



Appendix

10.2 Breeding Bird Surveys



Delichon Ecology

**Ballina FRS
Breeding Bird Survey 2023**

Ballina Flood Relief Scheme



Breeding Bird Survey 2023

Prepared By:



Delichon Ecology

Prepared For:

RPS Consulting Engineers



Delichon Ecology

**Ballina FRS
Breeding Bird Survey 2023**

Ballina Flood Relief Scheme Breeding Bird Survey 2023

Revision	Dcoument Number	Description	Prepared by	Checked by	Date
Draft for Review	35_2023	Ballina FRS Breeding Bird Survey	ED	ED	07/07/2023
Updated following Review	35_2023	Ballina FRS Breeding Bird Survey	ED	ED	23/08/2023
Final	35_2023	Ballina FRS Breeding Bird Survey	ED	ED	12/10/2023



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1. Introduction

Delichon Ecology Ltd was commissioned by RPS Consulting Engineers, to undertake a breeding bird survey for the proposed Ballina Flood Relief Scheme (FRS) in April 2023. The survey sought to supplement and consolidate the findings of the breeding bird surveys undertaken for the FRS in 2021 and again in 2022. The findings of the surveys undertaken in 2021 and 2022 are presented in **Appendix A**.

This current study consisted of walkover surveys that incorporated line and point transect surveys and field scanning surveys during the breeding season 2023; i.e. late April 2023 to early June 2023. The surveys were undertaken to assess the presence, pattern of usage and current conservation status of breeding bird species found within and in the vicinity of the proposed Ballina FRS (**Figure 3-1**). These surveys were also used to evaluate the importance and potential ecological significance of the study area and its environs to support breeding avifauna.

1.1 Scheme Objectives

This project involves the assessment and development of a flood relief scheme (a 'Scheme') and other measures to manage the existing flood risk in Ballina Town Co. Mayo, and also the potential for significant increases in this risk due to climate change, ongoing development and other pressures that may arise in the future. The extent of the proposed Flood Relief measures considered as part of the breeding bird survey completed in 2023 are presented in **Figure 1.1** below.

1.2 Aims of the Proposed Survey

- To record quantitative spatial data on breeding birds within the footprint, environs and Zone of Influence of the proposed Ballina Flood Relief Scheme.

1.3 Brief Description of the Study Site

The study site is located within the footprint and surrounding environs of Ballina town in Co. Mayo. The study area encompasses built up urban environment of Ballina town, its peri-urban fringes in addition to the wider rural landscape. Habitat complexes present within Ballina and its environs include buildings and artificial surfaces (BL3)¹, amenity grassland (GA2) and associated parkland (WD5), playing pitches, private gardens, the River Moy (IE_WE_420_0300) corridor and its tributaries. Outside of the town centre and at the interface with Ballina Town, small areas of improved grassland, semi-improved, wet grassland and associated hedgerows and treelines occur amongst residential developments and associated greenfield (parkland) areas.

¹ Alphanumeric codes are presented in accordance with 'A Guide to Habitats in Ireland (Fossitt, 2000)'.

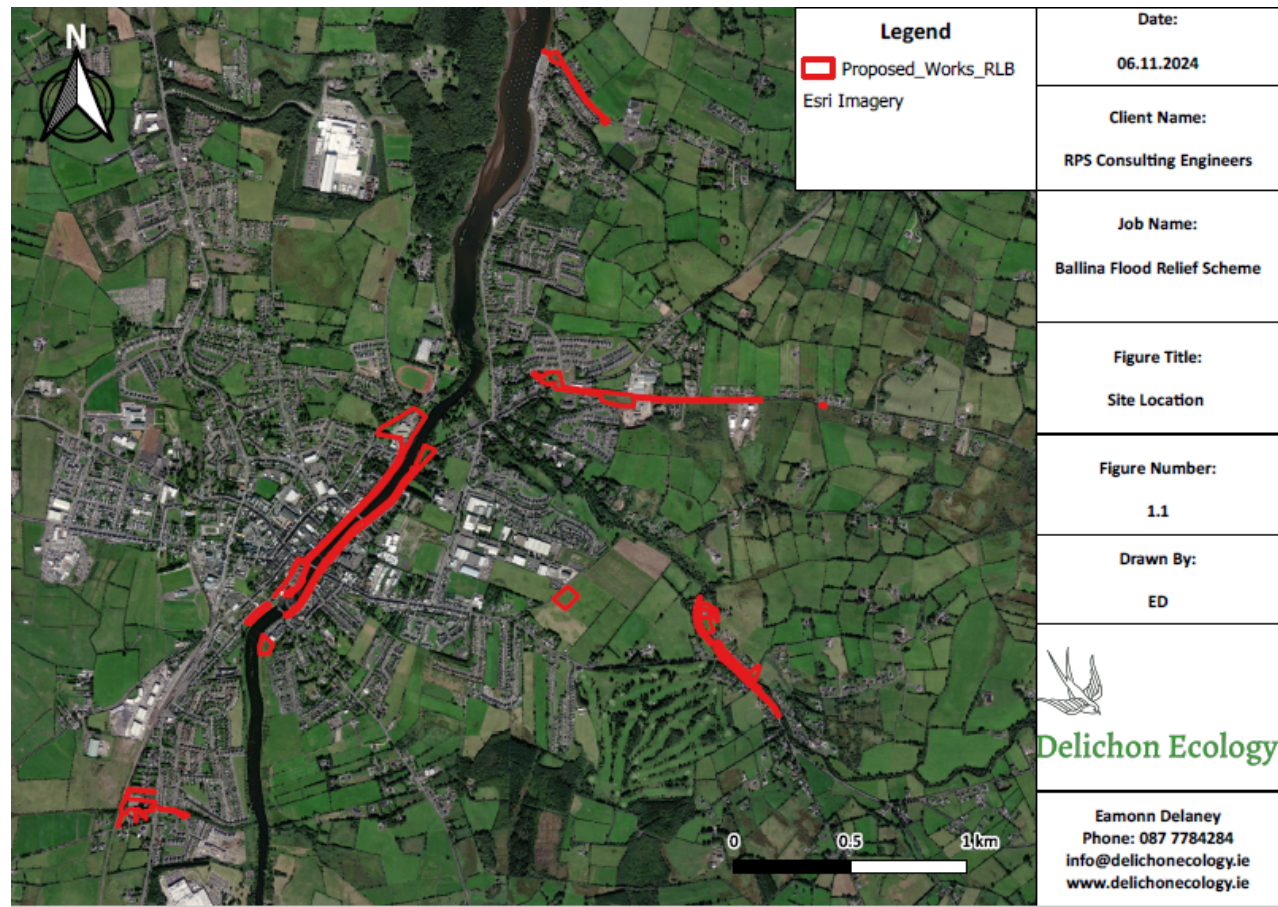


Figure 1-1 - Study area and proposed Flood Relief Scheme Measures



2 Methodology

2.1.1 Bird Surveys

Bird Survey methodology undertaken for the Ballina Flood Relief Scheme included seven line transects and two point counts in 2023.

The bird surveys were conducted in accordance with the methodology described by Bibby *et al.* (2000) and the Countryside Bird Survey Manual - Guidelines for Countryside Bird Survey participants (BirdWatch Ireland, 2012). Two survey visits were conducted; an early breeding season survey (before May 15th) to identify and determine the occurrence and abundance of resident breeding birds and a second later breeding season survey (after May 15th) to identify the occurrence and abundance of migratory breeding bird species.

The survey area extent was based on the footprint and surrounding environs of the proposed flood relief measures for the Ballina Flood Relief Scheme. These footprint of these measures are presented in **Figure 1.1** above.

The study area extent is presented in **Figure 3.1** below.

Two field walkover surveys were undertaken between April 2023 and June 2023. These surveys were completed during suitable weather conditions (Bibby *et al.* 2000). Survey dates, survey times and conditions are provided in **Table 2.1** below.

Table 2-1 - Breeding bird survey dates

Survey Date and Period	Survey Time (Extent)	Survey Conditions	Survey Effort
April 28th 2023 (Early Season)	07:09 – 11.03 Transect 1 – 07.09 – 07.29 Transect 2 - 07.43 – 07.59 Transect 3 – 10.48 – 10.33 Transect 4 - 08.31 – 08.56 Transect 5 - 08.07 – 08.24 Transect 6 - 09.39 – 09.56 Transect 7 – 10.27 – 10.37 Point Count 1 – 10.11 – 10.17	Drizzle clearing to drier conditions. Overcast with moderate temperatures. Good to Moderate visibility, Octas 8/8. Windspeed BF 0-1 SW.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
June 13th 2023 (Late Season)	06.33 – 10.40 Transect 1 - 06.33 – 06.47 Transect 2 – 07.41 – 07.57 Transect 3 – 09.17 – 09.33 Transect 4 – 08.39 – 08.57 Transect 5 – 08.12 – 08.20 Transect 6 – 07.03 - 07.17 Transect 7 – 10.10 – 10.16 Point Count 1 - 07.23 – 07.35 Point Count 2 – 10.30 – 10.40	Overcast, occasional drizzle but mostly dry with moderate temperatures. Good visibility, Octas 8/8. Windspeed BF 0-1N.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.



All bird species encountered (seen or heard) during the surveys were recorded, together with the abundance of each species. Birds flying over the site were also included as part of the observations. Casual records of birds encountered during the spot counts and field walkovers, but outside of dedicated survey period were also noted.

2.1.2 Conservation Status of Bird Species

The conservation status of bird species recorded during the transect surveys and scoping exercise was assessed with reference to the EU Birds Directive (2009/147/EC) Annex I list and Birds of Conservation Concern in Ireland (BoCCI), (Gilbert & Lewis, 2021)². For the BoCCI list, Red-listed species are of high conservation concern in Ireland, Amber-listed species are considered of medium conservation concern, while Green-listed species are not of conservation concern in Ireland at present. Bird species listed on Annex I of the EU Birds Directive have been identified as requiring special conservation measures in relation to their habitats and have been listed due to risk of extinction; vulnerability to specific changes in their habitat and due to their relatively small population size or restricted distribution. The numbers of birds along each transect was recorded and breeding evidence / behaviour of the birds identified were recorded in accordance with the breeding status codes outlined by the British Trust for Ornithology (BTO). The BTO Breeding Status Codes are presented in **Appendix B**.

2.1.3 Zone of Influence

The current guidance on ecological assessments (CIEEM, 2018)³ recommends that all ecological features that occur within a 'Zone of Influence' (Zol) for a proposed development are investigated.

The Zol for the breeding bird surveys includes:

- areas directly within the proposed Flood Relief Scheme footprint;
- areas adjoining and in proximity to the proposed Flood Relief Scheme providing suitable breeding avifaunal habitat;
- areas adjoining the proposed Flood Relief Scheme footprint subject to indirect impacts (such as disturbance impacts) from the proposed works;
- areas which will be temporarily affected during construction;
- areas likely to be impacted by hydrological disruption; and
- areas where there is a risk of pollution and noise disturbance during construction and/or operation.

² Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 9: 523—544

³ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.2 Updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester



The ZOI is variable depending on the ecological receptors affected. Given the extent of the proposed Flood Relief scheme study area (**Figure 3.1**), in this case the ZOI is the footprint of the proposed Flood Relief Scheme and immediately adjoining and surrounding lands.



3 Results

3.1 Birds in the Existing Environment

The species assemblage recorded during the breeding bird surveys was typical for the range of habitats present within the Ballina FRS study area and its environs. Abundances of breeding avifauna using the study area and its environs were low and restricted to individuals or small flocks. The main channel of the River Moy did not support great abundances of instream aquatic or riverside avifauna, rather individuals or small flocks of birds overflying the channel or associated with adjoining built up habitats. Bird species identified using the Moy watercourse during the surveys for feeding and foraging purposes included Grey Heron, Common Sandpiper, Sand Martin, Grey Wagtail, Herring Gull, Lesser Black-backed Gull and Herring Gull were also identified within the environs and surroundings of the watercourse in small numbers. Small flocks of Swift (n=6) were identified foraging high over the River Moy and its adjoining buildings during the late season survey, in June 2023. Kingfisher was not identified using the River Moy during the site surveys. The footprint of the proposed flood wall on the south/south-western bank of the river provides poor suitability for Kingfisher breeding habitat. By contrast, the north/north-eastern bank of the river downstream of the N59 Lower Bridge provides more suitable Kingfisher breeding habitat due to the presence of individual trees, shrubs and small pockets of scrub. However it should be noted that Kingfisher breeding activity has never been recorded along the River Moy within the Ballina FRS during the surveys undertaken between 2021 and 2023.

Most of the transects surveyed supported regular occurrences of resident breeding passerine species such as Wren, Robin, Song Thrush, Blackbird, Blue Tit, Chaffinch and Dunnock. These were typically associated with gardens, parklands and small areas of scrub and woodland adjoining the proposed FRS measures.

Migratory passerine species identified within the survey area included Willow Warbler, Chiffchaff, Blackcap, House Martin, Swallow and Swift. These species were mostly identified during the second (late season) survey. Willow Warbler and Blackcap were typically associated with scrub cover adjoining the River Moy riparian area, in addition to areas adjoined by scrub, woodland and parkland areas. House Martin, Swallow and Swift were seen foraging over the urban and peri-urban habitats while Sand Martin were noted foraging over the River Moy and along the margins of Transect 5.

Dipper, a specialist riverine species was identified on the Glenree River⁴ (along Transect 6) during the early season survey in 2023. Dipper nests were not identified along the section of the stream within the study area or its associated bridge structures.

A brief analysis of each transect is provided below. The findings of the breeding bird survey results from 2023 is presented in full in **Table 3.1** below.

3.1.1 Survey Results 2023

Line Transect 1 – This transect was located along the south / south-eastern bank of the River Moy main channel commencing at the N59 Lower bridge continuing south along the bank of the river and

⁴ Also known as the Brusna River



up to the Salmon Weir. This transect included the main channel of the River Moy and adjoining areas of the riparian area, which are predominantly built habitats such as pathways, roads, buildings and private residential dwellings. Most breeding bird activity associated with this transect was associated with birds occurring on or flying over / through the River Moy main channel.

Line Transect 2 – Transect 2 is located along the southeastern bank of the River Moy stretching between the town park and continuing up to the N59 lower Bridge. The transect spanned the parkland habitats associated with the Town park, which supported good cover of young woodland and shrubbery. South-west of the town park, the transect continued along the riparian area of the River Moy which comprised intermittent willow scrub and unmanaged tussocky wet grassland. This transect supported consistent occurrences of common passerines typically associated with parkland habitats and adjoining residential dwellings. Other species associated with pockets of scrub cover adjoining the western bank of the river included Willow Warbler and Blackcap.

Line Transect 3 – This transect is sited on the footprint and margins of the N59 of between the River Moy and the Marian Crescent housing estate. This transect is located within a built-up area comprising roadways, footpaths, retail premises and residential dwellings. Bird activity identified along this transect included overflying birds or birds utilising the gardens of private residential dwellings. Given the nature of the habitats within the study area, bird activity and abundance was low and mostly restricted to corvid and passerine species capable of foraging within built up habitats. Nonetheless, Grey Wagtail exhibiting confirmed breeding activity (adult carrying food in mouth) along the Knockanelo Stream during the April 2023 breeding bird surveys.

Line Transect 4 – Line transect 4 is located on the northern outskirts of Ballina Town, within the Quignamanger townland. The proposed FRS works are situated upon a channelised and partially culverted narrow sinuous watercourse, identified by the EPA as the Quignamanger stream. Water quality within this watercourse appeared good during the site surveys however and the River Waterbodies Risk⁵ for this watercourse is under review while the River Waterbody WFD Status 2016-2021 for this watercourse is considered to be Good. This watercourse runs along the fringes of a local road and fringes playing fields and private residential developments. This transect supported common passerine and corvid species, mostly associated with adjoining gardens, shrubbery or overflying the area in addition to notable occurrences of riparian and wetland bird species including Dipper, Grey Wagtail and Mallard. The westernmost section of the transect adjoins the estuarine section of the River Moy. This section of the River Moy supports feeding and foraging waterbird species including Cormorant, Herring Gull, Black-headed Gull and Grey Heron.

Line Transect 5 – Transect 5 was located on the northern fringes of Ballina town, within the Downhill townland. The proposed FRS works and associated line transect is sited on a local access road serving private residential dwellings, commercial and industrial developments. The proposed FRS works are situated upon a channelised and partially culverted narrow sinuous watercourse, identified by the EPA as the Dooyeaghan / Cloonloughan_010 stream. Water quality within the watercourse appeared good during the site survey however and the River Waterbodies Risk for this watercourse is under review while the River Waterbody WFD Status 2016-2021 for this watercourse is considered to be Good.

⁵ <https://gis.epa.ie/EPAMaps/>



Similar to Transect 4, Transect 5 mostly supports built ground. Tree and shrub cover associated with adjoining areas of improved and semi-improved grassland afforded the most suitable habitats for passerine birds and corvids. Other species identified overflying the transect included Swallow, House Martin and Sand Martin were also noted.

Line Transect 6 – Transect 6 is located upon the Brusna River, a large erosional watercourse comprising good quality riverine substrate and associated riparian habitat, which includes broadleaved woodland, scrub and dry meadows and grassy verge grassland. This area is fringed by ribbon residential development with associated private gardens and ornamental shrubbery. The Brusna River is also identified by the EPA as the Glenree_030 river. Water quality within this watercourse appeared good and the River Waterbodies Risk for this watercourse is Good while the River Waterbody WFD Status 2016-2021 for this watercourse is classified as Good. The riparian environs and the wider area supported the usual suite of resident passerine and migratory passerine species, including Blackcap and Willow Warbler. Riverine species identified within the water column included Dipper, Grey Wagtail and Grey Heron. The bridges spanning the Brusna River within the proposed works footprint did not exhibit suitable nesting habitat for these species. However, the areas of broadleaved woodland adjoining the survey area may provide suitable nesting habitats for species such as Grey Wagtail.

Line Transect 7 – Line transect 7 was undertaken within a proposed compound area, immediately south of Transect 2 and adjoining the eastern bank of the River Moy. The proposed compound footprint supports overgrown grassland habitat comprising areas of wet grassland and dry meadows and grassy verge grassland habitat. The compound footprint does not support tree, shrub or scrub cover and therefore reduces suitability for nesting passerine avifauna. The area's proximity to the River Moy means that it supports overflying or adjacent foraging riverine species such as Sand Martin, Swallow, Grey Heron, Grey Wagtail and Mallard. Passerine species heard calling from the environs of the compound footprint include Willow Warbler, Wren, Robin, Song Thrush and Dunnock.

Point Transect 1 – This Point Count was undertaken within a proposed compound location on the eastern outskirts of Ballina Town. The compound location is located on improved grassland on undulating ground with a localised water filled depression, potentially influenced by seasonal groundwater ingress. This area and its surrounds comprise open pastoral lands, which are largely unsuitable to support many resident and migratory breeding passerine species. Nonetheless, species such as Swallow were identified foraging over these fields while Meadow Pipit was identified holding territory during the June 2023 survey.

Point Transect 2 – This Point Count was undertaken along the Tullegghan watercourse, near the south-western margins of the survey area. The point count transect was conducted from the N26 roadbridge, overlooking the Tullegghan watercourse. The watercourse at this location is a channelised, straightened and narrow watercourse, flanked by residential developments. The watercourse appears to be in poor to moderate condition, with localised occurrences of debris. Nonetheless, a Male Grey Wagtail and three fledged young were noted perching on a tyre within the water column, downstream of the roadbridge.

A breakdown of the breeding avifauna recorded in April and June 2023 is presented in **Table 3.1** below.

Table 3-1 - Breeding Bird Survey Results April 2023⁶

Species Name ⁷	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Point Count 1
House Sparrow <i>Passer domesticus</i>	1(S) ⁸		1(S)	1(S)	3(S,H)	2(S)		
Wren (<i>Troglodytes troglodytes</i>)	1(S)	2(S,H)		1(H)	4(H,S)	3(H,S)		2(H,S)
Robin (<i>Erithacus rubecula</i>)		2(H)	2(H,S)		3(H,S)	1(H)		
Pied Wagtail (<i>Motacilla alba yarrelli</i>)								
Song Thrush (<i>Turdus philomelos</i>)				1(H)				
Blackbird (<i>Turdus merula</i>)		3(H)	1(H)	3(H,S)	1(S)	2(H,S)		
Song Thrush (<i>Turdus philomelos</i>)					1(S)	2(S)		
Great Tit (<i>Parus major</i>)					1(S)			
Willow Warbler (<i>Phylloscopus trochilus</i>)		1(S)					2(S)	
Blackcap (<i>Sylvia atricapilla</i>)		1(S)		2(S)		2(S)		

⁶ Numbers presented in the table relate to the numbers of birds identified during the birds surveys.

⁷ Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).

⁸ Numbers of birds identified along each transect are presented in this table. In addition, the British Trust for Ornithology Breeding Status Codes are also included for each species identified. S - Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat ; H - Species observed in breeding season in suitable nesting Habitat; F - Flying over; U - Species observed but suspected to be summering non-breeder



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Species Name ⁷	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Point Count 1
Goldcrest (<i>Regulus regulus</i>)						1(S)		
Starling (<i>Sturnus vulgaris</i>)	1(F)	20(U)	1(F)	4(F)	1(H)		2(F)	
Blue Tit (<i>Cyanistes caeruleus</i>)	1(S)	2(S,H)	1(S)		1(S)	1(S)		
Coal Tit (<i>Periparus ater</i>)						1(S)		
Goldcrest (<i>Regulus regulus</i>)		1(S)		1(S)				
Greenfinch (<i>Chloris chloris</i>)								1(S)
Goldfinch (<i>Carduelis carduelis</i>)				1(S)		1(S)		
Chaffinch (<i>Fringilla coelebs</i>)	1(S)				1(S)	2(S)		
Jackdaw (<i>Corvus monedula</i>)	1(H), 2(F)			2(F)				
Hooded Crow (<i>Corvus corone</i>)	1(H)							
Rook (<i>Corvus frugilegus</i>)	1(F)			1(F)	2(F)			1(F)
Woodpigeon (<i>Columba palumbus</i>)	1(F)			2(H)	1(F)	1(F)		2(F)
Herring Gull (<i>Larus argentatus</i>)	1(F)							



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Species Name ⁷	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Point Count 1
Lesser Black-backed Gull (<i>Larus fuscus</i>)	2(U)							
Mallard (<i>Anas platyrhynchos</i>)			1(H)					
Dunnock (<i>Prunella modularis</i>)			1(H)		1(H)	2(S)		1(S)
Sand Martin (<i>Riparia riparia</i>)					1(H)		1(F)	1(F)
Common Sandpiper (<i>Actitis hypoleucos</i>)	1(H)							
Grey Heron (<i>Ardea cinerea</i>)	1(H)	1(H)				1(H)		
Cormorant (<i>Phalacrocorax carbo</i>)				1(F)				
Swallow (<i>Hirundo rustica</i>)						1(H)	2(F)	
Pied Wagtail (<i>Motacilla alba yarrelli</i>)	1(H)			1(H)				1(H)
Grey Wagtail (<i>Motacilla cinerea</i>)	3(H,S,P)		1(FF)			1(H)		
Dipper (<i>Cinclus cinclus</i>)						1(H)		
Feral Pigeon (<i>Columba livia domestica</i>)	2(H)							



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Table 3-2 - Breeding Bird Survey Results June 2023

Species Name ⁹	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Pount Count 1	Point Count 2
House Sparrow <i>Passer domesticus</i>	1(H)			3(H)	1(H)	1(H)			
Wren (<i>Troglodytes troglodytes</i>)	2(S)	1(H)		3(H,S)	4(H,S)	6(H,S)	2(H)	1(H)	1(H)
Robin (<i>Erithacus rubecula</i>)		2(H)					1(H)		2(H,S)
Song Thrush (<i>Turdus philomelos</i>)		1(H)				2(S)	1(S)		
Blackbird (<i>Turdus merula</i>)	3(H,S)	4(H,S)		1(H)		2(S)			
Blue Tit (<i>Cyanistes caeruleus</i>)		2(H)		2(H, FL)		1(H)	2(H)		1(S)
Goldfinch (<i>Carduelis carduelis</i>)					2(H)				
Long-tailed Tit (<i>Aegithalos caudatus</i>)									
Chaffinch (<i>Fringilla coelebs</i>)		1(H)				3(S)			
Willow Warbler (<i>Phylloscopus trochilus</i>)				2(H)	2(H)		1(H)	1(H)	
Blackcap (<i>Sylvia atricapilla</i>)		1(H)		1(H)					

⁹ Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).



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Species Name ⁹	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Pount Count 1	Point Count 2
Meadow Pipit (<i>Anthus pratensis</i>)								2(H)	
Goldcrest (<i>Regulus regulus</i>)				1(H)		1(H)			
Starling (<i>Sturnus vulgaris</i>)	11(F)	2(H,F)		1(H)	1(H)	1(H)			
Jackdaw (<i>Corvus monedula</i>)	1(F)	6(F)		2(H)	2(F)				3(F)
Hooded Crow (<i>Corvus corone</i>)	1(F)								
Rook (<i>Corvus frugilegus</i>)		1(F)		1(F)		4(F)			
Woodpigeon (<i>Columba palumbus</i>)				1(F)	2(F)	1(F)			
Collared Dove (<i>Streptopelia decaocto</i>)				1(F)					
Herring Gull (<i>Larus argentatus</i>)				1(U)					
Black-headed Gull (<i>Larus ridibundus</i>)	4(F)	1(F)		5(F, U)					
Lesser Black-backed Gull (<i>Larus fuscus</i>)	1(U)								
Dunnoek (<i>Prunella modularis</i>)							1(H)		
Sand Martin (<i>Riparia riparia</i>)	1(F)								
Swallow (<i>Hirundo rustica</i>)	1(F)			3(F)	1(H)		1(F)	4(F)	



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Species Name ⁹	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Pount Count 1	Point Count 2
Swift (<i>Apus apus</i>)	6(F)								
Swallow (<i>Hirundo rustica</i>)									2(F)
House Martin (<i>Delichon urbicum</i>)					5(F)				
Grey Heron (<i>Ardea cinerea</i>)				1(H)					
Pied Wagtail (<i>Motacilla alba yarrelli</i>)	1(H)								
Grey Wagtail (<i>Motacilla cinerea</i>)	2(H)	1(H)				1(H)			1(FL)
Mallard (<i>Anas platyrhynchos</i>)	2(FL), 1(FL) 2(H)						2(H)		
Feral Pigeon (<i>Columba livia domestica</i>)	5(F)								

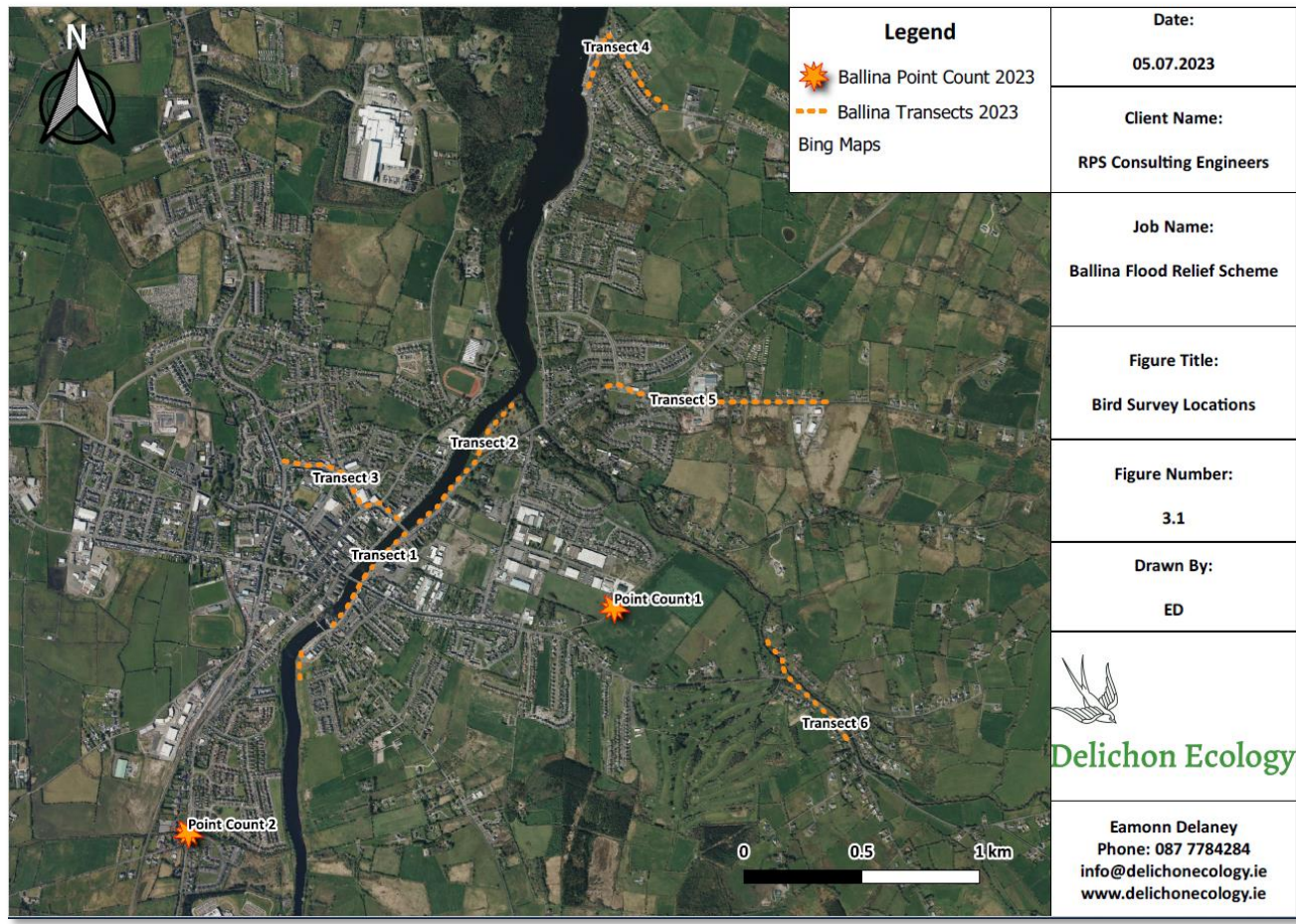


Figure 3-1 - Bird Survey Locations 2023



3.2 Summary

The study area is dominated by urban and peri-urban environments. The more built-up areas near Ballina's town centre support fewer numbers and lower diversity of breeding avifauna when compared with the peri-urban and adjoining parkland and greenfield areas. Most activity within the town centre is associated with the River Moy corridor, where low numbers (mostly individual birds) of riverine species (Sand Martin, Grey Wagtail, Grey Heron, Common Sandpiper and Gull species) utilise the river and riverbank margins.

Resident passerine birds are a common feature throughout the study area, where their occurrence and abundance increases in those areas supporting parklands, private gardens and remnant pockets of agricultural grassland. These species include Wren, Robin, Dunnock, Blackbird, Song Thrush, Pied Wagtail, Blue Tit and corvid species.

Typical migrant species were identified within the study area during the second (late) survey undertaken in June 2023. Given the abundance of built infrastructure within the study area, species such as Swift, Swallow, House Sparrow and House Martin were noted, most frequently near the town centre and adjoining the main channel of the River Moy.

The proposed FRS works footprint are largely unsuitable to support breeding (nesting) sites for the bird species mentioned above and those listed in **Table 3.1** as most of these areas comprise built ground such as existing roads and pathways. Proposed flood infrastructure along the riparian areas of the River Moy and its tributaries could contribute some disturbance and removal of potential breeding bird habitat such as linear scrub, hedgerows and treelines. Minor and localised disturbance may also be realised as a result of the proposed flood defence embankment located near the north of the study area or along the Glenree River which may require the disturbance and removal of linear woodland, scrub and dense grassy verge habitats. However, such impacts may be readily offset through the careful scheduling of vegetation removal works (outside of the breeding birds season March 01st to August 31st inclusive) and, where necessary, the replacement of such habitat through replanting and reinstatement work.



4 References

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APPENDIX A – BALLINA FRS BREEDING BIRD SURVEY 2021 & 2022



Delichon Ecology

**Ballina FRS
Breeding Bird Survey**

Ballina Flood Relief Scheme



Breeding Bird Survey 2021 & 2022

Prepared By:



Delichon Ecology

Prepared For:

RPS Consulting Engineers



Delichon Ecology

**Ballina FRS
Breeding Bird Survey**

Breeding Bird Survey

Revision	Dcoument Number	Description	Prepared by	Checked by	Date
Draft for Review	38_21	Ballina FRS Breeding Bird Survey	ED	ED	28/09/2021
Updated draft	38_21	Ballina FRS Breeding Bird Survey	ED	ED	21/11/2021
Final	38_21	Ballina FRS Breeding Bird Survey	ED	ED	23/11/2021



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1. Introduction

Delichon Ecology Ltd was commissioned by RPS Consulting Engineers, to undertake a breeding bird survey for the proposed Ballina Flood Relief Scheme (FRS).

This current study consisted of walkover surveys that incorporated line and point transect surveys and field scanning surveys during the breeding season 2021; i.e. April 2021 to June 2021 and again in June 2022. A late season survey was undertaken in June 2022, to consider the areas surveyed in 2021 and to survey additional potential FRS areas located to the east, north-east and south-west of Ballina town centre. The surveys were undertaken to assess the presence, pattern of usage and current conservation status of breeding bird species found within and in the vicinity of the proposed Ballina FRS (**Figure 3-1**). These surveys were also used to evaluate the importance and potential ecological significance of the study area and its environs to support breeding avifauna.

1.1 Scheme Objectives

This project involves the assessment and development of a flood relief scheme (a 'Scheme') and other measures to manage the existing flood risk in Ballina Town Co. Mayo, and also the potential for significant increases in this risk due to climate change, ongoing development and other pressures that may arise in the future. The extent of the proposed Flood Relief measures are presented in **Figure 1.1** below.

1.2 Aims of the Proposed Survey

- To record quantitative spatial data on breeding birds within the footprint, environs and Zone of Influence of the proposed Ballina Flood Relief Scheme.

1.3 Brief Description of the Study Site

The study site is located within the footprint and surrounding environs of Ballina town in Co. Mayo. The study area encompasses built up urban environment of Ballina town, in its peri-urban fringes in addition to the wider rural landscape. Habitat complexes present within Ballina and its environs include buildings and artificial surfaces, amenity grassland and associated parkland, playing pitches, private gardens, the River Moy (IE_WE_420_0300) corridor and its tributary, the Knockanelo Stream (IE_WE_34M021100). Outside of the town centre and at the interface with Ballina Town, small areas of improved grassland, semi-improved, wet grassland and associated hedgerows and treelines occur amongst residential developments and associated greenfield (parkland) areas.

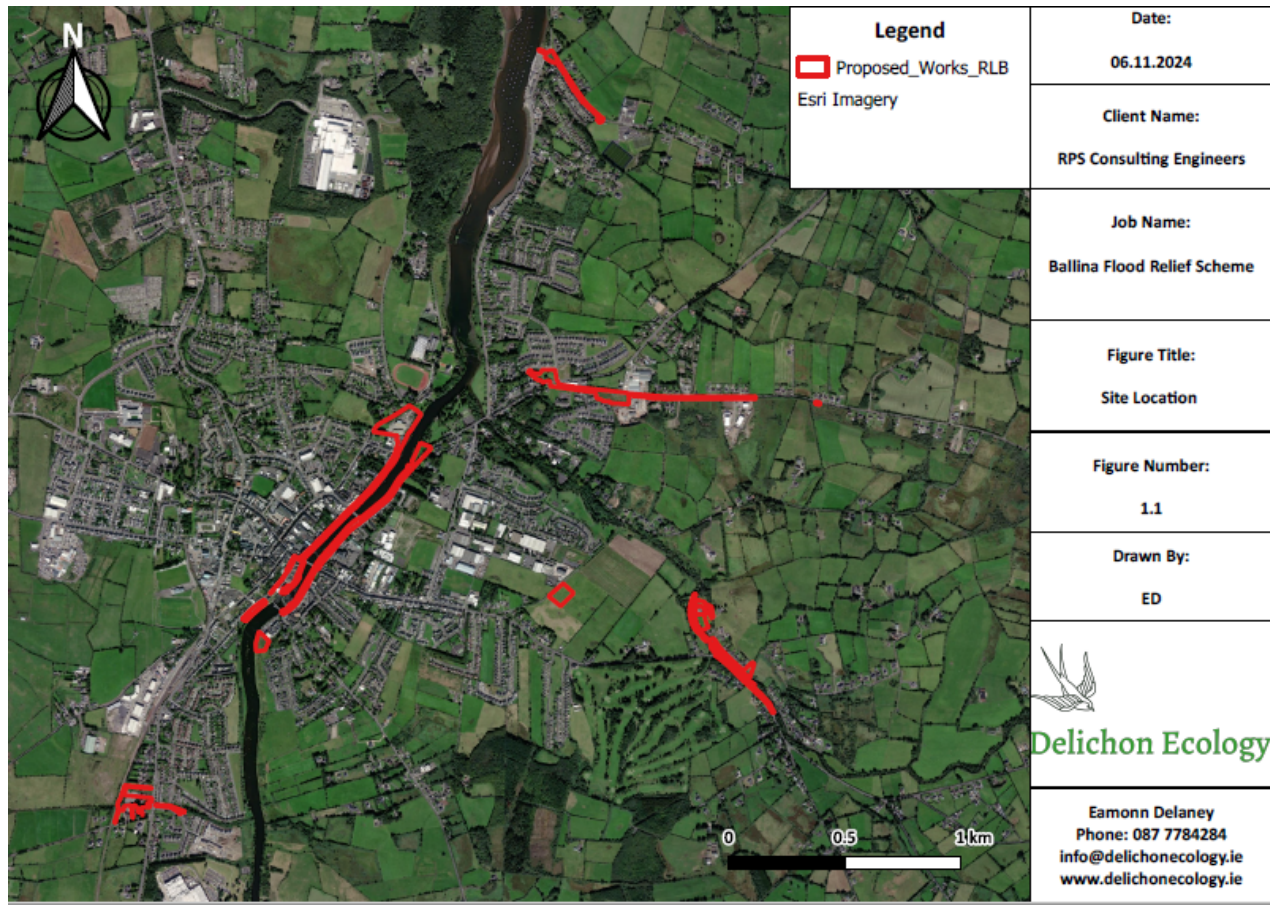


Figure 1-1 - Study area and proposed Flood Relief Scheme Measures



2 Methodology

2.1.1 Bird Surveys

Bird Survey methodology undertaken for the Ballina Flood Relief Scheme included six line transects and one point transect in 2021. An expansion of the survey area to consider proposals located to the east, north-east and south-west of Ballina town increased the survey output to eight line transects and point count transect in late June 2022.

The bird surveys were conducted in accordance with the methodology described by Bibby *et al.* (2000) and the Countryside Bird Survey Manual - Guidelines for Countryside Bird Survey participants (BirdWatch Ireland, 2012). In 2021, two survey visits were conducted; an early breeding season survey (before May 15th) to identify and determine the occurrence abundances of resident breeding birds and a second later breeding season survey (after May 15th) to identify the occurrence and abundance of migratory breeding bird species. Using the same methodologies, a late season survey was undertaken in June 2022, to consider the areas surveyed in 2021 and to survey additional potential FRS areas located to the east, north-east and south-west of Ballina town centre.

The survey area extent was based on the footprint and surrounding environs of the proposed flood relief measures for the Ballina Flood Relief Scheme. These footprint of these measures are presented in **Figure 1.1** above.

The study area extent is presented in **Figure 3.1** below.

Two field walkover surveys were undertaken between April 2021 and June 2021 with two late breeding season surveys undertaken on June 27th and June 29th 2022 to consider expansion in the scheme footprint. These surveys were completed during suitable weather conditions (Bibby *et al.* 2000). Survey dates, survey times and conditions are provided in **Table 2.1** below.

Table 2-1 - Breeding bird survey dates

Survey Date and Period	Survey Time (Extent)	Survey Conditions	Survey Effort
April 21 st 2021 (Early Season)	07:07 – 09.38 Transect 1 – 07.07 – 07.19 Transect 2 - 07.36 – 07.45 Transect 3 - 07.48 – 07.57 Transect 4 - 08.01 – 08.13 Transect 5 - 08.44 – 08.58 Transect 6 - 09.13 – 09.24 Transect 7 - 09.31 – 09.38	Bright, dry and cool. Good visibility, Octas 1/8. No rain, Windspeed BF 0-1.	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
June 08 th 2021 (Late Season)	06.08 – 08.21 Transect 1 - 06.08 - 06.23 Transect 2 - 06.34 - 06.46 Transect 3 - 06.49 - 06.56 Transect 4 - 07.13 - 07.25	Overcast, dry with moderate temperatures. Excellent visibility,	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.



Survey Date and Period	Survey Time (Extent)	Survey Conditions	Survey Effort
	Transect 5 - 07.58 – 08.12 Transect 6 – 07.43 - 07.48 Transect 7 – 08.21 - 08.36	Octas 8/8. No rain. Windspeed BF 0-1.	
June 27 th 2022 (Late Season)	07.30 - 13.52 Transect 1- 10:07 - 10:50 Transect 2 - 07:30 - 09:20 Transect 3 - 11:39 - 12:40 Transect 4 - 13:05 - 13:52	Wind: F3-4 SW. Rain: None – Occasional showers. Cloud:3/8 – 8/8. Vis: Good	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.
June 29 th (Late Season)	07.06 – 10.50 Transect 5 - 09:20 - 09:54 Transect 6 - 07:06 - 07:49 Transect 7 - 08:02 - 09:12 Transect 8 - 08:54 - 09:12 Transect 9 - 10:34 - 10:50	Wind: F2 SW. Rain: None. Cloud: 5/8 – 8/8. Vis: Good	Breeding Bird survey – line transect surveys and scan / overview of adjacent lands.

All bird species encountered (seen or heard) during the surveys were recorded, together with the abundance of each species. Birds flying over the site were also included as part of the observations. Casual records of birds encountered during the spot counts and field walkovers, but outside of dedicated survey period were also noted.

2.1.2 Conservation Status of Bird Species

The conservation status of bird species recorded during the transect surveys and scoping exercise was assessed with reference to; the EU Birds Directive (2009/147/EC) Annex I list and Birds of Conservation Concern in Ireland; (BoCCI) (Gilbert & Lewis, 2021)¹. For the BoCCI list; Red-listed species are of high conservation concern in Ireland, Amber-listed species are considered of medium conservation concern, while Green-listed species are not of conservation concern in Ireland at present. Bird species listed on Annex I of the EU Birds Directive are considered of high conservation concern across Europe.

2.1.3 Zone of Influence

The current guidance on ecological assessments (CIEEM, 2017) recommends that all ecological features that occur within a 'Zone of Influence' (Zol) for a proposed development are investigated.

The Zol for the breeding bird surveys includes:

- areas directly within the proposed Flood Relief Scheme footprint;
- areas adjoining and in proximity to the proposed Flood Relief Scheme providing suitable breeding avifaunal habitat;
- areas adjoining the proposed Flood Relief Scheme footprint subject to indirect impacts (such as disturbance impacts) from the proposed works;
- areas which will be temporarily affected during construction;

¹ Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 9: 523–544



-
- areas likely to be impacted by hydrological disruption; and
 - areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The ZOI is variable depending on the ecological receptors affected. Given the extent of the proposed Flood Relief scheme study area (**Figure 3.1**), in this case the ZOI is the footprint of the proposed Flood Relief Scheme and immediately adjoining and surrounding lands.



3 Results

3.1 Birds in the Existing Environment

The species assemblage recorded during the breeding bird surveys was typical for the range of habitats present within the Ballina FRS study area and its environs. Abundances of breeding avifauna using the study area and its environs were low and restricted to individuals or small flocks. The main channel of the River Moy did not support great abundances of instream aquatic or riverside avifauna, rather small flocks of birds overflying the channel or associated with the adjoining built up habitats. Bird species identified using the Moy watercourse during the surveys for feeding and foraging purposes included Grey Heron, Common Sandpiper, Sand Martin, Grey Wagtail. Herring Gull, Lesser Black-backed Gull and Great Black-backed Gull were also identified within the environs and surroundings of the watercourse in small numbers. Small flocks of Swift (n=11) were identified foraging high over the River Moy and its adjoining buildings during the second survey, in June 2021. Kingfisher was not identified using the River Moy during the site surveys. The footprint of the proposed flood wall on the south/south-western bank of the river provides poor suitability for Kingfisher breeding habitat. By contrast, the north/north-eastern bank of the river downstream of the N59 Lower Bridge provides more suitable Kingfisher habitat due to the presence of individual trees, shrubs and small pockets of scrub.

Most of the transects surveyed supported regular occurrences of resident breeding passerine species such as Wren, Robin, Song Thrush, Blackbird, Blue Tit, Chaffinch and Dunnock. These were typically associated with gardens, parklands and small areas of scrub and woodland adjoining the proposed FRS measures.

Migratory passerine species identified within the survey area included Willow Warbler, Chiffchaff, Blackcap, House Martin, Swallow and Swift. These species were mostly identified during the second (late season) survey. Willow Warbler and Blackcap were typically associated with scrub cover adjoining the River Moy riparian area in addition to those areas of the study area adjoined by scrub, woodland and parkland areas. House Martin, Swallow and Swift were seen foraging over the urban and peri-urban habitats while Sand Martin were noted foraging over the River Moy and Knockanelo Stream.

A pair of Dipper, a specialist riverine species was identified on the Knockanelo Stream during the early season survey in 2021. Dipper nests were not identified along this stream of the bridge structures spanning it, and it may be possible that Dipper were using this section of the stream for foraging purposes. Breeding activity of Dipper and Grey Wagtail was again confirmed during the 2022 survey.

A brief analysis of each transect is provided below. The findings of the breeding bird survey results from 2021 and 2022 are presented in full in **Table 3.1 – Table 3.3** below.

3.1.1 Survey Results 2021

Line Transect 1 – This transect was located along the south / south-eastern bank of the River Moy main channel commencing at the N59 Lower bridge continuing south along the bank of the river up to the Salmon Weir. This transect included the main channel of the River Moy and adjoining areas of the riparian area, which are predominantly built habitats such as pathways, roads, buildings and



private residential dwellings. Most breeding bird activity associated with this transect was associated with birds occurring on or flying over / through the River Moy main channel.

Line Transect 2 – Transect 2 is located along the southeastern bank of the River Moy stretching between the town park and continuing up to the N59 lower Bridge. The transect spanned the parkland habitats associated with the Town park, which supported good cover of young woodland and shrubbery. South-western of the town park the transect continued along the riparian area of the River Moy which comprised intermittent willow scrub and unmanaged tussocky wet grassland. This transect supported consistent occurrences of common passerines typically associated with parkland habitats. Other species associated with pockets of scrub cover adjoining the western bank of the river included Willow Warbler and Blackcap, while Mute Swan was identified using the main channel of the River Moy, near its western bank.

Line Transect 3 – This transect is cited on the footprint and margins of the N59 of between the River Moy and the Marian Crescent housing estate. This is a built-up area comprising roadways, footpaths, retail premises and residential dwellings. Bird activity identified along this transect included overflying birds or birds utilising the gardens of private residential dwellings. Given the nature of the habitats within the study area, bird activity and abundance was low and mostly restricted to corvid and passerine species capable of foraging in such built up habitats.

Line Transect 4 – Line transect 3 was sited along the partially culverted and canalised Knockanelo Stream. This stream is located west and south of Marian Crescent housing estate and supported low water flows during the site walkover survey. Water quality within the watercourse appeared good however, the River Waterbodies Risk² for this watercourse is considered to be At Risk while the River Waterbody WFD Status 2013-2018 for this watercourse is considered to be Moderate. This transect identified common passerine and corvid species, mostly associated with adjoining gardens, shrubbery or overflying the area in addition to notable occurrences of riparian and wetland bird species including Dipper, Grey Wagtail and Mallard.

Line Transect 5 – Transect 5 was sited on a local access roads and internal roads serving housing estates and private residential dwellings, namely Libadore, Bohernasup and Lansyn. Similar to Transect 2, Transect 5 mostly supports built ground. Tree and shrub cover associated with adjoining private residences afforded the most suitable habitats for passerine birds and corvids. Other species were identified overflying the transect such as Swallow and House Martin were also noted.

Line Transect 6 – Transect 6 is located upon an area of semi-improved grassland used for low intensity grazing. This area is adjoined by housing estates and one-off private residential dwellings. Remnant, unmanaged hedgerows border the grassland area and support the majority of breeding bird activity. Common resident passerine species were mostly identified within this transect in addition to the migratory Willow Warbler, Blackcap and House Martin.

Point Transect 7 – Given the shortened section of the proposed FRS measure (flood defence embankment) at this location, a series of point counts were taken in this area. This area supports previously disturbed and recolonising ground, with established and spreading scrub. The transect is

² <https://gis.epa.ie/EPAMaps/>



bisected by the upper reaches of the Knockanelo Stream, south of the which is a small scrub / woodland copse and an area of unmanaged grassland. Japanese knotweed (*Reynoutria japonica*), the invasive alien plant species was identified on disturbed ground north of the Knockanelo Stream. This transect supported common passerine species typically associated within the study area in addition to Willow Warbler, Blackcap, Sand Martin and Meadow Pipit. This area provides the good cover for resident and migratory passerine species.

A breakdown of the breeding avifauna recorded in April and June 2021 is presented in **Table 3.1** and **Table 3.2** below.

3.1.2 Survey Results 2022

Line Transect 1 – Following Transect 1 from its north-western margins to its eastern boundary, it is fringed by a built up residential area located on the northern fringes of Ballina town. The transect is situated along a local road (known as the Creggs Road) serving local dwellings and farmland and is fringed intermittently by one-off, residential dwellings (with associated ornamental shrubbery) and intermittent occurrences of hedgerows, treelines and grassy verges. The transect support evidence of breeding Wren, Linnet, Dunnock, Robin, Blue Tit and House Martin and incidental records for Robin, Wren, Rook, Jackdaw, Willow Warbler, Magpie and Woodpigeon.

Line Transect 2 – Transect 2 is similar to Transect 1 in that its western end commences on the fringes of Ballina town located within built up residential areas, which reduce in density as the transect continues east to more peri-urban and rural environments. This transect is located along the N59 and is fringed by one-off residential dwellings, pastoral lands, scrub and isolated conifer woodland blocks. The local road is bound by intermittent linear woodland and grassy verges. The breeding bird surveys confirmed breeding evidence for Spotted Flycatcher with incidental records for Swallow, Wren, Rook, Jackdaw, Pied Wagtail, Woodpigeon, Goldfinch, Great Tit, Magpie, Dunnock, Blue Tit, House Sparrow, Starling and Herring Gull.

Line Transect 3 – Transect 3 follows the trajectory of the River Brosna watercourse and its associated riparian area. The river is fringed by linear woodland scrub along the transect and in turn is fringed by improved and semi-improved pastoral grassland. This transect survey did not identify breeding bird activity, although this area does support suitable breeding habitats for a range of passerine, riverine and certain raptor species, including Kestrel and Sparrowhawk. The transect recorded incidental records for Robin, Wren, Rook, Blue Tit, Chiffchaff and Magpie.

Line Transect 4 – This transect is located to the south-west of Ballina town. The transect runs south to north through open pastoral lands. The transect then turns and runs west to east, paralleling a small stream spanning a disused railway line, the N26 and continuing east through a housing estate on the southern fringes of Ballina town, finishing along banks of the River Moy main channel. The transect survey records evidence for breeding Sparrowhawk and Blue Tit with incidental records for Woodpigeon, Rook, Wren, Jackdaw, Swallow, Robin, Blue Tit, Hooded Crow, Collared Dove, Common Gull, House Sparrow, Dunnock, Goldfinch, Willow Warbler and Sedge Warbler.

Line Transect 5 – Transect 5 was sited on a local access roads and internal roads serving housing estates and private residential dwellings, namely Libadore, Bohernasup and Lansyn. Similar to



Transect 2, Transect 5 mostly supports built ground. Tree and shrub cover associated with adjoining private residences afforded the most suitable habitats for passerine birds and corvids. Other species were identified overflying the transect such as Swallow and House Martin were also noted.

Line Transect 6 – This transect is cited on the footprint and margins of the N59 of between the River Moy and the Marian Crescent housing estate. This is a built-up area comprising roadways, footpaths, retail premises and residential dwellings. This transect is also sited along the partially culverted and canalised Knockanelo Stream. This stream is located west and south of Marian Crescent housing estate and supported low water flows during the site walkover survey. This transect supported evidence of breeding Dipper (adult and juvenile birds identified in addition to 2 breeding pairs of Grey Wagtail with juveniles). The transect also confirmed breeding records for Rook, Siskin, Swallow, Blackbird, Common Gull, Herring Gull, Willow Warbler, Jackdaw, Chaffinch, Pied Wagtail and Woodpigeon.

Line Transect 7 – Near its western end, transect 7 was sited on a local access roads and internal roads serving housing estates and private residential dwellings, namely Libadore, Bohernasup and Lansyn. The eastern end of this transect was located upon an area of semi-improved grassland used for low intensity grazing. This transect did not uncover signs of breeding bird activity. However, the transect supported incidental records of House Martin, House Sparrow, Robin, Rook, Jackdaw, Blackbird, Herring Gull, Starling, Chiffchaff, Woodpigeon, Swallow, Coal Tit, Dunnock, Magpie, No sign of any breeding bird activity on this transect.

Line Transect 8 - Transect 8 is located along the north-western bank of the River Moy continuing north / north-east along the riparian area of the River Moy. The transect spanned the riparian fringe of the River Moy, which supported good cover of young woodland and shrubbery and adjoining private residential and commercial developments. This transect did not uncover signs of breeding bird activity. However the transect supported incidental records of Rook, Swallow, Wren, Black-headed Gull and Robin

Point Transect 9 – Given the shortened section of the proposed FRS measure (flood defence embankment) at this location, a series of point counts were taken in this area. This area supports previously disturbed and recolonising ground, with established and spreading scrub. The transect is bisected by the upper reaches of the Knockanelo Stream, south of the which is a small scrub / woodland copse and an area of unmanaged grassland. Japanese knotweed (*Reynoutria japonica*), the invasive alien plant species was identified on disturbed ground north of the Knockanelo Stream. This transect did not support confirmed breeding bird activity during the June 2022 site walkover survey. Incidental records included Song Thrush, Blackbird, Linnet, Willow Warbler, Starling and Rook.

A breakdown of the breeding avifauna recorded in June 2022 is presented in **Table 3.3** below.

3.2 Summary

The study area is dominated by urban and peri-urban environments. The more built-up areas near Ballina's town centre support fewer numbers and lower diversity of breeding avifauna when compared with the peri-urban and adjoining parkland and greenfield areas. Most activity within the town centre is associated with the River Moy corridor, where low numbers (mostly individual birds)



of riverine species (Sand Martin, Grey Wagtail, Grey Heron, Common Sandpiper and Gull species utilise the river and riverbank margins).

Resident passerine birds are a common feature throughout the study area, where their occurrence and abundance increases in those areas supporting parklands, private gardens and remnant pockets of agricultural grassland. These species include Wren, Robin, Dunnock, Blackbird, Song Thrush, Pied Wagtail, Blue Tit and corvid species.

Typical migrant species were identified within the study area during the second (late) surveys undertaken in 2021 and 2022. Given the abundance of built infrastructure within the study area, species such as Swift, Swallow, House Sparrow and House Martin were noted, most frequently near the town centre and adjoining the main channel of the River Moy.

The proposed works footprint are largely unsuitable to support breeding (nesting) sites for the bird species mentioned above and those listed in **Table 3.1 - Table 3.3** as most of these areas comprise built ground such as existing roads and pathways. Proposed flood infrastructure along the riparian areas of the River Moy and its tributaries could contribute some disturbance and removal of potential breeding bird habitat such as linear scrub, hedgerows and treelines. Minor and localised disturbance may also be realised as a result of the proposed flood defence embankment located near the north of the study area, south of the Knockanelo Stream or where works along national and local roads required the disturbance and removal of linear woodland and grassy verge habitats. However, such impacts may be readily offset through the careful scheduling of vegetation removal works (outside of the breeding birds season March 01st to August 31st inclusive) and, where necessary, the replacement of such habitat through replanting and reinstatement work.



Table 3-1 - Breeding Bird Survey Results April 2021

Species Name ³	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
House Sparrow <i>Passer domesticus</i>	2				5		2
Wren (<i>Troglodytes troglodytes</i>)	2	2	2	3	2	3	2
Robin (<i>Erithacus rubecula</i>)	1				1	1	
Pied Wagtail (<i>Motacilla alba yarrelli</i>)	2				1		
Song Thrush (<i>Turdus philomelos</i>)	1	1	1	1	1		
Blackbird (<i>Turdus merula</i>)		3			1	1	
Blue Tit (<i>Cyanistes caeruleus</i>)	2			1	2		1
Great Tit (<i>Parus major</i>)			1				1
Chaffinch (<i>Fringilla coelebs</i>)		1	1		1	1	1
Bullfinch (<i>Pyrrhula pyrrhula</i>)		1					
Greenfinch (<i>Chloris chloris</i>)					1		
Willow Warbler (<i>Phylloscopus trochilus</i>)		1				1	2

³ Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).



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Species Name ³	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
Blackcap (<i>Sylvia atricapilla</i>)							1
Goldcrest (<i>Regulus regulus</i>)		1					
Starling (<i>Sturnus vulgaris</i>)	1		1	1	1		
Coal Tit (<i>Periparus ater</i>)	1						
Jackdaw (<i>Corvus monedula</i>)	1						
Hooded Crow (<i>Corvus corone</i>)			1				
Rook (<i>Corvus frugilegus</i>)						3	
Woodpigeon (<i>Columba palumbus</i>)	1	2			1	1	
Collared Dove (<i>Streptopelia decaocto</i>)				1	1		
Herring Gull (<i>Larus argentatus</i>)	2						
Great Black-backed Gull (<i>Larus marinus</i>)	1						
Dunnock (<i>Prunella modularis</i>)	1			1		1	1
Common Sandpiper (<i>Tringa ochropus</i>)	1						
Sand Martin (<i>Riparia riparia</i>)	3			1			



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Species Name ³	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
Grey Heron (<i>Ardea cinerea</i>)	1		1				
Grey Wagtail (<i>Motacilla cinerea</i>)	1		2				
Dipper (<i>Cinclus cinclus</i>)				1			
Feral Pigeon (<i>Columba livia domestica</i>)	1			4			

Table 3-2 - Breeding Bird Survey Results June 2021

Species Name ⁴	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
House Sparrow <i>Passer domesticus</i>	1		1	1	2	1	
Wren (<i>Troglodytes troglodytes</i>)	1	3	2	1	3	3	2
Robin (<i>Erithacus rubecula</i>)			1		2		1
Pied Wagtail (<i>Motacilla alba yarrelli</i>)	3						1
Song Thrush (<i>Turdus philomelos</i>)		2		1	1	1	1
Blackbird (<i>Turdus merula</i>)	1	6	1		1	3	1

⁴ Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).



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Species Name ⁴	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
Blue Tit (<i>Cyanistes caeruleus</i>)	1				1		1
Great Tit (<i>Parus major</i>)							1
Long-tailed Tit (<i>Aegithalos caudatus</i>)		2					
Chaffinch (<i>Fringilla coelebs</i>)	1	1			2	1	
Greenfinch (<i>Chloris chloris</i>)				1			
Willow Warbler (<i>Phylloscopus trochilus</i>)			1				1
Blackcap (<i>Sylvia atricapilla</i>)		1			1	1	
Meadow Pipit (<i>Anthus pratensis</i>)							1
Goldcrest (<i>Regulus regulus</i>)		1					
Starling (<i>Sturnus vulgaris</i>)					1		1
Coal Tit (<i>Periparus ater</i>)			1				
Jackdaw (<i>Corvus monedula</i>)				2			
Hooded Crow (<i>Corvus corone</i>)	1						
Rook (<i>Corvus frugilegus</i>)						1	1



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Species Name ⁴	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
Magpie (<i>Pica pica</i>)					1	1	
Woodpigeon (<i>Columba palumbus</i>)	1					1	
Collared Dove (<i>Streptopelia decaocto</i>)				1			
Herring Gull (<i>Larus argentatus</i>)	2	1		2			
Lesser Black-backed Gull (<i>Larus fuscus</i>)			1				1
Dunnoek (<i>Prunella modularis</i>)		1					1
Sand Martin (<i>Riparia riparia</i>)	6						1
Swift (<i>Apus apus</i>)	11			3			
Swallow (<i>Hirundo rustica</i>)				2	1		
House Martin (<i>Delichon urbicum</i>)					2	2	
Grey Heron (<i>Ardea cinerea</i>)	1		2				
Grey Wagtail (<i>Motacilla cinerea</i>)	1			3			
Mallard (<i>Anas platyrhynchos</i>)	3			2			
Mute Swan (<i>Cygnus olor</i>)		2					



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Species Name ⁴	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7
Feral Pigeon (<i>Columba livia domestica</i>)	2		1	18			

Table 3-3 - Breeding Bird Survey Results June 2022

Species Name ⁵	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9
House Sparrow <i>Passer domesticus</i>	1			1			1		
Wren (<i>Troglodytes troglodytes</i>)	1	1	1	1	1		1	1	
Linnet (<i>Linaria cannabina</i>)		1							1
Robin (<i>Erithacus rubecula</i>)				1	1		1	1	
Reed Bunting (<i>Emberiza schoeniclus</i>)		1							
Spotted Flycatcher (<i>Muscicapa striata</i>)	1								
Goldfinch (<i>Carduelis carduelis</i>)	1			1					
Chiffchaff (<i>Phylloscopus collybita</i>)			1				1		
Sparrowhawk (<i>Accipiter nisus</i>)				1					

⁵ Conservation status assigned by 'traffic light' system of colour coding, in accordance with the Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021).



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Species Name ⁵	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)				1					
Siskin (<i>Spinus spinus</i>)					1	1			
Dipper (<i>Cinclus cinclus</i>)						1			
Pied Wagtail (<i>Motacilla alba yarrelli</i>)	1				1	1			
Song Thrush (<i>Turdus philomelos</i>)									1
Blackbird (<i>Turdus merula</i>)						1	1		1
Blue Tit (<i>Cyanistes caeruleus</i>)	1	1	1						
Great Tit (<i>Parus major</i>)	1								
Chaffinch (<i>Fringilla coelebs</i>)	1					1			
Greenfinch (<i>Chloris chloris</i>)									
Willow Warbler (<i>Phylloscopus trochilus</i>)		1		1		1			1
Blackcap (<i>Sylvia atricapilla</i>)									
Meadow Pipit (<i>Anthus pratensis</i>)		1							
Starling (<i>Sturnus vulgaris</i>)	1					1	1		1



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Species Name ⁵	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9
Coal Tit (<i>Periparus ater</i>)							1		
Jackdaw (<i>Corvus monedula</i>)	1	1		1	1	1	1		
Hooded Crow (<i>Corvus corone</i>)				1	1				
Rook (<i>Corvus frugilegus</i>)	1	1	1	1	1	1	1	1	1
Magpie (<i>Pica pica</i>)	1		1				1		
Woodpigeon (<i>Columba palumbus</i>)	1	1		1	1	1	1		1
Collared Dove (<i>Streptopelia decaocto</i>)				1					
Herring Gull (<i>Larus argentatus</i>)	1					1	1		
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)								1	
Common Gull (<i>Larus canus</i>)						1			
Lesser Black-backed Gull (<i>Larus fuscus</i>)					1				
Dunnock (<i>Prunella modularis</i>)	1	1		1			1		
Sand Martin (<i>Riparia riparia</i>)					1				
Swallow (<i>Hirundo rustica</i>)	1	1		1	1	1		1	



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Species Name ⁵	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9
House Martin (<i>Delichon urbicum</i>)		1		1			1		
Grey Wagtail (<i>Motacilla cinerea</i>)					1	1			
Mallard (<i>Anas platyrhynchos</i>)					1				



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Figure 3-1 - Bird Survey Locations 2021



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Ballina FRS –
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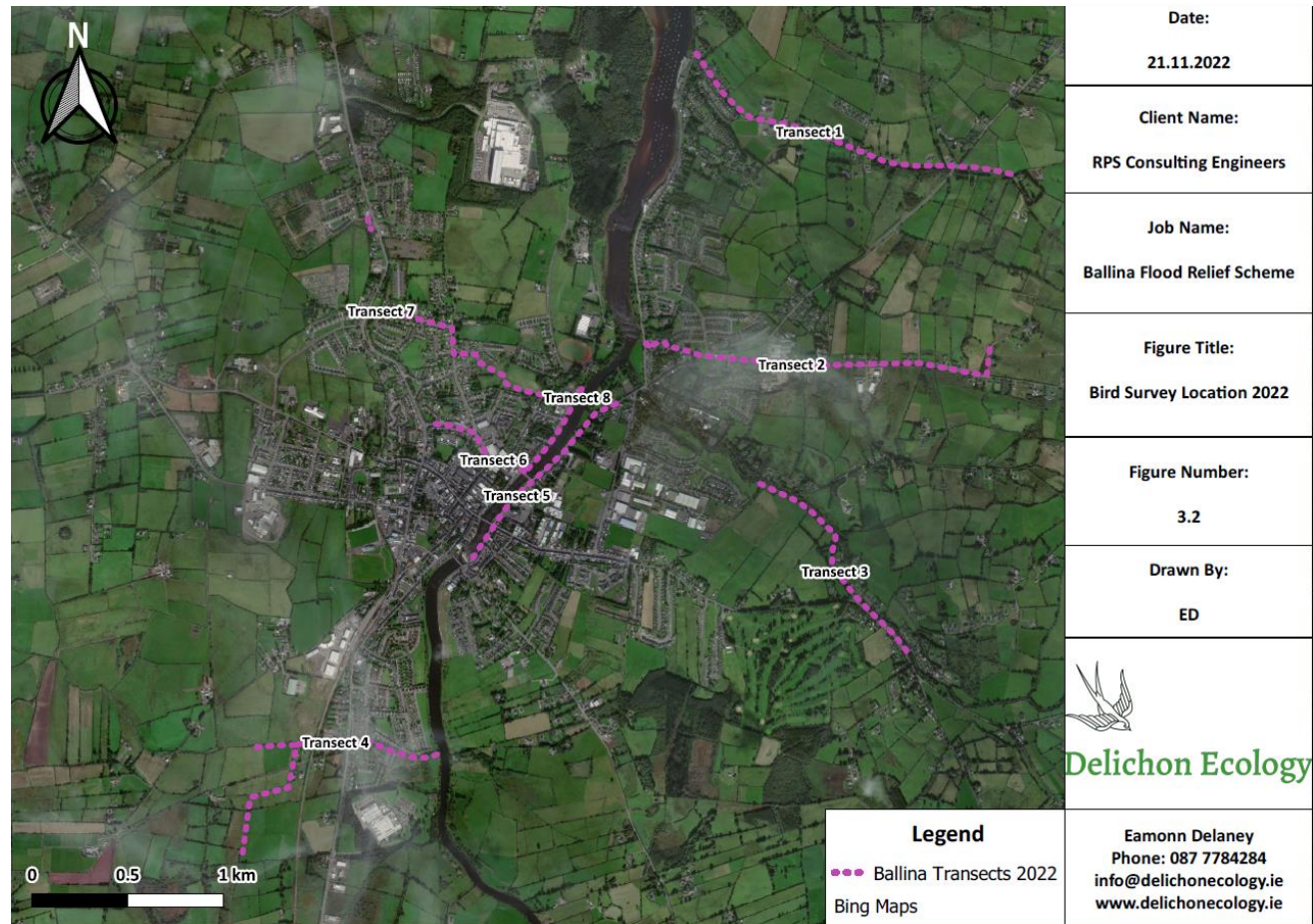


Figure 3-2 - Bird Survey Locations 2022



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APPENDIX B – BTO BREEDING STATUS CODES

Breeding Status Codes

Non-breeding	
F	Flying over
M	Species observed but suspected to be still on M igration
U	Species observed but suspected to be s U mmerring non-breeder
Possible breeder	
H	Species observed in breeding season in suitable nesting H abitat
S	S inging male present (or breeding calls heard) in breeding season in suitable breeding habitat
Probable breeding	
P	P air observed in suitable nesting habitat in breeding season
T	Permanent T erritory presumed through registration of territorial behaviour (song etc) on at least two different days a week or more part at the same place or many individuals on one day
D	Courtship and D isplay (judged to be in or near potential breeding habitat; be cautious with wildfowl)
N	Visiting probable N est site
A	A gitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby
I	Brood patch on adult examined in the hand, suggesting I ncubation
B	Nest B uilding or excavating nest-hole
Confirmed breeding	
DD	D istractio D - D isplay or injury feigning
UN	U sed N est or eggshells found (occupied or laid within period of survey)
FL	Recently F Ledged young (nidicolous species) or downy young (nidifugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitat.
ON	Adults entering or leaving nest-site in circumstances indicating O ccupied N est (including high nests or nest holes, the contents of which can not be seen) or adults seen incubating
FF	Adult carrying F aecal sac or F ood for young
NE	N est containing E ggs
NY	N est with Y oung seen or heard