



Increasing farmland biodiversity at Balgonie

A block of PARTRIDGE mix at Balgonie, sown in 2021. © Fiona Torrance/GWCT

BACKGROUND

Balgonie Estate, situated near Glenrothes in Fife, has been working with the GWCT to conserve its initially modest stock of grey partridges since 2014. Together, we created various habitats for the benefit of partridges and other farmland wildlife. This has involved mostly growing wild bird seed mixes, but also establishing habitat for pollinators, improving hedge management and introducing winter feeding. Since 2016, the farm has been a demonstration site for the PARTRIDGE project, which aims to showcase how farmland biodiversity can be increased by improving agri-environment schemes (see PARTRIDGE, Interreg VB North Sea Region Programme).

Despite Covid-19 restrictions, the Scottish PARTRIDGE team (ourselves and the farm) have worked hard throughout the year to ensure that monitoring activities and good habitat management continued. At the beginning of the year, in addition to the provision of supplementary food in feeders, hare surveys and partridge playback surveys, we reviewed the PARTRIDGE seed mixes that had been sown in 2018. These were designed to provide nesting, brood-rearing and winter cover for partridges (as well as other farmland wildlife) and although they were delivering, we felt that they could be improved.

The main area for improvement was the density of the mixes. Although they were sown at the recommended rate of 20 kilogrammes per hectare (kg/ha), we found that they were too dense in places. Density of brood-rearing cover is important, as dense patches prevent partridges from foraging within them. Cutting 'sweeps' into the blocks in 2020 helped with this, but we felt they could be better. As a result, we decided to resow some plots during 2021 and used this opportunity to improve the mix in other ways.

Although the mixes had provided ample foraging for pollinators during their first year, many of the annual plants had disappeared and some of the other species such as perennial rye and sweet fennel had become too dominant. Working with Kings Crops, additional perennial flowers were introduced into the mix and the species that had become dominant were reduced (see Table 1). We also reduced the sowing rate to 15kg/ha in the hope of enabling partridges and their chicks to forage through the mixes freely.

Our plan to resow some of the PARTRIDGE mix in spring was scuppered owing to one of the driest seasons in recent times. This meant delaying until late June (when partridge chicks start hatching), and we held our breath to see if rain would come and if the late sowing would influence chick survival rate. Fortunately, rain eventually arrived and the mixes grew well.

Figure 1

Spring pair density (search area 495-688ha) and autumn density (search area 348-688ha) of grey partridges at Balgonie, 2014-2021. Spring pair counts were not possible in 2017 and 2020*

*Search area variable owing to changing ground conditions

Spring pairs ■
Autumn stock —

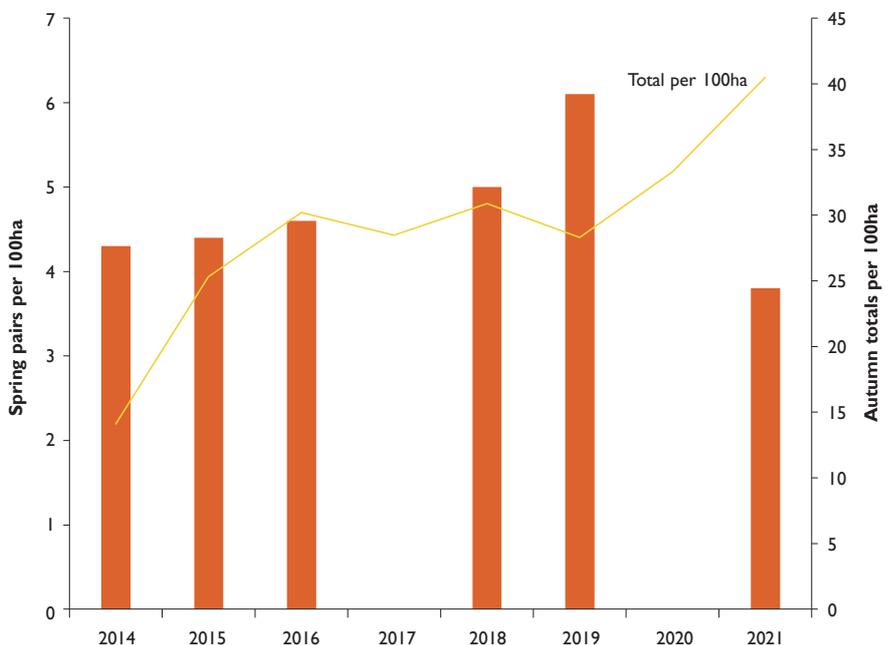


TABLE 1

Comparison of Balgonie PARTRIDGE mix sown in 2018 and 2021

| Year | |
|------------------|-----------------------|
| 2018 | 2021 |
| Brown mustard | Black knapweed |
| Chicory | Brown mustard |
| Coleor kale | Chicory |
| Fodder radish | Coleor kale |
| Gold of pleasure | Fodder radish |
| Linseed | Gold of pleasure |
| Perennial rye | Linseed |
| Phacelia | Oxeye daisy |
| Sweet clover | Perennial rye |
| Sweet fennel | Phacelia |
| Triticale | Red clover |
| | Sweet clover |
| | Sweet fennel |
| | Triticale |
| | Wild carrot |

(Bold species added in 2021)

KEY FINDINGS

- Grey partridge autumn densities have increased by 187% since 2014.
- The estate has created 40ha of new or improved habitat since the GWCT became involved.
- Balgonie is a PARTRIDGE demonstration site used to communicate with policymakers and other interested stakeholders.

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During March, we conducted our partridge spring pair counts to estimate the breeding population. Unfortunately, they showed that our 2021 spring pair density was at its lowest level ever at 3.8 pairs per 100 hectares (ha), although it is not clear why. The dry weather until June meant that harvest was around two weeks earlier than normal, so we started our autumn partridge counts in August. We were delighted to find that our autumn density had increased by 22% on the previous year to its highest level of 40.5 birds per 100ha (Y:0 2.51), indicating that up to six pairs had not been visible during the spring count. It is likely that this was a result of a combination of weather and refreshed habitat.

Our farmer engagement work was severely impacted in 2021. Attracting farmers to our events has always been a challenge, but with restrictions in place, it was incredibly difficult to communicate what we were trying to achieve. Now that things are returning to normal, we are planning our first events in two years.

Coincidentally, the Scottish Government recently announced the extension of the Agri-Environment and Climate Scheme from 2022 to 2024. Although it is widely accepted that the scheme could be improved, this is a positive measure for biodiversity in the short term. Long-term, it is almost certain that farming for biodiversity will become standard practice, and we hope to help policymakers and farmers make the transition as smooth as possible.



ACKNOWLEDGEMENTS

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Balgonie also has other high-quality habitats, including strips of pollinator mix. © Fiona Torrance/GWCT