
Appendix 15.1

Breeding Bird Surveys



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N12168
Figure 1
VP locations for
Kingfisher surveys

Legend
● VP location

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Figure 1: Kingfisher Survey VP locations

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Survey Restrictions

Due to travel restrictions as a result of the COVID-19 Pandemic, it was not possible to conduct survey in the early part of the 2020 breeding season. Despite this, a spread of surveys was conducted across the remainder of the season, from late-May to mid-July.

Results

BBS Results

Four, monthly visits were conducted across the breeding season for the purposes of surveying and recording breeding bird activity, and the weather conditions at the time of the surveys are recorded below (see **Table 1**, **Table 2** and **Table 3**).

Table 1. BBS dates and weather conditions (2020)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
28.05.2020	05h15	09h40	SE2	None	0	>500m	>2km	13°C-17°C
17.06.2020	04h40	08h55	NW1	Light rain shower (08h10-08h15)	6	>500m	>2km	11°C-14°C
29.06.2020	04h50	09h20	SW3	Light drizzle showers	8	150-500m	>2km	14°C
13.07.2020	05h30	09h55	SW2	Light drizzle shower	8	150-500m	>2km	16°C

Table 2. BBS dates and weather conditions (2021)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
22.04.2021	05h55	10h00	0-SE2	None	0	n/a	>10km	8°C
12.05.2021	05h45	09h55	0	Frost	1	>500m	>10km	2°C
09.06.2021	05h45	09h45	SE3	None	8	150-500m	>10km	15°C
08.07.2021	06h00	10h00	W1	Light rain showers	8	150-500m	>10km	13°C

Table 3. BBS dates and weather conditions (2022)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
26.04.2022	05h50	09h45	S2	None	4	unknown	>10km	5°C
31.05.2022	05h30	09h55	NW3	None	3	unknown	>10km	5°C
21.06.2022	04h30	09h30	WSW2	None	7	unknown	>10km	11°C
27.07.2022	05h00	10h00	NE2	None	7	unknown	>10km	8°C

A total of 50 (2020), 51 (2021) and 43 (2022) species were recorded within or in flight over the survey area during breeding bird surveys across the 2020, 2021 and 2022 breeding season, respectively (see **Table 4**, **Table 5** and **Table 6**). Several species were observed in 2021 that were not observed during surveys in 2020. Ten species which were recorded during the 2021 season were not observed in the 2022 surveys, and two species which were observed in 2022, were not recorded in 2021.

Twenty-six species were observed showing behaviour which led to them being recorded as “probable” or “confirmed” breeding in the 2020 and 2021 surveys. In 2022, 21 species were observed showing behaviour which led them to be classified as “probable” or “confirmed” breeding. Eight species in 2020, nine species in 2021 and six species in 2022 were considered to be species of conservation concern.

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Approximate breeding locations of species of conservation concern which were confirmed breeding are illustrated in **Figure 2**.

Table 4. BBS results (2020)

Species	Visit 1 05-Dec-19	Visit 2 18-Dec-19	Visit 3 07-Dec-20	Visit 4 18-Feb-20	Highest breeding evidence	Breeding status	Conservati on status
Blackbird	12	16	17	27	Recently fledged young	Confirmed	
Blackcap	2	2	3	3	Territory held	Probable	
Black-headed gull	0	0	0	2	Flying over	Non- breeding	Amber (B)
Blue tit	3	20	10	20	Recently fledged young	Confirmed	
Bullfinch	2	1	2	0	Suitable habitat	Possible	
Buzzard	1	1	3	1	Suitable habitat	Possible	WA
Chaffinch	8	14	14	20	Recently fledged young	Confirmed	
Chiffchaff	2	2	1	0	Territory held	Probable	
Coal Tit	0	1	0	1	Suitable habitat	Possible	
Collared dove	2	2	7	4	Suitable habitat	Possible	
Coot	1	1	2	0	Suitable habitat	Possible	Amber (B/W)
Cormorant	1	0	0	1	Summering	Non- breeding	Amber (B/W)
Dunnock	7	11	15	12	Recently fledged young	Confirmed	
Goldcrest	2	1	0	0	Territory held	Probable	Amber (B)
Goldfinch	0	6	16	15	Recently fledged young	Confirmed	
Great tit	2	4	8	16	Recently fledged young	Confirmed	
Greenfinch	0	0	2	3	Suitable habitat	Possible	Amber (B)
Grey heron	2	1	0	1	Suitable habitat	Possible	
Grey wagtail	1	0	2	0	Suitable habitat	Possible	Red (B)
Herring gull	0	2	0	0	Flying over	Non- breeding	Amber (B)
Hooded crow	2	2	6	3	Suitable habitat	Possible	
House sparrow	20	9	25	19	Probable nest site	Probable	Amber (B)
Jackdaw	2	2	11	24	Recently fledged young	Confirmed	
Jay	0	0	1	0	Suitable habitat	Possible	
Kestrel	0	1	1	0	Suitable habitat	Possible	WA; Red (B)
Kingfisher	0	1	0	0	Suitable habitat	Possible	Annex 1, Amber (B)
Linnet	4	1	0	9	Pair present	Probable	Amber (B)
Little egret	0	1	1	0	Suitable habitat	Possible	Annex 1
Long-tailed tit	0	2	0	4	Suitable habitat	Possible	
Magpie	2	4	2	5	Agitated behaviour	Probable	
Mallard	0	7	1	9	Recently fledged young	Confirmed	Amber [B/W]

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Species	Visit 1 05-Dec-19	Visit 2 18-Dec-19	Visit 3 07-Dec-20	Visit 4 18-Feb-20	Highest breeding evidence	Breeding status	Conservati on status
Meadow pipit	2	4	3	5	Singing male	Possible	Red (B)
Mistle thrush	2	1	2	0	Agitated behaviour	Probable	
Moorhen	0	1	0	0	Suitable habitat	Possible	
Mute swan	2	2	6	6	Recently fledged young	Confirmed	Amber (B/W)
Pheasant	0	0	3	0	Pair present	Probable	
Pied wagtail	3	4	4	11	Suitable habitat	Possible	
Robin	13	11	5	20	Recently fledged young	Confirmed	Amber (B)
Rook	22	6	12	70	Recently fledged young	Confirmed	
Sedge warbler	3	2	2	2	Territory held	Probable	
Song thrush	2	0	2	3	Agitated behaviour	Probable	
Sparrowhawk	0	0	0	1	Suitable habitat	Possible	WA
Spotted flycatcher	0	0	1	1	Suitable habitat	Possible	Amber (B)
Starling	4	3	15	15	Carrying food	Confirmed	Amber (B)
Treecreeper	1	1	1	1	Territory held	Probable	
Water rail	0	1	0	0	Agitated behaviour	Probable	
Whitethroat	0	1	0	0	Singing male	Possible	
Willow warbler	4	7	4	4	Territory held	Probable	Amber [B]
Woodpigeon	17	10	17	32	Suitable habitat	Possible	
Wren	8	8	9	10	Recently fledged young	Confirmed	

Key to Table 4

Annex 1 – Listed on Annex 1 of the EU Birds Directive

WA – Listed on Part 1 of the Fourth Schedule of the Wildlife Act, 1976

Red – Red listed BoCCI species

Amber – Amber listed BoCCI species

B – BoCCI listed due to breeding population

W – BoCCI listed due to wintering population

Bold – Species of conservation concern recorded as “probable” or “confirmed” breeding

Table 5. BBS results (2021)

Species	Visit 1 22-Apr-21	Visit 2 12-May-21	Visit 3 09-Jun-21	Visit 4 08-Jul-21	Highest breeding evidence	Breeding status	Conservation status
Blackbird	22	22	13	9	Carrying food	Confirmed	Green
Blackcap	11	8	9	1	Territory held	Probable	Green
Blue tit	3	4	2	1	Habitat	Possible	Green
Bullfinch	2	2	1	2	Pair	Probable	Green
Buzzard	1	1	0	1	Habitat	Possible	Green
Chaffinch	10	16	10	9	Pair	Probable	Green
Chiffchaff	3	4	2	2	Territory held	Probable	Green
Coal tit	3	4	0	0	Carrying food	Confirmed	Green
Collared dove	2	0	0	0	Habitat	Possible	Green
Cormorant	1	0	1	0	Flying over	Non- breeding	Amber [B/W]
Curlew	0	0	0	5	Flying over	Non- breeding	Red [B/W]

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Species	Visit 1 22-Apr-21	Visit 2 12-May-21	Visit 3 09-Jun-21	Visit 4 08-Jul-21	Highest breeding evidence	Breeding status	Conservation status
Dunnock	14	11	4	5	Territory held	Probable	Green
Feral pigeon	0	27	0	28	Suitable habitat	Possible	n/a
Goldcrest	14	6	6	4	Territory held	Probable	Amber [B]
Goldfinch	6	8	1	9	Habitat	Possible	Green
Great black-backed gull	0	2	0	0	Flying over	Non-breeding	Green
Great tit	6	3	0	0	Singing male	Possible	Green
Greenfinch	2	2	3	1	Singing male	Possible	Amber [B]
Grey heron	2	2	0	0	Flying over	Non-breeding	Green
Herring gull	13	0	2	1	Summering	Non-breeding	Amber [B/W]
Hooded crow	6	6	1	6	Habitat	Possible	Green
House martin	0	1	4	5	Habitat	Possible	Amber [B]
House sparrow	14	12	14	7	Carrying food	Confirmed	Amber [B]
Jackdaw	29	29	44	12	Visiting probable nest site	Probable	Green
Lesser black-backed gull	2	1	0	1	Summering	Non-breeding	Amber [B/W]
Linnet	2	3	0	0	Pair	Probable	Amber [B]
Magpie	4	2	4	4	Habitat	Possible	Green
Mallard	3	0	2	2	Pair	Probable	Amber [B/W]
Meadow pipit	2	2	1	1	Displaying	Probable	Red [B]
Mistle thrush	1	3	3	0	Singing male	Possible	Green
Moorhen	1	0	0	0	Habitat	Possible	Green
Mute swan	0	1	0	0	Occupied nest	Confirmed	Amber [B/W]
Peregrine	0	1	0	0	Flying over	Non-breeding	A1, WA, Green
Pheasant	3	1	3	0	Pair	Probable	n/a
Pied wagtail	1	1	1	1	Carrying food	Confirmed	Green
Raven	1	2	0	0	Flying over	Non-breeding	Green
Reed bunting	2	0	1	4	Carrying food	Confirmed	Green
Robin	12	16	6	3	Territory held	Probable	Green
Rook	47	45	102	60	Recently fledged young	Confirmed	Green
Sand martin	0	5	0	0	Summering	Non-breeding	Amber [B]
Sedge warbler	2	4	1	0	Territory held	Probable	Green
Song thrush	4	2	2	0	Carrying food	Confirmed	Green
Spotted flycatcher	0	1	0	0	Singing male	Possible	Amber [B]
Starling	11	18	39	10	Nest with young	Confirmed	Amber [B]
Stock dove	0	0	0	1	Suitable habitat	Possible	Red [B]
Swallow	3	12	9	12	Habitat	Possible	Amber [B]
Swift	0	6	3	2	Summering	Non-breeding	Red [B]
Willow warbler	4	1	0	0	Singing male	Possible	Amber [B]

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Species	Visit 1 22-Apr-21	Visit 2 12-May-21	Visit 3 09-Jun-21	Visit 4 08-Jul-21	Highest breeding evidence	Breeding status	Conservation status
Woodpigeon	36	34	43	17	Visiting probable nest site	Probable	Green
Wren	30	30	23	23	Agitated behaviour	Probable	Green
Yellowhammer	11	20	15	11	Pair	Probable	Red [B]

Key to Table 5

A1 – Listed on Annex 1 of the EU Birds Directive

WA – Listed on Part 1 of the Fourth Schedule of the Wildlife Act, 1976

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W – BoCCI listed due to wintering population

Bold – Species of conservation concern recorded as “probable” or “confirmed” breeding

Table 6. BBS results (2022)

Species	Visit 1 26-Apr-22	Visit 2 31-May-22	Visit 3 21-Jun-22	Visit 4 27-Jul-22	Highest breeding evidence	Breeding status	Conservation status
Blackbird	12	17	14	10	Pair present	Probable	Green
Blackcap	3	8	5	1	Recently fledged young	Confirmed	Green
Blue tit	2	2	1	4	Recently fledged young	Confirmed	Green
Buzzard	0	1	1	1	Territory held	Probable	WA
Chaffinch	3	7	13	4	Carrying food	Confirmed	Green
Chiffchaff	3	3	2	0	Territory held	Probable	Green
Coal tit	1	4	0	1	Recently fledged young	Confirmed	Green
Collared dove	1	0	0	1	Singing male	Possible	Green
Curlew	0	0	0	1	Summering	Non- breeding	Red [B/W]
Dunnock	4	10	0	0	Territory held	Probable	Green
Goldcrest	2	3	1	13	Territory held	Probable	Amber [B]
Goldfinch	0	10	13	20	In suitable habitat	Possible	Green
Great tit	0	4	0	5	Recently fledged young	Confirmed	Green
Grey heron	1	1	0	0	Flying over	Non- breeding	Green
Hooded crow	0	7	9	7	In suitable habitat	Possible	Green
House martin	0	5	0	6	Recently fledged young	Confirmed	Amber [B]
House sparrow	1	7	4	0	Recently fledged young	Confirmed	Amber [B]
Jackdaw	4	25	28	31	Recently fledged young	Confirmed	Green
Lesser black- backed gull	0	2	4	2	Flying over	Non- breeding	Amber [B/W]
Lesser redpoll	0	0	1	0	Singing male	Possible	Green
Linnet	0	6	0	0	In suitable habitat	Possible	Amber [B]
Magpie	2	5	6	5	In suitable habitat	Possible	Green
Meadow pipit	0	1	0	0	In suitable habitat	Possible	Red [B]
Mistle thrush	0	1	0	0	Singing male	Possible	Green
Mute swan	2	0	1	0	In suitable habitat	Possible	Amber [B/W]

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Species	Visit 1 26-Apr-22	Visit 2 31-May-22	Visit 3 21-Jun-22	Visit 4 27-Jul-22	Highest breeding evidence	Breeding status	Conservation status
Pheasant	1	0	1	7	In suitable habitat	Possible	Green
Pied wagtail	0	4	0	0	In suitable habitat	Possible	Green
Raven	0	0	0	1	Flying over	Non-breeding	Green
Reed bunting	1	1	0	0	Territory held	Probable	Green
Robin	12	10	19	25	Agitated behaviour	Probable	Green
Rook	0	61	49	153	Recently fledged young	Confirmed	Green
Sand martin	0	1	0	0	Summering	Non-breeding	Amber [B]
Sedge warbler	0	1	0	0	Singing male	Possible	Green
Song thrush	2	4	4	1	Carrying food	Confirmed	Green
Starling	2	12	26	32	In suitable habitat	Possible	Amber [B]
Stock dove	0	1	0	0	Flying over	Non-breeding	Red [B]
Swallow	0	8	4	6	In suitable habitat	Possible	Amber [B]
Swift	0	0	5	0	Summering	Non-breeding	Amber [B]
Treecreeper	0	0	1	0	In suitable habitat	Possible	Green
Willow warbler	6	2	1	2	In suitable habitat	Possible	Amber [B]
Woodpigeon	8	45	23	45	Territory held	Probable	Green
Wren	14	32	44	41	Recently fledged young	Confirmed	Green
Yellowhammer	3	16	11	16	Pair present	Probable	Red [B]

Key to Table 6

A1 – Listed on Annex 1 of the EU Birds Directive

WA – Listed on Part 1 of the Fourth Schedule of the Wildlife Act, 1976

Red – Red listed BoCCI species

Amber – Amber listed BoCCI species

B – BoCCI listed due to breeding population

W – BoCCI listed due to wintering population

Bold – Species of conservation concern recorded as “probable” or “confirmed” breeding

Kingfisher Survey Results

Four visits were carried out across the 2020 and 2021 breeding season, and five visits were carried out across the 2022 breeding season for the purposes of surveying for breeding kingfisher. Survey dates ranged from late-May to mid-July in 2020, from late-March to early-June in 2021 and from late-April to early-July in 2022 (see **Table 7**, **Table 8** and **Table 9**) and surveys were conducted in favourable conditions.

Table 7. Kingfisher survey dates and weather conditions (2020)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
29.05.2020	06h40	12h40	SE1	None	1	>500m	>5km	14°C-20°C
18.06.2020	07h30	13h30	N2	None	7	150-500m	>5km	13°C-16°C
30.06.2020	05h20	11h20	SW2	None	6	>500m	>5km	12°C-17°C
14.07.2020	06h40	12h40	NW3	Heavy thunder showers, late morning	8	150-500m	>5km	12°C

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Table 8. Kingfisher survey dates and weather conditions (2021)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
30.03.2021	10h30	16h30	SW4	None	4	>500m	>10km	11°C
22.04.2021	10h30	16h30	SE3	None	4	150-500m	>10km	11°C
12.05.2021	10h30	16h30	SE3	None	6	>500m	>10km	10°C-12°C
09.06.2021	10h30	16h30	SE3-SW3	Light rain showers	8	150-500m	>5km	19°C

Table 9. Kingfisher survey dates and weather conditions (2022)

Date	Start	End	Wind (Beaufort)	Precipitation	Cloud (Oktas)	Cloud height	Visibility	Temp. (°C)
24.04.2022	09h05	15h00	NW4	None	0	unknown	>5km	10°C
19.05.2022	14h15	20h00	NW3	None	5	unknown	>5km	19°C
04.06.2022	15h50	20h05	ENE4	None	6	unknown	5-10km	14°C
28.06.2022	07h40	12h45	SSE3	Light rain	8	unknown	>5km	13°C
09.07.2022	08h50	13h30	NW3	None	8	unknown	>5km	17°C

In addition to recording weather conditions, the surveyor also noted potential disturbance events observed during the 2020 and 2021 surveys. These are presented in **Table 10** and **Table 11** below:

Table 10. Disturbance events recorded during Kingfisher surveys (2020)

Date	Start	End	Walkers	Dogs	Anglers	Powered boats	Unpowered boats	Aircraft
29.05.2020	06h40	12h40	7	8	4	0	0	0
18.06.2020	07h30	13h30	9	4	1	0	8	0
30.06.2020	05h20	11h20	13	11	3	0	18	0
14-Jul-20	06h40	12h40	4	3	1	0	2	0

Table 11. Disturbance events recorded during Kingfisher surveys (2021)

Date	Start	End	Walkers	Dogs	Anglers	Unpowered boats
30.03.2021	10h30	16h30	49	9	0	0
22.04.2021	10h30	16h30	38	7	1	0
12.05.2021	10h30	16h30	6	4	0	0
09.06.2021	10h30	16h30	15	7	0	6

Multiple sightings of Kingfisher were observed on each survey in 2020, with a juvenile recorded on 30th June survey. Results are presented in **Table 12** below, which confirmed the location of the nest to be at the same site as previous years (**Table 12**).

Despite making visits across the season, no observations of kingfisher were made during the 2021 season in either dedicated kingfisher survey, breeding bird survey or casual observations. Additional anecdotal evidence from a number of locals who regularly walk the river and the group leader of a kayak group, who was on his fourth journey down the Boyne from to Stackallen to Slane in two weeks, there have been no sightings of kingfisher in the Slane area in 2021.

In the 2022 kingfisher surveys, a total of 12 flights were recorded and are presented in **Table 13** below. Where the sex of the species could be determined, all records were of adult males. Whilst there was no confirmation of breeding, a territory was held across the season at Slane Demesne, approximately 125 m upstream from the 2020 breeding site.

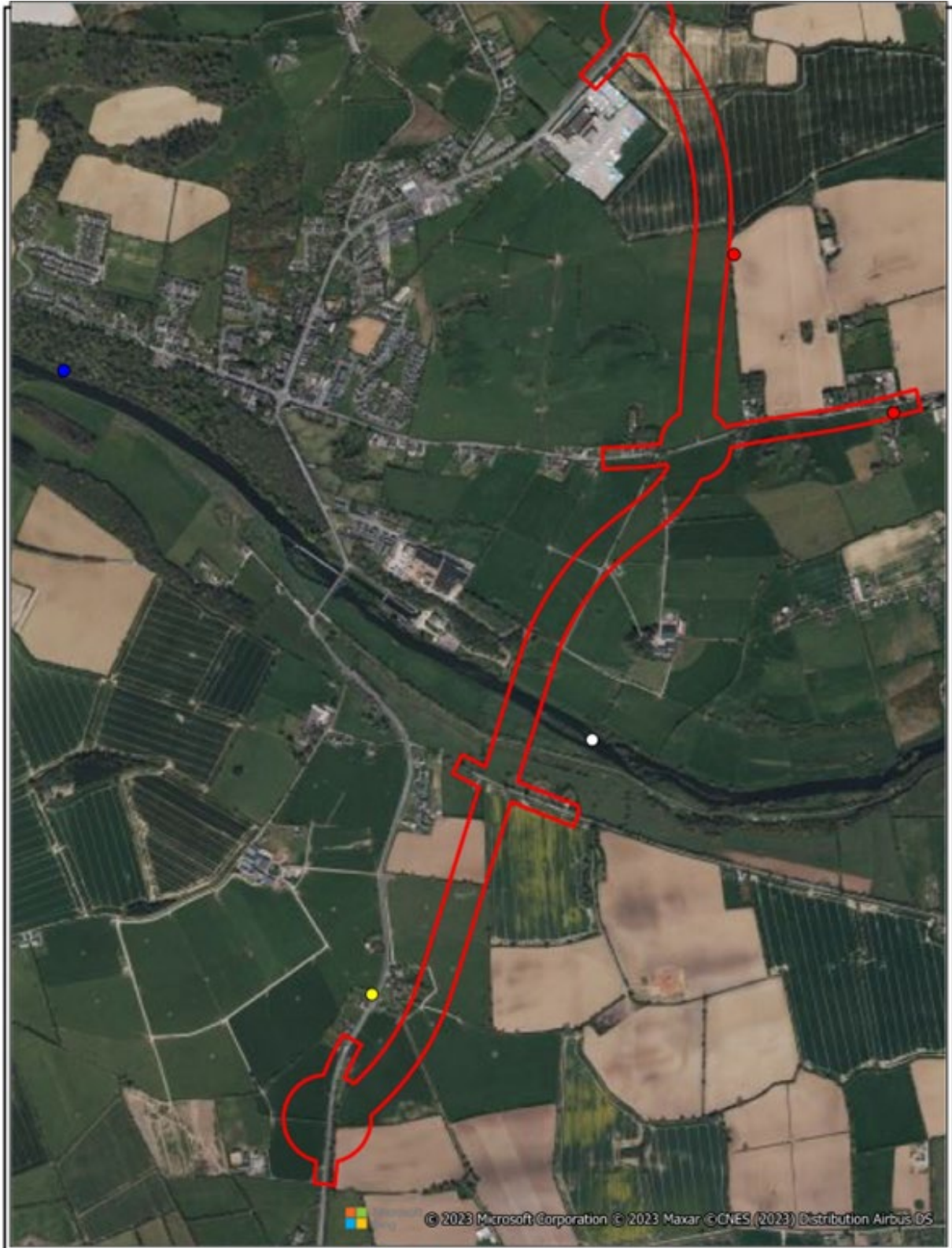
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Table 12. Results of Kingfisher Survey (2020)

Date	Time of observation	Observation	Note
29.05.2020	07h28	1 Adult	Flew from north bank
29.05.2020	08h07	1 Adult	Flew up river to north bank
29.05.2020	08h10	1 Adult	
29.05.2020	09h23	1 Adult	Flew into tree cover, north bank
29.05.2020	09h25	1 Adult	Flew up river to north bank
18.06.2020	09h01	1 Adult	Flew down river, calling
18.06.2020	09h38	1 Adult	Flew up river, carrying fish, lost sight as flew under bridge
18.06.2020	10h51	1 Adult	Flew out from north bank
18.06.2020	11h09	1 Adult	Flew into north bank, carrying fish
18.06.2020	11h13	1 Adult	Flew into tree cover, north bank
18.06.2020	13h07	1 Adult	Carrying fish
30.06.2020	05h17	1 Adult	Flushed on approach to VP
30.06.2020	08h01	1 Adult	Flew into tree cover, north bank
30.06.2020	08h03	1 Adult	Flew out from north bank
30.06.2020	08h30	1 Juvenile	Perched
30.06.2020	08h34	1 Juvenile	Flew from perch, downstream
30.06.2020	10h48	1 Adult	Flew downstream
14.07.2020	07h24	1 Adult	Upstream, under bridge
14.07.2020	09h08	1 Juvenile(?)	Looked like juvenile bird but only had brief view
14.07.2020	09h47	1 Adult	Flushed on approach to VP
14.07.2020	10h41	1 Adult	Flew from north bank
14.07.2020	11h05	1 Adult	Carrying fish
14.07.2020	11h07	1 Adult	Flew from north bank
14.07.2020	11h42	1 Adult	Flew into cover with fish
14.07.2020	11h50	1 Adult	Flew from bank

Table 13. Results of Kingfisher Survey (2022)

Date	Time of observation	Observation	Note
24.04.2022	09h27	1 Adult	Flew downstream at weir by Slane Castle
24.04.2022	09h46	1 Adult	Upstream towards Slane Castle, lost sight round bend in river
24.04.2022	11h09	1 Adult	Bird flying downstream over weir and under existing road bridge
24.04.2022	11h16	1 Adult	Presumably, same bird at 11h09 flying upstream from existing road bridge and over weir
24.04.2022	14h40	1 Adult	Bird recorded flying downstream, approx. 500m downstream of proposed crossing
19.05.2022	17h43	1 Adult	Upstream between weirs
19.05.2022	17h46	1 Adult	Presumably, same bird returning downstream between weirs
04.06.2022	17h25	1 Adult	Downstream, lost sight as bird flew under existing road bridge
28.06.2022	11h33	1 Adult	Bird flew upstream towards Slane Castle
28.06.2022	12h11	1 Adult	Bird flew upstream towards Slane Castle
28.06.2022	12h30	1 Adult	Bird flew downstream from Slane Castle direction
09.07.2022	09h49	1 Adult	Bird flew upstream towards Slane Castle



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Figure 2
Approximate breeding locations / territories of species of conservation concern

Legend

- Kingfisher
- Mute Swan
- Robin
- Starling
- ▭ Proposed Project Corridor

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Figure 2. Approx. breeding locations of species conservation concern confirmed breeding