Lessons learned from Solar Farm Monitoring

Broxted Solar Park: Case Study

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Broxted Estate – a brief history

- 1200-1600 Deer Park
- 1611-1938 – Enclosed farmland
- 1938-1970 RAF Stradishall
- Early 1990s – airfield grassland designated as CWS
- 2011 Owners re-purchased the airfield

CWS designation

- 89 hectares of rough grassland and small blocks of secondary woodland
- Boulder clay plant community
- Overwintering and breeding birds

Planning Consent December 2012

Date Registered: 10th September 2012

Date of Decision: 10th December 2012

PROPOSAL **Planning Application - Installation of a 35MW solar farm and associated infrastructure**

LOCATION **Broxsted Solar Farm, Steeplechase, Hundon, Suffolk,**

Permission is hereby **GRANTED** by the Council as Local Planning Authority for the purpose of the above Act and Orders for development in complete accordance with the application shown above, the plans and information contained in the application, and subject to compliance with the following condition(s):

16 No development, including site clearance, shall take place until a long term management plan/environmental management strategy incorporating land within the solar farm, the remaining part of the CWS and the areas proposed as compensation/enhancement habitat package has been submitted to and approved in writing by the local planning authority.

Reason: To ensure that the land is used in such a manner as to improve its ecological and nature conservation value in accordance with Policy NE1 (Impact of Development on Sites of Biodiversity and Geological Importance) of the Replacement Local Plan.

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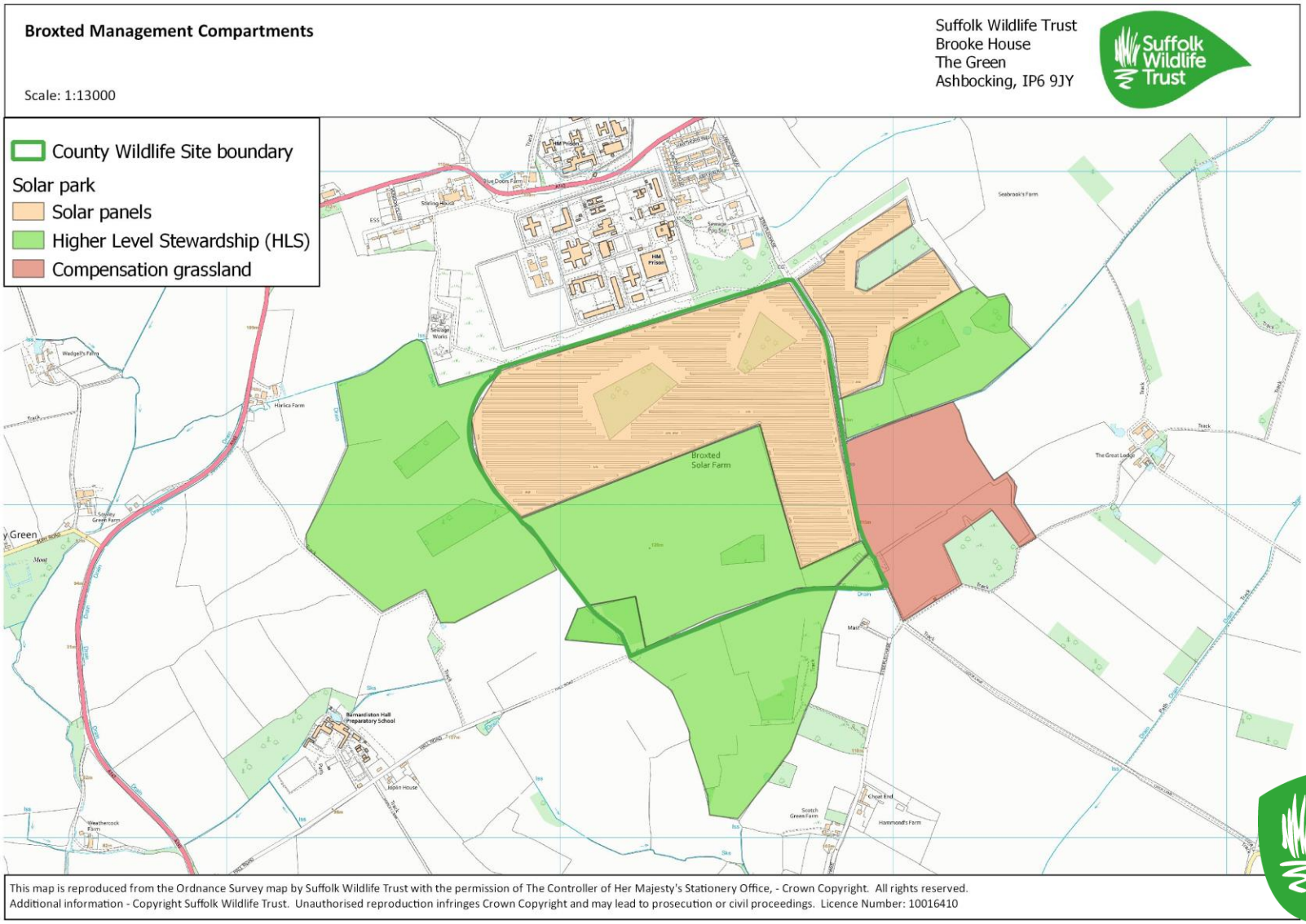
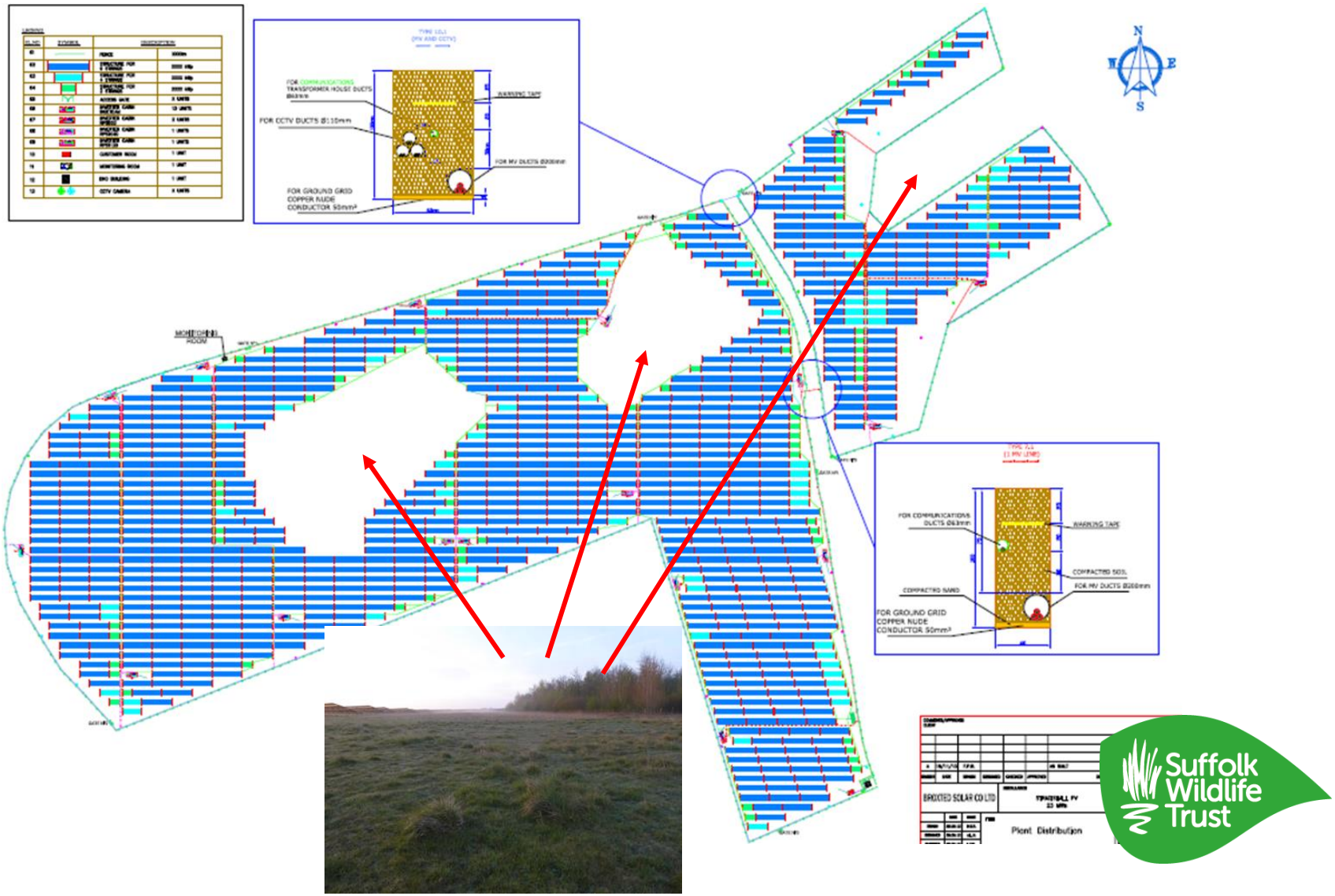
Management Compartments



Solar arrays



Solar Park Design

- 59 ha (50 ha in west)
- 20 ha Compensation grassland
- 120,000 solar panels
- 18 inverters + 1 substation
- Panel spacing at least 7m+
- Height above ground 90cm+

Management Plan

- Measures to establish the **compensatory habitat**
- **Management** for all land during operation of the solar farm
- **Monitoring of key ecological groups** at the site, including botanical, breeding birds and wintering birds. To be undertaken annually for the life of the development
- **Annual review of the management plan** to reflect the findings of the monitoring and mechanism to allow any necessary amendments to the management regime
- **An appropriate reporting mechanism** for monitoring the results and any management

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Grassland Management

- Sheep:
- Solar, Compensation and HLS grasslands on rotation

- Cattle:
- HLS grassland

Botanical surveys

Re-locatable 2m x 2m plots surveyed annually within the Solar Park (22) and also the Compensation Grassland (10).

Walkover assessment of other grassland areas within the County Wildlife Site.

How do the panels influence vegetation?

Shade:

- Sward height reduction and floppy growth
- Bare ground increase
- Loss of herbs:

Previously meadow vetchling, knapweed, creeping cinquefoil, meadow buttercup, hoary ragwort and agrimony (occasional)

- Shade tolerant grasses dominant:

Rough Meadowgrass, Yorkshire Fog, Common Couch and Creeping Bent

- Leaf litter increase
- Colder, wetter ground

Plot 13 in 2014

Plot 13 in 2018

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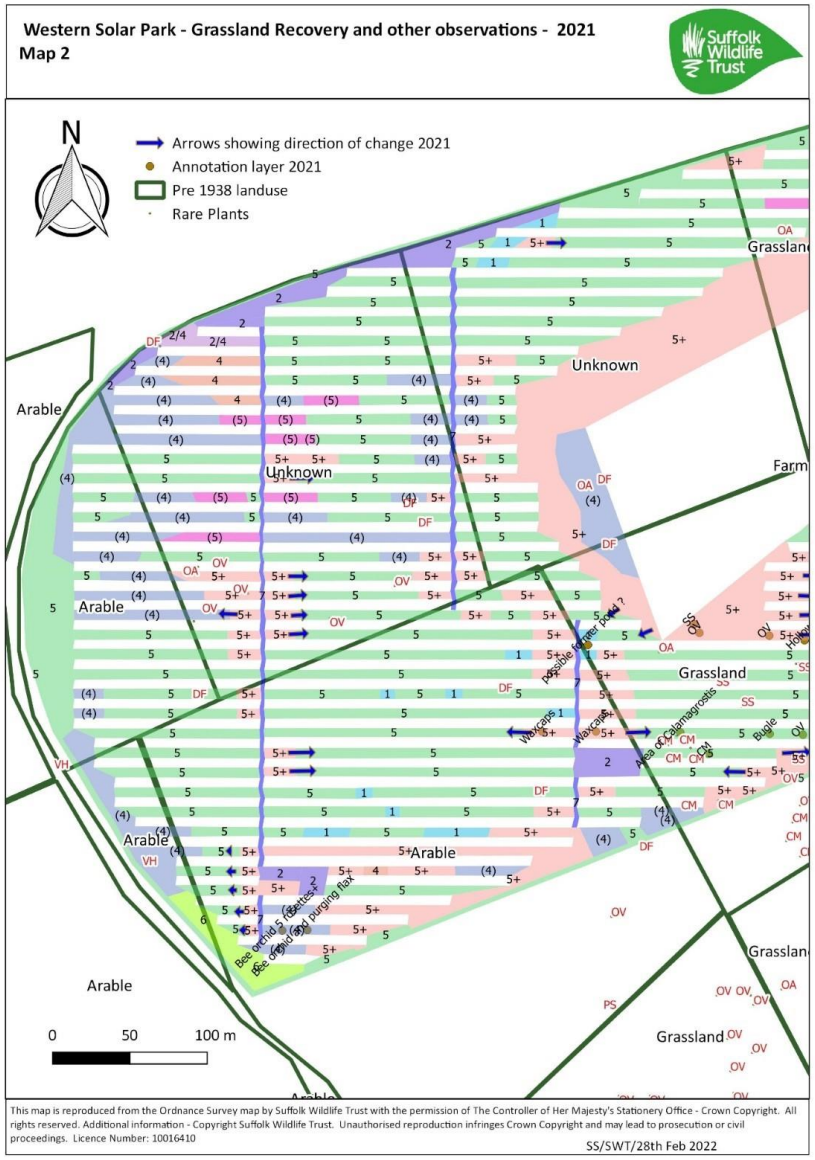
Interpanel rows

Sheep- grazing helping to:

- Break up tall fescue dominance
- Create corridors of more diverse grassland
- Increase in species associated with MG5 Cynosurus-Centaurea community (cowslip, fairy flax, field woodrush and glaucous sedge)

Detailed mapping of grasslands



Grassland Types

1	Wet grassland with Hard Rush
(1)	Wet grassland
2	Track grassland with rutting
2/4	Rutted tracks fringed with target grassland
2/5	Rutted tracks fringed with Tall Fescue grassland
4	Target grassland
(4)	Target grassland (developing)
(5)	No character species Tall Fescue grasslands
5+	Occasional character species
5	Tall Fescue dominant
5-	Occasional negative indicators
6	General grassland
7	Ordinary grasslands
8	Vehicular access Springs' area

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Compensation grassland

Arable until early late 1990s/early 2000

Whilst immature, the compensatory grasslands are now starting to assume some of the floristic characteristics of the mature grasslands

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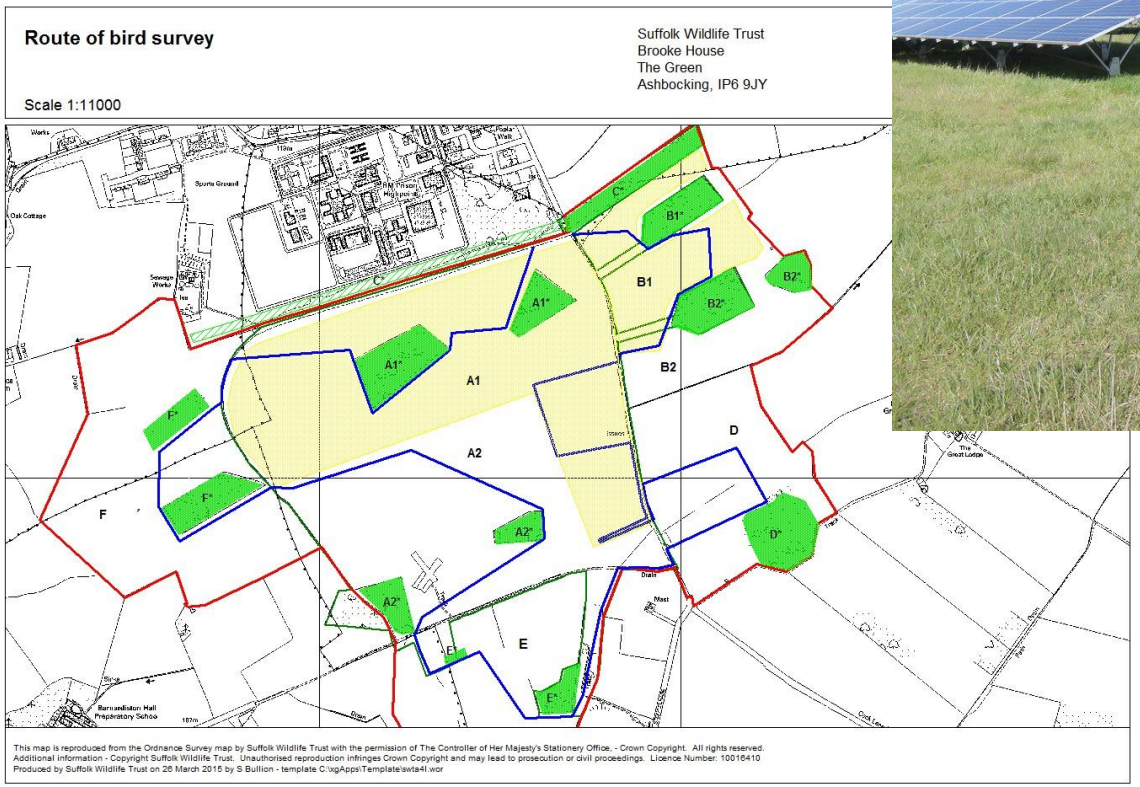
Bird surveys

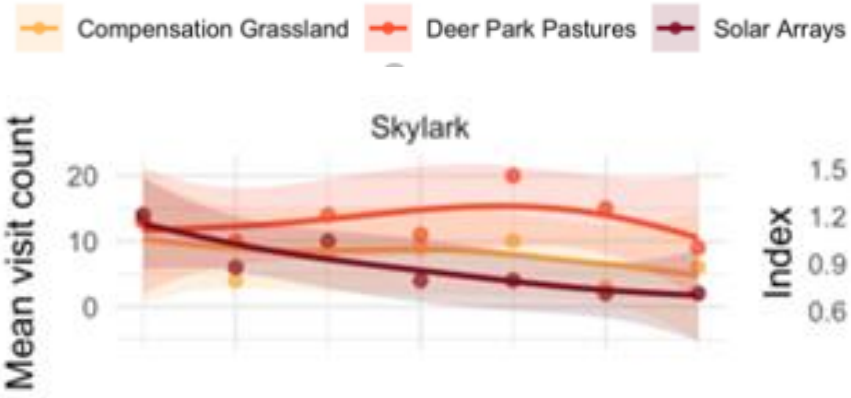
Wintering and breeding birds (timed transect 3 visits)

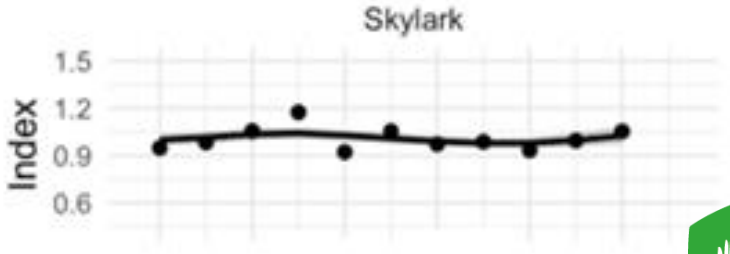


Skylark

Population trends for Grassland habitats including the Solar Arrays are shown on the left.

East of England population trends for each species are shown on the right.





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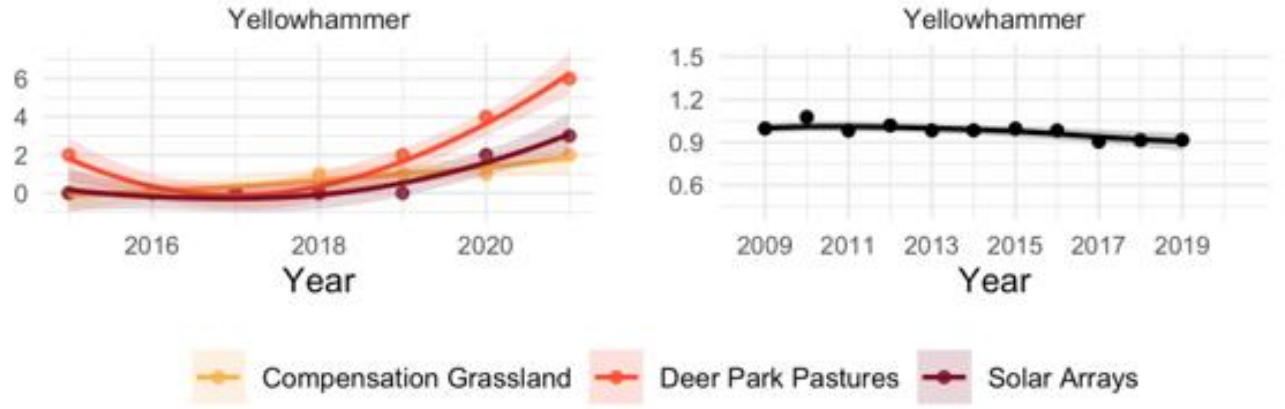
Yellowhammer

Numbers of yellowhammer now rising in all grassland areas – improved nesting opportunities?



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CWS grassland outside solar park

Skylark, linnet,
reed bunting,
meadow pipit

Snipe (winter only)

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Turtle dove

2021 – three purring males on wider Broxted estate (one on edge of solar park)

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Reptile survey – every five years

Broxted Solar Farm
Reptile mat locations

Scale: 1:7000

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Brooke House
The Green
Ashbocking, IP6 9JY

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Bat surveys – every five years

Common pipistrelle

Soprano pipistrelle
Noctule
Serotine
Barbastelle
Myotis sp.

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Other species

High numbers of common toad
also recorded common frog and water shrew

Brown hare abundant

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Access and Interpretation

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Thanks are due to:

Broxted Solar Environmental Management Group and all the Ecological Surveyors

Thank you

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