Rampion 2 WIND FARM

# Rampion 2 Wind Farm

# Category 6: Environmental Statement

## Volume 4, Appendix 22.14: Onshore winter bird report 2020 - 2022

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# 1. Introduction

## 1.1 Background

1.1.1 This Appendix should be read in conjunction with **Chapter 22: Terrestrial Ecology and Nature Conservation, Volume 2** (Document Reference: 6.2.22) of the Environmental Statement (ES) which is provided in support of the delivery of an Environmental Impact Assessment (EIA) associated with the Rampion 2 Offshore Wind Farm, hereafter referred to as the 'Proposed Development' or 'Rampion 2'.

1.1.2 This Appendix describes the survey method and summarises the results of onshore winter bird surveys undertaken between September 2020 and March 2021, and November 2021 and February 2022 inclusive.

## 1.2 Legislation

1.2.1 The main legislation relating to the protection of habitats and birds within the UK are: The Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") as amended by the Conservation of Habitats and Species (Amendment) (European Union (EU) Exit) Regulations 2019; Wildlife and Countryside Act 1981 (as amended) (WCA) and the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

1.2.2 The Habitat Regulations and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 transposed 'Council Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna' (1992) ('the Habitats Directive') into national law. They also transposed elements of 'Council Directive 2009/147/EC on the conservation of wild birds' (2009) ('the Birds Directive'). The Habitats Regulations provide the framework for the protection of Natura 2000 sites (now referred to as the national site network following amendments that came into force on 31 December 2020). The regulations set out the process regarding the assessment of development including Habitats Regulations Assessments associated with designated sites.

1.2.3 The WCA, (as amended), amongst other matters provides protection for wild birds, certain flora and fauna, under the Act "*it is illegal to kill, injure or 'take' any wild bird, take or damage the nest of any wild bird whilst in use or being built or take, destroy or be in possession of any eggs of wild birds*". Some birds are afforded further protection under Schedule 1 of the Act, making it an offence to 'intentionally or recklessly disturb at, or near an 'active' nest any bird listed on Schedule 1, including young dependent upon a nest structure.

1.2.4 Section 41 of The NERC Act 2006 (as amended) lists habitats and species of principal importance for use for biodiversity conservation. The list, including 56 habitats of principal importance (HPI) and 943 species of principal importance (SPI), including 59 bird species. The list aids public bodies, helping them meet their 'biodiversity duty' to be aware of conservation in their policy and decision making.

## 1.3 Structure of this Appendix

1.3.1 This Appendix is structured as follows:

- **Section 2**: Methods;
- **Section 3**: Results;
- **Section 4**: Glossary;
- **Section 5**: References;
- **Annex A**: Figures;
- **Annex B**: Species records; and
- **Annex C**: Full survey details.

# 2. Methods

## 2.1 Defining scope of data collection

2.1.1 The data collection effort comprised the following:

- Desk study records of statutory and non-statutory designated sites of ornithological importance and records of notable bird species;
- Intertidal surveys along the shoreline at Climping Beach, where the electricity transmission cable for Rampion 2 makes landfall; and
- Winter bird surveys within the Arun and Adur valley floodplains.

2.1.2 Due to the scale and nature of the proposed development, it is not proportionate to undertake winter bird surveys across the entire site, instead a sampling method was used, with surveys focusing within areas most likely to support aggregations of wintering birds (particularly those associated with nearby designated sites). Survey areas and ornithological interest features were identified during the desk study.

2.1.3 Surveys were undertaken during the optioneering phase of the project before design freeze was reached. As such, some of the recording areas now fall outside of the proposed DCO Order Limits. The results of all surveys are here reported as they provide useful contextual information. All survey locations are shown in context to the proposed Development Consent Order (DCO) Order Limits on **Figures 22.14.1** – **22.14.3**, **Annex A**.

## 2.2 Desk study

2.2.1 An environmental desk study was undertaken to identify statutory designated sites of international and national importance for ornithology within 10km of the proposed DCO Order Limits, and non-statutory designated sites of ornithological importance within 5km of it. The search was carried out using the website www.magic.gov.uk (a Web-based Multi-Agency Geographic Information for the Countryside (MAGIC) database, provided by Department for Environment, Food and Rural Affairs (Defra), (2021)). Information on the designated sites identified was gathered from the websites of Natural England and the Joint Nature Conservation Committee (JNCC, 2021) - www.designatedsites.naturalengland.org.uk and www.jncc.defra.gov.uk.

2.2.2 In addition to the desk study for designated sites, species specific data was gathered from the Royal Society for the Protection of Birds (RSPB), Sussex Ornithological Society (SOS) and Sussex Biological Record Centre (SxBRC) within 2km of the proposed DCO Order Limits[1]. Species specific data was requested for all protected or notable species occurring in winter.

[1] The exact distance varied for the record search provided by SOS as their data is specified by tetrad.

## 2.3 Intertidal survey

2.3.1 Intertidal surveys were undertaken between September 2020 and March 2021 inclusive, and between November 2021 and February 2022 inclusive, as there is the potential for important numbers of wintering birds to occur within the proposed DCO Order Limits, particularly along the coastline. The purpose of the intertidal bird survey was to collect data to confirm the typical distribution and assemblages of waterbird[2] species associated with nearby designated sites (see **Section 3: Results**). The surveys followed the so-called 'look-see' methodology (Bibby *et al.,* 2000), whereby the observer undertakes a census of all waterbird species within a predefined waterbody/wetland area. The surveys focussed on the diurnal distribution of birds, and movements across tidal cycles.

### Data collection locations

2.3.2 The survey focused on intertidal habitats and fields directly behind the seawall within 1km of the indicative cable landfall location. For the purposes of the intertidal survey, this area was divided into two survey sectors. These survey sectors were observed simultaneously by two surveyors (**Figure 22.14.1, Annex A**). The survey employed a roving observation point technique, used to observe all birds within the sectors during the survey period.

2.3.3 Full survey details, including visit dates, times and weather conditions are available in **Table C-1, Annex C**.

### Data collection methods

Instantaneous Scan Samples

2.3.4 Instantaneous Scan Samples (ISS) are 'snapshots' that record how waterbirds use each survey sector within an area at a given interval. On each survey date two surveyors undertook six hours of simultaneous survey, one located within each sector in order to observe any changes/patterns in the distribution of waterbirds across the tide. During each six-hour period, a series of seven ISS counts were undertaken using the 'look-see' methodology (Bibby *et al.,* 2000) at 60-minute intervals within each sector, the first being at the start of the survey. ISS intervals were chosen to coincide with tidal movements with surveys observing high tide +/- 3 hours, and low tide +/-3 hours, each month. The species present, number and behaviour of all target[3] species was recorded on a new field map for each ISS.

2.3.5 All other wildfowl and wader species recorded during the surveys are considered secondary species, these were recorded to provide an accurate representation of

[2] Waterbirds are here considered to be birds that frequent water, especially habitual wading, or swimming birds. This term includes ducks, geese, swans and their relatives; seabirds; herons, egrets and storks; grebes and divers; wading birds; gulls and terns; and rails, crakes and allies. All waterbirds are considered non-passerine.

[3] Target species for the Intertidal survey are species included on the designations of the Solent and Dorset Coast Special Protected Area (SPA) and the Climping Beach Site of Special Scientific Interest (SSSI). These species are identified in **Table 3-7**.

birds utilising the survey sectors. These birds had the same information as recorded for target species.

2.3.6 Surveyors started at the same time and remained in contact throughout the survey to minimise the risk of double counting at count sector boundaries. Bird activity was recorded using four categories:

- Feeding/foraging;
- loafing/preening;
- roosting; and
- other (specified by the surveyor).

2.3.7 Each ISS count plotted flocks or single birds accurately on the field map and counts were tallied for each species and activity.

2.3.8 In addition to ISS, where species peak counts were observed outside of, but between ISS, the peak counts of species present were noted with an accurate timestamp. Therefore, peak counts of birds were recorded within the survey period, even if not occurring during the ISS.

2.3.9 As disturbance was considered a potential factor influencing survey results, the number of people using the beach during each ISS was noted to assess baseline conditions and ascertain the influence of their presence upon the results of the survey.

## Deviations, constraints and limitations

2.3.10 Intertidal surveys aim to undertake two surveys per month covering the high tide period +/- 3 hours and a low tide period +/-3 hours. Due to the commencement date of the survey, there were not two suitable tidal ranges during the September 2020 recording period. The first visit was therefore undertaken on the 24 September 2020 with the second visit (also considered herein as September) being on 02 October 2020. This lapse of two days is considered a minor deviation. There were no other deviations during the survey period.

2.3.11 Typically target species are prioritised for detailed recording on occasions when there are large numbers of waterbirds present in an area. Although the survey method was set up to allow for this, the relatively small number of birds (compared, for example, to large areas of intertidal mudflat) present in the count sectors throughout the winter of 2020/2021 did not require a switch to the recording of coarser grained information for secondary species.

2.3.12 Following Natural England's request for additional data, winter bird surveys during winter 2021-22 were conducted between November 2021 and February 2022, this is a shortening of three months compared to the assessment undertaken in 2020-21. This deviation is not considered detrimental to the overall assessment as target species are expected to peak within the core months assessed during the second winter period.

2.3.13 There were no further deviations, constraints or limitations during the wintering surveys November 2021 – February 2022.

## 2.4 Winter bird surveys

2.4.1 Due to the proximity of the indicative cable corridor (during the optioneering phase) to the Arun Valley Ramsar site and Special Protection Area (SPA), winter bird surveys targeting wildfowl and wading birds associated with the SPA/Ramsar and the underlying Site of Special Scientific Interest (SSSI) designations (at Pulborough Brooks and Amberley Wild Brooks) were undertaken. These targeted the floodplains and wet fields within and close to the proposed DCO Order Limits on the River Arun and River Adur floodplains between September 2020 and March 2021, and November 2021 to February 2022 inclusive. The purpose of the winter bird survey is to collect data on the distribution and assemblages of waterbird species that utilise this land as functionally linked habitat from the nearby designated sites. The surveys focussed on diurnal distribution of target species throughout the survey period.

### Data collection locations

2.4.2 The survey focused on the floodplains and fields surrounding the River Arun and River Adur within proposed DCO Order Limits and within 500 metres of it. For the purposes of the winter bird survey, this area was divided into two survey areas. These survey areas were observed simultaneously by two surveyors (**Figures 22.14.2** and **22.14.3, Annex A**). The survey employed a roving observation point technique, used to observe all birds within the survey areas during the survey period.

2.4.3 Following an initial scoping assessment in September 2020, winter bird surveys were undertaken within the potential functionally linked habitat on a monthly basis between 28 September 2020 and 12 March 2021 during the first winter period, and between 17 November 2021 and 02 February 2022 during the second winter period. Full survey details, including dates, times and weather conditions can be found in **Annex C**, **Table C-2.**

### Data collection methods

2.4.4 The winter bird survey covered two survey areas, both observed on a single day allowing a snapshot record of the number and distribution of wintering birds present each month to be recorded, whilst minimising the chance of duplicate counts.

2.4.5 The aim of these surveys was to determine whether any of the notable species defined below, regularly feed or roost within or close to the proposed DCO Order Limits.

2.4.6 Notable species are defined as:

- Species listed as notified features on nearby designated sites: Bewick's swan, shoveler, teal, wigeon, pintail and ruff;
- All other waders and wildfowl (excluding feral/domestic birds, mallard, Canada goose and greylag goose) for consideration to overall winter assemblage number;

- Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- Species listed on Annex 1 of the EU Birds Directive; and
- Birds of Conservation Concern (BoCC) red list species (Stanbury *et al*., 2021).

2.4.7 Surveyors recorded accurate locations of species directly onto survey maps recording the following details:

- Species (using standard British Trust for Ornithology [BTO] 2-letter codes);
- number of individuals;
- location of records; and
- activity (foraging, loafing, roosting etc.).

2.4.8 The presence of species that do not qualify as notable using the criteria were noted to record a full species list for each survey area, however, information on numbers, distribution and behaviour were not recorded.

2.4.9 All surveys avoided heavy rain, or strong or cold winds, minimising variation in bird activity levels due to weather conditions, wherever possible. All visits started at least an hour after dawn and were completed by 15:00 hours.

## Deviations, constraints and limitations

2.4.10 There were no deviations from the proposed methodology during the winter bird surveys.

2.4.11 An identifiable constraint was a lack of land access across parts of the survey area, although many areas of open floodplain can be viewed from highways/byways and Public Rights of Way (PRoW).

2.4.12 **Figures 22.14.2** and **22.14.3, Annex A** represent the areas where suitable coverage was available within the survey area, the blank gaps within the floodplains represent areas where access was not possible. In **Figure 22.14.2** the area shown between the River Arun and the railway near Littlehampton was not fully visible due to the raised railway embankment. Surveyors spent time in the area to try to audibly record any target species. There were no constraints to access within the areas shown on **Figure 22.14.3**.

2.4.13 Counts undertaken at the private waterbodies by St Mary Magdalene's Church should be taken as minimum counts as visibility was limited due to fencing/vegetation/banks. Although restricted viewing resulted in minimum total counts rather than unrestricted counts, it is not considered that these counts were grossly inaccurate. Approximately 80% of the waterbodies could be viewed at any one time, with surveyor movement between three or four viewing areas (dependent on height of surveyor and visibility through vegetation) taking less than two minutes. It is not likely that birds moving around within the waterbody would be counted as duplicates, but birds may not be recorded if moving to areas previously checked by surveyors. These counts were judged by the surveyors as being accurate to within ~10% of total number of birds present.

2.4.14 Contrastingly, if access was available to these waterbodies, the presence of surveyors entering the site would undoubtably have flushed the target species from the area causing unnecessary disturbance, potentially resulting in a less accurate assessment of behaviours.

2.4.15 Despite the limitations described above the dataset is considered to provide a robust approximation of the waders and wildfowl population present during daylight hours on the relevant sections of the River Arun and Adur floodplains in the winter periods of 2020/21 and 2021/22.

2.4.16 Following consultation comments and additional records being returned in March 2021, an additional survey effort was made in winter 2021-22 to identify the location and number of Bewick's swans wintering within the regular winter herd known to frequent the floodplains within 3km of the proposed DCO Order Limits; results are presented in **paragraph 3.4.7**.

# 3. Results

## 3.1 Statutory designated sites of ornithological importance

3.1.1 Ten designated sites were identified within the search area as sites of ornithological importance, with five sites principally designated for over-wintering species. See **Table 3-1** below.

3.1.2 Three statutory designated sites of international importance were identified within 10km of the proposed DCO Order Limits, these are identified in **Table 3-1**. Six nationally designated sites of ornithological importance were identified within 5km of the proposed DCO Order Limits. One of these sites (Climping Beach SSSI) overlaps with the proposed DCO Order Limits.

**Table 3-1 Details of statutory designated sites of ornithological importance**

| Site name | Designated features | Distance and direction from the proposed DCO Order Limits |
|---|---|---|
| **Internationally important sites** | | |
| **Arun Valley SPA** | Bewick's swan (non-breeding)<br>Waterfowl assemblage (non-breeding): including shoveler, teal, wigeon and Bewick's swan. | 4.8km north-west |
| **Arun Valley RAMSAR** | Qualifies under Ramsar Criterion 5 for winter assemblage of international importance: 13774 waterfowl. | 4.8km north-west |
| **Solent and Dorset Coast SPA** | Sandwich tern (breeding), Common tern and little tern (breeding) | 2.3km south-west |
| **Nationally important sites** | | |
| **Amberley Wild Brooks SSSI** | Redshank (breeding)<br>Bewick's swan, shoveler and teal (non-breeding).<br>Breeding bird assemblage – mixed lowland damp grassland, woodland. | 4.8km north-west |

| Site name | Designated features | Distance and direction from the proposed DCO Order Limits |
|---|---|---|
| **Arundel Park SSSI** | Breeding bird assemblage – mixed: scrub, woodland | 2.9km north-west |
| **Chanctonbury Hill SSSI** | Breeding bird assemblage – mixed: lowland damp grassland, woodland | 0.7km south |
| **Cissbury Ring SSSI** | Breeding bird assemblage – mixed: scrub, woodland | 4.2km south-east |
| **Climping Beach SSSI** | Sanderling – winter assemblage of up to 300 individuals represent 1% of West European population. | Within proposed DCO Order Limits |
| **Sullington Warren SSSI** | Breeding bird assemblage – mixed: scrub, woodland | 0.7km east |

3.1.3 Though most of these designated sites do not overlap with the proposed DCO Order Limits, except Climping Beach SSSI, there is the potential for birds notified on all designations to utilise the habitats that the indicative cable corridor crosses, it is therefore necessary to assess these habitats as potentially functionally linked.

3.1.4 The following species are listed as individual qualifying features of the designated sites (see **paragraphs 3.1.5** to **3.1.9**) or as part of the relevant overwintering assemblages relevant to the winter bird survey effort:

- **SPA and Ramsar listed**: Bewick's swan *Cygnus columbianus bewickii*, common tern *Sterna hirundo*, little tern *Sterna albifrons*, sandwich tern *Sterna sandvicensis*, shoveler *Spatula clypeata*, teal *Anas crecca*, wigeon *Mercea penelope*, pintail *Anas acuta* and ruff *Calidris pugnax*.
- **SSSI listed**: Sanderling *Calidris alba*.

3.1.5 The Arun Valley SPA/Ramsar site lies 4.8km north-west of the indicative cable corridor, between Pulborough and Amberley within the River Arun Valley in West Sussex. The SPA/Ramsar site consists of three component SSSI (Amberley Wild Brooks SSSI; Pulborough Brooks SSSI and Waltham Brooks SSSI). Together these sites comprise an area of wet meadows on the floodplain of the River Arun. The neutral wet grassland which is subject to winter, and occasional summer flooding, is dissected by a network of ditches, several of which support rich aquatic flora and invertebrate fauna. The combined area of these three component sites is 529 Hectares, with both SPA and Ramsar designations covering the same area.

3.1.6 The Arun Valley SPA qualifies under Article 4.1 qualification ('Council Directive 79/409/EEC', 1979). Over winter the area regularly supports: Bewick's swan (Western Siberia/North-eastern & North-western Europe) 1.6% of the population in Great Britain (GB) five year peak mean for 1992/93 to 1996/7 and Article 4.2

qualification ('Council Directive 79/409/EEC', 1979): An internationally important assemblage of birds, over winter the area regularly supports: 27,241 waterfowl (five year peak mean 1991/92-1995/96) Including: Bewick's swan.

3.1.7 The Arun Valley Ramsar is considered an area of outstanding ornithological importance notably for wintering wildfowl and breeding waders. The site qualifies as a Ramsar under criterion 5 assemblages of international importance: Species with peak counts in winter: 13,774 waterfowl (five year peak mean 1998/99-2002/03). Noteworthy fauna include: Eurasian wigeon, North-west Europe 4,742 individuals, representing an average of 1.1% of the GB population (five year peak mean 1998/9 – 2002/3); Eurasian teal, North-west Europe, 2,931 individuals, representing an average of 1.5% of the GB population (five year peak mean 1998/9 – 2002/3); Northern shoveler, North-west and Central Europe, 222 individuals, representing an average of 1.5% of the GB population (five year peak mean 1998/9 – 2002/3); and Ruff, Europe and West Africa, 27 individuals, representing an average of 3.8% of the GB population (five year peak mean 1998/9-2002/3).

3.1.8 Climping Beach SSSI lies 0.1km east of the landfall location for the indicative cable corridor, between Atherington and Littlehampton. The site is a stretch of coast with vegetated shingle beach, backed by a sand dune system. The intertidal zone supports important populations of wintering birds and the numbers of wintering sanderling, in particular are of European significance.

3.1.9 Solent and Dorset Coast SPA lies 2.3km south-west of the landfall location for the indicative cable corridor at the nearest point; Middleton-on-Sea. The SPA is noted for importance to breeding tern populations, qualifying under Article 4.1 ('Council Directive 79/409/EEC', 1979) during the breeding season as the area regularly supports: sandwich tern – 4.01% of the GB breeding population (five year mean 2010-2014, 441 pairs). Common tern – 4.77% of the GB breeding population (five year mean 2009-2014, 492 pairs). Little tern – 3.31% of the GB breeding population (five year mean 2009-2014, 63 pairs).

## 3.2 Species records

3.2.1 As part of the environmental desk study, species data for birds likely to be wintering within proximity of the indicative cable corridor were gathered from the RSPB, SOS and SxBRC. Records of dark-bellied brent goose and Bewick's swan in particular were considered notable due to their notifications on nearby statutory designated sites.

3.2.2 Dark-bellied brent goose are a qualifying feature of the nearby Pagham Harbour Ramsar under Ramsar criterion 6 – species/populations occurring at levels of international importance. 2,512 individuals, representing an average of 1.1% of the population (five year peak mean 1998/9-2002/3). Brent geese forage within intertidal areas and arable fields, often roosting and foraging within fields when the tidal state is unfavourable to forage. Brent goose are considered here as there is the potential for birds to utilise the area close to the landfall site.

3.2.3 The data requests returned 208 brent goose records and 443 Bewick's swan records within 3km of the indicative cable corridor, between winter of 2010/11 and 2020/21; records older than ten winter periods have been discounted as they are

no longer considered accurate reflections of the status of target species within the area.

3.2.4 The majority of the brent goose records (201 of 208) are from Climping/Climping Beach/Elmer rocks area near where the indicative cable corridor makes landfall; the average count of birds in the Climping area is 233 with records ranging from single birds to a peak count of 1,500. There were three records of brent goose in Partridge green, towards the northern end of the indicative cable corridor. Two records in 2011: Six individuals 13 January 2011, and an unconfirmed report of 100 birds 20 August 2011. There was a lone bird with greylag geese 15 January 2015. The final four brent goose records returned were from Arundel or further south toward the coast.

3.2.5 The 443 Bewick's swan records from winter 2010/11 to 2020/21 reflect a regularly occurring winter herd of swans within the search area, records are summarised in **Table 3-2** below.

**Table 3-2 Summary of Bewick's swan Desk Study records winter 2010/11 to 2020/21**

| Winter period | Number of records | Mean count | Peak count | Date of first record | Date of last record | Date of Peak count |
|---|---|---|---|---|---|---|
| **2010/11** | 44 | 14.9 | 42 | 29/10/2010 | 05/03/2011 | 02/02/2011 |
| **2011/12** | 34 | 25.7 | 33 | 29/11/2011 | 20/02/2012 | 11-15/02/2012 |
| **2012/13** | 47 | 19.6 | 40 | 14/11/2012 | 10/03/2013 | 09/02/2013 |
| **2013/14** | 22 | 7.5 | 14 | 17/11/2013 | 28/02/2014 | 26/11/2013; 10-18/12/2013 |
| **2014/15** | 90 | 25.1 | 42 | 29/11/2014 | 25/02/2015 | 30/12/2014 |
| **2015/16** | 25 | 4.2 | 11 | 22/11/2015 | 27/02/2016 | 19/02/2016 |
| **2016/17** | 64 | 11.0 | 22 | 29/11/2016 | 03/03/2017 | 21/01/2017-26/01/2017 |
| **2017/18** | 21 | 6.3 | 13 | 05/12/2017 | 09/03/2018 | 14/01/2018 |
| **2018/19** | 49 | 8.7 | 14 | 04/11/2018 | 12/04/2019 | 06/01/2019 |
| **2019/20** | 34 | 3.4 | 6 | 29/10/2019 | 18/02/2020 | 05-18/02/2020 |
| **2020/21** | 13 | 9 | 14 | 22/12/2020 | 21/02/2021 | 12/02/2021 |
| **Total Mean*** | 40.3 | 12.3 | 22.8 | 20 November | 28 February | 11 February |

| Winter period | Number of records | Mean count | Peak count | Date of first record | Date of last record | Date of Peak count |
|---|---|---|---|---|---|---|
| The total mean is the sum of all yearly values/number of years recording (11). This row also provides: The mean number of annual records, mean annual Mean, peak mean, average arrival date, average departure date and average date of peak count. | | | | | | |

3.2.6 From Bewick's swan records returned as part of the desk study, there is evidence of a regular wintering herd around Burpham/Wepham water meadows. This herd are regularly recorded in their wintering grounds >2km north/north-west of the proposed DCO Order Limits; shielded from the indicative cable corridor by an escarpment and blocks of ancient woodland. The peak annual counts show overall decline reflecting the national trend for this declining winter visitor, there is also evidence suggesting reduction in overall numbers of birds returning to the area along with later arrival dates, earlier departure dates and overall shorter wintering presence within the wider area.

## 3.3 Intertidal survey

3.3.1 Across both winter survey periods, a total of 45 target and secondary species were recorded during the intertidal survey (35 species in 2020-21 and 35 species in 2021-22), including five target species that are a qualifying feature of the Arun Valley SPA / Ramsar site, Solent and Dorset Coast SPA or Climping Beach SSSI:

- Three species are listed as individual qualifying features of the Arun Valley SPA and Arun Valley Ramsar site (pintail, teal and wigeon);
- One species is listed as an individual qualifying feature of the Solent and Dorset Coast SPA (sandwich tern); and
- One species is a monitored feature of Climping Beach SSSI (sanderling).

3.3.2 **Table 3-3**, below, shows peak monthly counts of target species recorded during the intertidal surveys, September 2020 to March 2021.**Table 3-4** below, shows peak monthly counts of target species recorded during the intertidal surveys, November 2021 – February 2022.These peak counts represent the maximum number of target species within the survey area throughout the individual survey days. Peak counts presented below are considered the outright peak number of birds during the survey effort and in-combination counts of simultaneously obtained ISS results. The peak counts shown in bold represent the peak count during the survey periods; September 2020 – March 2021 inclusive, and November 2021-February 2022 inclusive.

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**Table 3-3 Monthly peak counts of target species recorded during the intertidal surveys (September 2020 to March 2021)**

| Species | Conservation Status* | September | October | November | December | January | February | March |
|---|---|---|---|---|---|---|---|---|
| **Pintail** | Amber | 15 | - | - | - | **18** | - | - |
| **Sanderling** | Amber | 3 | 15 | **80** | 19 | 60 | 32 | 12 |
| **Sandwich tern** | Annex I, Amber | **3** | 2 | - | - | - | - | - |
| **Teal** | Amber | - | - | - | - | **2** | 1 | - |
| **Wigeon** | Amber | 13 | 2 | - | - | 18 | **19** | - |

* Annex I = Annex I of the EU Birds Directive; SPI = Species of Principal Importance; Red / Amber/ Green = BoCC5 red / amber / green listed species.

**Table 3-4 Monthly peak counts of target species recorded during the intertidal surveys (November 2021 to February 2022)**

| Species | Conservation Status* | November | December | January | February |
|---|---|---|---|---|---|
| **Pintail** | Amber | - | - | **-** | **4** |
| **Sanderling** | Amber | 15 | **33** | 20 | - |
| **Teal** | Amber | - | **6** | **-** | - |
| **Wigeon** | Amber | **39** | - | 4 | **-** |

* Annex I = Annex I of the EU Birds Directive ('Council Directive 79/409/EEC', 1979); SPI = Species of Principal Importance; Red / Amber/ Green = BoCC5 red / amber / green listed species.

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3.3.3 There were no records of Bewick's swan, common tern, little tern, ruff or shoveler during the intertidal surveys.

3.3.4 Pintail were recorded on four of 22 survey visits on 24 September 2020; 02 October 2020; 13 January 2021 and 01 February 2022. All records relate to birds flying over the sea within 300m of mean high water springs level. There was no evidence of birds foraging within the survey sectors. The peak pintail count was 18 birds on 13 January 2021, where the birds flew west an hour before high tide.

3.3.5 Sanderling were recorded on 18 of 22 survey visits, with records in every month from September 2020 to March 2021, and during all visits from November 2021 to February 2022. The distribution of records was fairly even within the survey sectors, with 57% of records in Sector 2. Birds were regularly recorded foraging in small numbers across both sectors. The peak count was 80 birds roosting over high tide on 03 November 2020.

3.3.6 Sandwich tern were recorded on four of 22 visits, with all records between September and October 2020. All records were of birds foraging offshore, with a peak count of three birds on 02 October 2020. There were no records between November 2021 and February 2022.

3.3.7 Teal were recorded on four of 22 visits on 02 October 2020; 13 January 2021; 12 February 2021; and 06 December 2021. Records consisted of three fly-over counts and a single record of a lone bird roosting (12 February 2021). There was no evidence of Teal foraging within the survey sectors. The peak count of teal was six birds on 06 December 2021.

3.3.8 Wigeon were recorded on six of 22 visits between 02 October 2020 and 11 February 2022. Numbers of birds recorded on visits remained low throughout the survey period, with a peak count of 39 birds flying over the sea on 18 November 2021. There were six observations of birds flying over the survey area, seven observations of birds loafing / preening on the sea and a single observation of eight birds foraging at high tide on 02 October 2020.

Secondary species

3.3.9 Secondary species account for 40 of the 45 species recorded during the intertidal survey, including:

- Nine species listed on Annex I of the Birds Directive ('Directive 2009/147/EC', 2009) (black-throated diver, red-throated diver, great northern diver, guillemot, little egret, Mediterranean gull, golden plover, Slavonian grebe and barnacle goose);
- Six Species of Principal Importance (SPI) (common scoter, dark-bellied brent goose, herring gull, black-tailed godwit, curlew and lapwing); and
- Eight species listed on Birds of Conservation Concern (BoCC) Red list (Stanbury *et al.*, 2021) (common scoter, herring gull, lapwing, ringed plover, black-tailed godwit, dunlin, kittiwake, and Slavonian grebe).

3.3.10 **Table 3-5** below, shows peak monthly counts of secondary species recorded during the intertidal survey, September 2020 to March 2021. **Table 3-6** below, shows peak monthly counts of secondary species recorded during the intertidal

survey, November 2021 to February 2022. These peak counts represent the maximum number of secondary species within the survey area throughout the individual survey days. Peak counts presented below considered the outright peak number of birds during the survey effort and in-combination counts of simultaneously obtained ISS results. The peak counts shown in bold represent the peak count during the survey period September 2020 – March 2021 inclusive; and November 2021 – February 2022 inclusive.

**Table 3-5 Monthly peak counts of secondary species recorded during the intertidal surveys September 2020 to March 2021**

| SECONDARY SPECIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Sept 2020** | **Oct 2020** | **Nov 2020** | **Dec 2020** | **Jan 2021** | **Feb 2021** | **Mar 2021** |
| **Black-headed gull** | Amber | - | **145** | 43 | - | 1 | 6 | 50 |
| **Common gull** | Amber | - | **178** | 18 | - | - | 70 | 2 |
| **Common Scoter** | SPI, Red | **19** | 1 | 1 | 4 | 18 | 4 | 1 |
| **Cormorant** | Green | 2 | 3 | 2 | - | 6 | 2 | **9** |
| **Dark-bellied brent goose** | SPI, Amber | 1 | 1 | 620 | **640** | 187 | 160 | 188 |
| **Dunlin** | Red | **6** | 1 | 3 | 5 | **6** | - | 4 |
| **Gadwall** | Amber | - | 1 | - | - | **2** | - | - |
| **Gannet** | Amber | 5 | - | - | 2 | 1 | **14** | 2 |
| **Great crested grebe** | Green | - | 1 | 1 | 6 | **24** | 3 | 18 |
| **Great northern diver** | Annex I, Amber | - | **1** | - | - | - | - | - |
| **Grey plover** | Amber | 3 | 6 | **71** | 47 | 37 | - | 7 |
| **Guillemot** | Annex I, Amber | - | - | - | **1** | **1** | - | - |
| **Herring gull** | SPI, Red | - | - | - | - | - | 2 | **26** |
| **Knot** | Amber | - | - | **1** | - | - | - | - |
| **Lapwing** | SPI, Red | - | - | - | - | - | **16** | - |

| SECONDARY SPECIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Sept 2020** | **Oct 2020** | **Nov 2020** | **Dec 2020** | **Jan 2021** | **Feb 2021** | **Mar 2021** |
| **Lesser black-backed gull** | Amber | - | - | - | - | - | - | **7** |
| **Mediterranean gull** | Annex 1, Amber | **149** | 56 | 26 | 9 | 13 | 20 | 6 |
| **Oystercatcher** | Amber | 6 | **16** | 7 | 4 | 12 | 8 | 15 |
| **Red-breasted merganser** | Green | - | - | 3 | 8 | 28 | 7 | **46** |
| **Red-throated diver** | Annex I | 1 | - | 1 | **12** | 7 | 2 | 1 |
| **Ringed plover** | Red | 14 | 4 | 19 | **27** | 4 | 7 | 3 |
| **Slavonian grebe** | Annex I, Red | - | - | 1 | - | - | - | **2** |
| **Turnstone** | Amber | 48 | 37 | 73 | **100** | 60 | 13 | 48 |

**Table 3-6 Monthly peak counts of secondary species recorded during the intertidal survey November 2021 to February 2022**

| SECONDARY SPECIES | | | | | |
|---|---|---|---|---|---|
| | | **Nov 2021** | **Dec 2021** | **Jan 2022** | **Feb 2022** |
| **Barnacle goose** | Annex I, Amber | - | **1** | - | - |
| **Black-tailed godwit** | SPI, Red | - | - | **1** | - |
| **Black-throated diver** | Annex I, Amber | - | - | **1** | **1** |
| **Common Scoter** | SPI, Red | **5** | - | - | - |
| **Cormorant** | Green | **3** | 1 | 1 | **3** |
| **Curlew** | SPI, Red | 6 | **7** | - | 4 |
| **Dark-bellied brent goose** | SPI, Amber | 56 | **150** | 2 | 64 |
| **Dunlin** | Red | 6 | 3 | 48 | **73** |

**SECONDARY SPECIES**

| | | Nov 2021 | Dec 2021 | Jan 2022 | Feb 2022 |
|---|---|---|---|---|---|
| **Eider** | Amber | - | **3** | - | - |
| **Fulmar** | Amber | - | - | **1** | - |
| **Gannet** | Amber | 1 | **6** | 1 | 1 |
| **Golden plover** | Annex I, Green | - | - | - | **1** |
| **Great crested grebe** | Green | **15** | 14 | 14 | 6 |
| **Great northern diver** | Annex I, Amber | - | - | **1** | - |
| **Greylag goose** | Amber | - | - | - | **1** |
| **Grey plover** | Amber | **47** | 37 | - | 7 |
| **Guillemot** | Annex I, Amber | 1 | **9** | 1 | 7 |
| **Kittiwake** | Red | - | **11** | 1 | 1 |
| **Knot** | Amber | **1** | - | - | - |
| **Little egret** | Annex I, Green | **1** | - | - | - |
| **Mallard** | Amber | - | - | - | **2** |
| **Mediterranean gull** | Annex 1, Amber | **109** | 108 | 40 | 44 |
| **Mute swan** | Green | - | - | **3** | 2 |
| **Oystercatcher** | Amber | **9** | 2 | - | 4 |
| **Razorbill** | Amber | 1 | 2 | - | **11** |
| **Red-breasted merganser** | Green | 13 | **27** | 5 | 21 |
| **Red-throated diver** | Annex I, Green | 1 | **14** | 10 | 7 |
| **Ringed plover** | Red | **16** | 4 | - | 10 |
| **Shelduck** | Amber | 1 | 5 | **7** | - |
| **Slavonian grebe** | Annex I, Red | - | 1 | 1 | **3** |
| **Turnstone** | Amber | 45 | **195** | 128 | 55 |

3.3.11 There were two secondary species recorded on all 22 survey visits: Mediterranean gull and Turnstone.

3.3.12 Mediterranean gull were recorded on all visits, with peak numbers ranging from two birds to 149 individuals recorded on 24 September 2020. Observations were spread across the count sectors and the tidal range, with birds foraging and preening / loafing widely within the recording area. During winter 2020-21 survey, following the early autumn peak, numbers dropped in October 2020 to 56 birds before continuing to drop through November 2020 to a regular wintering number of five to 20 individuals. During winter 2021-22 survey, numbers peaked at 109 individuals recorded on 30 November 2021, numbers remained high through December 2021 before dropping to between three and 40 birds for the remainder of the survey period.

3.3.13 Turnstone were the most frequently recorded species during the survey period, with 226 records across 22 visits. Observations were spread across the count sectors and the tidal range with most records (177 of 226) showing birds foraging along the strandline and shingle beach. There was a noticeable reduction in turnstone numbers during the high tide period, as birds moved to the groynes at Littlehampton to roost.

3.3.14 Of the remaining secondary species, grey plover and great crested grebe were noted on 18 visits; with red-throated diver noted on 17 visits and dark-bellied brent goose noted on 16 visits. Other secondary species were recorded less often, and in small numbers only typically <10 individuals excepting dunlin, gannet, lapwing and red-breasted merganser where single flocks of 73, 14, 16 and 46 respectively increased the peak/mean counts considerably.

3.3.15 There were 68 records of brent goose during the survey period with 35 records within Sector 1 and 33 records in Sector 2. Of these records 25 records were of flocks foraging, 33 records were of birds flying over the count sector and ten were of birds loafing / preening. The records are spread across the tidal range, though there are more records (36/68) during the low tide cycle of low tide+/-3hours, than of high tide +/-3 hours (32/68). Numbers of brent goose using the survey area peaked between late November 2020 (25/11/2020) to mid-December 2020 (09/12/20) visits with 620 and 650 birds, respectively. During the winter survey period 2020-21 brent goose were observed foraging in the fields directly behind the seawall and also foraging on the sea during early morning counts. During the winter survey period 2021-22 there were no observations of brent geese foraging in the fields directly behind the seawall or on the beach at Climping.

3.3.16 There were 106 records of grey plover during the survey period with 47 records within Sector 1 and 59 records in Sector 2. Grey plover used the beach and shingle areas within Sector 1 to forage frequently with 34 observations of birds foraging and thirteen observations of preening / loafing. Sector 2 was predominantly used for preening / loafing with 36 of 59 observations noting those behaviours. There were 18 records of grey plover foraging within Sector 2, and five fly-over records of birds moving between sectors or moving east toward Littlehampton. The peak count of grey plover was 63 individuals foraging within Sector 1 on 18 January 2022.

3.3.17 There were 22 records of common scoter during the survey period, with 15 records within 300m of the shore in Sector 1 and 7 records within 300m of the shore in Sector 2. Records were spread across the tidal range, with 13 observations of birds flying over sectors, eight loafing / preening and a single

record of three birds foraging within 300m of the shoreline in Sector 1. The majority of records (20 of 22) were less than 10 birds, with the exception of 18 recorded on one occasion on 13 January 2021 and a peak count of 19 birds on 02 October 2020. Common scoter were regularly recorded outside of the recording area at more than 1 kilometre from the shoreline.

## 3.4 Winter bird survey results

3.4.1 Three target species were recorded during the winter bird surveys across the Arun and Adur Valleys within 500m of the onshore part of the proposed DCO Order Limits: pintail, teal and wigeon. These four species are listed as a qualifying feature of Arun Valley SPA/Ramsar site. There were no records of Bewick's swan, shoveler or ruff within 500m of the proposed DCO Order Limits during the winter bird survey.

3.4.2 During the winter bird surveys 2020-21, there were five records of target species within the Arun Valley survey area and nine records of target species within the Adur Valley survey area. During the winter bird surveys 2021-22, there were five records of target species within the Arun Valley survey area and ten records of target species within the Adur Valley survey area. **Table 3-7** below, summarises all records of target species recorded within the winter bird surveys (including those more than 500m from the proposed DCO Order Limits).

**Table 3-7 Summary of target species recorded during the winter bird surveys**

| Species | Date | UK National Grid reference | Number | Survey Area | Closest distance and direction to proposed DCO Order Limits (metres) |
|---|---|---|---|---|---|
| **Wigeon** | 16.10.2020 | TQ 02235 04937 | 7 | Arun Valley | 290 North |
| **Wigeon** | 12.11.2020 | TQ 02235 04937 | 78 | Arun Valley | 290 North |
| **Wigeon** | 17.12.2020 | TQ 02235 04937 | 62 | Arun Valley | 290 North |
| **Wigeon** | 19.01.2021 | TQ 02235 04937 | 100 | Arun Valley | 290 North |
| **Wigeon** | 02.02.2021 | TQ 02235 04937 | 40 | Arun Valley | 290 North |
| **Wigeon** | 17.12.2020 | TQ19741821 | 16 | Adur Valley | 30 North-east |
| **Shoveler** | 19.01.2021 | TQ 19620 16853 | 15 | Adur Valley | 520 South-east |

| Species | Date | UK National Grid reference | Number | Survey Area | Closest distance and direction to proposed DCO Order Limits (metres) |
|---|---|---|---|---|---|
| **Teal** | 19.01.2021 | TQ 19620 16853 | 82 | Adur Valley | 520 East |
| **Teal** | 19.01.2021 | TQ 19401 16418 | 1+ | Adur Valley | 700 East |
| **Teal** | 19.01.2021 | TQ 19829 18342 | 151 | Adur Valley | 75 East |
| **Wigeon** | 19.01.2021 | TQ 19829 18342 | 600 | Adur Valley | 75 East |
| **Wigeon** | 02.02.2021 | TQ1975 1813 | 90 | Adur Valley | Within proposed DCO Order Limits |
| **Teal** | 12.03.2021 | TQ 19871 18132 | 90 | Adur Valley | 100 North-east |
| **Wigeon** | 12.03.2021 | TQ 19871 18132 | 122 | Adur Valley | 100 North-east |
| **Wigeon** | 17.11.2021 | TQ 02235 04937 | 58 | Arun Valley | 290 North |
| **Wigeon** | 01.12.2021 | TQ 02235 04937 | 116 | Arun Valley | 290 North |
| **Wigeon** | 12.01.2022 | TQ 02235 04937 | 86 | Arun Valley | 290 North |
| **Teal** | 12.01.2022 | TQ 02235 04937 | 3 | Arun Valley | 290 North |
| **Wigeon** | 02.02.2022 | TQ 02235 04937 | 48 | Arun Valley | 290 North |
| **Wigeon** | 17.11.2021 | TQ 1977 1834 | 26 | Adur Valley | 50 east |
| **Teal** | 17.11.2021 | TQ 1977 1834 | 34 | Adur Valley | 50 east |
| **Wigeon** | 01.12.2021 | TQ 1995 1876 | 99 | Adur Valley | Within proposed DCO Order Limits |

| Species | Date | UK National Grid reference | Number | Survey Area | Closest distance and direction to proposed DCO Order Limits (metres) |
|---|---|---|---|---|---|
| **Teal** | 01.12.2021 | TQ 1995 1876 | 41 | Adur Valley | Within proposed DCO Order Limits |
| **Wigeon** | 12.01.2022 | TQ 1980 1833 | 158 | Adur Valley | 60 east |
| **Teal** | 12.02.2022 | TQ 1980 1833 | 80 | Adur Valley | 60 east |
| **Teal** | 02.02.2022 | TQ 1980 1834 | 6 | Adur Valley | 60 east |
| **Pintail** | 02.02.2022 | TQ 1980 1834 | 4 | Adur Valley | 60 east |
| **Teal** | 02.02.2022 | TQ 1957 1838 | 7 | Adur Valley | Within proposed DCO Order Limits |
| **Wigeon** | 02.02.2022 | TQ 1957 1838 | 4 | Adur Valley | Within proposed DCO Order Limits |

3.4.3 Target species records from the Arun Valley survey area identified a flock of wigeon that wintered on a small private pond by St Mary Magdalene's Church in Lyminster during both winter survey periods. The peak count was 116 individuals on 01 December 2021. There was a single observation of three teal with the wigeon flock at St Magdalene's Church 12 January 2022. All target species records from the Arun Valley survey area are from outside of (though within 500m of) the onshore part of the proposed DCO Order Limits. The ponds at St Mary Magdalene's Church are 290m outside of the onshore part of the proposed DCO Order Limits at the nearest point, screened from the development by industrial and residential buildings within Lyminster

3.4.4 There were nineteen observations of target species from the Adur Valley survey area, nine records of teal, eight records of wigeon and single records of shoveler and pintail. The results suggest that target species numbers in the Adur Valley peaked in January 2021 with a single day peak of 234 teal (combined counts), 15 shoveler and 600 wigeon. Peak counts in winter 2021-22 also occurred in January, with 158 wigeon and 80 teal observed in a single day. There was a single pintail record of four birds 02 February 2022.

3.4.5 Overall, there were five observations of target species within the onshore part of the proposed DCO Order Limits during the winter bird surveys. Three records of wigeon and two teal records. The wigeon records from within the onshore part of the proposed DCO Order Limits were 90 birds observed flying over the onshore part of the proposed DCO Order Limits at TQ1975 1813 on 02 February 2021; 99

birds foraging, preening and loafing within flooded fields at TQ 1995 1876 on 01 December 2021; and four birds foraging within flooded fields at TQ 1957 1838 on 02 February 2022. Teal records from within the onshore part of the proposed DCO Order Limits were of birds foraging with wigeon flocks and included: 41 birds at TQ 1995 1876 on 01 December 2021; and seven birds at TQ 1957 1838 on 02 February 2022.

3.4.6 The peak daily count of target species across both survey areas was on 19 January 2021 with a combined total of 234+ teal, 15 shoveler and 700 wigeon.

3.4.7 As part of the additional survey effort for winter 2021-22, there were three records of Bewick's swan recorded foraging within Burpham water meadows: Two adults were recorded at TQ 03568 08948 on 13 December 2021; eleven individuals (eight adults and three cygnets) were recorded at TQ 03422 08742 on 12 January 2022; and a peak count of 15 individuals were recorded at TQ 03422 08742 02 February 2022 (twelve adults, three cygnets). All Bewick's swan records are >2km outside of the proposed DCO Order Limits; shielded from the onshore cable corridor by an escarpment and blocks of ancient woodland.

3.4.8 There were 79 secondary species recorded during the winter bird surveys including:

- Six species listed on Annex I of the Birds Directive ('Directive 2009/147/EC', 2009) (little egret, marsh harrier, Mediterranean gull, kingfisher, red kite and Peregrine);
- Six Wildlife and Countryside Act (WCA) (as amended), Schedule 1 listed species (Cetti's warbler, kingfisher, marsh harrier, Mediterranean gull, peregrine and red kite);
- Fourteen SPI (NERC, 2006) (bullfinch, corn bunting, dunnock, herring gull, lapwing, lesser redpoll, linnet, marsh tit, reed bunting, skylark, song thrush, starling, white-fronted goose and yellowhammer); and
- Thirteen species listed on BoCC (Stanbury *et al*., 2021) Red list (corn bunting, fieldfare, grey partridge, herring gull, house sparrow, lapwing, linnet, marsh tit, mistle thrush, skylark, starling, white-fronted goose and yellowhammer).

3.4.9 Results presented below relate to waterfowl and waders for which full count and behavioural data is available.

3.4.10 Six little egret records centred around the rivers with birds foraging along the Arun and Adur. The peak count was four individuals on 12 March 2021.

3.4.11 Mediterranean gull is listed on Annex I of the Birds Directive (EU) ('Directive 2009/147/EC', 2009) and as a Schedule 1 (Sch.1) listed species on the Wildlife and Countryside Act 1981 (as amended) (WCA), affording them heightened protection through the breeding season. There were four records of Mediterranean gull throughout the survey period with all records around the River Arun. The peak count was seven individuals on 01 December 2021.

3.4.12 Peregrine is listed on Annex I of the Birds Directive (EU) ('Directive 2009/147/EC', 2009) and Sch.1 listed on WCA. There were two observations of Peregrine during the winter bird surveys, both records were within 500m of the onshore part of the proposed DCO Order Limits with a peak count of three individuals on 16 October

2020, where two adults and a juvenile bird were foraging together over the River Arun at Tortington.

3.4.13 There were four records of marsh harrier during the winter bird surveys. All records related to birds foraging over floodplains adjacent to the River Arun, with three records of individual birds, and a peak count of two birds on 01 December 2021.

3.4.14 There were three records of red kite during the winter bird surveys. All records were of birds foraging in the Adur Valley survey area, with a peak count of two birds on 12 November 2020.

3.4.15 There were sixteen observations of lapwing during the winter bird surveys. Ten records from the Arun Valley survey area and six from the Adur Valley. A peak count within the Arun Valley (overall peak) was 389 birds preening / loafing in the fields by Tortington on 17 November 2021, further records from the Arun Valley range from two individuals to 307, with a mean of 161 individuals. The peak count for the Adur Valley was 110 birds preening / loafing on 12 January 2022 within 500m of the onshore part of the proposed DCO Order Limits, further records from the Adur Valley range from 13 individuals to 107, the mean count was 73 individuals.

3.4.16 There were three records of (greater) white-fronted goose within the winter bird surveys, all records were from the River Adur survey area and include repeat observations of the same flock. A peak count of 30 birds was recorded on 17 December 2020, in-keeping with a national influx at the time. There were two further observations of single birds, latterly associating with greylag and Canada goose flocks on 12 March 2021.

3.4.17 Herring gull were widespread within the survey areas in relatively low numbers, the threshold for recording gulls accurately is flock sizes of 20+ birds, this count was achieved on a single occasion within the Arun Valley survey area on 19 January 2021, where 130 birds were foraging in flooded fields.

3.4.18 Whilst farmland birds and passerines make up most secondary species records, data recorded notes species presence only.

3.4.19 A full list of species observed during the winter bird surveys is presented in **Annex B**.

## 3.5 Comparison of results across winter survey periods

3.5.1 Results of both the winter bird survey and the intertidal survey remained consistent across wintering periods 2020/21 and 2021/22. Whilst survey effort was reduced during the second wintering period to four months of data gathering rather than six, the spatial results, target species records and counts of target species were similar across both seasons.

3.5.2 Within the intertidal surveys the number of species recorded, their abundance and behaviours recorded were similar across both wintering periods (Five target species and 30 secondary species during winter 2020/21 and four target species and 31 secondary species during 2021/22) with similar levels of disturbance seen along the shoreline.

3.5.3 There was a notable reduction in brent goose observations during the 2021/22 intertidal surveys with 16 records, including a peak count of 150 birds on the 06 December 2021 compared with the 52 records, including a peak count of 650 birds on 09 December 2020. This reduction in both observations and number is considered to be linked with local crop-rotations and the presence of less palatable crops directly behind the seawall during the 2021/22 survey period.

3.5.4 Numbers of grebes, divers, and seabirds offshore but within 300m of Mean High Water Springs (MHWS) were consistent across both seasons, with a slight increase in seabird diversity during the 2021/22 season. This increase is linked to local weather conditions during the survey period with an extended period of strong onshore winds and rough seas.

3.5.5 During the winter bird surveys 2020/21 there were three observations of target species within 500m of the onshore part of the proposed DCO Order Limits compared with four observations during the 2021/22 wintering period.

3.5.6 Target species favoured similar areas across both wintering periods with a small private waterbody at St Mary Magdalene's Church near Lyminster providing all records of target species within the Arun Valley, and the flooded fields north-west of the River Adur providing all records of target species within the Adur valley.

3.5.7 Within the Arun valley during the 2020/21 wintering period there were five records of wigeon utilising the waterbody at St Mary Magdalene's Church, including a peak count of 100 wigeon on 19 January 2021, compared with four records of wigeon and a peak count of 116 birds on 01 December 2021. There was a single record of three teal foraging within the waterbody at St Mary Magdalene's Church on 12 January 2022.

3.5.8 Within the Adur valley during the 2020/21 wintering period extensive flooding within the fields adjacent to the River Adur provided foraging opportunity for large flocks of waterbirds including target species: wigeon, teal and shoveler. There were five records of wigeon, four records of teal and a single record of shoveler. All peak counts occurred 19 January 2021: 600 wigeon; 241 teal; and 15 shoveler.

3.5.9 Within the 2021/22 wintering period, flooding around the Adur was much reduced from the previous year with numbers of birds utilising the area reflecting a reduction in available foraging habitat. There were four records of wigeon, five records of teal and a single record of pintail. Wigeon and teal numbers again peaked in January with counts of 158 wigeon and 80 teal foraging on 12 January 2022; there was a single record of four pintail on 02 February 2022.

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# 4. Glossary of terms and abbreviations

| Term (Acronym) | Definition |
|---|---|
| **BF** | Beaufort |
| **BoCC** | Birds of Conservation Concern |
| **BTO** | British Trust for Ornithology |
| **Defra** | Department for Environment, Food and Rural Affairs |
| **DCO** | Development Consent Order |
| **EIA** | Environmental Impact Assessment |
| **ES** | Environmental Statement |
| **EEC** | European Economic Community |
| **EU** | European Union |
| **GB** | Great Britain |
| **HPI** | Habitats of Principle Importance |
| **ISS** | Instantaneous Scan Sample |
| **JNCC** | Joint Nature Conservation Committee |
| **km** | Kilometre |
| **MHWS** | Mean High Water Springs |
| **NERC** | Natural Environment and Rural Communities Act 2006 |
| **PRoW** | Public Rights of Way |
| **RSPB** | Royal Society for the Protection of Birds |
| **SSSI** | Site of Special Scientific Interest |
| **SPI** | Species of Principle Importance |
| **SPA** | Special Protected Area |
| **SxBRC** | Sussex Biological Records Centre |

| Term (Acronym) | Definition |
|---|---|
| **SOS** | Sussex Ornithological Society |
| **WCA** | Wildlife and Countryside Act 1981 (as amended) |

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# Annex A
# Figures

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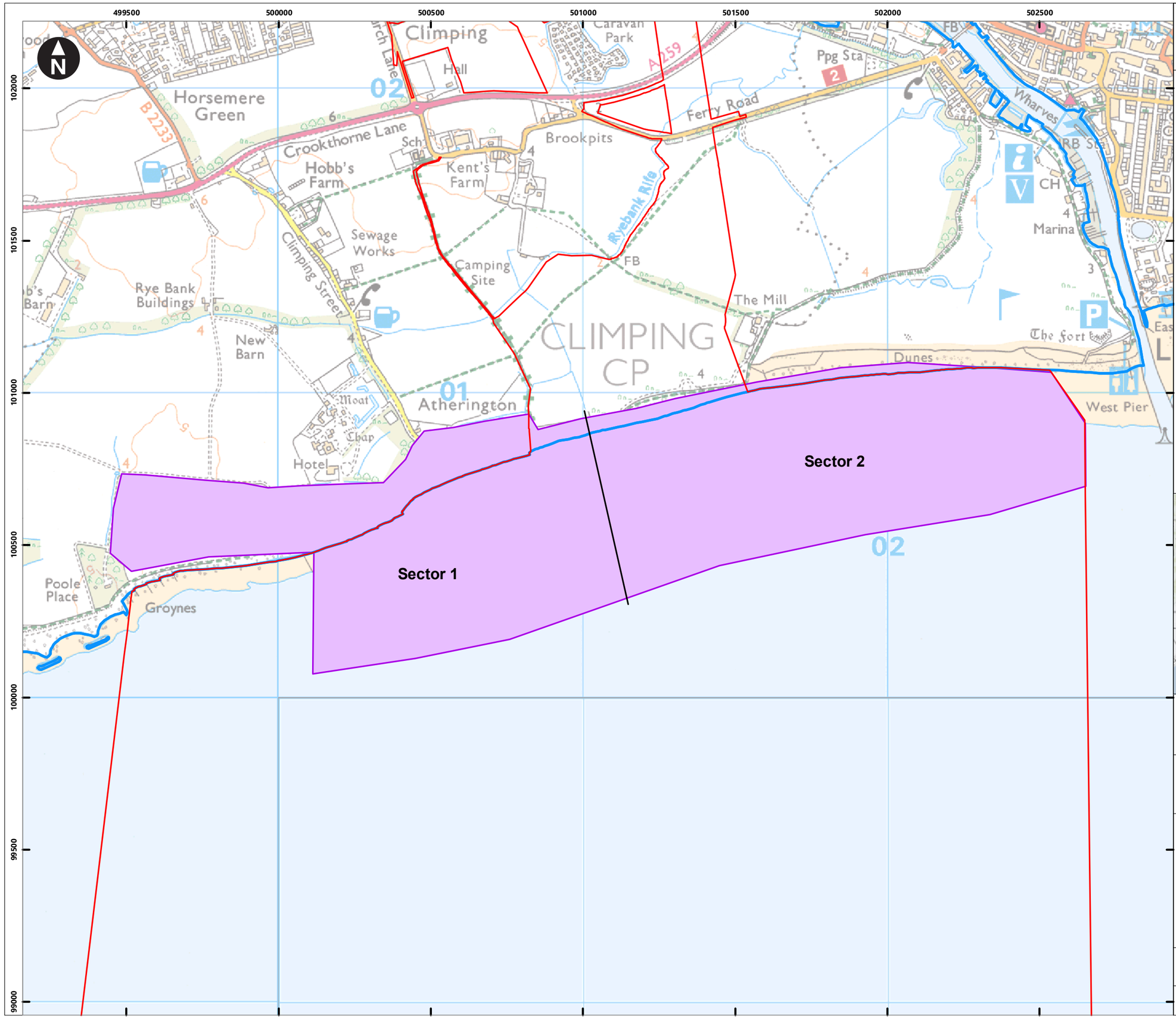


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**Key**

- Proposed DCO Order Limits
- Mean High Water Springs (MHWS)
- Intertidal Survey Area

Kilometres
0 0.05 0.1 0.2 0.3 0.4

1:12,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

# Rampion 2 Offshore Wind Farm

## Figure 22.14.1 Ornithology Intertidal Survey Area

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-2105 | 1.0 |

| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | KIRBA | 27/07/2023 | FINAL |

498000 500000 502000 504000

106000 104000 102000

ARUNDEL CP · ARUNDEL · ARUN DISTRICT · WARNINGCAMP CP · POLING CP · FORD CP · CLIMPING CP · LITTLEHAMPTON · RUSTINGTON · HAMPTON CP · IDDLESTON-ON-SEA CP

Service Layer Credits: Contains OS data © Crown Copyright and database right 2020



**Key**

- Proposed DCO Order Limits
- Winter Bird Survey Area
- Terrestrial Walkover Transect

Kilometres
0 0.125 0.25 0.5 0.75 1

1:25,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

# Rampion 2 Offshore Wind Farm

Figure 22.14.2 Ornithology Winter bird survey area - Arun Valley

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-2624 | 1.0 |

| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | SUTET | 27/07/2023 | FINAL |

**Key**

- Proposed DCO Order Limits
- Winter Bird Survey Area
- Terrestrial Walkover Transect


Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.14.3 Ornithology Winter bird survey area - Adur Valley

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-9961 | 1.0 |

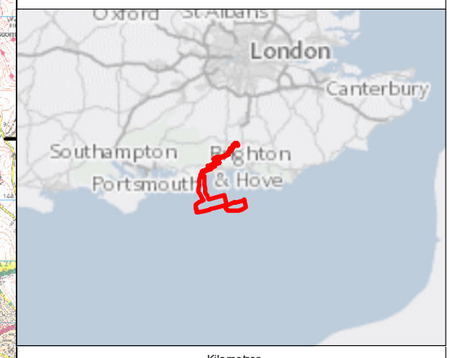
| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | SUTET | 28/07/2023 | FINAL |

Key

- Proposed DCO Order Limits
- Intertidal Survey Area
- Winter Bird Survey Area

Pintail Species Count:

- 1-4
- 5 - 35




Kilometres

0 0.5 1 2 3 4

1:100,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

# Rampion 2 Offshore Wind Farm

Figure 22.14.4 Combined cumulative counts of pintail recorded during all ornithology surveys winter 2020/21 and 2021/22

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-2411 | 1.0 |

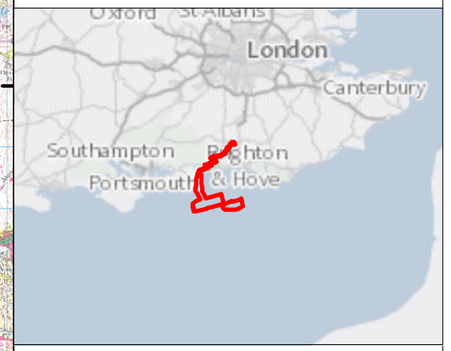
| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | SUTET | 28/07/2023 | FINAL |

**Key**

- Proposed DCO Order Limits
- Winter bird Survey Area
- Intertidal Survey Area

Shoveler Species Count:

- 15




Kilometres

0 0.5 1 2 3 4

1:100,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

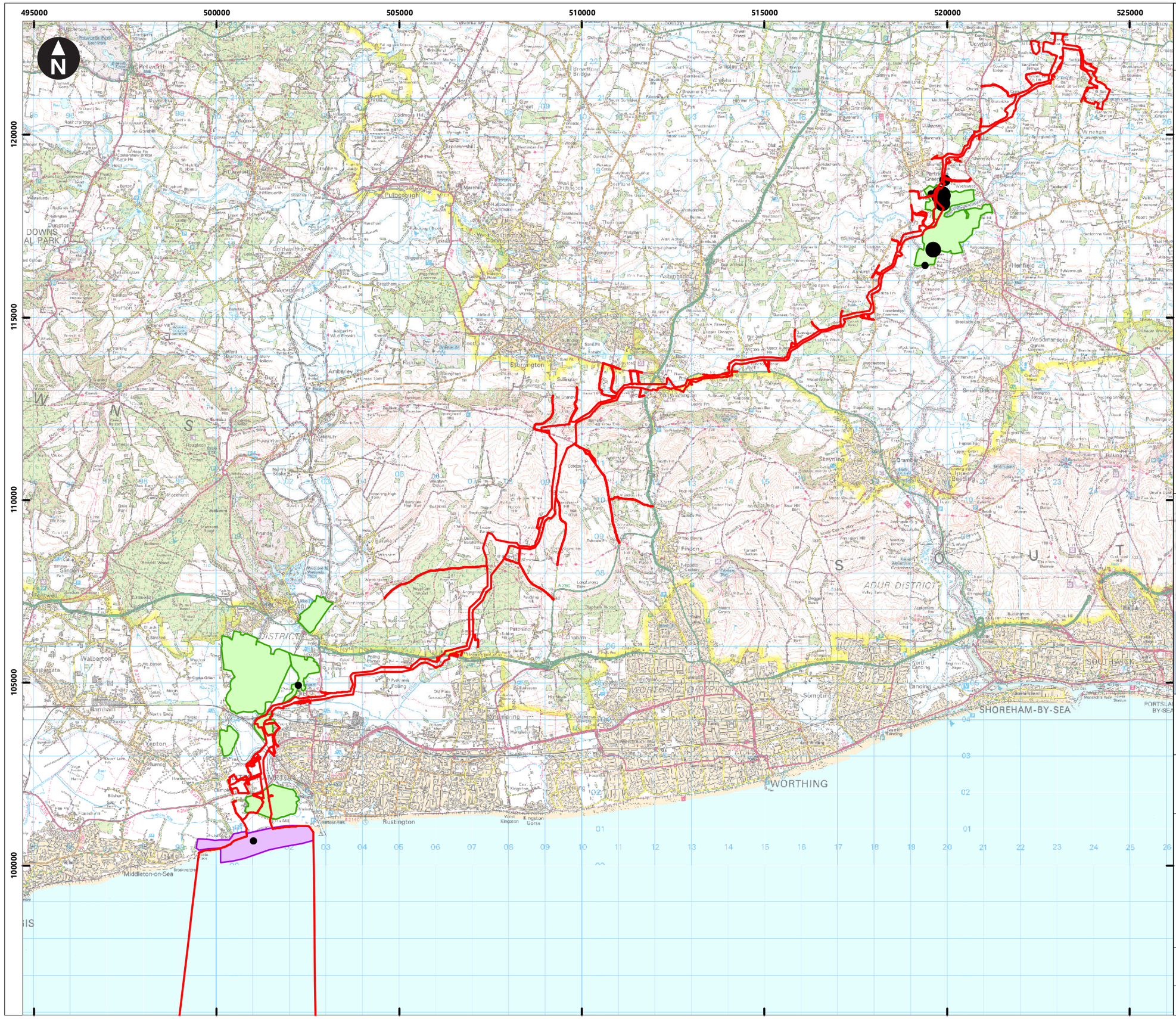
Figure 22.14.5 Combined cumulative counts of shoveler recorded during all ornithology surveys winter 2020/21 and 2021/22

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-4736 | 1.0 |

| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | SUTET | 28/07/2023 | FINAL |

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**Key**

- Proposed DCO Order Limits
- Winter bird Survey Area
- Intertidal Survey Area

Teal Species Count:

- 1 - 10
- 11 - 50
- 51 - 100
- 101 - 151

Kilometres

0 0.5 1 2 3 4

1:100,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

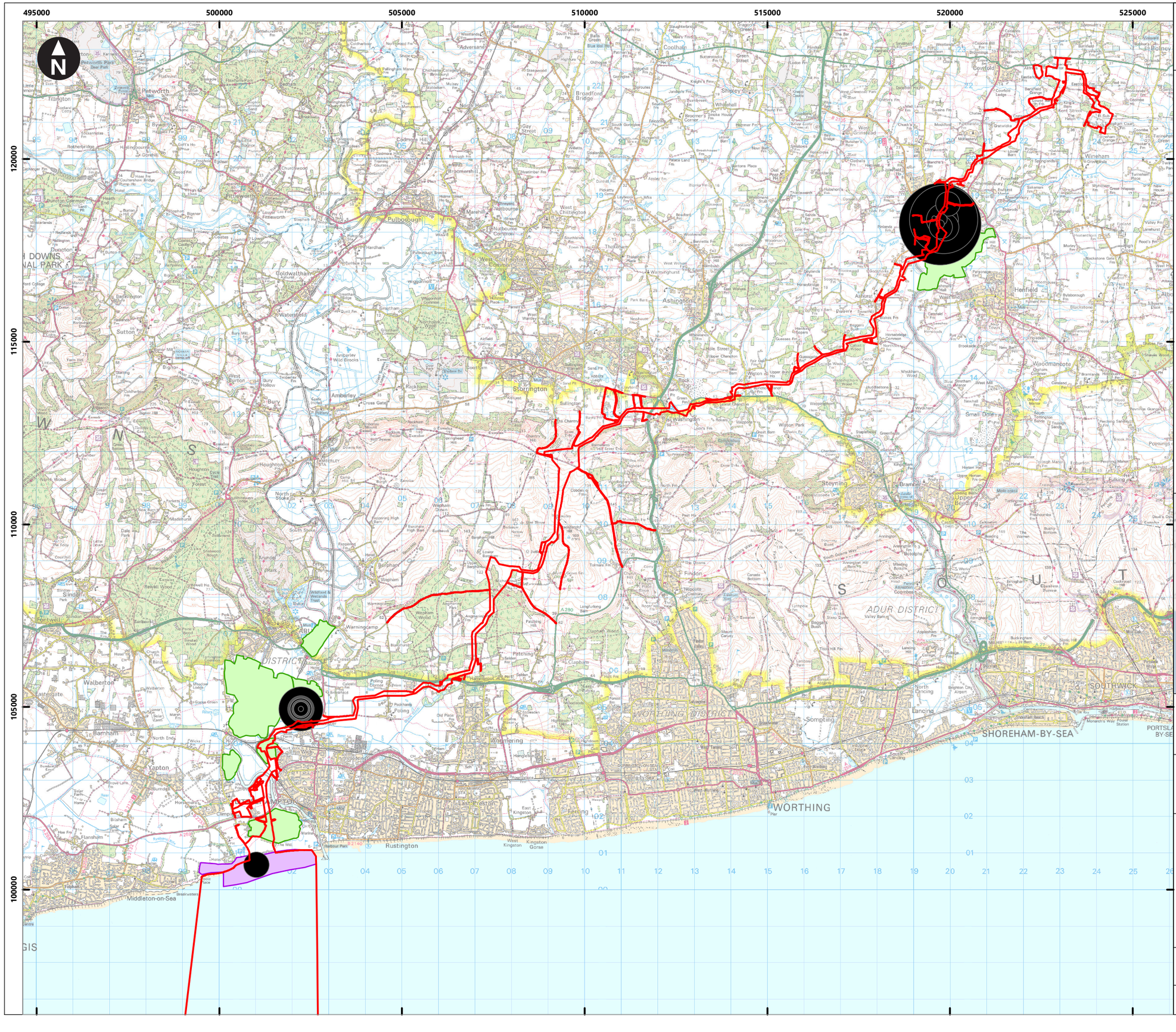
Rampion 2 Offshore Wind Farm

Figure 22.14.6 Combined Cumulative counts of teal recorded during all ornithology surveys winter 2020/21 and 2021/22

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | | | | Version: |
|---|---|---|---|---|
| 42285-WSPE-ES-ON-FG-OO-4446 | | | | 1.0 |
| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
| WSP | HADJE | SUTET | 28/07/2023 | FINAL |

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**Key**

- Proposed DCO Order Limits
- Winter bird Survey Area
- Intertidal Survey Area

Wigeon Species Count:

- 10
- 100
- 500
- 1,000

Kilometres

0 0.5 1 2 3 4

1:100,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.14.7 Combined Cumulative counts of wigeon recorded during all ornithology surveys winter 2020/21 and 2021/22

Onshore winter bird report 2020-2022

Environmental Statement

| System Identifier: | Version: |
|---|---|
| 42285-WSPE-ES-ON-FG-OO-5113 | 1.0 |

| Company: | Drawn By: | Chk/Aprvd: | Drawn Date: | Status: |
|---|---|---|---|---|
| WSP | HADJE | SUTET | 31/07/2023 | FINAL |

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# Annex B
# Species records

**Table B-1** below lists all species recorded during the intertidal surveys September 2020 to March 2021 inclusive.

**Table B-1 Species recorded during the intertidal surveys September 2020 to March 2021**

| Species | Scientific name |
|---|---|
| **Black-headed gull** | *Chroicocephalus ridibundus* |
| **Black redstart** | *Phoenicurus ochruros* |
| **Cormorant** | *Phalacrocorax carbo* |
| **Common gull** | *Larus canus* |
| **Common scoter** | *Melanitta nigra* |
| **Dark-bellied brent goose** | *Branta bernicla* |
| **Dunlin** | *Calidris alpina* |
| **Gannet** | *Morus bassanus* |
| **Great black-backed gull** | *Larus marinus* |
| **Great crested grebe** | *Podiceps cristatus* |
| **Great northern diver** | *Gavia immer* |
| **Grey heron** | *Ardea cinerea* |
| **Grey plover** | *Pluvialis squatarola* |
| **Guillemot** | *Uria aalge* |
| **Herring gull** | *Larus argentatus* |
| **Kingfisher** | *Alcedo atthis* |
| **Knot** | *Calidris canutus* |
| **Lapwing** | *Vanellus vanellus* |
| **Lesser black-backed gull** | *Larus fuscus* |

| Species | Scientific name |
|---|---|
| **Little egret** | *Egretta garzetta* |
| **Little gull** | *Hydrocoloeus minutus* |
| **Mute swan** | *Cygnus olor* |
| **Mediterranean gull** | *Ichthyaetus melanocephalus* |
| **Oystercatcher** | *Haematopus ostralegus* |
| **Pintail** | *Anas acuta* |
| **Purple sandpiper** | *Calidris maritima* |
| **Red-throated diver** | *Gavia stellata* |
| **Red-breasted merganser** | *Mergus serrator* |
| **Ringed plover** | *Charadrius hiaticula* |
| **Snipe** | *Gallinago gallinago* |
| **Sanderling** | *Calidris alba* |
| **Sandwich tern** | *Thalasseus sandvicensis* |
| **Shelduck** | *Tadorna tadorna* |
| **Slavonian grebe** | *Podiceps auritus* |
| **Teal** | *Anas crecca* |
| **Turnstone** | *Arenaria interpres* |
| **Wigeon** | *Mareca penelope* |

**Table B-2** below lists all species recorded during the winter bird surveys September 2020 to March 2021 inclusive.

**Table B-2 Species recorded during the winter bird surveys September 2020 to March 2021**

| Species | Scientific name |
|---|---|
| **Blackbird** | *Turdus merula* |
| **Black-headed gull** | *Chroicocephalus ridibundus* |
| **Blue tit** | *Cyanistes caeruleus* |

| Species | Scientific name |
|---|---|
| **Bullfinch** | *Pyrrhula pyrrhula* |
| **Buzzard** | *Buteo buteo* |
| **Canada goose** | *Branta candensis* |
| **Chaffinch** | *Fringilla coelebs* |
| **Common gull** | *Larus canus* |
| **Common sandpiper** | *Actitis hypoleucos* |
| **Coal tit** | *Periparus ater* |
| **Collared dove** | *Streptopelia decaocto* |
| **Coot** | *Fulica atra* |
| **Cormorant** | *Phalacrocorax carbo* |
| **Corn bunting** | *Emberiza calandra* |
| **Dunnock** | *Prunella modularis* |
| **Egyptian goose** | *Alopochen aegyptiaca* |
| **Fieldfare** | *Turdus pilaris* |
| **Firecrest** | *Regulus ignicapilla* |
| **Gadwall** | *Mareca strepera* |
| **Goldcrest** | *Regulus regulus* |
| **Goldfinch** | *Carduelis carduelis* |
| **Great tit** | *Parus major* |
| **Grey heron** | *Ardea cinerea* |
| **Grey wagtail** | *Motacilla cinerea* |
| **Greylag goose** | *Anser anser* |
| **Herring gull** | *Larus argentatus* |
| **House sparrow** | *Passer domesticus* |
| **Kestrel** | *Falco tinnunculus* |
| **Lapwing** | *Vanellus vanellus* |

| Species | Scientific name |
|---|---|
| **Lesser black-backed gull** | *Larus fuscus* |
| **Lesser redpoll** | *Acanthis cabaret* |
| **Linnet** | *Linaria cannabina* |
| **Little egret** | *Egretta garzetta* |
| **Little grebe** | *Tachybaptus ruficollis* |
| **Long-tailed tit** | *Aegithalos caudatus* |
| **Mallard** | *Anas platyrhynchos* |
| **Marsh harrier** | *Circus aeruginosus* |
| **Marsh tit** | *Poecile palustris* |
| **Meadow pipit** | *Anthus pratensis* |
| **Mediterranean gull** | *Ichthyaetus melanocephalus* |
| **Mistle thrush** | *Turdus viscivorus* |
| **Moorhen** | *Gallinula chloropus* |
| **Mute swan** | *Cygnus olor* |
| **Peregrine** | *Falco peregrinus* |
| **Red kite** | *Milvus milvus* |
| **Redshank** | *Tringa totanus* |
| **Redwing** | *Turdus iliacus* |
| **Reed bunting** | *Emberiza schoeniclus* |
| **Shoveler** | *Spatula clypeata* |
| **Siskin** | *Spinus spinus* |
| **Skylark** | *Alauda arvensis* |
| **Snipe** | *Gallinago gallinago* |
| **Song thrush** | *Turdus philomelos* |
| **Sparrowhawk** | *Accipiter nisus* |
| **Starling** | *Sturnus vulgaris* |

| Species | Scientific name |
|---|---|
| **Stock dove** | *Columba oenas* |
| **Teal** | *Anas crecca* |
| **Tufted duck** | *Aythya fuligula* |
| **Water rail** | *Rallus aquaticus* |
| **White-fronted goose** | *Anser albifrons* |
| **Wigeon** | *Mareca penelope* |
| **Woodpigeon** | *Columba palumbus* |
| **Yellowhammer** | *Emberiza citrinella* |

**Table B-3** below lists all species recorded during the intertidal surveys November 2021 to February 2022 inclusive.

**Table B-3 Species recorded during the intertidal surveys November 2021 to February 2022**

| Species | Scientific name |
|---|---|
| **Barnacle goose** | *Branta leucopsis* |
| **Black-headed gull** | *Chroicocephalus ridibundus* |
| **Black-tailed godwit** | *Limosa limosa* |
| **Black-throated diver** | *Gavia artica* |
| **Cormorant** | *Phalacrocorax carbo* |
| **Common gull** | *Larus canus* |
| **Common scoter** | *Melanitta nigra* |
| **Curlew** | *Numensis arquata* |
| **Dark-bellied brent goose** | *Branta bernicla* |
| **Dunlin** | *Calidris alpina* |
| **Eider** | *Somateria mollissima* |
| **Fulmar** | *Fulmarus glacialis* |
| **Gannet** | *Morus bassanus* |
| **Golden plover** | *Pluvialis apricaria* |

| Species | Scientific name |
|---|---|
| **Great crested grebe** | *Podiceps cristatus* |
| **Great northern diver** | *Gavia immer* |
| **Greylag goose** | *Anser anser* |
| **Grey plover** | *Pluvialis squatarola* |
| **Guillemot** | *Uria aalge* |
| **Kittiwake** | *Rissa tridactyla* |
| **Knot** | *Calidris canutus* |
| **Mediterranean gull** | *Ichthyaetus melancephalus* |
| **Mute swan** | *Cygnus olor* |
| **Oystercatcher** | *Haematopus ostralegus* |
| **Pintail** | *Anas acuta* |
| **Razorbill** | *Alca torda* |
| **Red-breasted merganser** | *Mergus serrator* |
| **Red-throated diver** | *Gavia stellata* |
| **Ringed plover** | *Charadrius hiaticula* |
| **Sanderling** | *Calidris alba* |
| **Shelduck** | *Tadorna tadorna* |
| **Slavonian grebe** | *Podiceps auratus* |
| **Teal** | *Anas crecca* |
| **Turnstone** | *Arenaria interpres* |
| **Wigeon** | *Mareca Penelope* |

**Table B-4** below lists all species recorded during the winter bird surveys November 2021 to February 2022 inclusive.

**Table B-4 Species recorded during the winter bird surveys November 2021 to February 2022**

| Species | Scientific name |
|---|---|
| **Bewick's swan** | *Cygnus columbianus bewickii* |
| **Blackbird** | *Turdus merula* |
| **Black-headed gull** | *Chroicocephalus ridibundus* |
| **Black swan** | *Cygnus atratus* |
| **Blue tit** | *Cyanistes caeruleus* |
| **Bullfinch** | *Pyrrhula pyrrhula* |
| **Buzzard** | *Buteo buteo* |
| **Carrion crow** | *Corvus corone* |
| **Canada goose** | *Branta candensis* |
| **Cetti's warbler** | *Cettia cetti cetti* |
| **Chaffinch** | *Fringilla coelebs* |
| **Collared dove** | *Streptopelia decaocto* |
| **Common gull** | *Larus canus* |
| **Common sandpiper** | *Actitis hypoleucos* |
| **Coot** | *Fulica atra* |
| **Cormorant** | *Phalacrocorax carbo* |
| **Dunnock** | *Prunella modularis* |
| **Egyptian goose** | *Alopochen aegyptiaca* |
| **Fieldfare** | *Tudus pilaris* |
| **Gadwall** | *Mareca strepera* |
| **Goldcrest** | *Regulus regulus* |
| **Goldfinch** | *Carduelis carduelis* |
| **Great spotted woodpecker** | *Dendrocopos major* |
| **Great tit** | *Parus major* |
| **Greenfinch** | *Carduelis chloris* |

| Species | Scientific name |
|---|---|
| **Green sandpiper** | *Tringa ochropus* |
| **Green woodpecker** | *Picus viridis* |
| **Greylag goose** | *Anser anser* |
| **Grey heron** | *Ardea cinerea* |
| **Grey partridge** | *Perdix perdix* |
| **Grey wagtail** | *Motacilla cinerea* |
| **Herring gull** | *Larus argentatus* |
| **House sparrow** | *Passer domesticus* |
| **Jay** | *Garrulus glandarius* |
| **Jackdaw** | *Corvus monedula* |
| **Kestrel** | *Falco tinnunclus* |
| **Kingfisher** | *Alcedo atthis* |
| **Lapwing** | *Vanellus vanellus* |
| **Linnet** | *Linaria cannabina* |
| **Little egret** | *Egretta garzetta* |
| **Little grebe** | *Tachybaptus ruficollis* |
| **Long-tailed tit** | *Aegithalos caudatus* |
| **Magpie** | *Pica pica* |
| **Mallard** | *Anas platyrhynchos* |
| **Marsh harrier** | *Circus aeruginosus* |
| **Meadow pipit** | *Anthus pratensis* |
| **Mediterranean gull** | *Ichthyaetus melancephalus* |
| **Moorhen** | *Gallinula chloropus* |
| **Mute swan** | *Cygnus olor* |
| **Oystercatcher** | *Haematopus ostralegus* |
| **Peregrine** | *Falco peregrinus* |

| Species | Scientific name |
|---|---|
| **Pheasant** | *Phasianus colchicus* |
| **Pied wagtail** | *Motacilla alba yarrellii* |
| **Pintail** | *Anas acuta* |
| **Redwing** | *Turdus iliacus* |
| **Red kite** | *Milvus milvus* |
| **Reed bunting** | *Emberiza schoeniclus* |
| **Robin** | *Erithacus rubecula* |
| **Rook** | *Corvus frugilegus* |
| **Shelduck** | *Tadorna tadorna* |
| **Shoveler** | *Anas clypeata* |
| **Skylark** | *Alauda arvensis* |
| **Snipe** | *Gallinago gallinago* |
| **Song thrush** | *Turdus philomelos* |
| **Sparrowhawk** | *Accipiter nisus* |
| **Starling** | *Sturnus vulgaris* |
| **Stock dove** | *Columba oenas* |
| **Stonechat** | *Saxicola torquata* |
| **Teal** | *Anas crecca* |
| **Tufted duck** | *Aythya fuligula* |
| **Wigeon** | *Mareca penelope* |
| **Woodpigeon** | *Columba palumbus* |
| **Wren** | *Troglodytes troglodytes* |
| **Yellowhammer** | *Emberiza citrinella* |

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# Annex C
# Full survey details

Full survey details of the intertidal surveys and winter bird surveys are shown below in **Table C-1** and **Table C-2**.

**Table C-1 Full survey details of intertidal surveys undertaken September 2020-March 2021 inclusive and November 2021 – February 2022 inclusive**

| Date | Tidal state | Start time | End time | Weather conditions |
|---|---|---|---|---|
| **24/09/2020** | LT -+3 | 07:48 | 13:48 | Dry, 8/8 Oktas cloud, wind Beaufort (BF) 6 south-westerly, visibility >3km, temperature 12°C |
| **02/10/2020** | HT -+3 | 09:33 | 15:33 | Rain showers heavy at times, 8/8 to 5/8 Oktas cloud, wind BF8 easterly dropping to BF5, visibility > 3km, temperature 14°C |
| **05/10/2020** | HT -+3 | 10:50 | 16:50 | Dry, 4/8 Oktas cloud, wind BF1 westerly, visibility > 3km, temperature 14°C. |
| **26/10/2020** | LT -+3 | 10:41 | 16:41 | Dry, 2/8 Oktas cloud, wind BF4 westerly, visibility >3km, temperature 12°C |
| **03/11/2020** | HT -+3 | 09:17 | 15:17 | Dry, 3/8 Oktas cloud, wind BF3 south-westerly, visibility >3km, temperature 9°C |
| **25/11/2020** | LT -+3 | 09:27 | 15:27 | Light rain, 8/8 Oktas cloud, wind BF3 south-westerly, visibility >3km, temperature 13°C |
| **03/12/2020** | HT -+3 | 09:36 | 15:36 | Light rain, 8/8 Oktas cloud, wind BF3 south-westerly, visibility > 3km, temperature 8°C |
| **09/12/2020** | LT -+3 | 08:28 | 14:28 | Dry, 6/8 Oktas cloud, wind BF1 north-westerly, visibility >3km, temperature 3°C |
| **08/01/2021** | LT -+3 | 09:04 | 15:04 | Dry, 3/8 Oktas cloud, wind BF1 easterly, visibility >3km, temperature 1°C |
| **13/01/2021** | HT -+3 | 08:11 | 14:11 | Intermittent showers, 8/8 Oktas cloud, wind BF1 south-westerly, visibility 1-3km, temperature 7°C |

| Date | Tidal state | Start time | End time | Weather conditions |
|---|---|---|---|---|
| **12/02/2021** | HT -+3 | 08:57 | 14:57 | Dry, 4/8 Oktas cloud, wind BF7 easterly, visibility >3km, temperature -2°C |
| **22/02/2021** | LT -+3 | 10:04 | 16:04 | Light showers, 8/8 Oktas cloud, wind BF1 south-westerly turning west, visibility 1-3km (Sea-fog), temperature 8°C |
| **08/03/2021** | LT -+3 | 10:03 | 16:03 | Dry, 3/8 Oktas cloud, wind BF3 south-westerly, visibility >3km, temperature |
| **15/03/2021** | HT -+3 | 09:34 | 15:34 | Dry, 6/8 Oktas cloud, wind BF4 north-westerly, visibility > 3km, temperature 12°C |
| **18/11/2021** | HT -+3 | 07:35 | 13:35 | Dry, 4/8 Oktas cloud, wind BF1 south-westerly, visibility > 3km, temperature 7°C |
| **30/11/2021** | LT -+3 | 10:14 | 16:14 | Dry, 8/8 Oktas cloud, wind BF2 westerly, visibility > 3km, temperature 10°C |
| **06/12/2021** | HT -+3 | 09:14 | 15:14 | Heavy showers, 8/8 Oktas cloud, wind BF5 south-westerly, visibility > 3km, temperature 4°C |
| **13/12/2021** | LT -+3 | 09:39 | 15:39 | Dry, 8/8 Oktas cloud, wind BF3 south-westerly, visibility > 3km, temperature 9°C |
| **11/01/2022** | LT -+3 | 10:10 | 16:10 | Mist, 8/8 Oktas cloud, wind BF2 south-west, visibility 1 – 3km, temperature 9°C |
| **18/01/2022** | HT -+3 | 08:43 | 14:43 | Dry, 7/8 Oktas cloud, wind BF1 south, visibility > 3km, temperature -2°C |
| **01/02/2022** | HT -+3 | 08:17 | 14:17 | Dry, 7/8 Oktas cloud, wind BF2 north-westerly, visibility > 3km, temperature 9°C |
| **10/02/2022** | LT -+3 | 09:53 | 15:53 | Dry, 8/8 Oktas cloud, wind BF2 north-westerly, visibility > 3km, temperature 7°C |

**Table C-2 Full survey details of winter bird surveys undertaken September 2020-March 2021 inclusive and November 2021 and February 2022 inclusive.**

| Date | Survey Area | Start time | End time | Weather conditions |
|---|---|---|---|---|
| **28/09/2020** | Arun Valley | 10:00 | 13:30 | Dry, 2/8 Oktas cloud, BF1 northerly, visibility > 3km, temperature 14°C |
| **28/09/2020** | Adur Valley | 10:00 | 13:30 | Dry, 3/8 Oktas cloud, BF1 northerly, visibility > 3km, temperature 14°C |
| **16/10/2020** | Arun Valley | 09:00 | 11:30 | Dry, 1/8 Oktas cloud, BF1 north-easterly, visibility > 3km, temperature 8°C |
| **16/10/2020** | Adur Valley | 09:00 | 11:30 | Dry, 2/8 Oktas cloud, BF2 north-easterly, visibility > 3km, temperature 10°C |
| **12/11/2020** | Arun Valley | 09:15 | 11:45 | Dry, 1/8 Oktas cloud, BF1 south-westerly, visibility > 3km, temperature 12°C |
| **12/11/2020** | Adur Valley | 09:15 | 11:45 | Dry, 3/8 Oktas cloud, BF1 south-westerly, visibility > 3km, temperature 12°C |
| **17/12/2020** | Arun Valley | 09:30 | 12:00 | Dry, 3/8 Oktas clous, BF2 south-westerly, visibility > 3km, temperature 8°C |
| **17/12/2020** | Adur Valley | 09:30 | 12:00 | Dry, 3/8 Oktas clous, BF2 south-westerly, visibility > 3km, temperature 8°C |
| **19/01/2021** | Arun Valley | 09:40 | 12:10 | Heavy showers, 8/8 Oktas cloud, BF4 westerly, visibility >3km, temperature 8°C |
| **19/01/2021** | Adur Valley | 09:40 | 12:10 | Heavy showers, 8/8 Oktas cloud, BF4 westerly, visibility >3km, temperature 8°C |
| **02/02/2021** | Arun Valley | 09:30 | 11:30 | Light showers, 6/8 Oktas cloud, wind BF3 south-westerly, visibility >3km, temperature 11°C |
| **02/02/2021** | Adur Valley | 09:30 | 11:30 | Light showers, 6/8 Oktas cloud, wind BF3 south-westerly, visibility >3km, temperature 11°C |
| **12/03/2021** | Arun Valley | 09:30 | 12:15 | Light showers, 6/8 Oktas cloud, wind BF4 south-westerly, visibility >3km, temperature 9°C |
| **12/03/2021** | Adur Valley | 09:30 | 12:15 | Light showers, 6/8 Oktas cloud, wind BF4 south-westerly, visibility >3km, temperature 9°C |

| Date | Survey Area | Start time | End time | Weather conditions |
|---|---|---|---|---|
| **17/11/2021** | Arun Valley | 09:30 | 12:55 | Dry, 0/8 Oktas cloud, wind BF1 south-westerly, visibility > 3km, temperature 12°C |
| **17/11/2021** | Adur Valley | 09:30 | 12:45 | Dry, 0/8 Oktas cloud, wind BF1 south-westerly, visibility > 3km, temperature 12°C |
| **01/12/2021** | Arun Valley | 08:15 | 12:30 | Light showers, 6/8 Oktas cloud, wind BF4 south-westerly, visibility > 3km, temperature 9°C |
| **01/12/2021** | Adur Valley | 08:15 | 12:30 | Light showers, 6/8 Oktas cloud, wind BF4 south-westerly, visibility > 3km, temperature 9°C |
| **12/01/2022** | Arun Valley | 08:20 | 12:30 | Dry, 0/8 Oktas cloud, wind BF2 northerly, visibility > 3km, temperature 3°C |
| **12/01/2022** | Adur Valley | 08:15 | 12:20 | Dry, 0/8 Oktas cloud, wind BF2 northerly, visibility > 3km, temperature 3°C |
| **02/02/2022** | Arun Valley | 08:15 | 11:50 | Dry, 1/8 Oktas cloud, wind BF2 north-westerly, visibility > 3km, temperature 6°C |
| **02/02/2022** | Adur Valley | 08:00 | 11:45 | Dry, 1/8 Oktas cloud, wind BF2 north-westerly, visibility > 3km, temperature 6°C |

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Rampion 2
WIND FARM