

In my original representations on behalf of the Club, I commented at Point 7 on the potential for certain birds to mistake solar arrays for water features and represented that there should be a monitoring condition which would lead to any collisions being reported to the appropriate authority.

I have asked the British Trust for Ornithology if there is in fact any study that would provide evidence either way in respect of this. I have now received a reply, copied below, which shows that there is a lack of evidence relating to this topic. As a result, I represent that this provides further evidence to support my original comment that, if consent is granted, there should be a monitoring condition that would ensure that any bird strikes on the panels are reported. Only in this way will there be evidence to show if there is in fact a problem in this regard.

I believe this would be relevant to Question BIO.1.1 as the question of birds, particularly waterfowl, flying over the site has not been addressed particularly at night or in poor quality conditions. Waterfowl do exist in some numbers in this area and water features that attract them (such as Castle Lake at Bishop Middleham and any potential new water features resulting from Discover Brightwater project) are reasonably close to the site.

Re: Solar arrays

Inbox

James Pearce-Higgins

Thu, 29 Aug, 10:18 (12 days ago)

to me

Dear Richard - thank you for your enquiry to the BTO about solar arrays which has been forwarded to me. I hope you were informed that I was on leave which explains the delayed response.

There is unfortunately a relative lack of evidence about the impacts of solar farms on birds and other wildlife. In contrast to wind farms where there has been a lot of research, it has proved more difficult to secure funding for projects on solar - I think because the impacts are perceived to be much less. For example, I am only aware of one study by a masters student on wind farms in the UK, which is summarised at the following link (<https://community.rspb.org.uk/ourwork/b/biodiversity/posts/bird-use-on-solar-farms-final-results>). I don't think any of this work has been published in the peer-reviewed literature.

In relation to your specific query about waterbirds and potential risk of collision, this is something that we highlighted in the 2014 Birds and Climate Change book, but particularly in relation to the reflective solar array - 'At an experimental heliostat solar power site, McCrary et al. (1986) crudely estimated, by dividing the mean daily count of individuals by the estimated mortality rate, that 0.6 to 0.7 % of birds died per week (Box 8.5). Given that the majority of birds recorded were migrants, given the likely turnover of individuals at a site, this is likely to over-estimate the true mortality rate, and the authors regarded these impacts as relatively low. However, for resident birds this would be equivalent to additive annual mortality rates of 27 to 31 %, which seems very high. It may be significant that among the birds killed were a number of waterbirds, including 11 eared grebes *Podiceps nigricollis*, despite the desert location. The reflective nature of the heliostats used might have caused birds flying at night to confuse them with waterbodies, leading to collision. Photovoltaic plants, whose panels are dark and unreflective, are unlikely to be associated with such mortality risk (RSPB 2011), although further research is required to examine in detail the risk associated with different types of devices. Given the current interest in solar power development, the lack of such published research should be urgently addressed'

Unfortunately this evidence gap remains, with particular uncertainty over the relative risk of solar panels attracting waterbirds (and the conditions when they do so), and how that risk relates to other surfaces, such as wet roads. Although a small number of studies are starting to be published on this (e.g.

[REDACTED]

), none of them appear particularly strong or relevant to a UK context. One more thing to note, depending on levels of sunshine, solar power tends to generate more electricity per unit land area than other forms of renewable energy. This means that less land has to be converted to energy production using solar power relative to other types of energy production.

Returning to your questions to conclude, there is little relevant research to understand these potential risks, although there may be work going on internationally that I am unaware of - most likely in the US and South Africa. Until there is enough evidence of a significant issue there is unlikely to be significant funding available to look at this, but without decent monitoring and reporting, that evidence may not be easily available. This is an area we are interested in working on, and have tried to secure funding for in the past, and will continue to seek opportunities to do so, so thank you again for your email as an encouragement in this regard.

I'm sorry I can't give you more concrete information but I hope this is helpful. With best wishes,

James

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Prof James Pearce-Higgins  
Director of Science  
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