

# Extensive cattle grazing: what is the best approach to improve species-poor pastures for birds and invertebrates?

Agri-environment theme: Option design and development

## What are the issues?

Extensively managed pastures can be valuable sources of invertebrate prey for declining farmland birds. Species such as Yellowhammer and Skylark can only breed successfully where invertebrate prey is plentiful and can be caught quickly. Where they are found, extensive pastures can make a big difference to breeding success. The pastures need not be rich in plant species, so a suitable management approach could be used almost anywhere. Small birds hunt most efficiently in swards with a complex, patchy structure. There, the plentiful insect prey in tall, dense patches are made available to birds that can only use adjacent shorter grass to gain access. The next step, how to produce suitable swards, is less straightforward. It tends to be easiest to do this with extensive cattle grazing, but even then it is necessary to juggle the conflicting requirements of birds, their prey and the need to maintain agricultural outputs at profitable levels.

## What are the aims of the project?

This follows an earlier project to develop a working management package for farmland birds based on extensively grazed cattle pastures. This worked well for skylarks but the grazing intensity proved to be too low and resulted in falling livestock yields and rank, weedy swards that were unsuitable for buntings. The results led to the prediction that whole-season grazing at an intermediate intensity would provide the best trade off between the needs of different bird species, invertebrates and agricultural outputs, while arresting sward deterioration. The new project aimed to test this prediction, to design a simple but effective management package that could be deployed by agri-environment schemes at modest cost.

Two related approaches were compared with a conventional commercial grazing regime. The first involved grazing continuously throughout the grazing season, maintaining a sward surface height of 9-12 cm. The second treatment tested whether rotational paddock grazing systems further enhanced sward structure. The study examined the effects on sward structure, sward composition, invertebrate communities, birds' foraging behaviour and agricultural outputs, to understand how the process worked and measure its effectiveness.



Figure 1: Contrasting sward structure on adjacent trial paddocks grazed extensively (right) and intensively. (Source: Will Peach)

## Which policy areas will the research inform?

The recommendations from this study have already been used to guide ongoing development of the English agri-environment schemes. Low or zero input grassland measures have historically accounted for a high proportion of Entry Level Scheme expenditure. This study shows how such agreements could contribute more towards reversing farmland bird declines and offer greater value for the available funding by incentivising lenient cattle grazing.



Department  
for Environment  
Food & Rural Affairs

BD5207: Utility of lenient grazing of agricultural grassland to promote in-field structural heterogeneity, invertebrates and bird foraging

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## What are the results from the project and how will they be used?

The project showed that simple guidelines can make cattle pastures better foraging habitats for farmland birds in the breeding season. The trial measures produced the desired results immediately, from the first year. The frequency of foraging visits by yellowhammers, curlew, buntings and skylarks all increased, in response to more complex sward structures and increased densities of insect prey. The short-term agricultural costs were low: individual cattle liveweight gain was not reduced and although the quantity of livestock produced tended to be slightly lower this was not statistically significant. However the proportion of clover and ryegrass in swards declined and the proportion of less productive grasses, particularly Yorkshire fog, increased. But injurious weeds did not increase. The two different grazing approaches (continuous and intermittent grazing) worked equally well.

The preceding study found that the biodiversity benefits of extensive grazing accumulated with time, while agricultural costs rose. There is still uncertainty over how long a field can be managed using the new measures before the costs outweigh the benefits. In the third year, the record heavy rainfall of 2012 hit the study and the measures ceased to produce such strong benefits. However, even then, the new measures substantially reduced the impact on agricultural costs compared to those in the earlier project, keeping them within the budget range of the Entry Level Scheme. It is likely that wildlife benefits of the new measures would persist longer in the absence of extreme weather and this study suggests that agricultural costs would remain affordable if the measures were used for longer periods.

This project and its predecessor show that sward heights need to be controlled, if extensive cattle grazing is to provide affordable, lasting benefits to birds. Simply restricting fertiliser inputs, as in the Entry Level Scheme, will not make pastures good foraging places for farmland birds. The average height of the sward surface should be kept within the range 9 to 12

cm. Expressed another way: at least 20% of the sward should be below 10 cm and 20% above 10 cm. The grazer will need access to other land and livestock so stocking levels can be increased or decreased, in response to fluctuating grass growth. Once a complex sward structure develops, it should be retained, so fields should not be topped and weed control should be kept to a minimum. The trial took place on fields with no fertiliser inputs, but the earlier study suggested that modest fertiliser applications (eg 5 t/ha of FYM) are possible. This management package should be kept in place for at least two years. If swards start to deteriorate after two years, the measure can be relocated to another field, to allow problems to be corrected.



Figure 2: Patchy sward used by foraging yellowhammers, produced by the extensive grazing measure developed by this study. (Source: Will Peach)

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

The final report can be found on the [Defra Science Search website](#)

The RSPB led a consortium including Cabi and ADAS, guided by a Project Advisory Group of Natural England and Defra funders.

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