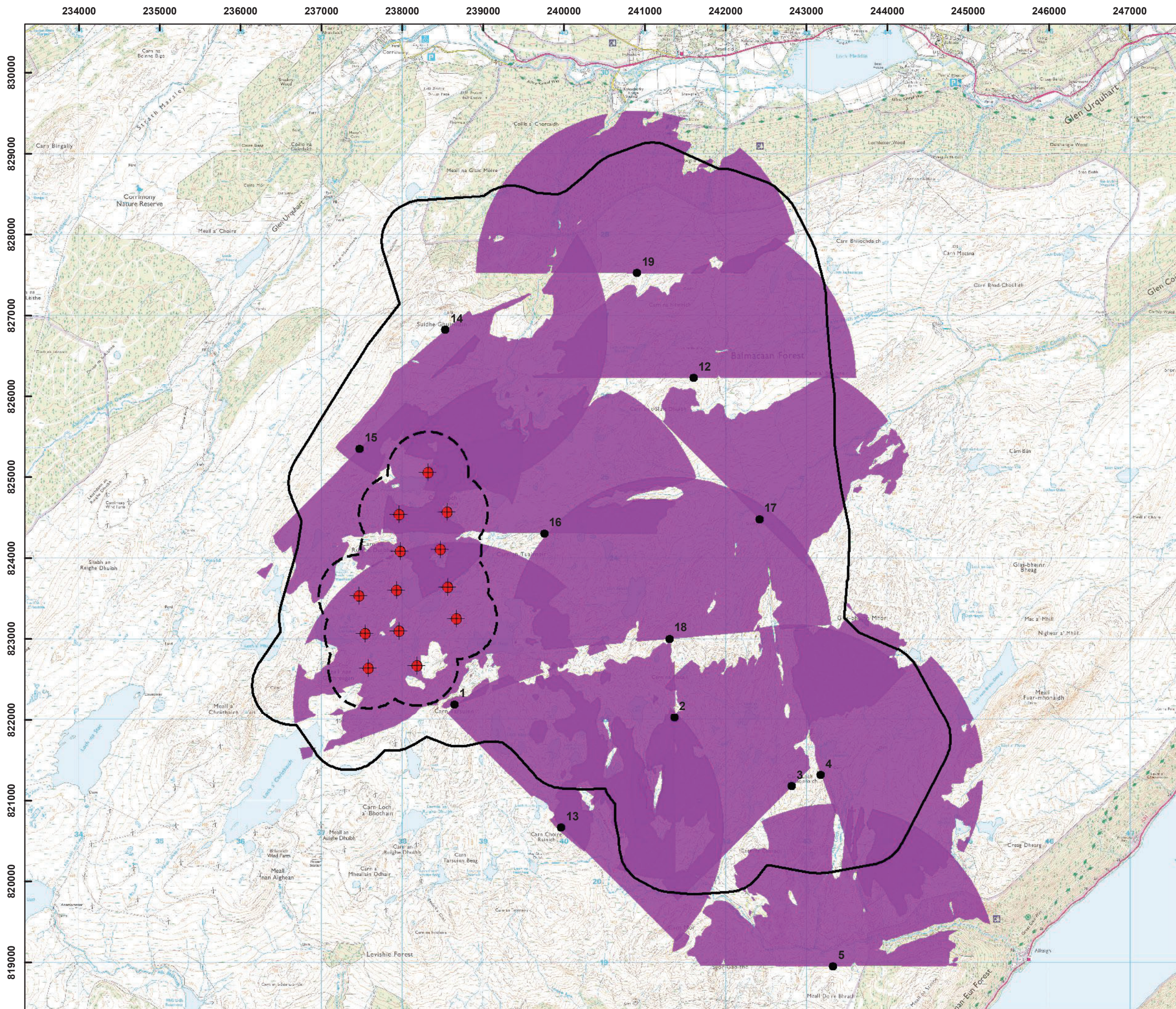
-  Application red-line boundary
-  Flight activity survey area
-  Ornithology Study Area (OSA)
-  500 m buffer of OSA
-  1.5 km buffer of OSA
-  2 km buffer of OSA
-  6 km buffer of OSA

Date produced: 30/01/2023
Source: NRP LTD








Figure 1
Ornithological survey buffers

Loch Liath



Key

-  Turbine locations
-  Flight activity survey area
-  Vantage point
-  500 m buffer of OSA
-  Viewshed

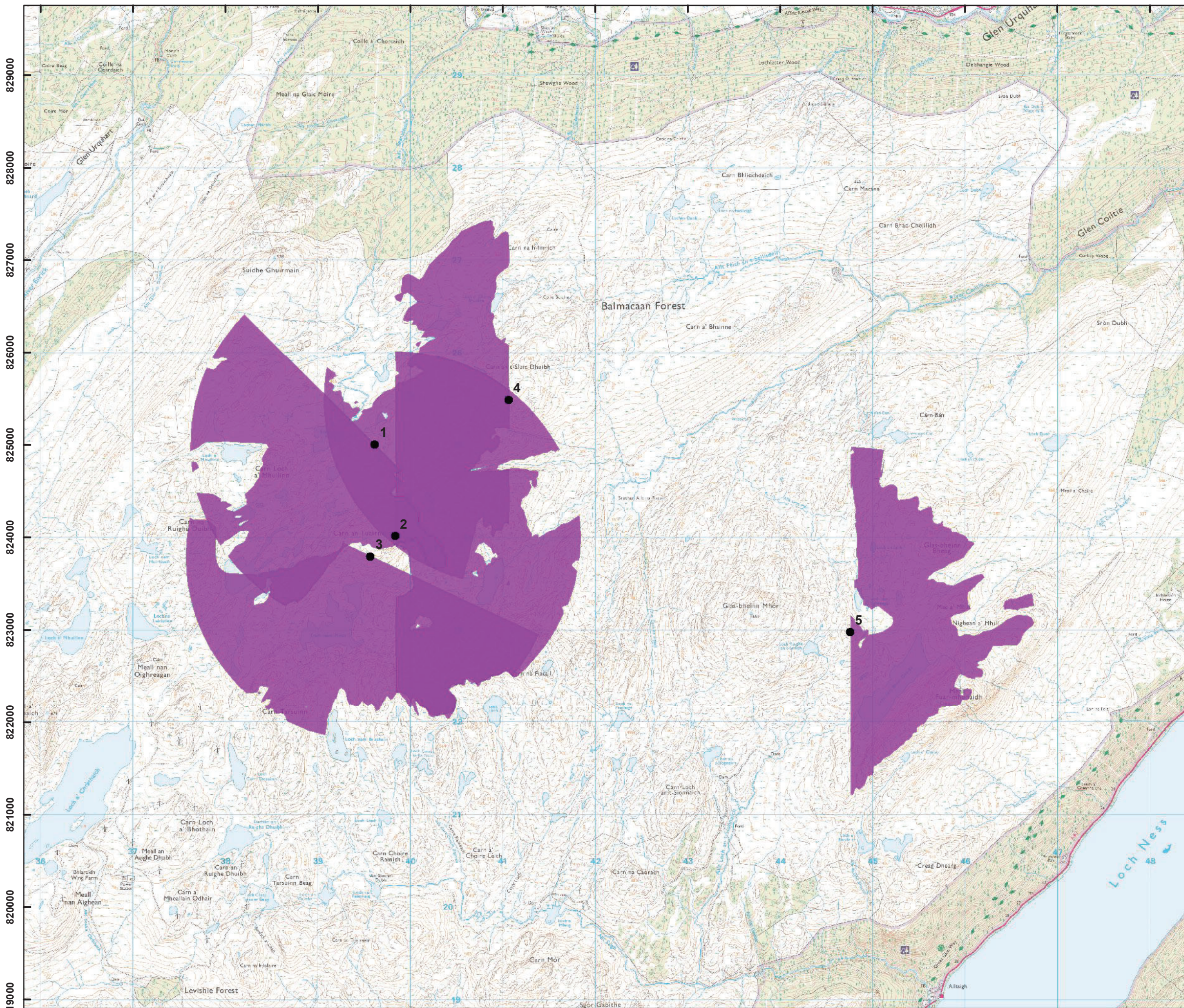
Date produced: 02/02/2023
Source: NRP LTD



Figure 2a
Vantage points and viewsheds
September 2019 to August 2021

Loch Liath

236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



Key

- Focal vantage point
- Viewshed

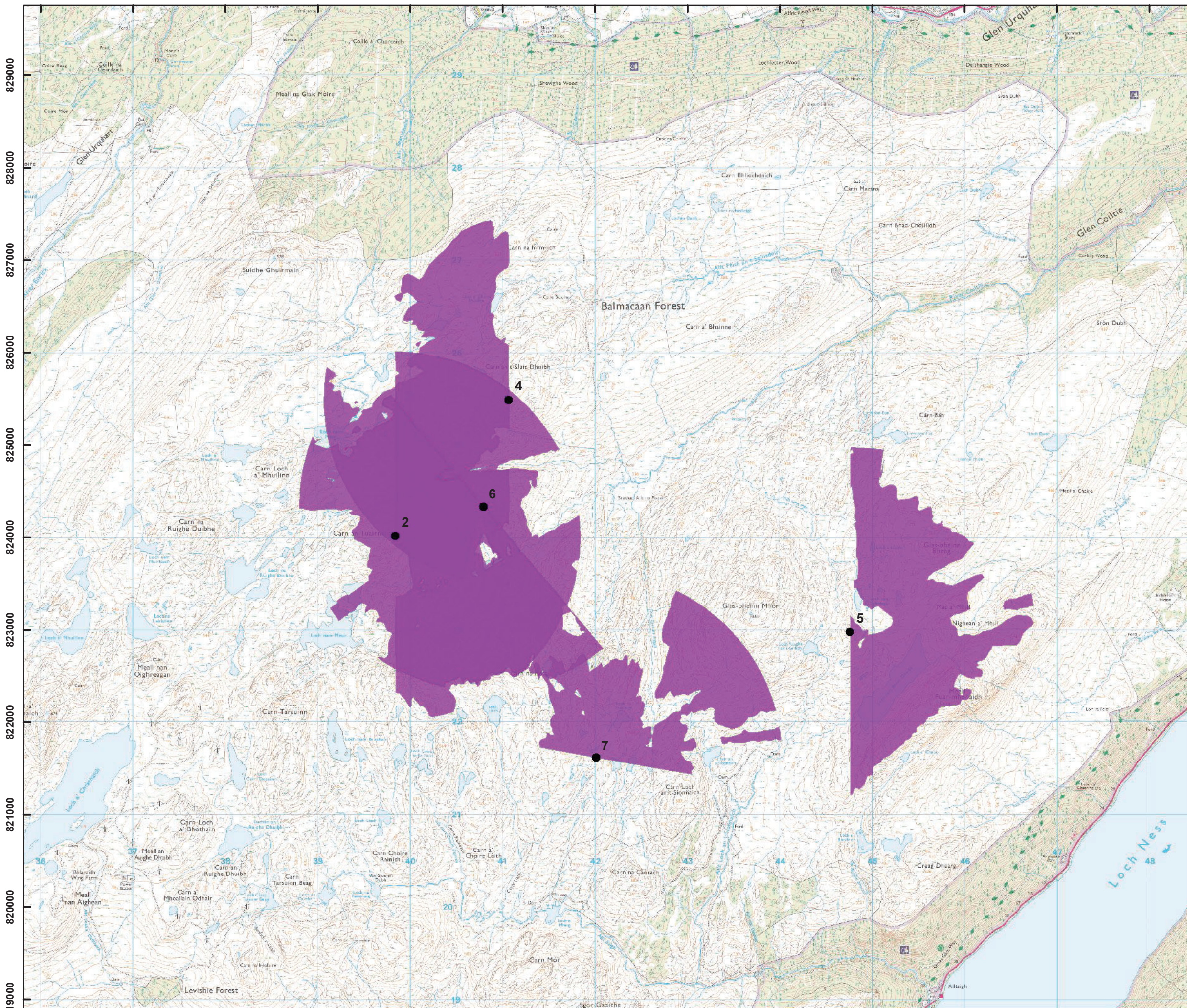
Date produced: 07/09/2022
Source: NRP LTD



Figure 2b
Focal vantage points and viewsheds April 2020 to August 2020

Loch Liath

236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



819000

820000

821000

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Key

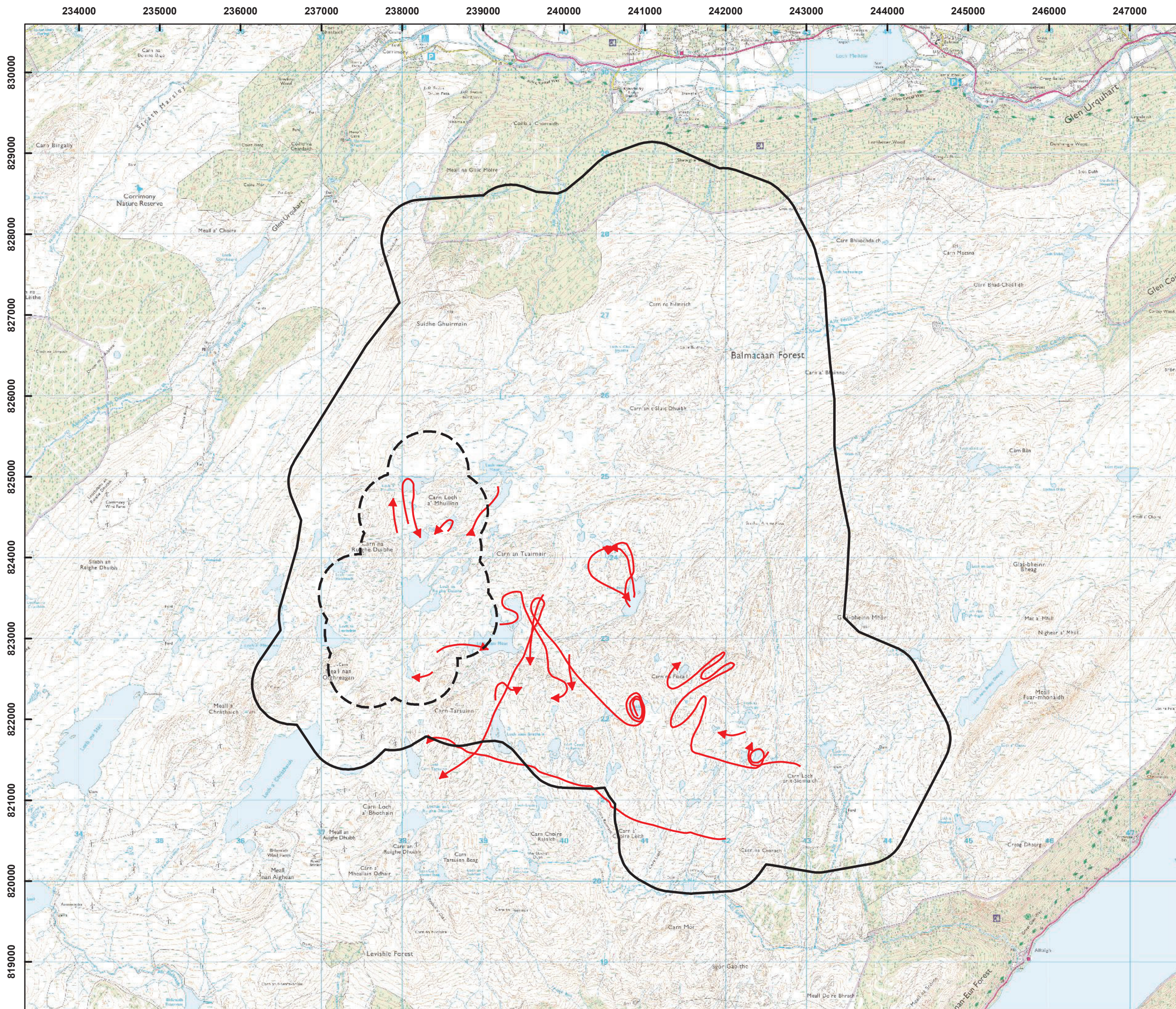
- Focal vantage point
- Viewshed

Date produced: 07/09/2022
Source: NRP LTD



Figure 2c
Focal vantage points and viewsheds April 2021 to August 2021

Loch Liath



Key

Flight activity survey area

500 m buffer of OSA

Flight lines

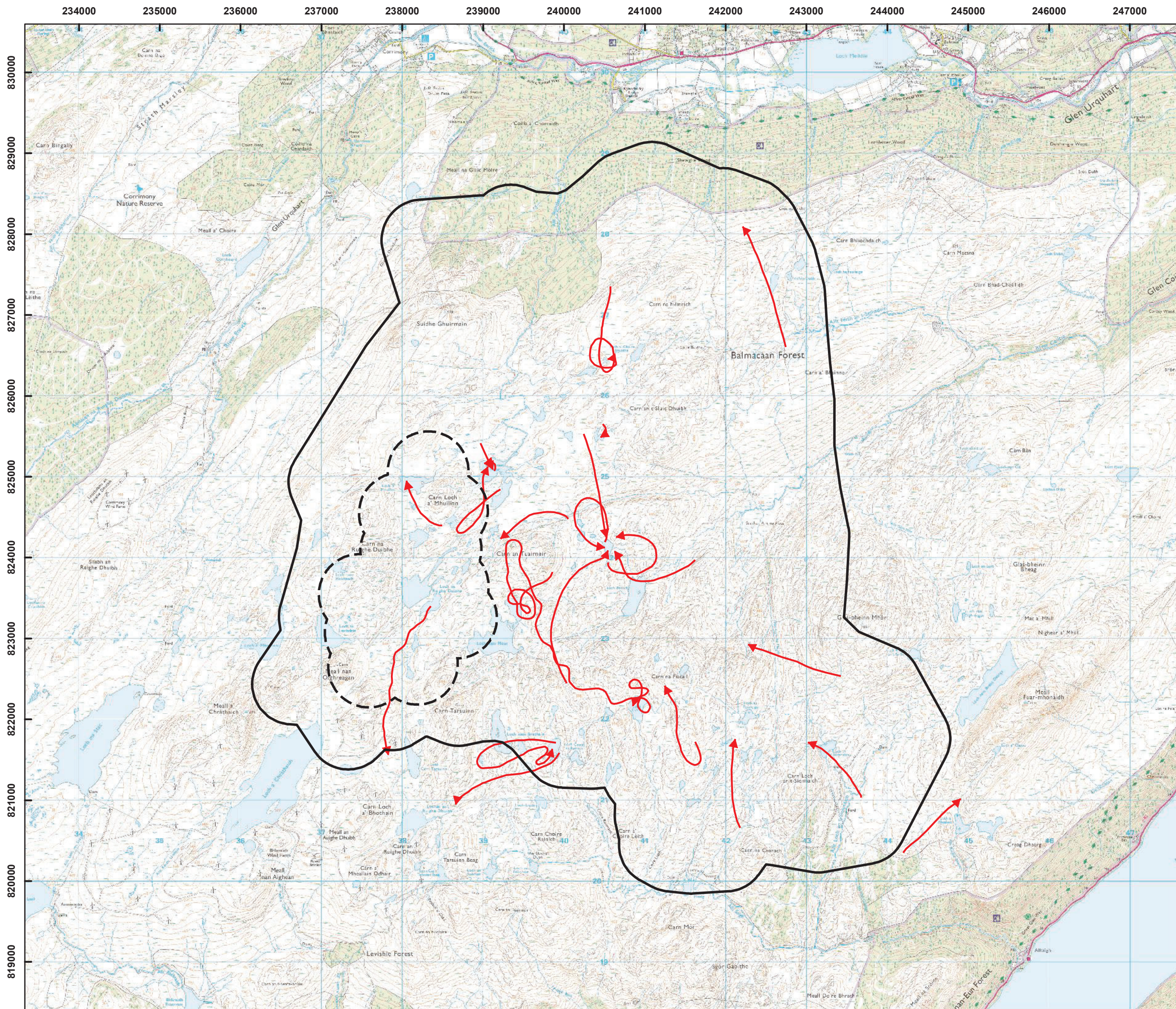
Red-throated diver

Date produced: 02/02/2023
Source: NRP LTD





Figure 3
**Diver flights recorded from GVPs
September 2019 to August 2020**

Loch Liath




Key

 Flight activity survey area

 500 m buffer of OSA

Flight lines

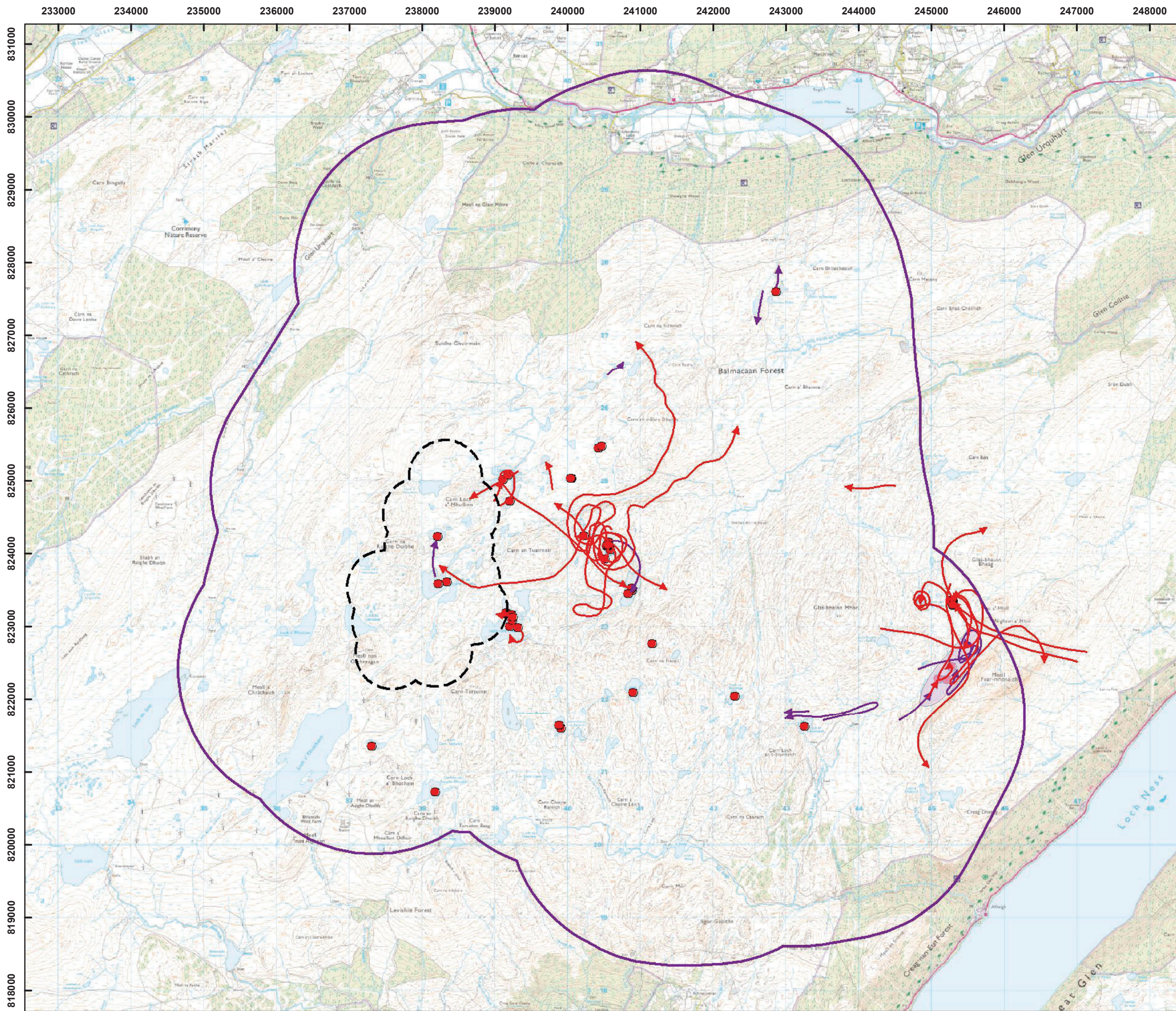
 Red-throated diver

Date produced: 02/02/2023
Source: NRP LTD









Figure 4
Diver flights recorded from GVPs
September 2020 to August 2021

Loch Liath



Key

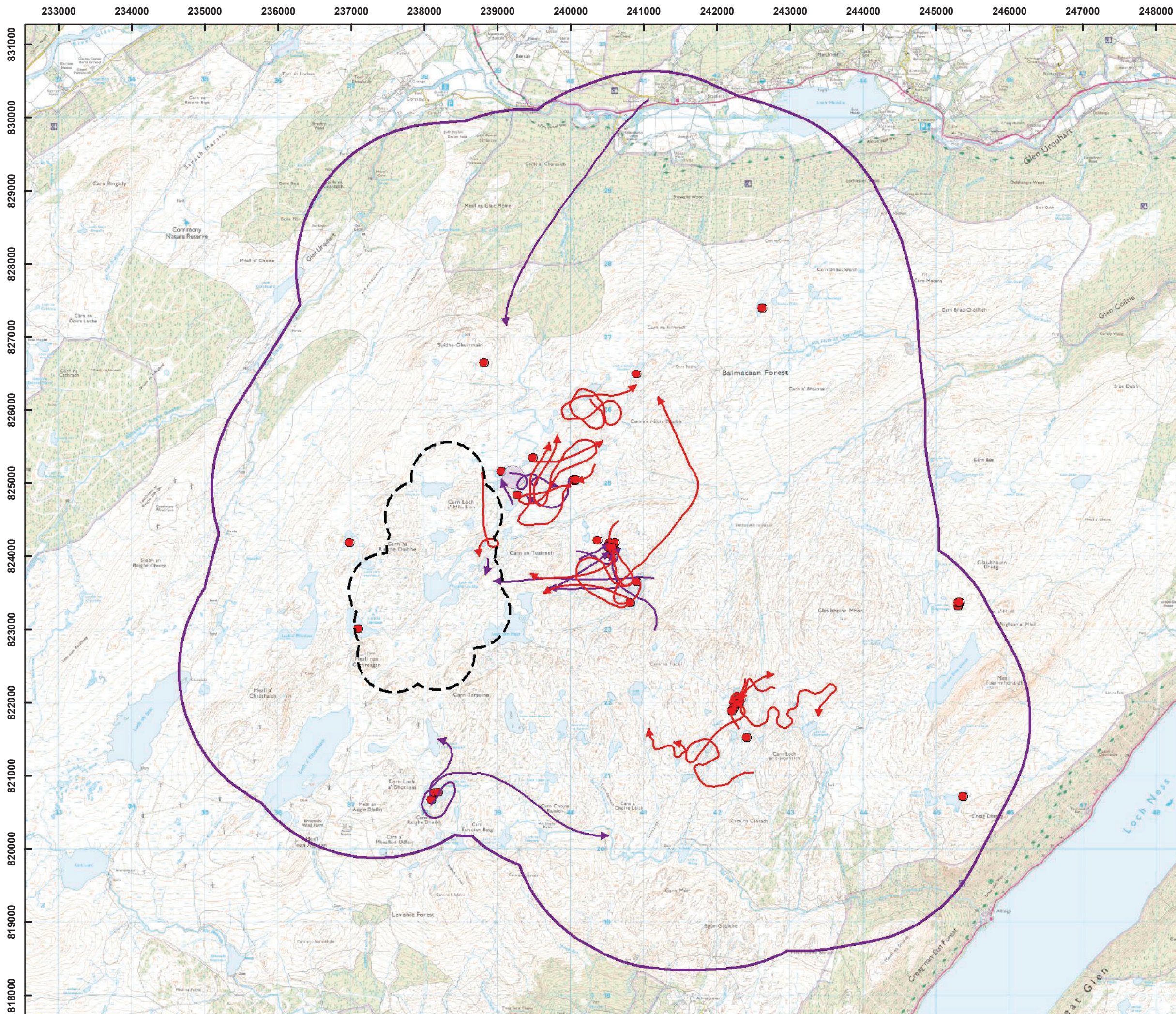
-  Flight activity survey area
-  2 km buffer of OSA
- Red-throated diver**
-  FVP flight lines
-  Other flight lines
-  Other flight areas
-  Point records







Date produced: 02/02/2023
Source: NRP LTD



Figure 5
Other diver flights and observations September 2019 to August 2020

Loch Liath



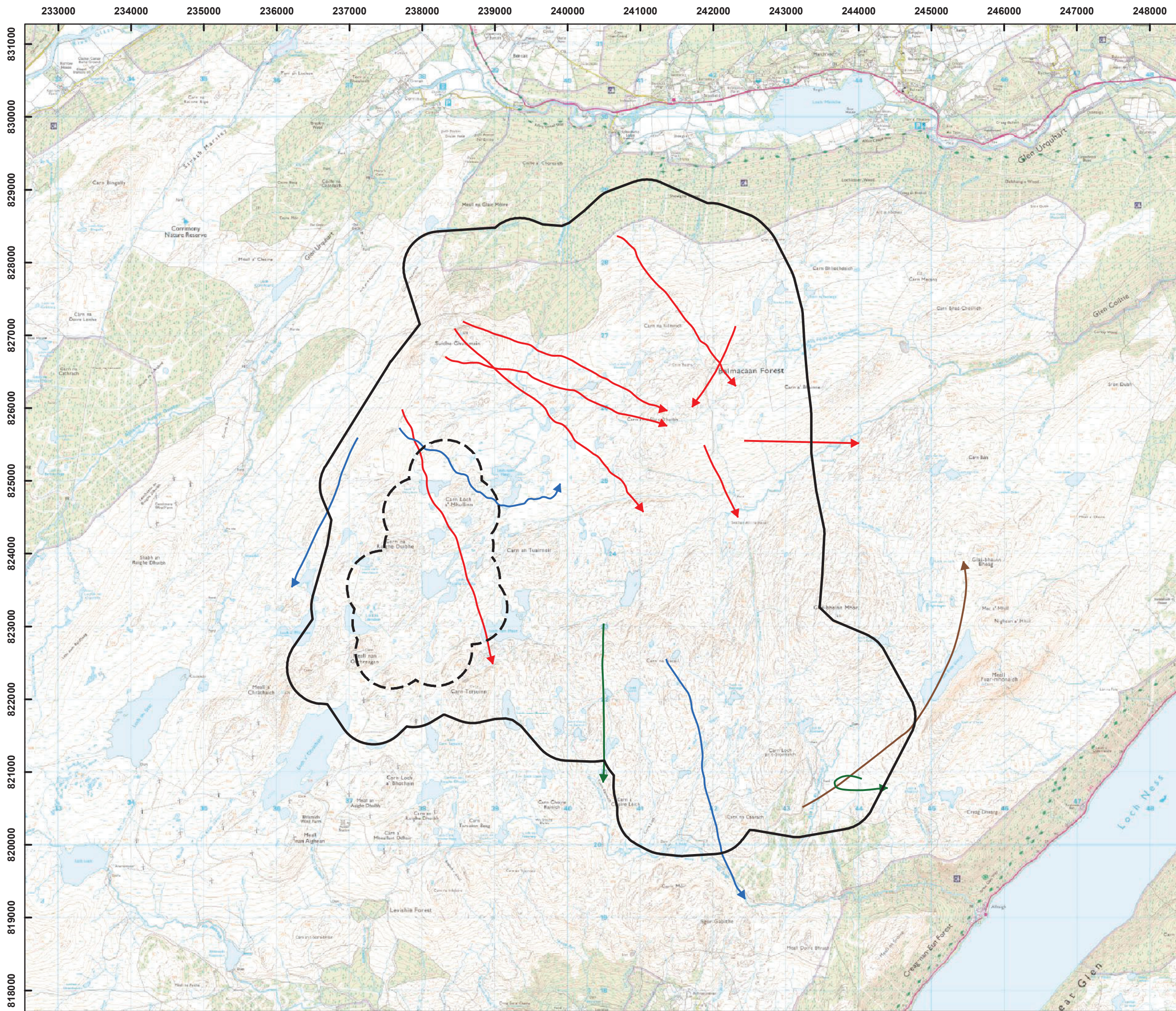
- Key**
-  Flight activity survey area
 -  2 km buffer of OSA
 - Red-throated diver**
 -  FVP flight lines
 -  Other flight lines
 -  Other flight areas
 -  Point records

Date produced: 02/02/2023
Source: NRP LTD





Figure 6
Other diver flights and observations September 2020 to August 2021

Loch Liath



Key

-  Flight activity survey area
-  500 m buffer of OSA

Flight lines

-  Greylag goose
-  Pink-footed goose
-  Goose sp.
-  Whooper swan

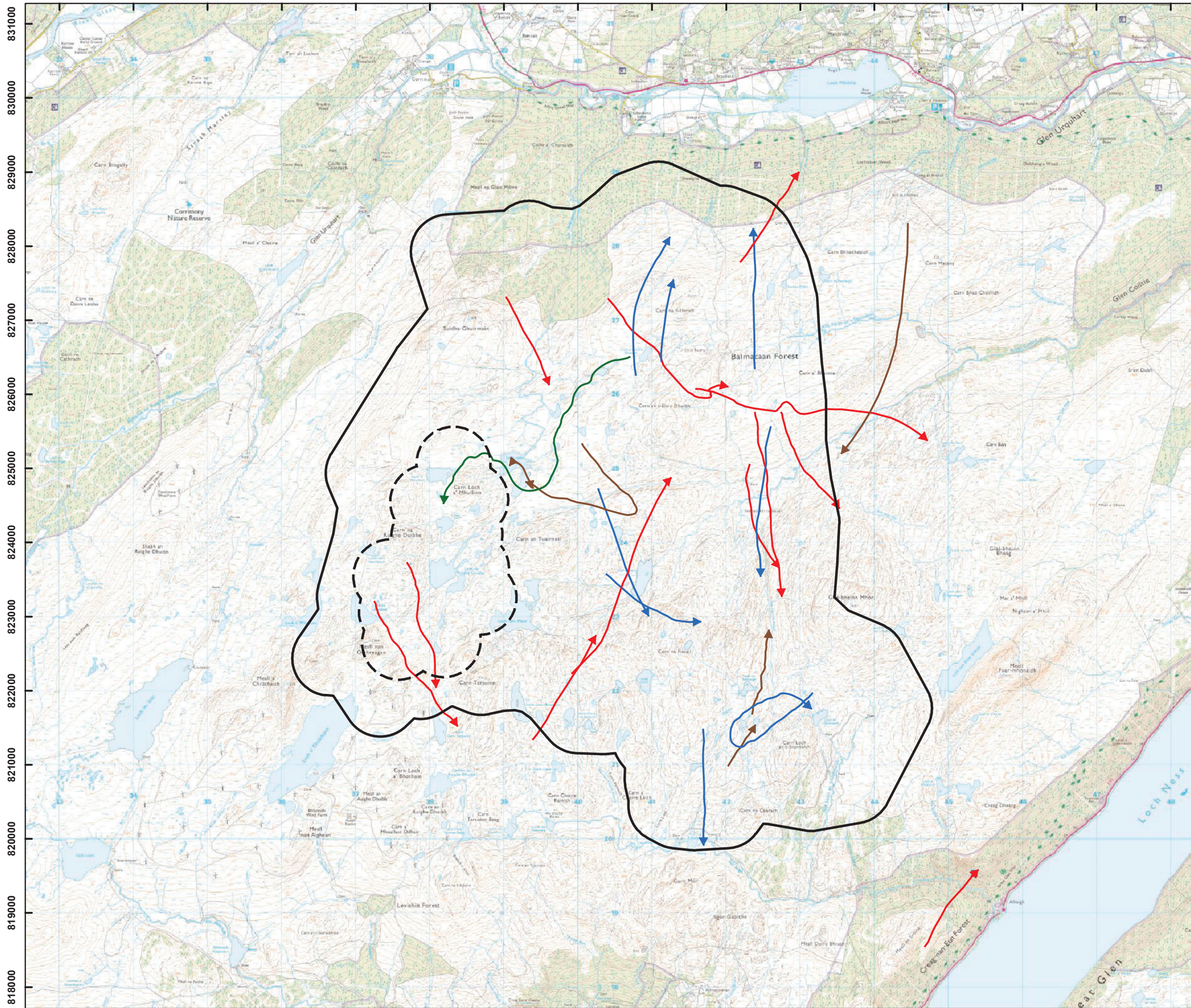
Date produced: 02/02/2023
Source: NRP LTD



Figure 7
Goose and swan flights recorded from GVPs September 2019 to August 2020

Loch Liath

233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



- Key**
- Flight activity survey area
 - 500 m buffer of OSA
- Flight lines**
- Greylag goose
 - Pink-footed goose
 - Goose sp.
 - Whooper swan

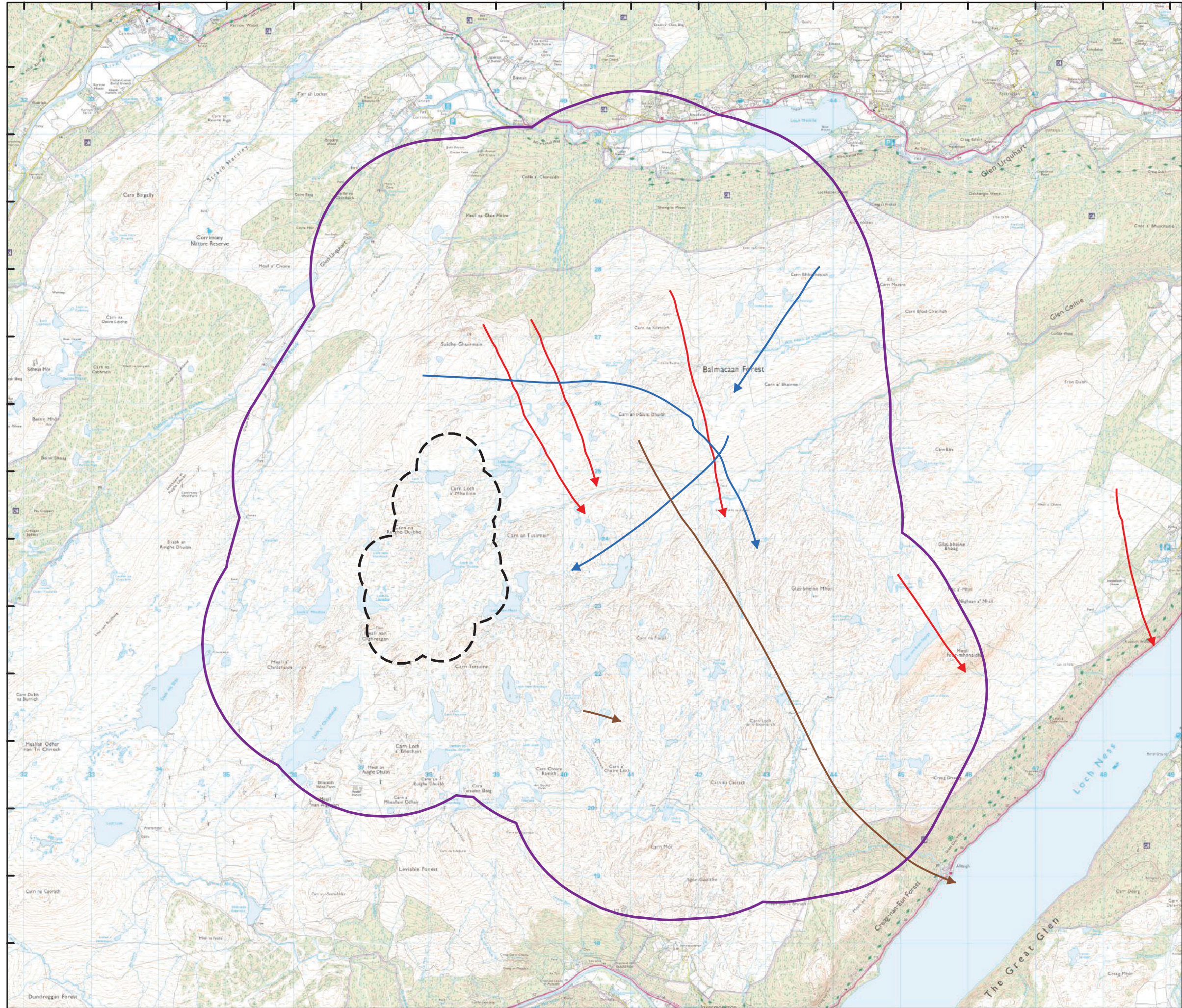
Date produced: 02/02/2023
 Source: NRP LTD

Figure 8
Goose and swan flights recorded from GVPs September 2020 to August 2021






Loch Liath

232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000

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828000
827000
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825000
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Key

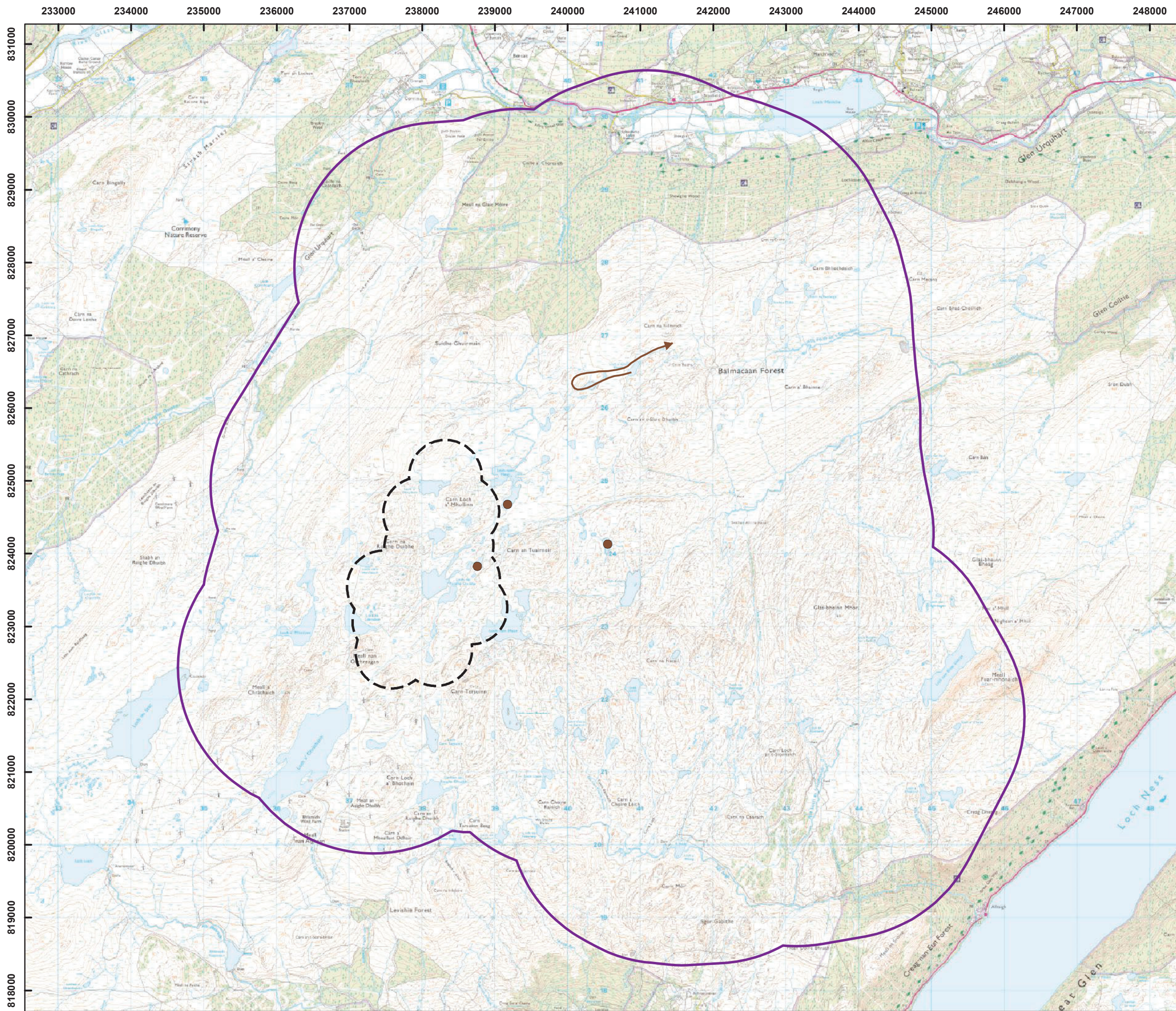
-  Flight activity survey area
-  2 km buffer of OSA
-  Greylag goose
-  Pink-footed goose
-  Whooper swan

Date produced: 02/02/2023
Source: NRP LTD



Figure 9
**Other goose and swan flights
September 2019 to August 2020**

Loch Liath



Key

Flight activity survey area

2 km buffer of OSA

Flight lines

Whooper swan

Observations

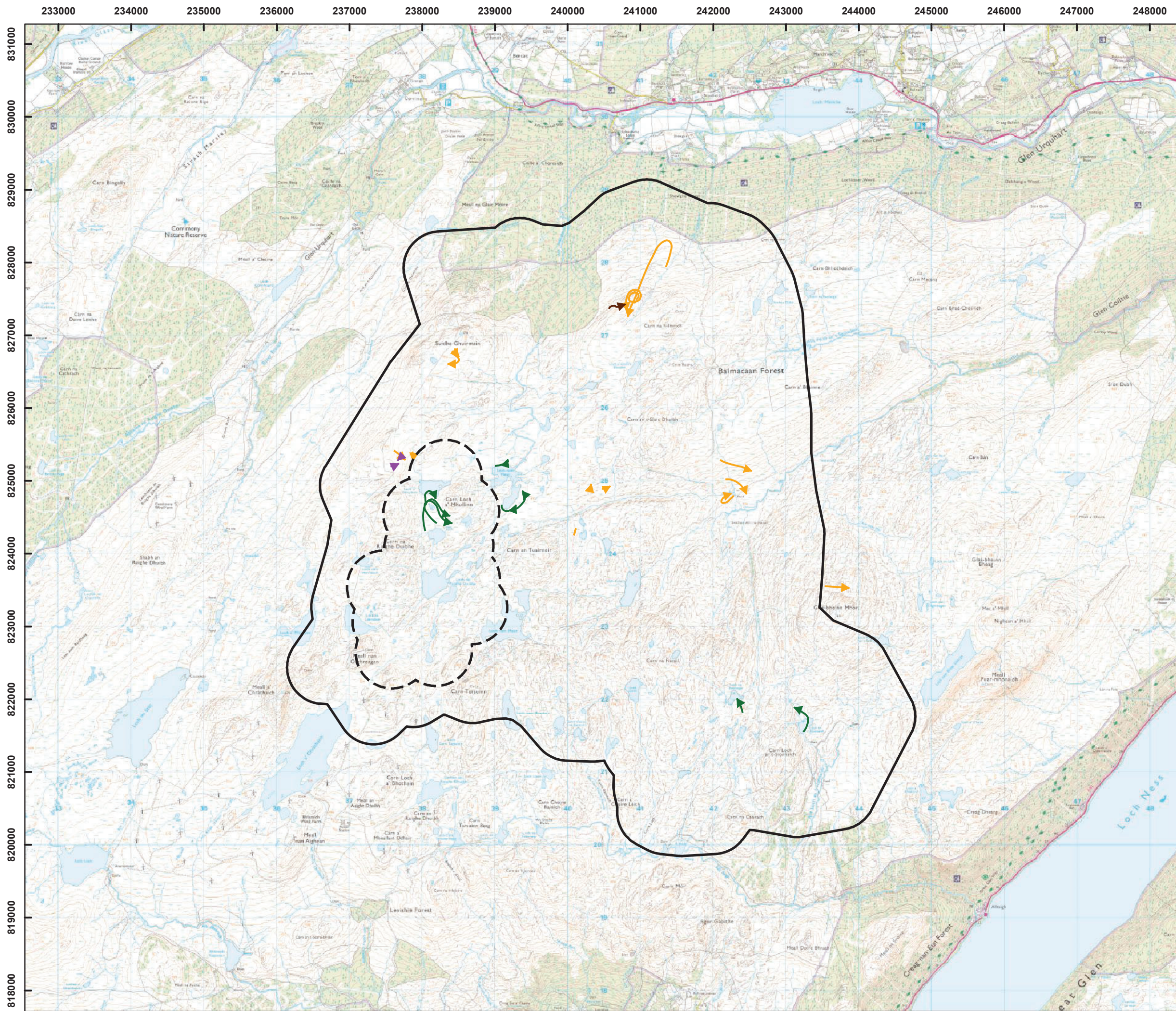
Whooper swan

Date produced: 02/02/2023
Source: NRP LTD





Figure 10
Other goose and swan flights and observations September 2020 to August 2021





Loch Liath



Key

-  Flight activity survey area
-  500 m buffer of OSA

Flight lines

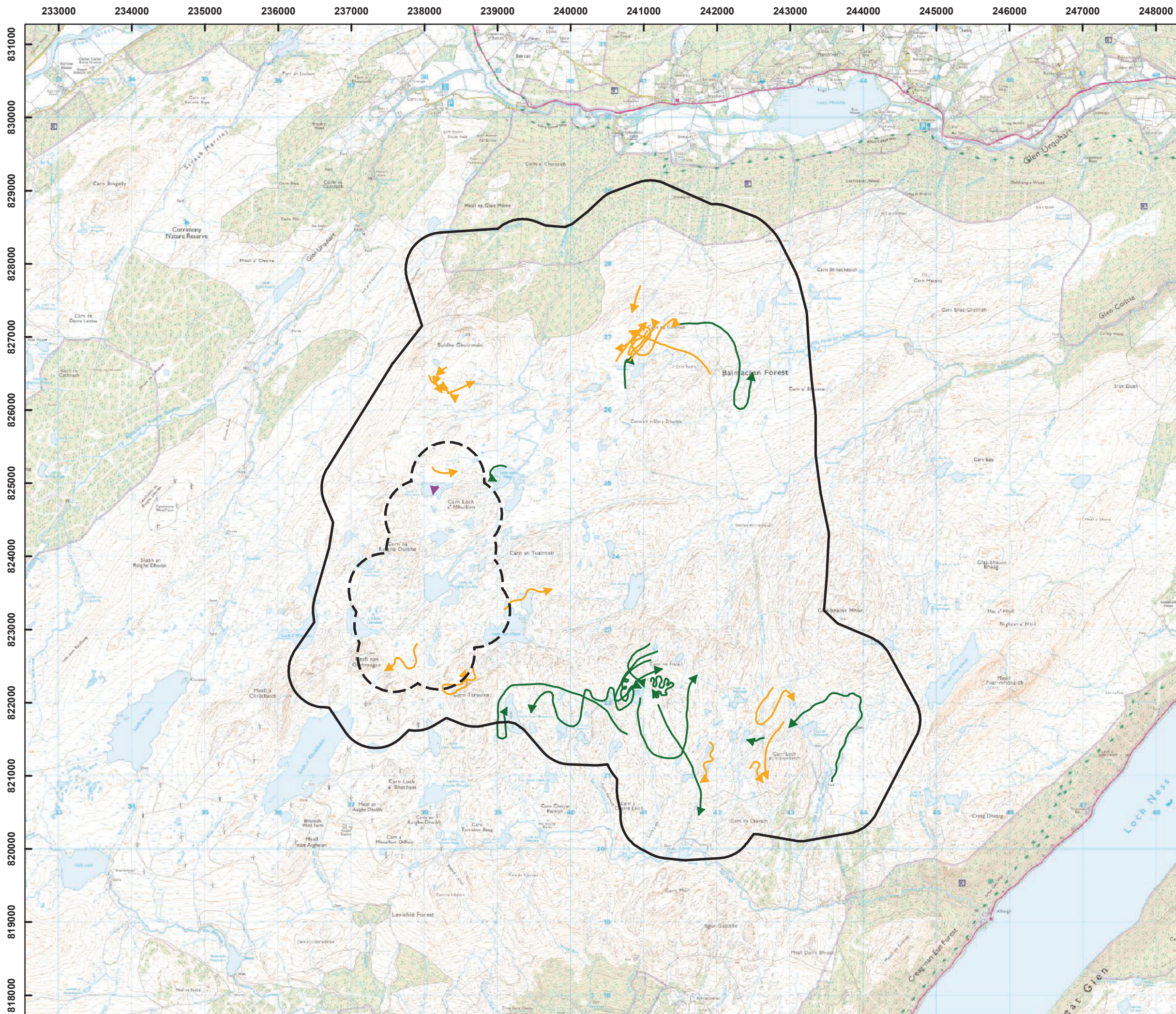
-  Curlew
-  Dunlin
-  Golden plover
-  Greenshank

Date produced: 02/02/2023
Source: NRP LTD





Figure 11
Wader flights recorded from GVPs September 2019 to August 2020




Loch Liath



Key

-  Flight activity survey area
-  500 m buffer of OSA

Flight lines

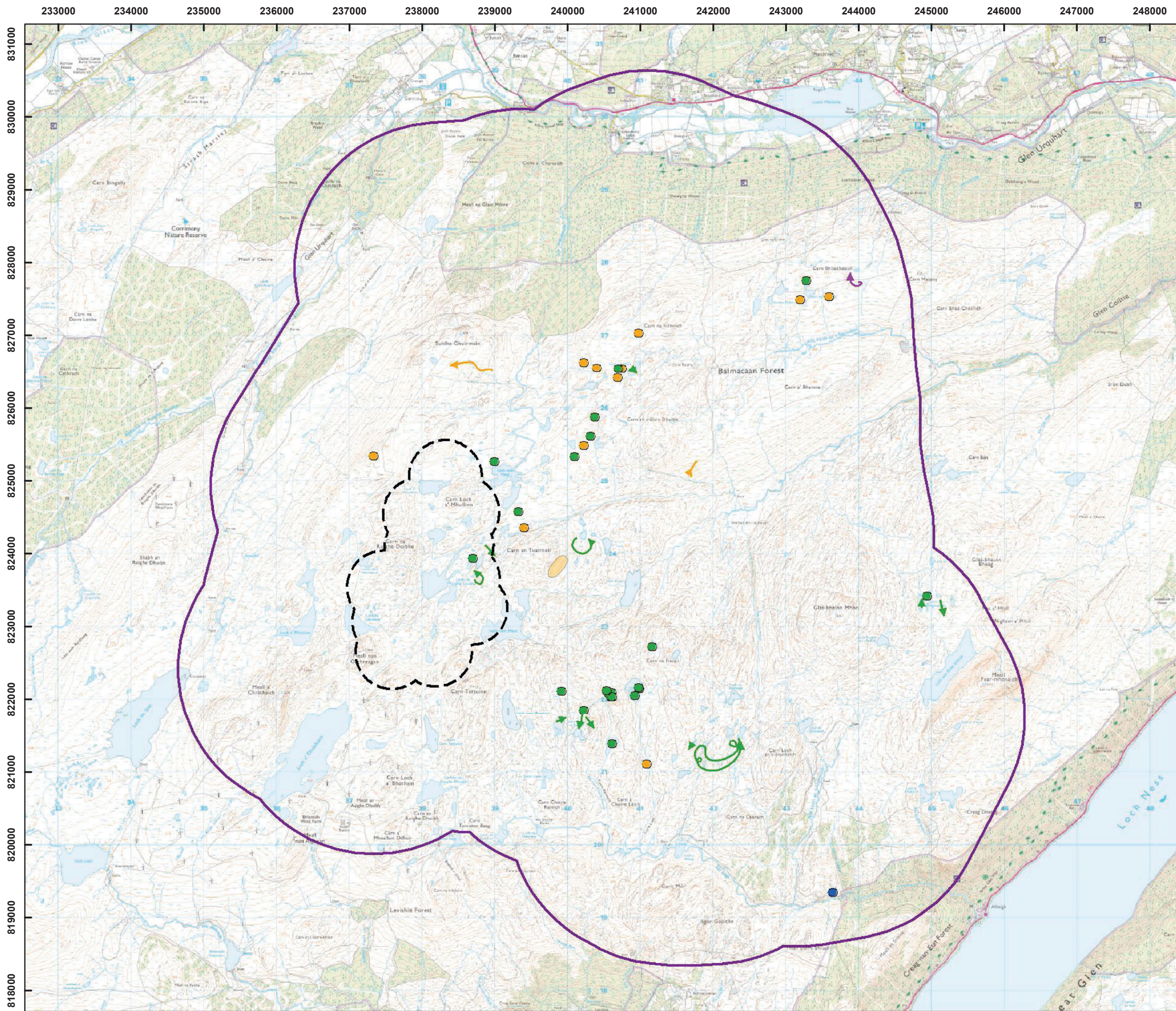
-  Dunlin
-  Golden plover
-  Greenshank

Date produced: 02/02/2023
Source: NRP LTD



Figure 12
Wader flights recorded from GVPs September 2020 to August 2021

Loch Liath



Key

- Flight activity survey area
- 2 km buffer of OSA

Flight lines

- Dunlin
- Golden plover
- Greenshank

Flight area

- Golden plover

Observation

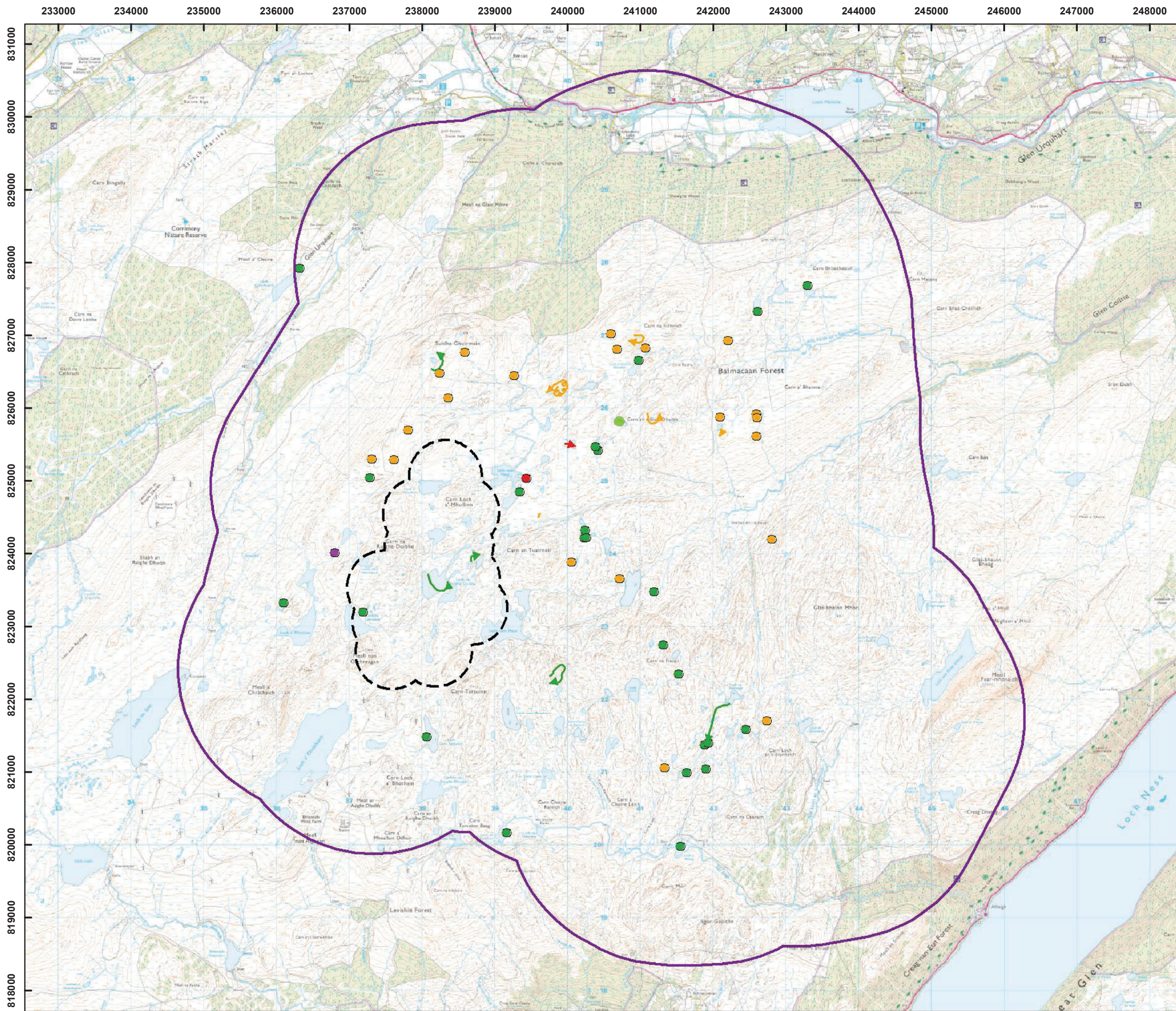
- Golden plover
- Greenshank
- Woodcock

Date produced: 02/02/2023
Source: NRP LTD





Figure 13
Other wader flights and observations September 2019 to August 2020

Loch Liath



Key

-  Flight activity survey area
-  2 km buffer of OSA

Flight lines

-  Golden plover
-  Greenshank
-  Wood sandpiper

Flight areas

-  Greenshank

Observations

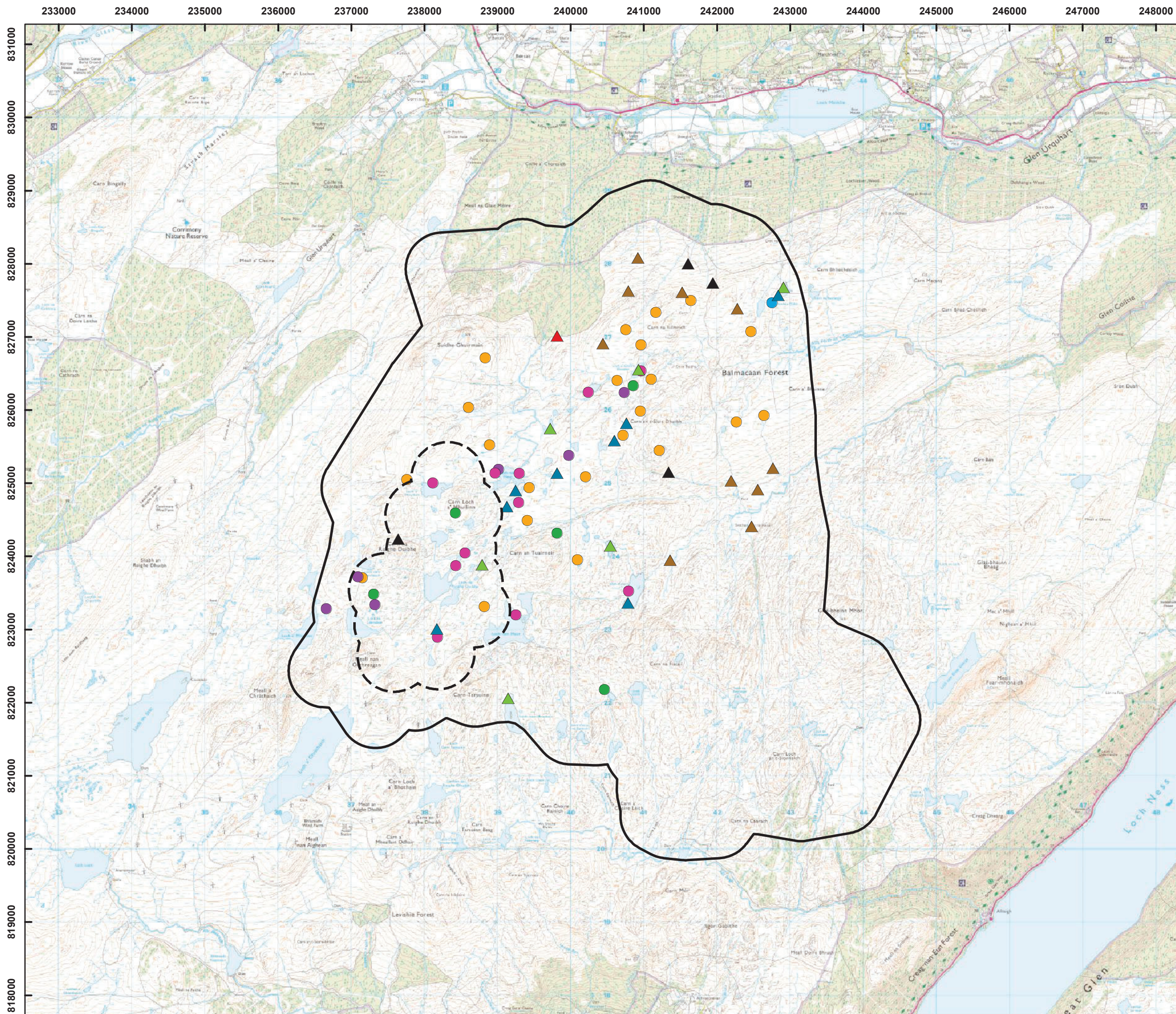
-  Dunlin
-  Golden plover
-  Greenshank
-  Wood sandpiper

Date produced: 02/02/2023
Source: NRP LTD





Figure 14
Other wader flights and observations September 2020 to August 2021











Loch Liath



Key

-  Flight activity survey area
-  500 m buffer of OSA

Nominal territory centres

-  Common sandpiper
-  Dunlin
-  Golden plover
-  Greenshank
-  Lapwing
-  Lesser redpoll
-  Mallard
-  Snipe
-  Teal
-  Wheatear

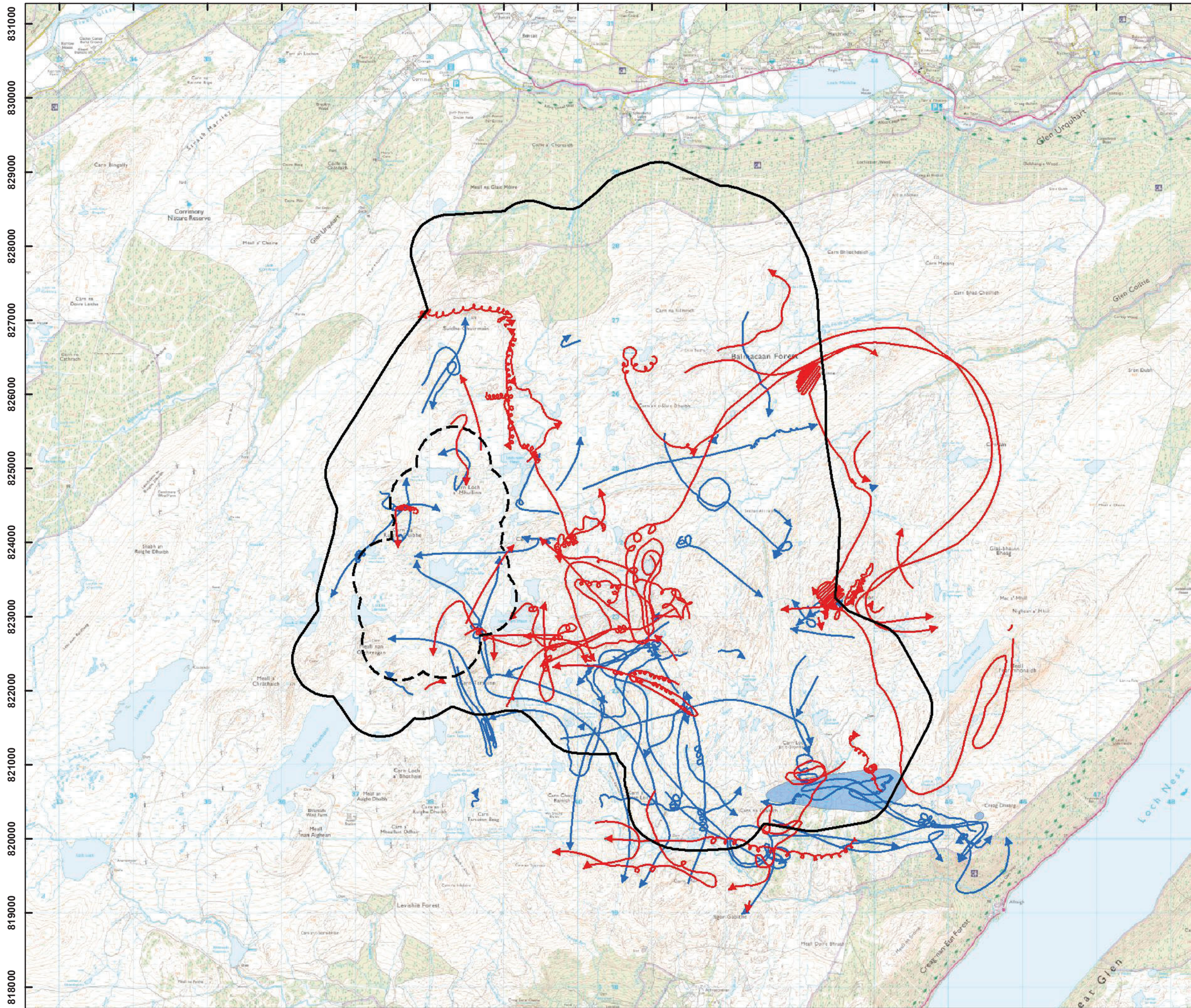
Date produced: 02/02/2023
Source: NRP LTD



Figure 15
**Moorland Bird Survey results
April 2021 to July 2021**

Loch Liath

233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



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Key

- Flight activity survey area
- 500 m buffer of OSA

Flight lines

- Apr-Aug
- Sep-Mar

Flight areas

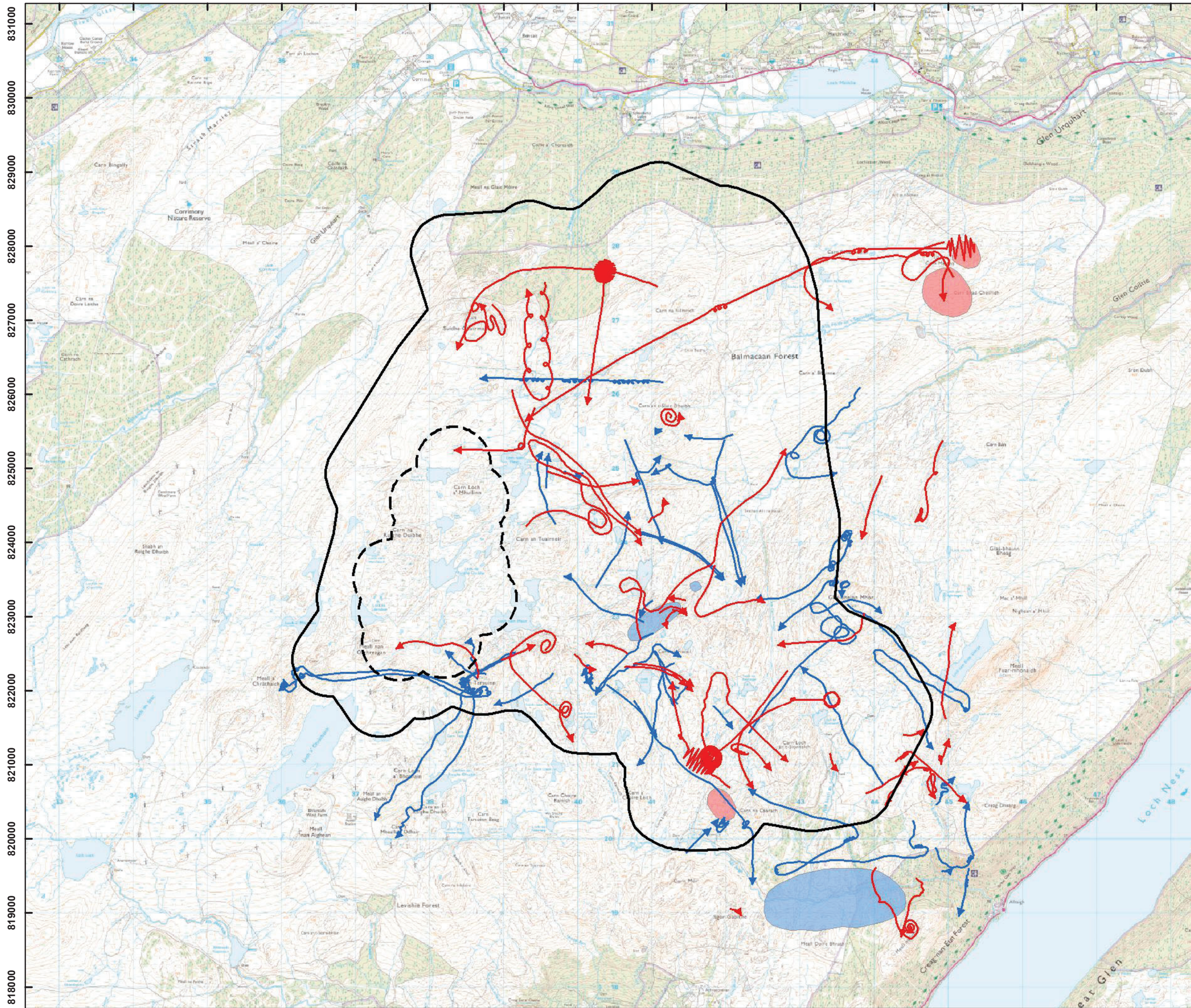
- Sep-Mar

Date produced: 02/02/2023
Source: NRP LTD



Figure 16
Golden eagle flights recorded from GVPs September 2019 to August 2020

Loch Liath



233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000





Key

-  Flight activity survey area
-  500 m buffer of OSA

Flight lines

-  Apr-Aug
-  Sep-Mar

Flight areas

-  Apr-Aug
-  Sep-Mar

Date produced: 02/02/2023
 Source: NRP LTD



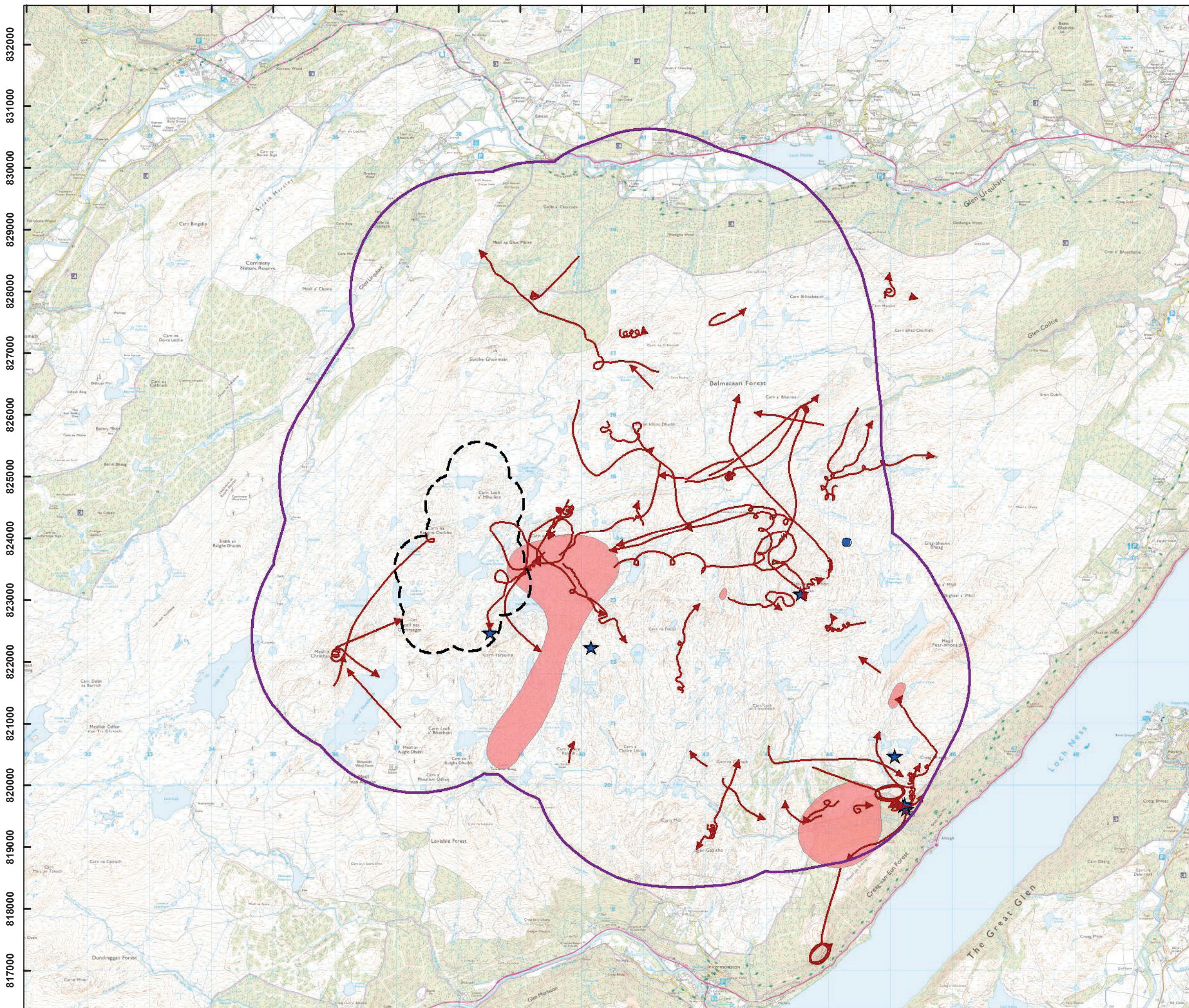









Figure 17
Golden eagle flights recorded from GVPs September 2020 to August 2021

Loch Liath

231000 232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000



Key

-  Flight activity survey area
-  2 km buffer of OSA
-  Flight lines
-  Flight areas
-  Perch
-  Signs

Date produced: 03/02/2023
Source: NRP LTD

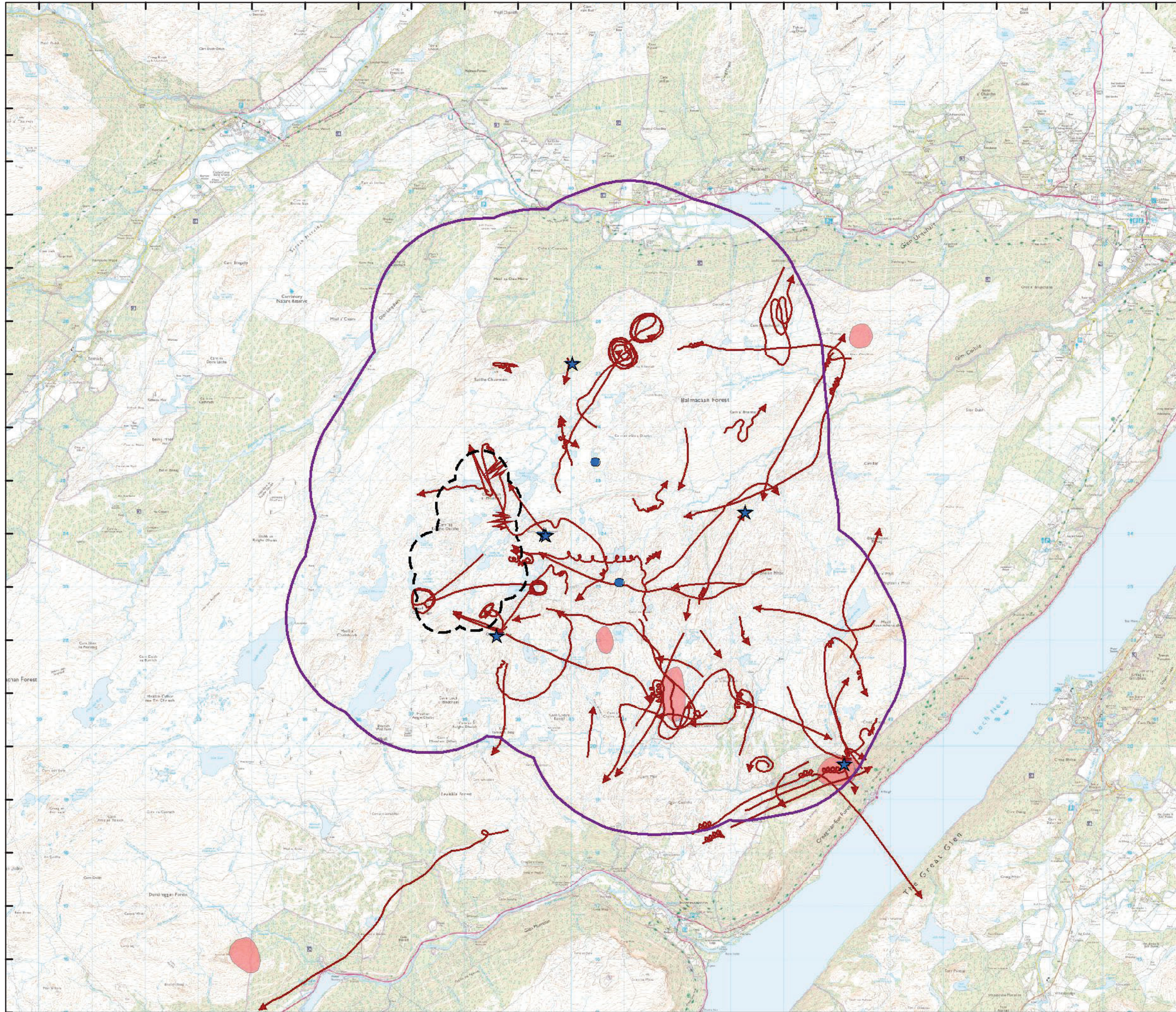


Figure 18
Other Golden eagle flights and observations September 2019 to August 2020







Loch Liath

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Key

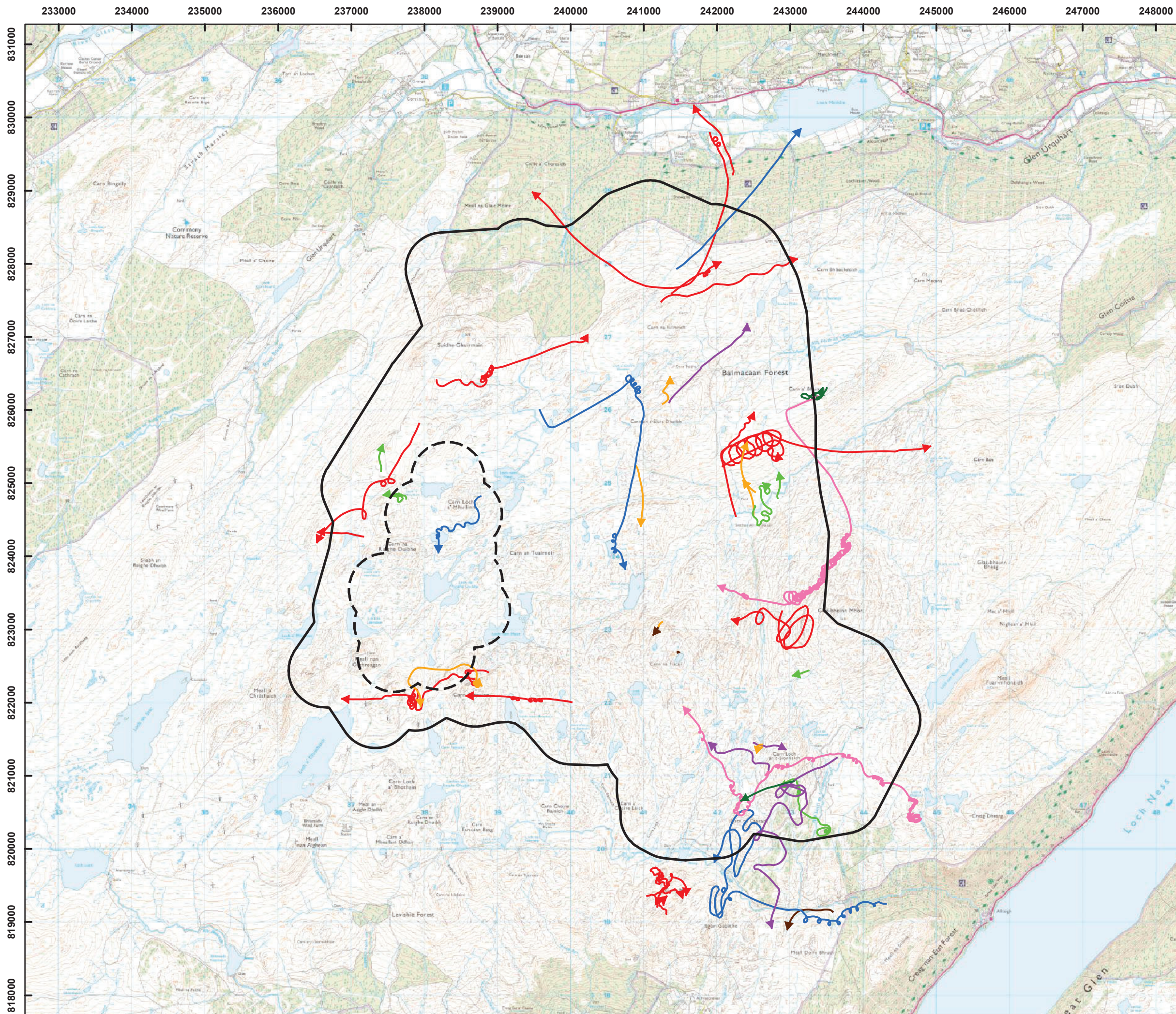
-  Flight activity survey area
-  2 km buffer of OSA
-  Perch
-  Signs
-  Flight lines
-  Flight areas

Date produced: 03/02/2023
Source: NRP LTD



Figure 19
Other Golden eagle flights and observations September 2020 to August 2021

Loch Liath



Key
 [Dashed box] Flight activity survey area
 [Solid box] 500 m buffer of OSA

Flight lines
 [Green arrow] Hen harrier
 [Brown arrow] Hobby
 [Yellow arrow] Merlin
 [Blue arrow] Osprey
 [Purple arrow] Peregrine
 [Red arrow] Red kite
 [Dark green arrow] Unidentified raptor
 [Pink arrow] White-tailed eagle

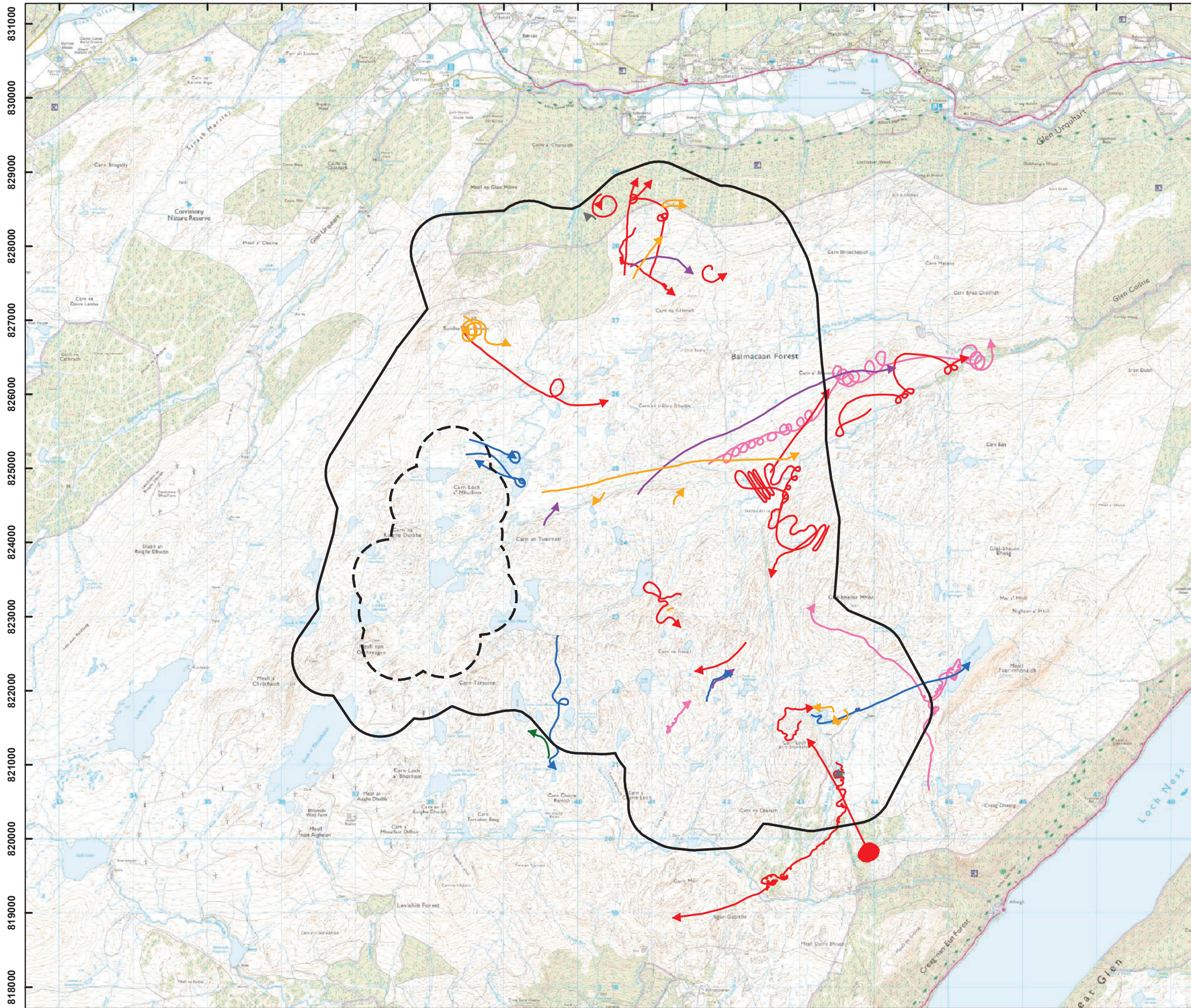
Date produced: 03/02/2023
 Source: NRP LTD



Figure 20
Raptor flights recorded from GVPs September 2019 to August 2020

Loch Liath

233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



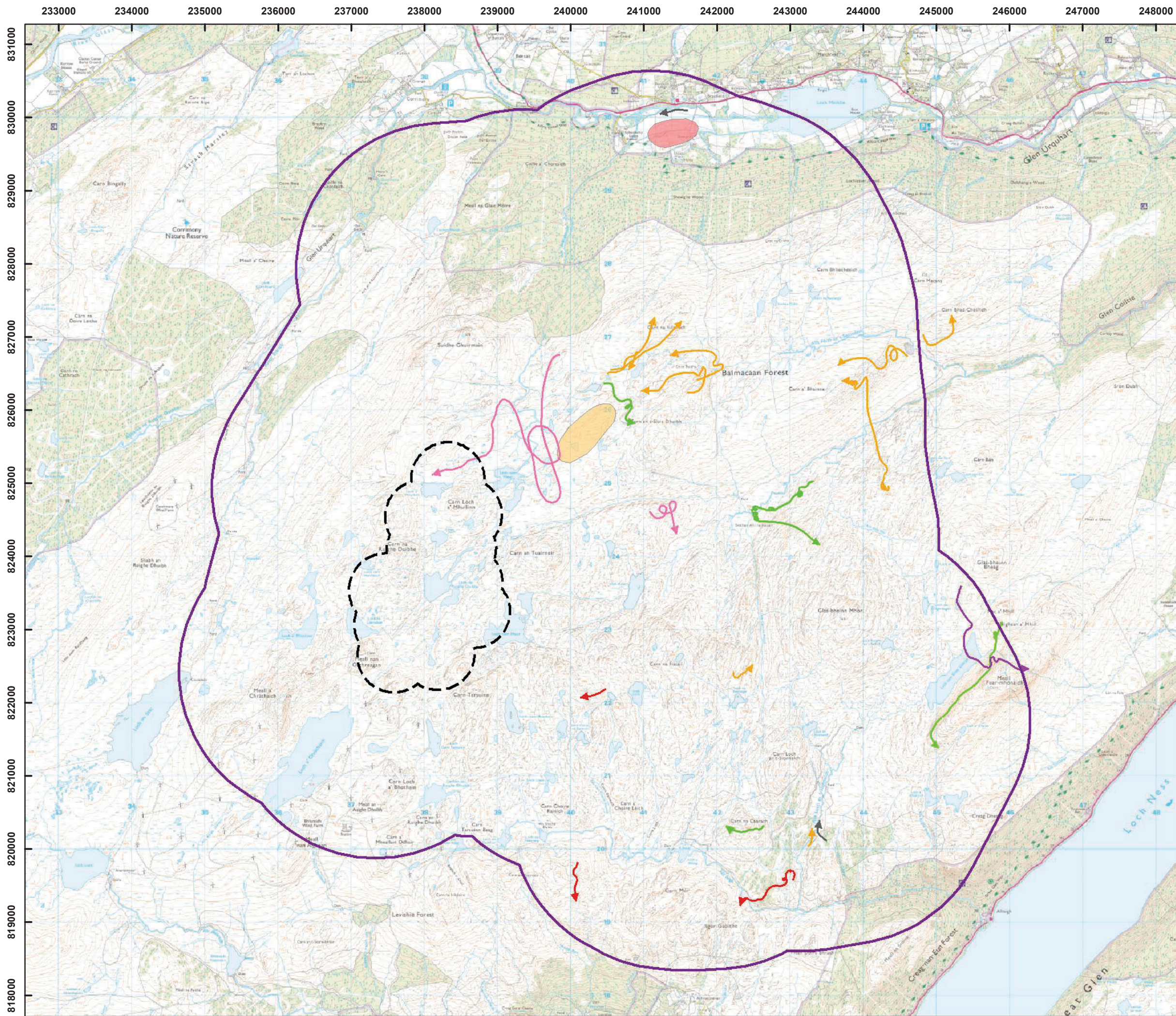
- Key**
- Flight activity survey area
 - 500 m buffer of OSA
- Flight lines**
- Goshawk
 - Merlin
 - Osprey
 - Peregrine
 - Red kite
 - Unidentified raptor
 - White-tailed eagle

Date produced: 03/02/2023
Source: NRP LTD



Figure 21
Raptor flights recorded from GVPs September 2020 to August 2021

Loch Liath



Key

- Flight activity survey area
- 2 km buffer of OSA

Flight lines

- Peregrine
- Goshawk
- Hen harrier
- Merlin
- Red kite
- White-tailed eagle

Flight areas

- Merlin
- Red kite

Date produced: 03/02/2023
 Source: NRP LTD



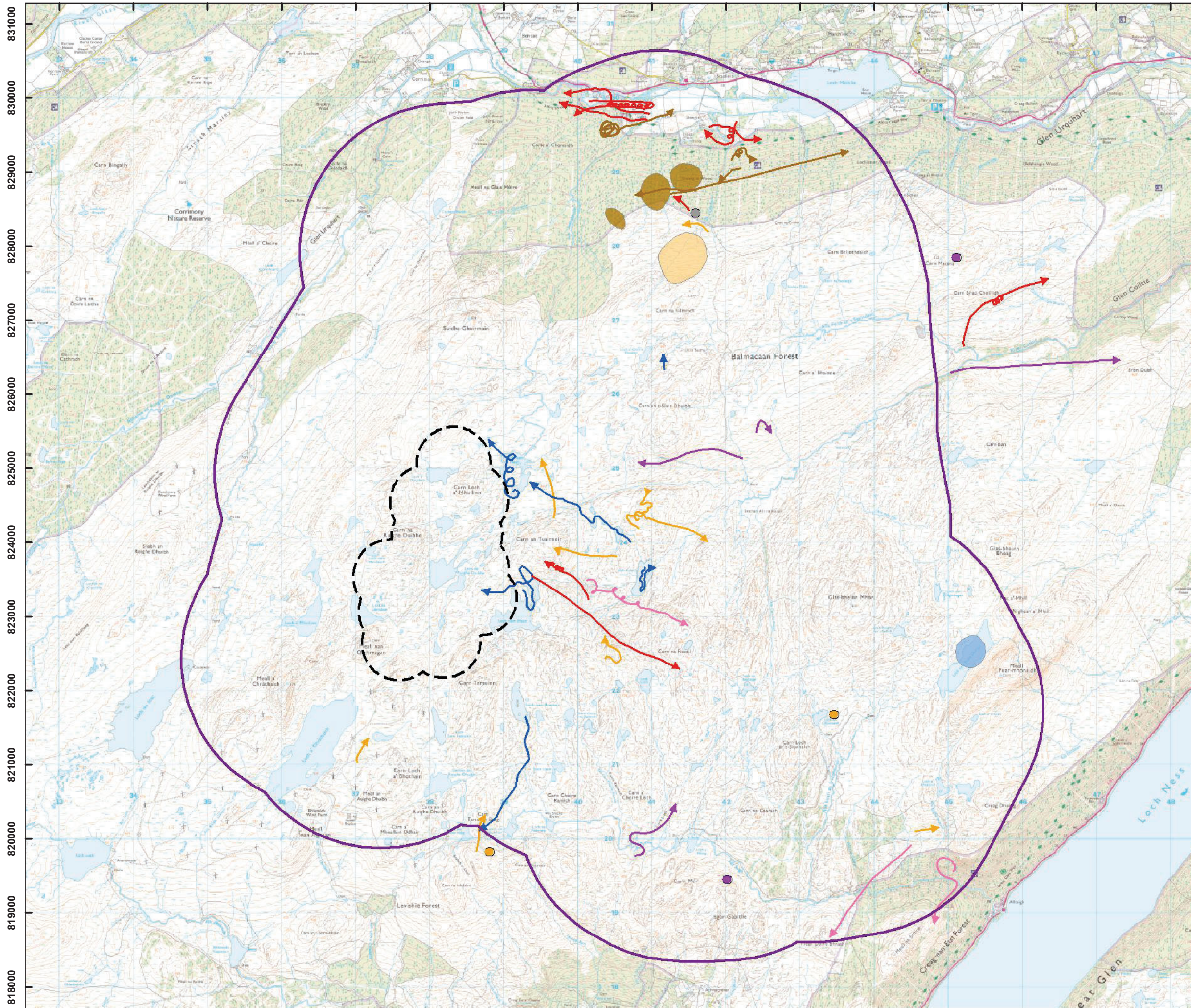



Figure 22
Other raptor flights September 2019 to August 2020

Loch Liath

233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000



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Key

- Flight activity survey area
- 2 km buffer of OSA

Flight lines

- Honey buzzard
- Merlin
- Osprey
- Peregrine
- Red kite
- White-tailed eagle

Flight areas

- Honey buzzard
- Merlin
- Osprey

Point records

- Goshawk
- Merlin
- Peregrine

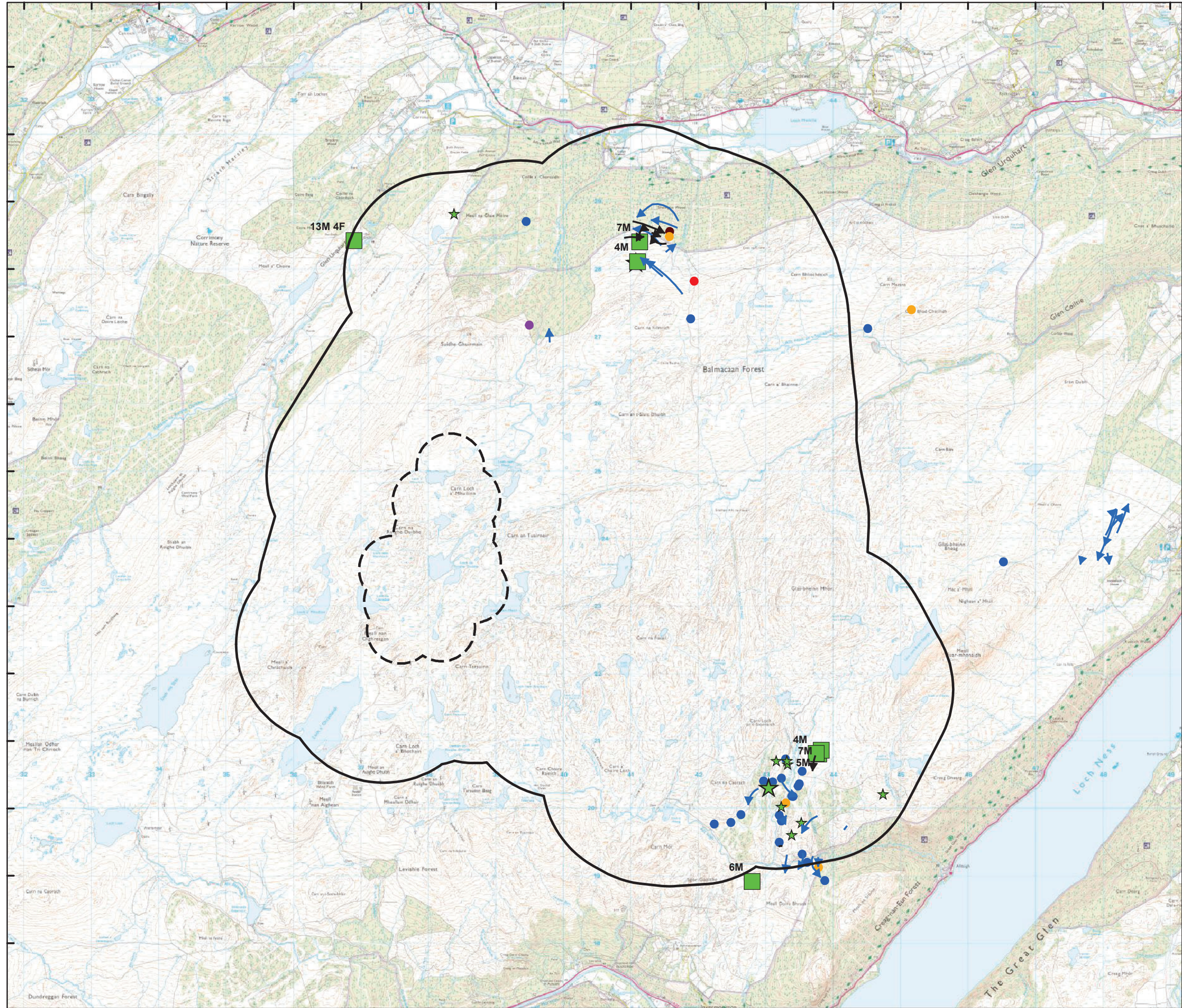
Date produced: 03/02/2023
Source: NRP LTD

Figure 23
Other raptor flights and observations September 2020 to August 2021

Loch Liath

232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000

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Key

1.5 km buffer of OSA

500m turbine buffer

Flight lines

GVP flight lines

Other flight lines

Lekking Males

Lek site 4-13 males

2 males

1 male

Other observations

1 bird

2 birds

3 birds

4 birds

9 & 10 birds

Date produced: 03/02/2023
Source: NRP LTD

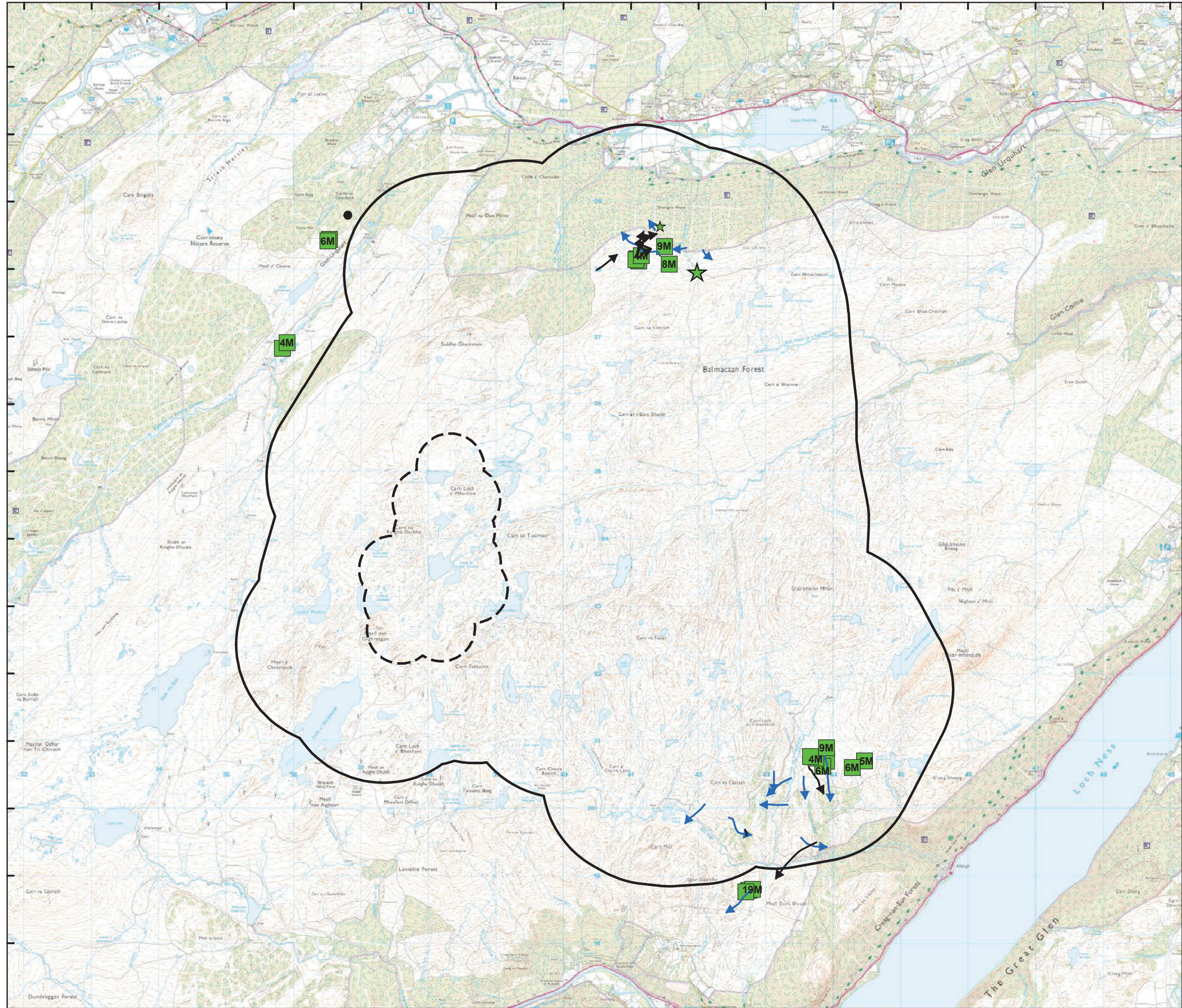


Figure 24
Black grouse flights and observations September 2019 to August 2020

Loch Liath

232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000

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821000
820000
819000
818000



Key

1.5 km buffer of OSA

500m turbine buffer

Flight lines

GVP flight lines

Other flight lines

Lekking males

Lek site 4-19 males

2 males

1 male

Other observations

Signs

Date produced: 03/02/2023
Source: NRP LTD



Figure 25
Black grouse flights and observations September 2020 to August 2021

Loch Liath