

# **A46 Newark Bypass**

**TR010065/APP/6.3**

## **6.3 Environmental Statement**

### **Appendix 8.5 Breeding Bird Technical Report**

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009

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Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

**A46 Newark Bypass**

Development Consent Order 202[x]

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**ENVIRONMENTAL STATEMENT APPENDIX**

**8.5 BREEDING BIRD TECHNICAL REPORT**

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<b>Regulation Number:</b>	Regulation 5(2)(a)
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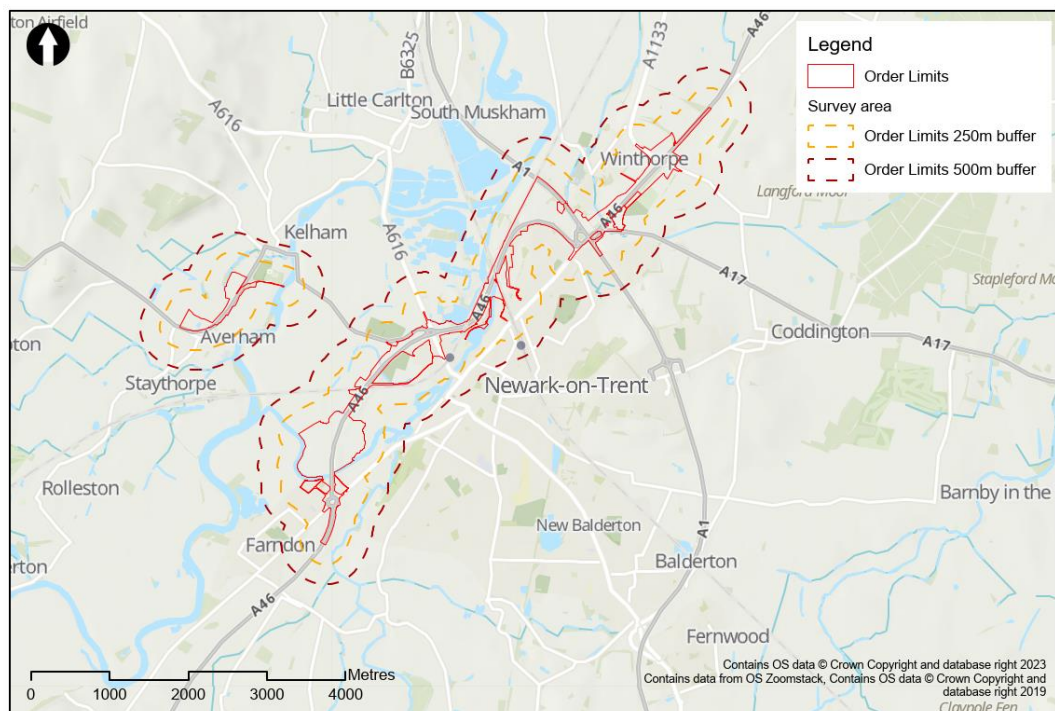
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# 1 Introduction

## 1.1 Background and scope of works

- 1.1.1 As part of the A46 Newark Bypass Scheme (the Scheme), breeding bird surveys were undertaken to inform the biodiversity assessment reported in Chapter 8 (Biodiversity) of the Environmental Statement (ES) **(TR010065/APP/6.1)**.
- 1.1.2 Chapter 2 (The Scheme) of the ES provides the background and a description of the Scheme. The information described in this report provides a baseline record of breeding birds within the survey area and is used to inform the Environmental Impact Assessment (EIA) for the Scheme.
- 1.1.3 This technical report includes a review of existing breeding bird data and survey data collected between April and August 2022.
- 1.1.4 The area of Order Limits and buffers are shown in Figure 1-1 below.

**Figure 1-1: Order Limits area**



Source: Mott MacDonald



## 2 Legislation

### 2.1 Wildlife and Countryside Act 1981

- 2.1.1 In the UK, all wild birds, their nests, eggs and young are protected by the Wildlife and Countryside Act 1981 (as amended),<sup>1</sup> hereafter referred to as the '1981 Act'. Offences under the 1981 Act include:
- Intentionally killing, injuring or taking any wild bird.
  - Intentionally taking, damaging or destroying the nest of any wild bird whilst it is in use or being built.
  - Intentionally taking or destroying the egg of any wild bird.
- 2.1.2 Bird species listed on Schedule 1 of the 1981 Act are afforded additional protection from disturbance when at or near an active nest or when they have dependent young. In the case of breeding Schedule 1 species, it is illegal to intentionally or recklessly disturb them. Offences could result in an unlimited fine and up to six months in prison for each offence if found guilty.
- 2.1.3 Government standing advice is to avoid potentially harmful activities in the bird breeding season (typically considered as being from March to August inclusive).

### 2.2 Natural Environment and Rural Communities Act 2006

- 2.2.1 The Natural Environment and Rural Communities (NERC) Act 2006<sup>2</sup> places a duty on public authorities, including local planning authorities, 'to have regard to the conservation and enhancement of biodiversity in England' as part of their policy or decision-making.
- 2.2.2 The list of species of 'principal importance for the conservation of biodiversity in England' ('Section 41 species') guides public authorities in implementing their 'Biodiversity Duty'.

### 2.3 The Conservation of Habitats and Species Regulations 2017

- 2.3.1 The Conservation of Habitats and Species Regulations 2017 (as amended)<sup>3</sup> legislates for the creation and protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (known collectively as the National Site Network) and the strict protection of

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<sup>1</sup> Wildlife and Countryside Act, 1981 (as amended). Available at: [www.legislation.gov.uk/ukpga/1981/69/contents](http://www.legislation.gov.uk/ukpga/1981/69/contents).

<sup>2</sup> Natural Environment and Rural Communities Act, 2006 (as amended). Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>.

<sup>3</sup> The Conservation of Habitats and Species Regulations, 2017(as amended). Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents>.

plants and animals of community interest. The regulations also place duties on public authorities to preserve, maintain and re-establish a sufficient diversity and area of habitat for wild birds ('duties in relation to wild bird habitat').<sup>4</sup>

2.3.2 Duties in relation to wild bird habitat embody the following overarching objectives:

- Preserve, manage and re-establish habitat that is large and varied enough for wild birds to support and maintain their populations in the long-term
- Avoid any pollution or deterioration of wild bird habitat as far as possible

## **2.4 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017**

2.4.1 The Town and Country Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (as amended)<sup>5</sup> legislates for the protection of biodiversity within the Town and Country Planning system. The 'EIA Regulations' requires an Environmental Statement to identify, describe and assess the significant effects of a project with particular attention to, among other things, species listed on Annex I of the EU Birds Directive.

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<sup>4</sup> Guidance: Duty to provide and protect habitat for wild birds. Available at: <https://www.gov.uk/guidance/providing-and-protecting-habitat-for-wild-birds>.

<sup>5</sup> The Town and Country Planning (environmental Impact Assessment) Regulations, 2017 (as amended). Available at: <https://www.legislation.gov.uk/uksi/2017/571/contents>.

## 3 Methodology

### 3.1 Desk study

#### Existing ornithological data

3.1.1 Existing ornithological records were obtained from the following sources:

- The Nottinghamshire Biological and Geological Record Centre (NBGRC) provided bird data within 2 kilometres of the Order Limits covering the period 2008-19 comprising records across all seasons of the year. These datasets are reproduced in Appendix A (Desk study data (NGBRC)) of this report.
- A detailed Data Report was commissioned from the British Trust for Ornithology (BTO), for the Ordnance Survey 10 kilometre squares that the Scheme is located within. This study incorporated data obtained via three large-scale citizen science projects: the 2007-11 Bird Atlas, the 'BirdTrack' database covering the period 2018-22 and Breeding Bird Survey data covering 2017-20. The BTO Data Report includes a comprehensive species list together with breeding evidence and an assessment of how important the 10 kilometre squares are to the species present. These datasets are reproduced in Appendix B (BTO data report) of this report.

#### Important Ecological Features

3.1.2 Using the BTO Data Report, a species is considered to be 'important' with respect to the ecological impact assessment process<sup>6</sup> if it meets one or more of the following criteria:

- Species with breeding evidence in the study area that are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- Species with breeding evidence in the study area that are monitored by the Rare Breeding Bird Panel (RBBP), or, if long-eared owl *Asio otus*, lesser spotted woodpecker *Dryobates minor* or willow tit *Poecile montanus*, present in the study area at any time.
- Species of principal importance for the conservation of biodiversity in England, under Section 41 of the Natural Environment and Rural Communities Act (NERC) Act 2006 (as amended) that are notable in the study area.
- Species listed included in the relevant Local Biodiversity Action Plan (BAP) or Local Nature Recovery Strategy (LNRS) that are notable in the study area.

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<sup>6</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2, updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.

- Species evaluated as Critically Endangered, Endangered or Vulnerable on the IUCN Regional Red List assessment of extinction risk for Great Britain (IUCN2) that are notable in the study area.
- Annex 1 of the EU Birds Directive that are notable in the study area.
- Red List or Amber List Birds of Conservation Concern that are notable in the study area.

3.1.3 Biological records and survey data were then used to determine which of the species considered to be 'important' in the study area are present within the survey area and therefore likely to be affected by the project. Those species identified as being 'important' and using habitats in the survey area are considered as important ecological features to be taken forward to the biodiversity assessment reported in Chapter 8 (Biodiversity) of the ES **(TR010065/APP/6.1)**.

## 3.2 Breeding bird surveys

3.2.1 Breeding bird surveys were carried out across six visits between April and August 2022 inclusive (Table 3-1). Surveyors followed the 'look - see' method.<sup>7</sup> The surveys involved a pair of surveyors walking along predetermined transect routes that were devised to survey a representative sample of the habitats within a 1 kilometre buffer of the Order Limits (Appendix C).

3.2.2 Full details of the breeding bird survey methodology are provided within an Ecological Survey Methodology and Justifications Report (HE551478-SKAG-EBD-CONWI\_CONW-RP-LE-00010). Habitats surveyed within the transects included all watercourses including running (riverine) and standing (wetlands), drains, wooded areas and fields.

3.2.3 Each of the visits was carried out over a course of either three or four days, during daylight hours only. Visits were carried out across multiple dates to allow each transect to be surveyed, with each transect surveyed multiple times across the survey period. The transects starting point and direction was reversed on alternate visits to avoid potential temporal bias (Marchant, 1983)<sup>8</sup> (for further details on the transect routes, see Appendix C (Breeding bird survey area and transects) of this report).

3.2.4 Weather conditions were recorded, with extreme weather (for example heavy rain and strong winds) avoided.

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<sup>7</sup> Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S. and Lambton, S. (2000) *Bird Census Techniques*. Academic Press, London, UK.

<sup>8</sup> Marchant, J.H. (1983). *Common Birds Census Instructions*. BTO, Tring. 12pp.

**Table 3-1: Dates of surveys and weather conditions**

Visit	Date	Weather	Temperature (C°)	Wind direction and speed (Beaufort scale)	Cloud cover (x/8)
1	20/04/2022	Mild and dry	13	NE F4	3
1	21/04/2022	Mild and dry	13	NE F4	2
1	22/04/2022	Dry and windy	14	NE F5	3
2	09/05/2022	Warm and dry	18	S F4	5
2	10/05/2022	Warm, windy and dry	18	SW F5	7
2	11/05/2022	Mild and dry	15	SW F4	7
3	23/05/2022	Mild and dry	16	W F3	5
3	24/05/2022	Mild and dry	15	W F4	4
3	25/05/2022	Dry and windy	16	SW F6	8
3	26/05/2022	Dry and windy	15	SW F5	7
4	14/06/2022	Warm and dry	17	E F2	6
4	15/06/2022	Warm and dry	21	SW F2	1
4	16/06/2022	Warm and dry	22	SW F3	1
5	04/07/2022	Dry and windy	18	W F5	7
5	05/07/2022	Warm and dry	17	NW F4	6
5	06/07/2022	Warm and dry	20	W F4	6
5	07/07/2022	Warm and dry	20	N F4	6
6	01/08/2022	Warm and dry	21	W F3	2
6	02/08/2022	Warm and windy with light rain	22	SW F5	6
6	03/08/2022	Warm and windy	21	SW F5	6
6	04/08/2022	Warm and dry	21	W F5	2

### 3.3 Limitations

- 3.3.1 No breeding bird surveys were undertaken within the Kelham and Averham FCA because the FCA is outside the zone of influence of the main works construction. Desk study information (NBGRC and BTO data) were used to provide a holistic dataset for the impact assessment.
- 3.3.2 Access within the survey area was limited to areas of the National Highways soft-estate and third-party land where access had been agreed with the landowner. In some cases, landowner permissions to access land had not been granted and some areas of land could not be surveyed.
- 3.3.3 The land surveyed is of similar habitats to those which were not accessed and are considered to be a good representative sample of the habitats throughout the Order Limits and survey area. The surveys coupled with the desk study are likely to capture the

important ecological features<sup>9</sup> within the Order Limits and survey area.

- 3.3.4 It is important to note that biological records obtained from third-parties and presented in the desk study do not represent a full and complete species list for the area. They are given voluntarily by individuals on an ad-hoc basis, often meaning there are areas of deficiency in the data. The absence of a species is not conclusive proof that it is not present or that it will not be present in future. However, records from the NBGRC combined with the BTO Data Report and field survey data provide a good understanding of bird species and numbers likely to be present within the Order Limits during the breeding season and which may potentially be impacted by the Scheme.
- 3.3.5 Records from the NBGRC are included for all species records returned within the study area. This information may not include breeding status as the record may not include this level of information, but all NBGRC records have been included for completeness and the subsequent assessment has been made considering all available datasets.
- 3.3.6 The results presented in this report are a snapshot of the current breeding bird community within the survey area between April and August 2022 inclusive.

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<sup>9</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

## 4 Results

### 4.1 Existing ornithological and habitat data

#### Nottinghamshire Biological and Geological Record Centre

- 4.1.1 The dataset provided by the NBGRC covering 2008-19 comprised records for 98 species. A full list is provided in Appendix A (Desk study data (NGBRC)) of this report.
- 4.1.2 There were 31 species of ecological importance recorded within the NBGRC dataset, which included the following: barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula*, Cetti's warbler *Cettia cetti*, common sandpiper *Actitis hypoleucos*, cuckoo *Cuculus canorus*, grasshopper warbler *Locustella naevia*, greenshank *Tringa nebularia*, grey partridge *Perdix perdix*, hen harrier *Circus cyaneus*, herring gull *Larus argentatus*, hobby *Falco subbuteo*, kestrel *Falco tinnunculus*, kingfisher *Alcedo atthis*, lapwing *Vanellus vanellus*, lesser black-backed gull *Larus fuscus*, long-eared owl, mistle thrush *Turdus viscivorus*, moorhen *Gallinula chloropus*, oystercatcher *Haematopus ostralegus*, pink-footed goose *Anser brachyrhynchus*, pochard *Aythya ferina*, reed bunting *Emberiza schoeniclus*, rook *Corvus frugilegus*, skylark *Alauda arvensis*, smew *Mergellus albellus*, spotted flycatcher *Muscicapa striata*, stock dove *Columba oenas*, tree sparrow *Passer montanus*, whooper swan *Cygnus cygnus*, willow warbler *Phylloscopus trochilus*, and yellow wagtail *Motacilla flava*.

#### BTO Data Report

- 4.1.3 Within the two 10 kilometre squares (SK75 and SK85), which contain the Order Limits, see Appendix B (BTO data report) of this report, the BTO held breeding season records for up to 131 species (2018-22). These records were analysed at five spatial scales (ie, UK, England, region [East Midlands], county [Nottinghamshire] and Watsonian vice-county [Nottinghamshire]). The BTO Data Report pays particular attention to 'notable species.' Notable species are defined as those for which the species' percentage range and/or relative abundance is at least twice the site's percentage size, except at the UK scale, where species are described as notable if the site and vicinity account for  $\geq 2\%$  of the species' range and/or relative abundance.
- 4.1.4 On a UK scale, no records for notable species were found in terms of breeding range or breeding abundance for either 10 kilometre square.
- 4.1.5 At the spatial scale of England, the two 10 kilometre squares (SK75 and SK85) contained records for the following seven notable species



in terms of breeding range<sup>10</sup>: pochard \*\*, ruddy duck *Oxyura jamaicensis*, turtle dove *Streptopelia turtur*\*\*, cormorant *Phalacrocorax carbo*, long-eared owl *Asio otus*, Cetti's warbler, and tree sparrow *Passer montanus*\*\*.

- 4.1.6 In terms of breeding abundance, the two 10 kilometre squares contained records for the following eight notable species: pochard\*\*, ruddy duck, little owl *Athene noctua*, lesser spotted woodpecker\*\*, sand martin *Riparia riparia*, grasshopper warbler *Locustella naevia*\*\*, lesser whitethroat *Sylvia curruca* and yellow wagtail *Motacilla flava flavissima*\*\*.
- 4.1.7 At the regional (East Midlands) scale, the two 10 kilometre squares contained records of the following six notable species in terms of breeding range: pochard\*\*, ruddy duck, herring gull\*\*, lesser black-backed gull\*, long-eared owl, Cetti's warbler.
- 4.1.8 In terms of breeding abundance, the two 10 kilometre squares contained records for the following five notable species: pochard\*\*, ruddy duck, lesser spotted woodpecker\*\*, sand martin and grasshopper warbler\*\*.
- 4.1.9 At the county (Nottinghamshire) scale, the two 10 kilometre squares contained records of the following four notable species in terms of breeding range: herring gull\*\*, lesser black-backed gull\*, cormorant and Cetti's warbler.
- 4.1.10 In terms of breeding abundance, the two 10 kilometre squares contained records for the following four notable species: pochard\*\*, curlew *Numenius arquata*\*\*, redshank *Tringa totanus*\*, and little owl.
- 4.1.11 At the Watsonian vice-county (Nottinghamshire) scale, the two 10 kilometre squares contained records of the following four notable species in terms of breeding range: herring gull\*\*, lesser black-backed gull\*, cormorant and Cetti's warbler.
- 4.1.12 In terms of breeding abundance, the two 10 kilometre squares contained records for the following four notable species: pochard\*\*, curlew\*\*, redshank\*, and little owl.
- 4.1.13 Within the two 10 kilometre squares (SK75 and SK85), which contain the Order Limits, see Appendix B (BTO data report) of this report, there is breeding evidence for four Schedule 1 species that have potentially suitable habitat within the study area. These species are: barn owl *Tyto alba*, kingfisher *Alcedo atthis*, hobby *Falco subbuteo* and Cetti's warbler.
- 4.1.14 In addition to the Schedule 1 species, Rare Breeding Bird Panel (RBBP) species with breeding evidence exists for turtle dove, long-eared owl, lesser spotted woodpecker, hobby and willow tit. These 10 kilometre resolution records may potentially be associated with

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<sup>10</sup> Birds of Conservation Concern (BoCC) Red List species are denoted by a \*\*, and BoCC Amber list by \*



woodland habitats that are present throughout the Scheme, some of which are being lost as a direct result of the Schemes construction. These species were not identified during the field surveys, however birds are highly mobile species and the results presented in this report are those obtained during the breeding season 2022 only.

- 4.1.15 Records of honey-buzzard *Pernis apivorus*, Montagu's harrier *Circus pygargus* at the 50 kilometre resolution are not likely to be associated with the survey area and the habitats associated with the Scheme based on the distance and historical breeding locations.<sup>11</sup>

## Statutory and non-statutory designated sites

- 4.1.16 No Site of Special Scientific Interest (SSSI) Impact Risk Zones relevant to road schemes were found to be interacting with the Scheme, with the closest being approximately 6.5 kilometres to the north-west in the vicinity of the village of Knaphorpe. No statutory or non-statutory designated sites specifically named for their ornithological interest were found to be present within a 1 kilometre radius of the Scheme. However, two Local Nature Reserves (LNRs) were identified within 1 kilometre of the Scheme: Devon Park Pastures (centred at approximately SK 7890 5291) and Farndon Ponds (centred at approximately SK 7697 5260). At its closest point, the Royal Society for the Protection of Birds (RSPB) reserve Langford Lowfields is 3.6 kilometres from the Scheme. Noteworthy breeding species at this restored quarry complex include bittern *Botaurus stellaris* and avocet *Recurvirostra avosetta*. The River Trent runs past both the Order Limits and Langford Lowfields RSPB reserve and can be considered likely to provide a riparian corridor between either site for certain bird species.

## Habitats in the study area

- 4.1.17 Habitats across the Order Limits identified within the Phase 1 Technical Report (see Appendix 8.1 (Extended Phase 1 Habitat Technical Report) of the ES Appendices **(TR010065/APP/6.3)** comprise:
- Wood pasture
  - Traditional orchard
  - Eutrophic standing water
  - Lowland meadows
  - Arable
  - Amenity grassland
  - Improved grassland

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<sup>11</sup> Rodewald, P.G. and Shumar, M.B., (2014). Bird Atlas 2007–11: The Breeding and Wintering Birds of Britain and Ireland.

- Species-poor semi-improved grassland
- Semi-natural broadleaved woodland
- Scattered broadleaved trees
- Scattered coniferous trees
- Standing water
- Running water
- Mixed plantation woodland
- Broadleaved plantation woodland
- Scrub
- Tall ruderal
- Buildings

4.1.18 The Order Limits comprise a mosaic of lowland arable farmland and poor semi-improved grasslands (fields and other green spaces), wetland (areas where water is the primary factor controlling the environment and biota), urban and suburban (sites dominated by human presence), industrial (sites of secondary/tertiary economic activity), poor semi-improved grasslands and wooded areas (areas dominated by trees typically greater than 5 metres in height). The survey area is also intersected by a network of roads, railway and rural lanes.

4.1.19 The use of habitats by breeding birds is discussed further below.

## 4.2 Survey data

### Species recorded in the study area

4.2.1 A total of 63 species were recorded in the 2022 breeding season. Two non-native species were excluded from analysis, these being: Canada goose *Branta canadensis* and Egyptian goose *Alopochen aegyptiaca*. A full species list is provided in Appendix D (Breeding bird survey species list) of this report.

4.2.2 Of the 61 native species recorded, five of these species are important ecological features based on the following criteria:

- Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) with breeding evidence in the study area:
  - Barn owl (one record)
  - Cetti's warbler (five records)
- Species of principal importance for the conservation of biodiversity in England, under Section 41 of the Natural Environment and Rural Communications Act (NERC) Act 2006 (as amended) that are notable in the study area:
  - Herring gull (two records)

- Local Biodiversity Action Plan (BAP) species that are notable in the study area:
  - Barn owl (Species Action Plan)
  - Cetti's warbler (Species of Conservation Concern)
  - Cormorant (Species of Conservation Concern) (21 records)
  - Sand martin (Species of Conservation Concern) (36 records)
- Species evaluated as Critically Endangered, Endangered or Vulnerable on the International Union for Conservation of Nature (IUCN) Regional Red List assessment of extinction risk for Great Britain (IUCN2) that are notable in the study area:
  - Herring gull
- Red List or Amber List Birds of Conservation Concern (BoCC5)<sup>12</sup> that are notable in the study area:
  - Herring gull

4.2.3 No species recorded during the surveys in 2022 met the following criteria:

- Rare Breeding Bird Panel (RBBP) species with breeding evidence in the study area.
- Annex 1 of the EU Birds Directive that were present in the study area.

## Habitat use in the study area

4.2.4 The use of habitats by breeding birds is discussed below with those species considered to be important ecological features highlighted in bold.

## Watercourses and waterbodies

4.2.5 The meandering riparian corridor of the River Trent is a dominant feature within the survey area. Stretches of the river lie within or are immediately adjacent to the Order Limits and existing A46 road corridor. Two stretches of the river were included in the 2022 breeding bird survey, with transects A02 and B03 providing representative samples of the typical habitats along the river (outside of suburban areas). A short stretch of habitats along a second smaller river, the

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<sup>12</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble D. and Win, I. (2021) The status of our bird populations: The Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114, 723–747.

River Devon (a tributary of the River Trent), was captured by transect A01.

- 4.2.6 A limited number of waterfowl species were recorded on the rivers, these comprised of mute swan, great crested grebe, mallard, coot and moorhen. Marginal habitats along stretches of the river within the survey area provide optimal nesting habitat for all of these species. Breeding was confirmed for mallard, with observations of adults with young on transect A02; and for mute swan, with two active nest sites recorded on the River Devon, along transect A01 (see transect location in Appendix C (Breeding bird survey area and transects) of this report).
- 4.2.7 As well as providing valuable nesting, foraging and loafing habitats for waterfowl these rivers act as an important commuting corridor and foraging resource for other species, including herring gull, cormorant and sand martin. This is particularly true where suitable dense bank-side vegetation is present (emergent/marginal vegetation, scrub and woodland) which provides a host of other species with valuable nesting habitat, including species such as Cetti's warbler.
- 4.2.8 Other species recorded utilising habitats along these riparian corridors included: swallow, cormorant, oystercatcher, black-headed gull, grey heron, sedge warbler, reed bunting, dunnock, wren, greenfinch, willow warbler, wood pigeon, starling and house sparrow.
- 4.2.9 Standing waterbodies within the survey area range from small ponds to larger lakes. The largest of these are located north of the Order Limits between the A46 and the Sugar Factory complex. Species recorded utilising these waterbodies (foraging or loafing) during the breeding bird surveys included: mallard, great crested grebe, coot, cormorant and black-headed gull.

## **Woodland, trees, hedgerow and scrub**

- 4.2.10 Woodland and tree dominated habitats within the survey area range from strips of young to semi-mature broadleaved plantation to small areas of semi-mature broadleaved woodland and areas of scattered (parkland trees), wooded farmland, individual trees, treelines, mature hedgerows and scrub. Breeding bird survey transects A01, B01, B03 and C01 provide representative samples of these habitats within the survey area.
- 4.2.11 Woodland, trees, hedgerow and scrub provide valuable nesting, foraging and roosting habitat for a broad range of bird species. Species recorded to be utilising these habitats during the breeding bird surveys included the following notable species: song thrush, willow warbler, wren, greenfinch, dunnock, sparrowhawk, stock dove, woodpigeon and Cetti's warbler.
- 4.2.12 A male Cetti's warbler was recorded to be holding territory with dense scrub dominated habitats to the west of the standing waterbodies

located north of the Order Limits between the A46 and the Sugar Factory complex.

- 4.2.13 Additionally, an active rookery (10+ nests) was identified within a strip of semi-natural broadleaved woodland located at National Grid Reference (NGR) SK 81511 56053, between the existing A46 corridor and Winthorpe village.
- 4.2.14 Breeding was also confirmed in kestrel and barn owl, with both species recorded as utilising individual mature trees.
- 4.2.15 An active kestrel nest site was recorded within a cavity on a mature ash tree (*Fraxinus excelsior*) located along transect C01 at NGR SK 81036 56118, and along the western boundary of a large arable field (see transect location in Appendix C (Breeding bird survey area and transects) of this report).
- 4.2.16 A barn owl was observed roosting within a cavity on a mature tree located along transect A02 (see transect location in Appendix C (Breeding bird survey area and transects) of this report). Barn owl surveys have been conducted separately, the results are provided in a separate barn owl survey report (Appendix 8.4 (Confidential Barn Owl Technical Report) of the ES Appendices **(TR010065/APP/6.3)**).
- 4.2.17 With respect to birds as important ecological features, this habitat is likely to be important to barn owl and Cetti's warbler.

### Grassland, arable fields and boundary hedgerows

- 4.2.18 Northern and southern parts of the survey area are dominated by large tracts of open (lowland) farmland, comprising a mosaic of improved grassland, semi-improved grassland, and arable fields. Most are bound by managed species-poor hedgerows, hedgerows with trees, or treelines (shelter belts). Representative samples of these habitats were captured by transects A03, A04, C01, C02 and C03.
- 4.2.19 Species recorded in these habitats during the breeding bird surveys included the following species: skylark, linnet, reed bunting, house sparrow, starling, yellowhammer, rook, woodpigeon, stock dove and lapwing.
- 4.2.20 An active lapwing nest was recorded along transect A04 centrally within a large arable field (see transect location in Appendix C (Breeding bird survey area and transects) of this report).
- 4.2.21 With respect to birds as important ecological features, this habitat is likely to be important to barn owl.

### Buildings and infrastructure

- 4.2.22 Buildings and other man-made infrastructure is prevalent throughout the survey area. Along with towns and villages, these also include

farm outbuildings, private houses and gardens, industrial units, bridges, factories, marinas, sewage treatment works, railways and roads. A representative sample of these habitats are captured by transects A02, A04, B01, B03, C02 and C03.

- 4.2.23 Birds utilising buildings and infrastructure during the breeding bird surveys included the following species: house sparrow, starling, swallow, swift and house martin.
- 4.2.24 An active house martin colony was recorded along transect B01, upon a building on the western periphery of the Sugar Factory at NGR SK 79255 55298 (see transect location in Appendix C (Breeding bird survey area and transects) of this report). Numerous swallows were recorded foraging in fields and along hedgerows and treelines around the factory, suggesting that buildings here likely also support nesting swallows.
- 4.2.25 With respect to birds as important ecological features this habitat is not likely to be ecologically important.

## 5 Summary

5.1.1 The desk study and field surveys have identified the presence or potential presence of the following important ecological features that have been taken forward to the assessment within the Chapter 8 (Biodiversity) of the ES (**TR010065/APP/6.1**):

- Cormorant
- Herring gull
- Barn owl
- Cetti's warbler
- Sand martin
- Kingfisher (potentially present, associated with watercourses and waterbodies)
- Hobby (potentially present, associated with watercourses and waterbodies and woodland and trees)

5.1.2 The supporting habitat associated with the important ecological features that have been considered in the assessment, with respect to the duties in relation to wild bird habitat, are:

- Watercourses and waterbodies
- Woodland and trees
- Grassland and arable fields



## 6 References

- <sup>1</sup> Wildlife and Countryside Act, 1981 (as amended). Available at: [www.legislation.gov.uk/ukpga/1981/69/contents](http://www.legislation.gov.uk/ukpga/1981/69/contents). Last accessed November 2023.
- <sup>2</sup> Natural Environment and Rural Communities Act, 2006 (as amended). Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>. Last accessed November 2023.
- <sup>3</sup> The Conservation of Habitats and Species Regulations, 2017 (as amended). Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents>. Last accessed November 2023.
- <sup>4</sup> Guidance: Duty to provide and protect habitat for wild birds. Available at: <https://www.gov.uk/guidance/providing-and-protecting-habitat-for-wild-birds>. Last accessed November 2023.
- <sup>5</sup> The Town and Country Planning (environmental Impact Assessment) Regulations, 2017 (as amended). Available at: <https://www.legislation.gov.uk/uksi/2017/571/contents>. Last accessed November 2023.
- <sup>6</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2, updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.
- <sup>7</sup> Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S. and Lambton, S. (2000) Bird Census Techniques. Academic Press, London, UK.
- <sup>8</sup> Marchant, J.H. (1983). *Common Birds Census Instructions*. BTO, Tring. 12pp.
- <sup>9</sup> Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- <sup>10</sup> Birds of Conservation Concern (BoCC) Red List species are denoted by a \*\*, and BoCC Amber list by \*
- <sup>11</sup> Rodewald, P.G. and Shumar, M.B., (2014). Bird Atlas 2007–11: The Breeding and Wintering Birds of Britain and Ireland.
- <sup>12</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble D. and Win, I. (2021) The status of our bird populations: The Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114, 723–747.



## A. Appendix: Desk study data (NGBRC)

Appendix Table A-1: Desk study data (NGBRC)

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Arctic tern	<i>Sterna paradisaea</i>				VU [VU (br)]	Amber	Y
Barn owl	<i>Tyto alba</i>	Y			LC [LC (br)]	Green	
Black redstart	<i>Phoenicurus ochruros</i>	Y	Y		VU [VU (br)/NT (n-br)]	Amber	
Black tern	<i>Chlidonias niger</i>	Y	Y		NE	Green	Y
Black-headed gull	<i>Chroicocephalus ridibundus</i>				VU [LC (br) / VU (n-br)]	Amber	
Brambling	<i>Fringilla montifringilla</i>	Y	Y		LC [LC (n-br)]	Green	
Bullfinch	<i>Pyrrhula pyrrhula</i>			Y	LC [LC (br)]	Amber	
Cetti's warbler	<i>Cettia cetti</i>	Y			LC [LC (br)]	Green	
Chaffinch	<i>Fringilla coelebs</i>				EN [EN (br)]	Green	
Common gull	<i>Larus canus</i>				LC [LC (br) / LC (n-br)]	Amber	
Common sandpiper	<i>Actitis hypoleucos</i>				NT [NT (br)]	Amber	
Common scoter	<i>Melanitta nigra</i>	Y	Y	Y	CR [CR (br) / LC (n-br)]	Red	
Common tern	<i>Sterna hirundo</i>				NT [NT (br)]	Amber	Y
Corn bunting	<i>Emberiza calandra</i>			Y	NT [NT (br)]	Red	
Crossbill	<i>Loxia curvirostra</i>	Y			LC [LC (br)]	Green	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Cuckoo	<i>Cuculus canorus</i>			Y	LC [LC (br)]	Red	
Curlew	<i>Numenius arquata</i>			Y	EN [EN (br)]	Red	
Dunlin	<i>Calidris alpina</i>				VU [VU (br) / VU (n-br)]	Red	
Dunnock	<i>Prunella modularis</i>			Y	LC [LC (br); LC (br)]	Amber	
Fieldfare	<i>Turdus pilaris</i>	Y			CR [CR (br) / LC (n-br)]	Red	
Gadwall	<i>Mareca strepera</i>				LC [LC (br) / LC (n-br)]	Amber	
Golden plover	<i>Pluvialis apricaria</i>				LC [LC (br) / LC (n-br)]	Green	Y
Goldeneye	<i>Bucephala clangula</i>		Y		VU [VU (br) / VU (n-br)]	Red	
Grasshopper warbler	<i>Locustella naevia</i>			Y	LC [LC (br)]	Red	
Great black-backed gull	<i>Larus marinus</i>				EN [LC (br) / EN (n-br)]	Amber	
Great white egret	<i>Ardea alba</i>		Y		EN [EN (br) / VU (n-br)]	Amber	
Green sandpiper	<i>Tringa ochropus</i>	Y	Y		CR [CR (br); / VU (n-br)]	Amber	
Greenfinch	<i>Chloris chloris</i>				EN [EN (br)]	Red	
Greenshank	<i>Tringa nebularia</i>	Y	Y		LC [LC (br)]	Amber	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Grey partridge	<i>Perdix perdix</i>			Y	VU [VU (br)]	Red	
Grey wagtail	<i>Motacilla cinerea</i>				NT [NT (br)]	Amber	
Greylag goose	<i>Anser anser</i>				LC [LC (br) / LC (n-br)]	Amber	
Hawfinch	<i>Coccothraustes coccothraustes</i>		Y	Y	EN [EN (br)]	Red	
Hen harrier	<i>Circus cyaneus</i>	Y	Y	Y	EN [EN (br)]	Red	Y
Herring gull	<i>Larus argentatus</i>			Y	EN [DD (br) / EN (n-br)]	Red	
Hobby	<i>Falco subbuteo</i>	Y	Y		NT [NT (br)]	Green	
House martin	<i>Delichon urbicum</i>				NT [NT (br)]	Red	
House sparrow	<i>Passer domesticus</i>			Y	LC [LC (br)]	Red	
Kestrel	<i>Falco tinnunculus</i>				VU [VU (br)]	Amber	
Kingfisher	<i>Alcedo atthis</i>	Y			VU [VU (br)]	Green	Y
Lapwing	<i>Vanellus vanellus</i>			Y	VU [VU (br) / VU (n-br)]	Red	
Lesser black-backed gull	<i>Larus fuscus</i>				DD [DD (br)]	Amber	
Linnet	<i>Linaria cannabina</i>			Y	LC [LC (br)]	Red	
Little egret	<i>Egretta garzetta</i>		Y		LC [LC (br) / LC (n-br)]	Green	Y
Little ringed plover	<i>Charadrius dubius</i>	Y	Y		LC [LC (br)]	Green	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Little tern	<i>Sternula albifrons</i>	Y	Y		VU [VU (br)]	Amber	Y
Long-eared owl	<i>Asio otus</i>		Y		LC [LC (br)]	Green	
Long-tailed duck	<i>Clangula hyemalis</i>	Y	Y		NT [NT (n-br)]	Red	
Mallard	<i>Anas platyrhynchos</i>				VU [LC (br) / VU (n-br)]	Amber	
Marsh harrier	<i>Circus aeruginosus</i>	Y	Y		LC [LC (br)]	Amber	Y
Marsh tit	<i>Poecile palustris</i>			Y	NT [NT (br)]	Red	
Meadow pipit	<i>Anthus pratensis</i>				LC [LC (br)]	Amber	
Mediterranean gull	<i>Ichthyaetus melanocephalus</i>	Y	Y		LC [LC (br)]	Amber	Y
Merlin	<i>Falco columbarius</i>	Y	Y		EN [EN (br)]	Red	Y
Mistle thrush	<i>Turdus viscivorus</i>				NT [NT (br)]	Red	
Moorhen	<i>Gallinula chloropus</i>				VU [VU (br)]	Amber	
Osprey	<i>Pandion haliaetus</i>	Y	Y		NT [NT (br)]	Amber	Y
Oystercatcher	<i>Haematopus ostralegus</i>				VU [VU (br)]	Amber	
Peregrine	<i>Falco peregrinus</i>	Y	Y		LC [LC (br)]	Green	Y
Pink-footed goose	<i>Anser brachyrhynchus</i>		Y		LC [LC (n-br)]	Amber	
Pochard	<i>Aythya ferina</i>		Y		EN [VU (br) / EN (n-br)]	Red	
Quail	<i>Coturnix coturnix</i>	Y	Y		EN [EN (br)]	Amber	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Red kite	<i>Milvus milvus</i>	Y	Y		LC [LC (br)]	Green	Y
Redwing	<i>Turdus iliacus</i>	Y	Y		CR [CR (br) / LC (n-br)]	Amber	
Reed bunting	<i>Emberiza schoeniclus</i>			Y	LC [LC (br)]	Amber	
Ringed plover	<i>Charadrius hiaticula</i>				VU [NT (br) / VU (n-br)]	Red	
Rook	<i>Corvus frugilegus</i>				NT [NT (br)]	Amber	
Scaup	<i>Aythya marila</i>	Y	Y		EN [EN (n-br)]	Red	
Sedge warbler	<i>Acrocephalus schoenobaenus</i>				NT [NT (br)]	Amber	
Shelduck	<i>Tadorna tadorna</i>				EN [EN (br) / VU (n-br)]	Amber	
Short-eared owl	<i>Asio flammeus</i>		Y		EN [EN (br)]	Amber	Y
Shoveler	<i>Spatula clypeata</i>		Y		LC [LC (br) / LC (n-br)]	Amber	
Skylark	<i>Alauda arvensis</i>			Y	LC [LC (br) / LC (n-br)]	Red	
Smew	<i>Mergellus albellus</i>		Y		CR [CR (n-br)]	Red	Y
Snipe	<i>Gallinago gallinago</i>				VU [LC (br) / VU (n-br)]	Amber	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Song thrush	<i>Turdus philomelos</i>			Y	LC [LC (br)]	Amber	
Sparrowhawk	<i>Accipiter nisus</i>				VU [VU (br)]	Amber	
Spotted flycatcher	<i>Muscicapa striata</i>			Y	NT [NT (br)]	Red	
Starling	<i>Sturnus vulgaris</i>			Y	VU [VU (br)/LC (n-br)]	Red	
Stock dove	<i>Columba oenas</i>				LC [LC (br)]	Amber	
Stonechat	<i>Saxicola rubicola</i>				LC [LC (br)]	Green	
Swift	<i>Apus apus</i>				EN [EN (br)]	Red	
Tawny owl	<i>Strix aluco</i>				NT [NT (br)]	Amber	
Teal	<i>Anas crecca</i>				LC [LC (br)/LC (n-br)]	Amber	
Tree sparrow	<i>Passer montanus</i>			Y	VU [VU (br)]	Red	
Treecreeper	<i>Certhia familiaris</i>				LC [LC (br)]	Green	
Water rail	<i>Rallus aquaticus</i>				LC [LC (br)]	Green	
Wheatear	<i>Oenanthe oenanthe</i>				EN [EN (br)]	Amber	
Whooper swan	<i>Cygnus cygnus</i>	Y	Y		EN [EN (br)/LC (n-br)]	Amber	Y
Wigeon	<i>Mareca penelope</i>		Y		VU [VU (br)/NT (n-br)]	Amber	
Willow tit	<i>Poecile montanus</i>		Y	Y	EN [EN (br)]	Red	
Willow warbler	<i>Phylloscopus trochilus</i>				LC [LC (br)]	Amber	
Woodcock	<i>Scolopax rusticola</i>				VU [VU (br)/NT (n-br)]	Red	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Woodpigeon	<i>Columba palumbus</i>				LC [LC (br)]	Amber	
Wren	<i>Troglodytes troglodytes</i>				LC [LC (br)]	Amber	
Yellow wagtail	<i>Motacilla flava</i>			Y	NT [NT (br)]	Red	
Yellowhammer	<i>Emberiza citrinella</i>			Y	LC [LC (br)]	Red	
Yellow-legged gull	<i>Larus michahellis</i>		Y		EN [EN (br)/LC (n-br)]	Amber	

## **B. Appendix: BTO data report**



# A46 Newark Bypass

Compiled on 09 February 2022





# SUMMARY

**Background** The BTO Data Report collates and analyses comprehensive (2007–2011) and contemporary (2018–2022) bird data relating to the grid squares spanned by the site: 13 1-km squares, six tetrads and two 10-km squares. For contextual analyses, data from these relevant squares are related to equivalent data from one vice-county, one county, one region, one country and the UK to assess species' importance in the vicinity of the site to help inform delivery of habitat mitigation, enhancement and biodiversity net gain.

**Data used** Coverage of relevant squares spanned by the site from 2007–2011 is complete at the 10-km resolution and there is very good coverage of the site by timed visits and very good coverage from casual recording in the breeding season (very good and very good respectively in winter). Contemporary information for the period 2018–2022 is available from BirdTrack for 83% of tetrads (100% of 10-km squares) in the breeding season and from one BBS square.

**Results** During 2007–2011, 97 species with breeding evidence and 118 species in winter were recorded in the vicinity of the site at various spatial scales. Breeding season figures include six Schedule 1 species, three Annex 1 species and 25 BoCC Red list species. The following rare breeding birds were recorded in the same 20-km or 50-km squares as the site during 2007–2011: Honey-buzzard, Montagu's Harrier. For confidentiality reasons we cannot reveal fine-scale association with the site: further details may be available from the Rare Breeding Birds Panel.

During the breeding seasons of 2018–2022, 131 species were recorded in the vicinity of the site at various spatial scales. These included 20 Schedule 1 species, 16 Annex 1 species and 29 BoCC Red list species.

In a regional context, the site's 10-km squares accounted for up to 22% of regional population size. Twenty-three species were notable in at least one region or season. In a county context, the site's 10-km squares accounted for up to 100% of county population size. Nineteen species were notable in at least one county or season. In a vice-county context, the site's 10-km squares accounted for up to 100% of vice-county population size. Nineteen species were notable in at least one vice-county or season. Full details of notable species and those showing more positive population trends in the vicinity of the site compared to the wider context are given in the Report.

# 1. INTRODUCTION

The purpose of the BTO Data Report is to provide information on bird species associated with potential development sites at a range of spatial scales to inform desk studies for ecological impact assessments. The Report uses BTO's long-term ornithological datasets, providing **high quality** comprehensive and contemporary information. BTO is grateful to the volunteers who collected all the data, and to the funders and scheme partners, who are listed in Section 3 under the relevant data sources.

The species list in this report can guide the need for detailed field surveys in conjunction with [Bird Survey Guidelines](#) advice. This Report highlights the legal and conservation status assigned to each species in the relevant country. Beyond simple species lists, BTO data are uniquely able to provide context to help quantify the importance of a site and its surroundings in conservation terms. This includes assessments of the percentage of county, regional and national geographic range and population size associated with the site, plus recent population changes, offering the potential to highlight priorities for delivering habitat mitigation, enhancement and biodiversity net gain.

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## 2. SITE, SQUARES, REGIONS AND FEATURES

### 2.1 Relevant grid squares

Systematic bird recording in Britain and Ireland typically involves the collection of records for 1-km, 2-km ('tetrad') or 10-km squares, or using the boundaries of user-defined sites, nature reserves and other 'popular places'. Rarely can records be definitively attributed within the boundary of proposed development sites, especially small ones.

**Unless otherwise stated, all species detailed in the BTO Data Report concern species present in grid squares *intersected* by the site boundary, rather than species that are definitively *within* the site boundary. Grid squares with at least 1ha overlapping the site are referred to as 'relevant' squares.**

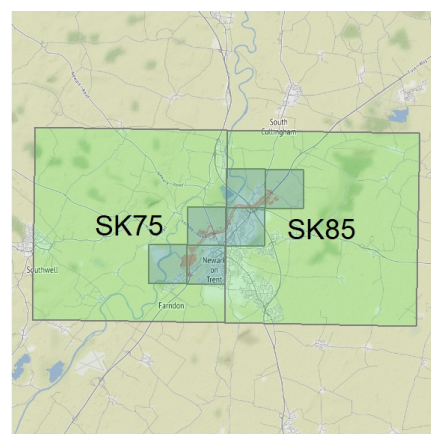
For example 'relevant tetrads' are all 2-km squares with at least 1ha overlapping the site. Data are summarised at the finest spatial scale possible, subject to the size of the site and the availability and spatial precision of BTO datasets in the vicinity of the site.

The number of relevant 1-km squares, tetrads and 10-km squares for the site are listed below. The map above shows the site in relation to relevant tetrads and relevant 10-km squares (for an equivalent map for 1-km squares, and for full lists of relevant 1-km squares, tetrads and 10-km squares, see Appendix 1).

- 13 relevant 1-km squares
- six relevant tetrads
- two relevant 10-km squares

For reasons of confidentiality the precise locations of certain rare breeding and wintering birds (typically those reported on by the [Rare Breeding Birds Panel](#)) cannot be revealed precisely in BTO Data Reports. For these species we follow the treatment introduced by *Bird Atlas 2007–11* where records were summarised for 20-km and 50-km squares. If any such rare breeding species have been recorded in the same 20-km or 50-km squares as the site, lists and maps of relevant 20-km and/or 50-km squares are included in Appendix 1.

**All results in the BTO Data Report, especially those for larger grid resolutions, should be interpreted with respect to the habitats present on the site as some species listed may not occur within the site boundary.**



## 2.2 Relevant county, regional and national contexts

The BTO Data Report contains contextual 'site importance' analyses that aim to highlight species for which the site and its relevant grid squares are important in local, regional, national and UK contexts. For example, does the site and its surroundings support a regionally significant population of a protected species?

**National context** concerns the site relative to the country it falls within. In addition to the UK (here combined with the Isle of Man and Channel Islands), the site also falls within one country: *England*.

**Regional context** concerns the site relative to the regions it falls within. For sites in England, regions are defined using the NUTS (Nomenclature of territorial units for statistics) level 1 regions. The following regions are relevant for this site: *East Midlands*.

**County context** concerns the site relative to counties. The following counties are relevant for this site: *Nottinghamshire*.

**Vice-county context** concerns the site relative to vice-counties. For sites in Great Britain, the Report uses Watsonian Vice-counties. The following vice-counties are relevant for this site: *Nottinghamshire*.

Maps of all these areas can be found in Appendix 1. The grid squares associated with each of these area are used to determine overall range size and abundance at county, regional and national scales with which range size and abundance for the site's relevant grid squares can be calculated. Note that some individual grid squares may be associated with more than one geographical area. For more information see Section 5.

## 2.3 Relevant features

The BTO Data Report summarises species occurrence and abundance for species of conservation and statutory importance. In addition to the lists of species important across the UK, certain lists are of relevance in the UK's devolved administrations. The table below lists all species lists relevant for UK, Isle of Man and Channel Islands and England. Section 4 summarises the number of species recorded at or around the site for each of these feature lists.

Feature	Description
Schedule 1 UK	Species listed on Schedule 1 of the Wildlife and Countryside Act 1981
BoCC Red	Species on the Red list according to Birds of Conservation Concern 5 (Stanbury et al. 2021)
BoCC Amber	Species on the Amber list, according to Birds of Conservation Concern 5 (Stanbury et al. 2021)
Annex 1	Species on Annex 1 of the EU Birds Directive
IUCN2 Critically Endangered	Species listed as Critically endangered in Great Britain (Stanbury et al. 2021)
IUCN2 Endangered	Species listed as Endangered in Great Britain (Stanbury et al. 2021)
IUCN2 Near Threatened	Species listed as Near Threatened in Great Britain (Stanbury et al. 2021)
IUCN2 Vulnerable	Species listed as Vulnerable in Great Britain (Stanbury et al. 2021)
RBBP	Rare and scarce species considered by the Rare Breeding Birds Panel
Section 41 England	Species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 (England only)
Schedule ZA1 England & Wales	Species listed on Schedule ZA1 of the Wildlife and Countryside Act (England & Wales only)

## 3. DATA SOURCES AND COVERAGE

The BTO Data Report uses comprehensive atlas distribution data from 2007–11 to give a baseline of high-quality

information about species status at and around the site and in the wider context. This is supplemented by the latest records from current schemes, including BirdTrack and BBS. The report considers **269 species** that regularly occur in Britain and Ireland. These include **221 breeding species** and **226 wintering species**. The report includes BOU Category C established non-native species but excludes exotic non-native species (i.e. those without self-sustaining populations). Breeding species are defined as those that were recorded with confirmed breeding evidence in at least one 10-km square in Britain or Ireland in *Bird Atlas 2007–11*. Wintering species are defined as those recorded in at least fifty 10-km squares in *Bird Atlas 2007–11*, plus six rare residents that the 50-square rule excluded (e.g. Cirl Bunting). Species on statutory and conservation status lists, such as Schedule 1, Birds of Conservation Concern 5, or Section 7 (Wales) are highlighted. Some lists consider subspecies or populations (e.g. Greenland White-fronted Goose, Hebridean Song Thrush) for which BTO data are not ideally suited. We therefore include the parent species in these analyses to ensure appropriate warnings are raised and dedicated surveys may be required.

Systematic bird recording often involves the assignment of 'breeding evidence' to records. Breeding evidence is hierarchical, having three levels: possible breeding, probable breeding and confirmed breeding. These are directly inferred from field observations and indicate the certainty that can be ascribed to the record that breeding is taking place at a location. For example, a bird singing in suitable territory is assigned possible breeding evidence, a bird carrying nesting material is assigned probable breeding evidence, whereas recently fledged young amounts to confirmed breeding evidence. Lack of breeding evidence (i.e. simple presence) can reflect either that the observer did not witness appropriate behaviours indicative of breeding, or that submission of breeding evidence was not mandatory for that particular data source.

**Lack of breeding evidence in the data should not be assumed to indicate lack of breeding.**

See below for details about each dataset and an assessment of the quantity of data relating to the site and its relevant grid squares.

### 3.1 Comprehensive species assessment 2007–2011

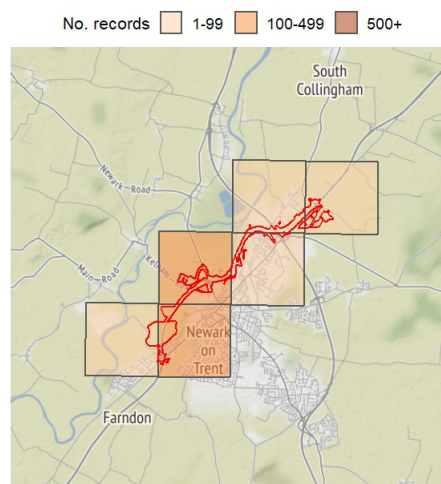


*Bird Atlas 2007–11* (BTO, BirdWatch Ireland and the Scottish Ornithologists' Club) provides data at two resolutions: complete 10-km distribution datasets and sample 2-km distribution and relative abundance datasets. Although the Bird Atlas data are now 11 years old, they still provide the most recent and comprehensive assessment of bird distributions available. **All two relevant 10-km squares** that the site spans will have been surveyed in winter and the breeding season to provide 10-km resolution distribution information. Unstructured data (i.e. casual records) at tetrad resolution were provided for **six relevant tetrads** in the breeding season and for **six relevant tetrads** in winter. The total numbers of records submitted across this set of tetrads in the breeding season and winter were **319 records** and **165 records** respectively.

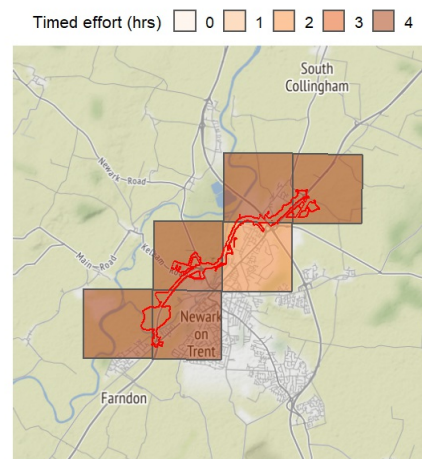
Additionally, at least 32% of tetrads in each 10-km square received timed visits, amounting to structured data for 50089 tetrads across Britain and Ireland. Of the six relevant tetrads that the site spans, **six** (100%) received Timed Tetrad Visits in the breeding season (22 hours of recording effort). Similarly, **six tetrads** (100%) were visited in winter (22 hours).

*Data quality control: All records have been manually verified prior to use.*

Distribution of casual records (breeding)



Distribution of timed effort (breeding)



## 3.2 Contemporary species assessment 2018–2022

The current species assessment is based on the following data sources.

### 3.2.1 Breeding Bird Survey



The UK *Breeding Bird Survey* (BBS hereafter; BTO, JNCC, RSPB) is an annual survey of over 4000 randomly selected 1-km squares across the UK. Each square is surveyed twice per breeding season, providing up to date records of bird occurrence in this c.3% sample of the UK. The BBS does not require observers to provide breeding evidence information. Consequently, all records relate to presence information; *it should not be assumed that lack of breeding evidence means species were not breeding at or near the site*. This Report queries data from the 4900 1-km squares surveyed for the BBS during 2017–2020. Only **one** of the relevant 1-km squares was also a BBS square (SK7954). That square was surveyed for three years, most recently in **2019**.

*Data quality control: All records have been manually verified prior to use.*

### 3.2.2 BirdTrack



*BirdTrack* (BTO, RSPB, BirdWatch Ireland, Scottish Ornithologists' Club and Welsh Ornithological Society) provides information on recent sightings of birds throughout Britain and Ireland. Unlike *Bird Atlas*, which has a structured component ensuring complete coverage of 10-km squares, *BirdTrack* is unstructured and coverage is strongly associated with the distribution and birdwatching preferences of observers. The consequent variation in recording effort means that for some areas there be less information to generate a report. A further difference from *Bird Atlas* is that observers are not required to provide breeding evidence information. Consequently, some searches may yield only presence information; it should not be assumed that lack of breeding evidence means species were not breeding at or near the site. Observers are free to birdwatch where they choose, and can provide records with varying levels of spatial precision, from pin-pointed records, to large polygons that may span multiple grid squares. The assessment includes data for the breeding season (March–July inclusive) and non-breeding season (August–February inclusive) for the last five years and is summarised with respect to the relevant grid squares, summarising records to the finest spatial precision that the records permit.

BirdTrack data were available for **83%** of the site's relevant tetrads in the breeding season (100% of 10-km squares), including data from **2021**. Data were available for **83%** of the site's relevant tetrads in winter (100% of 10-km squares), including data from **2022**.

*Data quality control: Observers are warned of 'threshold breaking' records at the point of data entry (unusual place or date for a species; unusually high count) and given the opportunity to correct mistakes. Further manual verification occurs but as BirdTrack data are 'live', the verification status of individual records varies. Rejected records and any in an active state of query are excluded from the Report.*



# 4. SPECIES LISTS

## 4.1 Species assessment 2007–2011

This section summarises comprehensive *Bird Atlas 2007–11* distribution data for the six relevant tetrads and two relevant 10-km squares the site spans. It also considers data from the two relevant 20-km squares and one relevant 50-km square for any confidential RBBP species records.

### 4.1.1 Breeding season

*Bird Atlas 2007–11* indicate **97 species** with breeding evidence in the vicinity of the site at a range of spatial resolutions (Table 1). At the highest level of spatial resolution achievable with Bird Atlas data, 74 species were recorded with breeding evidence in the site's relevant tetrads. The following confidential species were recorded with breeding evidence during 2007–11 in the same 50-km square(s) as the site: Honey-buzzard, Montagu's Harrier. See Appendix 3 for the full list of species with breeding evidence recorded in the vicinity of the site.

**Table 1.** Numbers of species in the breeding season recorded during 2007–11 at different spatial resolutions relative to the site. Rows give figures for all species, and according to various lists of important features. Columns indicate status in relevant grid squares of different sizes.

Species category	2-km	10-km	20-km	50-km
All species	74	21	0	2
Annex 1	1	0	0	2
BoCC Amber	19	7	0	1
BoCC Red	17	7	0	1
IUCN2 Critically Endangered	0	1	0	1
IUCN2 Endangered	4	5	0	1
IUCN2 Near Threatened	11	3	0	0
IUCN2 Vulnerable	14	2	0	0
RBBP	0	6	0	2
Schedule 1 UK	2	2	0	2
Schedule ZA1 England & Wales	0	0	0	0
Section 41 England	17	6	0	0

### 4.1.2 Winter

*Bird Atlas 2007–11* indicates **118 species** were recorded in the vicinity of the site in winter at a range of spatial resolutions (Table 2). At the highest level of spatial resolution achievable with Bird Atlas data, 89 species were recorded in winter in the site's relevant tetrads. No confidential species were recorded in winter in any of the site's relevant 20-km or 50-km squares. See Appendix 3 for the full list of species recorded in the vicinity of the site.



**Table 2.** Numbers of species in winter during 2007–11 at different spatial resolutions relative to the site. Rows give figures for all species, and according to various lists of important features. Columns indicate status in relevant grid squares of different sizes.

Species category	2-km	10-km	20-km	50-km
All species	89	29	0	0
Annex 1	4	9	0	0
BoCC Amber	29	10	0	0
BoCC Red	18	9	0	0
IUCN2 Critically Endangered	3	4	0	0
IUCN2 Endangered	8	6	0	0
IUCN2 Near Threatened	7	3	0	0
IUCN2 Vulnerable	18	5	0	0
RBBP	14	11	0	0
Schedule 1 UK	10	7	0	0
Schedule ZA1 England & Wales	0	0	0	0
Section 41 England	16	7	0	0

## 4.2 Species assessment 2018–2022

### 4.2.1 Breeding season

The assessment of current species associated with the site in the breeding season is based on BBS and BirdTrack. This information summarises species with and without breeding evidence as (unlike Bird Atlas data) these data sources do not require evidence to be submitted. These sources indicate **131 species** recorded in the vicinity of the site in the breeding season at a range of spatial resolutions (Table 3). At the highest level of spatial resolution achievable with these data, 47 species were recorded in the same 1-km square(s) as the site. Some BirdTrack sites spanned 10-km square boundaries; any species associated with these BirdTrack sites and not present at a finer resolution are summarised in the '>10-km' column. Particular care should be taken with such records as the species could have been recorded some distance from the site. See Appendix 4 for the full list of species recorded in the vicinity of the site during 2018–2022.

**Table 3.** Numbers of species in the breeding season during 2018–2022 at different spatial resolutions relative to the site. Rows give figures for all species, and according to various lists of important features. Columns indicate status in relevant grid squares of different sizes.

Species category	1-km	2-km	10-km	>10-km
All species	47	12	43	29
Annex 1	0	2	9	5
BoCC Amber	13	6	16	12
BoCC Red	7	0	15	7
IUCN2 Critically Endangered	0	0	2	4
IUCN2 Endangered	4	0	6	3
IUCN2 Near Threatened	4	5	5	1
IUCN2 Vulnerable	7	3	12	4
RBBP	0	2	10	14
Schedule 1 UK	0	3	8	9
Schedule ZA1 England & Wales	0	1	0	0
Section 41 England	6	0	12	6

## 4.2.2 Non-breeding season

The assessment of current species associated with the site is based on BirdTrack and indicate **120 species** recorded in the vicinity of the site in the non-breeding season at a range of spatial resolutions (Table 4). Some BirdTrack sites spanned 10-km square boundaries; any species associated with these BirdTrack sites and not present at a finer resolution are summarised in the '>10-km' column. Particular care should be taken with such records as the species could have been recorded some distance from the site. See Appendix 4 for the full list of species recorded in the vicinity of the site during 2018–2022.

**Table 4.** Numbers of species in the non-breeding season during 2018–2022 at different spatial resolutions relative to the site. Rows give figures for all species, and according to various lists of important features. Columns indicate status in relevant grid squares of different sizes.

Species category	1-km	2-km	10-km	>10-km
All species	0	26	60	34
Annex 1	0	0	6	8
BoCC Amber	0	10	18	15
BoCC Red	0	2	14	8
IUCN2 Critically Endangered	0	2	0	4
IUCN2 Endangered	0	0	8	7
IUCN2 Near Threatened	0	1	7	0
IUCN2 Vulnerable	0	7	11	6
RBBP	0	2	6	21
Schedule 1 UK	0	2	4	12
Schedule ZA1 England & Wales	0	0	0	0
Section 41 England	0	1	13	4

## 5. SITE IMPORTANCE

A site may be important if it supports a high proportion of a species' local, regional or national population, or if its population trends are more positive at the site compared to elsewhere. Whilst data are not available at sufficiently fine scales to assess the site itself (see Section 2), here we used *Bird Atlas 2007–11* distribution and relative abundance data for relevant 10-km squares to assess the area in which the site falls.

For each species we express its range and population size in the vicinity of the site relative to the total range size and population size in different geographic contexts, ranging from vice-counties and counties, through regions, to countries. This requires determining how many of the relevant 10-km squares spanned by the site are occupied (e.g. one) and how many 10-km squares in the larger region are occupied (e.g. 20); in this case the site and its vicinity account for 5% (= 1/20) of the species' range in the region. As large sites will tend to account for a higher percentage of range than small sites, such figures need to be bench-marked to allow comparability across sites. This requires knowing how many of the site's relevant 10-km squares fall in the region (e.g. one) and the total number of 10-km squares in the region (e.g. 100); in this case the site's 'percentage size' is 1% (= 1/100). We define **Notable species** as those for which the percentage range is at least twice the site's percentage size. In the above examples the percentage range (5%) is more than double the site's percentage size (1%) so the species would be highlighted as Notable. The exception to this rule is at the scale of United Kingdom where we mark species as **Notable** if the site and vicinity account for 2% or more of the species' UK range.

Distribution data are available for all species for the above analysis. However, distribution data ignore the fact that some species vary widely in abundance within their range. Therefore, to supplement the results above, we undertake a similar exercise using relative abundance data which can help to highlight species for which the site and its vicinity is a particular hot-spot of locally, regionally or nationally high density. *Bird Atlas 2007–11* data give a relative density measure for each terrestrial species in each 10-km square (**colonial seabirds are excluded**). These can be summarised in the same way as distribution data to estimate the percentage of the region's population size found at the site and its vicinity. Calculations of percentages and derivation of Notable species are as above.

Lastly, breeding season relative abundance data are available for two periods, 1988–91 and 2008–11, allowing for an assessment of relative abundance change for terrestrial bird species over this interval for the site and its vicinity (**colonial seabirds are excluded**). By comparing such values with corresponding change measures for the wider region we can identify species for which the site and its vicinity has had more positive population trends (i.e. increasing more than elsewhere, or declining less). This may indicate that the 10-km squares in which the site falls are an important refuge for these species in a local, regional or national context. When interpreted alongside the species lists in Section 4 and the result of any commissioned field surveys, these results can help to identify species for which the site may be particularly important. For very small sites spanning only a single 10-km square these results should be interpreted with caution.

**It is important to remember that all these calculations use 10-km resolution data so relate to the site and its vicinity, not strictly to the site alone.**

## 5.1 Country: UK, Isle of Man and Channel Islands

Overall, two of the 10-km squares that include the site fall in UK, Isle of Man and Channel Islands, accounting for 0.066% of 10-km squares in UK, Isle of Man and Channel Islands. According to *Bird Atlas* data, these squares support between 0.1% and 1.8% of the geographic range in UK, Isle of Man and Channel Islands of all the species considered (breeding and winter combined). In terms of abundance, these squares represent between 0% and 0.6% of the total population size in UK, Isle of Man and Channel Islands. In the context of the United Kingdom, **notable species** are defined as those for which the site's relevant 10-km squares account for at least 2% of geographic range in the UK. If any species qualify they are listed below, with those on the [BoCC Red List](#) and [BoCC Amber List](#) highlighted in corresponding colour:

- Breeding range, zero species:
- Winter range, zero species:
- Breeding abundance, zero species:
- Winter abundance, zero species:

Between 1988–91 and 2008–11, there were 50 species for which relative abundance increased more (or decreased less) at/near the site compared to the relative abundance changes apparent across the rest of UK, Isle of Man and Channel Islands. The ten species with the most positive difference in trend between site and region are listed below and all species can be seen in Figure 5.1 in Appendix 5.

- [Stock Dove](#), [Moorhen](#), [Kestrel](#), [Rook](#), Carrion Crow, Chiffchaff, Lesser Whitethroat, [Mistle Thrush](#), Pied/White Wagtail, Goldfinch

There were 40 species for which the opposite was the case, i.e. that they were declining more (or increasing less) at/near the site compared to the rest of UK, Isle of Man and Channel Islands. The ten species with the most negative difference in trend between site and region were:

- [Grey Partridge](#), Red-legged Partridge, [Cuckoo](#), Collared Dove, Jay, Coal Tit, [Skylark](#), [Willow Warbler](#), [Spotted Flycatcher](#), [Yellow Wagtail](#)

## 5.2 Country: England

Overall, two of the 10-km squares that include the site fall in England, accounting for 0.13% of 10-km squares in England. According to *Bird Atlas* data, these squares support between 0.1% and 1.9% of the geographic range in England of all the species considered (breeding and winter combined). In terms of abundance, these squares represent between 0% and 0.7% of the total population size in England. **Notable species** for England are listed below, with those on the [BoCC Red List](#) and [BoCC Amber List](#) highlighted in corresponding colour:

- Breeding range, seven species: [Pochard](#), Ruddy Duck, [Turtle Dove](#), Cormorant, Long-eared Owl, Cetti's Warbler, [Tree Sparrow](#)
- Winter range, 14 species: Red-breasted Goose, [Pink-footed Goose](#), [White-fronted Goose](#), [Bewick's Swan](#), [Whooper Swan](#), [Smew](#), Ruddy Duck, [Grey Plover](#), [Ruff](#), [Common Sandpiper](#), [Greenshank](#), [Caspian Gull](#), [Hen Harrier](#), Swallow
- Breeding abundance, eight species: [Pochard](#), Ruddy Duck, Little Owl, [Lesser Spotted Woodpecker](#), Sand Martin, [Grasshopper Warbler](#), Lesser Whitethroat, [Yellow Wagtail](#)
- Winter abundance, three species: Tufted Duck, [Grey Partridge](#), [Kestrel](#)

Between 1988–91 and 2008–11, there were 52 species for which relative abundance increased more (or decreased less) at/near the site compared to the relative abundance changes apparent across the rest of England. The ten species with the most positive difference in trend between site and region are listed below and all species can be seen in Figure 5.2 in Appendix 5.

- [Stock Dove](#), [Moorhen](#), Little Owl, [Kestrel](#), [Rook](#), Carrion Crow, Lesser Whitethroat, [Mistle Thrush](#), Pied/White Wagtail, Goldfinch

There were 38 species for which the opposite was the case, i.e. that they were declining more (or increasing less) at/near the site compared to the rest of England. The ten species with the most negative difference in trend between site and region were:

- [Grey Partridge](#), Red-legged Partridge, [Cuckoo](#), [Turtle Dove](#), Collared Dove, Jay, Coal Tit, [Skylark](#), [Spotted](#)

## 5.3 Region: East Midlands

Overall, two of the 10-km squares that include the site fall in East Midlands, accounting for 0.98% of 10-km squares in East Midlands. According to *Bird Atlas* data, these squares support between 0.6% and 33.3% of the geographic range in East Midlands of all the species considered (breeding and winter combined). In terms of abundance, these squares represent between 0% and 21.7% of the total population size in East Midlands. **Notable species** for East Midlands are listed below, with those on the **BoCC Red List** and **BoCC Amber List** highlighted in corresponding colour:

- Breeding range, six species: **Pochard**, Ruddy Duck, **Herring Gull**, **Lesser Black-backed Gull**, Long-eared Owl, Cetti's Warbler
- Winter range, 13 species: Red-breasted Goose, **Whooper Swan**, **Smew**, **Oystercatcher**, **Grey Plover**, **Ruff**, **Common Sandpiper**, **Greenshank**, **Caspian Gull**, **Hen Harrier**, Swallow, Firecrest, Common Crossbill
- Breeding abundance, five species: **Pochard**, Ruddy Duck, **Lesser Spotted Woodpecker**, Sand Martin, **Grasshopper Warbler**
- Winter abundance, one species: **White-fronted Goose**

Between 1988–91 and 2008–11, there were 49 species for which relative abundance increased more (or decreased less) at/near the site compared to the relative abundance changes apparent across the rest of East Midlands. The ten species with the most positive difference in trend between site and region are listed below and all species can be seen in Figure 5.3 in Appendix 5.

- **Pochard**, **Stock Dove**, **Moorhen**, **Redshank**, Little Owl, Carrion Crow, Lesser Whitethroat, **Mistle Thrush**, Pied/White Wagtail, Goldfinch

There were 41 species for which the opposite was the case, i.e. that they were declining more (or increasing less) at/near the site compared to the rest of East Midlands. The ten species with the most negative difference in trend between site and region were:

- **Grey Partridge**, Red-legged Partridge, Collared Dove, Jay, Coal Tit, **Skylark**, Reed Warbler, **Yellow Wagtail**, Chaffinch, **Reed Bunting**

## 5.4 County: Nottinghamshire

Overall, two of the 10-km squares that include the site fall in Nottinghamshire, accounting for 5.6% of 10-km squares in Nottinghamshire. According to *Bird Atlas* data, these squares support between 2.9% and 100% of the geographic range in Nottinghamshire of all the species considered (breeding and winter combined). In terms of abundance, these squares represent between 0.2% and 100% of the total population size in Nottinghamshire. **Notable species** for Nottinghamshire are listed below, with those on the **BoCC Red List** and **BoCC Amber List** highlighted in corresponding colour:

- Breeding range, four species: **Herring Gull**, **Lesser Black-backed Gull**, Cormorant, Cetti's Warbler
- Winter range, 11 species: Red-breasted Goose, **White-fronted Goose**, **Smew**, **Grey Plover**, **Ruff**, **Common Sandpiper**, **Greenshank**, **Caspian Gull**, **Hen Harrier**, Swallow, Firecrest
- Breeding abundance, four species: **Pochard**, **Curlew**, **Redshank**, Little Owl
- Winter abundance, two species: **White-fronted Goose**, **Grey Plover**

Between 1988–91 and 2008–11, there were 46 species for which relative abundance increased more (or decreased less) at/near the site compared to the relative abundance changes apparent across the rest of Nottinghamshire. The ten species with the most positive difference in trend between site and region are listed below and all species can be seen in Figure 5.4 in Appendix 5.

- **Stock Dove**, **Moorhen**, **Redshank**, Great Spotted Woodpecker, **Rook**, Blackcap, Lesser Whitethroat, **Mistle Thrush**, Pied/White Wagtail, Goldfinch

There were 44 species for which the opposite was the case, i.e. that they were declining more (or increasing less) at/near the site compared to the rest of Nottinghamshire. The ten species with the most negative difference in trend between site and region were:

- Greylag Goose, Grey Partridge, Red-legged Partridge, Cuckoo, Collared Dove, Lapwing, Skylark, Goldcrest, Yellow Wagtail, Bullfinch

## 5.5 Vice-county: Nottinghamshire

Overall, two of the 10-km squares that include the site fall in Nottinghamshire, accounting for 5.3% of 10-km squares in Nottinghamshire. According to *Bird Atlas* data, these squares support between 2.8% and 100% of the geographic range in Nottinghamshire of all the species considered (breeding and winter combined). In terms of abundance, these squares represent between 0.2% and 100% of the total population size in Nottinghamshire. **Notable species** for Nottinghamshire are listed below, with those on the **BoCC Red List** and **BoCC Amber List** highlighted in corresponding colour:

- Breeding range, four species: Herring Gull, Lesser Black-backed Gull, Cormorant, Cetti's Warbler
- Winter range, 10 species: Red-breasted Goose, White-fronted Goose, Smew, Grey Plover, Ruff, Common Sandpiper, Greenshank, Hen Harrier, Swallow, Firecrest
- Breeding abundance, five species: Pochard, Ruddy Duck, Curlew, Redshank, Little Owl
- Winter abundance, two species: White-fronted Goose, Grey Plover

Between 1988–91 and 2008–11, there were 44 species for which relative abundance increased more (or decreased less) at/near the site compared to the relative abundance changes apparent across the rest of Nottinghamshire. The ten species with the most positive difference in trend between site and region are listed below and all species can be seen in Figure 5.5 in Appendix 5.

- Stock Dove, Moorhen, Redshank, Little Owl, Great Spotted Woodpecker, Blackcap, Lesser Whitethroat, Mistle Thrush, Pied/White Wagtail, Goldfinch

There were 46 species for which the opposite was the case, i.e. that they were declining more (or increasing less) at/near the site compared to the rest of Nottinghamshire. The ten species with the most negative difference in trend between site and region were:

- Grey Partridge, Red-legged Partridge, Cuckoo, Collared Dove, Lapwing, Jay, Skylark, Spotted Flycatcher, Yellow Wagtail, Bullfinch

# APPENDICES

## Appendix 1. Contextual maps

Maps of the site with reference to geographical context areas at different scales, and for different sized grids used for data extraction. Note that for some of the larger context areas the site may be too small to see on the map.

### Country

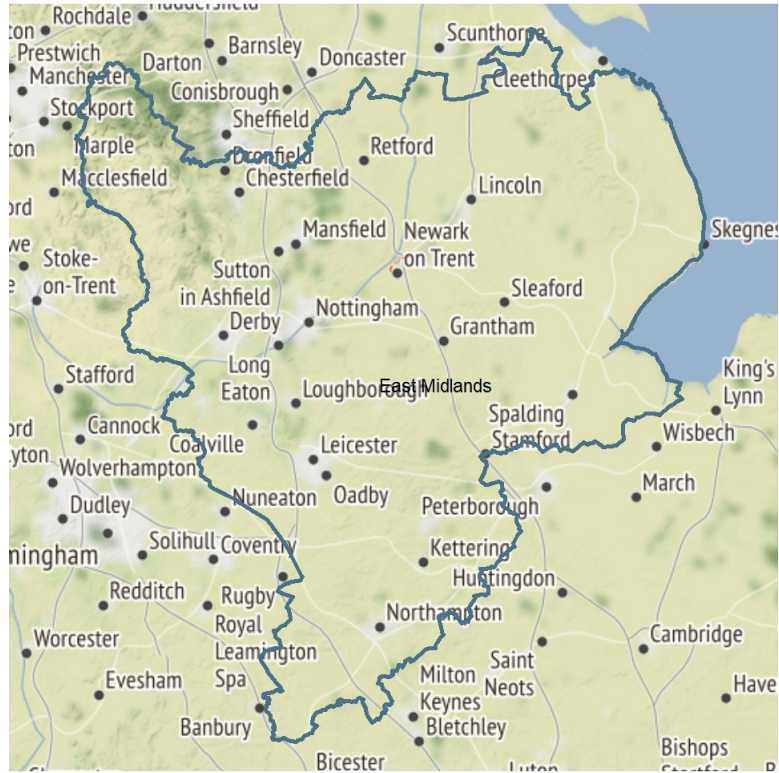
Country = UK, Isle of Man and Channel Islands, England





# Region

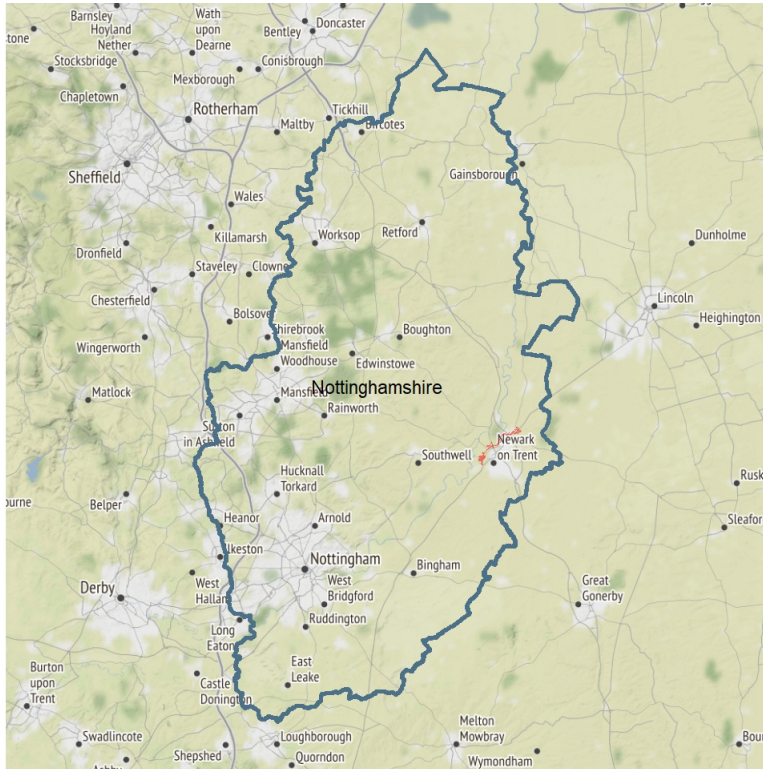
Region = East Midlands





# County

County = Nottinghamshire



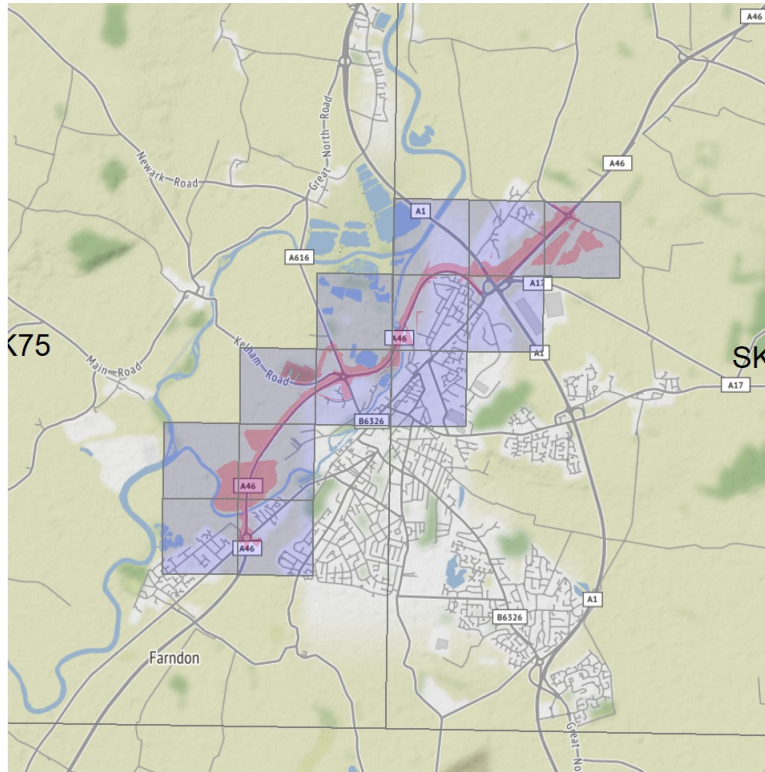
# Vice-county

Vice-county = Nottinghamshire



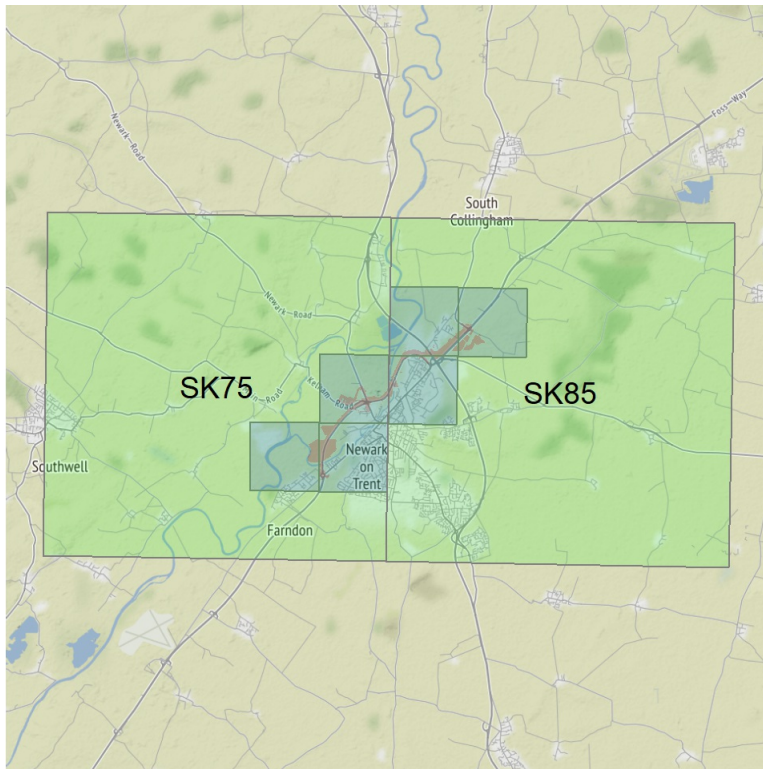
## Site with 1-km squares

Thirteen relevant 1-km squares : SK7752, SK7753, SK7852, SK7853, SK7854, SK7954, SK7955, SK8054, SK8055, SK8056, SK8155, SK8156, SK8256



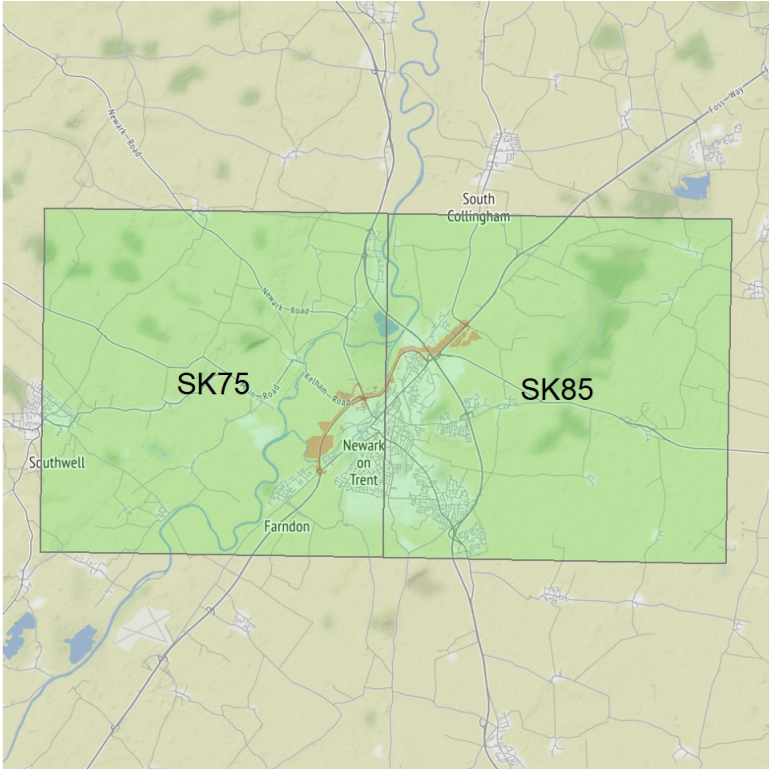
## Site with tetrads

Six relevant tetrads : SK75R, SK75W , SK75X, SK85C, SK85D, SK85I



# Site with 10-km squares

Two relevant 10-km squares : SK75, SK85







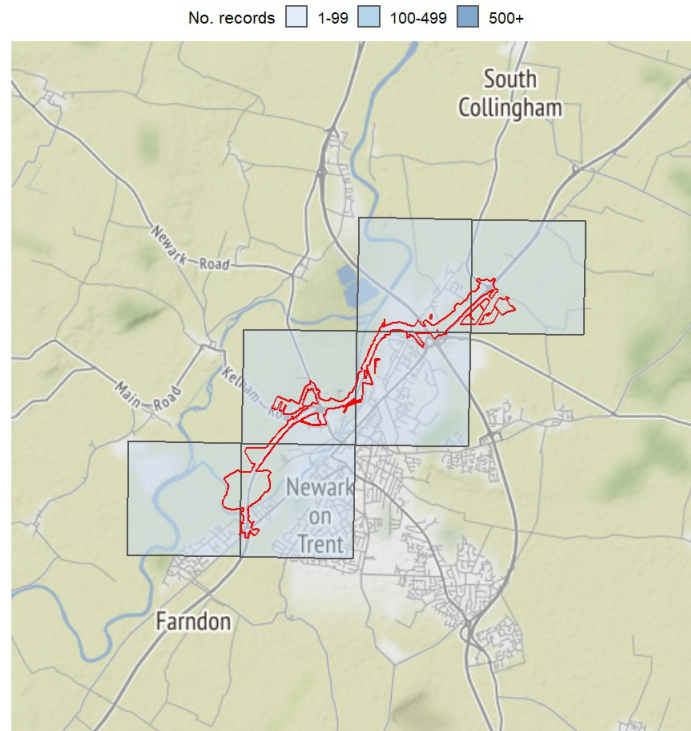


# Appendix 2. Additional coverage maps

## Atlas winter coverage

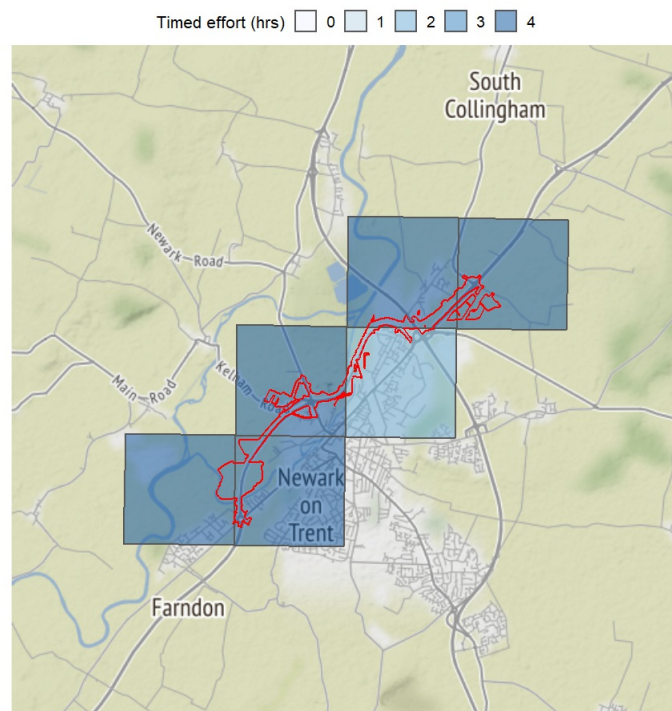
Map of unstructured Bird Atlas coverage in winter

Distribution of casual records (winter)



Map of structured Bird Atlas coverage in winter

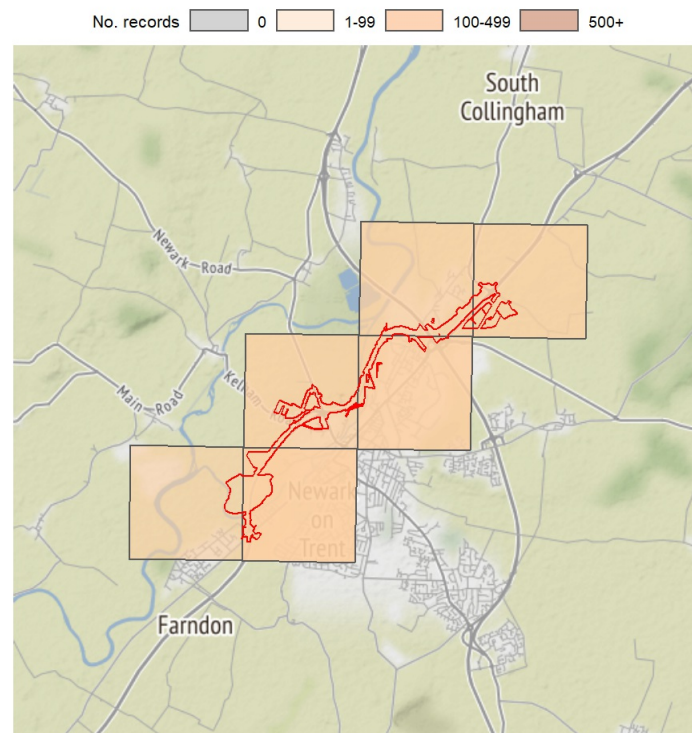
Distribution of timed effort (winter)



## BirdTrack coverage

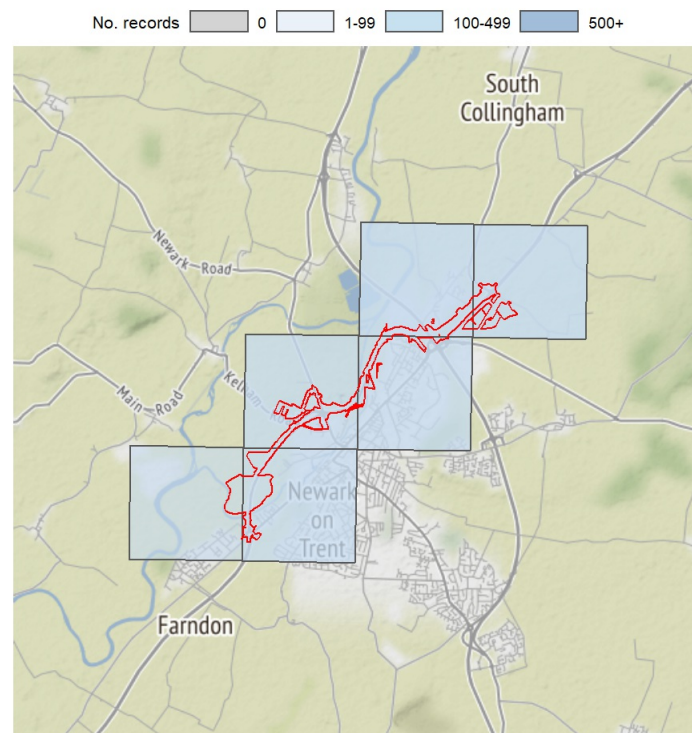
Map of BirdTrack recording effort in the breeding season. Grey shading indicates no sites centred in the tetrad, although sites from bordering tetrads may have extended into the tetrad.

Distribution of BirdTrack records (breeding)



Map of BirdTrack recording effort in the non-breeding season. Grey shading indicates no sites centred in the tetrad, although sites from bordering tetrads may have extended into the tetrad.

Distribution of BirdTrack records (non-breeding)



## Appendix 3. Species list 2007–11

Feature column heading abbreviations: S1 = Schedule 1 UK; A1 = Annex 1; Amber, Red = BoCC5 Amber and Red list; CR, EN, NT, VU = GB IUCN2 Critically Endangered, Endangered, Near Threatened and Vulnerable; S41E = Section 41 England; SZA1EW = Schedule ZA1 England & Wales; S1AS = Schedule 1A Scotland; SA1S = Schedule A1 Scotland; SBL = Scottish Biodiversity List; S7W = Section 7 Wales.

### Breeding season

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
CG	Canada Goose												Confirmed	Confirmed
GJ	Greylag Goose			Y										Confirmed
MS	Mute Swan												Confirmed	Confirmed
SU	Shelduck			Y	Y									Probable
GA	Gadwall			Y										Probable
MA	Mallard			Y				Y					Confirmed	Confirmed
T.	Teal			Y										Possible
PO	Pochard		Y		Y					Y				Possible
TU	Tufted Duck							Y					Probable	Confirmed
RY	Ruddy Duck													Probable
P.	Grey Partridge		Y					Y			Y		Probable	Confirmed
PH	Pheasant												Confirmed	Confirmed
RL	Red-legged Partridge												Possible	Probable
SI	Swift		Y		Y								Probable	Confirmed
CK	Cuckoo		Y								Y		Possible	Confirmed
DV	Rock Dove												Possible	Confirmed
SD	Stock Dove			Y									Confirmed	Confirmed
WP	Woodpigeon			Y									Confirmed	Confirmed
TD	Turtle Dove		Y		Y					Y	Y			Probable
CD	Collared Dove						Y						Confirmed	Confirmed
MH	Moorhen			Y				Y					Confirmed	Confirmed
CO	Coot							Y					Confirmed	Confirmed
LG	Little Grebe													Confirmed
GG	Great Crested Grebe												Probable	Confirmed
OC	Oystercatcher			Y				Y					Confirmed	Confirmed
L.	Lapwing		Y					Y			Y		Confirmed	Confirmed
CU	Curlew		Y		Y						Y		Possible	Probable
RK	Redshank			Y				Y						Possible
BH	Black-headed Gull			Y				Y						Confirmed
HG	Herring Gull		Y		Y						Y			Possible
LB	Lesser Black-backed Gull			Y										Possible
CA	Cormorant						Y						Possible	Possible
H.	Grey Heron							Y					Possible	Confirmed
HZ	Honey-buzzard	Y		Y	Y				Y	Y				Confirmed (50-km)
SH	Sparrowhawk			Y				Y					Confirmed	Confirmed
MO	Montagu's Harrier	Y	Y		Y				Y	Y				Probable (50-km)
BZ	Buzzard												Possible	Confirmed
BO	Barn Owl	Y											Confirmed	Confirmed

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
LO	Little Owl												Possible	Confirmed
LE	Long-eared Owl									Y				Confirmed
TO	Tawny Owl			Y			Y						Confirmed	Confirmed
KF	Kingfisher	Y						Y	Y				Possible	Probable
LS	Lesser Spotted Woodpecker	Y				Y				Y	Y			Possible
GS	Great Spotted Woodpecker												Confirmed	Confirmed
G.	Green Woodpecker						Y						Possible	Possible
K.	Kestrel			Y				Y					Confirmed	Confirmed
HY	Hobby	Y					Y			Y				Confirmed
J.	Jay													Probable
MG	Magpie												Confirmed	Confirmed
JD	Jackdaw												Confirmed	Confirmed
RO	Rook			Y			Y						Confirmed	Confirmed
C.	Carrion Crow												Confirmed	Confirmed
CT	Coal Tit												Confirmed	Confirmed
MT	Marsh Tit		Y				Y				Y			Possible
WT	Willow Tit		Y			Y				Y	Y			Possible
BT	Blue Tit												Confirmed	Confirmed
GT	Great Tit												Confirmed	Confirmed
S.	Skylark		Y								Y		Probable	Confirmed
SM	Sand Martin												Confirmed	Confirmed
SL	Swallow							Y					Confirmed	Confirmed
HM	House Martin		Y				Y						Confirmed	Confirmed
CW	Cetti's Warbler	Y												Possible
LT	Long-tailed Tit												Confirmed	Confirmed
WW	Willow Warbler			Y									Possible	Confirmed
CC	Chiffchaff												Probable	Confirmed
SW	Sedge Warbler			Y			Y						Probable	Confirmed
RW	Reed Warbler												Probable	Confirmed
GH	Grasshopper Warbler		Y								Y		Possible	Probable
BC	Blackcap												Probable	Confirmed
GW	Garden Warbler												Possible	Probable
LW	Lesser Whitethroat												Probable	Confirmed
WH	Whitethroat			Y									Confirmed	Confirmed
GC	Goldcrest												Possible	Confirmed
WR	Wren			Y									Confirmed	Confirmed
NH	Nuthatch													Possible
TC	Treecreeper												Possible	Confirmed
SG	Starling		Y					Y			Y		Confirmed	Confirmed
ST	Song Thrush			Y							Y		Confirmed	Confirmed
M.	Mistle Thrush		Y				Y						Confirmed	Confirmed
B.	Blackbird												Confirmed	Confirmed
SF	Spotted Flycatcher		Y				Y				Y		Probable	Confirmed
R.	Robin												Confirmed	Confirmed
TS	Tree Sparrow		Y					Y			Y		Confirmed	Confirmed
HS	House Sparrow		Y								Y		Confirmed	Confirmed
D.	Duncock			Y							Y		Confirmed	Confirmed

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
YW	Yellow Wagtail		Y				Y				Y		Possible	Confirmed
GL	Grey Wagtail			Y			Y						Probable	Confirmed
PW	Pied Wagtail												Confirmed	Confirmed
MP	Meadow Pipit			Y									Probable	Confirmed
CH	Chaffinch					Y							Confirmed	Confirmed
BF	Bullfinch			Y							Y		Confirmed	Confirmed
GR	Greenfinch		Y			Y							Confirmed	Confirmed
LI	Linnet		Y								Y		Probable	Confirmed
GO	Goldfinch												Confirmed	Confirmed
CB	Corn Bunting		Y				Y				Y			Probable
Y.	Yellowhammer		Y								Y		Possible	Confirmed
RB	Reed Bunting			Y							Y		Probable	Confirmed

# Winter

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
EB	Red-breasted Goose								Y					Present
CG	Canada Goose												Present	Present
GJ	Greylag Goose			Y									Present	Present
PG	Pink-footed Goose			Y						Y			Present	Present
WG	White-fronted Goose		Y			Y					Y			Present
MS	Mute Swan												Present	Present
BS	Bewick's Swan	Y	Y		Y				Y	Y	Y			Present
WS	Whooper Swan	Y		Y		Y			Y	Y			Present	Present
SU	Shelduck			Y		Y								Present
MN	Mandarin Duck													Present
SV	Shoveler			Y						Y			Present	Present
GA	Gadwall			Y									Present	Present
WN	Wigeon			Y				Y		Y			Present	Present
MA	Mallard			Y				Y					Present	Present
PT	Pintail			Y	Y					Y				Present
T.	Teal			Y									Present	Present
PO	Pochard		Y			Y				Y			Present	Present
TU	Tufted Duck							Y					Present	Present
SP	Scaup	Y	Y			Y				Y	Y			Present
GN	Goldeneye		Y					Y		Y			Present	Present
SY	Smew		Y		Y				Y	Y				Present
GD	Goosander												Present	Present
RY	Ruddy Duck													Present
P.	Grey Partridge		Y					Y			Y		Present	Present
PH	Pheasant												Present	Present
RL	Red-legged Partridge												Present	Present
DV	Rock Dove												Present	Present
SD	Stock Dove			Y									Present	Present
WP	Woodpigeon			Y									Present	Present
CD	Collared Dove						Y						Present	Present
WA	Water Rail												Present	Present
MH	Moorhen			Y				Y					Present	Present
CO	Coot							Y					Present	Present
LG	Little Grebe												Present	Present
GG	Great Crested Grebe												Present	Present
OC	Oystercatcher			Y				Y					Present	Present
L.	Lapwing		Y					Y			Y		Present	Present
GP	Golden Plover								Y					Present
GV	Grey Plover			Y				Y						Present
CU	Curlew		Y			Y					Y			Present
RU	Ruff	Y	Y		Y				Y	Y				Present
WK	Woodcock		Y					Y					Present	Present
JS	Jack Snipe									Y				Present
SN	Snipe			Y				Y					Present	Present
CS	Common Sandpiper			Y		Y								Present



Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
GE	Green Sandpiper	Y		Y	Y					Y			Present	Present
RK	Redshank			Y				Y						Present
GK	Greenshank	Y		Y						Y				Present
BH	Black-headed Gull			Y				Y					Present	Present
CM	Common Gull			Y									Present	Present
GB	Great Black-backed Gull			Y		Y							Present	Present
HG	Herring Gull		Y			Y					Y		Present	Present
YC	Caspian Gull			Y				Y						Present
LB	Lesser Black-backed Gull			Y										Present
CA	Cormorant							Y					Present	Present
BI	Bittern	Y		Y				Y	Y	Y	Y			Present
H.	Grey Heron							Y					Present	Present
ET	Little Egret								Y	Y				Present
SH	Sparrowhawk			Y				Y					Present	Present
HH	Hen Harrier	Y	Y			Y			Y	Y	Y		Present	Present
BZ	Buzzard												Present	Present
BO	Barn Owl	Y											Present	Present
LO	Little Owl													Present
SE	Short-eared Owl			Y		Y			Y	Y				Present
TO	Tawny Owl			Y			Y						Present	Present
KF	Kingfisher	Y						Y	Y				Present	Present
GS	Great Spotted Woodpecker												Present	Present
G.	Green Woodpecker						Y						Present	Present
K.	Kestrel			Y				Y					Present	Present
ML	Merlin	Y	Y			Y			Y	Y				Present
PE	Peregrine	Y							Y	Y			Present	Present
J.	Jay												Present	Present
MG	Magpie												Present	Present
JD	Jackdaw												Present	Present
RO	Rook			Y			Y						Present	Present
C.	Carrion Crow												Present	Present
WX	Waxwing									Y			Present	Present
CT	Coal Tit												Present	Present
MT	Marsh Tit		Y				Y				Y			Present
WT	Willow Tit		Y				Y			Y	Y		Present	Present
BT	Blue Tit												Present	Present
GT	Great Tit												Present	Present
S.	Skylark		Y								Y		Present	Present
SL	Swallow							Y						Present
LT	Long-tailed Tit												Present	Present
CC	Chiffchaff												Present	Present
BC	Blackcap												Present	Present
FC	Firecrest		Y										Present	Present
GC	Goldcrest												Present	Present
WR	Wren			Y									Present	Present
NH	Nuthatch													Present
TC	Treecreeper												Present	Present

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	Tetrad	10-km/20-km/50-km
SG	Starling		Y					Y			Y		Present	Present
ST	Song Thrush			Y							Y		Present	Present
M.	Mistle Thrush		Y				Y						Present	Present
RE	Redwing	Y		Y	Y					Y			Present	Present
B.	Blackbird												Present	Present
FF	Fieldfare	Y	Y		Y					Y			Present	Present
R.	Robin												Present	Present
SC	Stonechat												Present	Present
TS	Tree Sparrow		Y					Y			Y		Present	Present
HS	House Sparrow		Y								Y		Present	Present
D.	Dunnock			Y							Y		Present	Present
GL	Grey Wagtail			Y			Y						Present	Present
PW	Pied Wagtail												Present	Present
MP	Meadow Pipit			Y									Present	Present
CH	Chaffinch					Y							Present	Present
BL	Brambling	Y								Y			Present	Present
BF	Bullfinch			Y							Y		Present	Present
GR	Greenfinch		Y			Y							Present	Present
LI	Linnet		Y								Y		Present	Present
LR	Lesser Redpoll		Y								Y		Present	Present
CR	Common Crossbill	Y												Present
GO	Goldfinch												Present	Present
SK	Siskin												Present	Present
CB	Corn Bunting		Y				Y				Y			Present
Y.	Yellowhammer		Y								Y		Present	Present
RB	Reed Bunting			Y							Y		Present	Present

## Appendix 4. Species list 2018–2022

Feature column heading abbreviations: S1 = Schedule 1 UK; A1 = Annex 1; Amber, Red = BoCC5 Amber and Red list; CR, EN, NT, VU = GB IUCN2 Critically Endangered, Endangered, Near Threatened and Vulnerable; S41E = Section 41 England; SZA1EW = Schedule ZA1 England & Wales; S1AS = Schedule 1A Scotland; SA1S = Schedule A1 Scotland; SBL = Scottish Biodiversity List; S7W = Section 7 Wales.

### Breeding season

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
CG	Canada Goose													Present	Present	Probable
GJ	Greylag Goose			Y											Present	Probable
PG	Pink-footed Goose			Y						Y						Present
MS	Mute Swan												Present	Probable	Probable	Present
WS	Whooper Swan	Y		Y		Y			Y	Y					Present	Present
EG	Egyptian Goose															Present
SU	Shelduck			Y		Y							Present		Present	
MN	Mandarin Duck															Present
SV	Shoveler			Y						Y						Present
GA	Gadwall			Y									Present			Present
WN	Wigeon			Y				Y		Y					Present	Present
MA	Mallard			Y				Y					Present	Present	Probable	Probable
PT	Pintail			Y	Y					Y						Present
T.	Teal			Y												Present
PO	Pochard		Y			Y				Y					Present	
TU	Tufted Duck							Y					Present		Present	Present
CX	Common Scoter	Y	Y		Y					Y	Y					Present
GN	Goldeneye		Y					Y		Y						Present
GD	Goosander															Present
P.	Grey Partridge		Y					Y			Y				Present	
PH	Pheasant												Present		Possible	
Q.	Quail	Y		Y		Y				Y						Present
RL	Red-legged Partridge														Probable	
NJ	Nightjar			Y					Y		Y					Probable
SI	Swift		Y			Y							Present	Present	Present	Possible
CK	Cuckoo		Y								Y				Present	
DV	Rock Dove													Present	Probable	Probable
SD	Stock Dove			Y									Present	Present	Present	Present
WP	Woodpigeon			Y									Present	Present	Possible	Probable
TD	Turtle Dove		Y		Y					Y	Y				Possible	
CD	Collared Dove						Y						Present	Present	Possible	Present
WA	Water Rail															Present
MH	Moorhen			Y				Y					Present		Present	Probable
CO	Coot							Y					Present		Present	Present
LG	Little Grebe															Present
GG	Great Crested Grebe												Present		Present	Probable
SZ	Slavonian Grebe	Y	Y		Y				Y	Y						Present
BN	Black-necked Grebe	Y		Y		Y				Y						Present

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
OC	Oystercatcher			Y				Y							Probable	Present
AV	Avocet	Y		Y					Y	Y					Present	
L.	Lapwing		Y					Y			Y				Present	Present
GP	Golden Plover								Y						Present	
RP	Ringed Plover		Y					Y							Present	
LP	Little Ringed Plover	Y								Y						Present
CU	Curlew		Y			Y					Y				Probable	
DN	Dunlin		Y					Y	Y						Present	
WK	Woodcock		Y					Y							Probable	
SN	Snipe			Y				Y							Present	
RK	Redshank			Y				Y							Present	
BH	Black-headed Gull			Y				Y						Present	Present	Probable
CM	Common Gull			Y												Present
GB	Great Black-backed Gull			Y		Y									Present	
HG	Herring Gull		Y			Y					Y				Present	Present
LB	Lesser Black-backed Gull			Y											Present	
AF	Little Tern	Y		Y				Y	Y	Y						Present
CN	Common Tern			Y			Y		Y						Present	Present
AE	Arctic Tern			Y				Y	Y						Present	Present
CA	Cormorant						Y							Present	Present	Possible
BI	Bittern	Y		Y				Y	Y	Y	Y				Present	
H.	Grey Heron							Y						Present	Present	Present
ET	Little Egret								Y	Y					Present	Present
OP	Osprey	Y		Y			Y	Y	Y		Y			Present	Present	Present
SH	Sparrowhawk			Y				Y					Present		Present	Present
GI	Goshawk	Y					Y		Y					Present	Present	
MR	Marsh Harrier	Y		Y					Y	Y						Present
KT	Red Kite	Y							Y					Present	Present	
BZ	Buzzard												Present	Present	Probable	Present
BO	Barn Owl	Y													Present	
LO	Little Owl														Present	
LE	Long-eared Owl									Y						Confirmed
TO	Tawny Owl			Y			Y								Present	
KF	Kingfisher	Y						Y	Y							Present
GS	Great Spotted Woodpecker												Present		Present	
G.	Green Woodpecker						Y								Present	
K.	Kestrel			Y				Y						Present	Probable	Present
HY	Hobby	Y					Y		Y						Present	
PE	Peregrine	Y							Y	Y					Present	
J.	Jay												Present		Present	
MG	Magpie												Present	Present	Probable	Present
JD	Jackdaw												Present	Present	Present	Probable
RO	Rook			Y			Y							Confirmed	Confirmed	Confirmed
C.	Carrion Crow												Present	Present	Confirmed	Present
RN	Raven															Present
CT	Coal Tit														Present	Confirmed
BT	Blue Tit												Present	Present	Probable	Confirmed

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
GT	Great Tit												Present	Present	Possible	Confirmed
S.	Skylark		Y								Y				Possible	
SM	Sand Martin												Present		Present	Present
SL	Swallow							Y					Present	Present	Confirmed	Possible
HM	House Martin		Y				Y						Present	Present	Probable	Probable
CW	Cetti's Warbler	Y													Present	
LT	Long-tailed Tit												Present		Present	Present
WO	Wood Warbler		Y					Y			Y					Present
WW	Willow Warbler			Y										Present	Present	Possible
CC	Chiffchaff												Present	Possible	Probable	Possible
SW	Sedge Warbler			Y			Y						Present		Present	Present
RW	Reed Warbler															Present
GH	Grasshopper Warbler		Y								Y					Present
BC	Blackcap												Present	Present	Possible	Probable
GW	Garden Warbler												Present		Present	Present
LW	Lesser Whitethroat												Present		Present	Present
WH	Whitethroat			Y									Present		Present	Confirmed
GC	Goldcrest												Present	Present	Possible	Confirmed
WR	Wren			Y									Present	Present	Possible	Present
NH	Nuthatch														Present	
TC	Treecreeper														Present	
SG	Starling		Y					Y			Y		Present	Present	Confirmed	Present
ST	Song Thrush			Y							Y		Present	Present	Possible	Confirmed
M.	Mistle Thrush		Y				Y						Present		Present	Present
RE	Redwing		Y		Y	Y				Y						Present
B.	Blackbird												Present	Present	Confirmed	Confirmed
FF	Fieldfare		Y	Y		Y				Y					Present	
R.	Robin												Present	Present	Probable	Confirmed
RT	Redstart			Y												Present
W.	Wheatear			Y		Y									Present	
TS	Tree Sparrow		Y					Y			Y				Probable	
HS	House Sparrow		Y								Y		Present	Present	Probable	Possible
D.	Dunnock			Y							Y		Present	Present	Possible	Present
YW	Yellow Wagtail		Y				Y				Y				Present	
GL	Grey Wagtail			Y			Y							Present	Present	Confirmed
PW	Pied Wagtail												Present	Present	Present	Probable
MP	Meadow Pipit			Y											Probable	
CH	Chaffinch					Y							Present	Present	Possible	Present
HF	Hawfinch		Y			Y				Y	Y					Present
BF	Bullfinch			Y							Y				Probable	
GR	Greenfinch		Y			Y							Present		Possible	Present
LI	Linnet		Y								Y		Present		Present	
GO	Goldfinch												Present	Present	Possible	Present
CB	Corn Bunting		Y				Y				Y					Present
Y.	Yellowhammer		Y								Y				Possible	
RB	Reed Bunting			Y							Y		Present		Present	Present

## Non-breeding season

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
CG	Canada Goose													Present	Present	Present
GJ	Greylag Goose			Y										Present	Present	Present
PG	Pink-footed Goose			Y						Y						Present
MS	Mute Swan													Present	Present	Present
WS	Whooper Swan	Y		Y		Y			Y	Y					Present	
SU	Shelduck			Y		Y										Present
MN	Mandarin Duck															Present
SV	Shoveler			Y						Y						Present
GA	Gadwall			Y												Present
WN	Wigeon			Y				Y		Y					Present	Present
MA	Mallard			Y				Y						Present	Present	Present
PT	Pintail			Y	Y					Y						Present
T.	Teal			Y											Present	Present
PO	Pochard		Y			Y				Y						Present
NG	Ring-necked Duck									Y						Present
TU	Tufted Duck							Y						Present	Present	Present
SP	Scaup	Y	Y			Y				Y	Y					Present
GN	Goldeneye		Y					Y		Y					Present	Present
SY	Smew		Y		Y				Y	Y						Present
GD	Goosander														Present	Present
P.	Grey Partridge		Y					Y			Y				Present	
PH	Pheasant														Present	
RL	Red-legged Partridge														Present	
DV	Rock Dove													Present	Present	Present
SD	Stock Dove			Y											Present	Present
WP	Woodpigeon			Y										Present	Present	Present
CD	Collared Dove						Y								Present	Present
WA	Water Rail															Present
MH	Moorhen			Y				Y						Present	Present	Present
CO	Coot							Y						Present	Present	Present
LG	Little Grebe															Present
RX	Red-necked Grebe		Y		Y					Y						Present
GG	Great Crested Grebe														Present	Present
BN	Black-necked Grebe	Y		Y		Y				Y						Present
OC	Oystercatcher			Y				Y								Present
L.	Lapwing		Y					Y			Y				Present	Present
GP	Golden Plover								Y						Present	Present
GV	Grey Plover			Y				Y							Present	
RP	Ringed Plover		Y					Y								Present
CU	Curlew		Y			Y					Y				Present	
WK	Woodcock		Y					Y							Present	
SN	Snipe			Y				Y							Present	Present
GE	Green Sandpiper	Y		Y	Y					Y						Present
BH	Black-headed Gull			Y				Y						Present	Present	Present
MU	Mediterranean Gull	Y		Y					Y	Y						Present



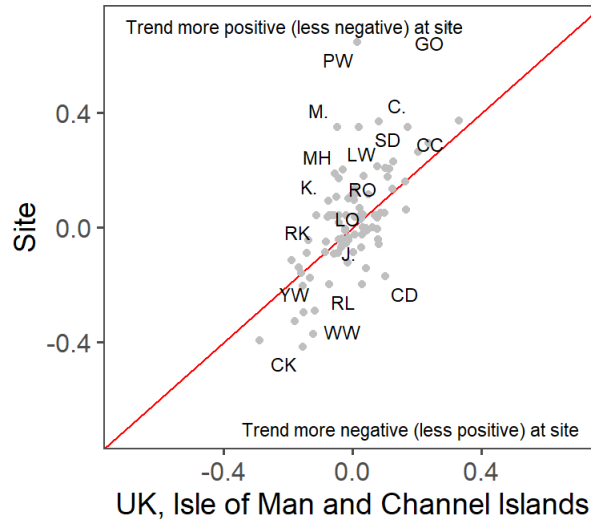
Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
CM	Common Gull			Y											Present	Present
GB	Great Black-backed Gull			Y		Y									Present	Present
HG	Herring Gull		Y			Y					Y				Present	Present
YC	Caspian Gull			Y				Y								Present
YG	Yellow-legged Gull			Y		Y				Y						Present
LB	Lesser Black-backed Gull			Y										Present	Present	Present
ND	Great Northern Diver	Y		Y					Y	Y						Present
CA	Cormorant						Y								Present	Present
BI	Bittern	Y		Y				Y	Y	Y	Y					Present
EC	Cattle Egret			Y				Y		Y						Present
H.	Grey Heron							Y						Present	Present	Present
HW	Great White Egret			Y		Y			Y	Y					Present	Present
ET	Little Egret								Y	Y					Present	Present
SH	Sparrowhawk			Y				Y							Present	Present
MR	Marsh Harrier	Y		Y					Y	Y						Present
KT	Red Kite	Y							Y						Present	Present
BZ	Buzzard													Present	Present	
BO	Barn Owl	Y													Present	
LO	Little Owl														Present	
SE	Short-eared Owl			Y		Y			Y	Y					Present	
TO	Tawny Owl			Y			Y								Present	
KF	Kingfisher	Y						Y	Y							Present
GS	Great Spotted Woodpecker														Present	Present
G.	Green Woodpecker						Y								Present	
K.	Kestrel			Y				Y						Present	Present	Present
ML	Merlin	Y	Y			Y			Y	Y						Present
PE	Peregrine	Y							Y	Y						Present
RI	Ring-necked Parakeet															Present
SR	Great Grey Shrike									Y						Present
J.	Jay														Present	
MG	Magpie														Present	Present
JD	Jackdaw													Present	Present	Present
RO	Rook			Y		Y								Present	Present	Present
C.	Carrion Crow													Present	Present	Present
RN	Raven														Present	Present
CT	Coal Tit														Present	Present
BT	Blue Tit													Present	Present	Present
GT	Great Tit														Present	Present
S.	Skylark		Y								Y				Present	Present
SL	Swallow							Y							Present	
HM	House Martin		Y				Y								Present	
CW	Cetti's Warbler	Y														Present
LT	Long-tailed Tit														Present	Present
CC	Chiffchaff														Present	Present
BC	Blackcap														Present	Present
GC	Goldcrest														Present	Present
WR	Wren			Y										Present	Present	Present

Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km	
NH	Nuthatch															Present	
TC	Treecreeper															Present	Present
SG	Starling		Y					Y			Y					Present	Present
ST	Song Thrush			Y							Y					Present	Present
M.	Mistle Thrush		Y				Y									Present	
RE	Redwing	Y		Y	Y					Y					Present	Present	Present
B.	Blackbird														Present	Present	Present
FF	Fieldfare	Y	Y		Y					Y					Present	Present	Present
R.	Robin														Present	Present	Present
SC	Stonechat																Present
TS	Tree Sparrow		Y					Y			Y					Present	Present
HS	House Sparrow		Y								Y			Present	Present	Present	
D.	Duncock			Y							Y					Present	Present
GL	Grey Wagtail			Y			Y									Present	Present
PW	Pied Wagtail													Present	Present	Present	
MP	Meadow Pipit			Y												Present	Present
CH	Chaffinch						Y									Present	Present
BL	Brambling	Y								Y							Present
HF	Hawfinch		Y			Y				Y	Y						Present
BF	Bullfinch			Y							Y				Present	Present	
GR	Greenfinch		Y			Y										Present	Present
LI	Linnet		Y								Y					Present	Present
LR	Lesser Redpoll		Y								Y						Present
CR	Common Crossbill	Y														Present	
GO	Goldfinch													Present	Present	Present	
SK	Siskin															Present	Present
Y.	Yellowhammer		Y								Y					Present	
RB	Reed Bunting			Y							Y					Present	Present

# Appendix 5. Abundance change figures

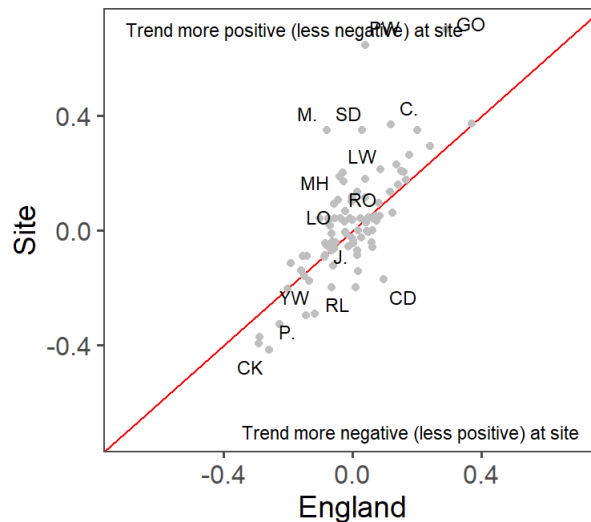
## 5.1 Country: UK, Isle of Man and Channel Islands

Relative abundance changes for the site and its vicinity compared to the rest of UK, Isle of Man and Channel Islands. Species above the line of equality have more positive/less negative trends at/near the site compared to the country (see Appendix 4 for species codes).



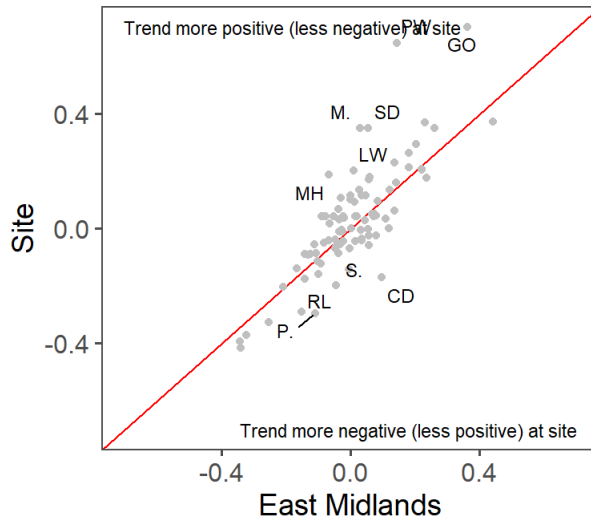
## 5.2 Country: England

Relative abundance changes for the site and its vicinity compared to the rest of England. Species above the line of equality have more positive/less negative trends at/near the site compared to the country (see Appendix 4 for species codes).



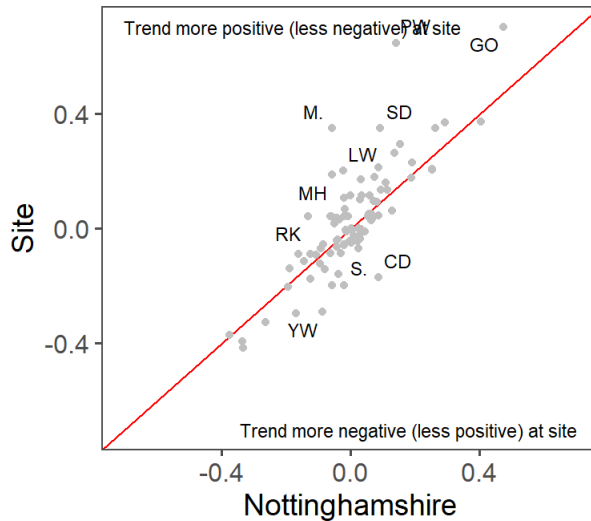
### 5.3 Region: East Midlands

Relative abundance changes for the site and its vicinity compared to the rest of East Midlands. Species above the line of equality have more positive/less negative trends at/near the site compared to the country (see Appendix 4 for species codes).



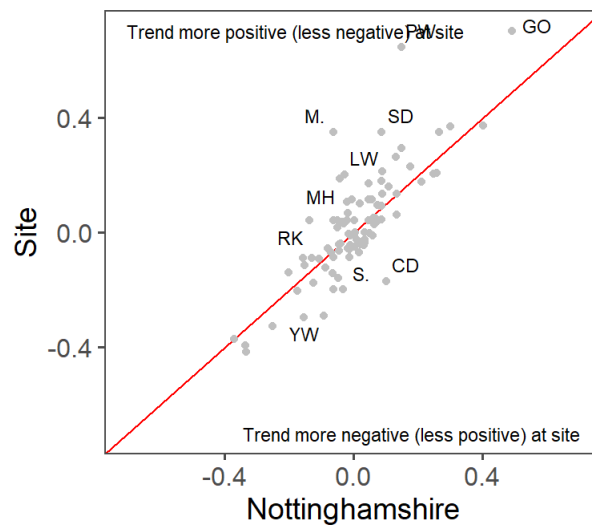
### 5.4 County: Nottinghamshire

Relative abundance changes for the site and its vicinity compared to the rest of Nottinghamshire. Species above the line of equality have more positive/less negative trends at/near the site compared to the country (see Appendix 4 for species codes).



## 5.5 Vice-county: Nottinghamshire

Relative abundance changes for the site and its vicinity compared to the rest of Nottinghamshire. Species above the line of equality have more positive/less negative trends at/near the site compared to the country (see Appendix 4 for species codes).





Images: Landscape, Simon Gillings; Barn Owl, Liz Cutting

## BTO Data Report

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BTO Data Reports provide rigorous scientific information to inform desk studies for ecological impact assessment of proposed development sites. Reports collate comprehensive and contemporary bird distribution and abundance data from the BTO's ornithological datasets. As most biological data are collected in grid squares, spatial analyses identify which grid squares can be associated with the site and its vicinity at different spatial scales. Reports lists all species present at or near the site in the breeding season and in winter, highlighting those of statutory or conservation importance (e.g. Schedule 1, Red List). They also assess the potential importance of the site across a local, regional and national context, listing species for which the site and vicinity account for a high proportion of local, regional or national geographical range and population size.

BTO Data Reports provide unique insights into the bird community present in the vicinity of potential development sites, helping to guide the need for detailed field surveys and highlighting potential priorities for delivering habitat mitigation, enhancement and biodiversity net gain.

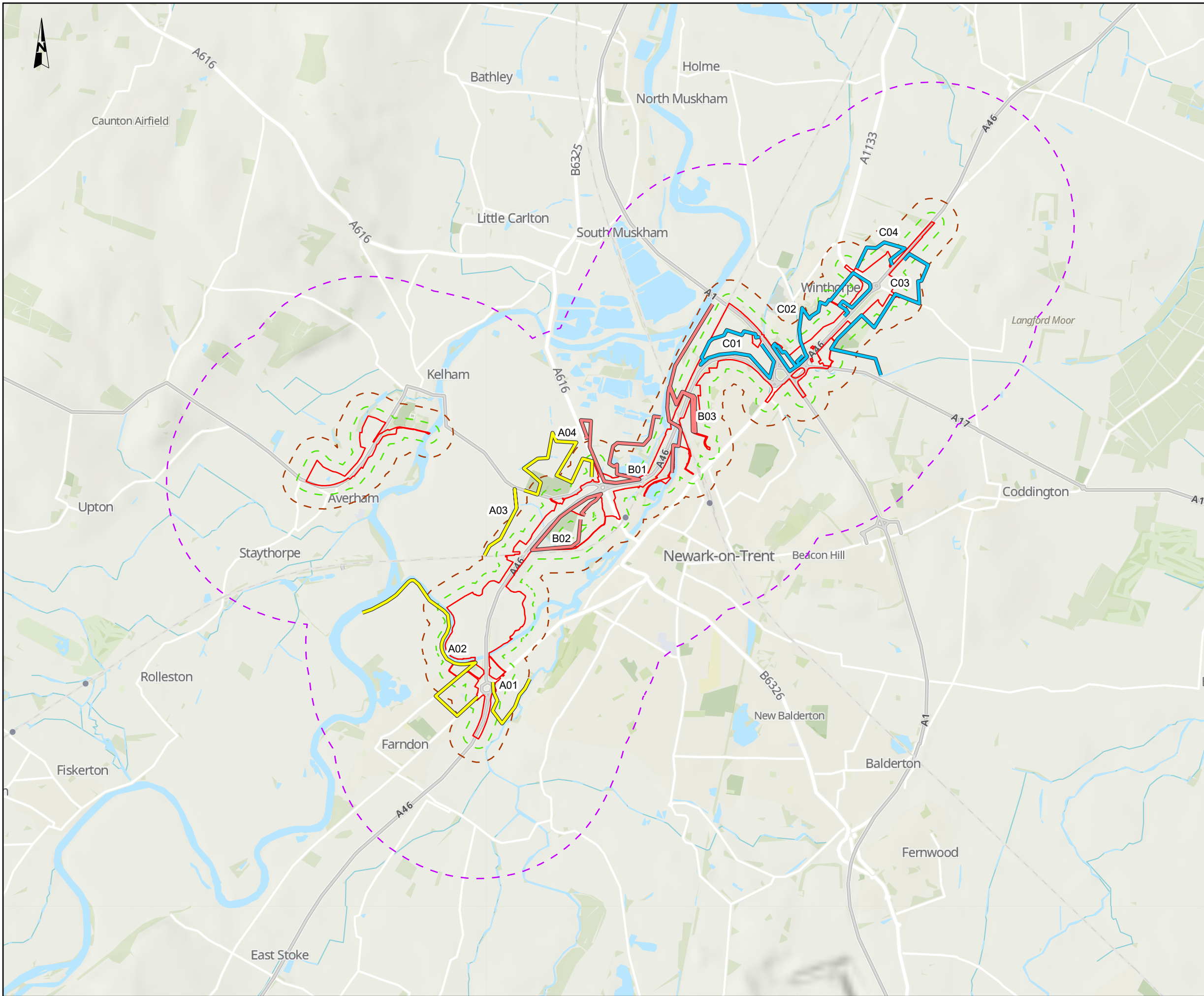
**BTO Services Ltd**  
**The Nunnery**  
**Thetford**  
**Norfolk**  
**United Kingdom**  
**IP24 2PU**

Registered in England and Wales: 2907282





## C. Appendix: Breeding bird survey area and transects



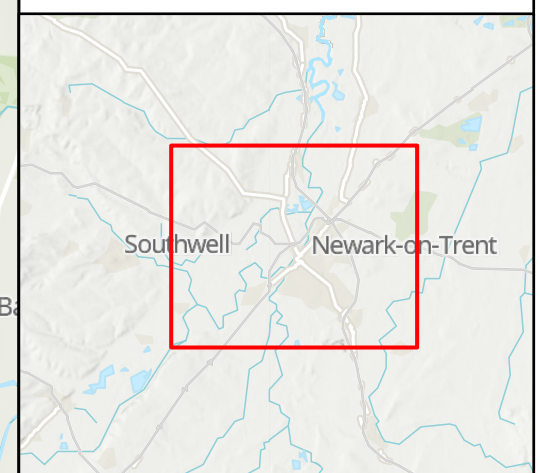
**NOTES**  
 Source  
 Ecology data collected by Mott MacDonald, 2022-2023.  
 Service Layer Credits  
 Contains OS data © Crown Copyright and database right 2023  
 Contains data from OS Zoomstack

**KEY TO SYMBOLS**

- Order Limits
- Order Limits 100m buffer
- Order Limits 250m buffer
- Order Limits 1500m buffer

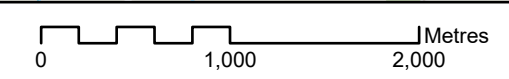
**Survey transect**

- A transect
- B transect
- C transect



C01	08/12/23	DCO APPLICATION	JB	BC	HF
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
CLIENT					
PURPOSE OF ISSUE					
DCO APPLICATION					
DEVELOPMENT CONSENT ORDER NUMBER					
TR010065					
PROJECT TITLE					
A46 NEWARK BYPASS					
DRAWING TITLE					
Appendix C Breeding Bird Survey Transects					
ORIGINAL SIZE		SCALE			
A3		1:40,000			
DRAWING NUMBER	ORIGINATOR	VOLUME	PROJECT REF. NO.		
HE551478	SKAG	EBD	HE551478		
CONWI_CONW	DR	LE	00029	REVISION	
LOCATION	TYPE	ROLE	NUMBER	C01	

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## D. Appendix: Breeding bird survey species list

Appendix Table D-1: Breeding bird survey species list

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Barn owl	<i>Tyto alba</i>	Y			LC [LC (br)]	Green	
Blackbird	<i>Turdus merula</i>				LC [LC (br)]	Green	
Blackcap	<i>Sylvia atricapilla</i>				LC [LC (br)]	Green	
Black-headed gull	<i>Chroicocephalus ridibundus</i>				VU [LC (br)/VU (n-br)]	Amber	
Blue tit	<i>Cyanistes caeruleus</i>				LC [LC (br)]	Green	
Buzzard	<i>Buteo buteo</i>				LC [LC (br)]	Green	
Carrion crow	<i>Corvus corone</i>				LC [LC (br)]	Green	
Cetti's warbler	<i>Cettia cetti</i>	Y			LC [LC (br)]	Green	
Chaffinch	<i>Fringilla coelebs</i>				EN [EN (br)]	Green	
Chiffchaff	<i>Phylloscopus collybita</i>				LC [LC (br)]	Green	
Collared dove	<i>Streptopelia decaocto</i>				NT [NT (br)]	Green	
Common tern	<i>Sterna hirundo</i>				NT [NT (br)]	Amber	Y
Coot	<i>Fulica atra</i>				VU [VU (br)]	Green	
Cormorant	<i>Phalacrocorax carbo</i>				NT [NT (br)/LC (nb)]	Green	
Cuckoo	<i>Cuculus canorus</i>			Y	LC [LC (br)]	Red	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Duncock	<i>Prunella modularis</i>			Y	LC [LC (br)]	Amber	
Egyptian goose	<i>Alopochen aegyptiaca</i>				N/A	N/A	
Goldcrest	<i>Regulus regulus</i>				LC [LC (br)]	Green	
Goldfinch	<i>Carduelis carduelis</i>				LC [LC (br)]	Green	
Great crested grebe	<i>Podiceps cristatus</i>				LC [LC (br) LC (n-br)]	Green	
Great spotted woodpecker	<i>Dendrocopos major</i>				LC [LC (br)]	Green	
Great tit	<i>Parus major</i>				LC [LC (br)]	Green	
Greater Canada goose	<i>Branta canadensis</i>				N/A	N/A	
Green woodpecker	<i>Picus viridis</i>				NT [NT (br)]	Green	
Greenfinch	<i>Chloris chloris</i>				EN [EN (br)]	Red	
Grey heron	<i>Ardea cinerea</i>				VU [VU (br) / LC (n-br)]	Green	
Grey wagtail	<i>Motacilla cinerea</i>				NT [NT (br)]	Amber	
Greylag goose	<i>Anser anser</i>				LC [LC (br) / LC (n-br)]	Amber	
Herring gull	<i>Larus argentatus</i>			Y	EN [DD (br) / EN (n-br)]	Red	
House martin	<i>Delichon urbicum</i>				NT [NT (br)]	Red	
House sparrow	<i>Passer domesticus</i>			Y	LC [LC (br)]	Red	
Jackdaw	<i>Coloeus monedula</i>				LC [LC (br)]	Green	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Jay	<i>Garrulus glandarius</i>				LC [LC (br)]	Green	
Kestrel	<i>Falco tinnunculus</i>				VU [VU (br)]	Amber	
Lapwing	<i>Vanellus vanellus</i>			Y	VU [VU (br) / VU (n-br)]	Red	
Linnet	<i>Linaria cannabina</i>			Y	LC [LC (br)]	Red	
Long-tailed tit	<i>Aegithalos caudatus</i>				LC [LC (br)]	Green	
Magpie	<i>Pica pica</i>				LC [LC (br)]	Green	
Mallard	<i>Anas platyrhynchos</i>				VU [LC (br) / VU (n-br)]	Amber	
Meadow pipit	<i>Anthus pratensis</i>				LC [LC (br)]	Amber	
Moorhen	<i>Gallinula chloropus</i>				VU [VU (br)]	Amber	
Mute swan	<i>Cygnus olor</i>				LC [LC (br) / LC (n-br)]	Green	
Oystercatcher	<i>Haematopus ostralegus</i>				VU [VU (br)]	Amber	
Pied wagtail	<i>Motacilla alba yarrellii</i>				LC [LC (br)]	Green	
Reed bunting	<i>Emberiza schoeniclus</i>			Y	LC [LC (br)]	Amber	
Robin	<i>Erithacus rubecula</i>				LC [LC (br)]	Green	
Rook	<i>Corvus frugilegus</i>				NT [NT (br)]	Amber	
Sand martin	<i>Riparia riparia</i>				LC [LC (br)]	Green	
Sedge warbler	<i>Acrocephalus schoenobaenus</i>				NT [NT (br)]	Amber	

Vernacular name	Scientific name	Schedule 1	RBBP	Section 41	IUCN2 [breeding status (br)/non-breeding status (n-br)]	BoCC5	Annex 1
Skylark	<i>Alauda arvensis</i>			Y	LC [LC (br) / LC (n-br)]	Red	
Song thrush	<i>Turdus philomelos</i>			Y	LC [LC (br)]	Amber	
Sparrowhawk	<i>Accipiter nisus</i>				VU [VU (br)]	Amber	
Starling	<i>Sturnus vulgaris</i>			Y	VU [VU (br) / LC (n-br)]	Red	
Stock dove	<i>Columba oenas</i>				LC [LC (br)]	Amber	
Swallow	<i>Hirundo rustica</i>				VU [VU (br)]	Green	
Swift	<i>Apus apus</i>				EN [EN (br)]	Red	
Tufted duck	<i>Aythya fuligula</i>				VU [VU (br) / LC (n-br)]	Green	
Whitethroat	<i>Sylvia communis</i>				LC [LC (br)]	Green	
Willow warbler	<i>Phylloscopus trochilus</i>				LC [LC (br)]	Amber	
Woodpigeon	<i>Columba palumbus</i>				LC [LC (br)]	Amber	
Wren	<i>Troglodytes troglodytes</i>				LC [LC (br)]	Amber	
Yellowhammer	<i>Emberiza citrinella</i>			Y	LC [LC (br)]	Red	