

ARABLE PLANTS SURVEY

LAND AT CONESBY FARM, SCUNTHORPE, NORTH LINCOLNSHIRE

carried out by



commissioned by

INRG SOLAR (CONESBY) LTD

AUGUST 2019

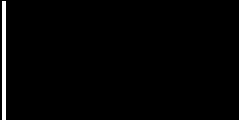


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1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by INRG Solar (Little Crow) Ltd to carry out an ecological survey of land of land due to accommodate Conesby Solar Farm near Scunthorpe, North Lincolnshire.
- 1.1.2 This report presents the findings of a rare arable plants survey, conducted on 17th July 2019 by Henry Sturgess GradCIEEM.
- 1.1.3 Henry has 4 years' undertaking ecological surveys and has a BSc in relevant subjects. Henry has been assessed under the Clarkson and Woods QA processes as competent to complete the survey.
- 1.1.4 Unless the client indicates to the contrary, information on the presence of species will be passed to the county biological records centre in order to augment their records for the area.

2 SURVEY AND ASSESSMENT METHODOLOGY

- 2.1.1 A targeted survey for arable plant species (sometimes called arable weed species) was undertaken on 17th July 2019. The margins of all arable fields were initially walked over by an experienced ecologist in order to rapidly assess the distribution of arable plants across the site. Areas noted to be of interest in terms of abundance and diversity of arable plants were then subject to more detailed survey. The location of these arable plant survey target zones are provided in Figure 1. The survey data from all of the fields across the site can be found in Appendix A.
- 2.1.2 The survey used a modified version of the Plantlife Arable Plants Survey Form and adopted a methodology whereby areas noted to be of interest in the rapid assessment were then subject to a detailed inspection with all arable plant species being recorded. Each area was subjected to an extended and detailed search with all species within the area (other than crops) being recorded. Where threatened species were recorded these were ascribed a score according to the Plantlife Important Arable Plant Areas Methodology¹.
- 2.1.3 Arable plant species encountered and their relative abundance within each target survey zone were recorded and described using the DAFOR scale shown below:
 - D – Dominant
 - A – Abundant
 - F – Frequent
 - O – Occasional
 - R – Rare
- 2.1.4 The quality of each arable area was assessed against the three criteria identified by Plantlife in identifying important arable plant areas⁴.

3 SURVEY LIMITATIONS

- 3.1.1 The majority of arable plant species are annuals and require suitable conditions in order to perform their life cycle in a given year. As such there may be arable plant species present in the seed bank that were not recorded during the surveys but that may appear in another year.
- 3.1.2 The arable plant survey was generally focused on the field margins at the site as well as several tramlines within the centre of fields, and it was not possible to survey the entire ground within the circa 70ha of arable land. Arable plants growing amongst crops are likely to have been missed if present with the centre of fields. However, arable plants do not generally flourish within the centre of conventionally

¹ Byfield, A.J. & Wilson, P. J. (2005). Important Arable Plant Areas: identifying priority sites for arable plant conservation in the United Kingdom. Plantlife International, Salisbury, UK



managed arable crop fields, due to herbicide use and being outcompeted by crops, and it is therefore unlikely that or highly-diverse areas or abundant weed growth would have been missed. The survey approach taken is therefore considered likely to have identified the key areas of arable plants present at the site.

4 RESULTS

- 4.1.1 Table 1 below provides a summary description of the habit within each of the arable plant survey target zones, shown in Figure 1. Table 2 at the end of this report details the relative abundance of plant species (excluding crops) in each zone using the DAFOR criteria.

Table 1: General Description of Arable Plants Survey Target Zones

Arable Plant Survey Target Zone	General description
TZ 1	Margin of Field 1 with a defunct hedgerow between Fields 1 and 2. Both fields contain barley as crop.
TZ 2	Southern margin of Field 2, with barley as crop.
TZ 3	Overgrown wildflower area to the south of a woodland copse. No crops in this area. Predominately tall thistles and wildflowers, with a few notable arable species.
TZ 4	Area of field margin on the bank of the large off-site pond.
TZ 5	Area of Field 2 with potatoes as crop. Other plant species encountered in margins of area and in areas of bare ground between crops.
TZ 6	Track leading to farm buildings, with high vehicle traffic.

4.2 Important Arable Plant Area Assessment

- 4.2.1 Of the arable plant species recorded on site, four species are listed by Plantlife in the Important Plant Areas guide. These are: Common cudweed *Filago vulgaris*, which is recorded as being Near Threatened (and therefore a score of 6); Loose silky-bent *Apera spica-venti*, which is recorded as being Near Threatened (and therefore a score of 6); Black mustard *Brassica nigra*, which is recorded as being Least Concern (and therefore a score of 2); and Henbit Dead-nettle *Lamium amplexicaule* which is recorded as being Least Concern (and therefore a score of 1). None of the other species recorded on site are included within the Plantlife listing which is drawn up from PLANTATT: Attributes of British and Irish Plants².
- 4.2.2 This gives a total score for the overall site of 15. The provisional criteria for threshold scores for assessing the conservation importance of arable plant sites indicates that for sands and freely draining acidic soils, such as are found on site the threshold, is 20-34 points for a site of County Importance; 35-69 points for a site of National Importance and 70+ for a site of European importance. Therefore based upon this scoring method the site should not be considered of County importance or above. The threshold scores defined by Plantlife do not ascribe scores for levels of importance below County.
- 4.2.3 Nevertheless, the presence of two near threatened species means the site does support some important arable weed species. These results have informed the prescriptions relating to arable plants set out within the Landscape and Ecological Management Plan.

² Hill, M.O., Preston, C.D. & Roy, D.B. (2004). PLANTATT: Attributes of British and Irish Plants. NERC Centre for Ecology and Hydrology, Monks Wood



Key:

- Field Area
- Target Zone Area
- TZ1 Target Zone Code
- Field 1 Field Area Code



Project Land at Conesby Farm, Scunthorpe	
Title Arable Plants Target Zone Areas	
Project Number 6467	Figure Number Figure 1
Scale Not to Scale	Date 07/08/2019

Figure 1: Arable Plants Target Survey Zones



Table 2: Relative Abundance (DAFOR) of Arable Plant Species in Each Target Zone. Species highlighted in orange are listed by Plantlife in the Important Plant Areas Guide.

Common Name	Scientific Name	TZ 1	TZ 2	TZ 3	TZ 4	TZ 5	TZ 6
Long headed poppy	<i>Papaver dubium</i>	R	R	R			
Wild oats	<i>Avena fatua</i>	F	F			F	
Black grass	<i>Alopecurus myosuroides</i>		F	F			
Changing forget-me-not	<i>Myosotis discolor</i>	O	O	O		R	
Barren brome	<i>Bromus sterilis</i>	F	F	F		F	
Italian rye grass	<i>Festuca perennis</i>	O	O				O
Hedge mustard	<i>Sisymbrium officinale</i>	O					
Great brome	<i>Bromus diandrus</i>	R	R				
Creeping thistle	<i>Cirsium arvense</i>	O		D			
Meadow barley	<i>Hordeum brachyantherum</i>	R					
Common nettle	<i>Urtica dioica</i>	O	O			D	
White campion	<i>Silene latifolia</i>	R	R	O			
False oat grass	<i>Arrhenatherum elatius</i>	F	F				
Field horsetail	<i>Equisetum arvense</i>	R					
Field forget-me-not	<i>Myosotis arvensis</i>	O	O	O			
Red campion	<i>Silene dioica</i>	R					
Cleavers	<i>Galium aparine</i>	O	O				
Fool's parsley	<i>Aethusa cynapium</i>		R				
Common couch	<i>Elymus repens</i>		O			O	O
Weld	<i>Reseda luteola</i>		R	R			
Common orache	<i>Atriplex patula</i>		O				
Scentless mayweed	<i>Tripleurospermum inodorum</i>		R				

Common Name	Scientific Name	TZ 1	TZ 2	TZ 3	TZ 4	TZ 5	TZ 6
Corn poppy	<i>Papaver rhoeas</i>		F	F			
Field bindweed	<i>Convolvulus arvensis</i>		O				
Loose silky bent	<i>Apera spica-venti</i>		R				R
Nipplewort	<i>Lapsana sp.</i>		R				
Prickly lettuce	<i>Lactuca serriola</i>		R				
Cocks foot grass	<i>Dactylis glomerata</i>		O				
Yorkshire fog	<i>Holcus lanatus</i>		O	F			
Opium poppy	<i>Papaver somniferum</i>		R				
Canadian fleabane	<i>Erigeron canadensis</i>		R				
Common ragwort	<i>Jacobaea vulgaris</i>		O	F			
Narrow leaved ragwort	<i>Senecio inaequidens</i>		R				
Broadleaved willowherb	<i>Epilobium montanum</i>		R				
Mugwort	<i>Artemisia sp.</i>			A		F	O
Common bent	<i>Agrostis capillaris</i>			O			
Spear thistle	<i>Cirsium vulgare</i>			A			
Common knapweed	<i>Centaurea nigra</i>			F			
Curled dock	<i>Rumex crispus</i>			F			
Vipers bugloss	<i>Echium vulgare</i>			O			
Fleabane	<i>Pulicaria dysenterica</i>			R			
Common centaury	<i>Centaureum erythraea</i>			R			
Birdsfoot trefoil	<i>Lotus corniculatus</i>			R			
Hare's-foot clover	<i>Trifolium arvense</i>			R			



Common Name	Scientific Name	TZ 1	TZ 2	TZ 3	TZ 4	TZ 5	TZ 6
American willowherb	<i>Epilobium ciliatum</i>			R			
Coltsfoot	<i>Tussilago farfara</i>			R			
Redshank	<i>Persicaria maculosa</i>			R			
Tufted vetch	<i>Vicia cracca</i>			O			
False wood brome	<i>Brachypodium sylvaticum</i>			R			
Common vetch	<i>Vicia sativa</i>			O			
Common cudweed	<i>Filago vulgaris</i>			R			
Toad rush	<i>Juncus bufonius</i>			F			
Common bugloss	<i>Anchusa officinalis</i>			O	O	O	
Groundsel	<i>Senecio vulgaris</i>			O	O	O	
Black medic	<i>Medicago lupulina</i>			R	O		
Narrow-leaved ragwort	<i>Senecio inaequidens</i>			R	R		
Yellow bartsia	<i>Parentucellia viscosa</i>				O		
Field pansy	<i>Viola arvensis</i>				R	R	
Common bulrush	<i>Typha latifolia</i>				R		
Knotgrass	<i>Polygonum aviculare</i>					R	
Doves foot cranesbill	<i>Geranium molle</i>					O	R
Fat hen	<i>Chenopodium album</i>					O	
Hogweed	<i>Heracleum sphondylium</i>					R	
Wall barley	<i>Hordeum murinum</i>					R	D
Red dead nettle	<i>Lamium purpureum</i>					R	

Common Name	Scientific Name	TZ 1	TZ 2	TZ 3	TZ 4	TZ 5	TZ 6
Annual meadow grass	<i>Poa annua</i>					O	
Germander speedwell	<i>Veronica chamaedrys</i>					O	
Field speedwell	<i>Veronica persica</i>					R	
Black bindweed	<i>Fallopia convolvulus</i>					R	
Common chickweed	<i>Stellaria media</i>					R	
Pineapple weed	<i>Matricaria discoidea</i>					R	
Henbit dead nettle	<i>Lamium amplexicaule</i>					R	O
Common fumitory	<i>Fumaria officinalis</i>					R	
Small nettle	<i>Urtica urens</i>					O	
Black mustard	<i>Brassica nigra</i>					R	
Common bent	<i>Agrostis capillaris</i>					O	
Comfrey	<i>Symphytum officinale</i>						R
Cut-leaved cranesbill	<i>Geranium dissectum</i>						D
Common mallow	<i>Malva neglecta</i>						R
Burdock	<i>Arctium lappa</i>						R

APPENDIX A: FULL SURVEY RESULTS

Common Name	Scientific Name	TZ 1	TZ 2	TZ 3	TZ 4	TZ 5	TZ 6	Field 1		Field 2	Field 3		Field 4		Field 5		Field 6	
								Field	Field Margins	Field	Field	Field Margins	Field	Field Margins	Field	Field Margins	Field	Field Margins
Field poppy	<i>Papaver rhoeas</i>							F	F									
Long headed poppy	<i>Papaver dubium</i>	R	R	R				O		R								
Wild oats	<i>Avena fatua</i>	F	F			F		F	F	F	F	F			F	O		O
Black grass	<i>Alopecurus myosuroides</i>		F	F				F	F	F	A		F	F				
Shepherds purse	<i>Capsella bursa-pastoris</i>							R	R									
Wheat	<i>Triticum sp.</i>							O										
Changing forget-me-not	<i>Myosotis discolor</i>	O	O	O		R		R				O						
Barren brome	<i>Bromus sterilis</i>	F	F	F		F		F	R		F			R	O			
Bristly ox-tongue	<i>Helminthotheca echioides</i>							O										
Italian rye grass	<i>Festuca perennis</i>	O	O				O	F	O	O	F		O				O	F
Hedge mustard	<i>Sisymbrium officinale</i>	O						R										
Black bent	<i>Agrostis gigantea</i>							R										
Great brome	<i>Bromus diandrus</i>	R	R					R			R							
Creeping thistle	<i>Cirsium arvense</i>	O		D				O							O			
Meadow barley	<i>Hordeum brachyantherum</i>	R																
Common nettle	<i>Urtica dioica</i>	O	O			D					D		O		O			
White campion	<i>Silene latifolia</i>	R	R	O											R			
False oat grass	<i>Arrhenatherum elatius</i>	F	F												O		F	
Field horsetail	<i>Equisetum arvense</i>	R																



Field forget-me-not	<i>Myosotis arvensis</i>	○	○	○													
Red campion	<i>Silene dioica</i>	R															
Cleavers	<i>Galium aparine</i>	○	○							○		○					
Fool's parsley	<i>Aethusa cynapium</i>		R														
Common couch	<i>Elymus repens</i>		○			○	○									F	
Weld	<i>Reseda luteola</i>		R	R													
Common orache	<i>Atriplex patula</i>		○							○							
Scentless mayweed	<i>Tripleurospermum inodorum</i>		R														○
Corn poppy	<i>Papaver rhoeas</i>		F	F					F	○	○	R				○	R
Field bindweed	<i>Convolvulus arvensis</i>		○												○		
Loose silky bent	<i>Apera spica-venti</i>		R			R											
Nipplewort	<i>Lapsana sp.</i>		R														
Prickly lettuce	<i>Lactuca serriola</i>		R														
Cocks foot grass	<i>Dactylis glomerata</i>		○														
Yorkshire fog	<i>Holcus lanatus</i>		○	F													
Opium poppy	<i>Papaver somniferum</i>		R														
Canadian fleabane	<i>Erigeron canadensis</i>		R														
Common ragwort	<i>Jacobaea vulgaris</i>		○	F													
Narrow leaved ragwort	<i>Senecio inaequidens</i>		R														
Broadleaved willowherb	<i>Epilobium montanum</i>		R														
Mugwort	<i>Artemisia sp.</i>			A		F	○			○					F		F
Common bent	<i>Agrostis capillaris</i>			○													○
Spear thistle	<i>Cirsium vulgare</i>			A													
Common knapweed	<i>Centaurea nigra</i>			F													
Curl'd dock	<i>Rumex crispus</i>			F													



Vipers bugloss	<i>Echium vulgare</i>			O														
Fleabane	<i>Pulicaria dysenterica</i>			R														
Common centaury	<i>Centaureum erythraea</i>			R														
Birdsfoot trefoil	<i>Lotus corniculatus</i>			R														
Hare's-foot clover	<i>Trifolium arvense</i>			R														
American willowherb	<i>Epilobium ciliatum</i>			R														
Coltsfoot	<i>Tussilago farfara</i>			R														
Redshank	<i>Persicaria maculosa</i>			R														
Tufted vetch	<i>Vicia cracca</i>			O														
False wood brome	<i>Brachypodium sylvaticum</i>			R														
Common vetch	<i>Vicia sativa</i>			O														
Common cudweed	<i>Filago vulgaris</i>			R														
Toad rush	<i>Juncus bufonius</i>			F														
Common bugloss	<i>Anchusa officinalis</i>			O	O	O											R	
Groundsel	<i>Senecio vulgaris</i>			O	O	O											R	O
Black medic	<i>Medicago lupulina</i>			R	O													
Narrow-leaved ragwort	<i>Senecio inaequidens</i>			R	R													
Yellow bartsia	<i>Parentucellia viscosa</i>				O													
Field pansy	<i>Viola arvensis</i>				R	R												
Common bulrush	<i>Typha latifolia</i>				R													
Knotgrass	<i>Polygonum aviculare</i>					R												
Doves foot cranesbill	<i>Geranium molle</i>					O	R					O						
Fat hen	<i>Chenopodium album</i>					O						O						



Hogweed	<i>Heracleum sphondylium</i>					R												
Wall barley	<i>Hordeum murinum</i>					R	D				R			O				
Red dead nettle	<i>Lamium purpureum</i>					R												
Annual meadow grass	<i>Poa annua</i>					O												F
Germander speedwell	<i>Veronica chamaedrys</i>					O												
Field speedwell	<i>Veronica persica</i>					R												O
Black bindweed	<i>Fallopia convolvulus</i>					R								R				
Common chickweed	<i>Stellaria media</i>					R												
Pineapple weed	<i>Matricaria discoidea</i>					R												O
Henbit dead nettle	<i>Lamium amplexicaule</i>					R	O											
Common fumitory	<i>Fumaria officinalis</i>					R												
Small nettle	<i>Urtica urens</i>					O												
Black mustard	<i>Brassica nigra</i>					R												
Common bent	<i>Agrostis capillaris</i>					O												
Comfrey	<i>Symphytum officinale</i>						R											
Cut-leaved cranesbill	<i>Geranium dissectum</i>						D											
Common mallow	<i>Malva neglecta</i>						R											
Burdock	<i>Arctium lappa</i>						R											
Smooth sow thistle	<i>Sonchus oleraceus</i>											R						
Perennial rye grass	<i>Lolium perenne</i>													R				
Lady's bedstraw	<i>Galium verum</i>																O	

CLARKSON & WOODS



Clarkson and Woods Ltd.

Overbrook Business Centre,
Poolbridge Road, Blackford,
Somerset BS28 4PA

t: 01934 712500

e: info@clarksonwoods.co.uk

www.clarksonwoods.co.uk