

Appendix 7-1 Bird Survey Overview



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A7.1.1 INTRODUCTION

The ornithological assessment for the proposed Scart Mountain Wind Farm was primarily based on bird surveys carried out between the winter of 2022/23 and the summer of 2024. Reference was also made to previous relevant bird survey data dating back to the winter of 2017/18.

This appendix includes an overview of the vantage point survey results between the winter of 2017/18 and the summer of 2024.

The detailed survey results between the winter of 2022/23 and the summer of 2024 are included in Appendices 7.2 – 7.6.

Supporting details of survey results prior to the winter of 2022/23 that were used in the assessments in Chapter 7 are included in this appendix.



A7.1.2 SPECIES NAMES AND CODES

The scientific names of bird species mentioned in Chapter 7 are listed in Table A7.1.1. This table also includes BTO codes, which are used in some of the data tables in Appendix 7.2.

Table A7.1.1 Scientific names and BTO species codes of bird species mentioned in Chapter 7.

BTO code	Common name	Scientific name
BH	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
BO	Barn Owl	<i>Tyto alba</i>
BV	Black-throated Diver	<i>Gavia arctica</i>
BZ	Buzzard	<i>Buteo buteo</i>
CA	Cormorant	<i>Phalacrocorax carbo</i>
CF	Chough	<i>Pyrrhocorax pyrrhocorax</i>
CM	Common Gull	<i>Larus canus</i>
CU	Curlew	<i>Numenius arquata</i>
GB	Great Black-backed Gull	<i>Larus marinus</i>
GI	Goshawk	<i>Accipiter gentilis</i>
GL	Grey Wagtail	<i>Motacilla cinerea</i>
GP	Golden Plover	<i>Pluvialis apricaria</i>
GS	Great Spotted Woodpecker	<i>Dendrocopos major</i>
H.	Grey Heron	<i>Ardea cinerea</i>
HG	Herring Gull	<i>Larus argentatus</i>
HH	Hen Harrier	<i>Circus cyaneus</i>
HY	Hobby	<i>Falco subbuteo</i>
K.	Kestrel	<i>Falco tinnunculus</i>
KF	Kingfisher	<i>Alcedo atthis</i>
KT	Red Kite	<i>Milvus milvus</i>
L.	Lapwing	<i>Vanellus vanellus</i>
LB	Lesser Black-backed Gull	<i>Larus fuscus</i>
LE	Long-eared Owl	<i>Asio otus</i>
MA	Mallard	<i>Anas platyrhynchos</i>
ML	Merlin	<i>Falco columbarius</i>
OP	Osprey	<i>Pandion haliaetus</i>
SE	Short-eared Owl	<i>Asio flammeus</i>
SH	Sparrowhawk	<i>Accipiter nisus</i>
SN	Snipe	<i>Gallinago gallinago</i>
WE	White-tailed Eagle	<i>Haliaeetus albicilla</i>
WK	Woodcock	<i>Scolopax rusticola</i>
WM	Whimbrel	<i>Numenius phaeopus</i>
WS	Whooper Swan	<i>Cygnus cygnus</i>



A7.1.3 OVERVIEW OF VANTAGE POINT SURVEY RESULTS

Four seasons of vantage point surveys were carried out between the winter of 2022/23 and the summer of 2024 (see Ornithology chapter, Section 7.2.4.2). The data from these surveys was used for the collision risk modelling and forms the core dataset for the assessments in the Ornithology chapter.

Additional vantage point surveys were carried out between the winter of 2017/18 and the summer of 2022. These surveys covered vantage points BM1-BM9 (each season except for the winter of 2019/20 and the summer of 2020) and KN1-KN4 (each season from the summer of 2020 to the summer of 2022).

The seasonal occurrence patterns across all the vantage point surveys are summarised in Table A7.1.2.

The monthly occurrence patterns across all the vantage point surveys are summarised in Table A7.1.3.

As there was variable survey effort across the seasons, the occurrence patterns in Table A7.1.2 and Table A7.1.3 are shown as recording rates. The recording rate is the total number of records divided by the total vantage point survey effort for the relevant month or season.

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Table A7.1.2 Recording rates (records / 360 hours) per season of target waterbird, raptor and grouse species during the vantage point surveys, winter 2017/18 – summer 2024.

Species	2017/18 winter	2018 summer	2018/19 winter	2019 summer	2020 summer	2020/21 winter	2021 summer	2021/22 winter	2022 summer	2022/23 winter	2023 summer	2023/24 winter	2024 summer
Whooper Swan	0	0	0	0	0	1	0	0	0	0	0	0	0
Red Grouse	1	0	0	0	0	0	1	0	2	0	0	9	2
Black-throated Diver	0	0	0	0	0	1	0	0	0	0	0	0	0
Red Kite	0	0	0	0	0	0	0	0	2	0	0	0	0
White-tailed Eagle	0	0	0	0	8	1	0	0	0	0	1	0	0
Hen Harrier	12	44	3	50	192	7	10	16	25	11	52	14	82
Goshawk	0	0	2	0	0	0	0	0	0	0	0	0	0
Golden Plover	23	2	27	1	2	18	0	48	1	19	0	31	0
Lapwing	0	0	0	1	0	1	0	0	0	1	0	0	0
Whimbrel	0	2	0	1	0	0	0	0	0	0	0	0	0
Curlew	0	0	0	1	0	0	0	0	2	0	0	1	0
Woodcock	0	0	2	0	0	0	1	1	0	0	2	0	6
Snipe	1	6	2	4	2	1	2	8	2	13	0	12	4
Long-eared Owl	0	0	0	1	0	0	0	0	0	0	0	0	0
Short-eared Owl	0	0	0	0	0	0	0	0	0	1	0	0	0
Kestrel	36	46	36	100	190	79	45	67	107	49	171	85	96
Merlin	1	0	1	0	0	1	1	1	0	2	5	2	0
Hobby	0	0	0	0	0	0	0	0	0	0	1	0	0
Peregrine	0	2	8	10	5	5	0	10	8	8	19	10	1
Chough	0	0	0	0	0	0	0	0	0	1	0	0	0

The data in this table is derived from vantage point survey records during timed watches, including non-flight records and records outside viewsheds. The winter seasons comprised October – March, while the summer seasons comprised April – September, apart from the following exceptions: Golden Plover records from April were included in the winter season; and all records from the APEM vantage point surveys in March 2023 (except Golden Plover) were included in the summer season. The recording rate is shown per 360 hours, as this represents the mean survey effort per season.



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Table A7.1.3 Recording rates (records / 390 hours) per month of waterbird, raptor and grouse species during the vantage point surveys, winter 2017/18 – summer 2024.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Whooper Swan	0	0	0	0	0	0	0	0	0	0	1	0
Red Grouse	3	3	1	1	1	1	1	0	1	0	1	0
Black-throated Diver	0	0	0	0	0	0	0	0	0	0	1	0
Red Kite	0	0	0	0	1	0	1	1	0	0	0	0
White-tailed Eagle	0	0	1	3	1	0	0	0	0	0	0	0
Hen Harrier	3	15	12	88	62	50	72	24	13	14	16	9
Goshawk	0	1	0	0	0	0	0	0	0	0	1	0
Golden Plover	14	27	30	26	0	0	1	0	5	28	25	25
Lapwing	1	0	0	0	1	0	0	0	0	0	0	1
Whimbrel	0	0	0	0	3	0	0	0	0	0	0	0
Curlew	0	1	0	0	0	0	2	1	0	0	0	0
Woodcock	0	1	1	1	0	4	2	0	0	0	0	2
Snipe	7	11	3	2	8	6	1	1	0	9	6	5
Long-eared Owl	0	0	0	0	0	1	0	0	0	0	0	0
Short-eared Owl	0	0	0	0	0	0	0	0	0	0	1	0
Kestrel	51	65	72	94	76	56	120	114	187	84	63	53
Merlin	2	1	3	1	1	1	1	0	0	1	3	0
Hobby	0	0	0	0	1	0	0	0	0	0	0	0
Peregrine	11	11	7	4	7	5	5	9	9	4	7	3
Chough	0	0	0	0	0	0	0	0	0	1	0	0

The data in this table is derived from vantage point survey records during timed watches, including non-flight records and records outside viewsheds. The recording rate is shown per 390 hours, as this represents the mean survey effort per month.

A7.1.4 SELECTED SURVEY RESULTS, WINTER 2017/18 – SUMMER 2022

Hen Harrier

The Hen Harrier territories recorded in the breeding seasons of 2018 – 2022 are listed in Table A7.1.4. Details of the occupancy of these territories in these breeding seasons are shown in Table A7.1.5.



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Table A7.1.4. Hen Harrier territories recorded within / around the proposed wind farm site, 2018-2022.

Territory	Details
A	Nest sites on the edge of the proposed wind farm site
B	Nest site within the proposed wind farm site
C	Territorial activity recorded over 1 km from the proposed wind farm site, but no nest site found
D	Nest site recorded over 2 km from the proposed wind farm site

Table A7.1.5. Hen Harrier breeding status within / around the proposed wind farm site, 2018-2022.

Year	Territory	Details
2018	A	Breeding confirmed and fledglings recorded.
2019	A	Territory occupied and activity close to the 2018 nest site recorded, but no confirmed evidence of breeding.
	B	Breeding confirmed and fledged juveniles recorded close to the nest site.
	C	Territorial activity recorded but no confirmed evidence of breeding.
2020	B	Breeding confirmed and fledglings recorded.
2021	-	No occupied territories confirmed.
2022	D	Confirmed nest.

Maps of the Hen Harrier flightlines recorded in each breeding season between 2018 and 2022, and across all the non-breeding seasons surveyed between 2017/18 and 2021/22, are shown in Figure A7.1.1 and Figure A7.1.2.

Golden Plover

A summary of Golden Plover occurrence patterns each winter surveyed between 2017/18 and 2021/22 is shown in Table A7.1.6.

The Golden Plover flightlines and ground records recorded across all the winters surveyed between 2017/18 and 2021/22, are shown in Figure A7.1.3.

Table A7.1.6. Summary of Golden Plover records from the vantage point surveys.

Winter	Number of records	Median flock size	Maximum flock size
2017/18	24	5	160
2018/19	26	23	180
2020/21	24	18	360
2021/22	63	45	649

There were no surveys carried out in the winter of 2019/20.

Peregrine

The Peregrine flightlines recorded across all the seasons surveyed between the winter of 2017/18 and the summer of 2022 are shown in Figure A7.1.4.



Woodcock

Nocturnal surveys were carried out in the summers of 2019 – 2022, which were primarily focused on recording Woodcock. The surveys generally started before sunset and continued for around 2.5 hours (range 80-200 minutes).

The results of the surveys are shown in Table A7.1.7. As the surveys were of variable durations, the numbers of roding males recorded on each survey are divided between the recommended survey period for Woodcock surveys (15 minutes before to 60 minutes after sunset) and after the recommended period.

Table A7.1.7. Woodcock survey results categorised by timings relative to sunset.

Date	Transect	Number roding males in time periods relative to sunset	
		15 min before to 60 mins after	> 60 mins after
11/06/2019	BM	3	4
25/06/2020	KN	2	1
24/07/2020	KN	0	0
23/06/2021	KN	0	0
13/05/2022	BM	3	0
29/05/2022	KN	0	0
03/06/2022	BM	5	3
08/06/2022	KN	1	0
16/06/2022	BM	4	2
18/06/2022	KN	3	0

No roding males were recorded before 15 minutes before sunset. The survey on 23/06/2021 started 30 minutes after sunset.

The transect routes, and the distribution of records of roding males, are shown in Figure A7.1.5.

Snipe

Details of Snipe breeding areas recorded between 2018 and 2022 are shown in Table A7.1.8. These areas, and the associated records, are shown in Figure 7.15 in the Ornithology chapter.

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Table A7.1.8. Snipe breeding areas, 2018-2022.

Map reference	Location	Year	Details
2	Knocksculloge	2022	1-2 territories in 2022, along the edge of proposed wind farm site.
3	Valley between Knocksculloge and Broe Mountain	2020 and 2022	1 territory to NE of proposed wind farm site.
4	Broe Mountain	2018, 2019, 2022	1 territory at edge of proposed wind farm site in 2018, 2019 and 2022.
5	Scart Mountain	2019 and 2022	1 territory at edge of proposed wind farm site.

Map references refer to Figure 7.15 in the Ornithology chapter. The territory numbers are estimates based on the distribution of the records.

Kestrel

The Kestrel flightlines recorded across all the seasons surveyed between the winter of 2017/18 and the summer of 2022 are shown in Figure A7.1.6.



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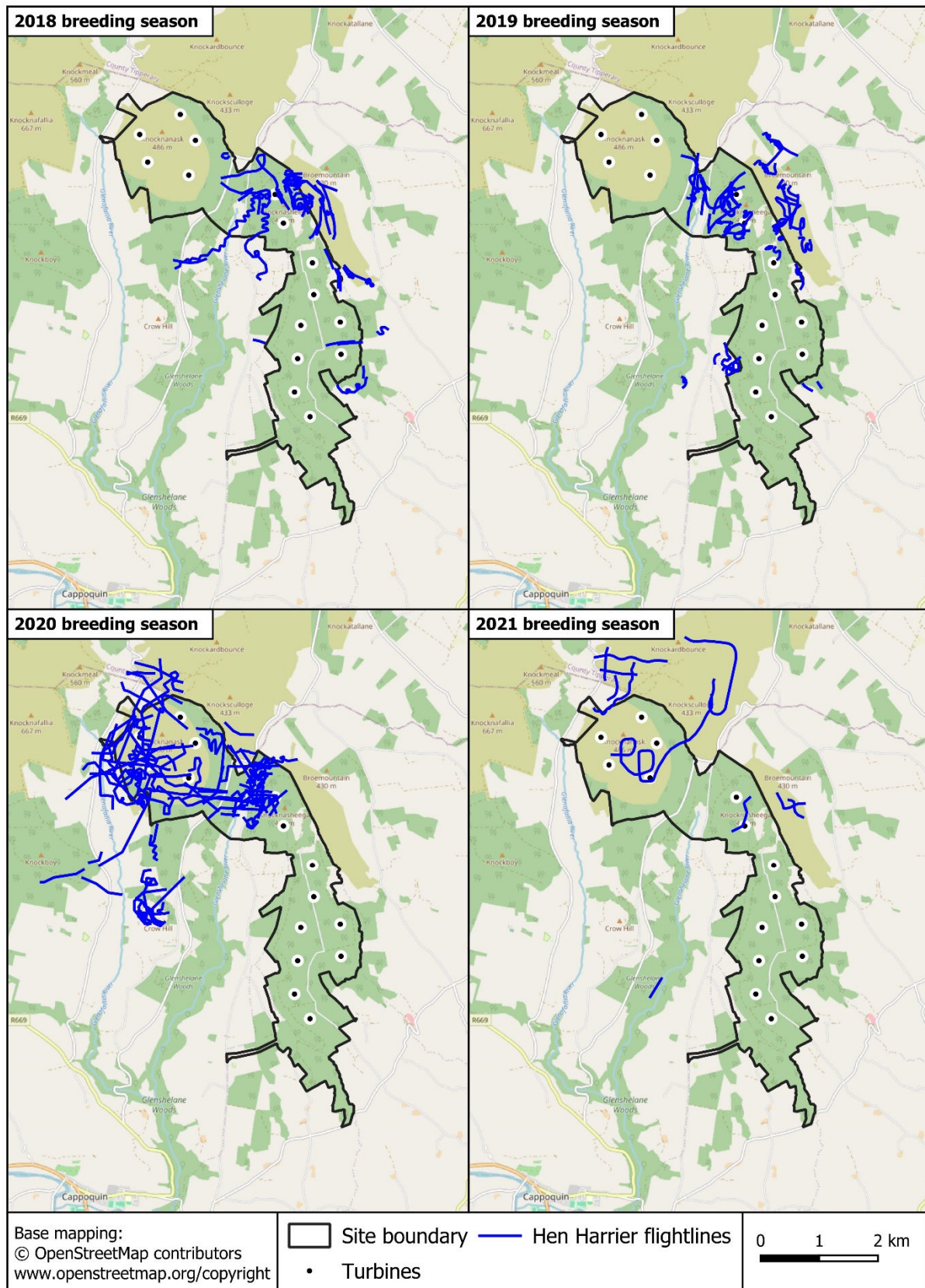


Figure A7.1.1. Hen Harrier flightlines, vantage point surveys, 2018-2021 breeding seasons.



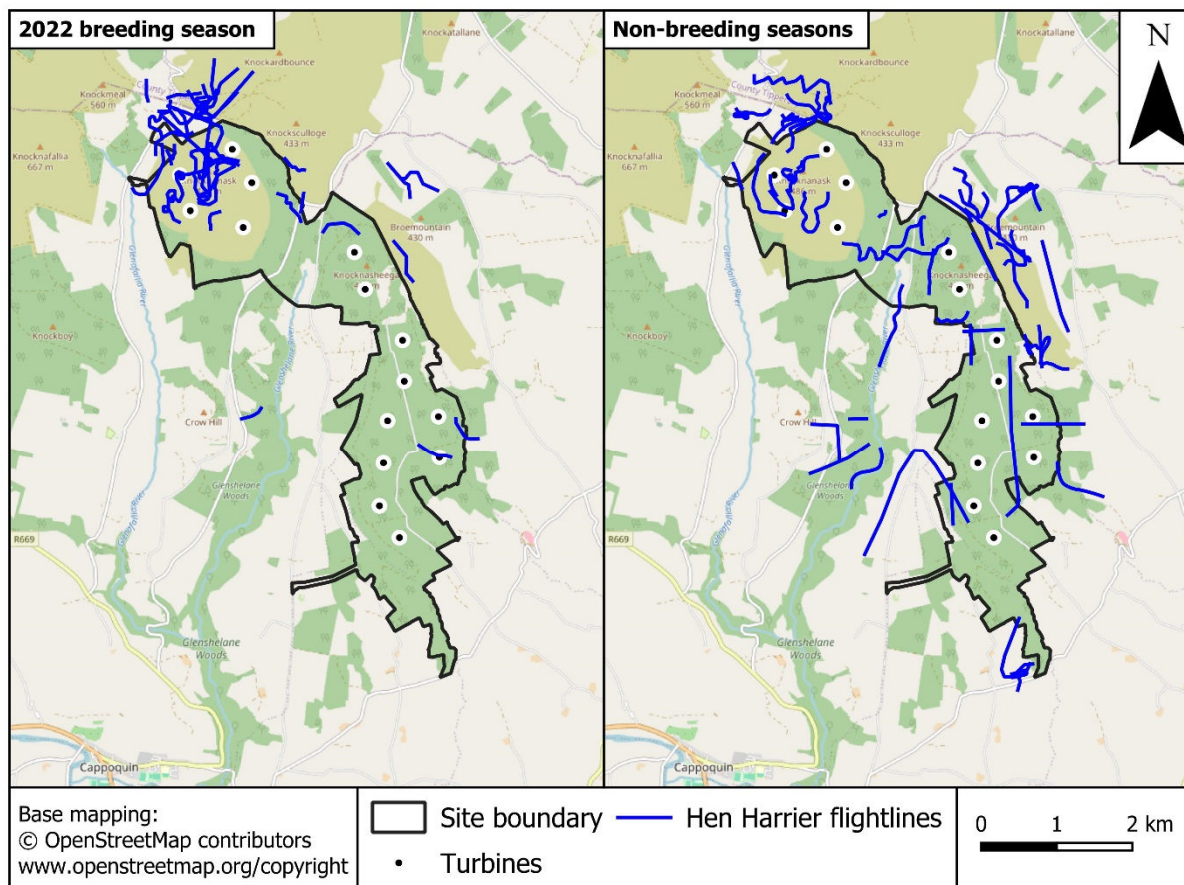


Figure A7.1.2. Hen Harrier flightlines, vantage point surveys, 2022 breeding season and 2017-18 – 2021/22 non-breeding seasons.

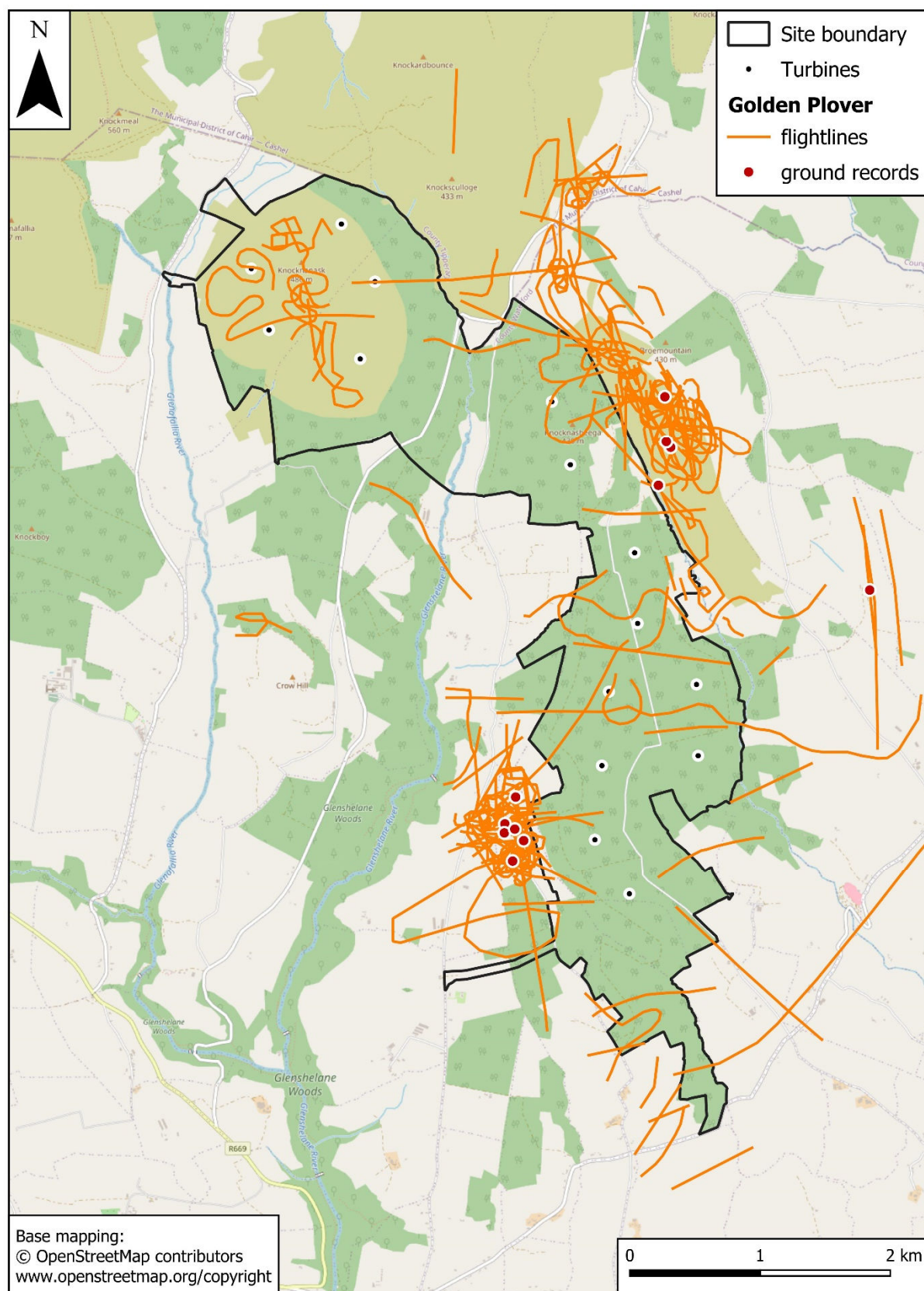


Figure A7.1.3. Golden Plover flightlines and ground records, vantage point surveys, winter 2017/18 – summer 2022.

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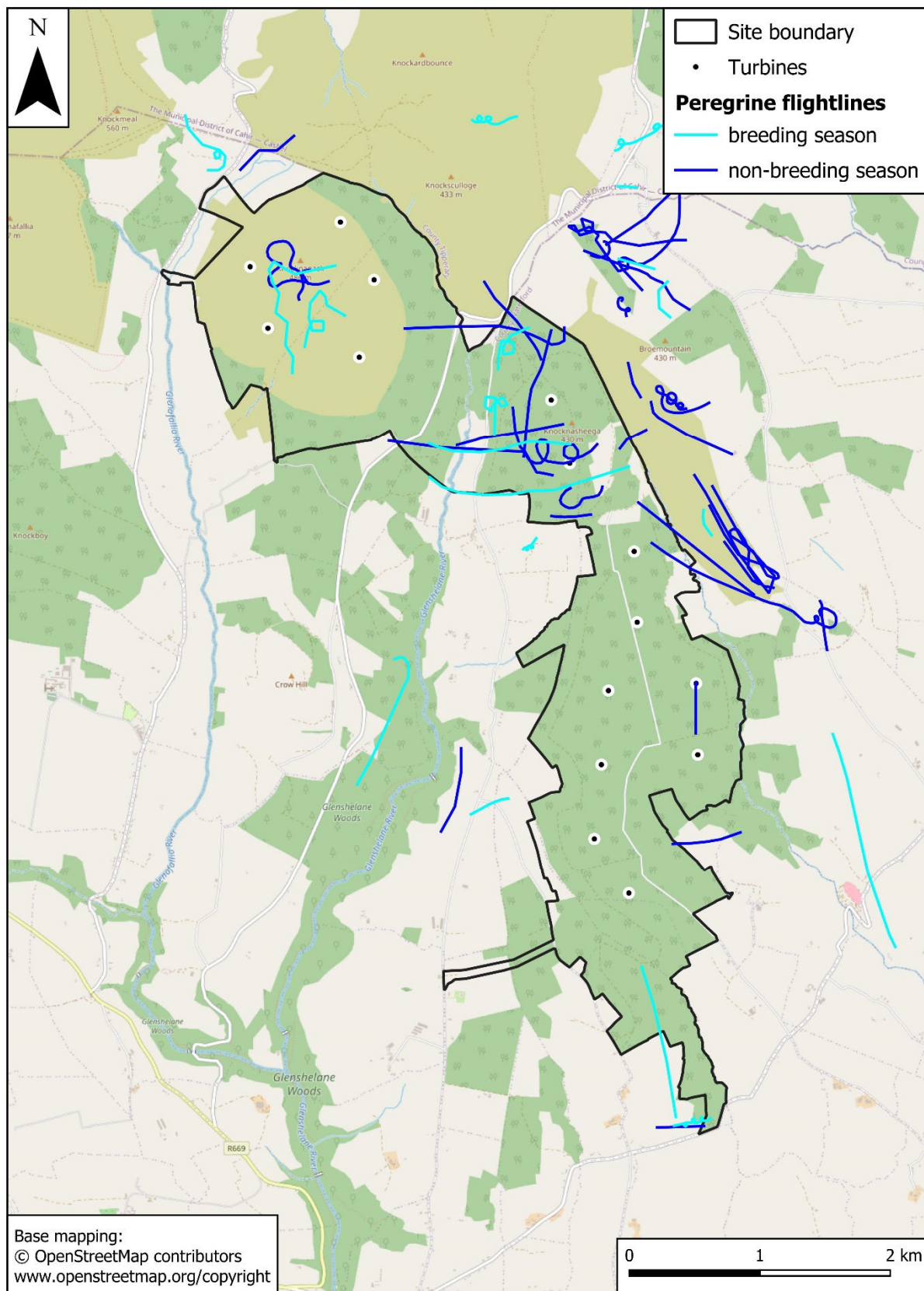


Figure A7.1.4. Peregrine flightlines, vantage point surveys, winter 2017/18 – summer 2022.

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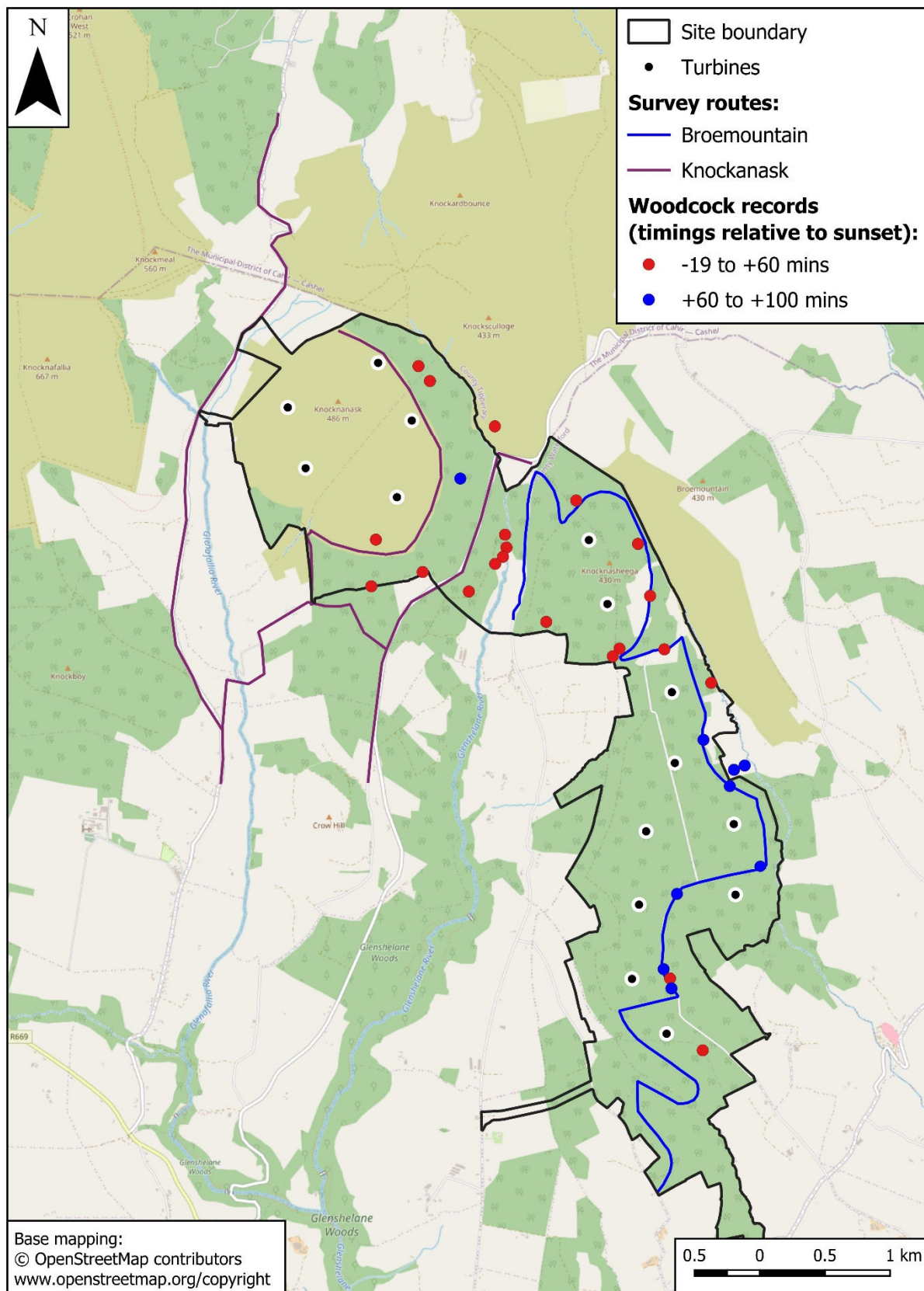


Figure A7.1.5. Woodcock records, nocturnal surveys, 2019-2022.

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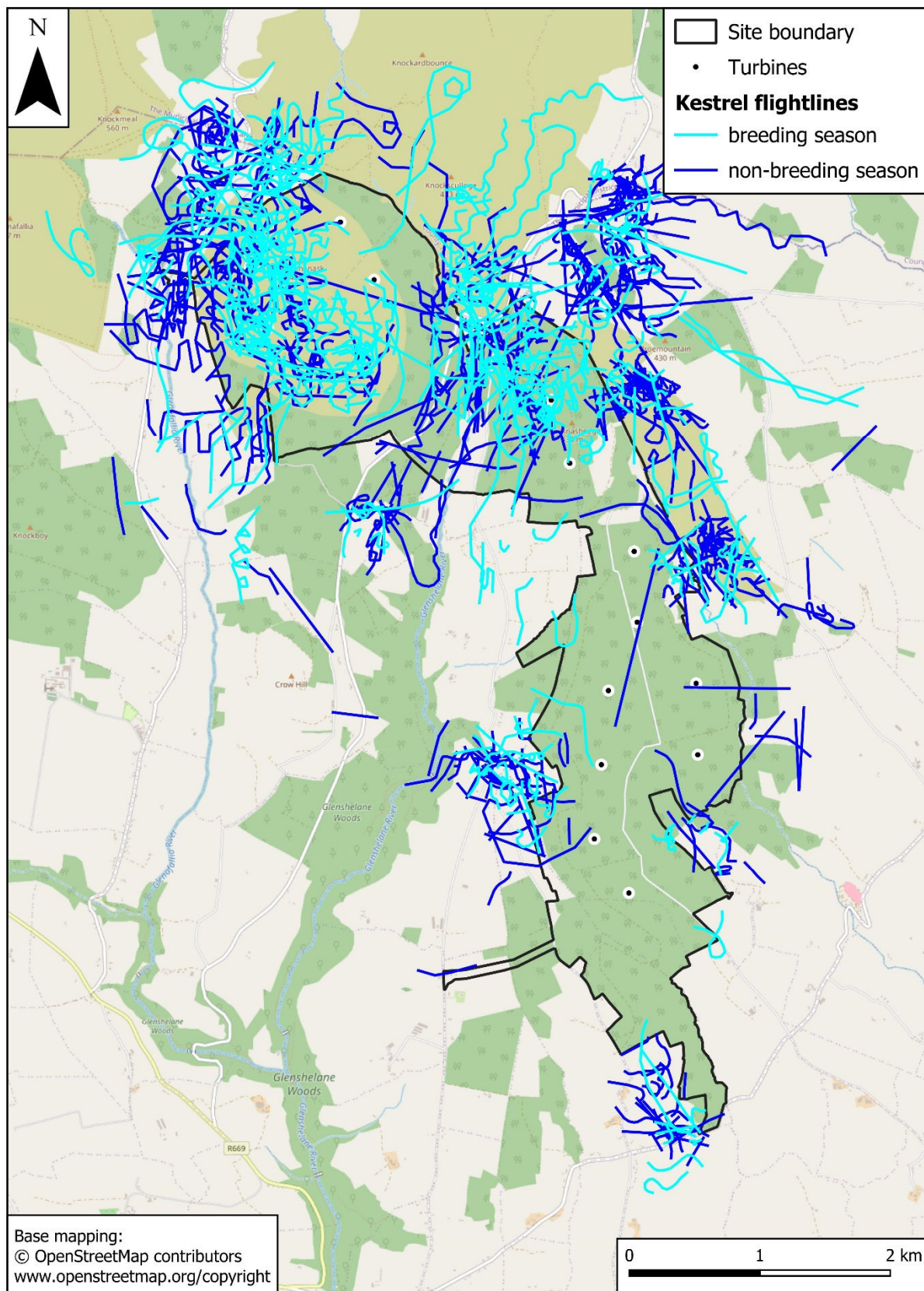


Figure A7.1.6. Kestrel flightlines, vantage point surveys, winter 2017/18 – summer 2022.