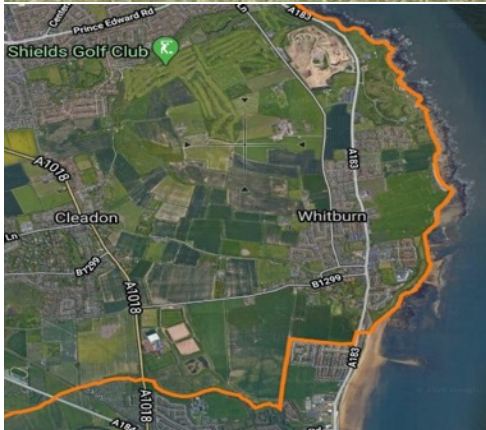


# WADER SURVEY

## SOUTH TYNESIDE



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FINAL

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R01	Final	April 2020	RA	DG	ADM

UNLESS REQUESTED OTHERWISE, THE INFORMATION BELOW, RELATING TO THE LOCAL AREA, WILL BE PROVIDED TO THE ENVIRONMENTAL RECORDS CENTRE FOR THE NORTH EAST (ERIC)					
SPECIES	RECORDER	DATE	LOCATION (NGR)	ABUNDANCE	COMMENT
Golden Plover	E3 Ecology	28/11/19	NZ 3989 6103	350	Peak count of wintering birds using arable farmland and other grassland
Lapwing	E3 Ecology	28/11/19	NZ 3989 6103	266	Peak count of wintering birds using arable farmland and other grassland
Curlew	E3 Ecology	26/11/19	NZ 40 63	168	Peak count of wintering birds using arable farmland and other grassland
Ringed Plover	E3 Ecology	28/11/19	NZ 3989 6103	60	Peak count of wintering birds using arable farmland and other grassland
Turnstone	E3 Ecology	20/02/20	NZ 4113 6254	41	Peak count of wintering birds using arable farmland and other grassland
Dunlin	E3 Ecology	28/11/19	NZ 3989 6103	40	Peak count of wintering birds using arable farmland and other grassland
Redshank	E3 Ecology	05/12/19	NZ 3979 6207	29	Peak count of wintering birds using arable farmland and other grassland
Snipe	E3 Ecology	28/11/19	NZ 3898 6335	4	Peak count of wintering birds using arable farmland and other grassland
Ruff	E3 Ecology	18/11/19	NZ 3979 6207	1	Peak count of wintering birds using arable farmland and other grassland
Woodcock	E3 Ecology	04/12/19	NZ 4100 6297	1	Peak count of wintering birds using arable farmland and other grassland
Oystercatcher	E3 Ecology	19/02/20	NZ 4113 6253	1	Peak count of wintering birds using arable farmland and other grassland

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## A. SUMMARY

E<sup>3</sup> Ecology Ltd was commissioned by South Tyneside Council to undertake surveys of wading birds using fields in the Whitburn and Cleadon area of South Tyneside. The survey area comprised arable and pasture farmland, as well as amenity grassland, known to support roosting and foraging waders.

The aim of the survey was to inform the evidence base for the local plan. Knowledge of which fields are more important for waders can indicate which fields should be conserved and can highlight appropriate locations and design for habitat mitigation, compensation and enhancement measures.

A total of 30 surveys (approximately six surveys per month) were undertaken between November 2019 and March 2020 (see Table 3). The duration of each survey was 6 hours. Surveys were timed to coincide with the full range of tide heights. The start and end locations of each survey were varied to avoid bias. For each field, counts of wader species, activity and the habitats present in the field were recorded. Analysis considered peak counts as well as peak counts per hectare to identify high value smaller fields that held relatively high numbers of waders.

Consultation with the Multi Agency Geographic Information for the Countryside (MAGIC) website identified that the Northumbria Coast Special Protection Area (SPA) and Ramsar lies adjacent to the site to the east. The SPA is designated for its breeding Arctic tern (2.92% of UK breeding population) and little tern (1.7% of UK breeding population) and its wintering turnstone (2.1% of Western Palearctic wintering population) and purple sandpiper (1.5% of wintering Eastern Atlantic population). The Durham Coast SSSI lies adjacent to the survey area. The SSSI supports nationally important wintering populations of purple sandpiper and sanderling and breeding population of little tern.

A brief literature review indicated that habitat use in waders varies seasonally and also changes nocturnally, with waders using a wider range of fields at night. Field use matches availability and only a small proportion of fields are used. Permanent pasture has been used frequently by waders in the past, but arable farmland is increasingly used. Sward height, degree of enclosure and field size are all factors affecting field use.

A total of 11 species of waders were recorded in the study area, of which golden plover, lapwing and curlew were the only three species have to counts greater than 100. Waders were recorded in 35 (44%) of 80 fields. Four fields supported peak diurnal counts of more than 100 waders. The most attractive fields included 4, 5, 6, 7, 10, 17, 18, 22, 30, 33, 55, 56, 68, 69, 71, 78 and 79. These fields had the highest peak diurnal counts, the highest peak nocturnal counts, the highest wader densities, were used most frequently and were used by the highest diversity of species. The peak count in any one field was 682 in field 10, however this count was isolated and counts in field 10 tended to be much lower. The fields that tended to be used by waders were generally just west and north of Whitburn village, the old rifle range (field 7) and fields adjacent to Moor Lane and Cleadon Lane. The fields on top of Cleadon Hills tended not to be used by waders. There was evidence that waders used fields in the study area in greater numbers at high tide than at low tide.

Nocturnal surveys showed that nocturnal foraging waders were more dispersed, used fields unused during the day, foraged closer to field edges, arrived to forage in fields after dark and left before dawn. Nocturnal survey work with equipment and surveyors able to identify and count waders over a 200m distance is considered essential to assess this foraging use. An additional species, woodcock, was recorded at night but not during the day. Lapwing and golden plover were the commonest waders at night, while curlew was absent at night (because it roosts nocturnally, with local birds likely to use either Boldon Flats or the intertidal

zone). The most attractive fields to waders at night (peak counts of greater than 30) were 6, 7 and 79.

The habitats most used by waders in the study area were autumn-sown arable, ephemeral flood and horse-grazed pasture. The least used habitats were amenity grassland, spring-sown arable and improved grassland. In general within the survey area, the most attractive fields for waders are large with short sward height, smoothly ploughed soil surface, good sightlines (not enclosed by boundary feature, woodland or housing), are close to the intertidal zone and are undisturbed by recreation.

Fields were only converted to spring-sown arable towards the end of survey work in February and March (after having been stubble or fallow during previous surveys). Therefore relatively few surveys of spring-sown arable were undertaken and they were undertaken at a time of year when waders numbers were declining.

Assessment is only based on a single season's survey and the management of farmland fields will vary, to some extent, year to year. Autumn 2019 was wet, resulting in many farmers being unable to establish autumn sown crops, and a greater proportion of fields being fallow or stubble than is likely to usually be the case. Through the course of the survey some fields changed from stubble to fallow to growing crop, so the value of an individual field is likely to change through the season. No statistical assessments have been undertaken.

All waders recorded during survey work, except golden plover and oystercatcher, are of sufficient conservation concern to be placed on the BoCC4<sup>1</sup> list. Local knowledge indicates that the fields in the study area support a significant proportion of the waders wintering in the South Tyneside borough. The survey area is likely to be of county value given the peak counts of golden plover, turnstone, dunlin, ringed plover, curlew and ruff.

Species	Peak Count	National Priority	Schedule 1	Annex 1
Golden Plover	350			✓
Lapwing	266	✓		
Curlew	168	✓		
Ringed Plover	60			
Turnstone	41			
Dunlin	40			✓
Redshank	29			
Snipe	4			
Ruff	1		✓	✓
Woodcock	1			
Oystercatcher	1			

<sup>1</sup> Red list species are of high conservation concern; amber list species are of medium conservation concern; Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746. National priority species are listed on the UK Post-2010 Biodiversity Framework published July 2012, formerly UK BAP.

<sup>2</sup> National Priority = Species of principal importance listed in Section 41 of the NERC Act (2006), Schedule 1 = Species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended. These are birds and their young, for which it is an offense to intentionally or recklessly disturb at, on or near an 'active' nest, Annex 1 = Species listed on Annex 1 of the Bird Directive (1979) as amended. This lists 194 species and sub-species which are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival.



<b>Field</b>	<b>Date of Peak Count</b>	<b>Peak Count</b>	<b>Peak Count per Hectare</b>	<b>No. surveys wader present</b>
10	28/11/2019	682	11.7	6
71	18/11/2019	156	65.4	10
6	28/11/2019	154	26.2	13
30	29/12/2019	112	9.8	18
7	24/12/2019	76	2.1	18
22	22/01/2020	70	8.3	10
68	16/12/2019	68	11.0	7
14	01/02/2020	56	2.7	7
56	08/01/2020	53	6.1	3
25	20/02/2020	48	3.9	8

The study area supported small numbers of BoCC4 listed seed-eating birds, primarily in stubble fields including reed bunting, yellowhammer, skylark, stock dove and grey partridge. Numbers of skylark increased considerably in February and March as passage birds moved through the area. Scarce species recorded included peregrine, snow bunting, tawny owl (scarce in South Tyneside) and merlin.

Sections F and G in this report identify fields of particular value for each species that would ideally be conserved. Measures are proposed that could enhance habitats where compensation for the adverse effects of development are required.

Where development would adversely affect fields identified as being of higher value for waders, it is recommended that any planning application is supported by at least one season's additional monitoring data for fields within 750m, including nocturnal survey with appropriate equipment, to better assess potential impacts. Compensation measures should seek to avoid any net loss to the wintering wader populations supported in South Tyneside.

Below are the fields most used by each species. Conservation of these fields would most benefit each respective species, but other important fields for each species are outlined in the body of the report. Further conservation measures are recommended.

- Curlew: fields 6, 30, 22, 68, 71 and 56. These fields were likely to have provided suitable foraging for the species, particularly earthworms. Other mitigation for curlew could include measures to reduce disturbance, continuing to provide the winter flood at Boldon Flats (a nocturnal curlew roost site) and a contribution to the RSPB's recovery programme for the species
- Turnstone, ringed plover and dunlin: fields 4, 6, 7 and 10. These fields provided a roosting location close to the intertidal zone whilst also being open and large enough to allow predators to be seen. Further mitigation for these species could include conservation of the fields they used and the provision of a high tide roost site.
- Golden plover: fields 10, 7 and 14 attracted counts of more than 50. These fields provided suitable roosting conditions; in particular each field was large and open to enable approaching predators to be seen.
- Lapwing: fields 10, 71, 79, 75 and 6 attracted counts of more than 25. Fields 6 and 79 were primarily used by foraging lapwing and the others were primarily used by roosting lapwing. All fields provided short vegetation for roosting or foraging, and were open and/or large to aid predator detection. Lapwing breeding habitat can be improved by the provision of short vegetation such as spring-sown arable or lightly grazed grassland between March and June.



- Oystercatcher: field 7 (single bird on a single occasion). The scarcity of the species within the survey area is likely to be due to the lack of suitable amenity grassland.
- Redshank and ruff: redshank was recorded in fields 71, 69, 6, 14, 4 and 10. Ruff was recorded in field 71 on a single occasion only. These fields tended to be used by these species because they contained ephemeral flooding. The creation of a wader scrape in the study area would benefit these two species as well as a number of other wader species including wintering waders such as lapwing and passage waders such as green sandpiper.
- Snipe: fields 47, 79 and 41 each on a single occasion. Generally, the survey area is too dry for the species. Wetland creation would benefit the species.
- Woodcock: field 5 on a single occasion only, possibly a migrant.

*If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E3 Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.*

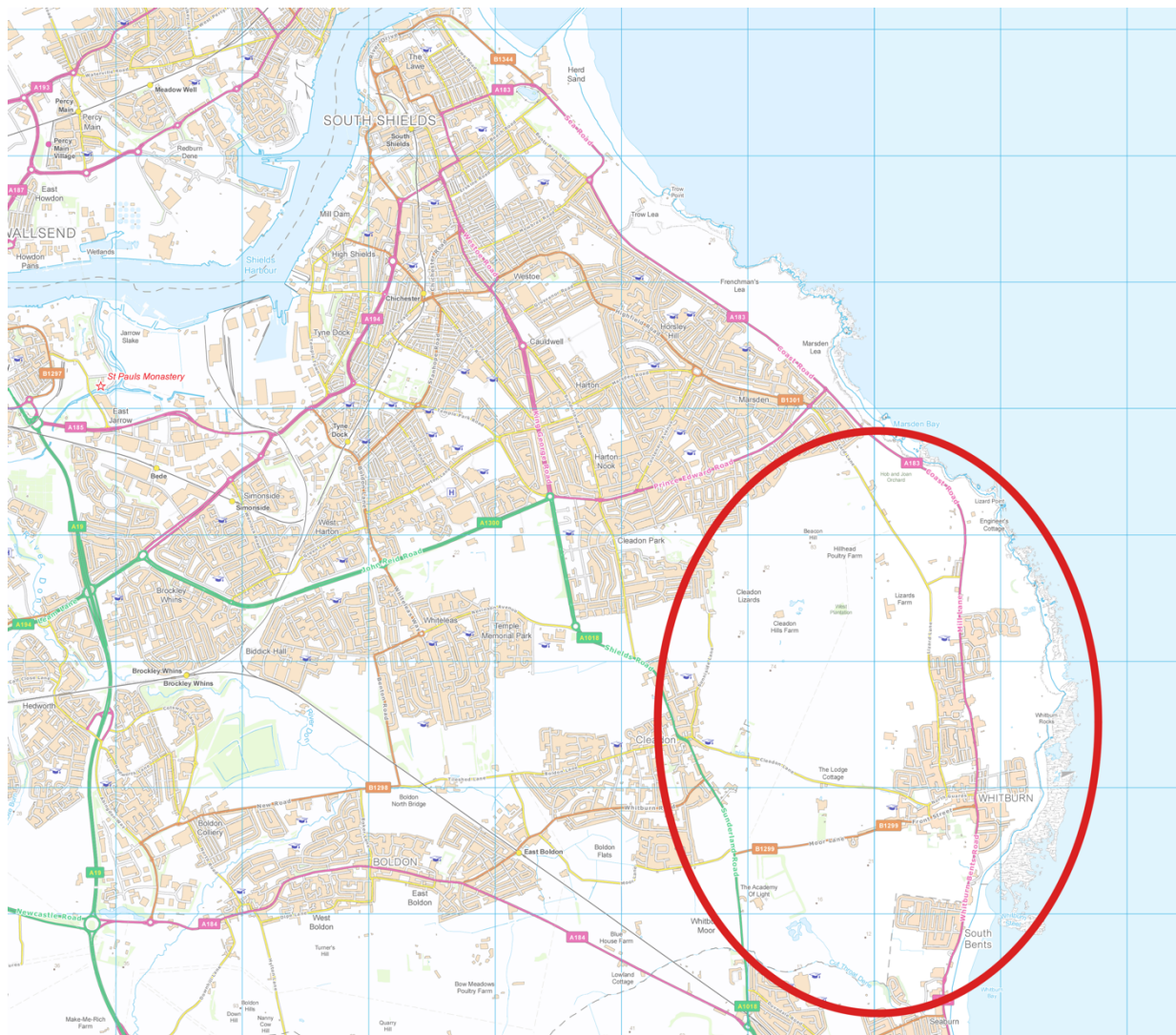
## B. INTRODUCTION

E<sup>3</sup> Ecology Ltd was commissioned by South Tyneside Council to undertake surveys of wintering wading birds using fields in the Whitburn and Cleadon area of South Tyneside.

The purpose of this report is to:

- Record the species, abundance and distribution of waders using the survey area.
- Determine the fields in the survey area that are of the highest conservation value to waders.
- Identify habitat types used by waders in the survey area.
- Record other important species using the survey area.
- Identify potential conservation measures for waders should any fields in the survey area be considered for development.

The site location is illustrated below in Figure 1.



**FIGURE 1: SITE LOCATION**  
(OS mapping © Crown copyright and database rights 2016/2017 OS 0100039392)



## C. METHODOLOGY

### C.1 SCOPE OF STUDY

From local knowledge and consultation with South Tyneside Council it was known, prior to undertaking survey work, that the non-breeding populations of waders using the survey area are of significant conservation value. The study area comprised 80 fields as shown in Figure 2 below.



FIGURE 2: FIELD NUMBERS AND BOUNDARIES (GREEN LINE), SURVEY AREA EXTENT (BLUE LINE) AND SOUTH TYNESIDE DISTRICT BOUNDARY (ORANGE LINE)

(Reproduced under licence from Google Earth Pro.)

## C.2 DESK STUDY

The Multi Agency Geographic Information for the Countryside website (MAGIC)<sup>3</sup> was searched for the following statutory protected sites designated for ornithological interests:

- Special Protection Areas (SPAs);
- Proposed Special Protection Areas (pSPAs);
- Sites of Special Scientific Interest (SSSIs); and
- Ramsar sites.

## C.3 FIELD SURVEY

### C.3.1 SURVEY EQUIPMENT

The following items of equipment were utilised during survey work and analysis:

- Swarovski EL 8x32 WB binoculars
- Swarovski ATS 80 HD scope with 25-50x W Eyepiece
- iPhone 11 Pro with Map Plus GIS application
- IR night vision equipment allowing bird identification to 200m at night

### C.3.2 BIRD SURVEY METHODS

A total of 30 surveys (approximately six surveys per month) were undertaken between November 2019 and March 2020 (see Table 3). The duration of each survey was 6 hours. Surveys were timed to coincide with the full range of tide heights. The start and end locations of each survey were varied to avoid biases.

The study area was surveyed by an experienced ornithologist who is able to identify all commonly occurring UK bird species by sight and call. Each of the 80 fields were scanned with binoculars and a telescope from the edge of the field or a suitable vantage point. Field numbers were cross-checked using Map Plus GIS application. Following the scan of a field, the following data were recorded:

- Field number (1-80).
- Wader species using the field.
- Count of each wader species using field.
- The general behaviour of each species using field (generally either foraging or roosting).
- Date and time.
- Tide height (metres).
- Habitat: one of the following categories: amenity, autumn-sown arable, ephemeral flood, fallow (ploughed and unsown), hay pasture (improved grassland that had been cut for hay), horse-grazed pasture, improved grassland, semi-improved grassland, spring-sown arable, stubble. If the majority of waders in a field were using a patch of ephemeral flood, then habitat use was classed as ephemeral flood.
- Numbers of incidental species using field (limited to scarce and/or declining species).

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<sup>3</sup> Multi Agency Geographic Information for the Countryside (MAGIC) [www.magic.gov.uk](http://www.magic.gov.uk)



Survey techniques used good field craft to minimise disturbance to birds, wearing dull clothes, avoiding being silhouetted against the skyline, moving slowly and then spending time in one location to allow birds to become active again.

Of the 30 surveys, 5 were carried out nocturnally (see Table 3). The aim of these surveys was to determine if the species and numbers of waders using each field differed to diurnal hours. The general methods of the nocturnal surveys were the same as diurnal surveys. However, the fields were scanned with an infra-red camera to detect, identify and count waders.

### C.3.3 SURVEY TIMING AND WEATHER CONDITIONS

The table below details the survey dates, timings and weather conditions. The start and end times of each survey were varied to avoid biases.

Date	Type	Temp.	Cloud Cover	Precip.	Wind	Visibility	Time
18/11/19	Diurnal	5°C	20%	None	W2	>2km	10:15-16:15
20/11/19	Diurnal	7°C	80%	None	W3	>2km	10:15-16:15
21/11/19	Diurnal	5°C	90%	None	E3	>2km	08:30-15:30
26/11/19	Diurnal	10°C	100%	Light rain	SE2	>2km	08:15-16:15
28/11/19	Diurnal	7°C	100%	Rain	N5	>2km	08:15-15:40
04/12/19	Nocturnal	7°C	30%	None	W2	>2km	16:45-22:40
05/12/19	Diurnal	9°C	80%	None	W5	>2km	10:15-16:00
16/12/19	Diurnal	5°C	20%	None	W2	>2km	09:30-15:30
23/12/19	Nocturnal	7°C	70%	None	W3	>2km	16:15-22:00
24/12/19	Diurnal	7°C	50%	None	S1	>2km	08:15-14:00
29/12/19	Diurnal	10°C	80%	None	SW3	>2km	09:00-15:00
08/01/20	Diurnal	8°C	50%	None	W3	>2km	10:15-16:00
11/01/20	Diurnal	12°C	70%	None	W5	>2km	07:45-13:15
18/01/20	Diurnal	7°C	40%	None	W4	>2km	08:00-14:00
22/01/20	Diurnal	12°C	50%	None	W1	>2km	10:30-16:00
23/01/20	Nocturnal	8°C	50%	None	W3	>2km	16:30-22:30
27/01/20	Diurnal	9°C	40%	None	SW4	>2km	08:50-14:50
01/02/20	Diurnal	12°C	90%	None	W5	>2km	11:00-16:45
04/02/20	Nocturnal	4°C	10%	None	W1	>2km	16:45-23:00
05/02/20	Diurnal	8°C	80%	None	W2	>2km	09:15-15:00
12/02/20	Diurnal	5°C	60%	None	W5	>2km	08:45-15:15
19/02/20	Diurnal	6°C	100%	None	SW4	>2km	11:30-17:00
20/02/20	Diurnal	6°C	80%	Showers	W4	>2km	08:30-14:15
25/02/20	Diurnal	9°C	90%	None	W4	>2km	11:30-17:30
05/03/20	Diurnal	7°C	20%	None	SE1	>2km	12:00-18:00
12/03/20	Nocturnal	7°C	80%	Shower	W4	>2km	18:00-23:45
17/03/20	Diurnal	8°C	50%	None	SW4	>2km	11:45-18:45
19/03/20	Diurnal	9°C	40%	None	E1	>2km	11:30-17:30
23/03/20	Diurnal	11°C	40%	None	S3	>2km	10:00-16:00
30/03/20	Diurnal	9°C	50%	None	N4	>2km	08:45-14:00

### C.4 PERSONNEL

The table below details the personnel who undertook the survey work.

Name	Position	Professional Qualifications	Natural England Survey Licence Numbers
Ross Ahmed	Senior Field Ornithologist	BA (Hons) MPhil	CL29/00294 (Barn Owl)

Further details of experience and qualifications are available at [www.e3ecology.co.uk](http://www.e3ecology.co.uk).

### **C.5 INTERPRETATION OF RESULTS**

The data were analysed by calculating peak and mean counts of waders in relation to a variety of factors including field number, habitat, time of day and tide height.

### **C.6 EVALUATION**

The relative ornithological value of the site and of each field was assessed using a geographical frame of reference. For designated sites this is generally a straightforward process with the assigned designation generally being indicative of a particular value, e.g. Sites of Special Scientific Interest are designated under national legislation and are therefore generally considered to be receptors of national value. The assignment of value to non-designated receptors is less straightforward and as recognised by the Guidelines for Ecological Impact Assessment produced by the Chartered Institute of Ecology and Environmental Management<sup>4</sup>, is a complex and subjective process and requires the application of professional judgement.

When assessing the value of species and habitats, a number of criteria are considered, including the abundance of the species, both on a national and local scale, the diversity of species present, the quality of the surrounding habitat and both local and national trends. Relevant documents and legislation are considered including the lists of species and habitat of principal importance annexed to the NERC Act (2006), those provided within relevant local Biodiversity Action Plans and the BoCC4<sup>1</sup>. Data provided through consultation is also considered. These data sources can provide context at a local, regional and national scale and take account of both national and local population trends.

The table below provides examples of receptors of value at different geographical scales.

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<sup>4</sup> Chartered Institute for Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal

<b>TABLE 5: VALUATION</b>	
<b>LEVEL OF VALUE</b>	<b>EXAMPLES</b>
<b>International</b>	An internationally designated site or candidate site (SPA/pSPA/Ramsar)
	A site meeting criteria for international designation.
	A species present in internationally important numbers (i.e. >1% of the biogeographic population)
<b>National</b>	A nationally designated site (SSSI/NNR).
	A species present in nationally important numbers (i.e. >1% of the national population)
<b>Regional</b>	A site that falls slightly below the criteria necessary for designation as a SSSI but is considered of greater than county value.
	A species present in important numbers in the context of the county (i.e. >1% of the regional population)
<b>County</b>	A Local Wildlife Site (LWS) or equivalent, designated at a County level
	A species present in important numbers in the context of the county (i.e. >1% of the county population)
<b>District</b>	A Local Wildlife Site (LWS) or equivalent, designated at a District level
	A species present in important numbers in the context of the district (i.e. >1% of the district population)
<b>Parish</b>	A species population considered to appreciably enrich the habitat resource within the context of the parish.
	Local Nature Reserves
<b>Local</b>	Habitats and species that contribute to local biodiversity but are not exceptional in the context of the parish.
<b>Low</b>	Assemblages of limited diversity that are unexceptional and common to the local area.



## D. RESULTS

### D.1 DESKTOP STUDY

#### D.1.1 PRE-EXISTING INFORMATION

#### **ORDNANCE SURVEY MAPPING AND AERIAL PHOTOGRAPHY**

The survey area primarily covers the area of farmland between the villages of Whitburn and Cleadon in the south-east corner of the borough of South Tyneside. The farmland is a mixture of arable and pasture. Other habitats in the survey area include several blocks of woodland and patches of scrub but wetland features are generally absent. The eastern boundary of the survey area lies adjacent to the coastline while the westernmost point of the survey area is approximately 2.4km from the coast.

#### **MULTI AGENCY GEOGRAPHIC INFORMATION FOR THE COUNTRYSIDE WEBSITE<sup>3</sup>**

The table below details the internationally and nationally statutorily designated sites in the surrounding area for which ornithological interest is a key reason for designation. It details all internationally designated sites within 10km of the survey area and all nationally designated sites within 5km.

<b>Designation</b>	<b>Site Name</b>	<b>Reason for Designation</b>	<b>Distance from Site</b>
Ramsar	Northumbria Coast	Breeding Arctic tern (2.92% of UK breeding population) and little tern (1.7% of UK breeding population); wintering purple sandpiper (1.6% of the East Atlantic Flyway wintering population); wintering turnstone (2.6% of the East Atlantic Flyway wintering population). Also supports nationally important numbers of sanderling, ringed plover and redshank	Adjacent to east
Special Protection Area	Northumbria Coast	Breeding Arctic tern (2.92% of UK breeding population) and little tern (1.7% of UK breeding population); wintering purple sandpiper (1.6% of the East Atlantic Flyway wintering population); wintering turnstone (2.6% of the East Atlantic Flyway wintering population). Also supports nationally important numbers of sanderling, ringed plover and redshank	Adjacent to east
Site of Special Scientific Interest	Durham Coast	Supports nationally important numbers of wintering purple sandpiper and sanderling, and breeding little tern. Turnstone and knot also use the site for feeding and roosting during winter.	Adjacent to east

### D.1.2 LITERATURE REVIEW

Gillings *et al.*<sup>5</sup> showed that golden plover and lapwing preferred permanent pasture in the past but increasingly use arable farmland. However habitat use changed seasonally as the habitats present changed. In winter, use of cereal crops matched their availability: harrow (fields in which the soil surface was smooth) in early winter, sugar beet in mid-winter and other crops in late winter. Flocks occupied only a small proportion of the available fields, and were primarily found in large fields with good sightlines and open boundaries and where manure had been applied. Daytime feeding was more likely during cold days after nights with a new moon, short duration of moonlight or low-intensity moonlight. In the daytime the nature of the vegetation and soil structure was important in determining the visibility of their invertebrate prey.

In his 2003 PhD thesis Gillings noted that smaller flocks of golden plover and lapwing used a much wider range of fields and habitat types at night, and that nocturnal foraging was essential for their energetic balance. This implies that understanding nocturnal ecology and the differences in field and habitat selection between day and night are essential for effectively conserving golden plovers and lapwings.

Gregory *et al.*<sup>6</sup> compared the diurnal winter feeding ecology of lapwings and golden plover on cereals and grasslands. They found that lapwing and golden plover chose autumn-sown cereal in preference to other field types including grassland. Lapwing numbers were highest in winter cereals 8-10cm high.

Barnett *et al.*<sup>7</sup> looked at the use of unimproved and improved lowland grassland by wintering waders in Britain. They found that species that are dependent on soil invertebrates (especially earthworms), which includes many grassland feeding waders, were more numerous on unimproved grassland. In last 50 years the majority of grassland in Britain has been agriculturally improved.

Milson *et al.*<sup>8</sup> looked at the relative importance of sward height, landscape factors and human disturbance at grassland feeding areas used by wintering waders. They found that the strongest factors determining field use were sward height and degree of field enclosure.

Natural England's report on the Management of Lowland Wet Grasslands for Birds (1999) states: "Waders (e.g. lapwing, golden plover, snipe) feed on soil-dwelling invertebrates especially earthworms and require high water tables which provides soft, damp soil together with areas of shallow, open water where species such as redshank forage at the water's edge. Islands of non-flooded grassland are used as secure roosting sites. Sward heights of <10cm are generally preferred although snipe will forage in taller vegetation for concealment. Larger fields lacking tall boundary features and away from human disturbance are preferred (Milsom *et al* 1998)."

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<sup>5</sup> Gillings S, Fuller RJ and Sutherland WJ (2007) Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509–520.

<sup>6</sup> Gregory RD (2009) Comparative winter feeding ecology of Lapwings *Vanellus vanellus* and Golden Plovers *Pluvialis apricaria* on cereals and grasslands in the Lower Derwent Valley, North Yorkshire. *Bird Study* 34(3): 244–250.

<sup>7</sup> Barnett PR, Whittingham MJ, Bradbury RB, *et al.* (2004) Use of unimproved and improved lowland grassland by wintering birds in the UK. *Agriculture, Ecosystems & Environment* 102(1): 49–60.

<sup>8</sup> Milsom TP, Ennis DC, Haskell DJ, *et al.* (1998) Design of grassland feeding areas for waders during winter: The relative importance of sward, landscape factors and human disturbance. *Biological Conservation* 84(2): 119–129.

## D.2 FIELD SURVEY

### D.2.1 HABITAT SURVEY

At the beginning of the survey work, the habitat in the 80 fields were as follows: autumn-sown arable (17 fields), horse-grazed pasture (17), hay pasture (14), fallow (ploughed but not sown) (13), stubble (7), semi-improved grassland (5), amenity (3), ephemeral flood (3) and improved grassland (1). The stubble fields were later generally converted to fallow and then spring-sown arable. The fallow fields were also generally converted to spring-sown arable.

### D.2.2 BIRD SURVEY

The table below shows that golden plover, lapwing and curlew were the three commonest waders recorded in the study area. All other species were considerably more scarce and/or recorded with lower frequency. Curlew was recorded most frequently (24 of 30 surveys).

Species	Date of Peak Count	Peak Count	Mean Count	Surveys Present
Golden Plover	28/11/2019	350	24	12
Lapwing	28/11/2019	266	26	12
Curlew	26/11/2019	168	80	24
Ringed Plover	28/11/2019	60	2	1
Turnstone	20/02/2020	41	4	8
Dunlin	28/11/2019	40	1	2
Redshank	05/12/2019	29	3	9
Snipe	28/11/2019	4	0	3
Ruff	18/11/2019	1	0	1
Woodcock	04/12/2019	1	0	1
Oystercatcher	19/02/2020	1	0	2

The table below lists fields that recorded waders and the peak count of all individual waders using each field. Only fields in which waders were recorded are listed; waders were recorded in 35 (44%) of 80 fields. The highest number of waders recorded in any field was 682 waders in field 10 on 28th November 2019. However, this was an isolated count and there were generally much lower numbers of waders in field 10, with waders present there during only six surveys.

**TABLE 8: PEAK WADER COUNTS PER FIELD**

Field	Date of Peak Count	Peak Count	Peak Count per Hectare	No. Surveys Waders Present
10	28/11/2019	682	11.67	6
71	18/11/2019	156	65.44	10
6	28/11/2019	154	26.23	13
30	29/12/2019	112	9.79	18
7	24/12/2019	76	2.10	18
22	22/01/2020	70	8.32	10
68	16/12/2019	68	11.01	7
14	01/02/2020	56	2.70	7
56	08/01/2020	53	6.08	3
25	20/02/2020	48	3.87	8
5	05/03/2020	38	16.96	11
33	08/01/2020	33	12.07	1
79	23/01/2020	31	0.98	3
75	28/11/2019	30	2.86	3
4	05/03/2020	29	18.09	9
69	20/11/2019	23	9.63	3
13	24/12/2019	18	1.88	2
18	12/02/2020	18	12.41	3
78	23/01/2020	16	1.62	1
17	08/01/2020	13	6.30	7
51	21/11/2019	11	2.22	5
55	23/12/2019	11	1.50	1
8	24/12/2019	9	0.51	4
12	26/11/2019	6	1.17	1
47	28/11/2019	4	0.77	1
76	16/12/2019	4	0.40	4
3	18/11/2019	3	2.05	1
21	20/11/2019	3	0.84	13
20	22/01/2020	2	2.35	1
24	08/01/2020	2	2.07	1
31	05/02/2020	2	0.20	2
77	16/12/2019	2	0.29	4
19	04/12/2019	1	0.56	7
41	20/11/2019	1	0.11	1
59	04/12/2019	1	0.30	1

The table below shows the peak count of each species in each field. The largest numbers of each species tended to be present in a small number of fields:

- Curlew: fields 4, 5, 6, 7, 22, 25, 30, 56, 68, 71.
- Golden plover: fields 7, 10, 14.
- Lapwing: fields 6, 10, 71, 75, 79.

**TABLE 9: PEAK WADER COUNTS PER SPECIES PER FIELD**

Field	Species	Peak Count	Surveys Present
3	Curlew	3	1
4	Curlew	29	7
	Golden Plover	2	1
	Lapwing	13	1
	Redshank	1	1
	Turnstone	7	1
5	Curlew	38	8
	Golden Plover	8	3
	Lapwing	6	1
	Woodcock	1	1
6	Curlew	140	10
	Golden Plover	12	3
	Lapwing	25	1
	Redshank	11	1
	Turnstone	14	1
7	Curlew	43	10
	Dunlin	1	1
	Golden Plover	76	4
	Lapwing	1	1
	Oystercatcher	1	2
	Turnstone	41	6
8	Curlew	9	4
10	Dunlin	40	1
	Golden Plover	350	4
	Lapwing	230	3
	Redshank	1	1
	Ringed Plover	60	1
	Turnstone	2	1
12	Curlew	6	1
13	Lapwing	18	2
14	Golden Plover	56	3
	Lapwing	6	1
	Redshank	3	3
17	Curlew	13	5
	Lapwing	8	2
18	Curlew	18	1
	Lapwing	7	2
19	Curlew	1	6
	Lapwing	1	1
20	Curlew	2	1
21	Curlew	3	13
22	Curlew	70	10
24	Curlew	2	1
25	Curlew	48	6

**TABLE 9: PEAK WADER COUNTS PER SPECIES PER FIELD**

Field	Species	Peak Count	Surveys Present
	Lapwing	2	2
30	Curlew	112	18
31	Curlew	2	2
33	Curlew	33	1
41	Snipe	1	1
47	Snipe	4	1
51	Curlew	11	5
55	Golden Plover	11	1
56	Curlew	53	2
	Golden Plover	3	1
59	Lapwing	1	1
68	Curlew	68	5
	Golden Plover	3	2
69	Curlew	13	1
	Redshank	23	2
71	Curlew	63	4
	Lapwing	90	3
	Redshank	28	5
	Ruff	1	1
	wader sp	1	1
75	Curlew	1	1
	Lapwing	30	2
76	Curlew	4	3
	Golden Plover	2	1
77	Curlew	2	2
	Golden Plover	1	1
	Lapwing	1	1
78	Lapwing	16	1
79	Lapwing	31	2
	Snipe	3	1

The table below lists nocturnal peak counts of each species. The two most common species were golden plover and lapwing, which both forage nocturnally and roost diurnally.

**TABLE 10: NOCTURNAL PEAK WADER COUNTS ACROSS WHOLE SURVEY AREA**

Species	Date of Peak Count	Peak Count
Golden Plover	23/12/2019	89
Lapwing	23/01/2020	58
Snipe	04/12/2019	3
Dunlin	04/12/2019	1
Redshank	04/12/2019	1
Woodcock	04/12/2019	1

The table below shows peak counts of waders in each field during nocturnal surveys. Only fields in which waders were recorded are listed; waders were recorded in 17 (21%) of 80 fields. Fields 4, 5, 6, 7, 78 and 79 were the most used fields nocturnally.

**TABLE 11: NOCTURNAL PEAK WADER COUNTS PER FIELD**

Field	Date of Peak Count	Peak Count
7	23/12/2019	54
6	04/12/2019	33
79	23/01/2020	31
78	23/01/2020	16
4	04/12/2019	14
5	23/12/2019	14
55	23/12/2019	11
17	23/12/2019	8
10	23/01/2020	7
18	04/12/2019	7
56	23/12/2019	3
25	04/12/2019	2
19	04/12/2019	1
59	04/12/2019	1
68	23/12/2019	1
71	04/12/2019	1
77	23/01/2020	1

The table below shows the peak count of each species in each field during nocturnal surveys.

**TABLE 12: NOCTURNAL PEAK WADER COUNTS PER SPECIES PER FIELD**

Field	Species	Peak Count	Surveys Present
4	Lapwing	13	1
	Golden Plover	2	1
	Redshank	1	1
5	Golden Plover	8	3
	Lapwing	6	1
	Woodcock	1	1
6	Lapwing	25	3
	Golden Plover	12	1
7	Golden Plover	54	1
	Dunlin	1	3
	Lapwing	1	1
10	Lapwing	7	1
	Golden Plover	1	1
17	Lapwing	8	2
18	Lapwing	7	2
19	Lapwing	1	1
25	Lapwing	2	1
55	Golden Plover	11	1
56	Golden Plover	3	1
59	Lapwing	1	1
68	Golden Plover	1	1
71	wader sp	1	1
77	Golden Plover	1	1
78	Lapwing	16	1
79	Lapwing	31	1
	Snipe	3	1

The figure below shows the most attractive fields for waders within the survey area based on the peak wader count (all individuals of all species) as a percentage of the estimated South








Tyneside wader population. The South Tyneside wintering wader population was estimated as approximately 6,990 individuals using data from recent Durham Bird Club annual reports. Fields that recorded peak counts of 1% or more of 6,990 individuals are outlined in red, fields that recorded peak counts between 0.1-1% of 6,990 individuals are outlined in amber and fields that recorded peak counts of 0.1% or less of 6,990 individuals are outlined in green. Fields that are not outlined in red, amber or green did not record any waders. The red dots are fields that recorded the highest wader densities (peak counts of 4 or more individuals per hectare). The black dots are fields that recorded the highest peak counts during nocturnal surveys (peak counts of 4 or more individuals).





## Legend

-  Peak counts of 0.1% or less of 6,990 individuals
-  Peak counts between 0.1-1% of 6,990 individuals
-  Peak counts of 1% or more of 6,990 individuals

-  Highest wader densities (peak count of 4 or more individuals per hectare)
-  Nocturnal highest wader densities (peak count of 4 or more individuals per hectare)

## Habitat

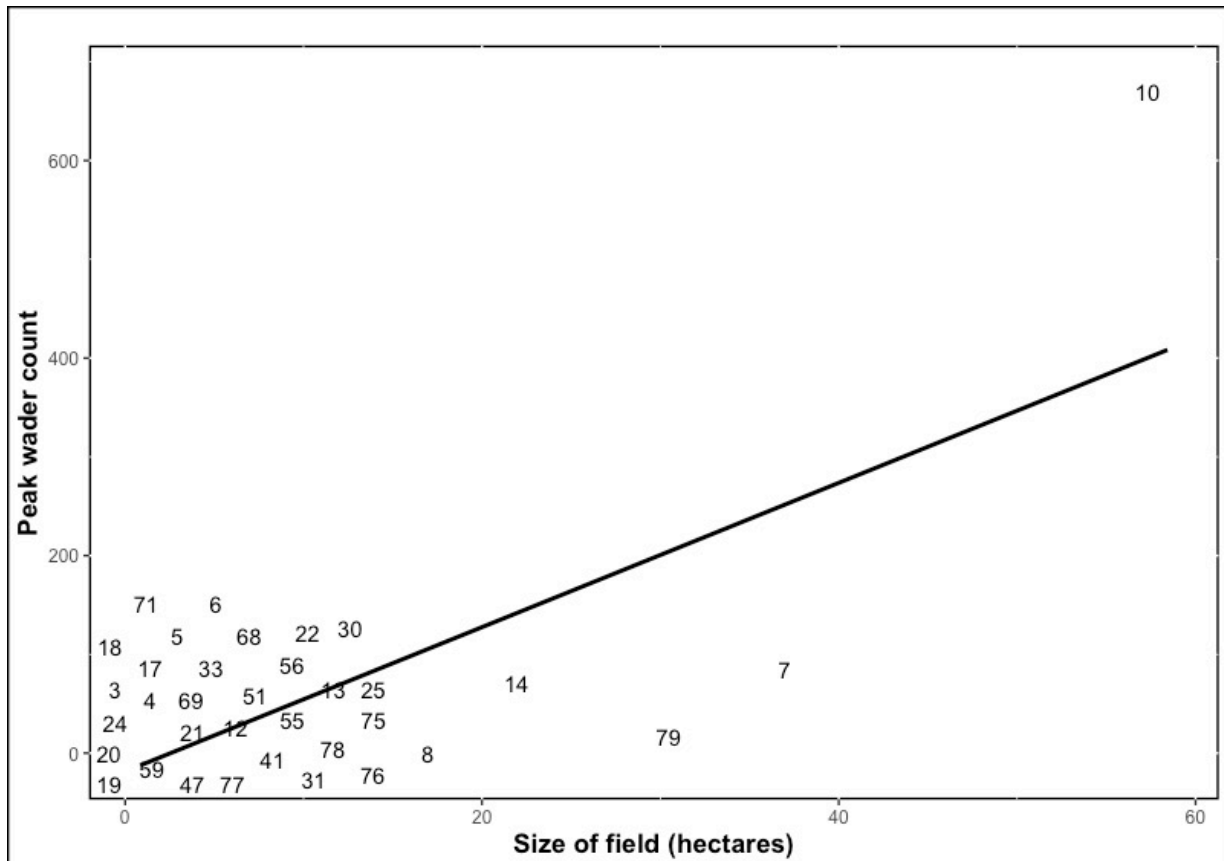
1 Amenity	28 Hay pasture	55 Autumn-sown arable
2 Semi-improved	29 Horse-grazed pasture	56 Hay pasture
3 Horse-grazed pasture	30 Autumn-sown arable	57 Horse-grazed pasture
4 Autumn-sown arable	31 Horse-grazed pasture	58 Hay pasture
5 Autumn-sown arable	32 Horse-grazed pasture	59 Fallow
6 Autumn-sown arable	33 Semi-improved	60 Fallow
7 Horse-grazed pasture	34 Horse-grazed pasture	61 Fallow
8 Autumn-sown arable	35 Horse-grazed pasture	62 Horse-grazed pasture
9 Amenity	36 Horse-grazed pasture	63 Horse-grazed pasture
10 Autumn-sown arable	37 Autumn-sown arable	64 Semi-improved
11 Hay pasture	38 Horse-grazed pasture	65 Horse-grazed pasture
12 Amenity	39 Hay pasture	66 Hay pasture
13 Fallow	40 Stubble	67 Hay pasture
14 Ephemeral flood	41 Stubble	68 Autumn-sown arable
15 Fallow	42 Hay pasture	69 Ephemeral flood
16 Stubble	43 Hay pasture	70 Hay pasture
17 Horse-grazed pasture	44 Fallow	71 Ephemeral flood
18 Fallow	45 Autumn-sown arable	72 Semi-improved
19 Autumn-sown arable	46 Hay pasture	73 Stubble
20 Autumn-sown arable	47 Stubble	74 Hay pasture
21 Autumn-sown arable	48 Hay pasture	75 Autumn-sown arable
22 Autumn-sown arable	49 Fallow	76 Autumn-sown arable
23 Semi-improved	50 Stubble	77 Autumn-sown arable
24 Horse-grazed pasture	51 Stubble	78 Fallow
25 Autumn-sown arable	52 Fallow	79 Fallow
26 Horse-grazed pasture	53 Fallow	80 Improved
27 Horse-grazed pasture	54 Fallow	

**FIGURE 3: MOST ATTRACTIVE FIELDS WITHIN SURVEY AREA**  
(Reproduced under licence from Google Earth Pro.)

The table below lists wader counts in each field type. The peak count column refers to the highest sum of all individuals of all species of waders in each habitat in any one survey. The count of 868 mostly involved an isolated high count in field 10 (autumn-sown arable) and there were generally much lower numbers of waders in autumn-sown arable (as the mean count of 99 indicates). However, autumn-sown arable was still the most used habitat. Amenity grassland, spring-sown arable and improved grassland were the least used field types.

<b>Habitat</b>	<b>Peak Count</b>	<b>Mean Count</b>	<b>Surveys Present</b>
Autumn-sown arable	868	99	27
Ephemeral flood	169	46	9
Horse-grazed pasture	76	16	22
Fallow	56	6	10
Hay pasture	53	4	5
Semi-improved grassland	33	1	1
Stubble	11	1	6
Amenity grassland	6	0	1
Spring-sown arable	2	0	1
Improved grassland	0	0	0

The figure below considers peak wader counts in relation to field size. The figure provides some evidence that the larger fields attract higher numbers of waders. However, the relationship between peak wader counts and field size is not strong, and the positive relationship is strongly affected by the isolated peak count of 682 in field 10. This fairly weak relationship between wader counts and field size is likely to be because a number of other factors influence field use such as enclosure by hedgerows and trees, disturbance, habitat and distance from the sea. The graph also shows that fields 6 and 71 attracted relatively high peak counts of waders given their relatively small size. Field 6 was likely to be attractive to waders because it provided suitable habitat close to the intertidal zone. Field 71 was attractive to waders because it contained ephemeral floodwater. In contrast fields 7, 8 and 79 attracted relatively small numbers given their size. Field 79 attracted relatively small numbers because it was fallow.



**FIGURE 4: PEAK WADER COUNTS IN RELATION TO SIZE OF FIELD. THE NUMBERS IN THE BODY OF THE GRAPH ARE FIELD NUMBERS.**

The table below provides some indication that numbers of waders using the survey area were higher at high tide compared to low tide.

TABLE 14: WADER COUNTS PER TIDAL STATE			
Tide	Peak Count	Mean Count	Surveys Present
High	845	85	21
Low	402	65	23

The table below provides an assessment of the conservation value of each wader species.

**TABLE 15: WADER EVALUATION<sup>9</sup>**

Species	National Priority	Schedule 1	Annex 1	Estimated South Tyneside Wintering Pop.	UK Wintering Population <sup>10</sup>
Curlew	✓			300	120,000
Dunlin			✓	200	345,000
Golden Plover			✓	4000	400,000
Lapwing	✓			700	620,000
Oystercatcher				500	285,000
Redshank				500	94,500
Ringed Plover				150	41,500
Ruff		✓	✓	1	895
Snipe				100	1,000,000
Turnstone				200	40,000
Woodcock				50	1,400,000

In addition to the species tabularised, wintering populations are 200 sanderling, 70 purple sandpiper and 20 jack snipe are estimated to be present in South Tyneside. These species were not recorded in the study area during survey work.

The table below lists declining and/or scarce non-wader species recorded during surveys. A high number of skylarks, potentially involving many passage migrants, were using arable fields in the survey area in February and March. Fields left as stubble, primarily field 41, attracted small numbers of seed-eating birds including reed bunting, yellowhammer, skylark, stock dove and grey partridge. Ducks were recorded using ephemeral floods during nocturnal surveys including wigeon, teal and mallard. Peregrine was recorded on a number of occasions adjacent to the operational Marsden Quarry, 3 snow bunting were present on 20th November in field 34, a tawny owl was recorded in West Hall, a merlin was recorded in field 10 on 20th November only and 2 pink-footed goose paused briefly in field 10 on 18th January.

<sup>9</sup> National Priority = Species of principal importance listed in Section 41 of the NERC Act (2006),  
Schedule 1 = Species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended. These are birds and their young, for which it is an offense to intentionally or recklessly disturb at, on or near an 'active' nest,  
Annex 1 = Species listed on Annex 1 of the Bird Directive (1979) as amended. This lists 194 species and sub-species which are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival.

<sup>10</sup> Woodward I, Aebischer N, Burnell D, et al. (2020) Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 113(2): 69–104.

<b>TABLE 16: PEAK INCIDENTAL SPECIES COUNTS ACROSS WHOLE SURVEY AREA</b>		
<b>Species</b>	<b>Date of Peak Count</b>	<b>Peak Count</b>
Skylark	20/02/2020	85
Meadow Pipit	23/03/2020	35
Mallard	23/12/2019	29
Linnet	01/02/2020	25
Fieldfare	16/12/2019	20
Wigeon	04/12/2019	17
Mistle Thrush	22/01/2020	15
Reed Bunting	18/01/2020	14
Stock Dove	27/01/2020	14
Yellowhammer	18/01/2020	14
Grey Partridge	26/11/2019	11
Shelduck	26/11/2019	5
Teal	16/12/2019	5
Snow Bunting	20/11/2019	3
Kestrel	16/12/2019	2
Mediterranean Gull	20/11/2019	2
Mute Swan	25/02/2020	2
Pink-footed Goose	18/01/2020	2
Buzzard	26/11/2019	1
Grey Wagtail	27/01/2020	1
Little Owl	18/11/2019	1
Merlin	20/11/2019	1
Peregrine	08/01/2020	1
Tawny Owl	04/12/2019	1

The table below provides an assessment of the conservation value of incidental species recorded during survey work (limited to scarce and/or declining species only).



<b>Species</b>	<b>National Priority</b>	<b>Schedule 1</b>	<b>Annex 1</b>	<b>UK Wintering Population</b>
Buzzard				
Fieldfare		✓		680,000
Grey Partridge	✓			
Grey Wagtail				
Kestrel				
Linnet	✓			
Little Owl				
Mallard				665,000
Meadow Pipit				
Mediterranean Gull		✓	✓	4,000
Merlin		✓	✓	
Mistle Thrush				
Mute Swan				50,500
Peregrine		✓	✓	
Pink-footed Goose				510,000
Reed Bunting	✓			
Shelduck				47,000
Skylark	✓			
Snow Bunting		✓		11,250
Stock Dove				
Tawny Owl				
Teal				430,000
Wigeon				445,000
Yellowhammer	✓			

<sup>11</sup> National Priority = Species of principal importance listed in Section 41 of the NERC Act (2006),  
Schedule 1 = Species listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended. These are birds and their young, for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest,  
Annex 1 = Species listed on Annex 1 of the Bird Directive (1979) as amended. This lists 194 species and sub-species which are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival.

## E. ASSESSMENT

### E.1 BIRD ASSESSMENT

The most attractive fields to waders were those in which the highest diurnal and/or nocturnal peak counts were recorded, the highest wader counts per hectare were recorded, fields that were used most frequently and fields that were used by the highest diversity of species. Such fields included 4, 5, 6, 7, 10, 17, 18, 22, 30, 33, 55, 56, 68, 69, 71, 78 and 79. The fields that tended to be used by waders were generally just west and north of Whitburn village, the old rifle range (field 7) and fields adjacent to Moor Lane and Cleadon Lane. The fields on top of Cleadon Hills tended not to be used by waders. In previous years field 7 at Whitburn (the old rifle range) has been favoured by up to several thousand golden plovers. However, numbers and frequency of use were much lower during this survey work for unknown reasons.

In general, the best fields for waders have a combination of several features. Small fields are less likely to be used by waders compared to larger fields. Field 10 is by some margin the largest field within the survey area and, again by some margin, it also recorded the highest peak count of waders. In contrast, fields such as 19 (1.79ha) and 24 (0.96ha) are some of the smallest fields within the survey area, and they recorded some of the smallest peak counts. However, fields 4, 5, 6 and 71 are examples of small fields with good counts. Fields 4, 5 and 6 are very open and coastal and field 71 contained ephemeral flood, which is an attractive habitat to waders.

Certain habitats are more favoured than others. The most used habitat types were autumn-sown arable, ephemeral flood and horse-grazed pasture because these habitats would have provided the best foraging conditions. In general, sward height needs to be relatively short and the density of grass quite low so waders can spot their prey species. Field 11 is relatively large with good sightlines, but the improved grassland was too dense and tall to be used by waders. It was clear that waders do not use fields that have been deeply and roughly ploughed but waders will use bare fields that have been harrowed so that the soil surface is smooth. Patches of floodwater are well used by waders, particularly if the wet patches lie towards the centre of the field away from boundary features and if the margins are shallow and unvegetated. The margins of fields need to be relatively open so that waders have long sightlines from the field. Small enclosed fields with poor sightlines, that have features such as woodland or housing situated adjacent to the field, tend to dissuade waders from using the field.

Survey work showed that fields closer to the intertidal zone tend to be used more by waders. This is because most of the waders recorded during survey work either forage or roost in the intertidal zone at some point during the day and seek to reduce the distance they fly to fields. The favoured fields for roosting were fields 7 and 10 as they were large fields close to the intertidal zone that contained suitable habitat. The only well-used fields west of West Hall was field 79 and, nocturnally, field 78.

Recreational disturbance reduced the attractiveness of fields. The short sward height and close proximity to the coast of fields such as 1, 2 and 80 are potentially suitable for waders including turnstone and oystercatcher but these fields are heavily disturbed. These fields allow open access to people and are particularly well-used by people walking dogs. All of the fields with the highest peak counts are undisturbed by human recreation because they are private fields that do not allow open access to people and dogs.

While waders in general tend to prefer the same type of habitats, preferences vary among species. Curlew was frequently seen using stubble fields, but this habitat tended not to be used by other species. Curlew was also frequently seen using fields with a longer sward height, which is due to the species' longer legs and bill that allow foraging in such fields.

Redshank primarily used fields that contained ephemeral flooding and ruff was only seen (on a single occasion) using ephemeral flooding. Turnstone, dunlin and ringed plover were only seen using fields adjacent to the intertidal zone. This reflects their dependence on intertidal habitat during the winter. Turnstone tended only to use horse-grazed grassland with a very short sward height; it is quite rare to see turnstone in arable fields.

Nocturnal surveys revealed a number of insights into the way in which waders use the survey area at night. The attractiveness of some fields changed at night, for example, 78 and 79 were two of the most used fields at night while they were used less during the day relative to other fields. In field 78, only a small area at the southern end of the field was suitable for foraging waders, and during the day, waders may have felt too vulnerable to predators to use the field. Field 79 may have been used more at night for similar reasons. Nocturnal surveys showed that flocks of lapwing and golden plover are more dispersed at night whereas during the day they form tightly packed flocks in a small number of fields. This ties in with the literature. Again, the greater dispersion at night is likely to be due to reduced risk of predation from for example birds of prey. For what are likely to be similar reasons, flocks of lapwing and golden plover also allowed closer approach by humans at night and they regularly foraged closer to field edges. Survey work showed that lapwing and golden plover arrived to forage in fields after dusk and departed these fields before dawn. Previous survey work has shown that nocturnal foraging waders use patches of amenity grassland at night that are unused during the day, but this was not apparent in this study. Curlew were not recorded at night because they roost nocturnally, with birds foraging in the survey area by day likely to use either Boldon Flats or the intertidal zone at night. An additional species, woodcock, was recorded at night but not during the day.

There was evidence that fields were used more at high tide, probably because waders were pushed out of the intertidal zone.

All waders recorded during survey work, except golden plover and oystercatcher, are of sufficient conservation concern to be placed on the BoCC4<sup>12</sup> list. Curlew is in steep decline and is now considered one of the UK's highest conservation priorities. Curlew belongs to the genus *Numenius* and two species belonging to this genus have recently become extinct; it is feared that curlew may suffer the same fate. Ruff is a nationally scarce wintering wader with only 895 estimated as wintering in Britain with most of these in southern England. Local knowledge indicates that the fields in the study area support a significant proportion of the waders wintering in the South Tyneside borough. The peak counts of golden plover, turnstone, dunlin, ringed plover, curlew and ruff are likely to represent more than 1% of the county wintering population. Based on the peak counts of these species, the survey area is likely to be of county value.

Of the incidental species recorded during survey work, several are scarce or of high conservation concern. The following are all scarce species in South Tyneside: snow bunting (wintering population generally less than 10 individuals at any one time), Mediterranean gull (less than 10 wintering individuals), buzzard (increasing but scarce species in borough), little owl (scarce and decreasing resident), tawny owl and merlin (only one or two seen in most winters). Red listed farmland birds, including yellowhammer, skylark, linnet and grey partridge were generally present in the study area in low numbers (an exception being large passage flocks of skylark recorded in February and March). However, these species are becoming increasingly scarce across the whole borough.

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<sup>12</sup> Red list species are of high conservation concern; amber list species are of medium conservation concern; Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746. National priority species are listed on the UK Post-2010 Biodiversity Framework published July 2012, formerly UK BAP.

## **E.2 LIMITATIONS AND CONSTRAINTS**

Assessment is only based on a single season's survey and the management of farmland fields will vary, to some extent, year to year. Autumn 2019 was wet, resulting in many farmers being unable to establish autumn sown crops, and a greater proportion of fields being fallow or stubble than is likely to usually be the case. Through the course of the survey some fields changed from stubble to fallow to growing crop, so the value of an individual field is likely to change through the season. No statistical assessments have been undertaken.

In addition, most fields were only converted to spring-sown arable towards the end of survey work in February and March (after having been stubble or fallow during previous surveys). Therefore relatively few surveys of spring-sown arable were undertaken and they were undertaken at a time of year when waders numbers were declining.

Some fields that were identified as being lower value for feeding waders could become higher value if the habitat type changes. For example, it is known that waders have used field 79 in the past when it has been autumn-sown arable or stubble, but the fallow habitat type present during this survey work was generally unsuitable for waders. Fields that are too small or too enclosed are unlikely to be used, even if the habitat type becomes more suitable.

The assessment of low, medium or high value fields only considers fields within the survey area. No comparison has been made with the value of fields outside the survey area. Fields identified as high value within the survey area could rank as higher or lower value elsewhere.

## F. SPECIES CONSERVATION

Where development could adversely affect fields identified as being of higher value for waders, either directly or through increased footfall, it is recommended that any planning application is supported by at least one season's additional non-breeding monitoring data for fields within 750m, including nocturnal survey with appropriate equipment, to better assess potential impacts.

Compensation measures should seek to avoid any net loss to the wintering wader populations supported in South Tyneside in line with current local and national guidance. The sections below consider the better quality habitats for each species detected in this survey, and potential measures to deliver off-site enhancement to compensate for development impacts should any fields in the survey area be developed.

The fields that attracted the highest numbers for each species are listed below, but Table 9 outlines other important fields used by each species.

### CURLEW

Fields that attracted peak counts of more than 50 curlew were 6, 30, 22, 68, 71 and 56. Conservation of these fields would benefit the species. Earthworms are the most important food for wintering curlews and in general fields that provide higher earthworms will attract higher numbers of curlew. The best fields for curlew in the study area were likely to have provided suitable foraging. Sown grass, rather than tillage, increases the availability of earthworms as their burrow systems are kept intact<sup>13</sup>.

At wintering sites, curlew is a wary species that easily flushes in response to disturbance from, for example, dog walkers and low flying aircraft. Less disturbance on wintering grounds could help increase curlew breeding productivity because the health of birds following the winter can carry over into the breeding season and affect breeding success. Boldon Flats is a nocturnal roost site for curlew and the continued provision of a winter flood would continue to provide a roost location for birds in the area.

As curlew is such a high conservation priority, the RSPB are currently running a recovery programme for curlew (<https://www.rspb.org.uk/our-work/conservation/projects/curlew-recovery-programme/>). The primary driver behind the decline of the species is poor breeding success and therefore most mitigation advice is focussed on improving conditions at breeding sites rather than in wintering areas. There are a number of ways to support the Curlew Recovery Programme such as donations (further information here: <https://www.rspb.org.uk/our-work/conservation/projects/curlew-recovery-programme/how-you-can-help/>), although this may not have a direct positive effect on curlew in South Tyneside.

### TURNSTONE, DUNLIN AND RINGED PLOVER

Turnstone (fields 4, 6, 7 and 10 only) was recorded on four occasions, dunlin (fields 7 and 10 only) on two occasions and ringed plover (field 10 only) on a single occasion. All three species were recorded roosting in these fields, with turnstone also seen foraging. These fields provided a roosting location close to the intertidal zone whilst also being open and large enough to allow predators to be seen. All three species were generally recorded when the tide was high when they would have been pushed out of the intertidal zone and forced to find roost sites elsewhere. This highlights that suitable high tide roost sites can be difficult to

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<sup>13</sup> Berg, Å. 1993. Food resources and foraging success of Curlews *Numenius arquata* in different farmland habitats. *Ornis Fennica* 70:22–31.

find for waders. The best high tide roosts for waders are often on islands, including islands on both freshwater wetlands and along coastlines. High tide roost site creation could benefit all three species. Fields 4, 5, 6 and 7, which are situated adjacent to the intertidal zone, would be in a suitable position for a wader scrape with habitat creation features aimed at attracting roosting waders.

### **GOLDEN PLOVER**

Three fields attracted peak counts of more than 50 golden plovers: 10 (53ha) , 7 (32ha) and 14 (20ha). These fields provided suitable roosting conditions; in particular each field was large and open to enable approaching predators to be seen. Although not recorded in this survey, field 7 has in previous years attracted the highest numbers of golden plover in the study area, including counts of up to several thousand. At night, counts of four or more golden plover were recorded in fields 5, 6, 7, and 55 with the highest count being 54 birds in field 7. Conservation of fields 10, 7 and 14 would most benefit the species. Up to approximately 250 golden plover roosted just to the west of the study area at Boldon Flats during winter 2019-20 and this is another important area for species. Jarrow Slake was used before reclamation of the mudflats. The availability of food, particularly earthworms, is an important factor influencing field use by foraging golden plovers. Certain field characteristics increase the availability of food for golden plover. Earthworm availability increases with time since ploughing, therefore, permanent pastures provides more earthworms, and annual application of farm yard manure can increase numbers. The survey area could be enhanced for golden plover by providing more permanent pasture.

### **LAPWING**

Five fields attracted peak counts of 25 or more lapwing: 10, 71, 79, 75 and 6 and conservation of these fields would most benefit the species. Fields 6 and 79 were primarily used by foraging lapwing and the others were primarily used by roosting lapwing. All fields provided short vegetation for roosting or foraging, and were open and/or large to aid predator detection. Most conservation advice and mitigation for lapwing is focussed on improving breeding success on breeding grounds. A small number of lapwing nest in the study area. Lapwing require short vegetation such as spring-sown arable or lightly grazed grassland during their nesting season (March to June). Cutting or cultivating grassland should be avoided during nesting season. The provision of damp grassland can be very beneficial to breeding lapwing. Fields 71-77 would be suitable for creating habitat suitable for breeding lapwing as the lower lying parts of these fields already become wet after rainfall. As with golden plover, the attractiveness of fields to non-breeding foraging lapwing could be enhanced by providing more permanent pasture.

### **OYSTERCATCHER**

Only a single bird was recorded on a single occasion in field 7. No specific enhancement is recommended for this species. The scarcity of the species within the survey area is likely to be due to the lack of suitable amenity grassland.

### **REDSHANK AND RUFF**

Redshank was recorded in the following six fields: 71, 69, 6, 14, 4 and 10. Within the study area, the species was generally attracted to ephemeral flood water. Ruff was recorded on a single occasion on this habitat type in field 71. The creation of a wader scrape in the study area would benefit these two species as well as a number of other wader species including wintering waders such as lapwing and passage waders such as green sandpiper. Wader scrapes are small, shallow patches of freshwater with gently sloping, irregularly shaped muddy margins.

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## **SNIPE**

Snipe was recorded in three fields each on one occasion: 47 (4 birds), 79 (3 birds) and 41 (1 bird). Generally the habitat in the study area is too dry for snipe. During the non-breeding season it prefers wet grassland, wetland margins and fen habitats. Wetland creation would benefit the species.

## **WOODCOCK**

Woodcock was recorded on a single occasion in field 5 during a nocturnal survey. This species is in heavy decline and has recently been added to the BoCC4 red list. Reasons for the decline are not fully understood. Generally, the species is only seen in South Tyneside during migration periods, although small numbers also winter in the borough in patches of woodland. The individual recorded in the study area during the nocturnal survey may have been a migrant.



## APPENDIX 1. LEGISLATION AND POLICY

### LEGISLATION

#### The Conservation of Habitats and Species Regulations 2017 (as amended)

Translates the Birds Directive and Habitats Directive into UK Law<sup>14</sup>.

#### Birds Directive (1979) (as amended)

Provides a framework for the conservation and management of, and human interactions with wild birds in Europe. The identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance<sup>1</sup>.

#### Annex 1 Species

These are rare breeding European birds such as golden plover and hen harrier, which are afforded special protection under Annex 1 of the EC Birds Directive and if recorded breeding on site will greatly increase the conservation value of the assemblage, with single pairs leading to at least county value up to national and international for SPA classified/significant populations.

#### The Convention on Wetlands (Ramsar) (1971)

Wetlands of international importance designated under the Ramsar Convention<sup>1</sup>.

#### Wildlife and Countryside Act (1981) (as amended)

Consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats and Council Directive on the conservation of wild birds (Birds Directive) in Great Britain.

The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) – these sites are identified for their flora, fauna, geological or physiographical features – by the country conservation bodies in England (Natural England).

#### Schedule 1 Species

These are rare or threatened breeding UK birds, such as peregrine or corncrake, which are afforded special protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the protection from killing or taking that all birds, their nests and eggs have under the Act, Schedule 1 birds and their young must not be disturbed at the nest.

These species are in general scarce breeders and will increase the ornithological value of the site in at least a district context. However, it includes barn owl, a much more common species, which is unlikely to be of greater than parish value, with the exception of more urban locations.

#### Natural Environment and Rural Communities (NERC) Act (2007)

The Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England<sup>15</sup>.

In addition, the following key documents were referred to:

#### UK Post 2010 Framework

The UK Post-2010 Biodiversity Framework published July 2012, covers the period from 2011 to 2020. The framework enables work at a “UK level” to achieve the ‘Aichi Biodiversity Targets’ and the aims of the EU biodiversity strategy. Most work that was previously carried out under the UK Biodiversity Action Plan (UK BAP) is now focused at the country level though many of the tools developed under the UK BAP remain of use; for example, lists of priority habitats and species. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work in the countries. The Framework reflects a revised direction for nature conservation, towards an approach that aims to consider the management of the environment in a holistic manner, and to acknowledge the importance of nature in decision-making and as such is an important document implemented by the four countries.

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<sup>14</sup> [www.jncc.defra.gov.uk](http://www.jncc.defra.gov.uk)

<sup>15</sup> [www.naturalengland.gov.uk](http://www.naturalengland.gov.uk)

BAP lists include both rare and common species whose populations' have declined. On most sites it is likely to be the common species that are likely to be present, resulting in local to district value depending on numbers.

### Birds of Conservation Concern<sup>1</sup>

Several long-term surveillance programmes are undertaken in the UK. The data from these schemes allow the population status of Britain's birds to be regularly reviewed, it is from these data that

#### *Red List species*

These are listed by the RSPB as species of high national conservation concern. Species are included on this list if they meet one or more of the following criteria:

- Globally threatened;
- Historical population decline in UK during 1800-1995;
- Rapid (> 50%) decline in UK breeding population over last 25 years; and
- Rapid (> 50%) contraction of UK breeding range over last 25 years.

#### *Amber List species*

These are listed by the RSPB as species of medium national conservation concern. Species are included on this list if they meet one or more of the following criteria:

- Historical population decline during 1800-1995, but now recovering with population size having more than doubled over the last 25 years;
- Moderate (25-49%) decline in UK breeding or non-breeding population or breeding range over the last 25 years;
- Species of European Conservation Concern;
- Five year mean of between only one and 300 breeding pairs in the UK;
- >50% of the UK breeding or non-breeding population in ten or fewer sites;
- >20% of the European breeding population in the UK; and
- >20% of the NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in the UK.

These birds of conservation concern are often common species or locally scarce species such as starling and tree sparrow, which may increase a sites value.

## **PLANNING POLICY**

The table below details the key paragraphs from the National Planning Policy Framework (NPPF)<sup>16</sup> relating to the natural environment:

<b>TABLE 18: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT</b>	
<b>Statement</b>	<b>Paragraph</b>
Planning policies and decisions should contribute to and enhance the natural and local environment by: <ol style="list-style-type: none"> <li>a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);</li> <li>b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;</li> <li>c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;</li> <li>d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;</li> <li>e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and</li> </ol>	170

<sup>16</sup> National Planning Policy Framework (February 2019), Department for Communities and Local Government,

<b>TABLE 18: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT</b>	
<b>Statement</b>	<b>Paragraph</b>
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.	
Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework <sup>17</sup> ; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.	171
Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads <sup>18</sup> . The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development <sup>19</sup> other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of: <ul style="list-style-type: none"> <li>a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;</li> <li>b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and</li> <li>c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.</li> </ul>	172
Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.	173
To protect and enhance biodiversity and geodiversity, plans should: <ul style="list-style-type: none"> <li>a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity<sup>20</sup>; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation<sup>21</sup>; and</li> <li>b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.</li> </ul>	174
When determining planning applications, local planning authorities should apply the following principles: <ul style="list-style-type: none"> <li>a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;</li> <li>b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any</li> </ul>	175

<sup>17</sup> Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

<sup>18</sup> English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

<sup>19</sup> For the purposes of paragraphs 172 and 173, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

<sup>20</sup> Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

<sup>21</sup> Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

<b>TABLE 18: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT</b>	
<b>Statement</b>	<b>Paragraph</b>
<p>broader impacts on the national network of Sites of Special Scientific Interest;</p> <p>c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>22</sup> and a suitable compensation strategy exists; and</p> <p>d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.</p>	
<p>The following should be given the same protection as habitats sites:</p> <p>a) potential Special Protection Areas and possible Special Areas of Conservation;</p> <p>b) listed or proposed Ramsar sites<sup>23</sup>; and</p> <p>c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.</p>	176
<p>The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.</p>	177

Section 40 of the Natural Environment and Rural Communities Act 2006, places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Planning Practice Guidance<sup>24</sup> states:

- Planning authorities need to consider the potential impacts of development on protected and priority species, and the scope to avoid or mitigate any impacts when considering site allocations or planning applications. (para. 016)
- Information on biodiversity and geodiversity impacts and opportunities needs to inform all stages of development (including site selection and design, pre-application consultation and the application itself). An ecological survey will be necessary in advance of a planning application if the type and location of development could have a significant impact on biodiversity and existing information is lacking or inadequate. (para. 018)
- Even where an Environmental Impact Assessment is not needed, it might still be appropriate to undertake an ecological survey, for example, where protected species may be present or where biodiverse habitats may be lost. (para. 018)
- As with other supporting information, local planning authorities should require ecological surveys only where clearly justified. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity. (para. 018)
- The National Planning Policy Framework encourages net gains for biodiversity to be sought through planning policies and decisions. Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures. (para. 022)

<sup>22</sup> For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

<sup>23</sup> Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

<sup>24</sup> Planning Practice Guidance: Natural Environment ([www.planningguidance.communities.gov](http://www.planningguidance.communities.gov)) Updated July 2019

## LEGISLATION REFERRED TO IN RELATION TO SITE ASSESSMENT

The following legislation has been taken account of during survey work and reporting.

- The Conservation of Habitats and Species Regulations 2017 (as amended)
- Birds Directive (1979) (as amended)
- The Convention on Wetlands (Ramsar) (1971)
- Wildlife and Countryside Act (1981) (as amended)
- Natural Environment and Rural Communities (NERC) Act (2007)

## PRIORITY SPECIES

Although not afforded any legal protection, national priority species (species of principal importance, as listed in Section 41 of the NERC Act (2006)), and local and regional priority species, as detailed within the relevant biodiversity action plans, are material considerations in the planning process and as such have been assessed accordingly within this report.

The table below details the local biodiversity action plan relevant to this site and the species/species groups (limited to birds) listed as priorities within the plan.

<b>TABLE 19: BIODIVERSITY ACTION PLAN</b>		
<b>Durham Biodiversity Action Plan</b>		
<b>Species/Species Groups</b>		
Barn Owl	Coastal Birds	Farmland Birds
Nightjar	Spotted Flycatcher	Upland Birds

In addition, the BoCC4<sup>1</sup> categorisation has been considered during the production of this report.