

Re-survey of AES woodland creation for woodland birds

Agri-environment monitoring theme: woodland birds

What are the issues?

Woodland habitat creation is a key element in landscape management for climate change mitigation, but is practically impossible to evaluate in the field because of the time required for the habitat to mature. Guidance over the relative benefits of different planting policies would still be valuable, however, and the Farm Woodland Scheme (FWS) from 1988 and the Farm Woodland Premium Scheme (FWPS) from 1992 present analogues of contemporary agri-environment scheme (AES) management that allow testing of effects on target biodiversity over c.30 years since the woods were created.

Woodland birds are of conservation concern and are key elements of the biodiversity that is expected to respond to new woodland. They can also readily be surveyed efficiently and cost-effectively by skilled volunteers, providing an evaluation of habitat colonisation as the new woodland habitats have matured. Thus, a timely survey can provide valuable evidence to inform land management policy.

What are the aims of the project?

A new volunteer survey was conducted in spring 2019, covering 749 of 7977 farm woodland plots spread across England. A previous survey in 1999 had surveyed 64 plots, providing information on change, but not a direct comparison. The survey data were analysed with respect to the following broad questions: (i) what birds have colonised FWS and FWPS woods; (ii) how have bird communities changed in the FWS and FWPS woods that were surveyed in 1999; (iii) how are bird species abundances in farm woods affected by landscape context (woodland in the surrounding area as a proxy for connectivity to other woodland in the landscape, including consideration of woodland type and designation); (iv) how are bird species abundances in farm woods affected by woodland habitat characteristics, area and shape?

Landscape context was considered at the local scale (daily activity of birds) and the landscape scale (colonization), analysing both area of woodland and the number of woodland patches.

Woodland character was assessed in terms of planted woodland structure, understorey (non-planted) cover, dead wood presence, stock fence presence, game feeder presence and the presence of three common tree species (Oak, Ash and Birch), as well as size and shape.



Figure 1: Farm woodland plot structure showing an open glade, dense understorey and lying dead wood (Photo: Gavin Siriwardena)

Which policy areas will the research inform?

The results will inform the design and operational delivery of English land management schemes that seek to deliver biodiversity outcomes, specifically those involving woodland habitat creation, such as in efforts to fulfil the recommendations of the Lawton review.

New woodlands should help to address declines in woodland birds (a UK biodiversity indicator) and mitigate the effects of climate change.

The results also inform about the effective use of volunteer survey protocols for monitoring and policy evaluation.



Department
for Environment
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What are the results from the project and how will they be used?

Farm woodland plots in 2019 were occupied largely by common species that are associated with hedgerows, scrub and woodland edge habitats, as well as a selection of woodland specialists, including species of high conservation concern such as willow warbler and marsh tit, and some open farmland species that were probably mostly present because of adjacent land-use. This indicates that these habitats provide valuable habitat in the landscape after only c. 30 years.

Gross differences in communities since 1999 were small, but diversity was marginally higher and 37/60 species, those more associated with woodland, were at higher density.

Most species were more common in farm woods where there was less broadleaf woodland at both the local and landscape scales, but positive effects of new woodland being planted where there was more existing woodland were most common for the landscape scale and woodland specialists.

Woodland area and number of patches at the local scale were more important for species abundance than equivalents at the landscape scale. There was little evidence for different or stronger effects of ancient or SSSI woodland.

Local woodland area (quantity of habitat) was a stronger influence on bird abundance in farm woods than the number of patches (i.e. the number of discrete sources of birds).

Responses to habitat characteristics were highly variable between species, probably reflecting species-specific ecological characteristics. Dead wood was more often a positive than a negative influence across species, but probably reflected management intensity, rather than standing snags. Apparent domination by Oak and Ash had a negative influence more often than a positive one. More heterogeneous understoreys and more mature planted tree structures were positive influences across species.

Larger woods had higher local abundances of most species, and species richness and diversity, but the pattern tended to level off above 15-20 ha, suggesting that a given total woodland area might optimally be divided in this way. However, patterns might differ for mature woodland. The results are consistent with previous work that led to policy

guidance for minimum plot size of a 5 ha.

More complex plot shapes (longer perimeters per unit area) were associated with lower abundances for almost all species, showing no general preference for edge habitats.

The results suggest birds use farm woods less where there is more nearby woodland, possibly because this habitat is more mature and provides better or more resources. At the landscape scale, specialists seem more likely to colonize new woods where there is more woodland.

Predictive modelling considering all farm woodlands in England suggested that these habitats currently support 1-5% of the national populations of species such as Marsh Tit, Garden Warbler, Lesser Whitethroat, Chiffchaff and Bullfinch.

New woodland planting might best be located to maximise colonisation and use by birds as 'stepping stones': i.e. adding woodland to less wooded areas at the local and landscape scales, is likely to deliver larger local populations across bird species in general, but the abundance of some specialists will be promoted by plots being in more wooded landscapes.



Figure 2: Number of species (specialists vs non-specialists, pooling generalists and non-woodland species) showing a significant positive or negative relationship between abundance and the area of broadleaf woodland in the local area and the landscape around farm woods.

Where can I find further information about this and related research?

A copy of the final report can be found on the Defra Science pages (LM0486).

Alternatively, please contact the Monitoring and Evaluation team –

a-monitoring@naturalengland.org.uk

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