Winter farming for wildlife

The English Winter Bird Survey investigated how birds and Brown Hare benefit from agri-environment schemes in winter. Ecologists **David Norfolk** and **Greg Conway** report on the initial results.

Agri-environment schemes (AES) in England enable farmers and land managers to farm in ways that support biodiversity. In England, since 2005, such schemes have included various 'management options' designed to benefit farmland birds by providing winter food resources, but until now there has been no national-scale monitoring of the effects of (AES) management on birds in winter.

Previous work here at BTO and elsewhere has evaluated the effects of AES options on breeding bird populations, through analyses of national-scale Breeding Bird Survey (BBS) data, as well as farm-scale surveys. The results show benefits to breeding bird population growth rates with strong effects of AES options that provide winter food resources, such as stubbles and supplementary seed crops. However, the benefits of winter AES options for species that do not breed close to AES plots are difficult to detect using breeding season data alone. In addition, Brown Hare is a key AES target species for which the effects of such schemes have yet to be evaluated and is best surveyed in late winter.

WINTER COUNTS

By coordinating a standardised winter count, combined with the collection of habitat data, we aimed to improve our understanding of how winter bird distributions (e.g. concentrations of finches and buntings in seed-rich patches) contrast with those of breeding birds, and how habitat and AES options affect them. The long-established network of BBS surveyors and squares provided an ideal means for collecting these invaluable data, and the English Winter Bird Survey (EWBS) was carried out in winter 2018/19.

Lowland farmland squares throughout England were our main priority, as Natural England/Defra funded the work for England alone. However, we also encouraged UK-wide involvement to enable us to gather broader baseline information on wintering birds in all habitats. We therefore made all BBS squares available, as well as additional squares from local winter survey schemes, to maximise survey coverage and volunteer participation.

We tailored the newly launched BBS online data entry infrastructure to winter data recording, including targeted habitat recording of land use and food availability, for example hedgerow berries and game-cover strips, alongside AES options such as wild bird seed mixes. Where possible, surveyors followed existing BBS transect routes through their 1-km squares − recording counts of birds and Brown Hare (plus other mammals). On each

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visit, habitat recording was carried out to monitor changes in land use (e.g. ploughing of stubbles for crop cultivation) through the winter. We requested counts between December 2018 and March 2019, with a preference for late winter when farmland birds concentrate and become increasingly reliant upon diminishing food resources. Our dedicated volunteers ended up visiting a total of 1,572 1-km survey squares on up to four occasions, with 1,485 in England, 50 in Scotland, 30 in Wales, four in the Channel Islands and three in Northern Ireland.

INITIAL RESULTS

As expected, there was considerable variation in the number of bird species located in each square, with the fewest in the uplands and further north (see map). However, even in the bird-rich south, squares separated by just a few kilometres supported very variable numbers of species. This confirms that

WINTER BIRD SURVEY COVERAGE

Bird species richness in the 1,572 1-km squares covered as part of the English Winter Bird Survey in winter 2018/19.

No. species
- 4–20
- 21–30
- 31–40
- 41–68
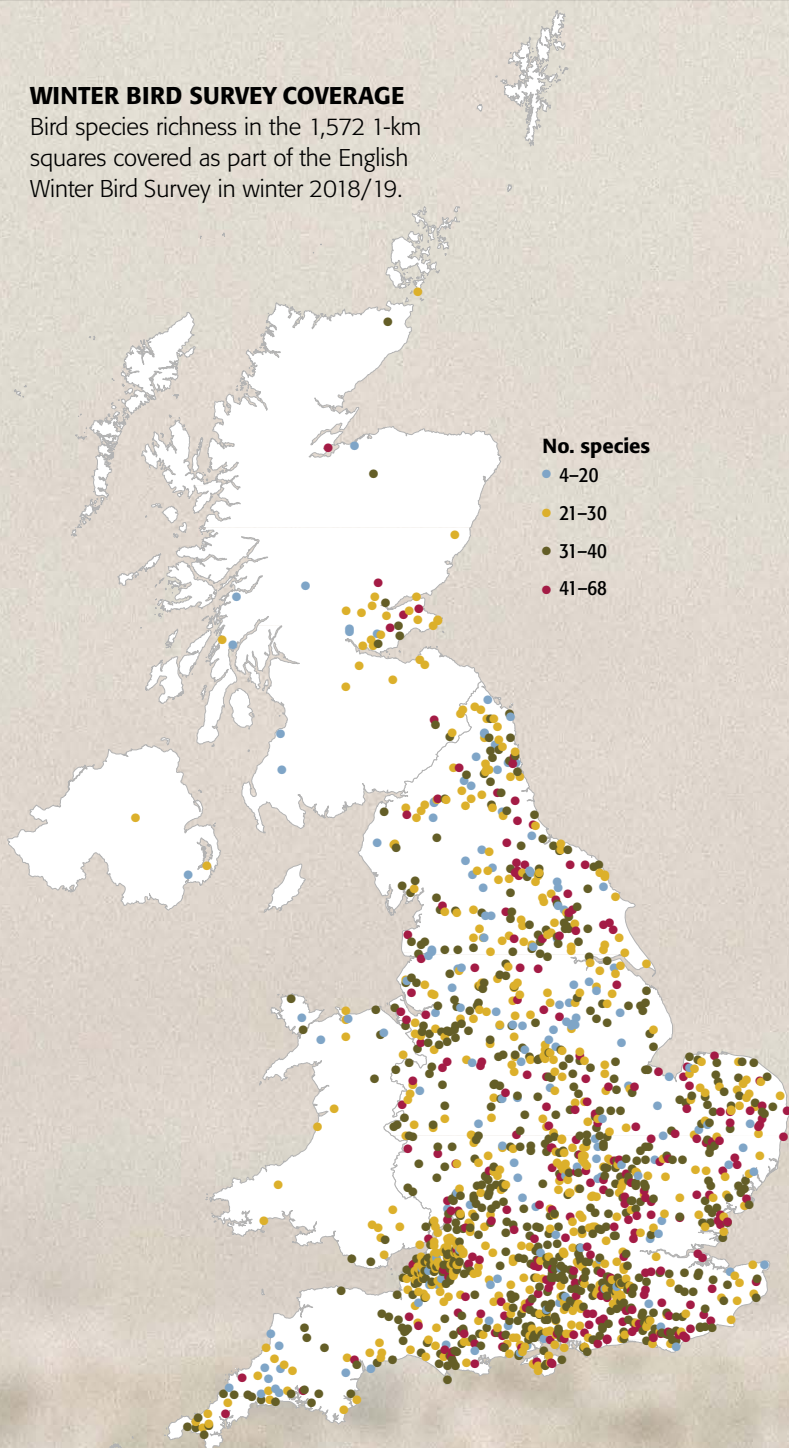
◀ Squares for the English Winter Bird Survey were available in Scotland, Wales and Northern Ireland too.

winter habitats, and farmland in particular, do vary considerably in both their suitability and occupation by birds, depending upon the localised distribution of seed-rich habitats and flushes of invertebrate food abundance when fields are ploughed, for example. This could also be due to the effects of diverse boundary features (e.g. gardens) in some squares. Such a mix of habitats could potentially harbour greater abundances of invertebrates, and seed-rich and fruit-bearing plants, which could influence numbers and species in the surrounding farmland. Brown Hares were found in 27% of the 1,524 1-km survey squares that were surveyed for mammals, providing excellent coverage and following the expected distribution pattern within the UK.

Our main analysis is now under way, examining farmland bird numbers and species richness, and how they are affected by AES option provision within English squares. The large amount of Brown Hare data, collected in distance bands for the first time, may allow us to estimate population size, as well as AES effects. A summary of the analysis and key findings will appear in another *BTO News* article in 2020.

FUTURE PLANS

In parallel to the main reporting, further analysis of the entire data set will be undertaken to evaluate the effectiveness and suitability of the methods used in 2018/19. These results will help to inform the design of future winter bird surveys. Unfortunately, as we have no further funding, there will be no survey in 2019/20, but a long-term Winter Bird Survey remains a key priority for future development. Ultimately, we aim to ensure that AES effects are properly understood to inform the development of schemes and policy in the future. ∎

Credits

Due to the timing of funding confirmation, this survey was rolled out at short notice and was only made possible by the unfaltering support of BTO's network of Regional Organisers and their army of volunteer surveyors, who rose to the challenge. A huge thank you for all your constructive feedback on the survey, and for being the first to test the all-new BBS data entry system!