



Technical Appendix 5.5: Baseline Ornithology Report – Breeding Bird Surveys 2025

Kirknewton Solar & BESS EIA Report

Trio Power Limited

UK House
5th Floor
164-182 Oxford Street
London
W1D1NN

Prepared by:

SLR Consulting Limited

The Tun, 4 Jackson's Entry, Edinburgh, EH8 8PJ

SLR Project No.: 405.065786.00001

8 December 2025

Revision: 02

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	17 October 2025	Gemma Grossart	Daniel Piec Helen Allinson	Michael Austin
02	8 December 2025	Daniel Piec	Daniel Piec	Michael Austin

Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Trio Power Limited Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.



Table of Contents

Basis of Report	i
Acronyms and Abbreviations	iii
1.0 Introduction	4
1.1 Purpose of this report	4
1.2 Site description	4
1.3 Evidence of technical competence and experience	4
1.4 Nomenclature	5
2.0 Methodology	5
2.1 Desk study	5
2.2 Breeding bird walkover surveys	6
2.3 Limitations	7
3.0 Results	8
3.1 Desk study	8
3.1.1 Designated sites	8
3.1.2 Bird records	9
3.2 Field surveys	9
4.0 Summary	14

Tables in Text

Table 2-1: Sources of Existing Ornithological Data	5
Table 3-1: Details of designated ornithological sites within the search area	8
Table 3-2: The number of breeding territories for target species in 2025	10
Table 3-3: The number of breeding territories for non-target species in 2025	12

Annexes

Annex A	Figures
Annex B	Survey metadata
Annex C	Desk study results
Annex D	Bird species names



Acronyms and Abbreviations

BBS	Breeding Bird Surveys
BESS	Battery Energy Storage System
BoCC	Birds of Conservation Concern
BOU	British Ornithologists' Union
BTO	British Trust for Ornithology
CBC	Common Bird Census
CIEEM	Chartered Institute of Ecology and Environmental Management
EIA	Environmental Impact Assessment
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
MAGIC	Multi Agency Geographic Information for the Countryside
NGR	National Grid Reference
NNR	National Nature Reserve
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SLR	SLR Consulting Limited
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
TWIC	The Wildlife Information Centre



1.0 Introduction

1.1 Purpose of this report

SLR Consulting Ltd (SLR) was commissioned by Trio Power Ltd to carry out baseline bird surveys during the 2025 breeding season at the proposed Kirknewton Solar & Battery Energy Storage System (BESS). This report documents the methods and results of those surveys. The assessment of impacts resulting from the Proposed Development and the identification of mitigation measures are beyond the scope of this report and are covered in the separate Environmental Impact Assessment (EIA) Report.

1.2 Site description

The Site is located approximately 1.5 km south of Kirknewton with an approximate address of Leyden Road, East Calder, West Lothian (British National Grid NT 10783 65217). The Site boundary (the area within which is referred to as ‘the Site’) is illustrated in **Figure 1, Annex A**. The size of the Site is approximately 76 hectares (ha).

The Site is comprised predominantly of cropland, and grassland used for agriculture, with livestock grazing in areas to the northeast of the Site. Along the field margins are native hedgerows and lines of mature broadleaved trees. Within the 100 m survey buffer, further arable fields and coniferous and mixed plantation are present.

1.3 Evidence of technical competence and experience

Surveys were carried out by local SLR Ecologists: Helen Allison (Senior Field Ecologist), Gemma Grossart (Project Ornithologist), Olivia Aveyard (Graduate Ecologist) and Rebecca Howell (Project Ornithologist). The report was authored by Gemma Grossart. Technical review was conducted by Helen Allinson, Daniel Piec and Michael Austin.

Helen Allinson joined SLR in 2022. She has worked within consultancy since 2018 and previously worked for non-governmental conservation organisations from 2015. During her time in consultancy, she has worked on wind farm and solar development projects at the environmental impact assessment, pre-construction and operational phases. Her expertise covers ornithological and ecological field skills, alongside technical report writing.

Gemma Grossart joined SLR in September 2024. She has seven years of experience working and volunteering in ecological consultancy and conservation organisations. Since 2022, she has carried out breeding bird surveys for ecological consultancies for a variety of projects including wind farm, overhead power line and afforestation projects throughout Scotland.

Rebecca Howell joined SLR in October 2023. Since joining SLR, Rebecca has conducted a variety of ornithological surveys within the energy sector, including moorland breeding bird surveys, flight activity surveys, scarce breeding bird surveys, winter goose feeding and roost counts, black grouse surveys and dotterel surveys.

Olivia Aveyard supports project leads within Scotland and the north of England. She has the skills to be able to assist with field surveys and has experience in surveying for breeding Nightjar.

Daniel Piec has over 20 years’ experience in managing large conservation and ecology projects in the UK and abroad. He has a solid practical experience in bird, reptile and amphibian surveys, ecology and habitat management, including managing reserves. Daniel joined SLR in September 2023.



Mike Austin has spent his entire career (over 30 years) working within conservation and more recently consultancy. His main interest and speciality is ornithology, but he also has a working knowledge of most aspects of non-avian ecology within consultancy. Mike is a leading ornithology team member in Scotland for SLR with technical expertise in a wide range of onshore survey techniques - in lowland, upland and inter-tidal environments. He undertakes technical reporting and assessment, including Collision Risk Modelling, Ecological Impact Assessment and Habitats Regulations Assessment screening. He holds a Schedule 1 licence for survey work in Scotland, under which other SLR surveyors working in Scotland act as agents.

1.4 Nomenclature

The phylogenetic order and nomenclature throughout this report follows The British List (10th Edition)¹, updated by the British Ornithologists' Union (BOU) Records Committee. A full list of the species recorded as part of this survey, including scientific names, is provided in **Annex D**.

2.0 Methodology

2.1 Desk study

A desk study was carried out to identify ornithological statutorily designated sites within 20 km of the Site, including Special Protection Areas (SPAs), Ramsar sites and Sites of Special Scientific Interest (SSSI).

A data request was sent to The Wildlife Information Centre (TWIC) on 14 April 2025 for records of bird species within 2 km of the Site boundary. For the purposes of ensuring that information is up to date and relevant, only records from the last 15 years were considered. In addition, other bird species records within 2 km of the Site (within the last 15 years) were obtained from the National Biodiversity Network Atlas (NBN)². Note that only records available for commercial use have been reported, with the data owner(s) cited or acknowledged as required³. The summary of records is in **Annex C**.

Potential ornithological constraints have been identified through a desk-based review of the above and other relevant online resources, as summarised in **Table 2-1**.

Table 2-1: Sources of Existing Ornithological Data

Source	Baseline Information Provided
NatureScot Sitelink web-based application ⁴ and the Multi Agency Geographic Information for the Countryside (MAGIC) web-based mapping tool ⁵	Statutory designated nature conservation sites within 20 km (relating to geese) of the Site boundary.
Spatial Hub online tool ⁶	Non-statutory designated nature conservation sites with ornithological interest within 2 km of the Site boundary

¹ British Ornithologists' Union. 2022. The British List: A Checklist of Birds of Britain (10th edition), Ibis 164: pp.860 – 910.

²NBN Atlas, Available at: <https://docs.nbnatlas.org/> [Accessed September 2025]

³ <https://docs.nbnatlas.org/data-licenses/> [Accessed September 2025]

⁴ <https://sitelink.nature.scot/map> [Accessed September 2025]

⁵ <https://magic.defra.gov.uk/> [Accessed September 2025]

⁶ <https://data.spatialhub.scot/> [Accessed September 2025]



Source	Baseline Information Provided
Aerial imagery (Google Earth ⁷ and Bing Maps ⁸)	Habitats and features of nature conservation interest both within and surrounding the Site.
Ordnance Survey 1 st and 2 nd edition mapping	Habitats and features of nature conservation interest both within and surrounding the Site.

2.2 Breeding bird walkover surveys

Breeding bird surveys followed an adapted version of the Common Birds Census (CBC) methodology (Gilbert *et al.*, 1998⁹) and the Breeding Bird Survey Guidelines¹⁰, which involved the surveyor walking a transect at a slow, ambling pace, ensuring all accessible land within the Site plus a 100 m buffer was covered. CBC requires ten visits at least a week apart between April and July, although this is an adapted method based on the Breeding Bird Survey Guidance with six visits taking place between April and early July. The route approached all parts of the Survey Area to within 50 m where possible, and otherwise such that the surveyor could cover all parts of the Survey Area (e.g. from the edge of an arable field). All visual and auditory contact with all target species was recorded, mapping the locations on a field map using BTO species codes. Behavioural notation was used to record the bird behaviour for each encounter (e.g., singing, alarm calling and flight paths). Target species were all species listed on Annex I, Schedule 1, the Scottish Biodiversity List, and those listed as BoCC Red or Amber.

Four of the surveys were conducted in the early morning within the window of half an hour before sunrise and 10-11 am, with one visit carried out from mid to late morning (see **Section 2.3** below). The sixth visit was undertaken in the late evening within the window of the last few hours of the day extending one hour beyond sunset. The direction that the survey transect route was walked was varied between visits to ensure different parts of the Survey Area were accessed at different times.

In accordance with the guidelines, six visits were completed across the breeding season on the following dates:

- Visit 1 – 8 April
- Visit 2 – 29 April
- Visit 3 – 30 May
- Visit 4 – 12 June
- Visit 5 – 25 June
- Visit 6 – 3 July (dusk visit)

The dates, times and corresponding weather conditions for each survey are provided in **Annex B**. Surveys were undertaken in suitable weather conditions, avoiding heavy rain, strong winds (Beaufort force >5) and low visibility (e.g. fog).

⁷ <https://earth.google.com/web> [Accessed September 2025]

⁸ <https://www.bing.com/maps/> [Accessed September 2025]

⁹ Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

¹⁰ Bird Survey and Assessment Steering Group. 2025. Bird Survey Guidelines for assessing ecological impacts, <https://birdsurveyguidelines.org/> [Accessed September 2025]



The survey method aims to establish the numbers and distribution of breeding territories in order to inform an impact assessment. This is achieved by presenting territory map figures, typically showing a single BTO species code to represent an indicative territory centre. This is done for all target species. Analysis guidelines are given in Marchant (1983)¹¹, Bibby *et al.* (2000)¹² and summarised in Gilbert *et al.* (1998).

The breeding status of target species was determined using the below criteria:

- For resident bird species and summer migrants alike, a minimum of two registrations from two separate visits were required to generate a 'cluster'. This cluster was considered to represent a territory;
- Where a nest with eggs or young chicks was recorded, this record on its own constituted a breeding territory;
- For species without marked territories or which move widely outside their territories, e.g., starling, more diffuse clusters were treated as territories;
- For colonial or semi-colonial species, e.g., *hirundines* such as swallow, some finches such as linnet and sparrows, clusters were identified representing groups of territories. Within each group cluster, the number of breeding pairs was based on the second highest count of males within a single visit (or half the total count of individuals for species that are not sexually dimorphic);
- Where clusters were mapped overlapping the edge of the Survey Area, the breeding territory represented by this cluster was counted as being within the Survey Area; and
- Where there were too few records to generate a cluster, with no evidence of any breeding behaviour, the individuals were not included in estimates for number of territories.

2.3 Limitations

Due to access restrictions during the first survey visit, the field to the north-west of the Site was not surveyed to within 50 m, but was surveyed from the public road, with surveyors pausing to scan and listen for birds. During the second survey visit, the access to north-eastern field was not granted due to lambing.

The third survey visit began approximately 3.5 hours after dawn and finished at 1 pm, but this was not considered to significantly impact the survey results.

The inclusion of the South-Western field in the Site boundary was not confirmed until prior to the fifth survey visit. Therefore, this field was only accessed during the last two survey visits.

Periods of drizzle were recorded during the sixth survey visit, though this is not considered to have had a significant impact on the survey results. There were no periods of persistent or heavy rain, and all surveys were conducted in light winds and generally good visibility.

¹¹ Marchant, J.H. (1983) BTO Common Birds Census instructions. BTO, Tring.

¹² Bird Census Techniques, Second Edition. Colin J. Bibby, Neil D. Burgess, David A. Hill, and Simon H. Mustoe. 2000.



3.0 Results

3.1 Desk study

3.1.1 Designated sites

Table 3-1 below documents those designated ornithological sites identified within the search area. The locations of these sites relative to the Site are illustrated in **Figure 2, Annex A**.

Table 3-1: Details of designated ornithological sites within the search area

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Description	Approximate Distance and Direction from Site Boundary ¹³
Westwater	SPA	<ul style="list-style-type: none"> Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding; Waterfowl assemblage, non-breeding 	<p>Westwater SPA/Ramsar is located 320 m above sea level in the Pentland Hills. It is an artificial reservoir forming part of the Lothian water supply.</p> <p>The site regularly supports populations of European importance of pink-footed goose.</p>	11.8 km south
	Ramsar			
Firth of Forth	SPA	<ul style="list-style-type: none"> Pink-footed goose, non-breeding 	<p>The Firth of Forth SPA/Ramsar is a complex of estuarine and coastal habitats in south-east Scotland stretching from Alloa to the coasts of Fife and East Lothian. The site includes extensive invertebrate-rich intertidal flats and rocky shores, areas of saltmarsh, lagoons and sand dune. The boundary of the SPA mostly follows that of the Firth of Forth Site of Special Scientific Interest and slightly overlaps with Forth Islands SPA.</p> <p>The site regularly supports populations of European importance of pink-footed goose.</p>	13.9 km north
	Ramsar			

¹³ Measured from the nearest point “as the crow flies”.



3.1.2 Bird records

The TWIC data search returned records of four species of bird which are included within Annex I of the Birds Directive:

- Golden plover, *Pluvialis apricaria*;
- Merlin, *Falco columbarius*;
- Short-eared owl, *Asio flammeus*;
- Whooper swan, *Cygnus cygnus*.

The TWIC data search also returned records of seven species which are included within Schedule 1 of the Wildlife and Countryside Act 1981 (as amended in Scotland):

- Barn owl, *Tyto alba*;
- Brambling, *Fringilla montifringilla*;
- Crossbill, *Loxia curvirostra*;
- Fieldfare, *Turdus pilaris*;
- Goldeneye, *Bucephala clangula*;
- Greylag goose, *Anser anser*;
- Redwing, *Turdus iliacus*.

Records of several other birds of national and/or local importance that are Red or Amber-listed, SBL priority species and/or LBAP priority species, were also returned from the TWIC data search (**Annex C**).

The habitats on Site are considered to be generally suitable for some species of breeding birds such as woodland and farmland passerines. This is discussed in greater detail within **Section 3.2** and **Section 4.0**.

3.2 Field surveys

A total of 53 species were recorded over the six breeding bird survey visits. Of these:

- 29 were target species
- 24 were non-target species
- None were listed on the Annex I of the Birds Directive.
- One species (crossbill) is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)
- 14 species were on the Scottish biodiversity list (SBL)
- 11 species were BoCC5 red listed
- 16 species were BoCC5 amber listed
- 24 were BoCC5 green listed
- 2 species were classified as not assessed.

A total of 146 territories from 29 species were identified. Of these:

- 59 territories belonged to target species.
- 87 territories belonged to non-target species



- 13 target species were found to have territories
- 16 non-target species were found to have territories
- 6 target species with territories were BoCC5 red listed
- 6 target species with territories were BoCC5 amber listed
- 1 target species was BoCC5 green listed
- 9 target species with territories were SBL listed

A full breakdown of the identified target species territories and corresponding legal and conservation status can be found in **Table 3-2** below. A full breakdown of the identified non-target species territories and corresponding legal and conservation status is in **Table 3-3**. All identified territories are illustrated on a site map available in **Figure 3, Annex A**.

Table 3-2: The number of breeding territories for target species in 2025

Species	Conservation status*	No of territories	Summary of observations and distribution
Greylag goose (<i>Anser anser</i>)	BoCC5 Amber	0	Recorded flying over and foraging within the east of the site
Mallard (<i>Anas platyrhynchos</i>)	BoCC5 Amber	0	Recorded in flight over the Survey Area
Swift (<i>Apus apus</i>)	BoCC5 Red, SBL	0	Recorded in flight and aerial foraging within the Survey Area
Cuckoo (<i>Cuculus canorus</i>)	BoCC5 Red, SBL	0	One bird was recorded in the east of the site during the fourth survey visit
Stock dove (<i>Columba oenas</i>)	BoCC5 Amber	0	One signing bird was recorded within woodland in the site buffer during the fifth survey visit
Woodpigeon (<i>Columba palumbus</i>)	BoCC5 Amber	11	All territories are within areas of coniferous and mixed plantation within the Survey Area
Oystercatcher (<i>Haematopus ostralegus</i>)	BoCC5 Amber	0	Small numbers of birds were recorded in flight over the Survey Area during three of the survey visits. A territory is thought to be present outwith the Survey Area, in a field to the west of the survey area, with a display heard during the fifth survey visit
Lapwing (<i>Vanellus Vanellus</i>)	BoCC5 Red, SBL	1	One territory was recorded within an arable field in the east of the site
Black-headed gull (<i>Chroicocephalus ridibundus</i>)	BoCC5 Amber, SBL	0	Recorded flying over and foraging within the Survey Area on several survey visits
Common gull (<i>Larus canus</i>)	BoCC5 Red	0	Recorded flying over and foraging in the east of the site during two survey visits
Herring gull (<i>Larus argentatus</i>)	BoCC5 Red, SBL	0	Recorded flying over and foraging throughout the Survey Area and throughout all survey visits



Species	Conservation status*	No of territories	Summary of observations and distribution
Lesser black-backed gull (<i>Larus fuscus</i>)	BoCC5	0	Recorded flying over and foraging throughout the Survey Area, during four survey visits
Sparrowhawk (<i>Accipiter nisus</i>)	BoCC5 Amber	0	A male sparrowhawk was recorded in flight over the northwest of the site, carrying food, during the fifth survey visit. A female was also recorded in flight over the west of the site during the first survey visit. This suggests that a sparrowhawk breeding territory is present within woodland in the area surrounding the site, outwith the Survey Area.
Rook (<i>Corvus frugilegus</i>)	BoCC5 Amber	0	Large numbers recorded flying over and foraging within the Survey Area, during five survey visits
Skylark (<i>Alauda arvensis</i>)	BoCC5 Red, SBL	2	Two territories were identified within arable fields in the west of the site.
House martin (<i>Delichon urbicum</i>)	BoCC5 Red	0	Three birds recorded flying over the northeast of the site during the fifth survey visit
Willow warbler (<i>Phylloscopus trochilus</i>)	BoCC5 Amber	5	Five territories were identified within mixed plantation in the survey buffer
Whitethroat (<i>Curruca communis</i>)	BoCC5 Amber	2	Two territories were recorded within areas of hedgerow and scrub in the western half of the site, by Leyden Road.
Wren (<i>Troglodytes troglodytes</i>)	BoCC5 Amber	19	Territories were recorded throughout the site, in areas of mixed plantation, strips of broadleaved trees, and in areas of scrub.
Starling (<i>Sturnus vulgaris</i>)	BoCC5 Red, SBL	1	One territory was recorded at the northwest of the site, with an adult observed feeding a juvenile
Song Thrush (<i>Turdus philomelos</i>)	BoCC5 Amber, SBL	3	Three territories were recorded within areas of mixed and broadleaved strips of woodland within the Survey Area.
Spotted Flycatcher (<i>Muscicapa striata</i>)	BoCC5 Red, SBL	1	One territory was recorded within an area of mixed woodland within the survey buffer, south of the site
Dunnock (<i>Prunella modularis</i>)	BoCC5 Amber, SBL	1	One territory was recorded within an area of scrub within the survey buffer
Pied wagtail (<i>Motacilla alba</i>)	BoCC5 Amber	0	One bird observed at northeast of site during fourth survey visit
Bullfinch (<i>Pyrrhula pyrrhula</i>)	BoCC5 Amber, SBL	0	One bird heard calling from woodland within the survey buffer during the fourth survey visit
Linnet (<i>Linaria cannabina</i>)	BoCC5 Red, SBL	2	Two territories were identified, one within an area of scrub near the centre of the site, and one



Species	Conservation status*	No of territories	Summary of observations and distribution
			within an area of hedgerow in the southwestern survey buffer
Crossbill (<i>Loxia curvirostra</i>)	BoCC5 Green, Sch 1	0	Small numbers recorded flying over the Survey Area during the last three survey visits
Siskin (<i>Carduelis carduelis</i>)	BoCC5 Green, SBL	1	One territory was identified in an area of mixed plantation at the west of the site
Yellowhammer (<i>Emberiza citronella</i>)	BoCC5 Red, SBL	10	Territories were recorded throughout the Survey Area, in areas of scrub, hedgerow and arable fields
Key	*BoCC5 status (green, amber, or red) – indicates the current Birds of Conservation Concern status category; SBL = on the Scottish Biodiversity List In addition, all wild birds and their nests are afforded general protected under the Wildlife & Countryside Act 1981 (as amended).		

Table 3-3: The number of breeding territories for non-target species in 2025

Species	Conservation status*	No of territories	Summary of observations and distribution
Collared dove (<i>Streptopelia decaocto</i>)	BoCC5 Green	0	Observed flying over the southwest of the Survey Area.
Buzzard (<i>Buteo buteo</i>)	BoCC5 Green	0	Observed in the eastern half of the Survey Area throughout survey visits
Great Spotted Woodpecker (<i>Dendrocopos major</i>)	BoCC5 Green	1	One territory was recorded within a strip of mixed woodland in the west of the site
Jay (<i>Garrulus glandarius</i>)	BoCC5 Green	0	Heard calling within woodland in the survey buffer on two visits
Magpie (<i>Pica pica</i>)	BoCC5 Green	1	One territory was recorded within a strip of mixed woodland in the west of the site
Jackdaw (<i>Coloeus monedula</i>)	BoCC5 Green	17	17 nests were recorded, all in areas of mixed plantation and broadleaved woodland strips
Carrion crow (<i>Corvus corone</i>)	BoCC5 Green	3	All territories were recorded within areas of mixed plantation
Coal Tit (<i>Periparus ater</i>)	BoCC5 Green	7	All territories were recorded within areas of mixed plantation
Blue Tit (<i>Cyanistes caeruleus</i>)	BoCC5 Green	4	Four territories were recorded in the eastern half of the site – one in a line of broadleaved trees



Species	Conservation status*	No of territories	Summary of observations and distribution
Great Tit (<i>Parus major</i>)	BoCC5 Green	3	All territories were recorded within areas of mixed plantation, in the eastern half of the site
Swallow (<i>Hirundo rustica</i>)	BoCC5 Green	0	Small numbers observed flying and aerial foraging over the Survey Area throughout survey visits
Long-Tailed Tit (<i>Aegithalos caudatus</i>)	BoCC5 Green	1	One territory was recorded within a strip of mixed plantation in the west of the site
Chiffchaff (<i>Phylloscopus collybita</i>)	BoCC5 Green	10	Territories were recorded throughout the site – all in areas of mixed plantation woodland
Blackcap (<i>Sylvia atricapilla</i>)	BoCC5 Green	3	All three territories were recorded within areas of mixed plantation
Goldcrest (<i>Regulus regulus</i>)	BoCC5 Green	2	Both territories were in areas of mixed plantation – one in the west of the site, and one in the eastern survey buffer
Nuthatch (<i>Sitta europaea</i>)	BoCC5 Green	0	One bird heard calling from woodland within the survey buffer during the fifth survey visit
Treecreeper (<i>Certhia familiaris</i>)	BoCC5 Green	1	One territory was recorded within a strip of broadleaved woodland near the centre of the site
Blackbird (<i>Turdus merula</i>)	BoCC5 Green	8	Territories were recorded within areas of mixed plantation throughout the Survey Area.
Robin (<i>Erithacus rubecula</i>)	BoCC5 Green	8	Territories were recorded within areas of mixed plantation throughout the Survey Area.
Stonechat (<i>Saxicola rubicola</i>)	BoCC5 Green	0	One juvenile recorded in scrub near the centre of the site on the fifth survey visit
Chaffinch (<i>Fringilla coelebs</i>)	BoCC5 Green	11	Territories in areas of mixed plantation within the site and buffer, and an area of scrub in the east of the site
Goldfinch (<i>Carduelis carduelis</i>)	BoCC5 Green	2	Both territories were identified within areas of mixed plantation – one in the southern and one in the north-western survey buffer
Key	<p>*BoCC5 status (green, amber, or red) – indicates the current Birds of Conservation Concern status category; SBL = on the Scottish Biodiversity List</p> <p>In addition, all wild birds and their nests are afforded general protected under the Wildlife & Countryside Act 1981 (as amended).</p>		



4.0 Summary

The Survey Area comprises predominantly open farmland with arable and semi-improved fields, interspersed with hedgerows, woodland strips (coniferous and broadleaved), tree lines, and gorse scrub. These habitats support a diverse assemblage of farmland and woodland bird species, including several of conservation concern.

Across six breeding bird survey visits, 53 species were recorded, with 32 species confirmed as holding breeding territories. Territories were concentrated in woodland edges, hedgerows, and scrub within field margins and the survey buffer.

Key findings include:

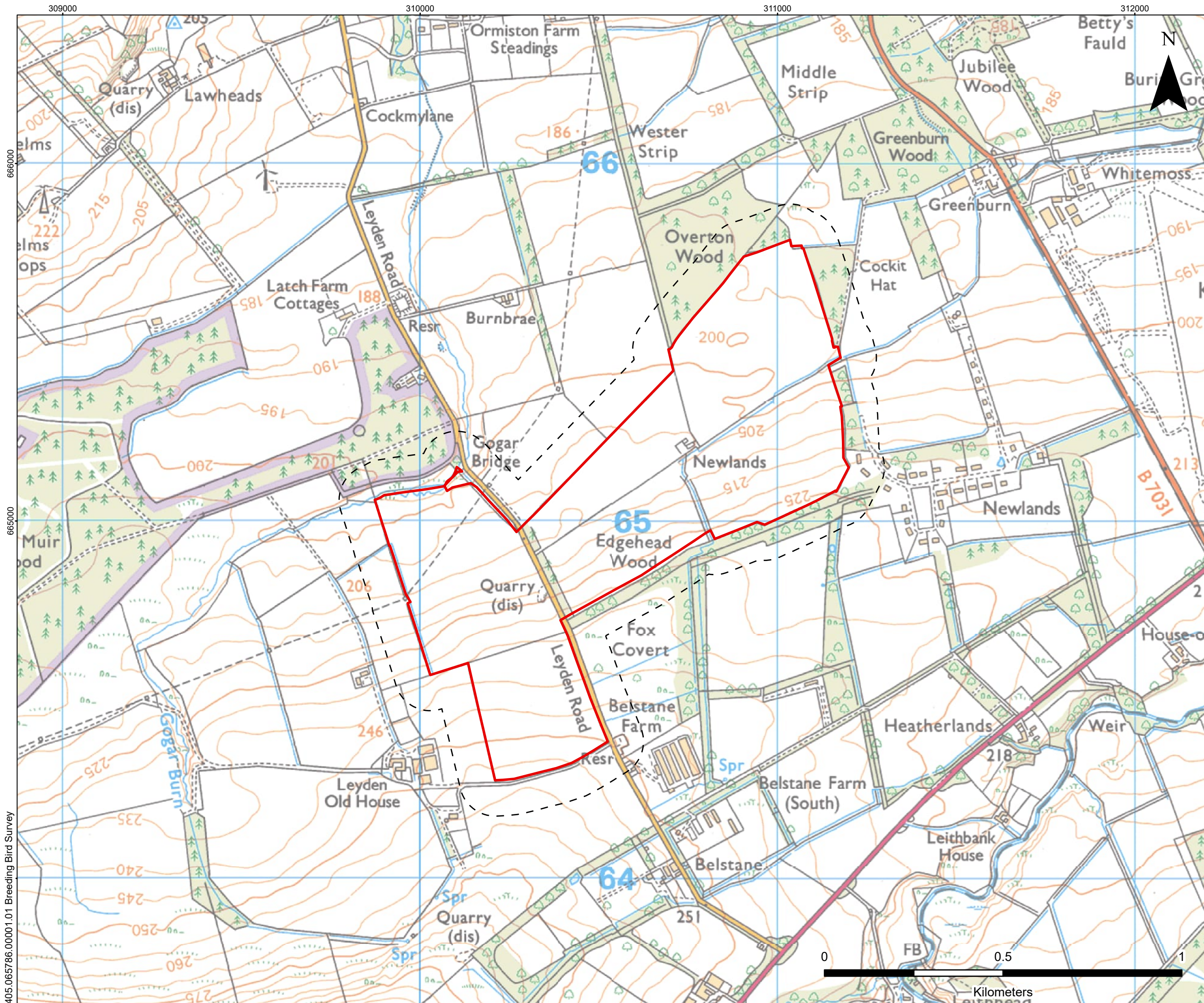
- BoCC5 red-listed species: Yellowhammer, linnet, and spotted flycatcher.
- BoCC5 amber-listed species: Whitethroat, wren, woodpigeon, willow warbler, and bullfinch.
- Waders: A single lapwing territory in southeast arable fields.
- Raptors: Sparrowhawk activity suggests a breeding territory nearby.
- Schedule 1 species: Crossbill likely breeds in the wider area, though not on site.
- Most abundant target species: Jackdaw (17 nests), wren (19 territories), woodpigeon (11), yellowhammer (10).
- Most abundant non-target species: Chaffinch (11), chiffchaff (10), blackbird and robin (8 each).
- Frequent foragers: Black-headed gull, rook, carrion crow, linnet, starling.

The Site supports a diverse mosaic of habitats suitable for both breeding and foraging bird species, particularly for BoCC5 red and amber-listed species. The overall breeding bird assemblage present is considered to be of local importance with the target species observed having a common county status, either as a common/ abundant resident or common summer visitor. No further survey effort is recommended for individual species.





Annex A Figures



LEGEND

- Site Boundary
- Survey Area (Site Boundary 100 m Buffer)



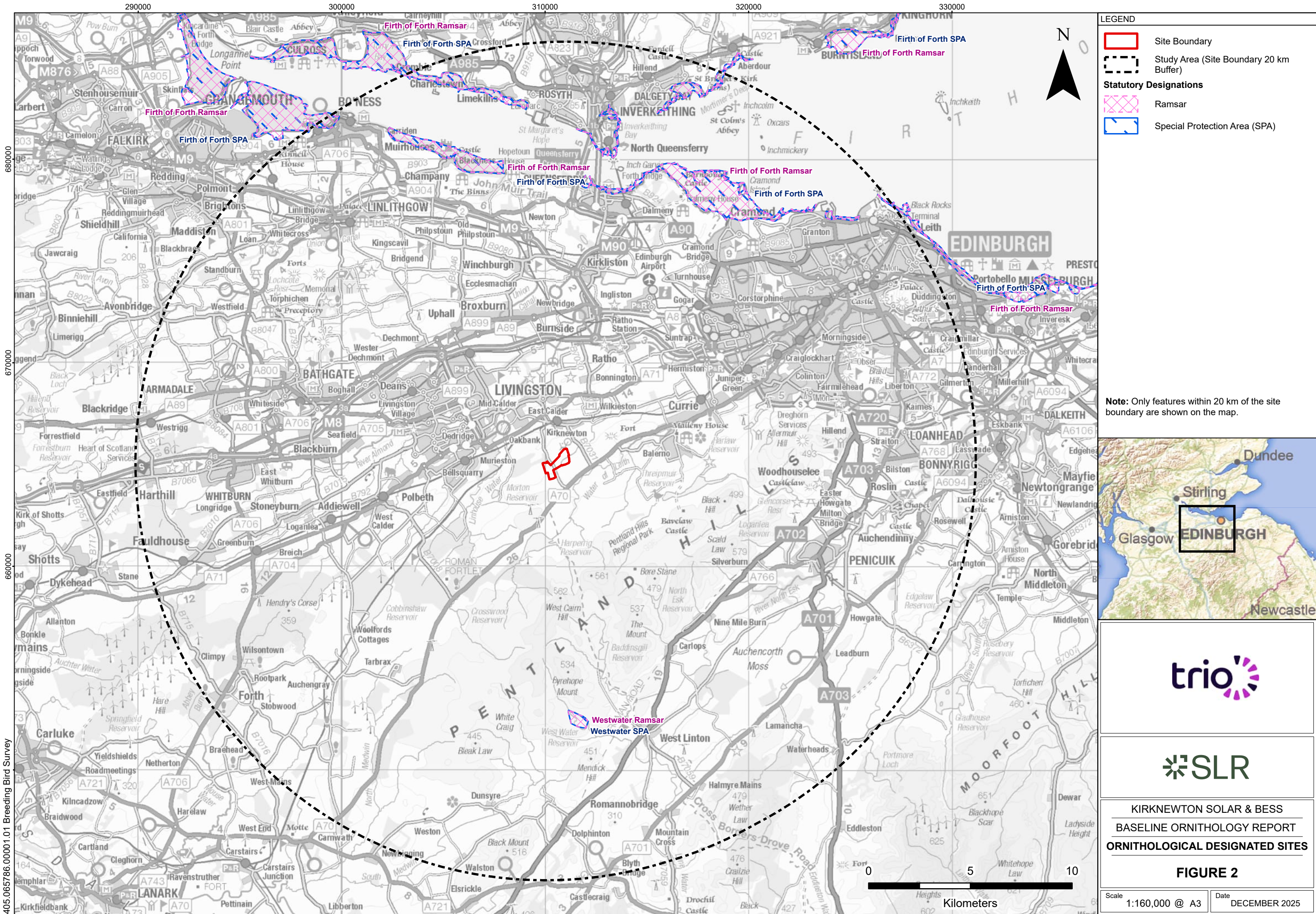
KIRKNEWTON SOLAR & BESS
BASELINE ORNITHOLOGY REPORT
SITE LOCATION AND SURVEY AREA

FIGURE 1

Scale
1:10,000 @ A3

Date
DECEMBER 2025

405.065786.00001.01 Breeding Bird Survey



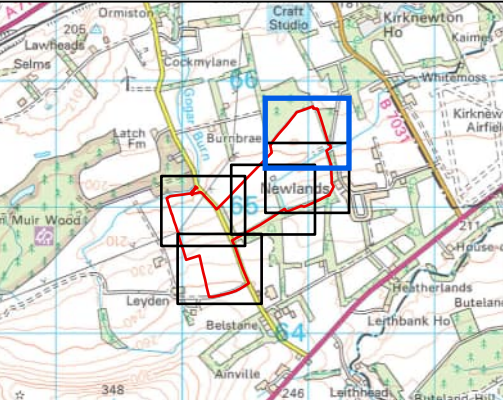


LEGEND

Site Boundary

BTO Species Code Record

B.	Blackbird
BC	Blackcap
BT	Blue Tit
C.	Carrion Crow
CH	Chaffinch
CC	Chiffchaff
CT	Coal Tit
CK	Cuckoo
D.	Dunnock
GC	Goldcrest
PH	Pheasant
PW	Pied/White Wagtail
R.	Robin
ST	Song Thrush
SG	Starling
WW	Willow Warbler
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer



KIRKNEWTON SOLAR & BESS
BASELINE ORNITHOLOGY REPORT
BREEDING BIRD TERRITORIES

FIGURE 3.1

Scale1:2,000 @ A3

DateDECEMBER 2025

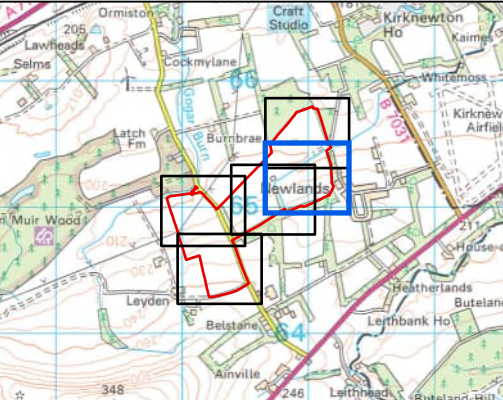


LEGEND

Site Boundary

BTO Species Code Record

B.	Blackbird
BC	Blackcap
BT	Blue Tit
C.	Carrian Crow
CH	Chaffinch
CC	Chiffchaff
CT	Coal Tit
CK	Cuckoo
GT	Great Tit
JD	Jackdaw
L.	Lapwing
LI	Linnet
NH	Nuthatch
PH	Pheasant
R.	Robin
SG	Starling
TC	Treecreeper
WW	Willow Warbler
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer



KIRKNEWTON SOLAR & BESS

BASELINE ORNITHOLOGY REPORT

BREEDING BIRD TERRITORIES

FIGURE 3.2

Scale1:2,000 @ A3

DateDECEMBER 2025

405.065786.00001.01 Breeding Bird Survey

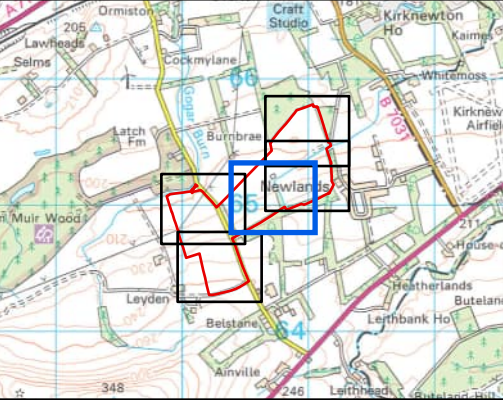


LEGEND

Site Boundary

BTO Species Code Record

B.	Blackbird
CH	Chaffinch
CC	Chiffchaff
CT	Coal Tit
GT	Great Tit
JD	Jackdaw
L.	Lapwing
LI	Linnet
MG	Magpie
NH	Nuthatch
PH	Pheasant
ST	Song Thrush
SF	Spotted Flycatcher
TC	Treecreeper
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer



KIRKNEWTON SOLAR & BESS
BASELINE ORNITHOLOGY REPORT
BREEDING BIRD TERRITORIES

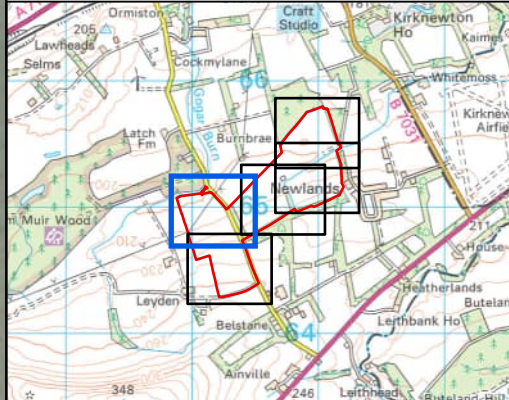
FIGURE 3.3

Scale1:2,000 @ A3

DateDECEMBER 2025



LEGEND	
<div></div>	Site Boundary
BTO Species Code Record	
B.	Blackbird
BC	Blackcap
BT	Blue Tit
C.	Carrion Crow
CH	Chaffinch
CC	Chiffchaff
CT	Coal Tit
GC	Goldcrest
GO	Goldfinch
GS	Great Spotted Woodpecker
GT	Great Tit
JD	Jackdaw
LT	Long-tailed Tit
MG	Magpie
PH	Pheasant
RL	Red-legged Partridge
R.	Robin
SK	Siskin
S.	Skylark
ST	Song Thrush
WH	Whitethroat
WW	Willow Warbler
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer



KIRKNEWTON SOLAR & BESS

BASELINE ORNITHOLOGY REPORT

BREEDING BIRD TERRITORIES

FIGURE 3.4

Scale1:2,000 @ A3

DateDECEMBER 2025

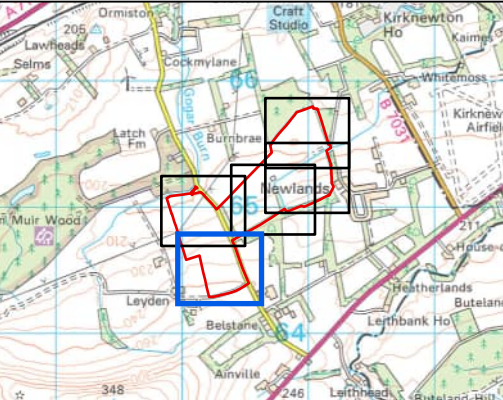


LEGEND

Site Boundary

BTO Species Code Record

B.	Blackbird
BC	Blackcap
C.	Carrion Crow
CC	Chiffchaff
CT	Coal Tit
D.	Dunnock
GO	Goldfinch
GT	Great Tit
LI	Linnet
PH	Pheasant
R.	Robin
S.	Skylark
WH	Whitethroat
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer



KIRKNEWTON SOLAR & BESS
BASELINE ORNITHOLOGY REPORT
BREEDING BIRD TERRITORIES

FIGURE 3.5

Scale	1:2,000 @ A3	Date	DECEMBER 2025
-------	--------------	------	---------------

405.065786.00001.01 Breeding Bird Survey



Annex B Survey metadata

Table A- 1: Summary of BBS weather data and recorded disturbances

Survey Date	Start	Finish	Average Wind Speed & Direction	Average Precipitation	Average Cloud cover	Average Temperature (degrees Celsius)	Disturbance
08/04/2025	06:40	11:15	0, N	0	0	8	Farming
29/04/2025	05:55	10:55	1, NE	0	4	13	None noted
30/05/2025	08:00	13:00	3, WSW	0	6	14	None noted
12/06/2025	04:57	10:57	2, WNW	0	6	16	None noted
25/06/2025	04:39	09:35	3, ENE	0	7	14	None noted
03/07/2025	18:40	23:00	4, ENE	0	8	13	None noted
Key: Wind Speed 0-12 (Beaufort Scale), Rain (0-4), where 0 = none and 4 = heavy rain, Cloud cover (0/8-8/8)							

Table A- 2: Hourly survey weather conditions

Survey ID	Date	Surveyor	Survey start time	Survey end time	Hr	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Snow	Frost	Temp (°C)	Notes
KN25_001	08/04/2025	HA	06:40	11:15	1	1	N	0	0	N/A	2	0	0	4	
KN25_001	08/04/2025	HA	06:40	11:15	2	0	-	0	1	0	1	0	0	6	
KN25_001	08/04/2025	HA	06:40	11:15	3	0	-	0	0	N/A	2	0	0	8	
KN25_001	08/04/2025	HA	06:40	11:15	4	1	N	0	0	N/A	2	0	0	9	
KN25_001	08/04/2025	HA	06:40	11:15	5	0	-	0	0	N/A	2	0	0	11	
KN25_002	29/04/2025	GG	05:55	10:55	1	1	NE	0	4	2	3	0	0	10	
KN25_002	29/04/2025	GG	05:55	10:55	2	1	NE	0	4	2	3	0	0	12	
KN25_002	29/04/2025	GG	05:55	10:55	3	1	NE	0	5	2	3	0	0	12	
KN25_002	29/04/2025	GG	05:55	10:55	4	1	NE	0	4	2	3	0	0	15	



Survey ID	Date	Surveyor	Survey start time	Survey end time	Hr	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Snow	Frost	Temp (°C)	Notes
KN25_002	29/04/2025	GG	05:55	10:55	5	2	ENE	0	4	2	3	0	0	17	
KN25_003	30/05/2025	RH	08:00	13:00	1	4	WSW	0	8	2	2	0	0	14	
KN25_003	30/05/2025	RH	08:00	13:00	2	3	WSW	0	4	2	2	0	0	16	
KN25_003	30/05/2025	RH	08:00	13:00	3	4	WSW	0	8	2	2	0	0	14	
KN25_003	30/05/2025	RH	08:00	13:00	4	3	WSW	0	6	2	2	0	0	13	
KN25_003	30/05/2025	RH	08:00	13:00	5	3	WSW	0	6	2	2	0	0	13	
KN25_004	12/06/2025	GG	04:57	10:57	1	1	WNW	0	6	2	3	0	0	13	Haze and cloud
KN25_004	12/06/2025	GG	04:57	10:57	2	1	WNW	0	6	2	3	0	0	12	Haze and cloud
KN25_004	12/06/2025	GG	04:57	10:57	3	2	WNW	0	6	2	3	0	0	16	Haze and cloud
KN25_004	12/06/2025	GG	04:57	10:57	4	2	WNW	0	6	2	3	0	0	18	Haze and cloud
KN25_004	12/06/2025	GG	04:57	10:57	5	3	WNW	0	7	2	3	0	0	19	Haze and cloud
KN25_004	12/06/2025	GG	04:57	10:57	6	4	WNW	0	7	2	3	0	0	20	
KN25_005	25/06/2025	GG	04:39	09:35	1	3	NE	0	6	2	3	0	0	11	
KN25_005	25/06/2025	GG	04:39	09:35	2	3	ENE	0	7	2	3	0	0	13	
KN25_005	25/06/2025	GG	04:39	09:35	3	3	ENE	0	7	2	3	0	0	14	
KN25_005	25/06/2025	GG	04:39	09:35	4	2	ENE	0	8	2	3	0	0	15	
KN25_005	25/06/2025	GG	04:39	09:35	5	2	ENE	0	6	2	3	0	0	16	
KN25_006	03/07/2025	GG	18:40	23:00	1	4	ENE	0	7	2	3	0	0	15	
KN25_006	03/07/2025	GG	18:40	23:00	2	4	ENE	0	6	2	3	0	0	14	Brief drizzle from 20:05 to 20:14
KN25_006	03/07/2025	GG	18:40	23:00	3	4	ENE	0	8	2	3	0	0	13	
KN25_006	03/07/2025	GG	18:40	23:00	4	3	ENE	1	8	2	2	0	0	13	Drizzle from 21:50 to 22:45
KN25_006	03/07/2025	GG	18:40	23:00	5	3	ENE	0	8	2	2	0	0	13	







Annex C Desk study results

Table C- 1 Desk study bird records

Common Name	Scientific Name	No. Records within Last 15 Years	Date of Last Record	Protection/ Conservation Status
Greylag Goose	<i>Anser anser</i>	5	2013	WCA1, BoCC-Amb
Pink-footed Goose	<i>Anser brachyrhynchus</i>	5	2013	BoCC-Amb
Whooper Swan	<i>Cygnus cygnus</i>	1	2013	BD1, WCA1, BoCC-Amb, SBL
Mallard	<i>Anas platyrhynchos</i>	12	2013	BoCC-Amb
Goldeneye	<i>Bucephala clangula</i>	1	2013	WCA1, BoCC-Red
Grey Partridge	<i>Perdix perdix</i>	3	2013	BoCC-Red, SBL, LBAP
Swift	<i>Apus apus</i>	7	20.06.21	BoCC-Red, SBL, LBAP
Cuckoo	<i>Cuculus canorus</i>	1	2013	BoCC-Red, SBL
Stock dove	<i>Columba oenas</i>	9	2013	BoCC-Amb
Woodpigeon	<i>Columba palumbus</i>	22	20.06.21	BoCC-Amb
Moorhen	<i>Gallinula chloropus</i>	3	2013	BoCC-Amb
Oystercatcher	<i>Haematopus ostralegus</i>	5	20.06.21	BoCC-Amb
Lapwing	<i>Vanellus vanellus</i>	10	2013	BoCC-Red, SBL, LBAP
Golden Plover	<i>Pluvialis apricaria</i>	3	2013	BD1, SBL, LBAP
Curlew	<i>Numenius arquata</i>	5	2013	BoCC-Red, SBL, LBAP
Woodcock	<i>Scolopax rusticola</i>	3	2013	BoCC-Red, SBL
Snipe	<i>Gallinago gallinago</i>	3	2013	BoCC-Amb
Common Sandpiper	<i>Actitis hypoleucos</i>	1	2013	BoCC-Amb
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	14	20.06.21	BoCC-Amb, SBL
Common Gull	<i>Larus canus</i>	9	2013	BoCC-Amb
Greater Black-backed Gull	<i>Larus marinus</i>	2	20.06.21	BoCC-Amb
Herring Gull	<i>Larus argentatus</i>	11	2013	BoCC-Red, SBL



Common Name	Scientific Name	No. Records within Last 15 Years	Date of Last Record	Protection/ Conservation Status
Lesser Black-backed Gull	<i>Larus fuscus</i>	12	2013	BoCC-Amb
Sparrowhawk	<i>Accipiter nisus</i>	9	12.12.15	BoCC-Amb
Barn Owl	<i>Tyto alba</i>	1	2013	WCA1, SBL
Short-eared Owl	<i>Asio flammeus</i>	3	30.12.19	BD1, BoCC-Amb, SBL
Tawny Owl	<i>Strix aluco</i>	4	2013	BoCC-Amb
Kestrel	<i>Falco tinnunculus</i>	19	20.06.19	BoCC-Amb, SBL, LBAP
Merlin	<i>Falco columbarius</i>	1	2013	BD1, WCA1, BoCC-Red, LBAP
Rook	<i>Corvus frugilegus</i>	18	07.05.21	BoCC-Amb
Skylark	<i>Alauda arvensis</i>	11	2013	BoCC-Red, SBL, LBAP
House Martin	<i>Delichon urbicum</i>	7	2013	BoCC-Red
Willow Warbler	<i>Phylloscopus trochilus</i>	11	20.06.21	BoCC-Amb
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	2	05.07.17	BoCC-Amb
Whitethroat	<i>Curruca communis</i>	11	20.06.21	BoCC-Amb
Wren	<i>Troglodytes troglodytes</i>	22	20.06.21	BoCC-Amb
Starling	<i>Sturnus vulgaris</i>	19	20.06.21	BoCC-Red, SBL
Song Thrush	<i>Turdus philomelos</i>	16	20.06.21	BoCC-Amb, SBL, LBAP
Mistle Thrush	<i>Turdus viscivorus</i>	12	2013	BoCC-Red
Redwing	<i>Turdus iliacus</i>	7	2013	WCA1, BoCC-Amb, SBL
Fieldfare	<i>Turdus pilaris</i>	9	2013	WCA1, BoCC-Red
Spotted Flycatcher	<i>Muscicapa striata</i>	5	2013	BoCC-Red, SBL, LBAP
Wheatear	<i>Oenanthe oenanthe</i>	3	2013	BoCC-Amb
Dipper	<i>Cinclus cinclus</i>	1	2013	BoCC-Amb
Tree Sparrow	<i>Passer montanus</i>	7	20.06.21	BoCC-Red, SBL, LBAP
House Sparrow	<i>Passer domesticus</i>	16	20.06.21	BoCC-Red, SBL, LBAP



Common Name	Scientific Name	No. Records within Last 15 Years	Date of Last Record	Protection/ Conservation Status
Dunnock	<i>Prunella modularis</i>	22	20.06.21	BoCC-Amb
Grey Wagtail	<i>Motacilla cinerea</i>	6	2013	BoCC-Amb
Meadow Pipit	<i>Anthus pratensis</i>	10	2013	BoCC-Amb
Brambling	<i>Fringilla montifringilla</i>	2	2013	WCA1, SBL
Bullfinch	<i>Pyrrhula pyrrhula</i>	15	20.06.21	BoCC-Amb, SBL, LBAP
Greenfinch	<i>Chloris chloris</i>	14	07.05.21	BoCC-Red
Linnet	<i>Linaria cannabina</i>	10	2013	BoCC-Red, SBL, LBAP
Lesser Redpoll	<i>Acanthis cabaret</i>	13	23.09.2014	SBL
Crossbill	<i>Loxia curvirostra</i>	4	2013	WCA1
Siskin	<i>Spinus spinus</i>	14	2013	SBL
Yellowhammer	<i>Emberiza citrinella</i>	16	20.06.21	BoCC-Red, SBL, LBAP
Reed Bunting	<i>Emberiza schoeniclus</i>	10	2013	BoCC-Amb, SBL, LBAP





Annex D Bird species names

Table D- 1: English and Latin names of birds mentioned in the report

English name	BTO code	Latin name	Legal & Conservation Status in Scotland
Greylag goose	GJ	<i>Anser anser</i>	BoCC5 Amber
Mallard	MA	<i>Anas platyrhynchos</i>	BoCC5 Amber
Pheasant	PH	<i>Phasianus colchicus</i>	Not assessed
Red-legged Partridge	RL	<i>Alectoris rufa</i>	Not assessed
Swift	SI	<i>Apus apus</i>	BoCC5 Red, SBL
Cuckoo	CK	<i>Cuculus canorus</i>	BoCC5 Red, SBL
Stock dove	SD	<i>Columba oenas</i>	BoCC5 Amber
Woodpigeon	WP	<i>Columba palumbus</i>	BoCC5 Amber
Collared dove	CD	<i>Streptopelia decaocto</i>	BoCC5 Green
Oystercatcher	OC	<i>Haematopus ostralegus</i>	BoCC5 Amber
Lapwing	L.	<i>Vanellus vanellus</i>	BoCC5 Red, SBL
Black-headed gull	BH	<i>Chroicocephalus ridibundus</i>	BoCC5 Amber, SBL
Common gull	CM	<i>Larus canus</i>	BoCC5 Red
Herring gull	HG	<i>Larus argentatus</i>	BoCC5 Red, SBL
Lesser black-backed gull	LB	<i>Larus fuscus</i>	BoCC5 Amber
Sparrowhawk	SH	<i>Accipiter nisus</i>	BoCC5 Amber
Buzzard	BZ	<i>Buteo buteo</i>	BoCC5 Green
Great Spotted Woodpecker	GS	<i>Dendrocopos major</i>	BoCC5 Green
Jay	J.	<i>Garrulus glandarius</i>	BoCC5 Green
Magpie	MG	<i>Pica pica</i>	BoCC5 Green
Jackdaw	JD	<i>Coloeus monedula</i>	BoCC5 Green
Rook	RO	<i>Corvus frugilegus</i>	BoCC5 Amber
Carrion Crow	C.	<i>Corvus corone</i>	BoCC5 Green
Coal Tit	CT	<i>Periparus ater</i>	BoCC5 Green
Blue Tit	BT	<i>Cyanistes caeruleus</i>	BoCC5 Green
Great Tit	GT	<i>Parus major</i>	BoCC5 Green
Skylark	S.	<i>Alauda arvensis</i>	BoCC5 Red, SBL
Swallow	SL	<i>Hirundo rustica</i>	BoCC5 Green
House Martin	HM	<i>Delichon urbicum</i>	BoCC5 Red
Long-tailed Tit	LT	<i>Aegithalos caudatus</i>	BoCC5 Green
Willow warbler	WW	<i>Phylloscopus trochilus</i>	BoCC5 Amber



English name	BTO code	Latin name	Legal & Conservation Status in Scotland
Chiffchaff	CC	<i>Phylloscopus collybita</i>	BoCC5 Green
Blackcap	BC	<i>Sylvia atricapilla</i>	BoCC5 Green
Whitethroat	WH	<i>Curruca communis</i>	BoCC5 Amber
Goldcrest	GC	<i>Regulus regulus</i>	BoCC5 Green
Wren	WR	<i>Troglodytes troglodytes</i>	BoCC5 Amber
Nuthatch	NH	<i>Sitta europaea</i>	BoCC5 Green
Treecreeper	TC	<i>Certhia familiaris</i>	BoCC5 Green
Starling	SG	<i>Sturnus vulgaris</i>	BoCC5 Red, SBL
Song thrush	ST	<i>Turdus philomelos</i>	BoCC5 Amber, SBL
Blackbird	B.	<i>Turdus merula</i>	BoCC5 Green
Spotted Flycatcher	SF	<i>Muscicapa striata</i>	BoCC5 Red, SBL
Robin	R.	<i>Erithacus rubecula</i>	BoCC5 Green
Stonechat	SC	<i>Saxicola rubicola</i>	BoCC5 Green
Dunnock	D.	<i>Prunella modularis</i>	BoCC5 Amber, SBL
Pied wagtail	PW	<i>Motacilla alba</i>	BoCC5 Amber
Chaffinch	CH	<i>Fringilla coelebs</i>	BoCC5 Green
Bullfinch	BF	<i>Pyrrhula pyrrhula</i>	BoCC5 Amber, SBL
Linnet	LI	<i>Linaria cannabina</i>	BoCC5 Red, SBL
Crossbill	CR	<i>Loxia curvirostra</i>	BoCC5 Green, Sch 1
Goldfinch	GO	<i>Carduelis carduelis</i>	BoCC5 Green
Siskin	SK	<i>Spinus spinus</i>	BoCC5 Green, SBL
Yellowhammer	Y.	<i>Emberiza citrinella</i>	BoCC5 Red, SBL
Key	BoCC5 status (green, amber, or red) – indicates the current Birds of Conservation Concern status category; SBL = on the Scottish Biodiversity List In addition, all wild birds and their nests are afforded general protected under the Wildlife & Countryside Act 1981 (as amended).		



