
Butterfly Solar Farm

on behalf of RWE Renewables UK Limited

Appendix 5-3: Non-breeding Bird Survey Report



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1 INTRODUCTION

1.1 Overview

- 1.1.1 Avian Ecology Ltd. was commissioned by Axis on behalf of RWE Renewables UK Limited to undertake wintering bird surveys in relation to a proposed solar energy generating station and an associated on-site Battery Energy Storage System (BESS) (the 'Proposed Development') located on land to the north of the B5426, Wrexham (the 'Site') as shown on **Figure 7-4**. The Proposed Development also includes the associated infrastructure and connection to the Legacy National Grid substation.
- 1.1.2 The report aims to Provide baseline information regarding the presence and distribution of non-breeding (wintering) ornithological interests within the Site and immediately surrounding area;
- 1.1.3 Only common bird species names are referred to within the main text of this report. **Annex 1** provides a summary of all bird species recorded during survey visits, including both common and scientific species names, together with a summary of their conservation status as relevant.

1.2 Site Context

- 1.2.1 The Site does not form part of, or is located in proximity to, any statutory designated site for nature conservation citing non-breeding ornithological interest species as a qualifying feature within 20km of the Site.
- 1.2.2 While there are no statutory designated sites with non-breeding ornithological interest, due to the scale of Proposed Development non-breeding bird surveys have been undertaken to assess the importance of the Site for non-breeding farmland species

2 METHODOLOGY

2.1 Field Survey

- 2.1.1 Wintering bird surveys were undertaken monthly between October 2023 and March 2024.

Survey Area

- 2.1.2 The survey area comprised of the habitats within the Site, and 'Wider Survey Area' defined as the surrounding fields within a buffer of 600m, as shown in **Figure 7-4a-d**.
- 2.1.3 For ease of interpreting the survey results, fields within the survey area (hereafter termed 'Survey Area') were numbered 1-305. Fields within the Site (total 29) and within the Wider Survey Area (total 276) are defined in **Table 2.1**.

Table 2.1: Field allocations for the Site and Wider Survey Area.

Land Parcel	Field Number Range
The Site	1-28
Wider Survey Area	29-304

Walkover Surveys

- 2.1.4 A total of six survey visits were undertaken to the Survey Area, comprising ‘walk-over’ surveys and adopting the ‘look-see’ methodology as detailed in Gilbert *et al.* (1998¹). During each survey visit a route was walked through the Survey Area, observing each field using public rights of way (PRoWs) and roads and where possible, walking the boundaries and stopping at intervals and scanning the fields for Target Species, with binoculars. All Target Species heard or seen were recorded onto base maps.
- 2.1.5 Target Species for survey included wetland bird species (waders, waterfowl and gulls (excluding feral species e.g. Canada goose)), Annex 1²/Schedule 1³ raptors and notable flocks (>10 birds) of Birds of Conservation Concern (BoCC Amber and Red List species (Stanbury *et al.* 2021))⁴.
- 2.1.6 All surveys were undertaken during daylight hours in weather conditions conducive for bird surveys and were undertaken by F. Wilde BSc (Hons.) (FW) and Z. Hinchliffe MRes BSc (Hons.) (ZH), both of whom are suitably experienced ornithologists. Due to the large size of the Survey Area, the surveys were split into three areas and completed across two separate survey days (except for survey 1 which was completed by two separate surveyors on the same day.)
- 2.1.7 The West side of the Survey Area included fields: 23-28 within the Site and 29-86 in the Wider Survey Area.
- 2.1.8 Central side of the Survey Area included fields 6-22 within the Site and 87-205 in the Wider Survey Area
- 2.1.9 The East side of the Survey Area included fields 1-5 within the Site and 206-304 in the Wider Survey Area.
- 2.1.10 Winter walk-over survey effort is summarised in **Table 2.1**, with full survey details are presented in **Annex 2**.

Table 2.1: Winter walk-over survey effort.

Survey Visit	Date(s)	Survey Cover	Surveyor	Start Time (24hr)	End Time (24hr)	Survey Conditions
1	19/10/2023	West / East	FW/ ZH	09:50	15:00	Light easterly wind, clear skies and good visibility
2	14/11/2023	West	FW	09:50	16:00	Light westerly wind with scattered showers towards the second half of the survey. Good visibility.
	17/11/2023	Central / East	FW	10:00	15:00	Light south westerly wind with broken cloud. Dry with good visibility.

¹ Gilbert G, Gibbons D.W. and Evans J. (1998) *Bird Monitoring Methods*. RSPB Sandy.

² <https://lists.nbnatlas.org/speciesListItem/list/dr2401>

³ <https://www.bto.org/our-science/projects/bird-ringing-scheme/taking-part/protected-birds/s1-list>

⁴ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114, pp. 723–747.

Survey Visit	Date(s)	Survey Cover	Surveyor	Start Time (24hr)	End Time (24hr)	Survey Conditions
3	18/12/2023	East	FW	09:00	15:00	Light north easterly wind, moderate cloud cover and good visibility
	19/12/2023	West / Central	FW	09:00	13:00	Light north easterly wind. Good visibility.
4	23/01/2024	Central	FW	09:00	14:00	Light south westerly wind, overcast with good visibility
	24/01/2024	West / East	FW	09:00	16:00	Light south westerly wind, overcast with good visibility
5	20/02/2024	Central / East	FW	09:00	11:30	Light south westerly wind, overcast with good visibility
	21/02/2024	West	FW	09:00	14:00	Light south westerly wind, overcast with good visibility
6	20/03/2024	Central / East	FW	09:00	16:00	Moderate easterly wind, overcast and good visibility
	21/03/2024	West	FW	09:00	14:00	Light easterly wind, overcast and good visibility

Limitations of survey

- 2.1.11 No significant disturbance events were recorded during the surveys (with the exception of usual events such as agricultural work, traffic and pedestrians along roads/PRoWs) and as such are not considered significant in terms of having a potential influence on the presence and distribution of Target Species within the Survey Area during the survey period.

3 RESULTS

- 3.1.1 The Site is not located in proximity to any statutory designated sites where wintering or passage bird species are a qualifying species, however in recognition of the scale of the project wintering bird surveys have been undertaken to help assess the importance of the Site for non-breeding farmland species.
- 3.1.2 Over the course of surveys, the Site was found to support a typical range of non-breeding bird species as summarised in **Table 3.1**. Numbers of birds recorded were typically low, with occasional larger flocks of winter thrush species and starling, with the highest counts at one time totalling 150 redwing, and 700 starlings.
- 3.1.3 A total of 15 species were recorded during the 2023/2024 surveys within the Site, consisting: black headed gull, fieldfare, greylag goose, lesser black-backed gull, redpoll, mallard, meadow pipit, redwing, reed bunting, rook, snipe, sparrowhawk, starling, teal and woodpigeon
- 3.1.4 Habitats in the Wider Survey Area were similarly found to support low to moderate numbers of a narrow range of species as summarised in **Table 3.2**.
- 3.1.5 A total of 16 species were recorded with the Wider Survey area, consisting: black-headed gull, fieldfare, herring gull, lapwing, lesser black-backed gull, mallard, meadow pipit, mistle thrush, moorhen, mute swan, redwing, snipe, starling and teal.
- 3.1.6 Extensive floodwater on land within the northern section of the Wider Survey Area resulted in small flocks of black-headed gull being recorded. Small numbers of lapwing were recorded within the Wider Survey Area, predominantly in November. Small numbers of waterfowl including mallard and teal were also recorded on floodwater in the Wider Survey Area during certain visits.
- 3.1.7 Farmland species recorded within the Survey Area were considered typical with the majority of flocks and observations of birds referring to <10 birds, which included observations of skylark, stock dove, mistle thrush and dunnoek and spread out across the Survey Area. Within the Site, skylark were confined to single birds within the Central area and a single observation in the Western area. Those farmland Target Species recorded in flocks of >10 birds included fieldfare, redwing, rook, snipe, starling, redpoll, meadow pipit and woodpigeon.
- 3.1.8 Other species recorded included a range of commoner raptors and passerines with some moderately sized flocks of fieldfares, redwings and starlings.

Table 3.1: Wintering bird survey results – the Site.

Field No.	Species	BTO code	Oct	Nov	Dec	Jan	Feb	Mar
1	Black-headed Gull	BH	3					
	Redwing	RE	37			20	9	
	Rook	RO		16	16			
	Starling	SG	10					
	Snipe	SN						1
2	Black-headed Gull	BH		(6)				
	Lesser Black-backed Gull	LB		(1)				
	Redwing	RE		2			14	10
	Starling	SG		100 (2)		30		
	Snipe	SN		30				
	Woodpigeon	WP	10					
	Fieldfare	FF	(6)	10				
3	Redwing	RE	(5)	14		15	52	

	Starling	SG	(18)					80
4	Black-headed Gull	BH	10					
	Fieldfare	FF		80				59
	Mallard	MA		(7)				
	Meadow Pipit	MP		1	4		10	
	Redwing	RE	(10)	18	40	70	60	
	Starling	SG			10	90		
	Sparrowhawk	SH	1					
	Snipe	SN				2		
5	Black-headed Gull	BH		(6)				
	Fieldfare	FF			10	11		17
	Meadow Pipit	MP	(1)	3	16			6
	Reed Bunting	RB	1	1	10		3	
	Redwing	RE	(40)		60	10		
	Rook	RO			50			
	Starling	SG			100			
	Snipe	SN						10
6	Redwing	RE				10	20	
7	Black-headed Gull	BH		(8)				
	Fieldfare	FF					35	
	Starling	SG				150	14	
8	Fieldfare	FF				(30)		
	Redwing	RE				150	7	31
	Starling	SG				200		
	Redwing	RE			(2)	50	60	26
10	Black-headed Gull	BH		(5)				
	Fieldfare	FF	(6)	40				
	Mallard	MA		2			2	
	Rook	RO	11					
	Starling	SG					50	
	Snipe	SN				1		
11	Starling	SG					100	
12	Redwing	RE				60	7	
	Teal	T.	10					
13	Fieldfare	FF			1		10	18
	Redwing	RE	(10)	16	10	15		70
	Rook	RO	10					
	Starling	SG				20		
14	Fieldfare	FF				2	70	
	Starling	SG				(15)		
15	Mallard	MA		(6)				
	Starling	SG					10	
	Teal	T.		3				
16	Redwing	RE				(19)		
	Starling	SG				5	15	40
17	Redwing	RE				30	27	
	Rook	RO			25			
	Redwing	RE					30	

	Rook	RO	10					
	Teal	T.				7		
19	Mallard	MA				3		
	Redwing	RE					22	58
20	Lesser Black-backed Gull	LB		2				
	Redpoll	LR		14				
	Redwing	RE				60		
	Starling	SG			30		35	21
	Sparrowhawk	SH		1				
21	Fieldfare	FF				70		
	Redwing	RE	22				39	
22	Teal	T.					(4)	
	Redwing	RE					13	
	Starling	SG				10		
23	Fieldfare	FF		16		5		
	Greylag Goose	GJ						15
	Redwing	RE		60	70	7	20	15
	Starling	SG		(100)	100			
	Snipe	SN					7	
	Redwing	RE		10			20	
	Starling	SG				11		
	Snipe	SN						8
	Teal	T.						4
25	Fieldfare	FF		30				
	Mallard	MA						4
	Redwing	RE		100				30
	Starling	SG		(700)	100		60	
	Teal	T.				4		
	Starling	SG				27	15	19
	Redwing	RE			15	20		
	Starling	SG						24
28	Black-headed Gull	BH		10				
	Fieldfare	FF			10			
	Redwing	RE			60		15	9
	Starling	SG				15		10
	Redwing	RE	16					
	Woodpigeon	WP	(100)					

Table 3.2: Wintering bird survey results – Wider Survey Area.

Field No.	Species	BTO code	Oct	Nov	Dec	Jan	Feb	Mar
30	Snipe	SN					2	
34	Redwing	RE				100		
49	Black-headed Gull	BH						200
50	Black-headed Gull	BH						150
51	Lesser Black-backed Gull	LB						90
57	Herring Gull	HG		9				
	Lesser Black-backed Gull	LB		6				
70	Redwing	RE					12	
72	Lapwing	L.				10		
	Mallard	MA		18				
	Moorhen	MH		6				
	Mute Swan	MS		2				
	Redwing	RE					19	
	Starling	SG					44	
	Teal	T.				15		
74	Teal	T.					1	
77	Starling	SG					18	
89	Black-headed Gull	BH		(60)				
	Lapwing	L.		(10)				
145	Starling	SG					24	
147	Fieldfare	FF				10		
	Redwing	RE		(2)			17	
160	Lapwing	L.		(16)				
	Mallard	MA		(1)				
	Redwing	RE			(30)			
	Teal	T.		(4)				
164	Redwing	RE						10
78	Redwing	RE					11	
179	Redwing	RE				17	50	
182	Starling	SG						15
186	Meadow Pipit	MP						11
	Redwing	RE				14		
187	Redwing	RE				30		6
209	Lapwing	L.		1				
235	Herring Gull	HG			10			
241	Lapwing	L.		7				
244	Fieldfare	FF						100
	Starling	SG						10
246	Lesser Black-backed Gull	LB	1					
253	Redwing	RE				50		
255	Black-headed Gull	BH		(4)				
	Redwing	RE						31
256	Starling	SG						10
271	Fieldfare	FF				22		
	Starling	SG					30	
272	Fieldfare	FF		(19)				
	Redwing	RE						40

	Starling	SG					9	58
298	Redwing	RE			(40+)			
	Starling	SG				7		41
303	Fieldfare	FF					20	
	Redwing	RE						50
304	Black-headed Gull	BH		7				
	Redwing	RE					15	30

ANNEX 1: SPECIES LIST WITH SCIENTIFIC NAMES AND CONSERVATION STATUS

Common name	Scientific Name	Conservation Status
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Amber (GB*); Red (Wales); Sec7
Buzzard	<i>Buteo buteo</i>	Green (GB, Wales)
Canada Goose	<i>Branta canadensis</i>	
Fieldfare	<i>Turdus pilaris</i>	Red (GB); Amber (Wales); Sch1.1; RBBP
Greylag Goose	<i>Anser anser</i>	Amber (GB)
Herring Gull	<i>Larus argentatus</i>	Red (GB*, Wales); Sec7
Jackdaw	<i>Coloeus monedula</i>	Green (GB, Wales)
Lapwing	<i>Vanellus vanellus</i>	Red (GB, Wales); Sec7
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber (GB*), Red (Wales)
Mallard	<i>Anas platyrhynchos</i>	Amber (GB), Green (Wales)
Moorhen	<i>Gallinula chloropus</i>	Amber (GB), Green (Wales)
Meadow Pipit	<i>Anthus pratensis</i>	Amber (GB), Red (Wales)
Mute Swan	<i>Cygnus olor</i>	Green (GB, Wales)
Reed Bunting	<i>Emberiza schoeniclus</i>	Amber (GB), Green (Wales); Sec7
Redwing	<i>Turdus iliacus</i>	Amber (GB), Green (Wales); Sch1.1; RBBP
Redpoll	<i>Acanthis flammea</i>	Red (GB); Amber (Wales); Sec7
Rook	<i>Corvus frugilegus</i>	Amber (GB), Red (Wales)
Skylark	<i>Alauda arvensis</i>	Red (GB); Amber (Wales); Sec7
Stock Dove	<i>Columba oenas</i>	Amber (GB), Green (Wales)
Starling	<i>Sturnus vulgaris</i>	Red (GB, Wales); Sec7
Sparrowhawk	<i>Accipiter nisus</i>	Amber (GB), Green (Wales)
Snipe	<i>Gallinago gallinago</i>	Amber (GB, Wales)
Teal	<i>Anas crecca</i>	Amber (GB, Wales)

Target Species are highlighted in bold.

Conservation Status

Red/Amber/Green – Species status as listed on the Birds of Conservation Concern 5 lists

Sch1.1/1.1A/A1/1.2 – Schedule 1 part 1, 1 part 1A, A1 or 1 part 2 of the Wildlife and Countryside Act 1981 (as amended)

Sec7 – Section 7 of the Environment (Wales) Act 2016

RBBP - Listed as one of the species that the UK Rare Breeding Bird Panel reports on; breeding records of these species should be shared with the relevant county recorder

Ann1 – Listed on Annex I of The Birds Directive

ANNEX 2: WINTERING BIRD SURVEY EFFORT

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
19/10/2023	FW	09:50	15:00	2	E	1	0	2	2	0	0
14/11/2023	FW	09:50	16:00	2	W-SW	0-2	3-8/8	2	2	0	0
17/11/2023	FW	10:00	15:00	2-3	SW	0	3-7/8	2	2	0	0
18/12/2023	FW	09:00	15:00	2-3	NE	0	5/8	2	2	0	0
19/12/2023	FW	09:00	13:00	2	NE	0	5-7/8	2	2	0	0
23/01/2024	FW	09:00	14:00	3	SW	1	7/8	2	2	0	0
24/01/2024	FW	09:00	16:00	2	SW	0	5/8	2	2	0	0
20/02/2024	FW	09:00	11:30	4	SW	0	6/8	2	2	0	0
21/02/2024	FW	09:00	14:00	2	SW	0	5/8	2	2	0	0
20/03/2024	FW	09:00	16:00	4	E	0	5/8	2	2	0	0
21/03/2024	FW	09:00	14:00	2	E	0	6/8	2	2	0	0

Wind Speed		W-Direction	Rain		Cloud Cover		Cloud Height	
Calm	0	Use 16 point Compass	None	0	In eighths e.g.	3/8	<150m	0
Light air	1		Drizzle/Mist	1			150-500m	1
Light breeze	2	N	Light showers	2			>500m	2
Mod. breeze	4	NE	Heavy rain	4				
Fresh breeze	5	ENE						
Strong breeze	6	E						

Mod. gale	7	Etc	Visibility		Snow		Frost	
Fresh gale	8		Poor	0	None	0	None	0
Strong gale	9		< 1km	1	On site	1	Ground	1
Whole gale	10		>1km	2	High ground	2	All day	3
Storm	11							