Technical Appendix 8.1: Ornithology Technical Report

2026

Glenouther Wind Farm

Technical Appendix 8.1

Ornithology Technical Report

Natural Research Projects
Brathens Business Park,
Hill of Brathens, Glassel,
Banchory
AB31 4BY

01330 826880

June 2026

Natural Research (Projects) Ltd. Company registered in Scotland: SC213640
Registered Office: 14 Carden Place, Aberdeen, AB10 1UR

Contents

GLENOUTHER WIND FARM

ORNITHOLOGY TECHNICAL REPORT

Introduction

1. This Technical Appendix relates to the Proposed Development as defined in **Chapter 4: Development Description** of the Glenouther Wind Farm Environmental Impact Assessment (EIA) Report. The baseline conditions for the Likely Grid Connection Route are drawn from desk-based sources only and the effects of the route (as defined in **Chapter 4**) on ornithology is assessed in **Chapter 8: Ornithology** of the EIA Report.

2. This Technical Appendix supports **Chapter 8** of the EIA Report and details the results of ornithological survey work undertaken by Natural Research (Projects) Ltd (NRP) on and around the Site of the proposed Glenouther Wind Farm ("the Proposed Development") during the period September 2023 to August 2025. Two breeding seasons and two non-breeding seasons of survey have been completed in accordance with relevant guidance, the results of which are presented within this report.

3. The objectives of the study were to:

    - Map the distributions of breeding and wintering 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) (Stanbury *et al*., 2021)[1] or the IUCN Red List of Threatened Species (IUCN, 2025)[2]) throughout the study period.

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

[2] IUCN. (2025). IUCN Red List of Threatened Species (ver. 2025-2). Available at: http://www.iucnredlist.org. (Accessed: August 2025).

Desk Study

4. A desk-based study was undertaken to collate existing bird records/data. Distribution and abundance data were collected from published sources. The following data sources have informed the assessment:

    - NatureScot Sitelink website (https://sitelink.nature.scot/);
    - The Birds of Scotland (Forrester *et al*., 2007)[3];
    - Scottish Raptor Monitoring Scheme Annual Reports[4];
    - Publicly available EIA documentation for the previous Glenouther Renewable Energy Park application (East Ayrshire Council ref 15/0584/PP) and Harelaw Wind Farm application (East Ayrshire Council ref 09/0001/S36) have been reviewed for existing information on target species within proximity to the Proposed Development, and
    - Relevant peer-reviewed literature.

5. Results from the desk-based study informed the field survey design.

6. The site of the Proposed Development is not covered by any statutory nature conservation designations for ornithological interests. The nearest European designated site for ornithological interests is the Muirkirk & North Lowther Uplands Special Protection Area (SPA) which lies approximately 15 km south-east. The Muirkirk & North Lowther Uplands SPA is classified for breeding hen harrier, merlin, peregrine, short-eared owl, golden plover, and wintering hen harrier. Due to the separation distance between the SPA and the Proposed Development it is unlikely to be adversely affected. The nearest nationally designated site for ornithological interests is the Castle Semple and Barr Lochs Site of Special Scientific Interest (SSSI) which lies approximately 14 km north-west. The Castle Semple and Barr Lochs SSSI is designated for its breeding bird assemblage. Due to the separation distance between the SSSI and the Proposed Development it is unlikely to be adversely affected.

Field Survey Methods

7. The baseline surveys detailed here commenced in September 2023. The Study Area was defined with reference to the Ornithology Study Area (OSA) boundary and encompasses a series of buffers of up to 2 km radius; with buffer size dependent on the sensitivity of key species to

[3] Forrester, R. W., Andrews, I. J., McInemy, C. J., Murray, R. D., McGowan, R. Y., Zonfrillo, B., Betts, M. W., Jardine, D. C. and Grundy, D. S. (eds). (2007). The Birds of Scotland. Scottish Ornithologists Club, Aberlady.
[4] Available at https://raptormonitoring.org/annual-report

potential effects associated with the Proposed Development (**Figure 1**). The various survey areas, which make up the Study Area, are defined as follows:

- 'OSA' refers to the area enclosed by the OSA boundary.
- 'moorland bird survey area', 'winter transect survey area' or 'core survey area' refers to the OSA plus an additional 500 m wide buffer around the OSA.
- 'black grouse survey area' refers to the OSA plus an additional 1.5 km wide buffer.
- 'scarce breeding bird survey area' refers to the OSA plus an additional 2 km wide buffer depending on the focal species and presence of contiguous suitable habitat outside of the core survey area.
- 'flight activity survey area' refers to OSA plus an additional 500 m strip around the OSA.

8. Field surveyors were Bob Stakim (RAS), Rhodri Evetts (RE), Alex Ash (AA), Dan Beadle (DWB), George Dunbar (GD), Malcolm Henderson (MH) and John Halliday (JH). 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 Surveys

9. Information on bird flight activity was collected during timed watches from strategic Vantage Points (VPs) using the methods described by Band *et al.* (2007)[5]. VPs were selected through a mix of GIS analysis and field trials, with the aim of maximising ground visibility within the OSA using the minimum number of points. A total of two VPs were used providing coverage of the OSA and associated 500 m buffer. Viewsheds from each VP are derived using a 20 m vertical cut-off and truncated horizontally at 2 km (**Figure 2**).

10. Observers at VPs 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 a single observer in a wide range of weather conditions, mainly in conditions of good ground visibility (> 2 km). Between September 2023 and August 2025, a total of 297 hours of Vantage Point watches were undertaken (**Tables 1** & **15**).

[5] 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.

Table 1. Summary of monthly Vantage Point observations. Data are hours of observation.

VP No.	2023				2024								Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
VP1	6.00	6.00	6.00	6.00	4.00	4.00	6.00	6.00	6.00	12.00	6.00	5.00	**73.00**
VP2	6.00	6.00	6.00	6.00	4.00	4.00	6.00	6.00	9.00	9.00	6.00	3.00	**71.00**
VP No.	**2024**				**2025**								**Total**
	Sep	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	
VP1	6.00	6.00	6.00	4.00	4.00	4.00	6.00	9.00	9.00	6.00	9.00	6.00	**75.00**
VP2	9.00	6.00	6.00	4.00	4.00	4.00	6.00	9.00	9.00	6.00	9.00	6.00	**78.00**
Grand Total	**27.00**	**24.00**	**24.00**	**20.00**	**16.00**	**16.00**	**24.00**	**30.00**	**33.00**	**33.00**	**30.00**	**20.00**	**297.00**

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

- Focal bird sampling - timed. The viewing arc was scanned constantly until a Target A Species[6] 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.
- Focal bird sampling – untimed. The same scanning procedure as described above was used. However, flights of Target B Species[4] 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*)[4] was summarised. Each GVP 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.

[6] 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.

12. Data were entered in the field onto recording sheets and later transferred to Microsoft 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.

Scarce Breeding Bird Surveys

13. Priority was given to detecting the species considered most likely to occur; osprey (*Pandion haliaetus*), hen harrier (*Circus cynaeus*) and merlin (*Falco columbarius*).

14. Due to the iterative nature of the study two further species were considered as possibly breeding within the Study Area: honey buzzard (*Pernis apivorus*) and hobby (*F. subbuteo*).

15. Surveys for scarce breeding birds focused on areas or sites suitable for nesting and foraging within the 2 km buffer of the OSA (**Figure 1**). Surveyors conducted 46 separate searches or watches during the survey period, totalling 193 hours, to search for scarce breeding species (**Table 2**). These visits complemented search effort accrued during GVP watches. Methods used for individual species are summarised below.

- Osprey (OP). Survey methods based on Hardey *et al*. (2013)[7] were followed. Checks were made in areas where mature trees were present for nests and watches made for birds carrying fish or exhibiting territorial behaviour.
- Goshawk (GI). Survey methods based on Hardey *et al*. (2013) were followed. Areas of potential habitat (particularly mature areas of woodland and forestry) were watched from suitable vantage points to observe adults displaying over the nest area and perched near the nest location. The calls of adults and juveniles were listened for, and searches carried out on foot where nesting was suspected to locate nests.
- Hen harrier (HH). Survey methods based on Hardey *et al.* (2013) 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.
- Merlin (ML). Survey methods based on Hardey *et al*. (2013) 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.

[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.

- Peregrine (PE). Survey methods based on Hardey *et al.* (2013) 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).
- Honey buzzard (HZ). Survey methods based on Hardey *et al.* (2013) were followed with watches undertaken over any extensive areas of mature woodland and forestry from May onwards for displaying birds once birds had potentially arrived back on territory. If adults were observed, then watches were undertaken to pinpoint a nest with adults carrying food into woodland indicating that a nest was present. In the event that a potential nest site was located, visits to the nest would take place in late July to ascertain occupancy.
- Hobby (HY). Survey methods based on Hardey *et al.* (2013) 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.

Table 2. Details of Scarce Breeding Bird surveys, 2024 and 2025.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
16/04/2024	0630	1500	8.50	AA	3	1000	W	3	nil	20
25/04/2024	0900	1200	3.00	AA	2	1000	E	2	nil	20
25/04/2024	1505	1805	3.00	AA	5	1000	E	3	nil	20
26/04/2024	1115	1415	3.00	AA	3	1000	NE	2	nil	20
30/04/2024	0720	1320	6.00	AA	10	100	SE	3	ILR	20
01/05/2024	0740	1340	6.00	AA	6	1000	E	2	nil	20
13/05/2024	0700	1200	5.00	AA	10	1000	SE	2	nil	20
16/05/2024	0715	1015	3.00	AA	10	1000	SE	3	nil	20
03/06/2024	1130	1530	4.00	RE	4	1500	W	4	nil	5
04/06/2024	1330	1630	3.00	RE	7	700	WNW	6	IHR	3
05/06/2024	1305	1705	4.00	RE	8	600	W	6	IHR	3
06/06/2024	1150	1550	4.00	RE	8	800	W	5	IHH	3
07/06/2024	1250	1550	3.00	RE	7	800	W	6	nil	3
11/06/2024	1700	1830	1.50	AA	10	1000	N	3	nil	20
19/06/2024	1020	1320	3.00	AA	6	1000	SW	3	nil	20
17/07/2024	1345	1645	3.00	AA	8	1000	SW	2	nil	20
26/07/2024	0815	1715	9.00	AA	6	1000	SW	4	ILR	20
29/07/2024	0910	1210	3.00	RE	9	700	SW	4	nil	5
30/07/2024	0955	1155	2.00	RE	9	800	W	3	nil	5
30/07/2024	1630	1730	1.00	DWB	3	1500	W	3	nil	5
01/08/2024	1315	1415	1.00	DWB	7	800	SW	2	nil	5
02/08/2024	1215	1515	3.00	RE	10	1000	S	4	nil	3
30/08/2024	0740	1640	9.00	AA	8	1000	W	2	nil	20
01/04/2025	1305	1505	2.00	RE	2	3000	SE	3	nil	5
02/04/2025	0905	1635	7.50	RE	0	-	SE	3	nil	5
03/04/2025	0920	1550	6.50	GD	3	1000	E	4	nil	5
03/04/2025	1150	1250	1.00	RE	3	800	ENE	4	nil	5
04/04/2025	0900	1030	1.50	GD	3	1000	E	4	nil	5
04/04/2025	1130	1700	5.50	RE	1	1500	ENE	5	nil	5

Table 2. Details of Scarce Breeding Bird surveys, 2024 and 2025.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
06/05/2025	0750	1250	5.00	AA	3	100	SE	3	nil	20
28/05/2025	1045	1345	3.00	AA	5	1000	SW	3	IHR	20
29/05/2025	1210	1810	6.00	AA	10	800	SW	3	IHR	20
30/05/2025	0745	1445	7.00	AA	10	600	W	4	ILR	20
11/06/2025	1020	1520	5.00	AA	3	1000	S	3	nil	20
13/06/2025	0430	0730	3.00	AA	5	1000	S	2	nil	20
19/06/2025	0850	1450	6.00	AA	4	1000	S	2	nil	20
27/06/2025	0750	1350	6.00	AA	10	800	S	3	ILR	20
02/07/2025	0800	1500	7.00	AA	10	1000	W	2	ILR	20
02/07/2025	1500	1600	1.00	RE	8	900	W	4	ILR	4
03/07/2025	1440	1540	1.00	RE	10	800	SW	5	ILR	2
21/07/2025	1150	1750	6.00	RE	9	500	WSW	3	ILR	4
22/07/2025	1525	1725	2.00	RE	10	600	WSW	3	nil	5
23/07/2025	0840	1340	5.00	RE	9	900	NW	3	nil	5
24/07/2025	1205	1505	3.00	RE	10	600	W	2	ILF	3
23/08/2025	0650	1250	6.00	AA	10	1000	E	2	nil	20
30/08/2025	0630	1230	6.00	AA	10	500	SW	2	nil	20
Total			**193.00**							

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

Moorland Bird Surveys

16. Surveys were completed using a four-visit adapted Brown & Shepherd (1993)[8] method for upland waders. These visits were completed within the 500 m survey boundary (**Figure 1**) between April and July to allow for differences in detection rate between early and late breeding species for a total of over 123 hours. Selected bird species were surveyed, namely those included on Annex 1 of the Birds Directive, Schedule 1 of the WCA, Red-listed BoCC and those listed on the UK and local BAPs together with selected other species.

17. Fieldwork was not undertaken in conditions considered likely to affect bird detection, for example, strong winds (greater than Beaufort Force 5), persistent precipitation, poor visibility (less than 500 m) or in unusually hot or cold temperatures (**Table 3**).

18. The survey aimed to cover the ground systematically with a constant search effort. All points within the survey areas were approached closely typically to within 100 m. Patches of scrub, isolated trees, rocky outcrops and streams were investigated closely, and surveyors paused at regular intervals to scan and listen for calling and singing birds. Careful attention was given to recording behaviour indicative of breeding with care taken to avoid counting the same individual more than once.

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

19. The location and activity of birds were mapped onto enlarged 1:25,000 scale OS maps using standard BTO codes (Marchant, 1983)[9]. The position of each bird was mapped at the point of first detection and flight lines recorded. At the end of each visit, a summary map was compiled showing the locations of each identified territory or breeding pair. The following evidence was considered diagnostic of breeding: song, courtship or territorial display; territorial dispute; nest building and hole excavation; agitated behaviour by adult bird(s) indicative of the presence of a nearby nest or young (e.g. repetitive alarm calling, distraction display); adult(s) carrying food; presence of newly fledged young; adult(s) removing faecal sac.

20. Where a number of breeding individuals were present and it was not possible to determine the exact number of breeding pairs, a method was devised to allow the number of discrete territories to be estimated. Registrations of individual birds were deemed to represent discrete breeding territories / pairs if the distance between them was more than 250 m (500 m for curlew, 200 m for small passerines). Whilst it is recognised that these distances are arbitrary and the territory size varies both inter- and intra- specifically, this approach produces a standardised index of abundance based on the distance that members of a breeding pair are likely to move during the survey period. In cases where two individuals were considered to constitute a pair of birds, the location of the pair was placed centrally by convention.

Table 3. Details of Moorland Bird Surveys, 2024 and 2025.

Visit No.	Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
1	24/04/2024	1440	1740	3.00	AA	1	1000	SW	2	nil	20
	25/04/2024	1205	1500	2.92	AA	4	1000	SE	2	nil	20
	26/04/2024	0810	1110	3.00	AA	4	1000	NE	2	nil	20
	28/04/2024	0620	1220	6.00	AA	8	1000	S	3	ILR	20
	30/04/2024	1340	1640	3.00	AA	10	1000	SE	3	nil	20
2	28/05/2024	0710	1310	6.00	AA	10	1000	E	3	IHR	20
	29/05/2024	1545	1845	3.00	AA	6	1000	NW	3	nil	20
	30/05/2024	0905	1505	6.00	AA	7	1000	N	4	nil	20
3	11/06/2024	1050	1650	6.00	AA	8	1000	N	3	nil	20
	18/06/2024	0635	1535	9.00	AA	7	1000	N	2	nil	20
4	18/07/2024	0855	1755	9.00	AA	10	1000	SW	3	ILR	20
	31/07/2024	0940	1225	2.75	DWB	1	3000	NNW	1	nil	5
1	31/03/2025	1045	1430	3.75	GD	4	1000	SE	3	nil	5
	01/04/2025	0920	1150	2.50	GD	3	1000	SE	3	nil	5
	01/04/2025	0900	1300	4.00	RE	1	3000	SE	3	nil	5
2	07/05/2025	0755	1355	6.00	AA	5	1000	SE	2	nil	20
	09/05/2025	0855	1455	6.00	AA	0	-	SE	3	nil	20
	16/05/2025	0815	1415	6.00	AA	0	-	N	1	nil	20
3	18/06/2025	1250	1850	6.00	AA	10	800	SW	2	ILR	20
	20/06/2025	1130	1730	6.00	AA	3	1000	S	2	nil	20

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

Table 3. Details of Moorland Bird Surveys, 2024 and 2025.

Visit No.	Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
	25/06/2025	0810	1410	6.00	AA	10	600	S	2	ILR	20
4	01/07/2025	0840	1440	6.00	RE	8	1200	N	3	nil	5
	02/07/2025	0900	1500	6.00	RE	10	800	W	3	IHR	3
	03/07/2025	0835	1435	6.00	RE	10	700	SW	4	IHR	2
Total				**123.92**							

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

Winter Transect Surveys

21. Walk-over surveys were undertaken between September 2023 to March 2024 and September 2024 to March 2025 and occurred within the 500 m buffer of the Site (**Figure 1**). 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 OSA. Observers frequently paused to scan for birds.

22. Forty-five hours of winter transects were undertaken. A range of meteorological conditions were sampled, although wind speeds above Beaufort F5 were generally avoided to improve aural detection of species (**Table 4**).

23. 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 the location they were first detected was plotted on the map.

Table 4. Details of Winter Transect Surveys, 2023/24 and 2024/25.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
20/09/2023	1230	1430	2.00	MH	10	1000	SW	5	nil	10
21/09/2023	0830	0900	0.50	JH	10	500	SW	4	nil	8
21/09/2023	1200	1230	0.50	JH	9	800	SW	5	nil	10
18/10/2023	1255	1555	3.00	RE	9	800	E	5	nil	4
17/11/2023	1130	1430	3.00	RE	10	700	nil	0	nil	4
11/12/2023	1115	1415	3.00	RE	6	1500	NW	2	nil	5
28/12/2023	1340	1540	2.00	AA	10	800	SW	5	ILR	20
29/12/2023	1245	1345	1.00	AA	10	1000	W	2	nil	20
25/01/2024	1145	1445	3.00	RAS	10	600	SW	3	nil	4

Table 4. Details of Winter Transect Surveys, 2023/24 and 2024/25.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
09/02/2024	0930	1230	3.00	RAS	8	700	E	5	nil	5
18/03/2024	0900	1200	3.00	RAS	6	700	SW	3	nil	5
22/09/2024	1200	1400	2.00	MH	10	800	NE	4	nil	10
25/09/2024	0800	0830	0.50	MH	0	-	nil	0	nil	10
25/09/2024	1130	1200	0.50	MH	2	1000	W	2	nil	10
03/10/2024	1130	1330	2.00	MH	6	1000	E	3	nil	10
08/10/2024	0745	0815	0.50	MH	10	800	E	3	nil	10
08/10/2024	0845	0915	0.50	MH	10	800	E	3	nil	10
07/11/2024	0830	1130	3.00	MH	10	800	S	3	nil	10
12/12/2024	0845	1115	2.50	MH	10	800	SW	1	nil	8
12/12/2024	1215	1245	0.50	MH	10	800	SW	1	nil	8
10/01/2025	0815	1115	3.00	MH	0	-	E	1	nil	10
13/02/2025	0830	0900	0.50	MH	8	1000	E	2	nil	10
13/02/2025	1000	1130	1.50	MH	8	1000	E	2	nil	10
13/02/2025	1145	1245	1.00	MH	10	1000	E	3	nil	10
18/03/2025	1020	1320	3.00	AA	1	1000	E	2	nil	20
Total			**45.00**							

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

Wintering Wildfowl Counts

24. Surveyors conducted 42 separate counts during the study period to record wintering wildfowl on Corsehouse Reservoir (**Figure 1**). The time, species and number of any birds observed was recorded and the location marked on a 1:25,000 scale OS map. Surveys took place between September 2023 to March 2024 and September 2024 to March 2025, for a total of 43 hours (**Table 5**).

Table 5. Details of Winter Wildfowl Counts, 2023/24 and 2024/25.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
20/09/2023	0900	0930	0.50	JH	6	800	SW	6	nil	8
20/09/2023	1230	1400	1.50	JH	10	600	SW	6	IHR	8
21/09/2023	0830	0900	0.50	MH	10	1000	W	4	nil	10
21/09/2023	1200	1230	0.50	MH	10	1000	W	5	nil	10
19/10/2023	1240	1410	1.50	RE	10	500	ENE	5	ILR	3
20/10/2023	0925	1055	1.50	RE	10	400	ENE	7	ILR	2
12/11/2023	1200	1300	1.00	RE	4	1500	NE	3	nil	5
17/11/2023	1000	1100	1.00	RE	10	600	S	2	nil	4
29/11/2023	1500	1600	1.00	RAS	3	900	N	2	nil	4
01/12/2023	1115	1215	1.00	RAS	6	900	E	2	nil	4
11/12/2023	1010	1110	1.00	RE	9	1500	N	1	nil	5
28/12/2023	1155	1255	1.00	AA	10	800	SW	5	ILR	20
29/12/2023	1420	1520	1.00	AA	10	1000	W	2	nil	20
22/01/2024	0930	1030	1.00	RAS	8	600	WSW	5	ILR	5
24/01/2024	1400	1500	1.00	RAS	8	800	W	4	nil	4
25/01/2024	1045	1145	1.00	RAS	10	500	S	4	CLR	1
05/02/2024	1345	1445	1.00	RAS	10	500	WSW	5	IHR	4
06/02/2024	0910	1010	1.00	RAS	7	1000	W	6	nil	5
09/02/2024	1310	1410	1.00	RAS	8	700	E	6	nil	5
18/03/2024	1540	1640	1.00	RAS	10	500	S	4	nil	4
19/03/2024	1150	1250	1.00	RAS	7	700	W	4	nil	5
21/03/2024	0930	1030	1.00	RAS	10	400	SW	5	CLR	1
22/09/2024	1100	1200	1.00	MH	10	800	NE	4	nil	10
23/09/2024	1115	1215	1.00	MH	10	600	NE	2	CLF	4
25/09/2024	1215	1315	1.00	MH	2	1000	W	2	nil	10

Table 5. Details of Winter Wildfowl Counts, 2023/24 and 2024/25.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
03/10/2024	1330	1430	1.00	MH	5	1000	E	3	nil	10
07/10/2024	1130	1230	1.00	MH	10	1000	SE	1	nil	10
08/10/2024	0815	0845	0.50	MH	10	800	E	3	nil	10
08/10/2024	0915	0945	0.50	MH	10	800	E	3	nil	10
04/11/2024	0830	0930	1.00	MH	10	400	SW	1	CLR	5
07/11/2024	0730	0830	1.00	MH	10	800	S	3	nil	10
07/11/2024	1130	1230	1.00	MH	10	800	S	3	nil	10
06/12/2024	1315	1415	1.00	MH	10	1000	SW	2	nil	10
11/12/2024	1045	1145	1.00	MH	10	400	W	1	CLF	1
12/12/2024	1115	1215	1.00	MH	10	800	SW	1	nil	8
10/01/2025	1115	1145	0.50	MH	0	-	E	1	nil	10
16/01/2025	0830	0930	1.00	MH	2	1000	SW	3	nil	10
17/01/2025	1100	1230	1.50	MH	10	800	S	4	ILR	8
06/02/2025	1315	1415	1.00	MH	0	-	SW	3	nil	10
13/02/2025	0900	1000	1.00	MH	8	1000	E	2	nil	10
17/02/2025	1200	1300	1.00	MH	10	1000	E	3	nil	10
19/03/2025	1030	1330	3.00	AA	3	1000	E	2	nil	20
Total			**43.00**							

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

Black Grouse

25. Searches for black grouse (*Lyrurus 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 in 2024 and 2025. The methods employed were based on those described in Gilbert *et al.* (1998)[10]. 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, 32 hours was spent searching for black grouse (**Table 6**).

Table 6. Details of black grouse lek surveys, 2024 and 2025.

Date	Start time	End time	Duration (hrs)	Observer	Cloud (10^{ths})	Cloud base (m)	Wind direction	Wind force	Precip*	Visibility (km)
26/04/2024	0505	0805	3.00	AA	2	1000	NE	1	nil	20
29/04/2024	0530	0800	2.50	RAS	8	700	S	2	nil	4
30/04/2024	0530	0800	2.50	RAS	10	500	ESE	2	ILR	4
01/05/2024	0436	0736	3.00	AA	8	1000	E	1	nil	20
16/05/2024	0410	0710	3.00	AA	10	1000	SE	3	nil	20
17/05/2024	0415	0715	3.00	AA	3	1000	E	3	nil	20
01/04/2025	0550	0850	3.00	RE	0	-	SE	2	nil	4
01/04/2025	0600	0900	3.00	GD	3	1000	SE	2	nil	5
04/04/2025	0600	0900	3.00	GD	3	1000	E	3	nil	5
06/05/2025	0445	0745	3.00	AA	1	1000	E	2	nil	20
07/05/2025	0450	0750	3.00	AA	10	800	E	2	nil	20
Total			**32.00**							

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

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

Field Survey Results

26. Observed flight activity, timings and heights refer to all flights observed in the field from all VPs. It should be noted that flight activity and timings will reduce, due to clipping flights to the 200 m flight activity assessment area (FAAA) and viewshed, from that recorded in the field when it comes to analysing these data in a Collision Risk Model (CRM) – see **Technical Appendix 8.2: Collision Risk Modelling**.

Wildfowl

Occurrence and status

27. One species of conservation concern was recorded during the study period: **whooper swan** (*Cygnus cygnus*). Other wildfowl species recorded of lesser conservation concern included British greylag goose (*Anser anser*), pink-footed goose (*Anser brachyrhynchus*), Canada goose (*Branta canadensis*), goosander (*Mergus merganser*), goldeneye (*Bucephala clangula*), mallard (*Anas platyrhynchos*), teal (*A. crecca*) and tufted duck (*Aythya fuligula*) (**Tables 7**, **14** & **16** - **19**; **Figures 3** & **4**).

28. One flight by **whooper swan** (Annex 1 and Schedule 1) was recorded during the study period, involving two adult birds (**Figure 3**).

Flight activity recorded from Vantage Points

29. One flight by **whooper swan** was recorded involving two individuals for a total duration of 129 seconds. The entire flight was less than 50 m above ground level (**Table 7**; **Figure 3**).

Table 7. Details of whooper swan flights recorded from Vantage Points.

Period	VP No.	No. of flights	No. of birds	Total fly time (s)	Adjusted fly time (s)	Time in height class (s)					
						<20m	20-50m	50-100m	100-150m	150-200m	>200m
Sep-Mar	VP1	1	2	129	258	194	64				
Total		**1**	**2**	**129**	**258**	**194**	**64**				

30. Twenty-eight flights by British greylag geese, involving a total of 208 birds, were recorded from VPs (**Figure 3**).

31. Five flights by pink-footed geese, involving a total of 313 birds, were recorded from VPs (**Figure 3**).

Waders

Occurrence and status

32. Three species of wader of conservation concern were recorded during the study period: **curlew** (*Numenius arquata*), **lapwing** (*Vanellus vanellus*) and **woodcock** (*Scolopax rusticola*). Species of lesser conservation concern that were recorded included snipe (*Gallinago gallinago*), jack snipe (*Lymnocryptes minimus*), common sandpiper (*Actitis hypoleucos*) and oystercatcher (*Haematopus ostralegus*) (**Tables 8**-**10**, **13**, **14** & **16** - **19**; **Figures 7** - **10**).

33. **Curlew** (BoCC Red list, IUCN Red List of Threatened Species) were generally recorded during the breeding season, with one observation of a flight by 14 curlews in March 2024 and ten curlews were seen feeding in a field made in March 2025. One probable territory was located within the Study Area in 2024 (**Tables 8**, **13**, **14** & **16** - **18**; **Figures 7** - **9**).

34. **Lapwing** (BoCC Red list) was recorded twice during the breeding season, involving single birds, and no breeding within the Study Area was suspected. A further three observations of lapwing were made, all during the non-breeding season (**Tables 9**, **14**, **17** & **18**; **Figures 7** & **8**).

35. **Woodcock** (BoCC Red list) or their signs were recorded on ten occasions during the study period. Seven birds were flushed during the course of winter transects and a recently plucked woodcock was located on Glenouther Moor. Two flights were recorded from VPs (**Tables 10**, **14** & **19**; **Figures 7** & **8**).

Flight activity recorded from Vantage Points

36. Ten flights by **curlew**, involving a total of 24 birds, were recorded from VPs during the study period for a total duration, adjusted for the number of individuals, of 1,522 seconds. Flight heights varied between less than 20 m to 150-200 m in height (**Table 8**; **Figure 7**).

Table 8. Details of curlew flights recorded from VPs.

Period	VP No.	No of flights	No of birds	Total fly time (s)	Number adjusted total (s)	Time in height class (s)					
						<20m	20-50m	50-100m	100-150m	150-200m	>200m
Sep-Mar	VP1	1	14	65	910		910				
Apr-Aug	VP1	5	5	315	315	109	110			96	
	VP2	4	5	232	297	181	116				
Total		**10**	**24**	**612**	**1522**	**290**	**1136**			**96**	

37. A single flight by **lapwing**, involving four birds, was recorded from VPs during the study period. Flight heights varied between 20-50 m and 50-100 m in height (**Table 9**; **Figure 7**).

Table 9. Details of lapwing flights recorded from Vantage Points.

Period	VP No.	No of flights	No of birds	Height class					
				<20m	20-50m	50-100m	100-150m	150-200m	>200m
Sep-Mar	VP1	1	4		*	*			
Total		**1**	**4**		*	*			

38. Two flights by **woodcock** were recorded from VPs during the study period. Flight heights did not exceed 20 m above ground level (**Table 10**; **Figure 7**)

Table 10. Details of woodcock flights recorded from Vantage Points.

Period	VP No.	No of flights	No of birds	Height class					
				<20m	20-50m	50-100m	100-150m	150-200m	>200m
Sep-Mar	VP1	2	2	*					
Total		**2**	**2**	*					

Scarce Breeding Birds

Occurrence and status

39. Four species of scarce raptor were recorded during surveys, of which two are reported here: **osprey** and **hen harrier**. Two further species are reported upon in **Technical Appendix 8.3: Confidential Ornithology**. Other raptor species of lesser conservation concern were also recorded, including common buzzard (*Buteo buteo*), sparrowhawk (*Accipiter nisus*) and common kestrel (*Falco tinnunculus*). One owl species was also recorded, long-eared owl (*Asio otus*) (**Confidential Appendix 8.2**; **Tables 11**, **12**, **14** & **16**-**20**; **Figures 5** & **6**).

40. **Osprey** (Annex 1 and Schedule 1) was observed on 21 occasions during the study period. There was no evidence of breeding despite extensive searches in potential breeding habitat within 2 km of the OSA (**Tables 11**, **14**, **16**, **17** & **20**; **Figures 5** & **6**).

41. **Hen harrier** (Annex 1 and Schedule 1) was recorded on seven occasions during the study period. There was no evidence of breeding despite extensive searches in potential breeding habitat within 2 km of the OSA (**Tables 12**, **14** & **16**; **Figures 5** & **6**).

Flight activity recorded from Vantage Points

42. Eight flights by **osprey** were recorded from VPs during the study period for a total duration of 1,865 seconds. Flight heights varied between less than 20 m and greater than 200 m above ground level (**Table 11**; **Figure 5**).

Table 11. Details of osprey flights recorded from Vantage Points.

Period	VP 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	VP1	6	6	1148	325	611	212			
	VP2	2	2	717				105	270	342
Total		**8**	**8**	**1865**	**325**	**611**	**212**	**105**	**270**	**342**

43. Two flights by **hen harrier** were recorded from VPs during the study period for a total duration of 161 seconds. The first flight was less than 20 m above ground level and the second was recorded between 100m to 150m above ground level (**Table 12**; **Figure 5**).

Table 12. Details of hen harrier flights recorded from Vantage Points.

Period	VP 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	VP2	2	2	161	59			102		
Total		**2**	**2**	**161**	**59**			**102**		

Black Grouse

Occurrence and status

44. No **black grouse** or signs of black grouse were recorded during any survey during the study period.

Moorland Birds

Occurrence and Status

45. Confirmed breeding species of conservation interest recorded within the 500 m buffer of the OSA include common crossbill (*Loxia curvirostra*), skylark (*Alauda arvensis*), cuckoo (*Cuculus canorus*) and grasshopper warbler (*Locustella naevia*). Common crossbill is listed on Schedule 1 of the WCA, and all other species are BoCC Red-listed and considered of conservation concern (**Table 13**; **Figures 9** & **10**).

46. Other species of conservation interest probably breeding within the 500 m of the OSA include curlew. Curlew is BoCC Red-listed and is listed on the IUCN Red List of Threatened Species and is considered of conservation concern (**Table 13**; **Figure 9**).

Relative Abundance

47. In 2024, one curlew territory was identified, but breeding was not confirmed. Two oystercatcher territories were identified, one of which was confirmed as breeding and included a record of an adult with chicks. Skylark were observed across the OSA, in relatively low densities. Approximately 15 breeding territories were recorded in 2024, which equates to a breeding density of 2.09 pairs per km^2. Eight grasshopper warbler territories and two common crossbill territories were also recorded (**Table 13**; **Figure 9**).

48. In 2025, there was no evidence of breeding curlew. Two oystercatcher territories were identified and up to four pairs of common sandpipers are likely to have bred. Breeding numbers of skylark and grasshopper warbler remained similar to 2024, with increases in the number of breeding reed bunting, sedge warbler and stonechat (**Table 13**; **Figure 10**)

Table 13. Breeding bird territories, 2024 and 2025.

Year	Species	Confirmed	Probable
2024	Common sandpiper	-	1
	Common crossbill	1	1
	Cuckoo	1	3
	Curlew	-	1
	Grasshopper warbler	3	5
	Oystercatcher	1	1
	Reed bunting	3	3
	Sedge warbler	3	-
	Skylark	15	-
	Snipe	-	1
	Stonechat	2	1
	Wheatear	1	1
	Willow warbler	1	5
2025	Common sandpiper	1	3
	Cuckoo	-	4
	Grasshopper warbler	-	7
	Mistle thrush	-	1
	Oystercatcher	1	1
	Redpoll	1	2
	Reed bunting	6	5
	Sedge warbler	4	8
	Skylark	15	-
	Snipe	1	1
	Stonechat	8	3

Other Species

49. Species with high rates of occurrence recorded during flight activity surveys included buzzard, kestrel, raven (*Corvus corax*), house martin (*Delichon urbicum*), swift (*Apus apus*), lesser black-backed gull (*Larus fuscus*) and herring gull (*Larus argentatus*). All these species are common and distributed throughout Scotland, although swift and herring gull are BoCC Red-listed due to a declining population (**Table 14**).

50. A notable record for East Ayrshire was a singing marsh tit (*Poecile palustris*) recorded during a winter transect on 18 March 2025 (**Table 19**).

Table 14. The percentage of five-minute recording periods in which each species was encountered during watches from all GVPs during the study period. Total number of 5-minute recording intervals was 3,564.

Species	No. of 5-minute periods recorded	Occurrence (%)
Buzzard	295	8.277
Kestrel	239	6.706
Raven	136	3.816
House martin	93	2.609
Swift	80	2.245
Lesser black-backed gull	76	2.132
Cormorant	66	1.852
Black-headed gull	56	1.571
Greylag goose	35	0.982
Herring gull	30	0.842
Sparrowhawk	23	0.645
Grey heron	23	0.645
Common gull	19	0.533
Oystercatcher	19	0.533
Mallard	16	0.449
Sand martin	16	0.449
Canada goose	14	0.393
Osprey	12	0.337
Swallow	11	0.309
Starling	11	0.309
Great black-backed gull	10	0.281
Curlew	10	0.281
Cuckoo	7	0.196
Goosander	6	0.168
Pink-footed goose	5	0.140
Lapwing	4	0.112
Thrush spp.	4	0.112
Snipe	2	0.056
Hen harrier	2	0.056
Jackdaw	2	0.056
Woodcock	2	0.056
Whooper swan	1	0.028
Birds listed in Annex 1 of the Birds Directive or Schedule 1 of the WCA are shown in **bold**.		

Tables 15-20

Table 15. Spatial and temporal spread of GVP watches, September 2023 to August 2025

Date	GVP1	GVP2	Grand Total
20/09/2023	3.00	3.00	6.00
21/09/2023	3.00	3.00	6.00
17/10/2023	3.00	3.00	6.00
18/10/2023		3.00	3.00
19/10/2023	3.00		3.00
12/11/2023	3.00	3.00	6.00
29/11/2023	3.00	3.00	6.00
01/12/2023	3.00	3.00	6.00
28/12/2023	3.00		3.00
29/12/2023		3.00	3.00
22/01/2024	2.00	2.00	4.00
24/01/2024	2.00	2.00	4.00
05/02/2024	2.00	2.00	4.00
06/02/2024	2.00	2.00	4.00
18/03/2024		3.00	3.00
19/03/2024	3.00	3.00	6.00
21/03/2024	3.00		3.00
29/04/2024	3.00	3.00	6.00
30/04/2024	3.00	3.00	6.00
15/05/2024	3.00		3.00
16/05/2024	3.00		3.00
17/05/2024		6.00	6.00
28/05/2024		3.00	3.00
03/06/2024	3.00		3.00
04/06/2024		3.00	3.00
05/06/2024	3.00		3.00
06/06/2024		3.00	3.00
07/06/2024	3.00		3.00
11/06/2024		3.00	3.00
19/06/2024	3.00		3.00
17/07/2024	6.00		6.00
29/07/2024		3.00	3.00
31/07/2024		3.00	3.00
01/08/2024	2.00	3.00	5.00
02/08/2024	3.00		3.00
01/09/2024		3.00	3.00
22/09/2024	3.00		3.00
23/09/2024	3.00	3.00	6.00
25/09/2024		3.00	3.00
03/10/2024		3.00	3.00
07/10/2024	3.00	3.00	6.00
08/10/2024	3.00		3.00
04/11/2024	3.00	3.00	6.00
08/11/2024	3.00	3.00	6.00
06/12/2024	2.00	2.00	4.00
11/12/2024	2.00	2.00	4.00
10/01/2025	2.00		2.00
16/01/2025	2.00	2.00	4.00
17/01/2025		2.00	2.00
06/02/2025	2.00	2.00	4.00
13/02/2025	2.00		2.00
17/02/2025		2.00	2.00
18/03/2025	3.00	3.00	6.00
19/03/2025	3.00		3.00
20/03/2025		3.00	3.00
01/04/2025		3.00	3.00

Table 15. Spatial and temporal spread of GVP watches, September 2023 to August 2025

Date	GVP1	GVP2	Grand Total
02/04/2025	3.00	3.00	6.00
03/04/2025	3.00	3.00	6.00
04/04/2025	3.00		3.00
08/05/2025	3.00		3.00
09/05/2025		3.00	3.00
16/05/2025	3.00		3.00
28/05/2025		6.00	6.00
29/05/2025	3.00		3.00
11/06/2025	3.00		3.00
19/06/2025		3.00	3.00
20/06/2025		3.00	3.00
25/06/2025	3.00		3.00
07/07/2025	3.00		3.00
21/07/2025	3.00		3.00
22/07/2025	3.00	3.00	6.00
23/07/2025		3.00	3.00
24/07/2025		3.00	3.00
18/08/2025	3.00	3.00	6.00
19/08/2025	3.00	3.00	6.00
Grand Total	**148.00**	**149.00**	**297.00**

Table 16. Results of Scarce Breeding Bird Surveys, 2024 and 2025.

Date	Time	Species	Number	Sex	Age	Behaviour	Signs	Comments
16/04/2024	1021	Pink-footed goose	100			Flying		
25/04/2024	1150	Pink-footed goose	6			Flying		
07/06/2024	1548	Osprey	1	M?	A	Flying		
30/08/2024	1321	Hen harrier	1	F?	JUV	Flying		Hunting then landed on post
30/08/2024	1351	Hen harrier	1	F?	JUV	Flying		
30/08/2024	1412	Hen harrier	1	F	JUV	Hunt/feed		Landed on post
30/08/2024	1450	Hen harrier	1	F	JUV	Hunt/feed		Landed on post
30/08/2024	1511	Hen harrier	1	F	JUV	Hunt/feed		
30/08/2024	1540	Osprey	1			Flying		
03/04/2025	1248	Curlew	1	M	A	Flying, Vocalise, Sing, Territorial		
04/04/2025	1534	Curlew	1	F	A	Flying, Vocalise, Territorial		
06/05/2025	1235	Long-eared owl	0				Feathers	Several feathers - road kill
30/05/2025	0830	Raven	0				Nest with young	2 fledged young next to nest
11/06/2025	1020	Osprey	1	M	A	Perch		Perched in tree, missing most of tail.
11/06/2025	1045	Osprey	1	M	A	Flying, Hunt/feed, Perch		Hunting then back to perch. Same as 1020.
11/06/2025	1051	Osprey	1	M	A	Flying		
19/06/2025	1400	Kestrel	2	MF	A	Agitated/alarm, Territorial, Vocalise		
24/07/2025	1409	Buzzard					Nest with young	At least 2 large young
23/08/2025	1055	Osprey	1		A?	Hunt/feed		Bird fishing at Harelaw Reservoir - out of survey area - no map
30/08/2025	0724	Osprey	1			Hunt/feed		Carrying fish, landed out of sight
30/08/2025	0843	Osprey	1			Flying		
30/08/2025	1012	Osprey	1			Flying, Perch		

Table 17. Results of Moorland Birds Surveys, 2024 and 2025.

Date	Time	Species	Number	Sex	Age	Behaviour	Comments
24/04/2024	1735	Curlew	1		A	Display	
24/04/2024	1735	Curlew	1		A	Vocalise	Heard only
26/04/2024	0923	Curlew	1		A	Display	
26/04/2024	0942	Greylag goose	3		3A	Flying	
28/04/2024	0657	Greylag goose	2		2A	Flying, Vocalise	
28/05/2024	1305	Curlew	1			Display	Heard but not seen
30/05/2024	1209	Osprey	1	M	A	Hunt/feed	
01/04/2025	1018	Oystercatcher	2	MF	A	Agitated/alarm, Vocalise, Flushed	
07/05/2025	0803	Lapwing	1		A		No breeding activity
07/05/2025	0836	Lapwing	1		A		No breeding activity
25/06/2025	0820	Greylag goose	52				Including 12 juvs

Table 18. Results of Winter Wildfowl Counts, 2023/24 and 2024/25.

Year	Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Grand Total
2023/24	Canada goose		6	4		2	17	17	**46**
	Common gull			3	1				**4**
	Cormorant	2	5		7	1	5	2	**22**
	Goldeneye		1	18	30	10	6	4	**69**
	Goosander		1		7	7	1		**16**
	Grey heron		1		1	1	1	3	**7**
	Greylag goose		10			8			**18**
	Little grebe		2						**2**
	Mallard		9	22	48	17	34	9	**139**
	Oystercatcher							2	**2**
	Pink-footed goose				3				**3**
	Teal			4	6				**10**
	Tufted duck		4		2	1	1		**8**
2024/25	Buzzard		1						**1**
	Canada goose						3		**3**
	Cormorant	1		3	4	4	39		**51**
	Curlew							10	**10**
	Goldeneye						8		**8**
	Goosander	1		5	5	14	14		**39**
	Grey heron	1		1		1	1		**4**
	Greylag goose							30	**30**
	Jack snipe							1	**1**
	Lapwing		1						**1**
	Lesser black-backed gull					2			**2**
	Mallard	4	4	15	6	6	25	2	**62**
	Oystercatcher							2	**2**
	Raven					2			**2**
	Snipe			1		1			**2**
	Teal		1	2					**3**

Table 19. Results of Winter Transect Surveys, 2023/24 and 2024/25.

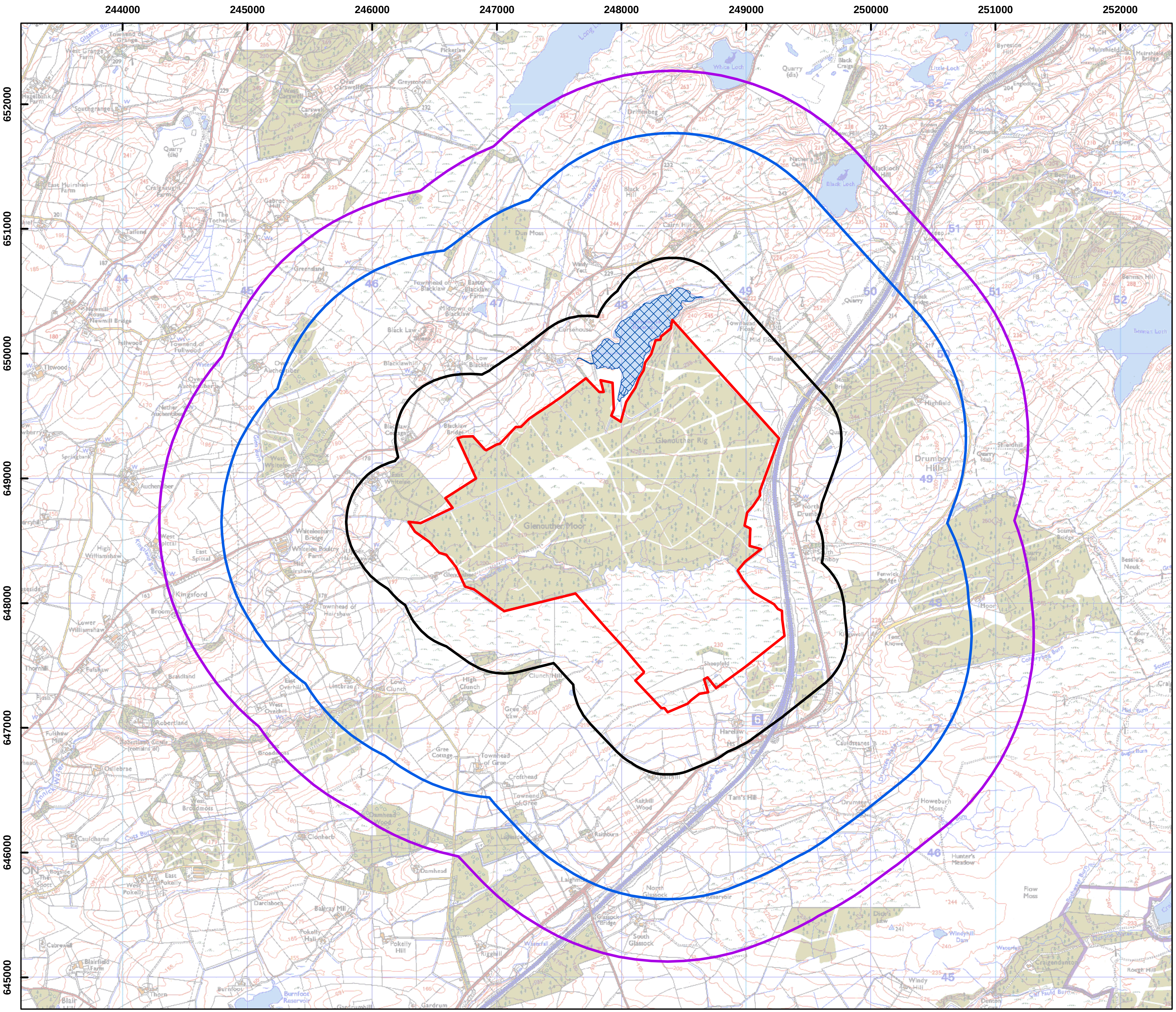
Species	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Total
Buzzard					1		3	**4**
Crossbill		6			5			**11**
Grey heron		1						**1**
Kestrel					1		1	**2**
Mistle thrush					2		2	**4**
Raven		1	1				1	**3**
Redwing					1			**1**
Snipe	1							**1**
Starling							1	**1**
Woodcock			1	2				**3**
Species	**Sep-24**	**Oct-24**	**Nov-24**	**Dec-24**	**Jan-25**	**Feb-25**	**Mar-25**	**Total**
Buzzard	1	2	1	1		1		**6**
Canada goose	1							**1**
Cormorant	1							**1**
Crossbill							4	**4**
Kestrel		1					1	**2**
Marsh tit							1	**1**
Meadow pipit							2	**2**
Raven	1					3		**4**
Skylark							1	**1**
Snipe		2						**2**
Sparrowhawk	1							**1**
Stonechat							1	**1**
Swift							1	**1**
Woodcock			2			2		**4**
Grand Total	**6**	**13**	**5**	**3**	**10**	**7**	**19**	**63**

Table 20. Incidental records.

Date	Time	Species	Number	Sex	Age	Behaviour	Comments
26/04/2024	1400	Osprey	1		Ad	Hunting	Seen over Long Loch whilst leaving site
31/07/2024	0955	Osprey	1		Ad	Flying	Seen over Glenouther Moor
19/08/2025	1510	Osprey	1		Ad	Perched	Perched by Corsehouse Reservoir throughout VP watch

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	Greylag goose	Cormorant	Tree pipit
Whooper swan	Barnacle goose	Grey heron	Dunnock
Common scoter	White-fronted goose	Kestrel	Song thrush
White-tailed eagle	Pink-footed goose	Buzzard	Skylark
Golden eagle	Brent goose	Sparrowhawk	Grasshopper warbler
Hen harrier	Bean goose	Herring gull	Wood warbler
Goshawk	Tern species	Great black-backed gull	Spotted flycatcher
Red kite	Arctic skua	Lesser black-backed gull	Marsh tit
Osprey	Great skua	Common gull	Willow tit
Merlin	Woodcock	Red grouse	Crested tit
Peregrine	Lapwing	Grey partridge	Starling
Hobby		Redshank	Tree sparrow
Barn owl		Common sandpiper	Linnet
Short-eared owl		Oystercatcher	Twite
Golden plover		Snipe	Lesser redpoll
Dunlin		Cuckoo	Crossbill species
Greenshank		Ring ouzel	Bullfinch
Whimbrel		Raven	Hawfinch
Curlew		(Any flocks >30)	Yellowhammer
Wood sandpiper			Reed bunting
Black grouse			Corn bunting
Capercaillie			Mute swan
Nightjar			Mallard
Chough			Goosander
(Other rare raptors)			Teal



NATURAL RESEARCH PROJECTS LIMITED

Key

- Ornithology Study Area
- 500m buffer
- 1.5km buffer
- 2km buffer
- Winter Wildfowl Count Area

Date produced: 21/05/2026

Source: NRP LTD

N

0 0.25 0.5 1 km

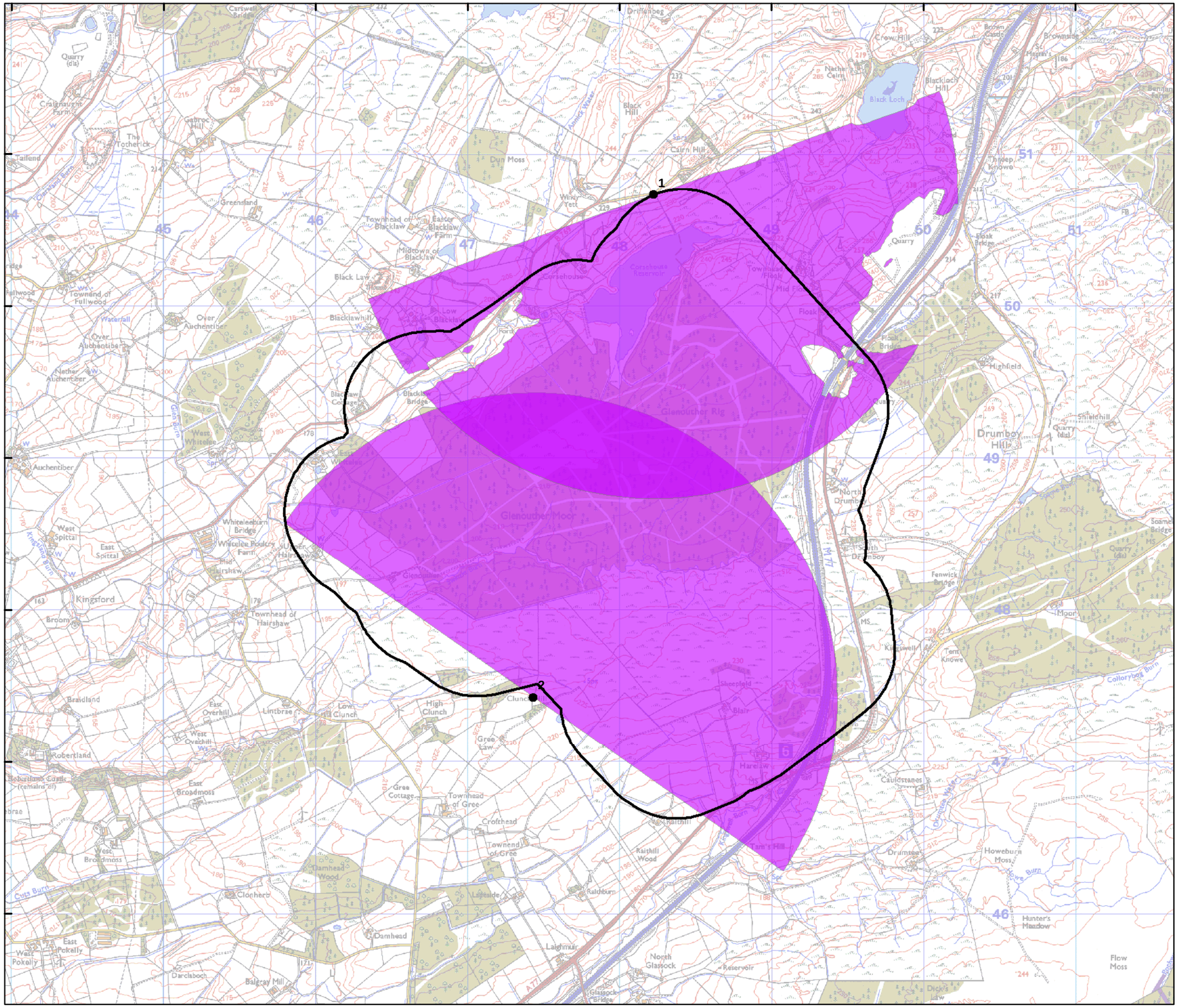
Figure 1.

Study Area

Glenouther

244000 245000 246000 247000 248000 249000 250000 251000

651000 650000 649000 648000 647000 646000



NATURAL RESEARCH PROJECTS LIMITED

Key

- Flight activity survey area
- Vantage Points
- Viewsheds

Date produced: 21/05/2026

Source: NRP LTD

N

0 0.25 0.5 1 km

Figure 2.

Vantage Points and Viewsheds

Glenouther

244000 245000 246000 247000 248000 249000 250000 251000

651000 650000 649000 648000 647000 646000

nrp NATURAL RESEARCH PROJECTS LIMITED

Key

500m buffer

Flight lines

Greylag goose

Pink-footed goose

Whooper swan

Date produced: 22/10/2025

Source: NRP LTD

N

0 0.25 0.5 1 km

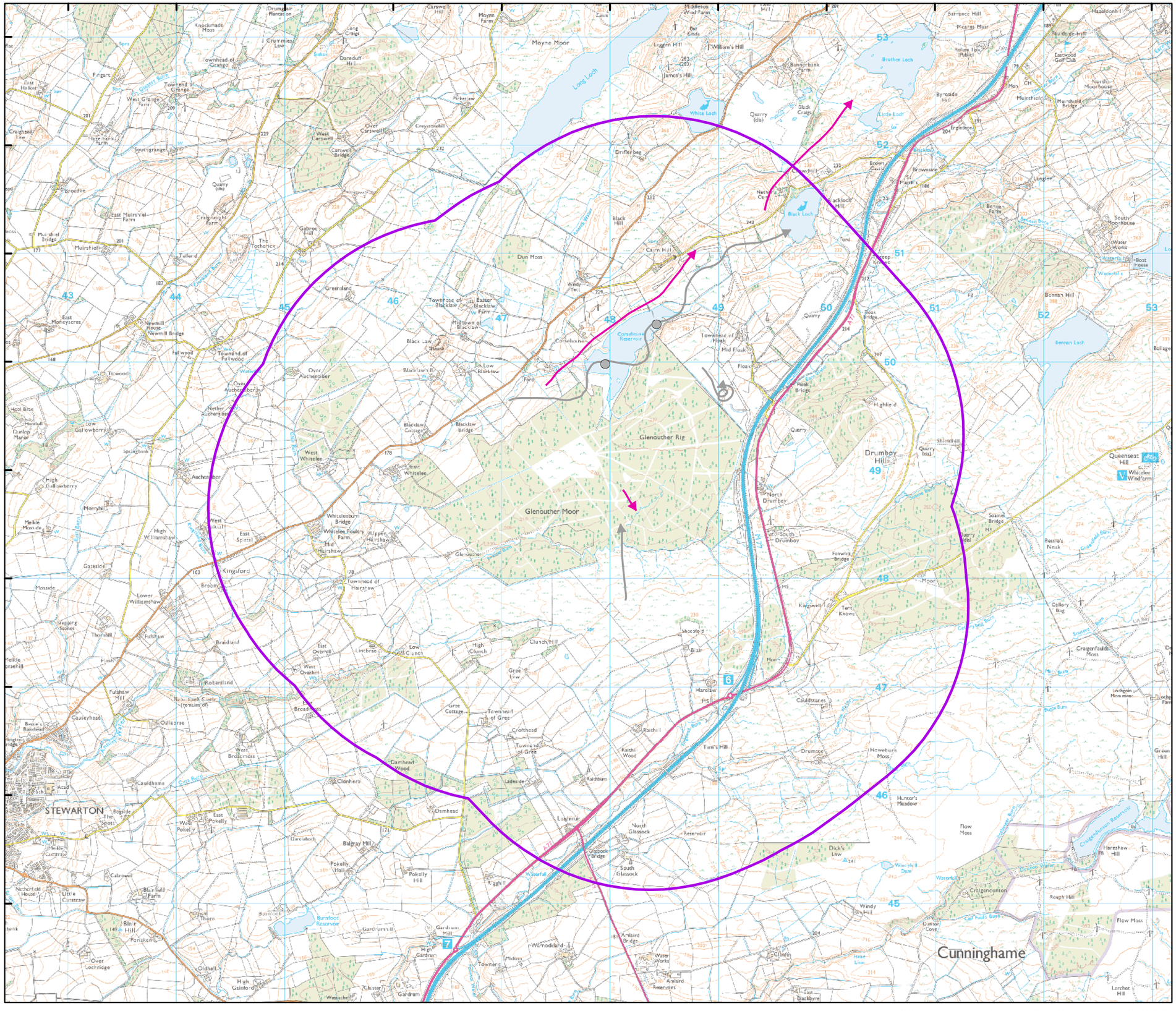
Figure 3.

Wildfowl Flight Activity During GVP Surveys

Glenouther

243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000

653000 652000 651000 650000 649000 648000 647000 646000 645000



nrp NATURAL RESEARCH PROJECTS LIMITED

Key

2km buffer

Flight lines

Greylag goose

Pink-footed goose

Other records

Greylag goose

Date produced: 09/12/2025

Source: NRP LTD

N

0 0.5 1 2 km

Figure 4.

Wildfowl Records Made During Other Surveys

Glenouther

244000 245000 246000 247000 248000 249000 250000 251000

651000 650000 649000 648000 647000 646000

nrp NATURAL RESEARCH PROJECTS LIMITED

Key

500m buffer

Flight lines

Hen harrier

Osprey

Date produced: 12/12/2025

Source: NRP LTD

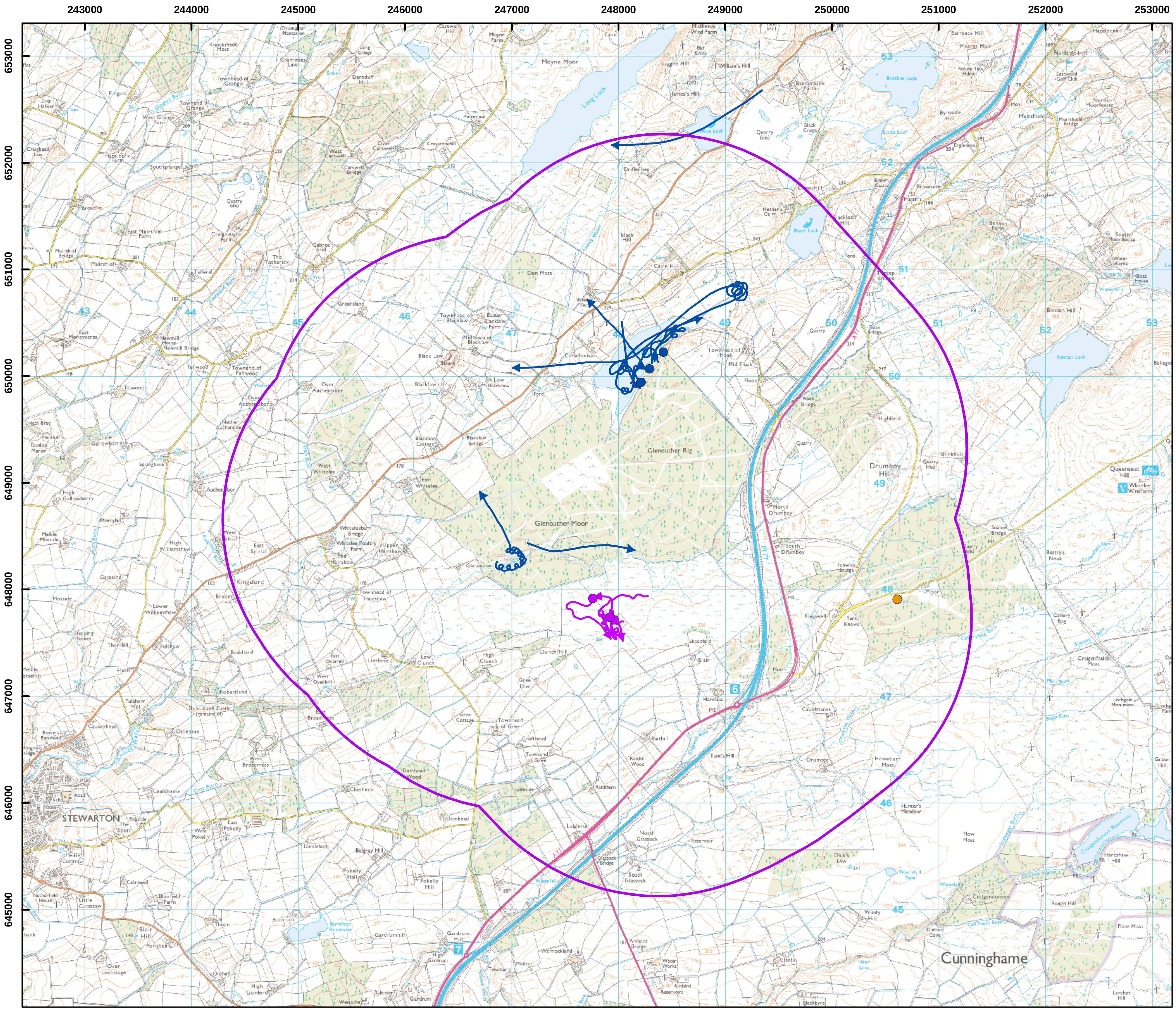
N

0 0.25 0.5 1 km

Figure 5.

Raptor Flight Activity During GVP Surveys

Glenouther



Key

2km buffer

Flight lines

Hen harrier

Osprey

Other records

Hen harrier

Long-eared owl

Osprey

Date produced: 09/12/2025

Source: NRP LTD

N

0 0.5 1 2 km

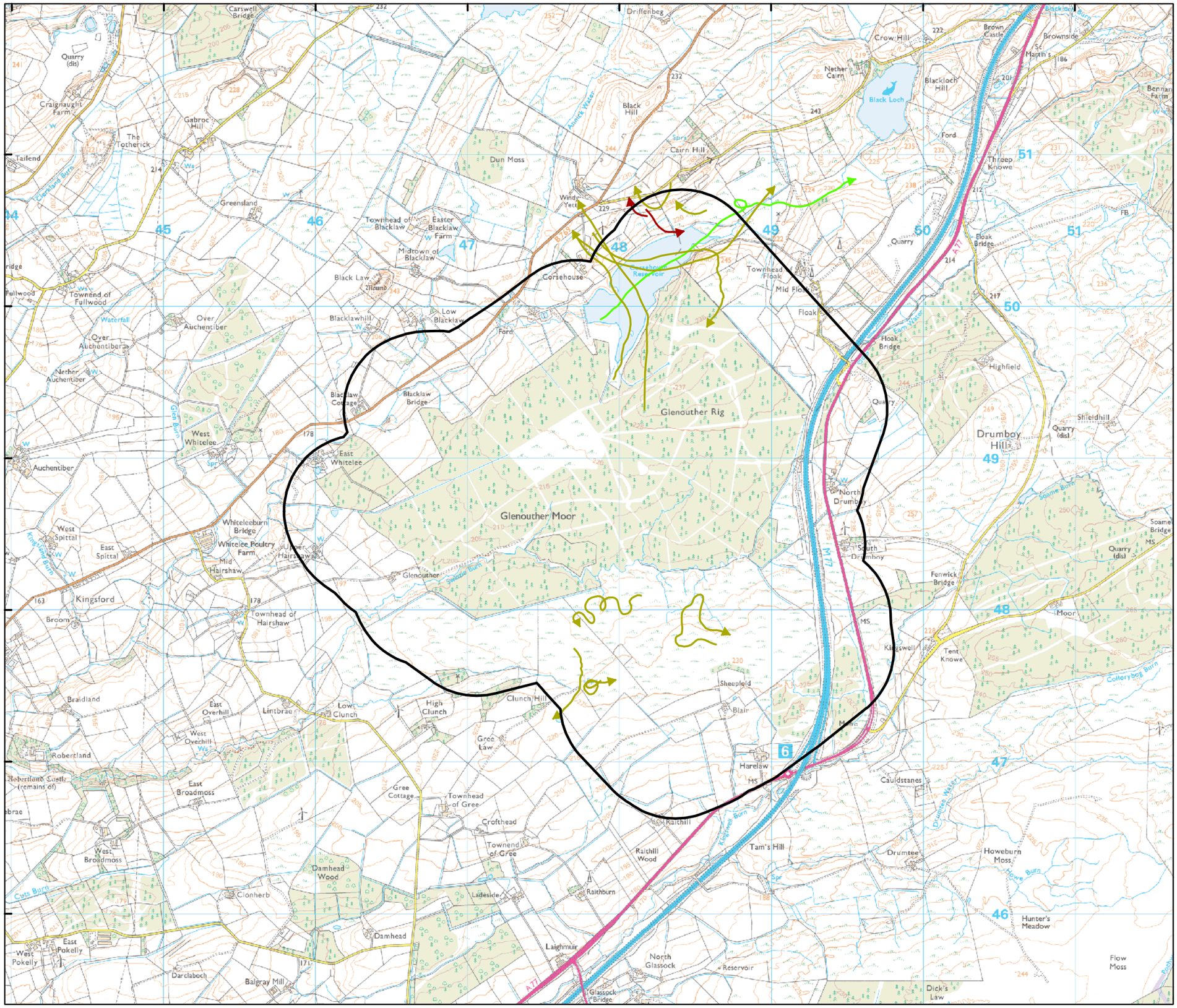
Figure 6.

Raptor Records Made During Other Surveys

Glenouther

244000 245000 246000 247000 248000 249000 250000 251000

651000 650000 649000 648000 647000 646000



© Crown copyright and database right 2025. Ordnance Survey AC0000808122

nrp NATURAL RESEARCH PROJECTS LIMITED

Key

500m buffer

Flight lines

- Curlew
- Lapwing
- Woodcock

Date produced: 22/10/2025

Source: NRP LTD

N

0 0.25 0.5 1 km

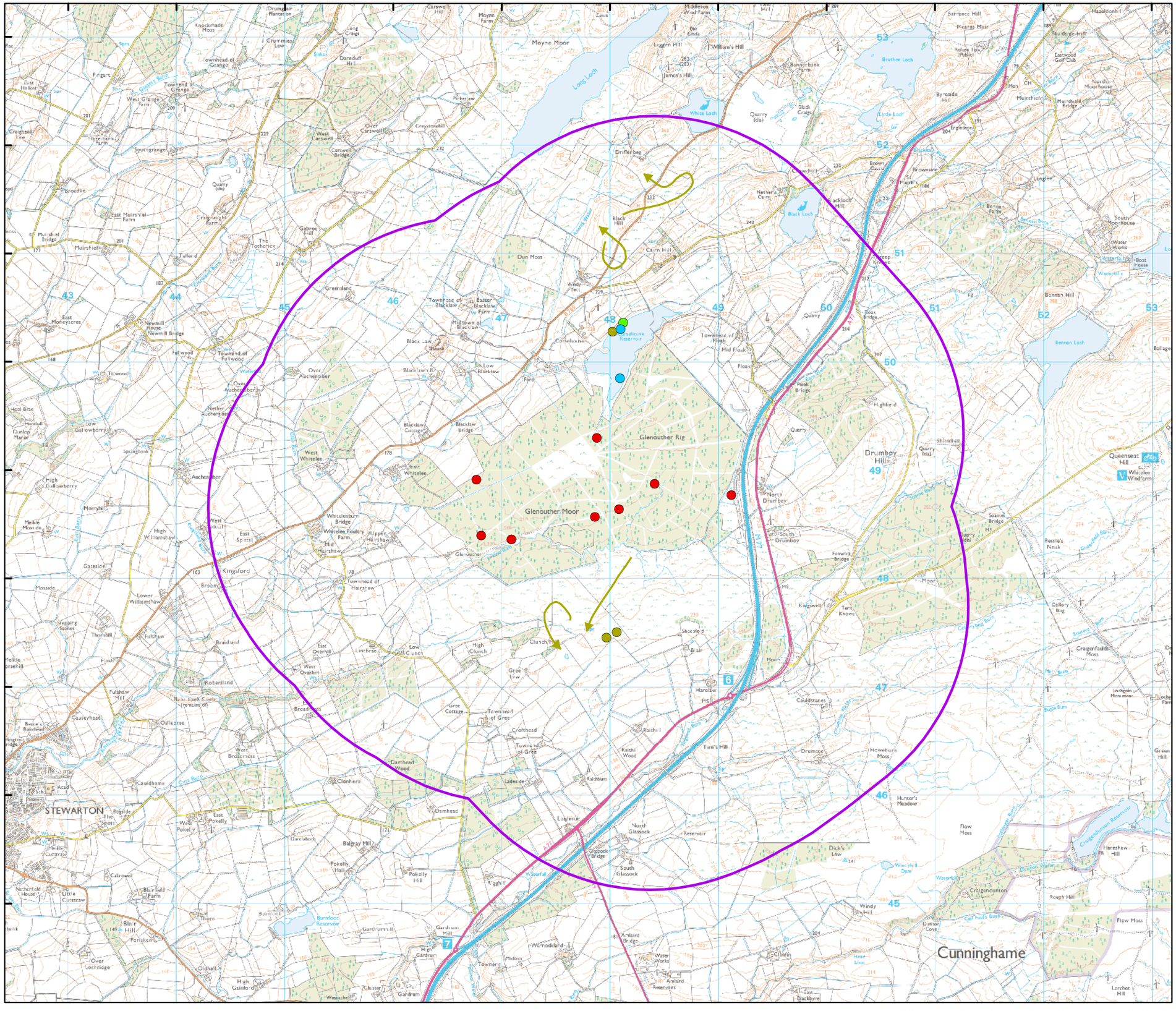
Figure 7.

Wader Flight Activity During GVP Surveys

Glenouther

243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000

653000 652000 651000 650000 649000 648000 647000 646000 645000



© Crown copyright and database right 2025. Ordnance Survey AC0000808122

nrp NATURAL RESEARCH PROJECTS LIMITED

Key

2km buffer

Flight lines

Curlew

Other records

Curlew

Jack snipe

Lapwing

Woodcock

Date produced: 09/12/2025

Source: NRP LTD

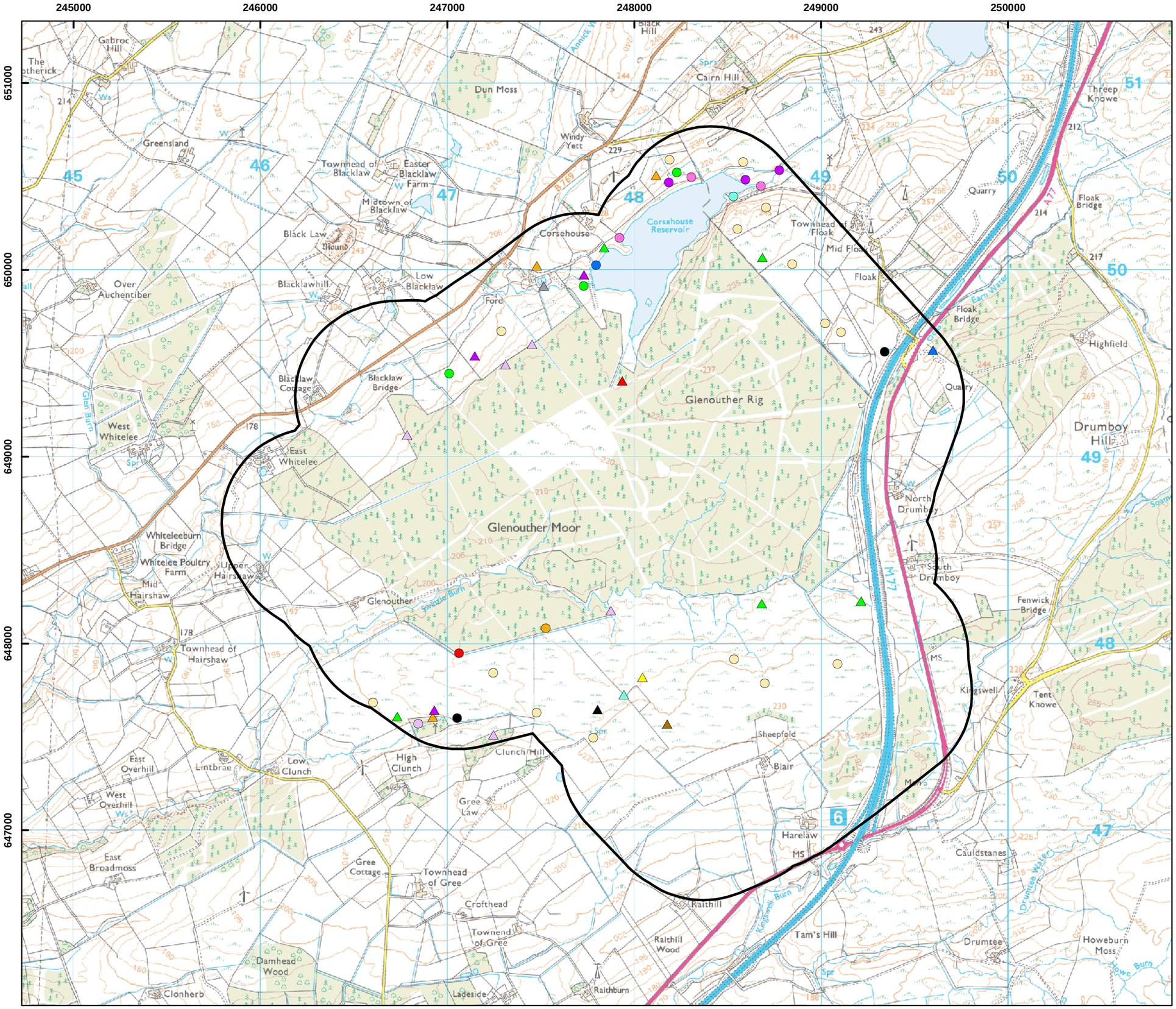
N

0 0.5 1 2 km

Figure 8.

Wader Records Made During Other Surveys

Glenouther



nrp NATURAL RESEARCH PROJECTS LIMITED

Key

500m buffer

Territories

- Common sandpiper, Probable
- Crossbill, Confirmed
- Crossbill, Probable
- Cuckoo, Confirmed
- Cuckoo, Probable
- Curlew, Probable
- Grasshopper warbler, Confirmed
- Grasshopper warbler, Probable
- Oystercatcher, Confirmed
- Oystercatcher, Probable
- Reed bunting, Confirmed
- Reed bunting, Probable
- Sedge warbler, Confirmed
- Skylark, Confirmed
- Snipe, Probable
- Stonechat, Confirmed
- Stonechat, Probable
- Wheatear, Confirmed
- Wheatear, Probable
- Willow warbler, Confirmed
- Willow warbler, Probable

Date produced: 12/12/2025

Source: NRP LTD

N

0 0.25 0.5 1 km

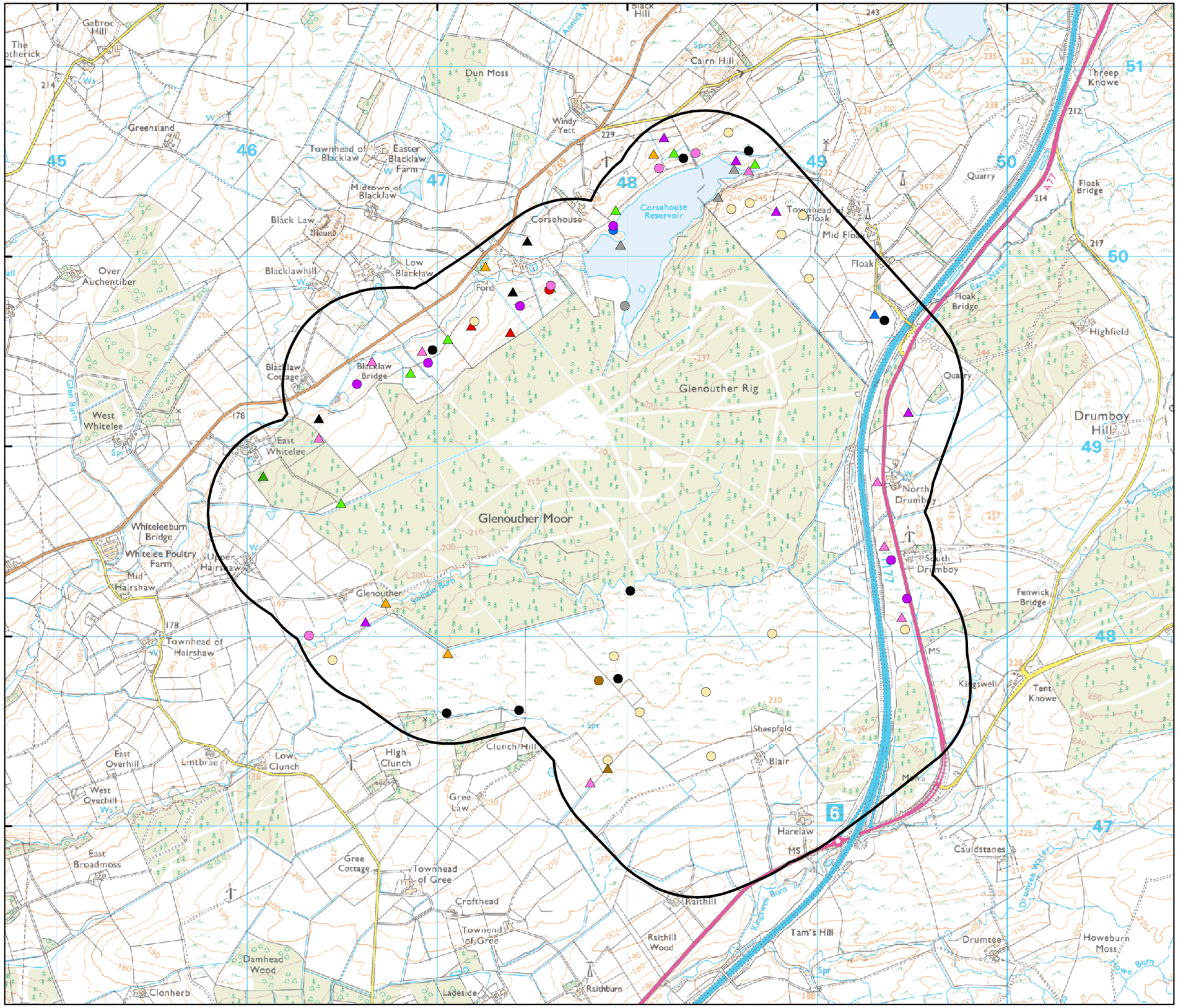
Figure 9.

MBS results 2024

Glenouther

245000 246000 247000 248000 249000 250000

651000 650000 649000 648000 647000



nrp NATURAL RESEARCH PROJECTS LIMITED

Key

500m buffer

Territories

- Common sandpiper, Confirmed
- Common sandpiper, Probable
- Cuckoo, Probable
- Grasshopper warbler, Probable
- Mistle thrush, Probable
- Oystercatcher, Confirmed
- Oystercatcher, Probable
- Redpoll, Confirmed
- Redpoll, Probable
- Reed bunting, Confirmed
- Reed bunting, Probable
- Sedge warbler, Confirmed
- Sedge warbler, Probable
- Skylark, Confirmed
- Snipe, Confirmed
- Snipe, Probable
- Stonechat, Confirmed
- Stonechat, Probable

Date produced: 11/12/2025

Source: NRP LTD

N

0 0.25 0.5 1 km

Figure 10.

MBS results 2025

Glenouther