

Gamebird feeding hoppers provide winter food for wildlife species on small farms in the East Midlands

Lampport Hall & Gardens
Northamptonshire

Supplementary Feeding helps Farmland Songbirds Survive the 'Hungry Gap'



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- There remains an exigent requirement to understand the indirect effects of game management practices on farmland wildlife.
- From mid-winter to spring in 2012, gamebird feeding hoppers were monitored on two small farms in Northamptonshire and Buckinghamshire using passive infra-red 'camera traps'.
- Of 27 recorded species seen feeding from the hoppers, the most abundant was the yellowhammer *Emberiza citrinella* (pictured left), a Bird of Conservation Concern with 654 observations.
- Phasianus colchicus* (pheasant) and *Perdix perdix* (grey partridge) made up 12.2 % of total visitations: 39.2 % were game pest species; 28.2 % were songbirds including five species listed as priority species on the UK Biodiversity Action Plan.
- BAP listed songbirds observed feeding from the hoppers included dunnoek, grey partridge, reed bunting and linnet.
- Opportunities for supplementary feeding from game hoppers were therefore fully exploited by a range of farmland wildlife species during the 'hungry gap', perhaps positively affecting their survivorship when natural food resources were scarce.



BACKGROUND

- Axiomatic declines in farmland songbird abundance have been reported since the 1970's (Fuller *et al.* 1995) with national trends attributed to a reduction in winter food resources as a result of changing farming practices (Robinson & Sutherland, 2002).
- Other than anecdotal comments (cf. Vickery *et al.* 2004), there is a paucity of published evidence to suggest gamebird feeders provide winter food for other birds and wildlife.
- Therefore, could incidental supplementary feeding benefit farmland wildlife during the 'hungry gap'?

STUDY SITES

Farms: 64 ha Rectory Farm in Buckinghamshire and 104 ha East Haddon Hill Farm in Northamptonshire. Both run small-scale shoots and supplementary feed gamebirds with wheat through an imbrication of feeding hoppers. Both are mixed farms, adopt a basic level of predator control and have tenure of environmental stewardship grant aid on their land.



METHODS

Camera Traps: Motion sensitive cameras were used to passively monitor hoppers (Figure 1). Day time and nocturnal patterns were videoed with pairs of hoppers in woods and



hedges monitored for 72 hours each month at each site, and twice in May.

Analysis: The frequency of visitations were classified into day or night categories and data were analysed using MINITAB v. 13.2.

TEMPORAL ASPECTS

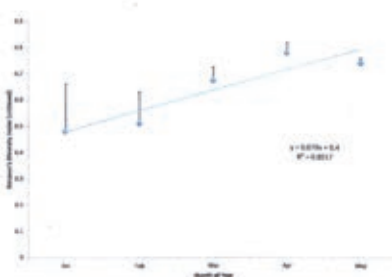


Figure 3: Seasonal changes in total species diversity (Simpson's unbiased).

Species diversity:

Analysis using a GLM showed that there was a significant difference in both species number and diversity between day and night once the model had accounted for site, habitat and month of the year ($p < 0.001$). Species diversity rose in a linear fashion from winter to spring (Figure 3).

RESULTS

General trends: A total of 4006 observations of 27 different animal species were captured on video over five months, giving a trapping incidence rate of 10.4 animals / hour. Numbers of visitations changed seasonally (Figure 2), and songbirds made up 28.0 % of all observations. The top five species recorded were yellowhammers (16.3 %), wood mice (15.1 %), rooks (13.7 %), pheasant (10.8 %) and grey squirrels (8.9 %). Badgers (5.0 %) were also seen (Figure 5).

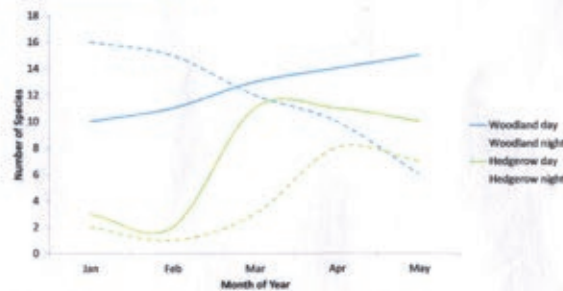


Figure 2: Seasonal changes in the mean number of animal species visiting feeding hoppers from January to May 2012.

CONSEQUENCES

Spout type: 82 % of video clips showed animals feeding from wheat that had collected at the base of the hopper. Significantly more animals fed from the open tray feeding head compared to spiral and window feeder heads (Figure 4).



Figure 4: The preferred feeding head.

Discussion: 58 % of all observations consisted of bird species classified on the BOCC register. Species had no preference for hoppers sited in woodland and hedgerows, but daytime feeding was more common.

Application: The lack of available winter food is recognised as the main limiting factor for over-winter survival of farmland songbirds (Siriwardena *et al.* 2008). This study showed that supplementary feeding on shoots increases winter food and may therefore improve over-winter survivorship of key species. This also helps vindicate the addition of supplementary feeding as an option in HLS.



Figure 5 (left): Video still of a pugnacious *Meles meles*. On several occasions individuals were seen physically rocking the hoppers in order to retrieve feed.

Acknowledgements

The authors would like to thank the landowners Mr. Eaton and Mr. Butterfield for their enthusiastic support for the work and for permitting access to the study sites. In addition, this research was, generously supported by a small educational grant awarded by Mr. Drye of the Lampport Hall Preservation Trust in Northamptonshire.

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