



Global Re-introduction Perspectives: 2010

Additional case-studies from around the globe
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IUCN/SSC Re-introduction Specialist Group (RSG)





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Grey partridge supplementations in Oxfordshire and east Gloucestershire, UK

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Introduction

The grey partridge (*Perdix perdix*, Linnaeus 1758) is a native farmland species and a traditional game bird in the United Kingdom. Once a common species in the English countryside, the populations of this species have decreased dramatically (e.g. -88% between 1967 and 2006 (Baillie *et al.*, 2009)) mainly as a result of habitat loss due to agricultural intensification. Consequently, the grey partridge has been included on the red list of birds in the UK with highest conservation priority. There have been many attempts in the UK to re-establish or re-stock grey partridge populations through releases of captive-bred birds onto sympathetically managed farmland (e.g. Rands & Hayward, 1987; Dowell, 1990; Parish & Sotherton, 2007). However, released birds have had far inferior survival and breeding success compared to wild grey partridges (Rands & Hayward, 1987; Dowell, 1990), possibly because of their inadequate anti-predator behaviour brought about by captive breeding (Dowell, 1990).

Goals

- Goal 1: Increasing grey partridge numbers locally on appropriately managed farms.
- Goal 2: Monitoring behaviour and survival among the released birds to improve guidelines for grey partridge re-introductions/supplementations.

Success indicators

- Indicator 1: Settlement of the released grey partridges onto the release sites.
- Indicator 2: Breeding success of the released birds.

Project summary

We established four study sites in Oxfordshire and east Gloucestershire in the UK on arable farms growing winter and spring cereals, oilseed rape and beans. These farms provided the key habitats for grey partridge, i.e. nesting and brood-rearing habitats (field margins, hedges) as well as over-wintering cover (hedges, planted game covers) and predator control. Grey partridges were not hunted on these farms, and none of the sites conducted more than eight days of shooting annually, limiting the probability of disturbance and of accidental shooting (when mistaken for other species). We applied two established release methods, pair

releases in the spring (April), and covey (family group) releases in the autumn (October-November), used previously by the Game and Wildlife Conservation Trust (Buner & Aebischer, 2008). The grey partridges were obtained as three-week-old chicks from a game farm where the species had been bred for at least seven generations and hand-reared in brooder houses. The birds were housed in pens outdoors with food and water continuously available from feeders and drinkers, and the



Tagged male grey partridge © Francis Buner

birds were monitored regularly for parasites and treated where necessary. Before the releases, four to five randomly chosen juvenile birds in the autumn coveys and all females of the spring pairs were radio-tagged using 10 gram necklace radio-transmitters with mortality sensors (RI-2BM, Holohil Systems Ltd., Ontario, Canada). The 10 gram radio-tags accounted for 2.6% of the average weight of grey partridges (390 gram; Robinson, 2005). The birds were allowed to get accustomed to the tags in their home pens for at least 24 hours before they were moved to the study sites, and if a bird reacted strongly to wearing the tag, the transmitter was swapped to another bird. Parish & Sotherton (2007) had previously detected no difference in survival between radio-tagged and non-tagged released grey partridges, so it was assumed that the survival of the radio-tagged birds in this study was representative of that of all released birds.

Between mid-October and early November in 2006-2007, 20 autumn coveys were released each year on the four study sites, five coveys per site. After transport, each covey was put into its separate release pen (size 3 m x 1.5 m). The five pens on each site were scattered within 1 km² in suitable locations next to tall vegetation cover (e.g. game cover or field margin with tall grass). Food, water and shelter were provided in these pens where each covey was kept for an acclimatisation period of four days before release. We used soft instead of hard release with the coveys in autumn in order to facilitate settlement, as the dispersal distances of autumn coveys have been nearly three times greater than those of spring pairs (1.4 km vs. 0.5 km on average) in previous releases (Buner, 2006). In April 2007, 70 pairs were released on two study sites (30 or 40 pairs on each site), and each pair was released directly after transport to the site along field edges (approximately 100 metres apart and next to crops providing cover). The released radio-tagged birds were located two to four times daily during an intensive monitoring period of the first two weeks after release in order to determine their activity ranges and habitat use. For each radio-tracking location, or "fix", the date, time of day and the type of habitat were recorded. The survival



Radio-tracking released partridge

status of each released radio-tagged bird was checked regularly for eight weeks after the releases (every day for the first two weeks and then twice a week). Thereafter, the release sites were checked every 1-2 weeks for radio-tagged birds still alive and present at the sites. When the pulse of a radio-signal indicated that the tag had not moved for at least 12 hours, the tag was recovered and the date, time and location as well as any remains or signs found with the tag suggesting the cause of death were recorded.

Monitoring by radio-tracking showed that released grey partridges tended to settle onto the release sites, and preferred crops and field margins in spring and game covers in autumn, as their habitats. Released grey partridges suffered from high

predation rates, both by mammalian and avian predators, and mortality rates were higher in spring (80% eight weeks after release) than in autumn (40%-50% eight weeks after release). In 2007, the autumn coveys broke up by January, as would also occur in wild grey partridges, while in autumn 2006 this covey breakup happened exceptionally early, in October-November. The disintegration of the coveys was followed by pairing and dispersal from the release sites by most radio-tagged individuals, and further monitoring of these individuals was logistically very difficult. Breeding was witnessed in only one pair released in spring, and in two other pairs in which the radio-tagged birds had been released in the previous autumn and could still be found on the release sites.

Major difficulties faced

- Predation rates were high and particularly unsustainable in pairs released in spring.
- The dispersal of released grey partridges from release sites after covey disintegration made it difficult to monitor and manage the released population after December-January.
- Coveys can disband exceptionally early as was witnessed in coveys in autumn 2006, again making further monitoring and management difficult.

Major lessons learnt

- Spring releases are particularly ineffective due to high mortality and low breeding rates.

- Covey releases in autumn are more feasible, but the dispersal of newly-formed pairs after the coveys disband makes them less efficient in increasing grey partridge populations locally on particular release sites.
- Game covers serve as key habitats for autumn coveys and may help their initial settlement onto release sites.

Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

Reason(s) for success/failure:

- Released grey partridges initially settled well onto the release sites, but then either suffered from very high mortality rates (spring pairs) or dispersed in great numbers from the release sites (pairs formed when the autumn coveys broke up).
- Released birds were witnessed breeding, but the sample that could be monitored at that stage was too small to draw reliable conclusion.

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