



## **Submission by the British Trust for Ornithology (BTO) to the call for evidence by the Secretary of State on the impact of the withdrawal of general licences GL04, GL05 and GL06.**

### **Summary**

This evidence is presented in three parts: 1) population trends of the licensed species, 2) potential impacts of the withdrawal of general licences upon the conservation of flora and fauna, 3) potential impact on access to the countryside by both professional researchers and citizen scientists for the purposes of research and biological surveillance. Hyperlinks have been included in the text to facilitate easy access to supporting material. The key points are bulleted below.

- Populations of more than half of the licensed species have increased significantly across England over the last 10 to 22 years, although two have declined.
- Existing terrestrial surveillance schemes, such as the Breeding Bird Survey, have the potential to identify whether licence revocation has had a significant impact on national or regional population trends of licensed species in 2019.
- There is a good evidence base demonstrating the potential impact that high populations of at least some of the licensed species, particularly crows, may have on a number of bird species of conservation concern, particularly ground-nesting waders and gamebirds.
- In such circumstances, the control of licensed species, particularly crows during the breeding season, can have a positive impact on the breeding success of prey species.
- The impact of the revocation of general licences is most likely to impact wild bird populations when the following circumstances apply: 1) where wild bird populations are vulnerable to predation, 2) the predator is sufficiently abundant to have a population-level impact, and 3) the revocation results in a sufficient reduction in control at a sensitive period in the breeding season to increase predation rates.
- There is a need to better understand the potential impacts that increasing populations of non-native bird species licensed for control are having on flora and fauna.
- The ill-feeling this revocation has provoked amongst some land-owners has the potential to hamper access to private land by volunteer surveyors and professional scientists, and therefore compromise data quality for the current year.

Whilst we feel the evidence about the impacts of the revocation is currently limited, the BTO is ready to inform any future licensing decisions with the highest quality evidence.

### **Population trends of the licensed species**

The 2018 report of the BTO/JNCC/RSPB Breeding Bird Survey report has just been published (<https://www.bto.org/sites/default/files/bbs-report-2018.pdf>) and provides the latest population trends for 11 of the licensed species for England, as summarised below for 5, 10 and 22-year time periods (Table 1). Six species show statistically significant long-term increases (Canada goose, Egyptian goose – although with insufficient data to report on a 22-year trend due to the small initial population, woodpigeon, ring-necked parakeet, jackdaw and carrion crow), whilst two show evidence of long-term decline (feral pigeon and rook). The most recent 5-year trends suggest that

some of these populations may be stabilising, although this may also reflect natural fluctuations. The other species covered by general licences are either not well covered by the BBS methodology (lesser black-backed gull), or not abundant enough in England to be reported on.

**Table 1.** England breeding bird population trends are taken from the [2018 BBS report](#). Statistically significant population changes are denoted by \*. [Data tables](#) and [graphs](#) are downloadable from the BTO website.

	5-year (2012-2017)	10-year (2007-2017)	22-year (1995-2017)
Canada Goose	11	-15	58*
Egyptian Goose	2	73*	
Feral Pigeon	-7	-22*	-31*
Woodpigeon	-3*	0	39*
Collared Dove	-15*	-24*	-4
Ring-necked Parakeet	59*	127*	1711*
Jay	-9*	-2	1
Magpie	0	2	-1
Jackdaw	9*	27*	69*
Rook	-2	-12*	-13*
Carrion Crow	4*	6*	28*

Ongoing BBS monitoring across the almost 3,000 1 km<sup>2</sup> covered in England provides the potential to examine national or regional-scale impacts of the revocation of general licences on breeding populations of these species. Population changes between the 2018 to 2019 breeding seasons will be reported in Spring 2020, although will probably not be sufficiently intensive to identify localised population changes on specific landholdings.

### Potential Impacts Upon the Conservation of Flora And Fauna

The potential impacts of generalist predators, such as corvids, upon species of conservation concern, such as ground-nesting grouse and waders, or songbirds, has been subject to extensive scientific research. This literature is summarised below, to infer the potential impacts that licence revocation may have upon breeding bird populations. The extent to which this happens will depend upon the extent to which the revocation of licences reduces the ability of landowners to control populations of particular species on their land. Two key reviews form the basis of this evidence alongside a small number of more recent studies. The [Understanding Predation report](#) led by the British Trust for Ornithology, the Centre for Ecology and Hydrology, the University of Aberdeen and the University of Stirling presents scientific knowledge alongside local knowledge held by those directly connected to land in order to secure agreement over common ground across stakeholders. A [review of predation as a limiting factor for bird populations](#) led by RSPB, summarises the results of multiple scientific studies and is published in the peer-reviewed literature (Roos et al. 2018).

Although the Understanding Predation project had a Scottish focus, the results are of wider interest. Across the 400 stakeholders approached, there was common ground in agreeing the most important factors driving population changes in six bird species, with carrion / hooded crows identified as significant predators. The report concluded that these views are broadly matched by the evidence in the scientific literature, although crow populations were regarded by participants to have increased more than actually suggested by monitoring data. The report usefully outlined the challenges of quantifying the impacts of predation on bird populations, and identified a number of experimental or 'quasi-experimental' studies where the control of licensed species has benefited wild bird populations (Table 2). These studies are supported by a wider range of correlative studies where the

links between predator and prey populations are inferred by statistical association, and are more able to produce results that are applicable across national or regional scales.

**Table 2.** Experimental studies documenting the impact of changes in the control of predators upon particular wild bird populations as identified by the Understanding Predation project, or published subsequently (*italics*). Studies were either ‘quasi-experimental’ where control was manipulated through time or fully experimental across multiple sites.

Species	Study
Grey partridge	Tapper et al. (1996) - Combined experimental control of foxes, carrion crows and magpies improved productivity.
Black grouse	Summers et al. (2004) - Changes in carrion crow control improved productivity.
Lapwing	Bolton et al. (2007) - Experimental control of foxes and carrion crows improved nest survival in areas with high predator populations.
Lapwing, golden plover, curlew, red grouse	Fletcher et al. (2010) - Experimental control of foxes and carrion crows on grouse moors improved productivity and population growth rates.
<i>Songbirds</i>	<i>Sage &amp; Aebischer (2017) – Experimental control of carrion crows and magpies combined improved the productivity of hole-nesting passerines.</i>
<i>Black grouse</i>	<i>Pearce-Higgins et al. (2019) - Spatial and temporal variation in fox and crow control improved black grouse productivity and trends.</i>

The RSPB review found that the most vulnerable birds to the impacts of predation are ground-nesting seabirds, waders and gamebirds, although this is across all potential predators of which native mammals, such as red fox, were most frequently reported as limiting prey populations (61% of cases). Of 376 cases of potential corvid impacts, 51 (14%) found evidence for them limiting prey populations. More specifically, 6 of 104 studies (6%) found evidence of negative effects of magpies upon bird populations, 16 of 92 studies (17%) negative effects of carrion crows, 2 of 7 studies (29%) of hooded crows and 3 of 59 studies (5%) of jays. No studies on the impacts of rooks or jackdaws were identified by the review. More specifically, analyses of covariation in predator and prey populations using national-scale population monitoring data from the Common Bird Census (1967-2000) and BBS (1995-2005) failed to find any evidence linking changes in corvid (magpie, jay and carrion crow each analysed separately) populations to changes in common and widespread bird (predominantly songbird) populations (Newson et al. 2010). Further analyses of BBS data found that changes in curlew populations since the late 1990s are negatively correlated with crow abundance (Frank et al. 2017).

The Understanding Predation project suggested that predator control generally has an immediate effect within the season implemented, although some of the studies also found evidence for control having a progressively cumulative impact. Predator impacts appear most negative during the breeding season and in areas where prey species were depleted or more vulnerable due to other drivers.

In relation to the non-corvid species listed, and particularly the non-native species with increasing populations, there is currently a more limited evidence base on which to assess the potential impact of control upon flora and fauna. For example, whilst geese can trample the nests of other bird species, and affect habitat condition, the extent to which this significantly limits other wildlife represents an important evidence gap to address. Correlative analyses of the effect of increasing ring-necked parakeet populations upon breeding bird populations failed to find evidence of significant associations (Newson et al. 2011), although more detailed work may be required to test whether this could occur at sites where nest cavities may be limiting. More research on the potential

impacts of these expanding non-native species on flora and fauna, potentially using a combination of detailed site-based or experimental studies, and larger-scale correlative studies of long-term data, is therefore required to better understand the scale and severity of their ecological impact.

Based upon this brief assessment of studies, it seems likely that the impact of the revocation of general licences upon wild bird prey populations will depend upon 1) the vulnerability of the prey species of interest to predation, 2) the abundance of the predator being controlled and 3) the extent to which control limits predator abundance. Population level impacts appear most likely for some ground-nesting bird species such as breeding waders (lapwing, golden plover, curlew) and gamebirds (red grouse, black grouse, grey partridge), whilst the potential magnitude of any impact on predation rates of songbirds is likely to be low (Sage & Aebischer et al. 2017 suggest best-practice crow and magpie control improves songbird productivity by 10-15%) and unlikely to impact population levels (Newson et al. 2010, Sage & Aebischer et al. 2017). Because control is often applied to multiple species it is difficult to disentangle the relative importance of different potential nest predators, although Roos et al. (2018) suggest that crows are the species whose impact is best supported by evidence. There is also variation across studies in the efficacy of control, although where control is demonstrated to be effective in reducing predator populations, it appears to have a positive and relatively immediate impact on the productivity of prey. It therefore follows that if licences are revoked in circumstances where control is required, that may result in at least a short-term impact on the breeding success of the species concerned, depending upon the timing and duration of the revocation relative to the main periods of vulnerability to predation.

### **Population Impact on Access to the Countryside**

Much of the terrestrial surveillance conducted by the BTO and our volunteers, and ecological research by professional staff, is dependent upon being able to gain access to private land. As shown above, the collection of such data is essential in order to robustly track changing bird populations, and for analyses to identify the impacts of management, or changes in environmental drivers, upon those populations. Given the sensitivity of general licensing, there is the potential for this revocation to cause problems for securing or maintaining access permission from landowners. So far, this impact has been small. We have been made aware of two Breeding Bird Surveyors and two bird ringers who have recently been refused access to areas where they have previously worked, with the reason given being linked to the revocation of general licences. This is an impact we will continue to monitor.

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## References

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