



# CLEVE HILL SOLAR PARK

## **RESPONSES TO THE EXA'S WRITTEN QUESTIONS - APPENDICES** **Appendix 5 – Bird Use of Solar Farms, Interim Results**

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**CLEVE HILL**  
SOLAR PARK



*Kevin Middleton* 10 Oct 2018

***Blog post by Rob Shotton, MRes student, Worcester University.***

In partnership with the [RSPB Centre for Conservation Science](#) and energy solutions company [Anesco](#), I'm researching investigating the potential impacts of solar farms on farmland birds. Earlier this year, [I wrote a blog post introducing the project](#), now I've got some preliminary results taken from my first year's surveys.

I've got plenty of graphs I could use, but here are a just a few that I think illustrate nicely what I've seen so far.



**Which species are using solar farms?**

The following list shows the 10 most common species I've seen using solar farms so far, as well as how many I have seen:

Swallow - 74

Crow - 69

Goldfinch - 66

Blackbird - 65

Woodpigeon - 64  
Starling - 56  
Yellowhammer - 50  
Skylark - 46  
Jackdaw - 39  
Lesser whitethroat -38

Some surprising species find themselves here.

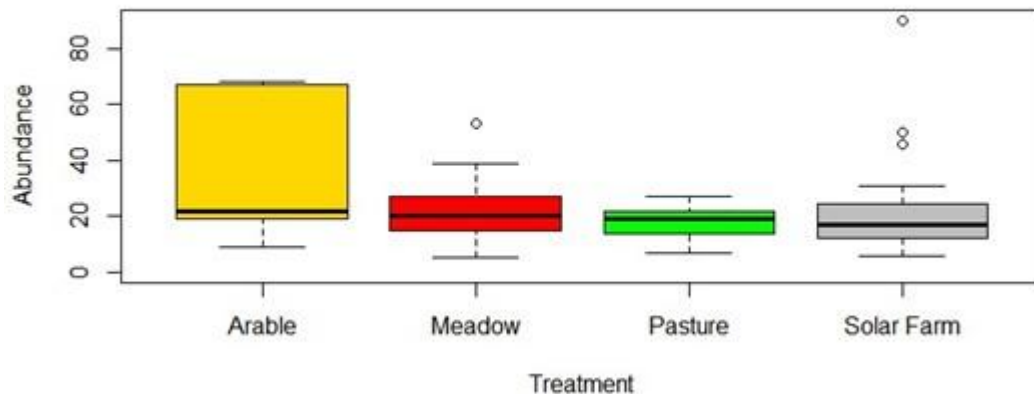


Prior to the study we didn't think that we'd see many skylarks, as we know they like big open spaces. However, we now know they're using the solar panel arrays to sing from: flying high and then parachuting down between the rows. They were present on eight out of my nine study sites, which is encouraging.

Swallows and other related birds like sand martins and house martins seem to like skimming low between the arrays foraging (I wonder if they or their prey is mistaking the panels for bodies of water?).

It's good to see three red-listed species in the top ten birds using solar farms (starling, skylark and yellowhammer).

I have also seen corn buntings on two of my eastern most sites and there are plenty of birds of prey using the sites too: red kites, kestrels, sparrowhawks and buzzards are all actively using the sites for foraging, and resting on the solar arrays. I also saw plenty of non-avian species, including hares, foxes and roe deer, while the most common plants recorded in the sward composition survey were clovers, dandelions, docks, buttercups and plantains.

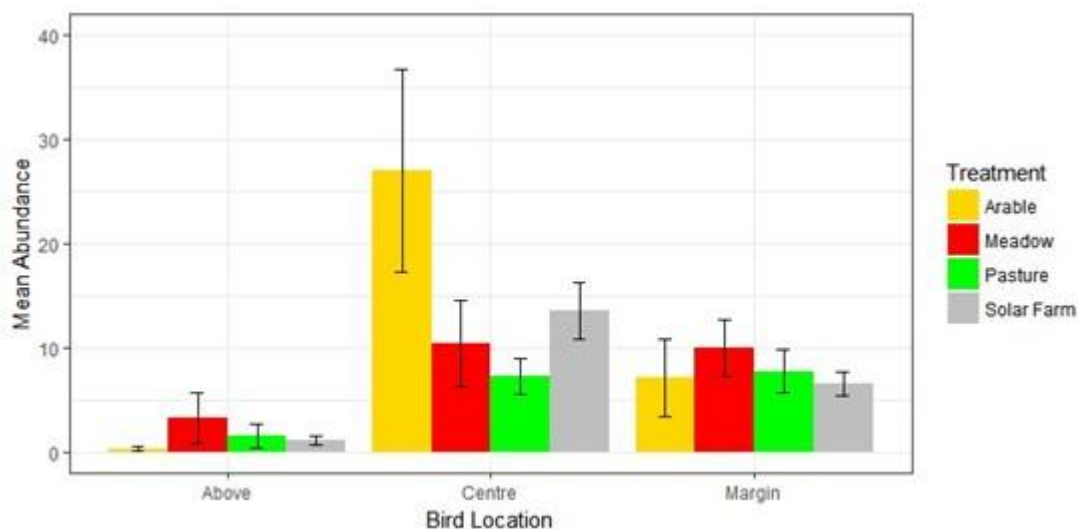


**Fig.1 Bird abundance as recorded across different types of land management.**

From the above graph you can see that the average numbers of birds on solar farms was similar to comparable areas of nearby farmland (compare the horizontal black lines, which are all around 20 birds per survey).

This suggests that birds aren't avoiding solar farms (which is great news!). NB the large yellow block on arable land in the graph above is due to a large numbers of crows on the sites after harvesting which have skewed the data in the arable column.

It is important to bear in mind that none of my study sites were managed in a way that promotes biodiversity, with some positive management I'm confident that they can be further improved.



**Fig.2 Recorded bird locations across the treatments.**

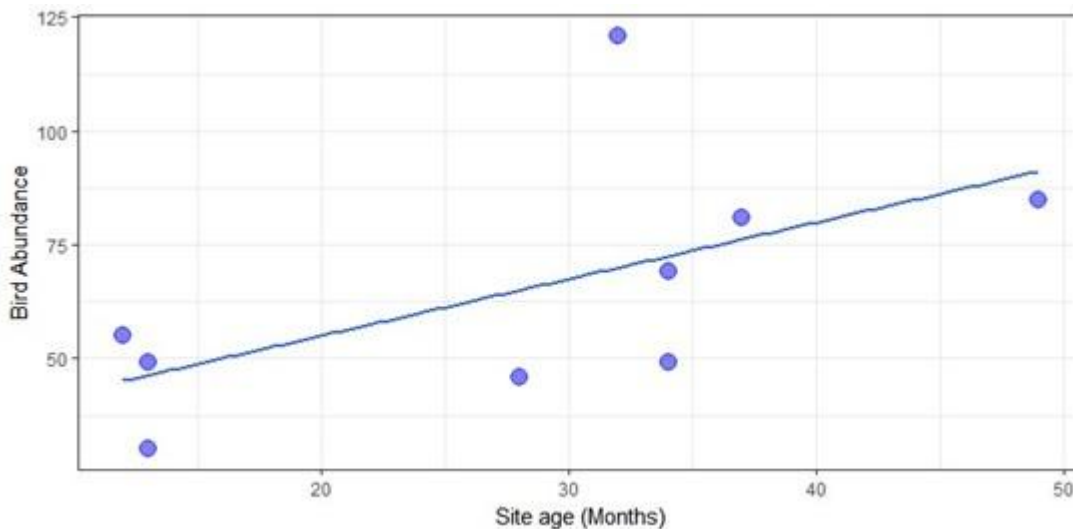
This graph illustrates where birds were recorded within the site.

The location 'Above' on the horizontal axis is defined as being over the site but actively using it (mainly raptors, swallows and similar birds). 'Centre' is defined as within the working area - so within the crop or between panels. Margins were considered as the border or immediate edge of the treatment site.

As you can see the average abundances of birds in each location were not too dissimilar. It's good to see from these results that the working area of the solar farms is used by birds and it seems that they like to use the arrays as a staging post for foraging trips, dipping down between and under the arrays. Again, the arable column is skewed because of the large number of crows.

### How were birds using the sites?

My research shows that birds were entering from the margins foraging and resting on the arrays: skylarks, yellowhammers and corn buntings would sing from these resting points; starlings gathered on the solar arrays; corvids foraged between them early in the season; partridges, robins and wrens were often heard singing from under them.



**Fig.3 Total bird abundance across the nine solar farms compared to site age.**

In Figure 3 we see that there seems to be an increase in bird abundance with site age. However, there are differences in site management that could also explain this, so I can't say for certain that this is the case.

It will be interesting to revisit this after I have the second year's data to see if the trend continues and to compare sites year on year.



In addition to the above findings, once I have the final year's data completed and analysed I intend to also look at the bird abundance compared to the height of the grass (sward height) as I noticed that once the sites were mown bird numbers plummeted.

I will also investigate bird use by species and diet to see if these aspects are influencing which birds are using solar farms.

### What's next?

I have just completed the second year's surveys and am in the process of collating all the data. I hope to have my thesis finished in October and then hope to update you with my complete findings. Stay tuned!



1 comment 0 members are here



[Alex M.](#) *8 months ago*

An interesting subject for research and even more interesting results. I look forward to seeing the later results.