Balancing the needs of cattle and corn buntings in Aberdeenshire

Case study

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The large scale change from hay to silage production in north-east Scotland since the 1970s has provided farmers with a more reliable and nutritious source of winter feed for cattle, making beef production more efficient. However, the earlier cutting date for silage production has been particularly detrimental to the ground-nesting Corn Bunting, which is now one of Scotland's most highly endangered birds. A collaborative effort by RSPB Scotland and local farmers has shown the way to halt the decline and hopefully reverse it in the future.

The switch from hay to silage

Although silage making has been practiced in this country since the 19th century, at least 80% of the grass grown for winter feed in 1970 was still preserved as hay. As it is preserved by drying, hay is usually cut at a relatively mature stage of growth when the dry matter is higher to start with. In Aberdeenshire this is rarely before the end of June and more commonly during July, or even into August. Due to the increased availability and affordability of nitrogen fertiliser and plastic sheeting, as well as improved advice on successful silage fermentation, silage production increased dramatically between the 1970s and 1990s and today more than 80% of the grass grown for winter feed is preserved as silage. Grass for silage can be cut at an earlier stage of growth than hay and in Aberdeenshire, cutting typically starts in late May and peaks in mid-June.

The switch to silage production benefits cattle production in Aberdeenshire as silage is less reliant on dry weather than hay production, it allows the grass to be cut at an earlier, leafier stage producing a winter feed that is more digestible, and due to the early cutting date it is possible to take two or more cuts each year. However, cutting in May and June is destructive to ground-nesting birds and particularly damaging to species like the Corn Bunting, that start nesting late in the spring.

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Corn Bunting ecology and decline

The Corn Bunting is a seed-eating songbird, similar in size and colour to a skylark, but more closely related to the yellowhammer. Like the skylark, it nests on the ground in the middle of arable or grass hay and silage fields, rather than around the margins like most other small farmland birds. The adults feed largely on grain and were once found throughout lowland Scotland and even in the northern and western isles – wherever land was cultivated.

The decline of arable farming in western Scotland led to the extinction of the species from most of that area, while in south-east Scotland, the switch to winter cropping and lack of grain-rich stubbles in the winter has driven declines and led to local extinctions (although targeted work by RSPB Scotland and local farmers to provide wild bird seed crops has helped start to reverse declines in Fife and Angus).

In north-east Scotland, where mixed farming is still widespread, the availability of grain in winter is thought to be less of an issue, and instead, it is the attractiveness of silage fields as a concealed nest-site just when Corn Buntings are starting to nest that is the main concern.

Unlike skylarks, which can start nesting in April and have time to rear a brood before the peak silage cutting period in June, Corn Buntings do not start nesting until late May and silage cutting in June coincides with the peak of their nesting period and is likely to result in total nesting failure. Later nesting attempts (usually in spring cereal crops) are insufficient to make up for these losses. While hay cutting in late June and early July is also likely to destroy nests, it is probable that when hay was the main method of preserving grass, enough was cut later to allow sufficient breeding success to maintain the population.

Monitoring in Aberdeenshire and Angus showed a population decline of 83% between 1989 and 2007 (Watson et al. 2009) and the Scottish Corn Bunting population is now estimated to be between 750 and 900 pairs, with the majority in the north-east.

Conserving the Corn Bunting

Once the dramatic decline in Corn Bunting numbers became apparent, the species quickly became the focus of urgent conservation measures. The Farmland Bird Lifeline Project was launched by RSPB Scotland in 2001, supported by Scottish Natural Heritage (SNH), and working with over 50 farmers in Aberdeenshire, Angus and Fife to deliver targeted agri-environment management measures on farms where Corn Buntings were still present.

The project showed that where targeted management was carried out, Corn Bunting numbers increased, while numbers remained static on farms that undertook untargeted management under the standard agri-environment scheme of the day (Rural Stewardship Scheme) and numbers continued to decline on farms with no agri-environment management.

Another major outcome of the Farmland Bird Lifeline Project was the realisation that nest destruction by silage cutting was one of the main causes of Corn Bunting declines in Aberdeenshire and that the late cut grassland option that was available in the Rural Stewardship Scheme was unsuitable for Corn Buntings as cutting could take place any time after 1st July, when many nests were still active. This led to the introduction in 2008 of a dedicated mown grassland option for Corn Buntings in the subsequent agri-environment schemes, the SRDP Rural Priorities scheme and its successor the Agri-Environment Climate Scheme (AECS). The Corn Bunting mown grassland option requires that grassland cannot be mown until 1st August, with a payment of over £200/ha/year to compensate for the significant delay in cutting date compared with modern silage making.

By 2015, monitoring work showed a small increase in Corn Bunting numbers in Aberdeenshire and Moray, suggesting that the targeted action by local farmers had stopped the population decline. However, numbers remain low and the species is still very vulnerable. A significant reversal of the decline to put the species on a more secure footing will require wider uptake of management for this species and particularly the mown grassland option, which is less readily undertaken than some of the other options such as wild bird seed mixes.

Barriers to management of late mown grassland

While many farmers have taken up the mown grassland for corn buntings option, it is only rarely done on a large scale. This is largely due to the expectation that forage (particularly silage) made so much later than usual will be of poor quality. In 2017, SAC Consulting analysed four samples of silage from Corn Bunting Mown Grassland to test this (Table 1).

Table 1 - Analysis of four samples of silage from Corn Bunting Mown Grassland, 2017

Sample	D-Value	ME MJ/kgDM	Crude Protein %
1	68	10.9	11.6
2	61	9.7	13.5
3	58	9.2	8.4
4	52	8.3	5.9

Two of the samples were indeed quite poor quality with low digestibility (D-value), metabolisable energy (ME) and protein. While such silage might be suitable for feeding to dry cows it would need significant energy and protein supplementation to provide a suitable ration for more demanding livestock.

However, two of the samples were of moderate to good quality and would provide a better basis for a winter ration for a wider range of livestock. The two better samples were distinguished by having a particularly high clover content.

The way ahead?

The silage analysis results suggests that there is potential for late mown grassland for Corn Buntings to have higher agricultural value depending on the grass mix used. This could make the option more attractive to farmers, increasing the area managed and offering a win-win solution for cattle and Corn Buntings.

RSPB Scotland is now hoping to investigate the use of different seed mixes to see if they provide better quality silage when cut late and provide a suitable nesting habitat for the birds. Seed mixes could include late heading varieties of Perennial Ryegrass, the inclusion of large-leafed white or red clovers and the use of tetraploid ryegrass varieties to give the clover more room.

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