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Biodiversity net gain. Good practice principles for development

Case studies

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28 Enhancing biodiversity on large-scale solar farms

Details

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28.1 PROJECT SUMMARY

Wychwood Biodiversity has been working with several solar farm asset owners to develop biodiversity management plans, oversee habitat creation and maintenance, and to monitor biodiversity annually using standard methods. Monitoring includes botany, selected invertebrates and breeding birds.

The principal drivers for this work are that some asset owners are keen to add value to renewable energy projects and contribute to biodiversity and ecosystem services, partly for their own PR and partly for sector leadership. There are no specific corporate BNG goals set, but owners have expressed a wish to improve biodiversity.

Avoidance of impacts to biodiversity was dealt with during site selection and the planning process. Minimisation and compensation efforts are dealt with partly through site design and partly through habitat improvement. While not termed offsetting, the habitat creation works undertaken post-construction lead to an increase in biodiversity as compared to baseline conditions (usually an arable field).

The main activities included habitat creation through sowing species rich grasslands, planting hedges and scrub, and creating nesting and roosting habitats, including hibernacula, bird and bat boxes and bug hotels.

Annual assessment measures include a quadrat survey of botany and a transect survey of invertebrates in mid-summer, and two breeding bird surveys in spring/early summer following the British Trust for Ornithology methodology.

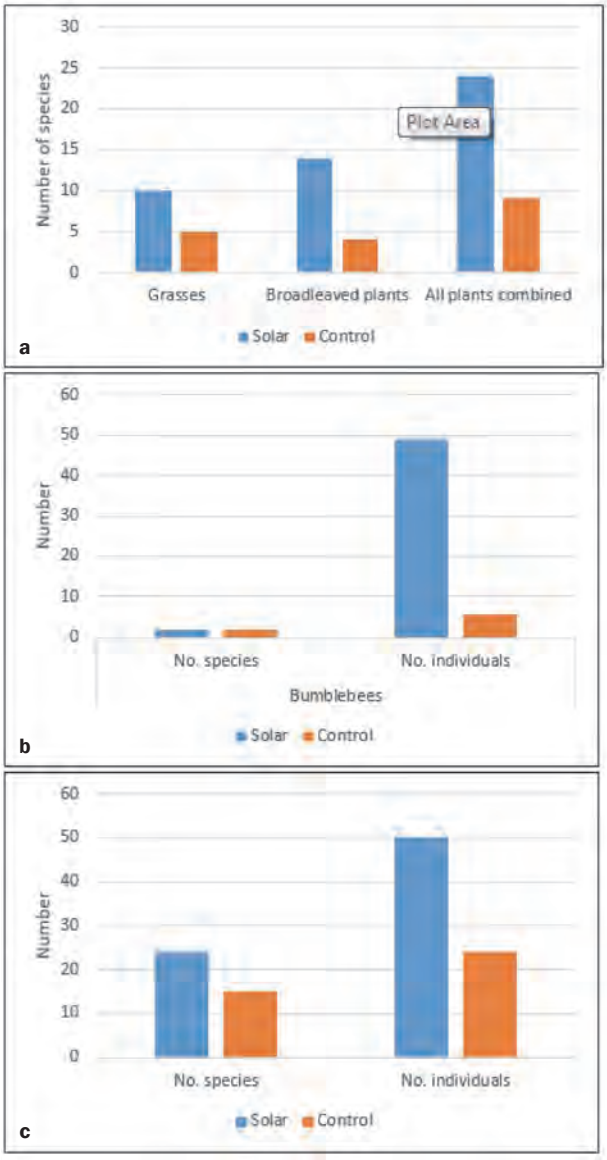

Figure 28.1 Results of solar farm surveys comparing solar farms with control plots with botany (a) bumblebees (b) and breeding birds (c) (from Montag et al, 2016)

In 2015, Wychwood Biodiversity and Clarkson & Woods undertook research on biodiversity at 11 solar farms across the UK. The same methodology as above was used, but in addition to surveying the solar farm, a control plot representing the land use before the solar farm being established was selected on neighbouring land.

Figure 28.1 shows results from a single solar farm included in this study, which had been re-sown with a wild flower meadow, whereby the number of:

- plant species was significantly higher in the solar farm than the control (an arable field)
- bumblebee species was similar between solar farm and control but the abundance on the solar farm was significantly higher
- species of breeding birds was marginally higher in the solar farm and abundance was greater.

The process of habitat creation on a solar farm is straightforward, with many approaches being borrowed from agri-environment schemes. The problems stem mainly from:

- justifying the multiple benefits of biodiversity to the asset owner, with many not expressed financially
- the weather during seeding operations
- controlling injurious weeds on ex-arable land
- only being able to use a simple monitoring programme.

Figure 28.2 Solar farm with recent habitat restoration (courtesy G Parker)

28.2 OUTCOMES

After four to five years the most successful sites are starting to demonstrate increases in the key biodiversity indicators as compared to baseline. This includes increases in the diversity and abundance of common native flowering plants, bumblebees and breeding birds.