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Winter bird surveys
Padbury Brook Solar Farm, Bicester,
Oxfordshire
November 2022

A report by

James Gilroy, BSc (Hons), MSc - Ecologist

Report details

Site name: Padbury Brook Solar Farm
Site address: Land near Stratton Audley, Cherwell, Oxfordshire, OX27 9BE
Grid reference: SP623272
Surveyor: James Gilroy BSc (Hons), MSc and Adrian George
Report date: 16th November 2022
Report author: James Gilroy BSc
Report review: Colin Hicks BSc (Hons) MCIEEM

Report reference: WOR-2672.WBS

Declaration of compliance

BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of practice for planning and development.

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of survey data and report

The findings of this report are valid for 12 months from the date of survey. The full survey effort has not been fully completed and this purpose of this report is not to determine any likely impact. If work has not commenced within this period, an updated survey by a suitably qualified ecologist will be required.

Revisions

Date	Report no:	Approved by:	Comment
02/09/2022	WOR-2672.WBS	CDH	Original report
16/11/2022	WOR-2672.WBS.2	CDH	Updated report

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1. Introduction

Western Ecology has been commissioned to complete wintering bird surveys within an area of agricultural land located near to Stratton Audley in Oxfordshire. A solar farm with associated infrastructure is proposed.

1.2. Survey aims

The purpose of the surveys is to characterise the use of the proposed solar farm site and adjacent areas by birds during the winter period (October to March).

1.3. Site location

The site comprises an area of agricultural land located within a rural area. The village of Stratton Audley is located approximately 800m to the southwest of the proposed development area, with the town of Bicester located approximately 3.7km to the south west (at the closest point).

2. Survey methodology

2.1. Desktop survey

The desktop survey collated existing biological records for the site and adjacent areas and identified any nature conservation sites that may be affected by the proposals. This comprises an important part of the assessment process, providing information on ecological issues that may not be apparent during the site survey.

Consultees for the data search included:

- Thames Valley Environmental Records Centre (TVERC) provided biological records for protected/notable bird species.
- Natural England - GIS dataset of SSSI Impact Risk Zones and statutory nature conservation sites.

2.2. Field survey

Walk over surveys were completed adopting the 'look-see' methodology described by Gilbert *et al.* (1998). A transect route was walked around the site, stopping at intervals to scan for target species with binoculars, within the Site and surrounding land. All bird activity within and around the Site was recorded and mapped, including birds flying over. Surveys were undertaken during favourable weather conditions, avoiding periods of prolonged heavy rain and strong winds (detailed in Table 1).

The surveys were completed by James Gilroy and Adrian George, both professional ecologists with experience of a variety of ornithological surveys.

Table 1 – survey timings and weather conditions

Date	Time Started	Time finished	Weather
14/01/2022	07:30	10:00	Cold, dry and clear with temps of 4-6°C, light E breeze and 30% cloud cover
31/01/2020	09:00	11:30	Mild, dry and calm with temps of 9-10°C, a very light S breeze and <10% cloud cover
14/02/2022	08:30	14:30	Fine, sunny dry, (cold morning with frost), light E breeze, 20% cloud 11C,
08/03/2022	07:50	10:05	Clear, fine & dry (cold morning with frost), with temps of 3-8°C, SE wind of 2-3 and <10% cloud cover

Target species primarily consisted of wetland birds in particular waders, wildfowl, and gulls as well as Schedule 1 raptors and owls. Records were made of other notable species which were determined based on the following criteria:

Schedule 1 of the Wildlife and Countryside Act (1981)

The Wildlife and Countryside Act 1981 (as amended) affords greater protection to certain breeding species and are as such listed as specially protected under Schedule 1 of the Act.

Birds of Conservation Concern (BoCC) 5

Commonly referred to as the UK Red List for birds, this is the fifth review of the status of birds in the UK, Channel Islands and Isle of Man, and updates the last assessment in 2015.

Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts from a range of bird NGOs and assigned to the Red, Amber or Green lists of conservation concern.

Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.

Amber list species are those with an unfavourable conservation status in Europe.

Species on the Green List fulfil none of the above criteria and are of least conservation concern.

Biodiversity Action Plan species

Species of bird are listed as Biodiversity Action Plan Priority Species and species listed as species of principal importance under Section 41 of the Natural Environments and Rural Communities (NERC) Act 2006.

2.4. Survey constraints

Wintering bird surveys are generally undertaken between October to March (inclusive) however due to the late commission of the surveys the full survey effort has not been completed, with four survey visits between January and March 2022 completed. However, this is not considered to be a significant constraint to the assessment of bird activity at this site due to the low numbers of target species recorded and because the site is not located within 10km of any internationally designated site or 5km of any nationally designated site for which migratory, overwintering and/or wetland bird species are qualifying features.

There are no other constraints to the surveys

2.5. Study area

The survey area for the wintering bird surveys was the footprint of the proposed development, hereafter referred to as the 'Site', and its immediate surroundings This is the area included within the line described as "Survey area" within the legend of Map 1.

3. Results

3.1. Desktop survey

There are no statutory nature conservation sites with qualifying features relating to migratory, overwintering and/or wetland bird species, located within 10km of the Site.

SSSI Impact Risk Zones

The Site is not within an area identified as a SSSI Impact Risk Zone for this size or type of development.

3.2. Habitat Assessment

The Site predominantly comprises arable farmland under autumn/winter cereal cropping regimes. Some fields contained plots of winter bird food plots situated along the field margins, consisting of seed bearing plants such as Millet, Quinoa and Mustards. Autumn/winter sown cereal cropping is likely to provide limited value for foraging birds to due lower associated invertebrate biomass content. Winter bird food plots provide good foraging opportunities for a variety of bird species and are likely to be utilised by flocks of farmland birds such as Yellowhammer, Skylarks and Meadow Pipits.

Hedgerows enclosing the site will support common and widespread nesting passerines such as Blackbird, Dunnock and Wren. They may also provide feeding opportunities for wintering passerines such as Redwing and Fieldfare.

3.3. Wintering bird transect survey

A total of 39 species were recorded during the 4 wintering bird transects in January to March 2022. Of the 39 recorded species, 6 were target species (gulls, waders or Schedule 1 raptors) while 17 species were considered to be notable due to current conservation status. The remainder were common and widespread passerines, corvids and raptors. Details of target and notable species recorded are contained in Table 3, while locations of observations are shown in Maps 1-4 in Appendix 1.

Activity from target species generally involved flocks of waders and gulls foraging within the field compartments. Individual Red Kite was frequently observed foraging over the Site and into the wider area. Individual Snipe were flushed from rough vegetation associated with hedgerow bases or bare open ground associated with field compartments.

Table 3. Records of target and other notable species recorded within the Site

Species (target species in bold)	No. of birds during each survey visit				Conservation status
	1	2	3	4	
Dunnock	-	-	-	2	Amber ¹
Fieldfare	-	-	175	-	S1 ² ; Red ³

¹ BoCC 5 – Amber list species

² Wildlife and Countryside Act (1981) – Schedule 1 species

³ BoCC 5 – Red list species

Greenfinch	-	-	1	-	Amber
Kestrel	-	-	-	-	Amber
Red Kite	1	-	1	-	S1
Lapwing	24	-	-	9	BAP ⁴ ; Red
Linnet	-	12	20	1	BAP; Red
Meadow Pipit	-	-	1	5	Amber
Reed Bunting	-	-	5	6	BAP; Amber
Redwing	-	1	31	-	S1; Red
Skylark	-	2	3	5	BAP; Red
Stock Dove	-	-	2	16	Amber
Starling	-	-	-	1	BAP; Red
Snipe	2	-	-	-	Amber
Song Thrush	-	-	-	1	BAP; Red
Wood Pigeon	-	37	-	15	Amber
Wren	-	-	-	2	Amber
Yellowhammer	-	16	43	7	BAP; Red

Table 3. Records of target and other notable species recorded within immediate surroundings

Species (target species in bold)	No. of birds during each survey visit				Conservation status
	1	2	3	4	
Black-headed gull	-	-	100	-	Amber
Dunnock	-	-	-	1	Amber
Golden Plover	-	-	-	24	Green
Herring Gull	-	-	35	-	BAP; Red
Lapwing	-	-	-	18	BAP; Red
Lesser Black-backed Gull	-	-	250	-	Amber
Redwing	-	-	-	10	S1; Red
Skylark	20	8	1	1	BAP; Red
Snipe	-	2	-	-	Amber
Starling	-	-	-	22	BAP; Red
Song Thrush	-	-	1	-	BAP; Red
Wood Pigeon	-	-	1	-	Amber
Wren	-	-	1	-	Amber
Yellowhammer	-	-	-	1	BAP; Red

⁴BAP- Biodiversity Action Plan Priority Species and species listed as species of principal importance

4. Evaluation of the importance of the Site for wintering birds and potential impacts

A total of 6 target species and additional 17 notable species were recorded using the Site during the four surveys undertaken between January to March 2022.

4.1 Introduction

Ecological features that have the potential to be present have been assessed in light of current nature conservation policy, planning policy and wildlife legislation by an experienced ecologist. Where necessary, the ecological value of an ecological feature is given along with the potential effect of the proposed development.

If it is considered that the proposed development is likely to have no effect on features that have been identified as present, or potentially present, they may be scoped out at this stage.

4.2 Target species

Lapwing were recorded foraging within the open field compartments across the Site which featured crop seedlings over exposed soil, on two occasions. These open areas with exposed soil will provide some foraging opportunities, however the intensive management of the agricultural land will result in low availability of invertebrate prey particularly when compared to less intensively managed habitats (such as permanent grassland (Gillings & Fuller, 1999)). Lapwing were recorded in in single flocks and as individuals or smaller flocks. Lapwing and Golden Plover were also recorded in flight over arable habitats adjacent to the Site on one occasion. This suggests that usage of the Site by Lapwing is generally sporadic, and winter foraging is not confined to the habitats within the Site but occurs on a landscape scale.

The arable habitats with which Lapwing activity was associated with is not unique to the Site and is frequently occurring in the local landscape. Furthermore, it represents a dynamic habitat with foraging suitability dependent upon both short- and long-term variables such as sward height, structure, input levels and crop type. Therefore, the arable habitat associated with the Site is likely to provide opportunistic foraging and so is unlikely to represent a significant foraging resource for these target species recorded. A large, mixed flock of foraging gulls was recorded in arable habitats adjacent to the Site during a single survey visit 3, in farmland adjacent to the Site, and is also suggestive that the arable habitats within the in the local area provide only opportunistic foraging for target species such as gulls.

The proposed development will result in the reduction in availability of low value foraging habitat, for Lapwing which favour open vista habitats. However, given the baseline of low prey abundance, variable suitability, and widespread availability in the local area, this is not considered likely to impact local wintering populations. Furthermore, there are no statutory nature conservation sites within 10km of the Site which include Lapwing (or any other of the target species) as an interest feature and no impacts upon locally significant populations of gull species or Lapwing are predicted.

The other records of target species relate to Snipe and Red Kite. Snipe were recorded in low numbers (peak count of 2), with activity associated with the bases of hedgerows or bare soil associated with arable habitats the Site. These areas provide suitable foraging and roosting habitat. Hedgerows will remain unaffected by the development, while a buffer of 5m from the hedgerow base will ensure that these areas continue to function as roosting habitat. The arable land under the proposed arrays will be converted to permanent grassland, and with suitable management will continue to provide winter foraging opportunities for species such as Snipe.

Red Kite were also recorded in low numbers (peak count of 1, and recorded during three of four surveys). All Red Kite records related to hunting activity, flying over the Site and across the immediate area. Red Kite are known to forage across an area of 20-30km² over during the winter (English Nature, 2002). Therefore, habitat contained within the Site represents a small proportion of a hunting. The Site will continue to provide winter foraging habitat under the proposed development, as the land under the proposed solar arrays will be managed as permanent grassland. Additionally, Red Kite populations are slowly increasing in size and expanding in range, with the species being moved to the Green list in 2015, and do not represent a species of conservation concern.

No mitigation for target species is recommended.

4.3 Notable species

17 notable bird species were recorded within the Site and these represent a typical farmland assemblage, characteristic of the local landscape. The majority of records relate to passerines which were using boundary habitats such as hedgerows, scrub, woodland and winter bird food plots. The boundary habitats will remain unaffected by the development, continuing to function as winter foraging/sheltering habitat. Winter bird food plots will be lost to the development, however conversion of arable land to permanent grassland under the arrays will provide a larger expanse of available winter foraging habitat for this farmland assemblage and will likely provide an enhancement for these species recorded here.

No mitigation for notable bird species is recommended.

References

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English Nature. (2002). Return of the Red Kite: The red kite reintroduction programme in England. External Relations Team, English Nature, Northminster House, Peterborough.

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Institute of Environmental Assessment (IEA), 1995. *Guidelines for Baseline Ecological Assessment*, Institute of Environmental Assessment. E&FN Spon, aJn Imprint of Chapman and Hall. London.

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Appendix 1:

Survey results maps for wintering bird surveys undertaken in January, February and March 2022



Legend

— Development footprint
— Flight lines

→ Target/notable species recorded during survey
(individuals unless stated)

KT = Red Kite
L = Lapwing
S = Skylark
SN = Snipe



Title: Map 1. Winter bird survey results - 14.01.2022

Project: Padbury Brook Solar Farm,
Bicester, Oxfordshire

Checked by: CDH Version: 01
Date: 16 November 2022



Legend

-  Development footprint
- Target/notable species recorded during survey (individuals unless stated)
 - LI = Linnet
 - RE = Redwing
 - S. = Skylark
 - SN = Snipe
 - WP = Wood Pigeon
 - Y. = Yellowhammer

0 100 200 m

Map data: Google Earth, Digital Globe

Title: Map 2. Winter bird survey results - 31.01.2022

Project: Padbury Brook Solar Farm, Bicester, Oxfordshire

Checked by: CDH Version: 01
Date: 16 November 2022



Legend

— Development footprint
— Flight lines

→ Target/notable species recorded during survey
(individuals unless stated)

- BH = Black-headed Gull
- FF = Fieldfare
- GR = Greenfinch
- HG = Herring Gull
- KT = Red Kite
- LB = Lesser Black-backed Gull
- LJ = Linnet
- MP = Meadow Pipit
- RB = Reed Bunting
- RE = Redwing
- S. = Skylark
- SD = Stock Dove
- ST = Song Thrush
- WP = Wood Pigeon
- Y. = Yellowhammer



Title: Map 3. Winter bird survey results - 14.02.2022

Project: Padbury Brook Solar Farm,
Bicester, Oxfordshire

Checked by: CDH Version: 01
Date: 16 November 2022



Legend

— Development footprint
— Flight lines

→ Target/notable species recorded during survey
(individuals unless stated)

- D. = Dunnock
- GP = Golden Plover
- L. = Lapwing
- LI = Linnet
- MP = Meadow Pipit
- RB = Reed Bunting
- RE = Redwing
- S. = Skylark
- SD = Stock Dove
- SG = Starling
- ST = Song Thrush
- WP = Wood Pigeon
- WR = Wren
- Y. = Yellowhammer



Title: Map 4. Winter bird survey results - 08.03.2022

Project: Padbury Brook Solar Farm,
Bicester, Oxfordshire

Checked by: CDH Version: 01
Date: 16 November 2022