

A46 Newark Bypass

TR010065/APP/6.3

6.3 Environmental Statement

Appendix 8.6 Wintering Bird Technical Report

APFP Regulation 5(2)(a)

Planning Act 2008

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

Volume 6

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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]

ENVIRONMENTAL STATEMENT APPENDIX

8.6 BREEDING BIRD TECHNICAL REPORT

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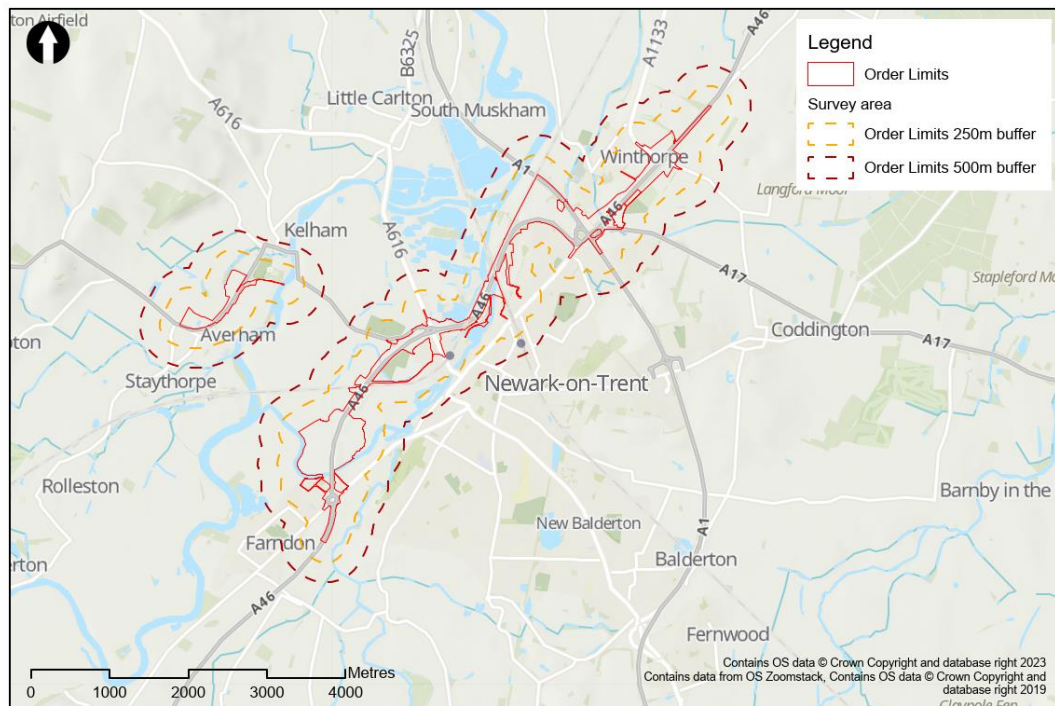
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1 Introduction

1.1 Background and scope of work

- 1.1.1 As part of the A46 Newark Bypass Scheme (the Scheme), wintering 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 **(TR010065/APP/6.1)** provides the background and a description of the Scheme. The information described in this appendix provides a baseline record of wintering birds within the survey area and is used to inform the ES for the Scheme.
- 1.1.3 This technical report includes a review of existing wintering bird data and survey data collected between January to February 2022 and November to December 2022.
- 1.1.4 The area of Order Limits and survey area 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),¹ 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 2006² 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)³ legislates for the creation and protection of Special Areas

¹ Wildlife and Countryside Act, 1981 (as amended). Available at: www.legislation.gov.uk/ukpga/1981/69/contents.

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

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

of Conservation (SACs) and Special Protection Areas (SPAs) (known collectively as the National Site Network) and the strict protection of 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').⁴

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)⁵ 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 1 of the EU Birds Directive.

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

⁵ 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 two Ordnance Survey 10 kilometre squares within which the Scheme is located (SK75 and SK85). 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. Records within the two 10 kilometre squares were analysed at five spatial scales (UK, England, region [East Midlands], county [Nottinghamshire] and Watsonian vice-county [Nottinghamshire]). The British Trust for Ornithology 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. 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.
- 3.1.2 The 2 kilometre search buffer from the Order Limits and the two 10 kilometre grid squares (SK75 and SK85) form the 'study area'.

Important ecological features

- 3.1.3 Using the BTO Data Report, a species is considered to be 'important' with respect to the ecological impact assessment process⁶ if it meets one or more of the following criteria:

⁶ 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.

- Long-eared owl *Asio otus*, lesser spotted woodpecker *Dryobates minor* or willow tit *Poecile montanus*, presence in the study area.
- 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.
- 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.
- 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.

3.1.4 Biological records and survey data were used to determine which of the species considered to be 'important' in the study area are present within the survey area (see Section 3.2 of this report) 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 Wintering bird surveys

3.2.1 Wintering bird surveys were carried out across four survey visits in January to February 2022 and November to December 2022. Surveyors followed the 'look-see' method.⁷ 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, hereafter referred to as the 'survey area'. Wintering bird surveys in January and February 2022 were undertaken with reference to the transect routes shown in Appendix C (Wintering bird survey transect routes (January and February 2022)) of this report. Due to access and programming constraints (see Section 3.3 of this report), wintering bird surveys in November and December 2022 were undertaken with reference to the transect routes shown in Appendix D (Wintering bird survey transect routes (November and December 2022)) of this report. All transects were surveyed once per survey visit (Table 3-1), unless otherwise explained within the limitations (Section 3.3).

⁷ Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S. and Lambton, S. (1992, 2000) Bird Census Techniques. Academic Press, London, UK.

- 3.2.2 Habitats surveyed within the transects included all watercourses including running (riverine) and standing (wetlands), drains, wooded areas and fields.
- 3.2.3 Surveys were undertaken during daylight hours only. The transects starting point and direction was reversed on alternate survey visits to avoid potential temporal bias.⁸
- 3.2.4 Weather conditions were recorded, with extreme weather (for example heavy rain and strong winds) avoided.

Table 3-1: Dates of surveys and weather conditions

Survey	Date	Weather	Temperature (C°)	Wind direction and speed (Beaufort scale)	Cloud cover (x/8)
1	30/01/2022	Dry and cool	3–8	W 2	1
1	31/01/2022	Dry and cool	3–7	W 1	1
2	24/02/2022	Dry and cool	2–8	W 2	1
2	25/02/2022	Dry and cool	3–10	W 1–2	0
3	21/11/2022	Dry	4–11	E 3	8
3	22/11/2022	Dry	7–9	W 2–3	6
3	23/11/2022	Dry	7–11	S 1–2	3
3	29/11/2022	Dry	4–6	W 2–3	5
3	30/11/2022	Dry	4–7	S 2	7
4	12/12/2022	Cold and bright	-3–0	NE 0	0
4	13/12/2022	Cold and bright	-3–-1	SW 0	0
4	14/12/2022	Cold and bright	-2–0	W 0	0
4	15/12/2022	Cold and bright	-4–-1	W 0	0

3.3 Limitations

- 3.3.1 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. 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 survey area. The surveys coupled with the desk study are likely to capture the important ecological features⁹ within the survey area.
- 3.3.2 Wintering bird surveys were not undertaken over a single winter as is typical for such fieldwork. Nevertheless, no substantial differences

⁸ Marchant, J.H. (1983). Common Birds Census Instructions. *Tring: British Trust for Ornithology*.

⁹ Chartered Institute of Ecology and Environmental Management (CIEEM), 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland Version 1.2. Updated April 2022. CIEEM, Winchester.

were recorded in terms of the overall bird assemblage between either survey period (Section 4.4).

- 3.3.3 Due to programming constraints and access limitations, transects RT05 and BT08 were not completed during Survey 1 and Survey 2.
- 3.3.4 Due to access limitations, sections of transects RT02 and BT06 were not surveyed during Survey 1.
- 3.3.5 Due to heavy flooding during Survey 2, areas of transects RT04, BT01, BT02, BT03 and BT04 were inaccessible. As such, modifications were made to the transect route on site and, except for transects BT01 and RT04, transect areas were surveyed from a distance.
- 3.3.6 During Survey 2, transect BT01 was surveyed only to the approximate mid-point of the route (the rear of the Crankley Point sewage treatment plant works at grid reference SK 8009 5577) due to the footpath being flooded to a height considered unpassable. Similarly, transect RT04 was heavily flooded and the area was surveyed from sub-optimal vantage points.
- 3.3.7 Due to changes to the boundaries of the Order Limit as well as constraints associated with land access and flooding restrictions, the transect routes for the November to December 2022 survey visits were modified from the survey visits undertaken during the January to February 2022 survey visits. There was no substantive difference in habitat between either set of transects.
- 3.3.8 Access limitations affected Survey 3, with three of the proposed transect routes crossing areas of land where access had been revoked. However, similar habitats in close proximity to these transects were surveyed and the species/numbers recorded in these areas were considered representative of those in the areas where access was not possible.
- 3.3.9 Due to the Kelham and Averham Floodplain Compensation Area (FCA) being added to the design at a later date, transect KEL1 was subject to surveys in November and December 2022, only. Whilst a suite of four surveys was not undertaken for this transect, the bird survey data collected during November and December 2022 was comparable to the data collected from other transect routes of a similar habitat composition. As such, the collected survey data from KEL1 is considered to be representative and provide sufficient baseline information.
- 3.3.10 Surveys were carried out in daylight hours only. Therefore, species most frequently observed during hours of darkness or twilight (for example, owls and certain waders) are also likely to have been under-recorded.
- 3.3.11 The survey methodology does not detect all species evenly and it is known that cryptic species such as snipe *Gallinago gallinago* and woodcock *Scolopax rusticola* may be under-recorded.

- 3.3.12 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 winter.
- 3.3.13 Records from the NBGRC are included for all species records returned within the study area. This information may not include wintering status as the records may not include this level of information. However, all NBGRC records have been included for completeness.
- 3.3.14 The results presented in this report are a snapshot of the winter bird community within the survey area during January to February and November to December 2022.

4 Results

4.1 Existing ornithological and habitat data

Nottinghamshire Biological and Geological Record Centre

- 4.1.1 The dataset provided by NBGRC covering 2008-19 comprised records for 98 species. A full list is provided in Appendix A (Desk study data (NGBRC)) of this report.

BTO Data Report

- 4.1.2 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 winter records for 118 species (2018-22).
- 4.1.3 On a UK scale, no records for notable species were found in terms of winter range or winter abundance for either 10 kilometre square.
- 4.1.4 At the spatial scale of England, the two 10 kilometre squares contained records for 14 notable species in terms of winter range, with Red and Amber listed species per Birds of Conservation Concern (BoCC¹⁰) indicated by asterisk¹¹: red-breasted goose *Branta ruficollis*, pink-footed goose *Anser brachyrhynchus**, white-fronted goose *Anser albifrons****, Bewick's swan *Cygnus bewickii***, whooper swan *Cygnus cygnus**, smew *Mergus albellus***, ruddy duck *Oxyura jamaicensis*, grey plover *Pluvialis squatarola**, ruff *Philomachus pugnax***, common sandpiper *Actitis hypoleucos**, greenshank *Tringa nebularia**, Caspian gull *Larus cachinnans**, hen harrier *Circus cyaneus*** and swallow *Hirundo rustica*. In terms of winter abundance at the scale of England, the two 10 kilometre squares contained records for three notable species (tufted duck *Aythya fuligula*, grey partridge *Perdix perdix*** and kestrel *Falco tinnunculus**).
- 4.1.5 At the regional (East Midlands) scale, the two 10 kilometre squares contained records of 13 notable species for winter range (red-breasted goose, whooper swan*, smew**, oystercatcher *Haematopus ostralegus**, grey plover*, ruff**, common sandpiper*, greenshank*, Caspian gull*, hen harrier**, swallow, firecrest *Regulus ignicapilla* and crossbill *Loxia curvirostra*). In terms of winter abundance, there was one notable species (white-fronted goose**).

¹⁰ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble D, Win, I., 2021. The status of our bird populations: The Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114, 723–747.

¹¹ Birds of Conservation Concern (BoCC) Red List species are denoted by a **, and BoCC Amber list by *

- 4.1.6 At the county (Nottinghamshire) scale, the two 10 kilometre squares contained 11 notable species in terms of winter range (red-breasted goose, white-fronted goose**, smew**, grey plover*, ruff**, common sandpiper*, greenshank*, Caspian gull*, hen harrier**, swallow and firecrest). In respect to winter abundance there were two notable species (white-fronted goose** and grey plover*).
- 4.1.7 At the Watsonian vice-county (Nottinghamshire) scale, the two 10 kilometre squares contained 10 notable species with regards to winter range (red-breasted goose, white-fronted goose**, smew**, grey plover*, ruff**, common sandpiper*, greenshank*, hen harrier**, swallow and firecrest). In terms of winter abundance, records for two notable species were found (white-fronted goose** and grey plover*).

4.2 Statutory and non-statutory designated sites

- 4.2.1 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 Knapthorpe.
- 4.2.2 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.

4.3 Habitat in the study area

- 4.3.1 Habitats across the Order Limits (including along the main alignment and within the Kelham and Averham FCA) identified within the extended Phase 1 habitat 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
 - Coastal and floodplain grazing marsh

- Arable
- Amenity grassland
- Improved grassland
- 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

4.3.2 The Order Limits comprise a mosaic of lowland arable farmland and poor semi-improved grasslands (for example, 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.

4.4 Survey data

Species recorded in the study area

- 4.4.1 A total of 71 species were recorded during winter bird surveys. Totals of 64 and 58 species were recorded during the January to February and November to December surveys, respectively. Of all the species recorded, 51 were present in both January to February and November to December surveys.
- 4.4.2 There were 13 species recorded during January to February that were not recorded during November to December (ie brambling *Fringilla montifringilla*, goldcrest *Regulus regulus*, green sandpiper *Tringa ochropus*, house sparrow *Passer domesticus*, marsh tit *Poecile palustris*, oystercatcher, pheasant *Phasianus colchicus*, pochard *Aythya ferina*, red-legged partridge *Alectoris rufa*, siskin *Spinus spinus*, stock dove *Columba oenas*, treecreeper *Certhia familiaris* and yellowhammer *Emberiza citrinella*) and seven species recorded during November to December that were not recorded during January to February (ie blackcap *Sylvia atricapilla*, chiffchaff *Phylloscopus collybita*, common sandpiper *Actitis hypoleucos*, great white egret

Ardea alba, green woodpecker *Picus viridis*, kingfisher *Alcedo atthis* and stonechat *Saxicola rubicola*).

- 4.4.3 A full list of all species recorded during professional winter bird surveys is included in Appendix E (Wintering bird survey 2022 species list) of this report.
- 4.4.4 Of the 71 species recorded, three are important ecological features based on the following criteria:
- 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 and present in the survey area:
 - Grey partridge
 - 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 and present in the survey area:
 - Grey partridge
 - Kestrel *Falco tinnunculus*
 - Oystercatcher
 - Red List or Amber List Birds of Conservation Concern (BoCC5)¹² that are notable and present in the survey area:
 - Fieldfare *Turdus pilaris* (Red)
 - Grey partridge (Red)
 - Kestrel (Amber)
 - Oystercatcher (Amber)
 - Redwing *Turdus iliacus* (Amber)

Habitat use in the study area

Tree lines, hedgerows and scrub

- 4.4.5 The hedgerows, tree lines and unmanaged gardens within the vicinity of the Scheme provide winter foraging and roosting habitats and may facilitate bird movement across the landscape.
- 4.4.6 With respect to birds as important ecological features, this habitat is likely to be important to grey partridge and kestrel.

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

Grassland and arable land

- 4.4.7 The grassland and arable land in the vicinity of the Scheme provide winter foraging opportunities for birds. Groups of over 200 lapwing *Vanellus vanellus* were observed to the east of transect BT03. In addition, fieldfare *Turdus pilaris*, redwing *Turdus iliacus*, rook *Corvus frugilegus* and linnet *Carduelis cannabina* were all recorded foraging in grassland and arable habitats.
- 4.4.8 With respect to birds as important ecological features, this habitat is likely to be important to grey partridge and kestrel.

River Trent corridor

- 4.4.9 The River Trent corridor also provides habitat and important commuting networks for birds during winter. Teal *Anas crecca*, pochard *Aythya ferina* and oystercatcher were recorded close to the river bank on transects BT04 and BT07, notably in the vicinity of Grid Reference SK 7898 5342.
- 4.4.10 With respect to birds as important ecological features, this habitat is likely to be important to oystercatcher.

Residential gardens

- 4.4.11 The residential properties within the Order Limits contain a typical selection of passerines associated with domestic gardens. Such species are likely to benefit from the presence of lawns and shrubs for foraging, roosting and breeding opportunities as well as predictable anthropogenic food subsidies.
- 4.4.12 With respect to birds as important ecological features this habitat is not likely to be ecologically important.

5 Summary

- 5.1.1 Field surveys have identified the presence of three important ecological features (ie grey partridge, kestrel and oystercatcher).
- 5.1.2 The supporting habitat associated with the important ecological features are:
- Tree lines, hedgerows and scrub
 - Grassland and arable land
 - River Trent corridor

6 References

- ¹ Wildlife and Countryside Act, 1981 (as amended). Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents>. Last accessed November 2023.
- ² Natural Environment and Rural Communities Act, 2006 (as amended). Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents>. Last accessed November 2023.
- ³ 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.
- ⁴ 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.
- ⁵ 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.
- ⁶ 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.
- ⁷ Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S. and Lambton, S. (1992, 2000) Bird Census Techniques. Academic Press, London, UK.
- ⁸ Marchant, J.H. (1983). Common Birds Census Instructions. *Tring: British Trust for Ornithology*.
- ⁹ Chartered Institute of Ecology and Environmental Management (CIEEM), 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland Version 1.2. Updated April 2022. CIEEM, Winchester.
- ¹⁰ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble D, Win, I., 2021. The status of our bird populations: The Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114, 723–747.
- ¹¹ [Clarification note]
- ¹² Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble D, Win, I., 2021. The status of our bird populations: The Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114, 723–747.
- ¹³ [Clarification note]

¹⁴ Rare Breeding Birds Panel, [REDACTED]
[REDACTED]. Last accessed November 2023.

A. Appendix: Desk study data (NGBRC)

Appendix Table A-1: Existing (2008-19) data for bird species within 2 kilometres of the A46 Newark Bypass Order Limits as supplied by the NGBRC

Species are listed in vernacular name alphabetical order¹³

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
Arctic tern	<i>Sterna paradisaea</i>			Amber	VU VU (br)		Y	
Barn owl	<i>Tyto alba</i>	Y		Green	LC LC (br)			Y
Black redstart	<i>Phoenicurus ochruros</i>	Y		Amber	VU VU (br) NR (n-br)	Y		
Black tern	<i>Chlidonias niger</i>	Y		Green	NE	Y	Y	
Black-headed gull	<i>Chroicocephalus ridibundus</i>			Amber	VU LC (br) VU (n-br)			
Brambling	<i>Fringilla montifringilla</i>	Y		Green	LC LC (n-br)	Y		
Bullfinch	<i>Pyrrhula pyrrhula</i>		Y	Amber	LC; LC (br)			
Cetti's warbler	<i>Cettia cetti</i>	Y		Green	LC; LC (br)			
Chaffinch	<i>Fringilla coelebs</i>			Green	EN EN (br)			
Common gull	<i>Larus canus</i>			Amber	LC LC (br)			

¹³ Vernacular names in parentheses are species not typically considered to occur in the UK in the non-breeding season and are therefore considered of less relevance to this report.

¹⁴ Rare Breeding Birds Panel, <https://rbbp.org.uk/list-of-species-currently-reported-on-by-rbbp/>

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
					LC (n-br)			
Common sandpiper	<i>Actitis hypoleucos</i>			Amber	NT NT (br)			
Common scoter	<i>Melanitta nigra</i>	Y	Y	Red	CR CR (br) LC (n-br)	Y		
Common tern	<i>Sterna hirundo</i>			Amber	NT NT (br)		Y	
Corn bunting	<i>Emberiza calandra</i>		Y	Red	NT NT (br)			
Crossbill	<i>Loxia curvirostra</i>	Y		Green	LC LC (br)			
Cuckoo	<i>Cuculus canorus</i>		Y	Red	LC LC (br)			
Curlew	<i>Numenius arquata</i>		Y	Red	EN; EN (br)			
Dunlin	<i>Calidris alpina</i>			Red	VU; VU (br); VU (n-br)			
Dunnock	<i>Prunella modularis</i>		Y	Amber	LC; LC (br)			
Fieldfare	<i>Turdus pilaris</i>	Y		Red	CR CR (br) LC (n-br)			
Gadwall	<i>Mareca strepera</i>			Amber	LC LC (br) LC (n-br)			
Golden plover	<i>Pluvialis apricaria</i>			Green	LC LC (br) LC (n-br)		Y	
Goldeneye	<i>Bucephala clangula</i>			Red	VU VU (br) VU (n-br)	Y		
Grasshopper warbler	<i>Locustella naevia</i>		Y	Red	LC LC (br)			
Great black-	<i>Larus marinus</i>			Amber	EN			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
backed gull					LC (br) EN (n-br)			
Great white egret	<i>Ardea alba</i>			Amber	EN EN (br) VU (n-br)	Y		
Green sandpiper	<i>Tringa ochropus</i>	Y		Amber	CR CR (br) VU (n-br)	Y		
Greenfinch	<i>Chloris chloris</i>			Red	EN EN (br)			
Greenshank	<i>Tringa nebularia</i>	Y		Amber	LC LC (br)	Y		
Grey partridge	<i>Perdix perdix</i>		Y	Red	VU VU (br)			
Grey wagtail	<i>Motacilla cinerea</i>			Amber	NT NT (br)			
Greylag goose	<i>Anser anser</i>			Amber	LC LC (br) LC (n-br)			
Hawfinch	<i>Coccothraustes coccothraustes</i>		Y	Red	EN EN (br)	Y		
Hen harrier	<i>Circus cyaneus</i>	Y	Y	Red	EN EN (br)	Y	Y	
Herring gull	<i>Larus argentatus</i>		Y	Red	EN DD (br) EN (n-br)			
Hobby	<i>Falco subbuteo</i>	Y		Green	NT NT (br)	Y		
House martin	<i>Delichon urbicum</i>			Red	NT; NT (br)			
House sparrow	<i>Passer domesticus</i>		Y	Red	LC LC (br)			
Kestrel	<i>Falco tinnunculus</i>			Amber	VU VU (br)			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
Kingfisher	<i>Alcedo atthis</i>	Y		Green	VU VU (br)		Y	
Lapwing	<i>Vanellus vanellus</i>		Y	Red	VU VU (br) VU (n-br)			
Lesser black-backed gull	<i>Larus fuscus</i>			Amber	DD DD (br)			
Linnet	<i>Linaria cannabina</i>		Y	Red	LC LC (br)			
Little egret	<i>Egretta garzetta</i>			Green	LC LC (br) LC (n-br)	Y	Y	
Little ringed plover	<i>Charadrius dubius</i>	Y		Green	LC LC (br)	Y		
Little tern	<i>Sternula albifrons</i>	Y		Amber	VU VU (br)	Y	Y	
Long-eared owl	<i>Asio otus</i>			Green	LC; LC (br)	Y		
Long-tailed duck	<i>Clangula hyemalis</i>	Y		Red	NT NT (n-br)	Y		
Mallard	<i>Anas platyrhynchos</i>			Amber	VU LC (br) VU (n-br)			
Marsh harrier	<i>Circus aeruginosus</i>	Y		Amber	LC LC (br)	Y	Y	
Marsh tit	<i>Poecile palustris</i>		Y	Red	NT NT (br)			
Meadow pipit	<i>Anthus pratensis</i>			Amber	LC LC (br)			
Mediterranean gull	<i>Ichthyaetus melanocephalus</i>	Y		Amber	LC LC (br)	Y	Y	
Merlin	<i>Falco columbarius</i>	Y		Red	EN; EN (br)	Y	Y	
Mistle thrush	<i>Turdus viscivorus</i>			Red	NT			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
					NT (br)			
Moorhen	<i>Gallinula chloropus</i>			Amber	VU VU (br)			
Osprey	<i>Pandion haliaetus</i>	Y		Amber	NT NT (br)	Y	Y	
Oystercatcher	<i>Haematopus ostralegus</i>			Amber	VU VU (br)			
Peregrine	<i>Falco peregrinus</i>	Y		Green	LC LC (br)	Y	Y	
Pink-footed goose	<i>Anser brachyrhynchus</i>			Amber	LC LC (n-br)	Y		
Pochard	<i>Aythya ferina</i>			Red	EN VU (br) EN (n-br)	Y		
Quail	<i>Coturnix coturnix</i>	Y		Amber	EN EN (br)	Y		
Red kite	<i>Milvus milvus</i>	Y		Green	LC LC (br)	Y	Y	
Redwing	<i>Turdus iliacus</i>	Y		Amber	CR CR (br) LC (n-br)	Y		
Reed bunting	<i>Emberiza schoeniclus</i>		Y	Amber	LC LC (br)			
Ringed plover	<i>Charadrius hiaticula</i>			Red	VU NT (br) VU (n-br)			
Rook	<i>Corvus frugilegus</i>			Amber	NT NT (br)			
Scaup	<i>Aythya marila</i>	Y		Red	EN EN (n-br)	Y		
Sedge warbler	<i>Acrocephalus schoenobaenus</i>			Amber	NT NT (br)			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
Shelduck	<i>Tadorna tadorna</i>			Amber	EN EN (br) VU (n-br)			
Short-eared owl	<i>Asio flammeus</i>			Amber	EN EN (br)	Y	Y	
Shoveler	<i>Spatula clypeata</i>			Amber	LC LC (br) LC (n-br)	Y		
Skylark	<i>Alauda arvensis</i>		Y	Red	LC LC (br) LC (n-br)			
Smew	<i>Mergellus albellus</i>			Red	CR CR (n-br)	Y	Y	
Snipe	<i>Gallinago gallinago</i>			Amber	VU LC (br) VU (n-br)			
Song thrush	<i>Turdus philomelos</i>		Y	Amber	LC LC (br)			
Sparrowhawk	<i>Accipiter nisus</i>			Amber	VU VU (br)			
Spotted flycatcher	<i>Muscicapa striata</i>		Y	Red	NT NT (br)			
Starling	<i>Sturnus vulgaris</i>		Y	Red	VU VU (br) LC (n-br)			
Stock dove	<i>Columba oenas</i>			Amber	LC LC (br)			
Stonechat	<i>Saxicola rubicola</i>			Green	LC LC (br)			
Swift	<i>Apus apus</i>			Red	EN EN (br)			
Tawny owl	<i>Strix aluco</i>			Amber	NT			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
					NT (br)			
Teal	<i>Anas crecca</i>			Amber	LC LC (br) LC (n-br)			
Tree sparrow	<i>Passer montanus</i>		Y	Red	VU VU (br)			
Treecreeper	<i>Certhia familiaris</i>			Green	LC LC (br)			
Water rail	<i>Rallus aquaticus</i>			Green	LC LC (br)			
Wheatear	<i>Oenanthe oenanthe</i>			Amber	EN EN (br)			
Whooper swan	<i>Cygnus cygnus</i>	Y		Amber	EN EN (br) LC (n-br)	Y	Y	
Wigeon	<i>Mareca penelope</i>			Amber	VU VU (br) NT (n-br)	Y		
Willow tit	<i>Poecile montanus</i>		Y	Red	EN EN (br)	Y		Y
Willow warbler	<i>Phylloscopus trochilus</i>			Amber	LC LC (br)			
Woodcock	<i>Scolopax rusticola</i>			Red	VU VU (br) NT (n-br)			
Woodpigeon	<i>Columba palumbus</i>			Amber	LC LC (br)			
Wren	<i>Troglodytes troglodytes</i>			Amber	LC LC (br)			
Yellow wagtail	<i>Motacilla flava</i>		Y	Red	NT NT (br)			

Vernacular name	Scientific name	Schedule 1	Section 41	BoCC5	IUCN2 overall plus breeding (br)/non-breeding (n-br) assessment	RBBP ¹⁴	Annexe 1	LBAP Species Action Plan
Yellowhammer	<i>Emberiza citrinella</i>		Y	Red	LC LC (br)			
Yellow-legged gull	<i>Larus michahellis</i>			Amber	EN EN (br) LC (n-br)	Y		

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.

All maps reproduced in this report use map tiles by Stamen Design, under CC BY 3.0. Data by OpenStreetMap, under ODbL.

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.

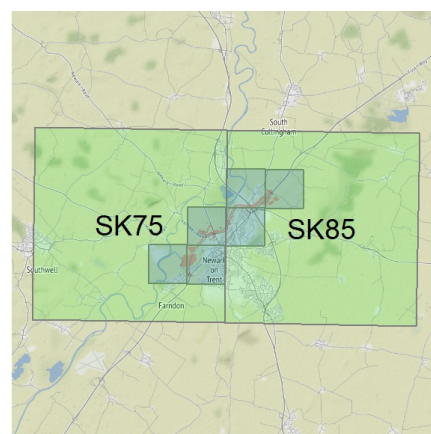
For example 'relevant tetrads' are all 2-km squares with at least 1ha overlapping the site. Data are summarised at the finest spatial scale possible, subject to the size of the site and the availability and spatial precision of BTO datasets in the vicinity of the site.

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

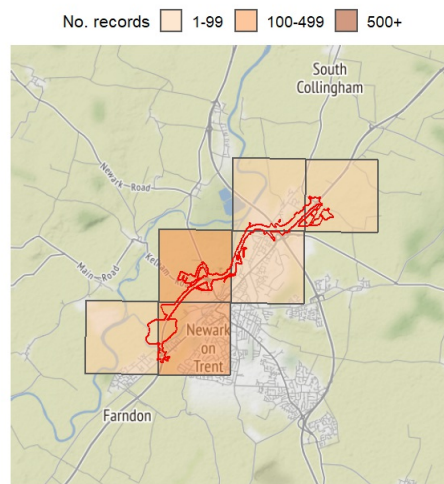


Bird Atlas 2007–11 (BTO, BirdWatch Ireland and the Scottish Ornithologists' Club) provides data at two resolutions: complete 10-km distribution datasets and sample 2-km distribution and relative abundance datasets. Although the Bird Atlas data are now 11 years old, they still provide the most recent 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.

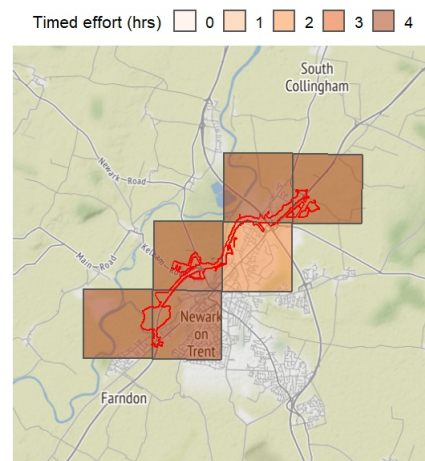
Additionally, at least 32% of tetrads in each 10-km square received timed visits, amounting to structured data for 50089 tetrads across Britain and Ireland. Of the six relevant tetrads that the site spans, **six** (100%) received Timed Tetrad Visits in the breeding season (22 hours of recording effort).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



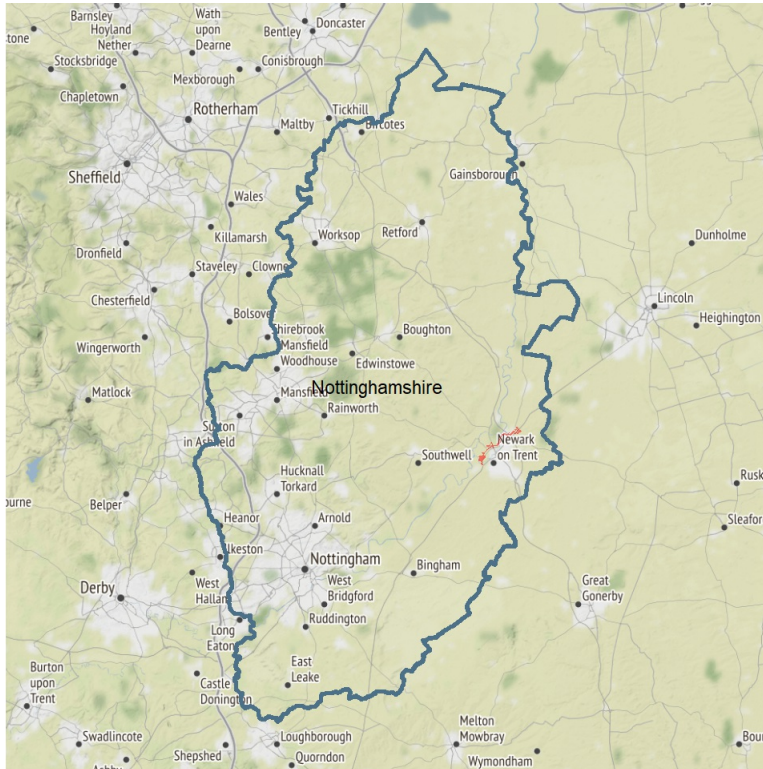
Region

Region = East Midlands



County

County = Nottinghamshire



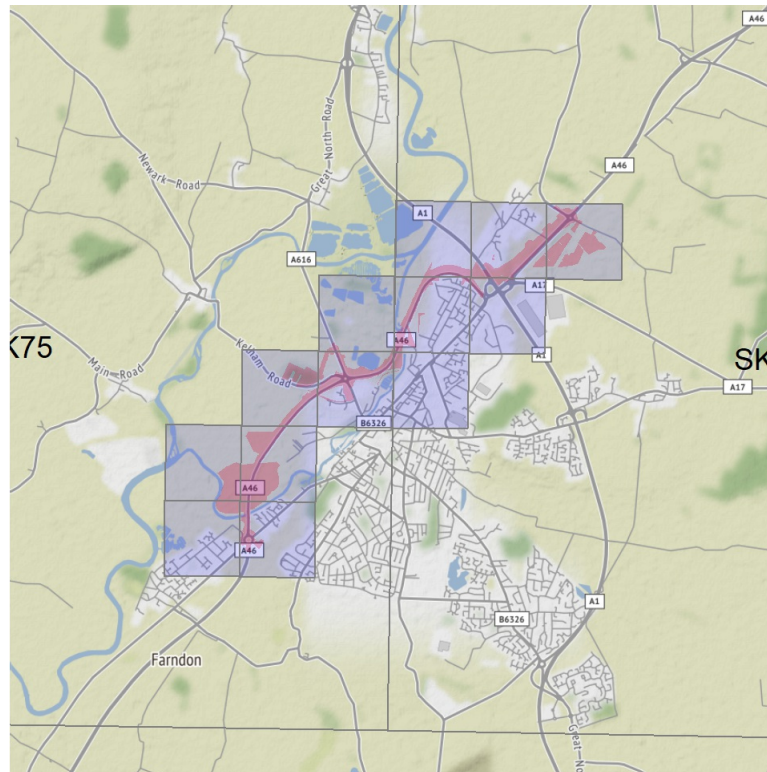
Vice-county

Vice-county = Nottinghamshire



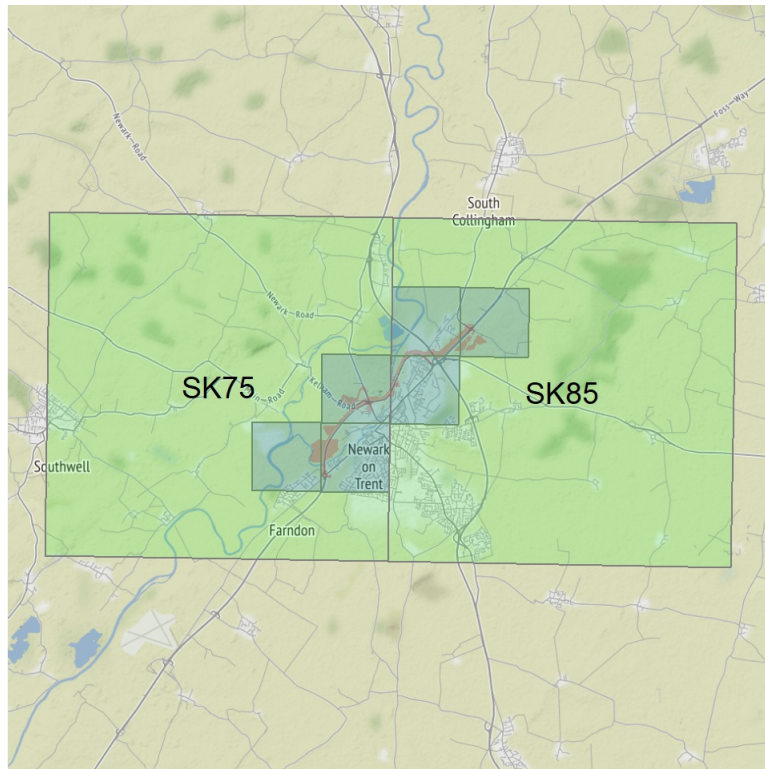
Site with 1-km squares

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



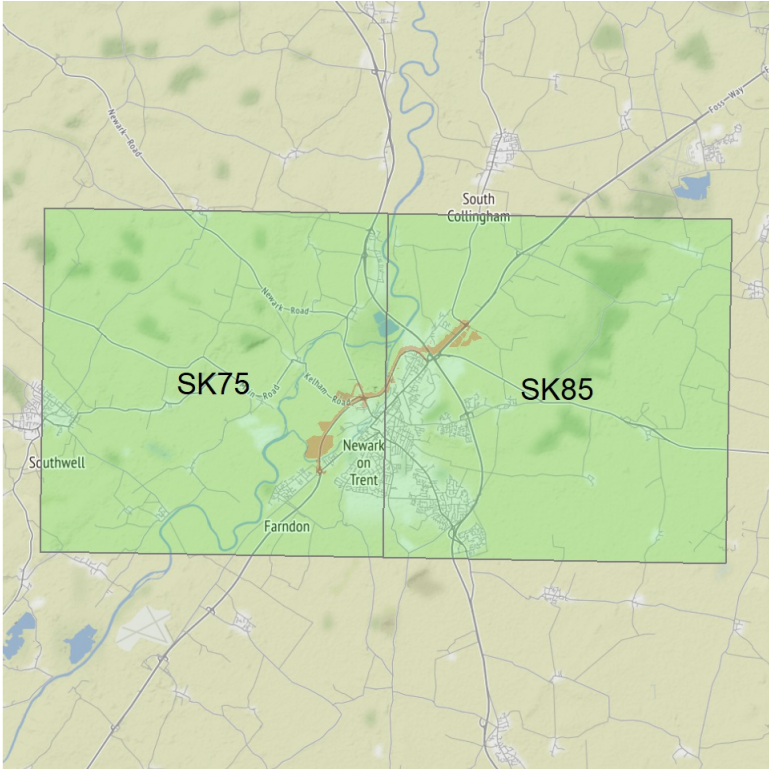
Site with tetrads

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



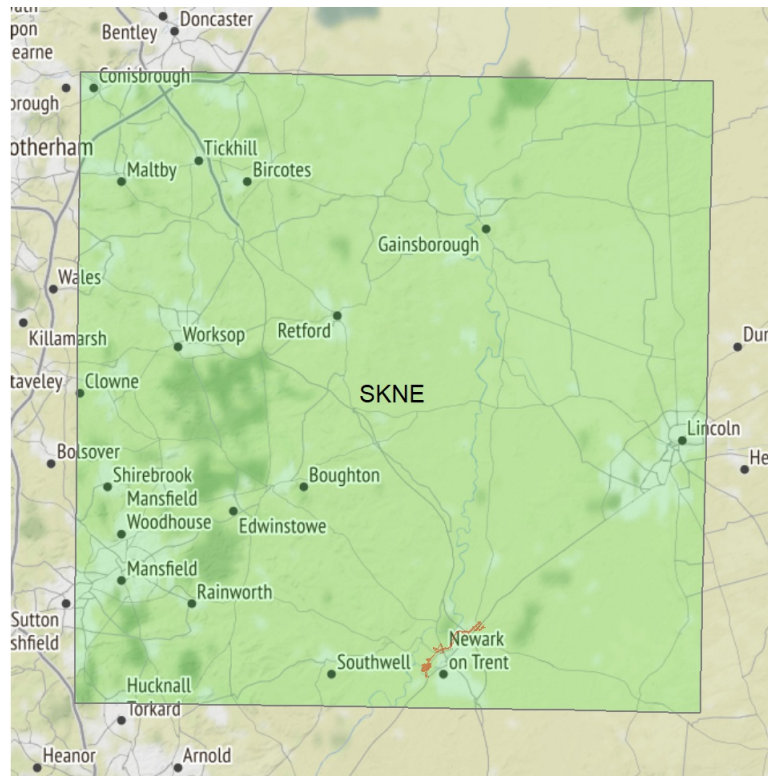
Site with 10-km squares

Two relevant 10-km squares : SK75, SK85



Site with 50-km squares

One relevant 50-km square : SKNE

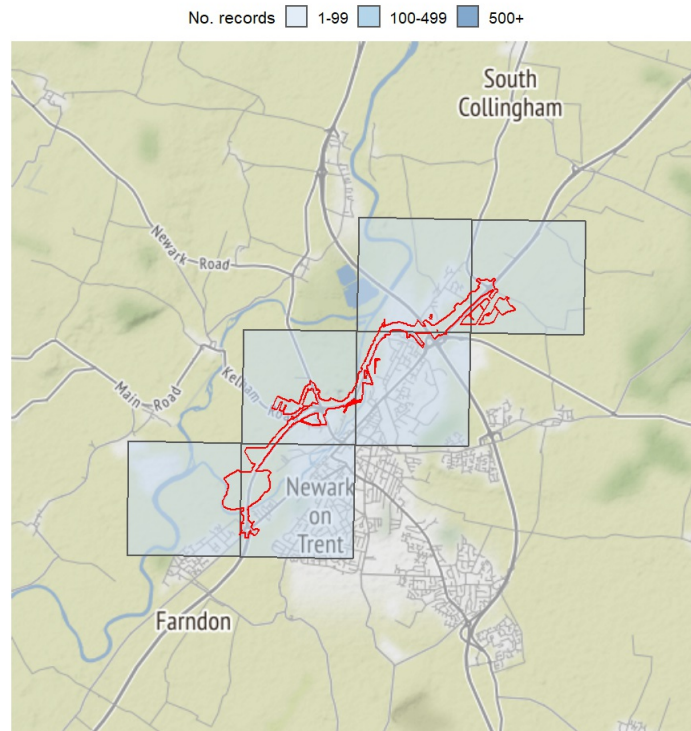


Appendix 2. Additional coverage maps

Atlas winter coverage

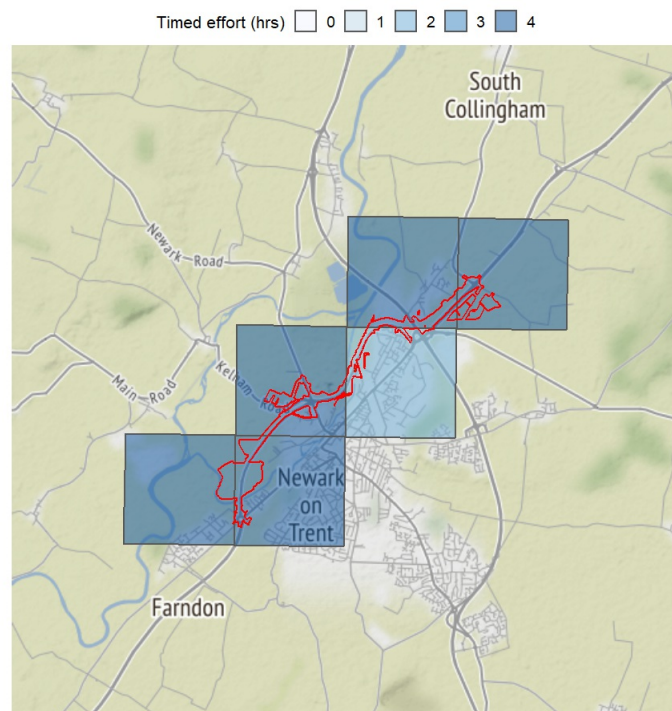
Map of unstructured Bird Atlas coverage in winter

Distribution of casual records (winter)



Map of structured Bird Atlas coverage in winter

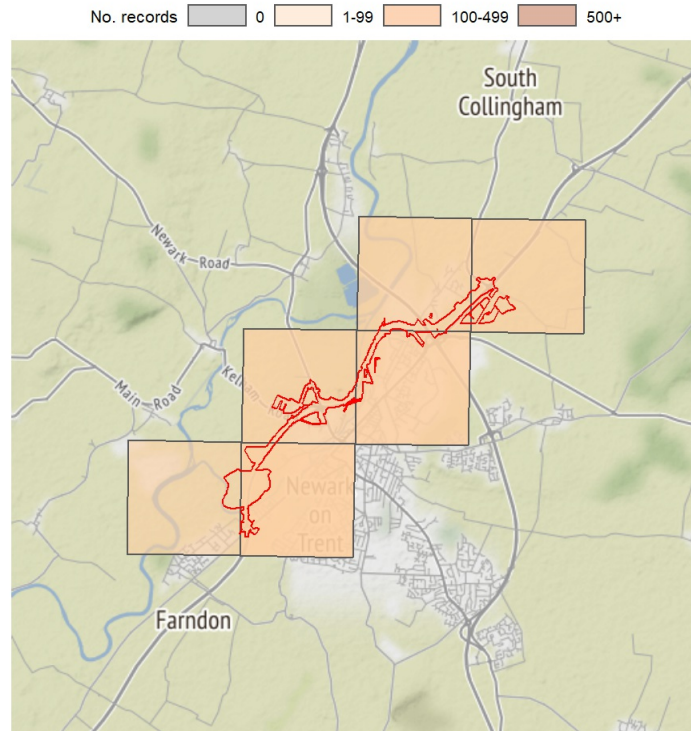
Distribution of timed effort (winter)



BirdTrack coverage

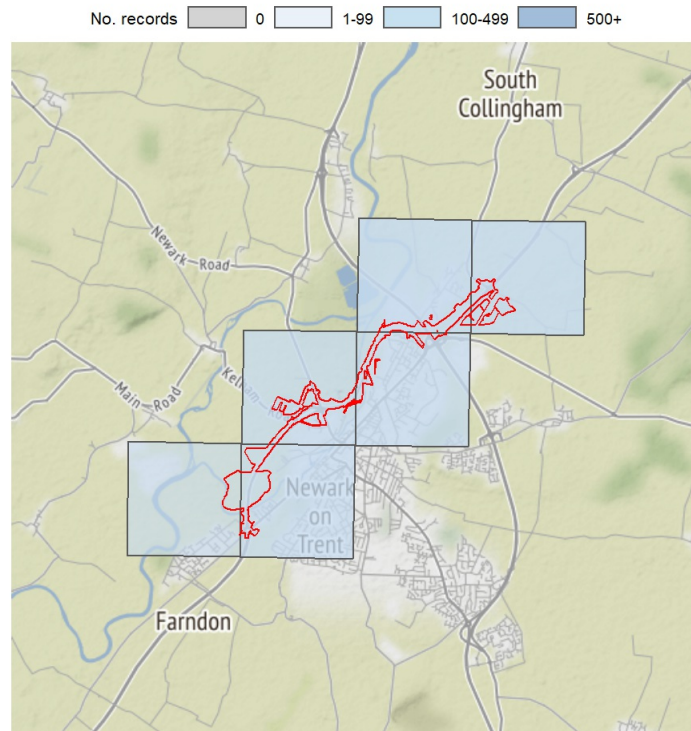
Map of BirdTrack recording effort in the breeding season. Grey shading indicates no sites centred in the tetrad, although sites from bordering tetrads may have extended into the tetrad.

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

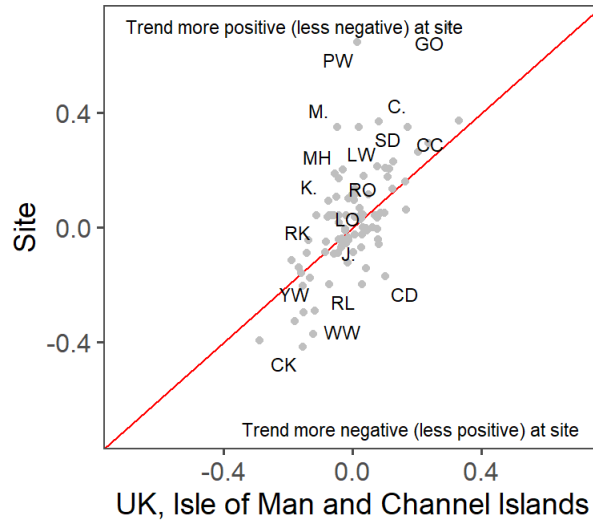
Code	Species	S1	Red	Amber	CR	EN	NT	VU	A1	RBBP	S41E	SZA1EW	1-km	2-km	10-km	>10-km
CM	Common Gull			Y											Present	Present
GB	Great Black-backed Gull			Y		Y									Present	Present
HG	Herring Gull		Y			Y					Y				Present	Present
YC	Caspian Gull			Y				Y								Present
YG	Yellow-legged Gull			Y		Y				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

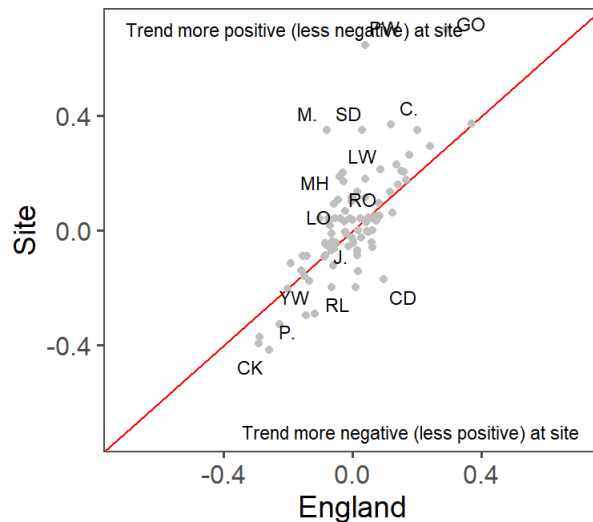
5.1 Country: UK, Isle of Man and Channel Islands

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).



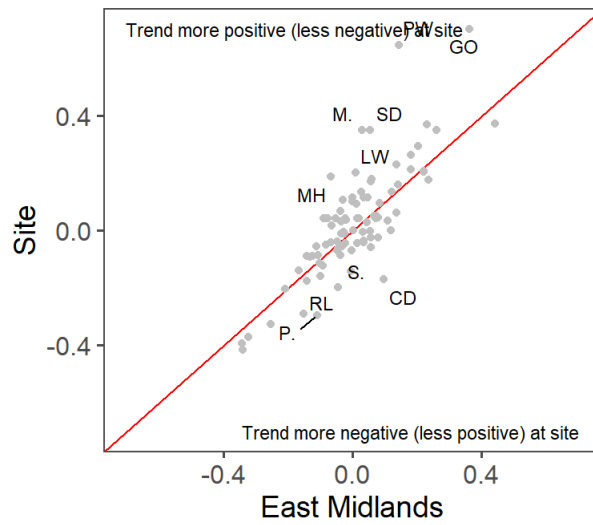
5.2 Country: England

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).



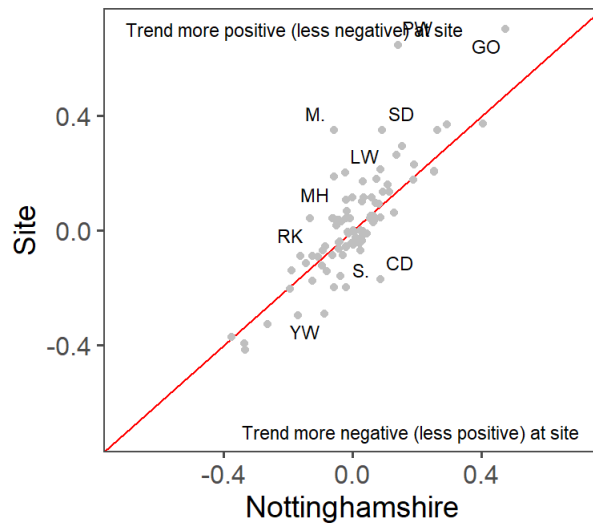
5.3 Region: East Midlands

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).



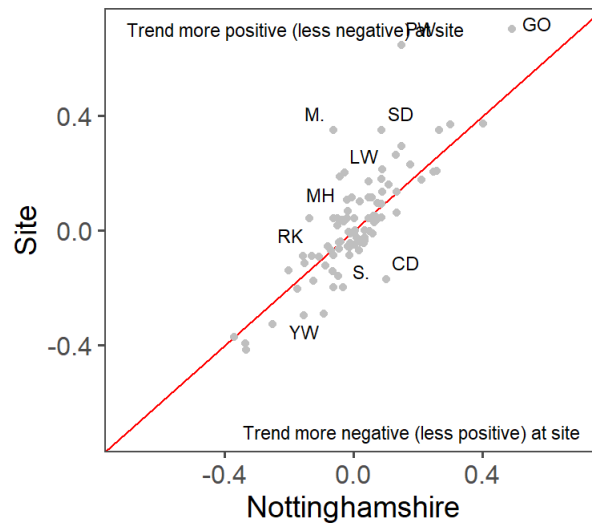
5.4 County: Nottinghamshire

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

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.

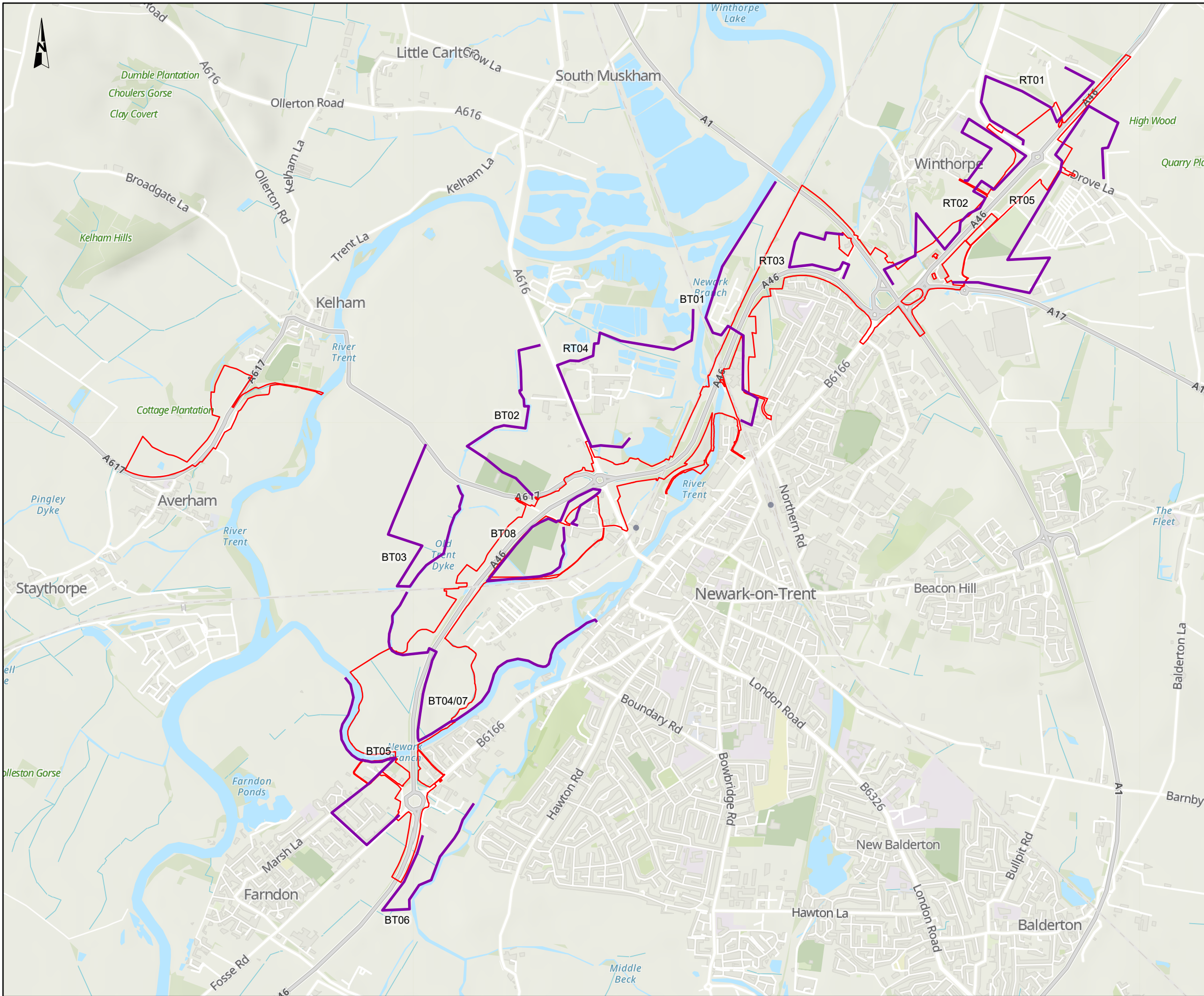
BTO Data Reports provide unique insights into the bird community present in the vicinity of potential development sites, helping to guide the need for detailed field surveys and highlighting potential priorities for delivering habitat mitigation, enhancement and biodiversity net gain.

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

Registered in England and Wales: 2907282

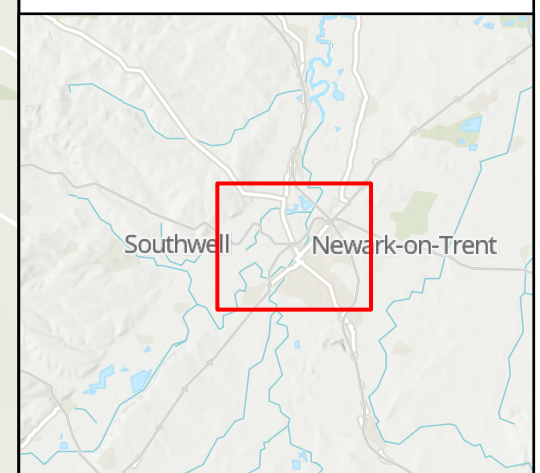


C. Appendix: Wintering bird survey transect routes (January and February 2022)



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
 Wintering bird transect route (January and February 2022)



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

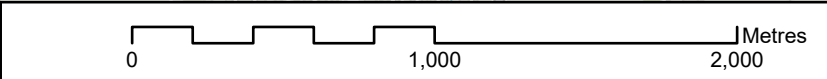
PROJECT TITLE
 A46 NEWARK BYPASS

DRAWING TITLE
 Appendix C
 Wintering Bird Survey Transect Routes (January and February 2022)

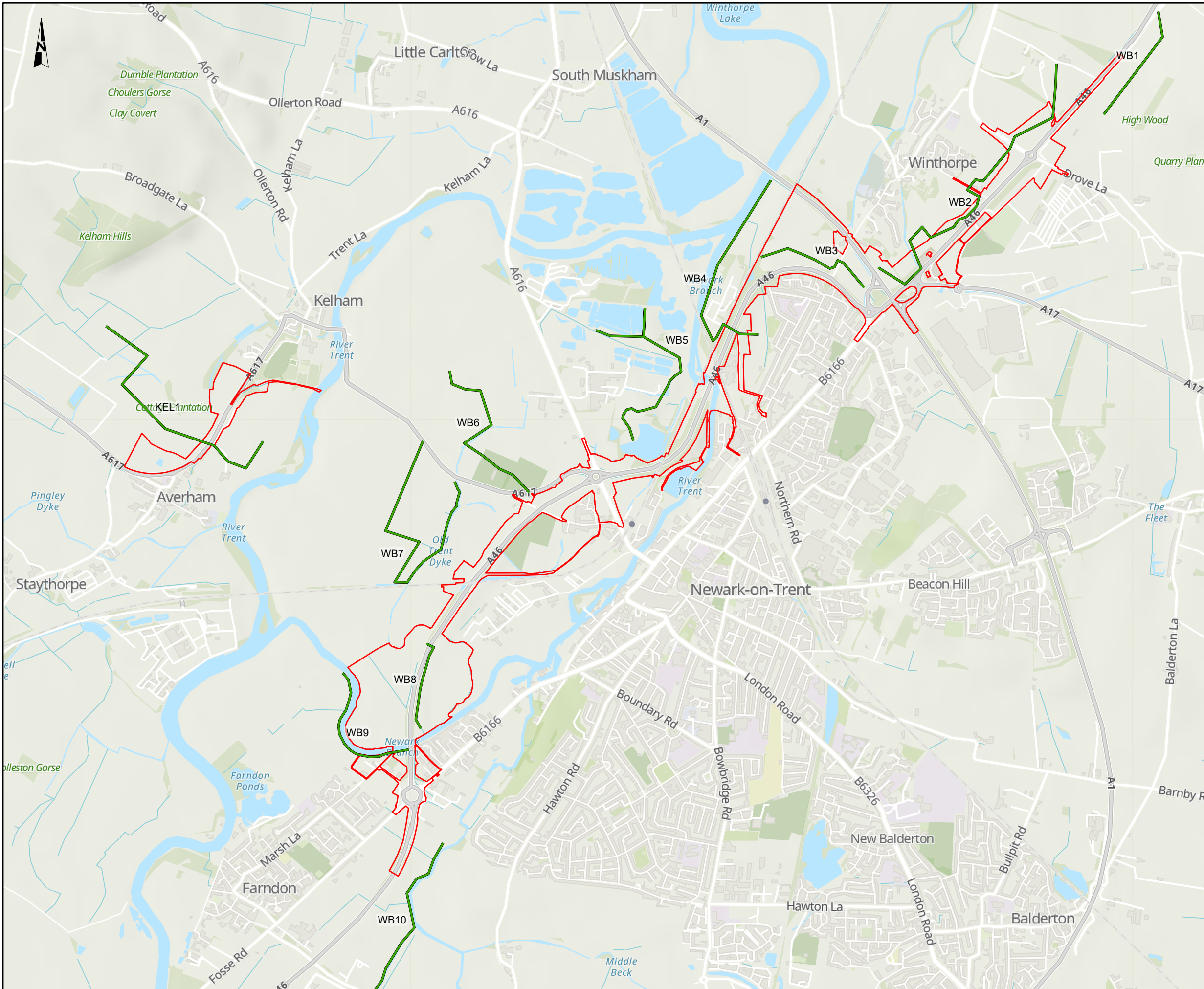
ORIGINAL SIZE A3 SCALE 1:25,000

DRAWING NUMBER HE PIN	ORIGINATOR SKAG	VOLUME EBD	PROJECT REF NO. HE551478
CONWI_CONW	DR	LE	00116
LOCATION	TYPE	ROLE	NUMBER
			REVISION C01

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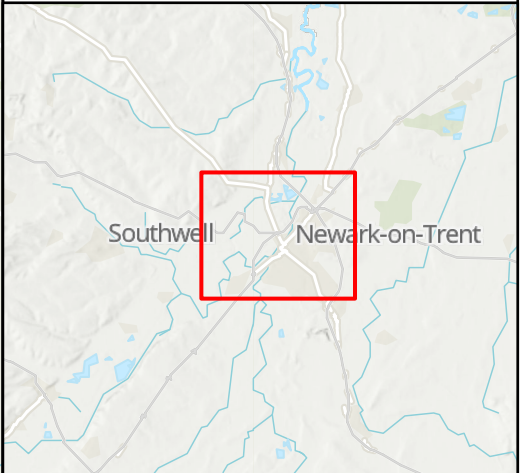


D. Appendix: Wintering bird survey transect routes (November and December 2022)



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
 Wintering bird transect route (November and December 2022)



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

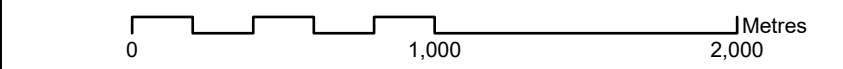
PROJECT TITLE
 A46 NEWARK BYPASS

DRAWING TITLE
 Appendix D
 Wintering Bird Survey Transect Routes (November and December 2022)

ORIGINAL SIZE A3 SCALE 1:25,000

DRAWING NUMBER HE PIN	ORIGINATOR SKAG	VOLUME EBD	PROJECT REF NO. HE551478
CONWI_CONW	DR	LE	00125
LOCATION	TYPE	ROLE	NUMBER
			REVISION C01

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E. Appendix: Wintering bird survey 2022 species list

Appendix Table E-1: Species of birds recorded during the 2022 field surveys

Vernacular name	Scientific name	Survey 1 (Jan 2022)	Survey 2 (Feb 2022)	Survey 3 (Nov 2022)	Survey 4 (Dec 2022)	Total registrations	No. surveys (months) where recorded (1–4)
Blackbird	<i>Turdus merula</i>	19	46	168	127	360	4
Blackcap	<i>Sylvia atricapilla</i>	0	0	0	1	1	1
Black-headed gull	<i>Chroicocephalus ridibundus</i>	19	1380	343	699	2441	4
Brambling	<i>Fringilla montifringilla</i>	1	0	0	0	1	1
Blue tit	<i>Cyanistes caeruleus</i>	29	47	27	24	127	4
Buzzard	<i>Buteo buteo</i>	0	8	2	18	28	3
Carrion crow	<i>Corvus corone</i>	11	40	170	288	509	4
Chiffchaff	<i>Phylloscopus collybita</i>	0	0	0	1	1	1
Cormorant	<i>Phalacrocorax carbo</i>	40	145	9	105	299	4
Collared dove	<i>Streptopelia decaocto</i>	3	10	3	1	17	4
Canada goose	<i>Branta canadensis</i>	13	386	67	58	524	4
Chaffinch	<i>Fringilla coelebs</i>	5	6	42	76	129	4
Common gull	<i>Larus canus</i>	0	8	1	0	9	2
Common sandpiper	<i>Actitis hypoleucos</i>	0	0	0	1	1	1
Coot	<i>Fulica atra</i>	2	4	0	1	7	3
Dunnock	<i>Prunella modularis</i>	4	15	11	61	91	4

Vernacular name	Scientific name	Survey 1 (Jan 2022)	Survey 2 (Feb 2022)	Survey 3 (Nov 2022)	Survey 4 (Dec 2022)	Total registrations	No. surveys (months) where recorded (1–4)
Fieldfare	<i>Turdus pilaris</i>	34	79	243	147	503	4
Goldcrest	<i>Regulus regulus</i>	2	2	0	0	4	2
Green sandpiper	<i>Tringa ochropus</i>	2	2	0	0	4	2
Greylag goose	<i>Anser anser</i>	133	444	105	170	852	4
Grey wagtail	<i>Motacilla cinerea</i>	1	4	6	2	13	4
Goldfinch	<i>Carduelis carduelis</i>	26	36	88	88	238	4
Greenfinch	<i>Chloris chloris</i>	0	7	10	7	24	3
Green woodpecker	<i>Picus viridis</i>	0	0	0	2	2	1
Great spotted woodpecker	<i>Dendrocopos major</i>	0	2	0	1	3	2
Great tit	<i>Parus major</i>	13	21	24	10	68	4
Great white egret	<i>Ardea alba</i>	0	0	1	6	7	2
Grey heron	<i>Ardea cinerea</i>	5	10	8	6	29	4
Herring gull	<i>Larus argentatus</i>	3	6	4	10	23	4
House sparrow	<i>Passer domesticus</i>	1	96	0	0	97	2
Jay	<i>Garrulus glandarius</i>	0	2	4	0	6	2
Jackdaw	<i>Coloeus monedula</i>	12	39	63	63	177	4
Kestrel	<i>Falco tinnunculus</i>	3	4	3	1	11	4
Kingfisher	<i>Alcedo atthis</i>	0	0	0	1	1	1
Lapwing	<i>Vanellus vanellus</i>	0	290	20	106	416	3
Lesser black-backed	<i>Larus fuscus</i>	0	3	0	1	4	2

Vernacular name	Scientific name	Survey 1 (Jan 2022)	Survey 2 (Feb 2022)	Survey 3 (Nov 2022)	Survey 4 (Dec 2022)	Total registrations	No. surveys (months) where recorded (1–4)
gull							
Linnet	<i>Linaria cannabina</i>	0	44	42	0	86	2
Little egret	<i>Egretta garzetta</i>	2	2	3	1	8	4
Long-tailed tit	<i>Aegithalos caudatus</i>	17	29	70	52	168	4
Mallard	<i>Anas platyrhynchos</i>	56	34	107	119	316	4
Magpie	<i>Pica pica</i>	1	13	33	9	56	4
Moorhen	<i>Gallinula chloropus</i>	2	6	4	6	18	4
Meadow pipit	<i>Anthus pratensis</i>	4	23	25	8	60	4
Mute swan	<i>Cygnus olor</i>	10	12	20	9	51	4
Marsh tit	<i>Poecile palustris</i>	1	1	0	0	2	2
Oystercatcher	<i>Haematopus ostralegus</i>	0	5	0	0	5	1
Grey partridge	<i>Perdix perdix</i>	0	2	4	20	26	3
Pheasant	<i>Phasianus colchicus</i>	1	2	0	0	3	2
Pochard	<i>Aythya ferina</i>	13	51	0	0	64	2
Pied wagtail	<i>Motacilla alba</i>	16	16	59	24	115	4
Robin	<i>Erithacus rubecula</i>	23	50	23	27	123	4
Reed bunting	<i>Emberiza schoeniclus</i>	0	3	0	6	9	2
Redwing	<i>Turdus iliacus</i>	20	196	183	351	750	4
Red-legged partridge	<i>Alectoris rufa</i>	0	9	0	0	9	1
Rook	<i>Corvus frugilegus</i>	110	207	126	41	484	4

Vernacular name	Scientific name	Survey 1 (Jan 2022)	Survey 2 (Feb 2022)	Survey 3 (Nov 2022)	Survey 4 (Dec 2022)	Total registrations	No. surveys (months) where recorded (1–4)
Skylark	<i>Alauda arvensis</i>	16	6	9	1	32	4
Stock dove	<i>Columba oenas</i>	0	1	0	0	1	1
Stonechat	<i>Saxicola torquata</i>	0	0	4	0	4	1
Starling	<i>Sturnus vulgaris</i>	40	34	561	166	801	4
Sparrowhawk	<i>Accipiter nisus</i>	0	3	3	1	7	3
Siskin	<i>Spinus spinus</i>	1	1	0	0	2	2
Snipe	<i>Gallinago gallinago</i>	0	1	1	1	3	3
Song thrush	<i>Turdus philomelos</i>	3	14	0	9	26	3
Shoveler	<i>Spatula clypeata</i>	11	11	14	10	46	4
Teal	<i>Anas crecca</i>	64	129	34	168	395	4
Treecreeper	<i>Certhia familiaris</i>	0	1	0	0	1	1
Tufted duck	<i>Aythya fuligula</i>	9	39	12	10	70	4
Wigeon	<i>Mareca penelope</i>	1	1	0	81	83	3
Woodpigeon	<i>Columba palumbus</i>	513	1361	199	595	2668	4
Wren	<i>Troglodytes troglodytes</i>	4	13	5	12	34	4
Yellowhammer	<i>Emberiza citrinella</i>	0	4	0	0	4	1