Department
for Environment
Food & Rural Affairs

Wild Birds: General Licence Review

Annex 3 – Defra's policy considerations including species purpose combination assessments

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Defra's policy considerations

Legal obligations and the key tests

The Birds Directive (2009/147/EC) requires Member States to prohibit the deliberate killing or capture of wild birds. Article 9 of the Birds Directive allows Member States to derogate from this "where there is no other satisfactory solution" and for the purposes listed in Article 9(1).

The requirements of the Birds Directive were transposed into domestic law when the UK was an EU Member State, largely by the Wildlife and Countryside Act 1981 (the Act). Section 16(1) of the Act allows a licence to kill or take wild birds to be granted for the following purposes (amongst others):

> (c) for the purpose of conserving wild birds;
>
> (cb) for the purpose of conserving flora or fauna;
>
> (i) for the purposes of preserving public health or public or air safety;[1]
>
> (j) for the purpose of preventing the spread of disease; or
>
> (k) for the purposes of preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber, fisheries or inland waters.

Section 16(1A)(a) of the Act provides that the appropriate authority "shall not grant a licence for any purpose mentioned in [section 16(1)] unless it is satisfied that, as regards that purpose, there is no other satisfactory solution".

Reflecting these statutory requirements, Defra policy, as set out in 'Defra wildlife management policy' (May 2011) is to derogate from the general protection of wild birds and issue licences to take or kill wild birds only in defined circumstances where:

(1) all other reasonable non-lethal solutions have been tried and/or shown to be ineffective;

(2) there is a genuine problem/need;

(3) there are no satisfactory alternatives;

(4) the licensed action will be effective at resolving the problem; and

[1] To note that there is a separate class licence (licence CL12) for the killing or taking of certain species of wild birds to preserve air safety, so that purpose is not considered within this review.

(5) the action is proportionate to the problem. Wherever possible, humane methods of lethal control are used.

For the purposes of the review, in making a determination on issuing any new general licences, Defra developed the following framework of tests for assessing the evidence to inform its decisions on general licences:

- Test I: Is there an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)?
- Test II: Is a general licence appropriate in principle?
- Test III: Will the licensed action contribute to resolving the problem, or meeting the need?
- Test IV: Are there any other satisfactory solutions other than killing or taking the wild bird(s) for the purposes outlined above?
- Test V: If there are some circumstances in which there are some other satisfactory solutions, can those circumstances be distinguished? (That is, focus on the precise requirements of the licence and the specific situations that it should cover.)
- Test VI: Should any other conditions be attached to the licence to ensure workability, enforceability and compliance with legal requirements?
- Test VII: Is the action to be licensed proportionate to the scale of the problem, or need?
- Test VIII: Will the licensed action have an adverse effect on the conservation status of any species or habitat?

Assessing the key tests

Test I: Is there an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)?

Increasing the specificity in new general licences

Defra has examined where the licences require more specificity, on the basis of survey results and scientific evidence. This has allowed Defra to draw conclusions as to the whether there is an apparent or genuine need for a general licence in relation to each species-purpose combination.

There is scientific evidence to consider on which species should be licensed for each purpose and on alternatives to lethal control. There is also practitioner experiential

evidence gathered through Defra's online survey and workshops. This evidence was considered under each test.

A detailed account of how we assessed the scientific and experiential evidence for each species purpose combination can be found in the species purpose assessments below. The assessments for the serious damage purpose further discuss how, due to a lack of scientific evidence in relation to serious damage, we have placed greater weight on practitioner experiential evidence in our considerations in relation to this area.

More precise purposes

A key way in which the evidence has been analysed to assess the need for greater specificity is around the purposes for which general licences can be granted. In Defra's online survey , Defra further sub-categorised the purposes set out in section 16 of the Wildlife and Countryside Act 1981, under which licences may be granted, to allow us to obtain more specific evidence of the circumstances in which bird management is seen as necessary under the general licences. Defra's analysis of the scientific evidence was also done in the framework of these more specific sub-purposes.

The result is that conservation purposes under which Defra issued its previous licences has been split into the following sub-purposes:

i) conservation of wild birds;
ii) conservation of flora; and
iii) conservation of other fauna;

This was previously split into two purposes ((i) conserve wild birds, and (ii) conserve flora and fauna – Wildlife and Countryside Act 1981 Sections 16(1)(c) and 16(1)(cb)).

The public health and public safety purpose has been split into:

i) slips and falls;
ii) spread of disease; and
iii) issues relating to birds nesting; and

In Defra's previous licences, this was just one purpose (Preserve public health or public safety – Wildlife and Countryside Act 1981 Section 16(1)(i)). Spread of disease was covered in the licence that also covered the serious damage purpose.

The serious damage purpose has been split into:

i) livestock attack;
ii) livestock feedstuffs and preventing the spread of disease;
iii) crops, including vegetables and fruit;
iv) timber;
v) fisheries; and
vi) inland waters.

This was previously split into just two purposes ((i) prevent serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber, fisheries or inland waters, and (ii) prevent the spread of disease – Wildlife and Countryside Act 1981 Sections 16(1)(j) and 16(1)(k)). The sub-purposes listed above still fall under these two legislative purposes.

For the purpose of conserving wild birds[2]

Defra considered whether the 'conserving wild birds' purpose should allow for the control of the listed birds for the conservation of all other wild birds or whether this should be limited to those of conservation concern. Defra kept in mind the fact that predation is a natural process and one of many pressures on wild populations. Therefore, whilst predator control has a role to play in the recovery of rare or declining species, particularly ground nesting birds, Defra recognises that habitat loss and degradation is also a major consideration when looking to ensure the effective conservation of species.

There were individual and organisational responses to the survey which expressed a need to control all corvids to conserve wild birds in general. Indeed, these responses put forward the view that the proactive conservation control measures, currently permitted and undertaken under licence, could play a role in preventing several green listed bird species from becoming red or amber listed. Many licence users, principally shooters, saw themselves as providing a conservation service.

Gamekeeping stakeholders told Defra that allowing gamekeepers to protect wild-hatched young pheasants and red-legged partridges should be encouraged to reduce the need for an increase in annual pheasant and non-native partridge release numbers to compensate for greater predation loss. However, there is an important difference between protecting individual members of a species that is not of conservation concern and conserving a species that is objectively speaking in need of conservation.

In general, it is reasonable to view predation of green-listed species by green-listed species as a natural process that does not merit intervention. It is important for Defra to be able to objectively justify the decisions that we have taken. In this case, Defra should be able to explain why the killing or taking of certain wild birds is required for the conservation of another wild bird. Therefore, it is considered that use of the 'conservation of wild birds' purpose should be limited to conserving wild birds of 'conservation concern', which we consider to be a species of bird that is, by reason of its unfavorable conservation status, included in the red list or the amber list published by the British Trust for Ornithology[3].

[2] As defined in section 27 of the Wildlife and Countryside Act 1981

[3] https://www.bto.org/our-science/publications/psob

Defra have concluded that ultimately it is a question of judgement whether action constitutes conservation, but that judgement must be based on evidence and be reasoned. The BTO Birds of Conservation Concern lists provide that evidence and reasoning. Conserving only those birds which are under threat would mean that licence users could act under the licence to seek to conserve, for example, ground-nesting birds such as skylark, curlew and lapwing, as they are red-listed, as well as certain songbird species such as song thrush, mistle thrush and nightingale. This decision therefore also means that it will not be possible for licence users to kill or take the specified species in order to protect more common species such as blackbirds, robins or wrens, which are green listed.

There may be exceptional and localised effects where control of predators to conserve green-listed birds is seen as necessary and justifiable, for example at sites where local populations of green-listed birds are especially vulnerable for a particular reason such as unnaturally elevated predator densities. However, in these cases, those seeking to undertake wild bird control should apply for an individual licence. A general licence would be inappropriate as it would allow for general control across the whole of England (i.e. this kind of exceptional scenario would not meet Test II).

Other tightening mechanisms for all purposes

We have also considered other ways in which the licences could be made more specific, by limitation on where, and the time of year at which, control is allowed to take place. These issues are considered in each species-purpose assessment and summarised here.

Geography

This issue was raised by stakeholders including Wild Justice and the RSPB. They have given the example of conservation of curlew, which has breeding grounds confined to certain parts of the country so they argue that control of species that predate curlew eggs or chicks should be confined to those breeding grounds and not, for example, be permissible in counties like Cornwall where curlews are generally only found in winter.

Defra judge that limiting general licence activity by geography would run counter to the broad intent of contributing to conservation outcomes. Location and species-specific restrictions would be complex to define. They would also be:

- slow to adapt to changes in range e.g. Atlases of the ranges of breeding and wintering birds are produced rarely;
- coarse in scale e.g. we would expect to see prey birds respond to landscape and ecosystem improvements as we implement the 25 Year Environment Plan and the scale of that response may differ from the scale of any geographical restrictions; and
- hard to communicate and use e.g. involving overlapping spatial definitions by species.

Under the wild bird conservation purpose, Defra have taken the approach of analysing the scientific evidence, combined with consideration of wider relevant issues where appropriate to make precautionary decisions, our intent being to contribute to the conservation of red and amber-listed birds.

Whilst many red and amber-listed species occur in specific habitats and in specific locations across the country, it is more effective when looking to contribute to their general conservation and less burdensome for the licence user, not to restrict general licence use for this purpose to specific species and location combinations.

Our view is that a geographic restriction is not required, since this purpose is inherently self-limiting as there has to be a valid predator prey interaction. The licence conditions are clear that authorised users need to have a valid reason for acting under the licence, and this validity may be challenged by an enforcement officer on the basis of the species and location at which the activity is taking place for a particular purpose. Misuse of a general licence may result in prosecution.

Regarding the health and safety and serious damage purposes, the issues involved occur across a range of locations which render geographical restrictions unfeasible and unwarranted in Defra's view. For example, feral pigeons cause health and safety issues in urban areas and in other locations such as farms and docks. Serious damage occurs on farms, which exist across the country in many different types of rural and peri-urban settings.

As regards invasive non-native species (INNS), we consider that any restrictions by geography would run counter to the policy intent of delivering the GB INNS Strategy, so a precautionary approach is warranted as set out in the invasive non-natives section starting on page 153.

Time of year

In their responses to the online survey and through the workshops, broadly, environmental NGOs favour being more specific about allowable timings, whereas user groups are generally not in favour of limitations.

Some general licence activity can be necessary at any time of year e.g. for many public health and safety reasons. Some types of serious damage are more time-specific (such as attacks on lambs), while other types are more complex. For example, serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring.

It is Defra's view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that pigeons are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce pigeon numbers before the crop is planted. For these serious damage and health and safety purposes, therefore, Defra's view is that a time of year restriction is not warranted.

Other general licence related issues are more concentrated in the spring due to their nature, particularly related to the conservation purpose. The greatest predation threat to the conservation of wild birds is during the breeding season, because it is the eggs and chicks that are the target of predation.

There is the practicality of defining any time of year precisely. The “breeding season” will vary with latitude and between years (the UK Spring Index ‘timing of biological spring’ has varied by around 23 days since 1999), and is advancing (since 1999, the annual mean observation date is 6 days in advance of the early 20th century equivalent). This will affect nesting dates.

Beyond this, a particular issue to consider is around animal welfare. The general licences encourage control outside of the breeding season wherever possible to reduce the need for the taking of parent birds, leaving dependent young to die. It is often impossible to link a particular bird to a particular nest and nests can be hard to find and often inaccessible. For example, the trapping of crows starts when they become territorial but before they have young, the aim being to remove the resident breeding pair. The general licences state in the advisory section: “To protect the welfare of dependent young, you should avoid lethal control of birds under this licence during the breeding season whenever possible, by acting under this licence at other times of year or using non-lethal methods of control.”

Whilst the greatest predation threat to the conservation of wild birds is during the breeding season, predation of adult birds may also represent a critical pressure, especially during the winter and early spring, when they may be especially vulnerable due to poor condition. For non-predator species, competition for food and shelter resource outside of the breeding season may still represent a critical pressure, especially during the winter and early spring, when this may be minimal and particularly important for survival.

Restricting lethal control under the conservation general licence to the breeding season would not mean that such control could not take place at other times, but people wishing to do this would need to apply for an individual licence. We believe that this requirement would encourage more control during the breeding season and reduce sensible anticipatory action at other times. Such anticipatory action could involve lethal control before the breeding season to reduce the breeding population of the predator species, with the intention of lessening the need for lethal control when there are dependent young.

On balance, therefore, in relation to the conservation purpose we are retaining flexibility for users to control birds all year round under a general licence, to avoid an increase in animal welfare issues related to dependent young and to allow control to happen at the most effective time in the specific circumstances. As set out above with regard to geographical limitations (see page 10), our view is that a temporal restriction is not necessary, since this purpose is inherently self-limiting because there has to be a valid predator prey interaction.

As regards INNS, Defra considers that any time of year restrictions would run counter to the policy intent of delivering the GB INNS Strategy, so a precautionary approach is warranted as set out in the invasive non-natives section starting on page 153.

Tests I, II,III and VII: Species purpose combinations

Introduction

Having considered more precise licence purposes as set out above, Defra considered the available evidence to assess which species can be included on each general licence for which purposes (referred to as species-purpose combinations). To do this, we have drawn together a range of evidence which is summarised in each species purpose combination assessment:

- A report by APHA synthesising the available scientific evidence –set out in detail in Annex 1;
- Individual responses to our online survey; and
- Organisational responses – see the main report for more detail.

Assessing which species-purpose combinations can be included on the general licences requires judgement and an understanding of the nature of the purpose involved. We summarise how we have approached this in each of the sections below for the different purposes.

We received 4433 responses to the online survey. The survey was constructed around tick boxes that allowed respondents to select the species they felt should and should not be included on licences for each listed sub-purpose, and free text boxes that allowed respondents to provide evidence for why they were making their selection. In some cases where respondents were invited to evidence their selections, respondents provided detailed practitioner experiential evidence. In most cases, however, respondents provided no further information or gave concise statements to support their views. This was true both where respondents felt species should and should not be included on licences.

In the case of invasive non-native species (INNS), as well as considering the APHA report and user evidence, we have also considered the Non-Native Species risk assessments and taken a precautionary approach, considering that a general licence is appropriate when impact assessments identify a “Moderate” or “Major” risk. Although removal under general licences does not represent a strategic approach to INNS management, it does provide an additional mechanism through which the GB INNS Strategy can be implemented.

As such species have been present in England for significantly less time and in fewer numbers compared to native species, evidence for detrimental impacts can often be less evident; hence the adoption of the precautionary principle. The Non-Native Species risk assessments consider issues around entry into the country, establishment, spread, impact and the role of climate change as a catalyst in terms of the invasive potential of these species. In the case of INNS, it is appropriate to adopt this precautionary interpretation of the evidence and its context, which can be considered alongside available scientific evidence. See the invasive non-natives section on page 153 for further details.

Native species-purpose combination assessments

Theme A – Purpose ‘to conserve wild birds and to conserve flora and fauna’

In this section of the survey, Defra asked respondents to identify which wild bird species they consider need to be controlled, and those that should not be controlled, under a general licence for the purpose of conservation. We also asked respondents to provide evidence to support their view. This purpose covers the conservation of other wild birds, other animals (fauna) or plants (flora).

Respondents were able to select species against each of the three sub-categories under the conservation purpose (conservation of ‘wild birds’, ‘flora’ and ‘fauna’). Results of the survey are broken down by these sub-categories for the survey questions A1 and A3 in Theme A (question A2 is dealt with in the ‘additional species’ section of the main report).

Carrion Crow

1,951 respondents identified a need to include carrion crow on the conservation general licence and 129 said that it should be removed (for all conservation sub-categories, ‘wild birds’, ‘fauna’ and ‘flora’).

Conservation of Wild Birds

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

1,802 (68%) respondents to this question identified a need to include carrion crow on general licence for the purpose of conserving wild birds.

The main reasons respondents identified for including carrion crow for this purpose were that they take and / or steal eggs from nests, or that they kill other birds or chicks, specifically in relation to songbirds.

Lapwing and curlew were most commonly cited as the species impacted by carrion crow predation.

Most respondents who identified a need backed this up with simple statements like “Stealing and eating eggs and fledglings of songbirds” as reasons why carrion crow should be included on a general licence to conserve wild birds.

Where more detailed information was provided, some respondents described how songbird numbers have declined as a result of increasing numbers of carrion crow. One respondent said: “By controlling the number of crows I have trebled the numbers of lapwings on my farm and similar on neighbouring farms, curlews have successfully nest for the first time in years along with snipe, golden plovers and the number of sky larks have exploded.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

117 (32%) of respondents who answered this question considered that carrion crow should not be included on general licence to conserve wild birds.

The main reason given was that control would be better delivered through individual licences.

One respondent said that there is “no evidence that this species has a negative impact. Vulnerable species are in such a position due to relativity [sic] recent human induced habitat and food loss. This is by inspection due to land use / pesticide use / persecution / ownership issues. Resolving these will render occasional predation by naturally occurring native species to be of no consequence since they have successfully co- existed for millennia.”

Another respondent said that they were “concerned that statistics for the impact of carrion crows predation on wild birds have been grouped with mammalian predation for the benefit of game-shooting industry. Until this is clarified it is difficult to make a decision. However, if you can show clear evidence of carrion crow predation impact which would justify a general licence on their killing, then this would potentially be one option for controlling their impact. But the information has to be rock solid.

I understand that also that bird species of conservation concern which are affected by carrion crows, such as the curlew, are few and geographically restricted. Therefore, a general licence for this narrow location and time frame of breeding would probably be better served with a more specific licence.”

Organisational Responses

46% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control carrion crow and of those 76% gave conservation as a reason. GWCT said: “Predation of wader and songbird nests were the most commonly cited concerns, among many other damaging impacts including predation on gamebirds.”

The Great Broughton Woodpigeon Club said: “Carrion crows cause significant damage to all the wild bird populations through the predation of eggs and fledglings, including songbirds, waders, game birds and even other predators such as raptors, with ground nesting birds being especially vulnerable including red listed birds e.g. curlew, skylark, lapwing. Predation takes place at random times, often early morning, and any nest found is normally totally destroyed.”

The Countryside Alliance said: “There is significant evidence of the effect of carrion crow predation on a myriad of upland and lowland bird species, as well as young lambs. In particular, they are one of the major predators of nest sites. A 2018 study[4] has demonstrated that the population of crows is higher in the UK than any other European

[4] Roos, S., Smart, J., Gibbons, D, W & Wilson, J D (2018) ‘A review of predation as a limiting factor for bird populations in mesopredator rich landscapes: a case study of the UK’

country. In conjunction with foxes, carrion crows were shown to have significant impacts on populations of ground nesting birds."

SongBird Survival said: "Carrion crow populations in UK have almost doubled, up by 98% over the period 1970 – 2015, are 'Green-listed' (JNCC, 2018[5]), and are close to an all-time high in England while the Farmland and Woodland Bird Indices have decreased, markedly, down by 56% & 29% respectively, over the same period (Gov.UK, 2019)[6]. The carrion crow population was estimated at 1,000,000 territories (i.e. 2,000,000 individuals) in Great Britain (GB) in 2009 (Musgrove et al, 2013)[7]."

In contrast, the RSPB said: "We acknowledge that there are established impacts on certain classes of other wild birds in certain circumstances from carrion crows. We do not see that a blanket authority to kill carrion crows in all locations and circumstances is justified by the evidence of impact and consider that any inclusion should limit the purpose to conservation of certain ground-nesting species that are known to be threatened (notwithstanding that other, non-avian mesopredators may pose a more significant problem).

This is similar to the approach recently adopted by Natural Resources Wales where species can now only be controlled in order to conserve species which are on the red or amber lists of species of conservation concern. Whilst we do not object to this species remaining on the licence, we argue that it would be better controlled through Individual licences."

Wild Justice said: "The bird species of conservation concern which are affected at a population level by carrion crows are few and geographically restricted. Curlew is possibly one such species affected although the impacts of land use and of predation by foxes are far, far higher than carrion crow predation. A general licence allowing lethal control of carrion crows at any time of year (rather than in and just before the breeding season, for example February-June) and in any location (e.g. in counties where Curlew do not nest or in sites miles from the nearest nesting Curlew) is not warranted.

If curlew is the clearest species of conservation concern that might benefit from lethal carrion crow control the [sic] it also exemplifies the legal, scientific and practical difficulties in framing such a general licence just for curlew. This approach would be a very long way from the current system and Defra might feel that requiring applicants to seek specific licences for such control would be more appropriate.

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[5] 'The State of the UK's Birds 2017'.

[6] Wild Bird Populations in the UK, 1970-2018'

[7] Musgrove, A., Aebischer, N. J., Eaton, M., Hearn, R., Newson, S., Noble, D., Parsons, M., Risely, K., & Stroud, D. (2013) 'Population estimates of birds in Great Britain and the United Kingdom'. British Birds 106: 64-100.

There are a few other species (perhaps lapwing, perhaps grey partridge, perhaps locally a few others) where lethal control of carrion crows is of conservation benefit. Any new general licence issued for the purposes of conserving wild birds must take these limited species and their limited distribution into full account - that will be a considerable challenge."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **high-medium** strength of evidence for an impact of carrion crow on the **conservation of wild birds**.

Studies did not always differentiate between the impact on red, amber and green-listed birds but, where they did, the strength of evidence varied between different avian groups:

- Overall, there is **high-medium** strength of evidence for an impact of carrion crow on the **conservation of red-listed wild birds**.
- Overall, there is **medium-high** strength of evidence for an impact of carrion crow on the **conservation of amber-listed wild birds**
- Overall, there is **medium-low** strength of evidence for an impact of carrion crow on the **conservation of green-listed wild birds**.

What do the strength of evidence categories 'medium-low', 'high medium' and 'medium high' mean?

High-medium means moderate likelihood that high predation occurs in some circumstances with an effect on breeding success and/or breeding numbers that has the potential to affect the local conservation status of the prey species.

Medium-high means some likelihood that high predation occurs in some circumstances with an effect on breeding success and/or breeding numbers that has the potential to affect the local conservation status of the prey species.

Medium-low means some likelihood that some predation occurs in some circumstances with the level of predation having an effect on individual breeding pairs but unlikely at a level that has a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Note that the effect determined by these correlative and experimental studies was most frequently proximate (predation), and infrequently ultimate (breeding population change of the prey species).

Detailed consideration of evidence on impact

The APHA Species Report provides the following evidence:

98 interactions[8] in the scientific literature considered crow predation on wild birds. For discussion here are only those with a medium or high level of scientific rigour (95 of the 98). More than three times as many of these found an effect (i.e. crows predating nests and chicks, and in some cases having a local population effect) than did not, hence the high-medium strength of evidence. However, two-thirds of all the high strength of evidence interactions showing at least some impact could have been influenced by confounding variables[9], such as crow being one of several predators removed, so preventing the evidence being attributed solely to crows, or positive habitat management also taking place that would benefit the prey species.

Studies have recorded a high effect on a range of species of ground-nesting birds (waders, passerines, seabirds and gamebirds). However, several similar studies found low levels of predation on similar groups. A number of studies using camera, video and direct observation to monitor nests recorded crow predation events on a range of wader species, and other ground-nesting birds including gamebirds, gulls and water birds. They also identified crow predation on open-nesting songbirds, although one study did not record crow amongst the predators of spotted flycatcher.

Where possible, these interactions can also be broken down further by 'Birds of Conservation Concern' status:

- Red-listed species: more than two and a half times as many studies showed an effect as did not, and the majority of affected species were ground-nesting species, the remainder from a range of other habitats;
- Amber-listed species: one more interaction showed an effect than did not, and the majority of affected species were ground-nesting species, the remainder from a range of other habitats; and
- Green-listed species: fewer interactions showed an effect than did not.

The majority of the red and amber species were ground-nesting native species, and some were tree or shrub/scrub nesting species of farmland and woodland.

The studies, the effects they found, the confounding variables, and the species concerned point to crow:

- being an important predator, alone or with other predators, of native ground-nesting species that usually nest in open ground, shrub/scrub habitat and woodland edge; and
- also being a predator, with a lower effect, again alone or with other predators, of a range of other native species in several different habitat types.

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[8] An interaction is a record in a scientific paper of a predator preying upon a prey species, or a species exposing humans to its pathogens. A paper that considered a single predator and several prey species would therefore have several interactions.

[9] A confounding factor is something, other than the thing being studied, that could be causing or contributing to the results seen in a study. For example, predator removal studies that state ‘corvids’ rather than differentiating species, simultaneous treatments such as removing predators and also manipulating the environment, using artificial nests that do not necessarily represent natural nests.

Conservation status of prey bird species and of crow

In addition to the scientific evidence found in the APHA Species Report, we have considered wider issues in order to inform a licensing decision in this case.

Ground-nesting species occur in many habitats but are more common in those where ground nesting is the only option, this being on the uplands, on lowland wetlands and in some farmland; 'open ground' being an appropriate term for these habitats. 'Birds of Conservation Concern 4' describes changes in the status of these species. Around a third of farmland and lowland wetland species, and three-quarters of upland birds, are red- and amber-listed. The sub-optimal conservation status of birds in these habitats will not have been caused by a predator they have co-evolved with, all other factors remaining unchanged. Instead factors such as habitat degradation and loss, non-native species and climate change will cause pressures in England and, for those species that are migratory, will also operate in other parts of their range.

It is however likely that at least some of these factors will increase the exposure or sensitivity to predation pressure effects by their native predator, for example by giving the predator an advantage in finding nests in a simplified habitat (exposure), elevating the over-winter survival of predators due to additional food availability (exposure), or reducing the fitness of the prey due to food stresses that may then reduce their nest success (sensitivity). Of course, carrion crow is not the only predator of ground-nesting birds, with fox likely to be a very significant predator, and also other mammals, and many of the studies were confounded by the crow being one of a number of species removed in predator control.

The conservation status of woodland and farmland birds is also deteriorating, with more species being listed of concern each time the list is updated.

The crow population has increased by 28% between 1995 and 2017, and this is very likely to have increased the exposure of birds in many habitats to elevated predation pressure. This level of increase cannot have been caused by predation on nests and chicks, but it can then cause an elevation in that predation, in theory to deleterious levels.

A decision in two parts based upon the science

There is evidence to allow the control of carrion crow to conserve red and amber ground-nesting species of both open ground and open country with some trees and small bushes, such as heaths, forest clearings or newly planted woodlands. The scientific evidence does not demonstrate that predation by carrion crow alone is causing a population effect on ground-nesting bird species, but it does show that the suite of predators with which crow is always associated is having a detrimental effect.

There is also some evidence of an effect of the suite of predators with which crow is usually associated on some other species in multiple habitat types, where the conservation status of species is declining. There could be sufficient evidence to justify licensing for all red- and amber-listed species.

Predator control alone will not reverse the declining conservation status of other birds. However, there is sufficient evidence of a predation effect that control can be considered as a tool that by reducing pressure on native birds could contribute to their local

conservation status, because other solutions are not available, or where they are available, they may be more effective if supported by predator control.

Control would be restricted to the conservation of red and amber-listed species because there is no conservation purpose served by conserving something that is not of conservation concern i.e. green-listed.

The evidence is sufficient to:

- licence control for the conservation of ground-nesting native birds, and
- inform a precautionary decision on whether to use for other species as well.

Any precautionary decision would consider the conservation status of birds in a range of habitats where crow is a predator, the increase in crow population, and the tools available to enhance the conservation status of native species. Predator control alone will not resolve the poor conservation status of species, but it could contribute to slowing the decline until other interventions are successful or enhance the speed at which those interventions become successful.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c)

The responses to our survey suggest there is an apparent identified need to control carrion crow, where they predate on some wild birds. Respondents have shared experience of carrion crows predating on the eggs and / or chicks of other wild birds, mostly in relation to ground-nesting birds like lapwing and curlew. They described having witnessed carrion crows taking the eggs and / or killing the chicks of ground-nesting wild birds, several species of which are red or amber listed.

Respondents, in addition to these impacts, considered that carrion crow populations had increased while the conservation status of farmland and woodland birds has decreased. They also suggested that control of carrion crows (including control under general licence) was necessary for the recovery of populations of some prey species, including lapwing.

Given that predation is a natural process, user evidence of witnessing predation by crows is not sufficient to be able to issue a general licence for the purpose of conservation. This requires testing the scientific evidence for population-level impacts on prey species.

Analysis of the evidence in the APHA Species Report combined with consideration of wider relevant issues indicate that:

- There is good evidence to support including carrion crow for red- and amber-listed ground-nesting bird conservation; and
- There is evidence to support making a precautionary decision to licence control for other birds of conservation concern to support their conservation status by reducing pressure upon them.

It is relevant that respondents highlighted that the crow population is high. The science shows it has increased significantly. Elevated crow populations and the poor conservation status of prey do not solely result from crow predating other native birds, although identified predation levels could impact local status. Instead the crow and the prey

species that have co-evolved together are being differently affected by human pressures. The most likely are:

- the generalist feeding crow is able to exploit additional over-winter food from, for example, released gamebird carrion, that is not available to the feeding specialist prey species, causing the predator to have a higher breeding population than would be expected;
- conversely the specialist feeders are detrimentally affected by the poor ecological condition of the habitat e.g. poor autumn seed or spring invertebrate populations. They therefore have a depressed breeding population and lower individual fitness leading to lower nest productivity;
- the predator is better able to find nests as a degraded habitat leaves them more exposed; and
- other landscape changes, such as changes to food and shelter in field margins, and loss of winter stubble, shift the competitive relationship towards advantage for the generalist crow.

These different results of human pressures cause or exacerbate predation effect. It is this relationship that respondents describe when they state that by controlling crow, they have increased the population of other species. At most that reduction in predation effect is offsetting the described causes of it being elevated. It is also plausible that control is not having an effect, and instead other measures that shift the competitive ratio back a little away from the generalist crow are taking place.

The conservation status of ground-nesting birds and the scientific evidence is sufficient to allow the lethal control of crows for the purpose of conserving these species.

The conservation status of birds other than ground-nesting ones is of sufficient concern when coupled with the significant increase in the crow population, to warrant making a precautionary decision and allowing the lethal control of crows for the purpose of conserving these species.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Consideration of the scientific evidence in the APHA Species Report demonstrates that due to the poor conservation status of some native birds, and especially some native ground-nesting species, a general licence for lethal control of carrion crow could contribute to reducing critical pressures upon them by reducing nest and chick predation.

Lethal control is a tool that can be used pending the success of other interventions that aim to restore these populations by addressing the ultimate pressures throughout their range. The licensed control of carrion crow at this time, whilst it is a critical pressure, could ultimately remove the need for future control of carrion crow with which native birds have co-evolved.

A general licence allowing the killing or taking of carrion crow is therefore considered appropriate in principle.

In relation to the predation of some wild birds by carrion crow the circumstances under which this predation occurs are sufficiently widespread to warrant a general licence. The carrion crow and all birds of conservation concern are widespread.

We have considered whether to restrict where and when lethal control of carrion crow is allowed under general licence for the purpose of conserving wild birds. Stakeholders have given the example of conservation of curlew, which has breeding grounds confined to certain parts of the country so argue that control of species that predate curlew eggs or chicks should be confined to those breeding grounds and not, for example, be permissible in counties like Cornwall where curlews are generally only found in winter.

We judge that limiting general licence activity by geography would run counter to the broad intent of contributing to conservation outcomes. Location and species-specific restrictions would be complex to define. They would also be:

- slow to adapt to changes in range e.g. Atlases of the ranges of breeding and wintering birds are produced rarely;
- coarse in scale e.g. we would expect to see prey birds respond to landscape and ecosystem improvements as we implement the 25 Year Environment Plan and the scale of that response may differ from the scale of any geographical restrictions; and
- hard to communicate and use e.g. involving overlapping spatial definitions by species.

Under the wild bird conservation purpose, we have taken the approach of analysing the scientific evidence, combined with consideration of wider relevant issues where appropriate to make precautionary decisions, our intent being to contribute to the conservation of red and amber-listed birds. Since both carrion crow and red and amber-listed bird species are widespread across the country, we judge that it is more efficient for the intent of the conservation purpose and less burdensome for the licensed user who we wish to deliver that intent, to not restrict it by species and location. However, the licence conditions are clear that authorised users need to have a valid reason for acting under the licence, which may be challenged if found to be inappropriate by an enforcement officer by reason of the location at which the activity is taking place for a particular purpose.

Another way in which general licences could be further tightened is by limiting the time of year when action can be taken. The greatest predation threat to the conservation of wild birds is during the breeding season, because it is the eggs and chicks that are the target of predation.

Firstly, there is the practicality of defining any time of year precisely. The “breeding season” will vary with latitude and between years (the UK Spring Index ‘timing of biological spring’ has varied by around 23 days since 1999), and is advancing (since 1999, the annual mean observation date is 6 days in advance of the early 20th century equivalent). This will affect nesting dates.

Beyond this, a particular issue to consider is around animal welfare. The current general licences encourage control outside of the breeding season wherever possible to protect dependent young. The proposed new general licences also encourage this – they state in the advisory section: “To protect the welfare of dependent young, you should avoid lethal control of birds under this licence during the breeding season whenever possible, by acting under this licence at other times of year or using non-lethal methods of control.”

Restricting lethal control under the conservation general licence to the breeding season would not mean that such control could not take place at other times, but people wishing to do this would need to apply for an individual licence. We believe that this requirement would encourage more control during the breeding season and reduce sensible

anticipatory action at other times. Such anticipatory action could involve lethal control before the breeding season to reduce the breeding population of the predator species, with the intention of lessening the need for lethal control when there are dependent young.

On balance, therefore, in relation to the conservation purpose we recommend retaining flexibility for users to control birds all year round under a general licence, to avoid an increase in animal welfare issues related to dependent young and to allow control to happen at the most effective time in the specific circumstances.

We recommend that carrion crow should be included on general licence under s.16(1)(c) for the purpose of conserving red and amber-listed bird species.

Conservation of Fauna

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

1,223 (46%) respondents to this question identified a need that carrion crow should be on general licence for the purpose of conserving fauna.

The main reason respondents identified for including carrion crow for this purpose was that they attack small mammals.

Most respondents who identified a need backed this up with simple statements like “Kill songbirds and other Fauna such as common lizard” and “kill young mammals such has leverets” as reasons why carrion crow should be included on a general licence to conserve fauna.

One respondent said that “carrion crows are active predators of …small mammals, amphibians & reptiles which are themselves often endangered species.”

Another respondent said: “I have also observed them predating reptiles, including lizards, slowworms and adders.”

Many respondents referred to attacks and predation of livestock. However, protection of livestock is not relevant to the conservation purpose and is considered under the serious damage purpose.

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

82 (23%) respondents to this question said that carrion crow should not be included on general licence for the purpose of conserving fauna.

Organisational responses

In the NFU’s online survey (undertaken to help inform the Defra survey), 18% of their 148 respondents indicated that they wanted crow on the general licence to conserve wild fauna. One of their respondents said that crows “threaten endangered species of birds and animals”.

BASC said that carrion crow did not need controlling under general licence to conserve fauna.

The Born Free Foundation and Wild Justice said: “I/we know of no conservation organisation which supports Carrion Crow control for the purpose of conserving other animals. If there is any such case it must be rare and should be dealt with by application for a specific licence for a specific place and issue providing evidence of impact and non-lethal measures taken already.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- One study (Speakman 1991[10]) lists carrion crow amongst the bird species recorded to have predated on *fauna* - bats.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Many respondents identified livestock (lambs and ewes) as being injured or killed by carrion crow. This relates to the serious damage purpose rather than conserving fauna which are defined as naturally occurring native animals.

Although responses to the Defra survey identified some need to control carrion to conserve (non-livestock) fauna, this was limited. There was only one piece of scientific evidence identified in the APHA Species Report that identified predation of bats by carrion crow.

We conclude that there is not a genuine need in this case.

We do not recommend that carrion crow should be included on general licence under s.16(1)(cb) for the purpose of conserving fauna.

Conservation of Flora

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

536 (20%) of respondents to this question identified a need to include carrion crow on general licence for the purpose of conserving flora.
Most respondents who identified a need backed this up with simple statements like “Destruction of natural flora” as to why carrion crow should be included on a general licence to conserve flora.

[10] ‘The impact of predation by birds on bat populations in the British Isles’ 1991 https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2907.1991.tb00114.x

Another correspondent cited “the problems they cause to the crops and damage to other flora, especially on the golf courses.”

Many respondents referred to consumption and damage of crops. However, protection of crops is not relevant to the conservation purpose and is considered under the serious damage purpose.

One respondent said: “I know of no conservation organisation which supports Carrion Crow control for the purpose of conserving plants. If there is any such case it must be rare and should be dealt with by application for a specific licence for a specific place and issue providing evidence of impact and non-lethal measures taken already.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

74 (20%) of respondents who answered this question considered that carrion crow should not be included on a general licence to conserve flora.

The main reasons provided for not including carrion crow for the conservation of flora were that there was not the evidence to support this species being controlled for this purpose, and that they were better controlled through individual licences.

Organisational Responses

BASC said that carrion crow did not need controlling under general licence to conserve wild flora.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to carrion crow for the conservation of flora.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1) (cb)

Although responses to the Defra survey identified some need to control carrion crow to conserve flora, this was limited. There was no scientific evidence identified in the APHA Report that identified an impact of carrion crow on the conservation of flora.

Although responses to survey identified some identified need to control carrion crow to conserve flora, many responses focused on damage to crops which is considered under the serious damage purpose. There were few responses that provided clear experience of carrion crow impacting on flora (this being flora that would benefit from conservation measures due to its current conservation status).

We conclude that there is not a genuine need in this case.

We do not recommend that carrion crow should be included on general licence under s.16(1)(cb) for the purpose of conserving flora.

Jackdaw

1,503 respondents identified a need to include jackdaw on the conservation general licence and 154 said that they should be removed (for all conservation sub-categories, 'wild birds', 'fauna' and 'flora').

Conservation of Wild Birds

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

1,360 (51%) respondents to this question identified a need to include jackdaw on general licence for the purpose of conserving wild birds.

The main reason respondents identified for including jackdaw for this purpose was that they kill or take the chicks or eggs of other wild birds. Most respondents who identified a need backed this up with simple statements such as "jackdaws take eggs from nests", without going into specifics on species or circumstances. In the small number of cases where more detail was given, the species group mentioned as being the most impacted was songbirds.

Where more detailed information was provided by respondents, they described how colonies of jackdaws have the most severe impact as they work together to predate on other birds, whilst other respondents said that single birds can have a detrimental impact.

One respondent said: "I have seen small groups of these working up and down hedgerows clearing out other bird's nests."

Another respondent said: "Jackdaws are voracious predators of nests and chicks. This is observed first hand on an almost daily basis and anecdotally high jackdaw numbers correlate with vastly reduced songbird numbers. In order of damage by corvids on ground nesting birds, jackdaws are second only to the carrion crow."

Respondents also said that predation tended to be on eggs when jackdaws raid nests, and that this was often witnessed in woodland settings and hedgerows. Some respondents said there was a correlation between the increase in jackdaws and the decline in songbird populations. One respondent said: "Jackdaws are a clever hunter and work particularly within thicker cover and woodland taking small songbird nests."

Another respondent said: "Large numbers have a negative affect [sic] on woodland and farmland birds particularly during the breeding season preying upon eggs and young of many species which are in decline. They also occupy the limited number of tree nesting holes available which curtails the ability of some woodland birds to successfully breed."

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

144 (40%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of conserving wild birds.

The main reason given was that control would be better authorised through individual licences.

One respondent said: “In my 40 years as a professional researcher/conservation manager/director, I have never come across any evidence, published, anecdotal or third hand, that indicates that jackdaws should be killed for nature conservation purposes. As far as I am aware no nature conservation organisation in the UK considers it necessary to kill jackdaws.”

Organisational Responses

14% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control jackdaw and of those 50% gave conservation as a reason. GWCT said: “Those reporting conservation reasons … describe egg and chick predation on songbirds. One respondent specified known effects on bullfinch, whitethroat, redpoll, dunnock, blackbird, song thrush.”

In the survey undertaken by the NFU, 32% of their 148 respondents considered there was a need to control jackdaws to conserve wild birds as they take eggs and young birds.

The Countryside Alliance said: “Jackdaws, along with other generalist corvid predators, are well documented as nest predators, being particularly damaging to passerines - many of which are red or amber listed.... The fact that Jackdaws live in large colonies means that wherever they occur they can be excessively damaging.”

By contrast, the RSPB said: “Whilst jackdaw is a known predator of other birds’ nests, we are not aware of any clear, consistent evidence that implicates jackdaws in the decline of other species, and certainly not to the extent of justifying unlimited, unregulated and unmonitored killing under General Licence authority.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-low** strength of evidence for an impact of jackdaw on the **conservation of wild birds**.

Studies did not always differentiate between the impact on red, amber and green-listed birds but, where they did, the strength of evidence varied between different avian groups:

- Overall, there is **low-medium** strength of evidence for an impact of jackdaw on the **conservation of red-listed wild birds**.

What do the strength of evidence categories ‘medium-low’ and ‘low-medium’ mean?

Medium-low means that there is some likelihood that some predation occurs in some circumstances, and that this effect is on individual animals but unlikely having a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Low-medium means that it is very unlikely that predation occurs as predominantly nil/low strength of evidence for predation.

Detailed consideration of evidence of impact

The APHA Species Report provides the following evidence:

21 interactions[11] in the scientific literature considered jackdaw predation on wild birds. For discussion here are only those with a medium or high level of scientific rigour. Almost three times as many found low/nil impact as found an impact. However, two thirds of all the interactions with high strength of evidence were influenced by confounding variables[12] and so could not attribute the impact to jackdaw.

The strength of evidence for jackdaw does not support the hypothesis that they have a detrimental impact on the conservation status of other species of wild birds. Some limited nest predation may occur, but it is not at a level that may have any impact.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c)

The responses to our survey suggest there is some identified need to control jackdaw, where they predate on some wild birds. Respondents have shared direct [proximate] experience of jackdaws predating on the eggs and / or chicks of other wild birds, with respondents stating songbirds were often the predated species group. In addition to these direct [proximate] impacts, some respondents said that jackdaw populations had increased while songbird populations have decreased.

Given that predation is a natural process, user evidence of witnessing predation by jackdaws is not sufficient to be able to issue a general licence for the purpose of conservation. This requires testing the scientific evidence for population-level impacts on prey species.

The scientific evidence suggests that some predation by jackdaw on other wild birds may occur. However, the findings of the APHA Species Report are insufficient to demonstrate that there is any kind of population level impact on predated wild bird species. So, whilst respondents may have witnessed nest predation by jackdaw on songbirds, or other species, there is no evidence that this predation is impacting the conservation status of these wild bird species.

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[11] An interaction is a record in a scientific paper of a predator preying upon a prey species, or a species exposing humans to its pathogens. A paper that considered a single predator and several prey species would therefore have several interactions.

[12] A confounding factor is something, other than the thing being studied, that could be causing or contributing to the results seen in a study. For example, predator removal studies that state ‘corvids’ rather than differentiating species, simultaneous treatments such as removing predators and also manipulating the environment, using artificial nests that do not necessarily represent natural nests.

It is worthy of note that there are fewer scientific studies involving the jackdaw (21) than for crow and magpie (97 and 54 respectively). There is no reason to suppose that the jackdaw is understudied (indicating an evidence gap), nor that this under-studying is masking finding population effects of their predation on other species.

Firstly, many studies referred to a suite of predators that were removed, so it was overall predator reduction, prey response, and also at times landscape management that were being measured. This must mean that jackdaw features very much less frequently in such predator suites compared to other species. There will be relatively few opportunities to engage in such studies, so it is unlikely that those involved in the studies would be unduly selective in what is included e.g. the gamekeeper who will do the removal.

Secondly, the jackdaw population has grown very significantly in the past 25 years (by around 70%), and yet it has not featured in many studies.

We conclude that there is not a genuine need in this case.
We do not recommend that jackdaw should be included on general licence under s.16(1)(c) for the purpose of conserving wild birds

Conservation of Fauna

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

757 (29%) respondents to this question identified a need to include jackdaw on general licence for the purpose of conserving fauna.

The main reason respondents identified for including jackdaw for this purpose was that they predate on small mammals, amphibians and reptiles.

Most respondents who identified a need to include jackdaw for this purpose provided simple statements like “jackdaws attack rabbits” as reasons why jackdaw should be included on general licence to conserve fauna.
One respondent said: “Jackdaws predate on small birds and other vulnerable animals and with no natural predators, need controlling.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

90 (25%) respondents to this question said jackdaw should not be on general licence for the purpose of conserving fauna.

The main reason provided for not including jackdaw for the conservation of fauna were that they were better controlled through individual licences.

Organisational Responses

8% of 148 respondents to the NFU survey selected jackdaw to be included on general licence for the purpose of conservation of fauna.

BASC said that jackdaw did not need controlling under general licence to conserve fauna.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw for the conservation of fauna.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control jackdaw to conserve fauna, this was limited. There was no scientific evidence identified in the APHA Report that identified an impact of jackdaw on the conservation of fauna.

We conclude that there is not a genuine need in this case.
We do not recommend that jackdaw should be included on general licence under s.16(1)(cb) for the purpose of conserving fauna.

Conservation of Flora

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

507 (19%) respondents to this question identified a need to include jackdaw on general licence for the purpose of conserving flora.

The main reason respondents identified for including jackdaw for this purpose was that they damage, or feed on, flora.

Most respondents who identified a need to include jackdaw for this purpose provided simple statements like “crop damage” and “Destruction of natural flora”.

One respondent said: “My own pastureland has been decimated this autumn by jackdaws digging for grubs.”

Another respondent said: “Excessive numbers of jackdaws damage crops, grassland and wild animal habitat and food stocks to the extent that the habitat then cannot support normal populations of indigenous and sometimes at-risk species.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

86 (24%) respondents to this question said that jackdaw should not be included on general licence for the purpose of conserving flora.

The main reason provided for not including jackdaw for the conservation of flora were that they were better controlled through individual licences.

Organisational Responses

There was very little information provided to support the need to include jackdaw on general licence to conserve flora. Some organisations cited damage to crops caused by jackdaw.

BASC said that jackdaw did not need controlling under general licence to conserve fauna.

Likewise, the RSPB and Born Free Foundation said there was no need to include jackdaw for the purpose of conserving flora and that individual licences would be a better mechanism for regulating such control.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw for the conservation of flora.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control jackdaw to conserve flora, this was limited. Respondents cited damage to crops caused by jackdaw in some cases, but this is likely to reflect a need to prevent serious damage rather than to conserve flora. There was no scientific evidence identified in the APHA Report that identified an impact of jackdaw on the conservation of flora.

We conclude that there is not a genuine need in this case.

We do not recommend that jackdaw should be included on general licence under s.16(1)(cb) for the purpose of conserving flora.

Jay

1,436 respondents identified a need to include jay on the conservation general licence and 206 said that it should be removed (for all conservation sub-categories, ‘wild birds’, ‘fauna’ and ‘flora’).

Conservation of Wild Birds

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

1,391 (53%) respondents to this question identified a need to include jay on general licence for the purpose of conserving wild birds.

The main reasons respondents identified for including jay for this purpose was that they kill or take the chicks or eggs of other wild birds. The species group most often mentioned as being impacted by jay predation was songbirds.

The majority of respondents who identified a need provided simple statements like “jays kill the chicks of other birds” and “raiding wild birds nests”, without going into detail regarding specific species or circumstances, as reasons why jay should be included on a general licence to conserve wild birds.

Where more detailed information was provided by respondents, they described how they had observed over a number of years an increase in jay populations, and a corresponding decrease in populations of other birds, including songbirds and smaller birds. Other respondents cited the BTO Breeding Bird Survey (no specific edition cited) to support their observations of increased jay numbers.

Respondents described how they had seen jays kill or take chicks or eggs of other birds in the spring, during the nesting season. They told us how they believed acting under the existing general licence to control jay had helped with the recovery of other species. They noted conversely that, when little or no control was possible or carried out, prey species population losses were noted.

One respondent said: “Jays predate songbird nests. Although numbers in the area I live in are still reasonably low they have certainly become more prevalent in recent years. I have witnessed them raiding bird nests and would shoot them if I felt they posed a detrimental threat in a particular area.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

189 (52%) respondents who answered this question considered that jay should not be included on a general licence to conserve wild birds.

One respondent said: “I know of no studies demonstrating that Jays cause nature conservation problems. I know of no land owning nature conservation organisation that kills Jays for conservation (or any other) purposes. If there are any rare instances where Jays cause problems for nature conservation interests then application in writing for specific licences to deal with specific issues would be a perfectly adequate remedy.”

Organisational responses

13% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control jay and of those 96% gave conservation as a reason. GWCT said: “Almost all jay control is carried out for conservation reasons, with respondents specifying impacts on songbirds, hedgerow birds, ground nesting birds and woodland birds, with several participants mentioning spotted flycatchers. Jays are considered to cause damage predominantly by taking eggs but also chicks.”

47% of the 148 respondents to the NFU’s online survey, undertaken to inform its response to Defra’s survey, considered there was a need to control jay to conserve wild birds. Many of their respondents referred to the predation of eggs and chicks by jay.

The Tenant Farmers Association (TFA) said in relation to jays that they “prey on ground nesting birds which both farmers and the Government are trying to protect”.

The Great Broughton Woodpigeon Club said that jays “being secretive, woodland birds are less frequently observed but still cause serious damage, especially to the song bird population, and can be seen venturing into gardens in spring in search of nests to predate”.

SongBird Survival referred to research that has “shown that Jays are one of the major predators of woodland-nesting song and other small birds”.

In contrast, Wild Justice said: “We know of no studies demonstrating that jays cause nature conservation problems….if there are any rare instances where jays cause problems for nature conservation interests, then application in writing for specific licences to deal with specific issues would be a perfectly adequate remedy.”

The RSPB said: “we are not aware of any clear, consistent evidence that implicates jays in the decline of other species, and certainly not to the extent of justifying unlimited, unregulated and unmonitored killing under General Licence authority.”

The Born Free Foundation said in relation to a number of corvid species, including jay, that it knows of “no studies demonstrating that jays cause nature conservation problems….or land-owning nature conservation organisation that kills jays for conservation (or any other) purposes”.

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-high** strength of evidence for an impact of jay on the **conservation of wild birds**.

Studies did not always differentiate between the impact on red, amber and green-listed birds but, where they did, the strength of evidence varied between different avian groups:

- Overall, there is **high-medium** strength of evidence for an impact of jay on the **conservation of red-listed wild birds**.
- Overall, there is **high-medium** strength of evidence for an impact of jay on the **conservation of green-listed wild birds**.

What do the strength of evidence categories ‘high medium’ and ‘medium high’ mean?

High-medium means moderate likelihood that high predation occurs in some circumstances with an effect on breeding success and/or breeding numbers that has the potential to affect the local conservation status of the prey species.

Medium-high means some likelihood that high predation occurs in some circumstances with an effect on breeding success and/or breeding numbers that has the potential to affect the local conservation status of the prey species.

Note that the effect determined by these correlative and experimental studies was most frequently proximate (predation), and infrequently ultimate (breeding population change of the prey species).

Detailed consideration of evidence of impact

The APHA Species Report provides the following evidence:

33 interactions[13] in the scientific literature considered jay predation on wild birds. For discussion here are those with a medium or high level of scientific rigour (32 of the 33). Almost twice as many of these found an effect (i.e. jays predate nests and chicks) than did not, hence the medium-high strength of evidence. However, one-third of all the interactions with high strength of evidence could have been influenced by the use of artificial nests. These nests could have caused spurious associations but were not treated separately in the study (this is known as a confounding variable[14]). More positively, all of the high-impact studies used cameras at real nests and most identified jay as a key nest predator.

Virtually all the studies that found an effect were of species that are native to England[15] and occur in woodland and woodland edge[16].

Where possible, these interactions can be broken down further by 'Birds of Conservation Concern' status:

- Red-listed species: twice as many interactions showed an effect as did not, resulting in High-Medium evidence;
- Amber-listed species: The number of studies for Amber-listed species was too few (1) to draw conclusions; and
- Green-listed species: five times as many interactions showed an effect as did not, resulting in High-Medium evidence.

Conservation status of woodland birds, woodland, and their relationship

As effects are demonstrated but they are most frequently proximate (predation), rather than ultimate (breeding population change in prey species), and with the presence of confounding variables in some of the studies, we need to look at whether there are other relevant issues that should be considered.

The status of England's native woodland birds is of concern and continues to deteriorate, determined by comparing current and previous Birds of Conservation Concern lists.

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[13] An interaction is a record in a scientific paper of a predator preying upon a prey species, or a species exposing humans to its pathogens. A paper that considered a single predator and several prey species would therefore have several interactions.

[14] A confounding factor is something, other than the thing being studied, that could be causing or contributing to the results seen in a study. For example, predator removal studies that state ‘corvids’ rather than differentiating species, simultaneous treatments such as removing predators and also manipulating the environment, using artificial nests that do not necessarily represent natural nests.

[15] Whilst not all studies considered were conducted in England or the UK, they were of species native to the UK.

[16] One study from the Czech Republic was of a species that is considered a woodland species there due to the mosaic woodland/scrub/farmland environment it occupies, but in England is a farmland specialist, nesting in hedgerows, rough field margins and so on.. This study therefore supports the ‘woodland’ nature of the prey of jay, but does not itself need the species including in England as it occupies a different landscape niche and is hence less likely to be predated by jays.

The sub-optimal conservation status of woodland songbirds will not have been caused by a predator they have co-evolved with, all other factors remaining unchanged. Instead factors such as habitat degradation and loss, non-native species and climate change will cause pressures in England, and for those species that are migratory, will also operate in other parts of their range. These pressures will cause the conservation status of woodland songbirds to decline. Some of them will act directly, by reducing the number of breeding territories or making food scarce. Some may increase the exposure or sensitivity of woodland songbirds to predation pressures by their native predator, for example by giving the predator an advantage in finding nests in an altered habitat (exposure), elevating the over-winter survival of predators due to additional food availability (exposure), or reducing the fitness of the prey due to food stresses that may then reduce their nest success (sensitivity).

Specifically considering habitat degradation and its potential impact on the conservation of woodland songbirds, native woodland ecological condition in England is sub-optimal: 90% is in intermediate condition, 9% in favourable condition and 0.5% in unfavourable condition.

This predominantly intermediate condition is due to fragmentation and low levels of older and veteran trees, with herbivore damage, low deadwood levels, invasive species and pests and diseases also implicated.

https://www.forestresearch.gov.uk/documents/7548/FR_NFI_Condition_Scoring-Results_England.pdf

Evidence is available that also relates this intermediate condition, and especially the fragmented nature of the woodland, to bird populations. A 2019 government indicator (UK biodiversity indicators 2019 Revised, jncc.gov.uk/ukbi) demonstrated a decline since 1996 in how connected woodland bird populations are to each other, and this will be caused by woodland fragmentation.

Together this evidence describes woodland condition that is predominantly less favourable in most places and is contributing to a detrimental effect on woodland bird populations through pressures such as population fragmentation.

Considering a precautionary decision based upon the science

The scientific evidence clearly demonstrates jay predation on a range of woodland species but does not demonstrate that predation by jay alone is causing a population effect on those species. There are a number of factors that are causing national population declines in woodland bird species. Taken together a precautionary decision to permit lethal control could be appropriate. This decision could be to act to reduce predation pressure on woodland birds to contribute to their local conservation status, because solutions to the other causes are not available, or where they are available, these may be more effective if supported by predator control.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c)

The responses to our survey suggest there is an apparent identified need to control jay, where they predate on some wild birds. Respondents have primarily shared experience of jay predating on the eggs and / or chicks of other wild birds. Respondents described having witnessed jay taking the eggs and / or killing the chicks of wild birds, several species of which are red or amber listed. A smaller number of respondents, in addition to these predation (proximate) impacts, considered that the control of jay (including control under general licence) had resulted in recovery of some prey species, at a breeding population level. Respondents most commonly identified songbirds as the category of wild birds subject to predation of eggs and / or chicks by jay.

Given that predation is a natural process, user evidence of witnessing predation by jays is not sufficient to be able to issue a general licence for the purpose of conservation. This requires testing the scientific evidence for population-level impacts on prey species.

Analysis of the evidence in the APHA Species Report combined with consideration of wider relevant issues support consideration of making a precautionary decision to issue a general licence in this instance. Due to the conservation status of native woodland songbirds and the condition of native woodland, a general licence for lethal control of jay could contribute to reducing pressure on native woodland songbirds of conservation concern, by reducing nest and chick predation.

It is relevant that respondents consider that the jay population is artificially high or has increased, because the national trend has been stable for the past c.20 years, although there are regional increases and decreases. Elevated jay populations and the poor conservation status of prey do not solely result from jay predating other native birds, although identified predation levels could impact local status. Instead the jay and the prey species that have co-evolved together are being differently affected by human pressures. The most likely are:

- the generalist feeding jay is able to exploit additional over-winter food from, for example, released gamebird carrion, that is not available to the feeding specialist prey species, causing the predator to have a higher breeding population than would be expected;
- conversely the specialist feeders are detrimentally affected by the poor ecological condition of the habitat e.g. poor autumn mast, and so have a depressed breeding population and lower individual fitness leading to lower nest productivity;
- the predator is better able to find nests as a degraded habitat leaves them more exposed; and
- other landscape changes, such as changes to food and shelter in field margins, and loss of winter stubble, shift the competitive relationship towards advantage for the generalist jay.

These different results of human pressures cause or exacerbate predation effect. It is this relationship that respondents describe when they state that by controlling jay they have increased the population of other species. At most that reduction in predation effect is offsetting the described causes of it being elevated. It is also plausible that control is not having an effect, and instead other measures that shift the competitive ratio back a little away from the generalist jay are taking place.

In conclusion, there is sufficient scientific evidence of the risks to woodland bird species and that reducing predation can ameliorate some of the other pressures upon them to warrant control of jays.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

The jay, woodlands, and woodland birds are all widespread in England; jay occurs in most 10km squares. The woodland bird conservation problem is also similarly widespread as is the condition of woodland. Together these suggest a general licence is appropriate.

Lethal control is a tool that could be used pending the success of other interventions that aim to restore these woodland bird populations by addressing the ultimate pressures throughout their range, so ultimately removing the need for future control of jay with which native woodland songbirds have co-evolved.

Consideration was given to limiting the control to red-listed woodland species only. This was because the number of studies for amber-listed species was too few to draw conclusions. It was concluded that, because the conservation status of woodland species is worsening over time, and because both the timing of studies and their assessment for this purpose are moments in time when the conservation statuses are at one level, but may then vary over time, it is appropriate to consider amber-listed species as well.

We have considered whether to restrict where and when lethal control of jay is allowed under general licence for the purpose of conserving wild birds.

We judge that limiting general licence activity by geography would run counter to the broad intent of contributing to conservation outcomes. Location and species-specific restrictions would be complex to define. They would also be:

- slow to adapt to changes in range e.g. Atlases of the ranges of breeding and wintering birds are produced rarely;
- coarse in scale e.g. we would expect to see prey birds respond to landscape and ecosystem improvements as we implement the 25 Year Environment Plan and the scale of that response may differ from the scale of any geographical restrictions; and
- hard to communicate and use e.g. involving overlapping spatial definitions by species.

Spatial limitation to limit control of jay to areas in and on the edges of woodlands (as any conservation impact is only on woodland birds) was considered but it was very difficult to specify with sufficient certainty what constitutes woodland and woodland edge. Instead, limiting the control of jay to a purpose of conserving woodland species achieves the same effect as jay is a predominantly woodland bird.

Another way in which the general licence could be further tightened is by limiting the time of year when action can be taken. The greatest predation threat to the conservation of wild birds is during the breeding season, because it is the eggs and chicks that are the target of predation.

Firstly, there is the practicality of defining any time of year precisely. The “breeding season” will vary with latitude and between years (the UK Spring Index ‘timing of biological

spring' has varied by around 23 days since 1999), and is advancing (since 1999, the annual mean observation date is 6 days in advance of the early 20th century equivalent). This will affect nesting dates.

Beyond this, a particular issue to consider is around animal welfare. The current general licences encourage control outside of the breeding season wherever possible to protect dependent young. The proposed new general licences also encourage this – they state in the advisory section: "To protect the welfare of dependent young, you should avoid lethal control of birds under this licence during the breeding season whenever possible, by acting under this licence at other times of year or using non-lethal methods of control."

Restricting lethal control under the conservation general licence to the breeding season would not mean that such control could not take place at other times, but people wishing to do this would need to apply for an individual licence. We believe that this requirement would encourage more control during the breeding season and reduce sensible anticipatory action at other times. Such anticipatory action could involve lethal control before the breeding season to reduce the breeding population of the predator species, with the intention of lessening the need for lethal control when there are dependent young.

On balance, therefore, in relation to the conservation purpose we recommend retaining flexibility for users to control birds all year round under a general licence, to avoid an increase in animal welfare issues related to dependent young and to allow control to happen at the most effective time in the specific circumstances.

We recommend that jay should be included on general licence under s.16(1)(c) for the purpose of conserving red and amber-listed woodland birds.

Conservation of Fauna

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

579 (22%) respondents to this question identified a need to include jay on general licence for the purpose of conserving fauna.

The main reason respondents gave as to why jay should be on general licence to conserve fauna was that they kill other wild animals. Respondents also said that jay consume or damage some habitats, and that they outcompete other native species.

Most respondents who identified a need provided simple statements like "jays predate on animals" as reasons why jay should be included on a general licence to conserve fauna.

One respondent said: "I have also observed them [jays] predating reptiles, including lizards, slow worms and adders.".

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

104 (29%) respondents to this question said that jay should not be on general licence for the purpose of conserving fauna.

The main reasons provided for not including jay for the conservation of fauna were that they were better controlled through individual licences.

Organisational responses

The Game and Wildlife Conservation Trust (GWCT) survey provided no evidence of conservation impact of jay on fauna. It went on to say that there was no need to include jay on general licence for this purpose.

BASC also said that, in the light of insufficient evidence, jay should not be on general licence to conserve fauna.

The RSPB and Born Free Foundation said there was no clear evidence of a need to include jay on general licence for the purpose of conserving fauna.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jay for the conservation of fauna.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control jay to conserve fauna, this was limited. There was no scientific evidence identified in the APHA Species Report that identified an impact of jay on the conservation of fauna.

We conclude that there is not a genuine need in this case.

We do not recommend that jay should be included on general licence under s.16(1)(cb) for the purpose of conserving fauna.

Conservation of Flora

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

229 (9%) respondents to this question identified a need to include jay on general licence for the purpose of conserving flora.

The main reasons respondents gave as to why jay needed to be on general licence to conserve flora was that they damage flora.

For example, tree damage caused by feeding on forming buds and stripping of blossoms was mentioned. Several respondents said that jays also serve a positive purpose in burying seeds such as acorns.

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

102 (28%) respondents to this question said that jay should not be on general licence for the purpose of conserving flora.

The main reasons provided for not including jay for the conservation of flora included that they were better controlled through individual licences.

Organisational responses

The RSPB and Born Free Foundation said there was no clear evidence of a need to include jay on general licence for the purpose of conserving flora.

BASC also said that, in the light of insufficient evidence, jay should not be on general licence to conserve flora.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jay for the conservation of flora.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control jay to conserve flora, this was limited. There was no scientific evidence identified in the APHA Report that identified an impact of jay on the conservation of flora.

We conclude that there is not a genuine need in this case.

We do not recommend that jay should be included on general licence under s.16(1)(cb) for the purpose of conserving flora.

Magpie

2,067 respondents identified a need to include magpie on the conservation general licence and 133 said that they should be removed (for all conservation sub-categories, ‘wild birds’, ‘fauna’ and ‘flora’).

Conservation of Wild Birds

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

2,002 (76%) respondents to this question identified a need to include magpie on general licence for the purpose of conserving wild birds.

The main reasons respondents identified for including magpie for this purpose were that they kill or take the chicks or eggs of other wild birds. Most respondents who identified a need to control magpie for this purpose backed this up with simple statements like “magpies kill the chicks of other birds”, without going into specifics on species or circumstances. In the small number of cases where more detail was given, the species group mentioned as being the most impacted was songbirds.

Where respondents provided more detail, they said that magpie has a significant impact on some wild bird populations if not managed. One respondent said: “over the last 10-15 years, I have witnessed an increase in the population of Magpies. These birds are indiscriminate robbers of eggs, and killers of live wild songbird chicks, especially, wrens, robins, tits and blackbirds, thrushes.”

Another respondent said that magpies were a “heavy predator of local species such as Reed Warblers. Marked increase in magpie numbers.”

Finally, another respondent stated that:

“Magpie numbers need to be controlled to lower the number of farmland bird and other bird nests predated. On our farm shoot we currently have good populations of: finch and bunting species, particularly Goldfinch, Greenfinch and Yellow Hammer: Songbirds such as Blackbird, Song Thrush and Skylark: Growing numbers of ground nesters including Lapwing, Pheasant and Partridge (both species) - the Pheasant and Red Leg Partridge are survivors of those released. Without the ability to keep magpie numbers in balance these populations would be reduced.

Every year I see evidence of predated eggs and destroyed/deserted nests - many of these due to magpies. Those incidences that are seen must only be a fraction of those occurring over the 1000 acres covered by our shoot. Improving the success of game bird breeding will eventually enable lower numbers of them to be released. Control is mostly by Larsen trapping and opportunist shooting authorised by a General License.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

125 (35%) respondents who answered this question considered that magpie should not be included on general licence to conserve wild birds.

The main reason given was that control would be better authorised through individual licences.

One respondent said that “There is no evidence that they impact on local bird populations” and cited a study on the impacts of corvids on bird productivity and abundance[17].

Another respondent said: “Continually persecuted through superstition, this species becomes abundant on neglected, waste land where no conservation measures have been applied to the flora and fauna, as well as where unwise farming, housing and road building policies have led to an impoverished environment which is only populated by this hardy bird.”

[17] Madden, C.F., Beatriz A., Amar, A. (2015) ‘A review of the impacts of corvids on bird productivity and abundance. Ibis: 157, 1-16’

Organisational responses

The Suffolk Wildlife Trust said in relation to one of their reserves that: “Last year we had our first successes with breeding avocets for many a year (fledging 8 chicks), following years of part-incubation, egg and chick losses to the usual culprits (large gulls, corvids, raptors, foxes etc). This was the first year of setting Larson traps to minimise magpie activity close to the breeding islands on site. These proved effective for some prospecting magpies that in the previous year had been witnessed taking eggs and young chicks.”

The GWCT cited the survey they undertook to inform the Defra GL survey: “More than half of the respondents control magpies and described the damage they can cause (1,583 responses). The overwhelming majority of those carrying out magpie control cite conservation reasons as their motivation. This included a range of effects, often reflecting those attributed to crows, being predominantly predation of songbird nests and chicks. Nest raiding, nest robbing, and nest predation were very frequently described.”

The Countryside Alliance said: “Magpies are prolific predators of nests, of both songbirds and game birds. There is well documented evidence that their presence reduces bird abundance. A 1993 study[18] demonstrated that just 5% of blackbird nests successfully fledged in urban environments that had a high density of magpies.”

The Tenant Farmers Association said that magpie prey on “living ground birds causing chicks to not survive, thus reducing the population of these birds.”

71% of the 148 respondents to the National Farmers Union (NFU) online survey, undertaken to inform its response to Defra’s survey, considered there was a need to control magpie to conserve wild birds as they are a major predator of nests and fledglings. Quotes provided from their members include: “Large increases in [Crows and] magpies have this year been blamed for loss of all of our sparrows and swallows”, “Wish to be able to control magpies so that they don’t prey on songbirds that thrive on our farm”, and “Magpies attack hedgerow nesting birds and ground nesting birds eating eggs and young chicks”.

In contrast, the RSPB said that “whilst magpie is a known predator of other birds’ nests, we are not aware of any clear, consistent evidence that implicates magpies in the decline of other species, and certainly not to the extent of justifying unlimited, unregulated and unmonitored killing under General Licence authority.”

Animal Aid said that it agreed with Wild Justice’s conclusions published on its website that: “There is no scientific justification for general licences to be issued to kill Jackdaws, Rooks, Jays or Magpies for the purpose of conserving wild birds. The science doesn’t show that these species have an important impact on native bird populations. There is no good scientific evidence that Jackdaw, Rook, Jay or Magpie cause long-term sustained

[18] D. W. Groom (1993) Magpie Pica pica predation on Blackbird Turdus merula nests in urban areas, Bird Study, 40:1, 55-62, DOI: 10.1080/00063659309477129.

declines in population levels of their prey species and there is therefore no justification for issuing general licences which would allow for their control on the grounds of protecting wild birds."

Animal Aid added that: “There is also evidence that the magpie population has become relatively stable since 1990 and “reached an ecological equilibrium[19]".”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-high** strength of evidence for an impact of magpie on the **conservation of wild birds.**

Studies did not always differentiate between the impact on red, amber and green-listed birds but, where they did, the strength of evidence varied between different avian groups:

- Overall, there is **medium** strength of evidence for an impact of magpie on the **conservation of red-listed wild birds**.
- Overall, there is **low** strength of evidence for an impact of magpie on the **conservation of amber-listed wild birds**.
- Overall, there is **low-medium** strength of evidence for an impact of magpie on the **conservation of green-listed wild birds**.

What do the strength of evidence categories ‘medium-high’, ‘medium’, ‘low-medium’ and ‘low’ mean?

Medium-high means some likelihood that high predation occurs in some circumstances with an effect on breeding success and/or breeding numbers that has the potential to affect the local conservation status of the prey species.

Medium means likely that some predation occurs in some circumstances with the level of predation having an effect on individual breeding pairs but unlikely at a level that has a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Low-medium means some likelihood that some predation occurs in some circumstances with the level of predation having an effect on individual breeding pairs but unlikely at a level that has a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Low means negligible likelihood that predation occurs as nil/low strength of evidence for predation.

[19] RSPB, https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-az/magpie/population-changes.

Note that the effect determined by these correlative and experimental studies was most frequently proximate (predation), and infrequently ultimate (breeding population change of the prey species).

Detailed consideration of evidence on impact

The APHA Species Report provides the following evidence:

54 interactions[20] in the scientific literature investigated magpie predation on wild birds. All 54 studies were a medium or high level of scientific rigour. Twice as many interactions found an effect (magpie predation) as did not, hence the medium-high strength of evidence. However, almost all the high strength of evidence interactions showing at least some impact could have been influenced by confounding variables[21] (mainly that magpie was one of several predators removed), thus preventing the evidence being attributed solely to magpie.

Where possible, these interactions can also be broken down further by 'Birds of Conservation Concern' status:

- Red-listed species: as many interactions found an effect as did not, resulting in Medium evidence;
- Amber-listed species: only one-fifth of interactions found an effect, resulting in Low evidence; and
- Green-listed species: twice as many interactions found no effect as found an effect, resulting in Low-Medium evidence.

The difference between the overall Medium-High impact from all studies and the lower impact in each case of the three conservation status subgroups is because 14 'high scientific rigour' interactions did not attribute effect to any specific prey species. They considered predation in habitat types instead: predation on birds in uplands (1), songbirds (7), farmland songbirds (1), farmland birds (1) ground-nesting birds (2) gamebirds (1), non-resident UK species (1). They are therefore not included in the separate red, amber and green breakdowns listed above.

Looking across the evidence suggests that the suite of predators (which is likely to include crow and fox, as well as other mammals) within which magpie has been included is active in many habitat types. However, due to this confounding variable, it can only be concluded that when magpie is removed as part of a suite of predators, the suite is identified as having a medium-high impact. The impact of the suite is most frequently

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[20] An interaction is a record in a scientific paper of a predator preying upon a prey species, or a species exposing humans to its pathogens. A paper that considered a single predator and several prey species would therefore have several interactions.

[21] A confounding factor is something, other than the thing being studied, that could be causing or contributing to the results seen in a study. For example, predator removal studies that state 'corvids' rather than differentiating species, simultaneous treatments such as removing predators and also manipulating the environment, using artificial nests that do not necessarily represent natural nests.

proximate (predation) and infrequently ultimate (breeding population). However, the contribution of magpie to that impact is unknown. It will certainly vary by habitat, prey community structure and predator community structure.

Conservation status of prey species

In addition to the scientific evidence found in the APHA Species Report, we have considered wider issues in order to inform a licensing decision in this case.

The suite of predators removed that include magpie predate species in many habitats, including some where the conservation status of prey is significantly sub-optimal such as upland and farmland. The sub-optimal conservation status of birds in these habitats will not have been caused by a predator they have co-evolved with, all other things being equal. Instead factors such as habitat degradation and loss, non-native species and climate change will cause pressures on many native birds in England and, for those species that are migratory, will also operate in other parts of their range. It is thought likely that at least some of these factors will increase the exposure or sensitivity to predation pressure effects by their native predator, for example by giving the predator an advantage in finding nests (exposure), elevating the over-winter survival of predators due to additional food availability (exposure), or reducing the fitness of the prey due to food stresses that may then reduce their nest success (sensitivity).

Considering a precautionary decision based upon the science

The scientific evidence demonstrates that a group of predators that are regularly removed by game keepers predate a wide range of other bird species but does not demonstrate what contribution magpie plays in this predation. Neither does it demonstrate that the suite of predators alone is causing a population effect on these species. There are multiple factors causing the decline of bird species across many habitats in England. Taken together, a precautionary decision to permit lethal control could be appropriate. This decision could be to act to reduce predation pressure on birds to contribute to their local conservation status, because solutions to the other causes are not available, or where they are available, they may be more effective if supported by predator control.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c)

The responses to our survey suggest there is an apparent identified need to control magpie, where they predate on some wild birds. Respondents have shared direct experience of magpie predating on the eggs and / or chicks of a number of other wild bird species. Respondents described having witnessed magpie taking the eggs and / or killing the chicks of wild birds, several species of which are red or amber listed. A number of respondents, in addition to these direct [proximate] impacts, considered that magpie populations had increased while their prey species had decreased.

Given that predation is a natural process, user evidence of witnessing predation by magpies is not sufficient to be able to issue a general licence for the purpose of conservation. This requires testing the scientific evidence for population-level impacts on prey species.

Analysis of the evidence in the APHA Species Report combined with consideration of wider relevant issues support consideration of making a precautionary decision to issue a general licence in this instance. Due to the concerning conservation status of a number of native red or amber listed bird species, a general licence for lethal control of magpie could contribute to reducing pressure on these species, by reducing nest and chick predation.

It is relevant that respondents regularly highlighted that the magpie population was artificially high. The national trend is stable, but there are regional variations with declines in the west and increases in the east of England. Elevated magpie populations and the poor conservation status of prey do not solely result from magpie predating other native birds with which they have co-evolved, all other factors remaining unchanged, although identified predation levels of the suite of predators with which magpie is associated could impact local status. Instead the magpie and the prey species that have co-evolved together are being differently affected by human pressures. The most likely are:

- the generalist feeding magpie is able to exploit additional over-winter food from, for example, released gamebird carrion, that is not available to the feeding specialist prey species, causing the predator to have a higher breeding population than would be expected;
- conversely the specialist feeders are detrimentally affected by the poor ecological condition of the habitat e.g. poor autumn mast and seeds, poor spring invertebrate abundance, and so have a depressed breeding population and lower individual fitness leading to lower nest productivity;
- the predator is better able to find nests as a degraded habitat leaves them more exposed; and
- other landscape changes, such as changes to food and shelter in field margins, and loss of winter stubble, shift the competitive relationship towards advantage for the generalist magpie.

These different results of human pressures cause or exacerbate predation effect. It is this relationship that respondents describe when they state that by controlling magpie, they have increased the population of other species. At most, that reduction in predation effect is offsetting the described causes of it being elevated. It is also plausible that control is not having an effect, and instead other measures that shift the competitive ratio back a little away from the generalist magpie are taking place.

The science differs from the user evidence in that it does not ascribe effect only to magpie, but rather to a suite of predators that regularly include magpie. The decision to use precaution therefore hinges on whether the risks to other bird species outweigh the benefits of excluding this one species from a suite of predators that will continue to be removed.

In conclusion, there is on balance sufficient scientific evidence of the risks to prey bird species and of the effects magpie may be having, that reducing predation can ameliorate some of the other pressures upon the birds of conservation concern, such that lethal control of magpie is warranted.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Lethal control is a tool that could be used pending the success of other interventions that aim to restore prey populations by addressing the ultimate pressures throughout their range, so ultimately removing the need for future control of magpie with which prey species have co-evolved.

Consideration was given to limiting the control to red-listed species only. This was because the studies for amber-listed species resulted in a 'low' strength of evidence score. It was concluded that, because the conservation status of amber-listed species is worsening over time, and because both the timing of studies and their assessment for this purpose are moments in time when the conservation statuses are at one level, but may then vary over time, it is appropriate to consider amber-listed species as well.

Considering the evidence, a general licence allowing the killing or taking of magpie is considered appropriate in principle.

Magpies and native birds of conservation concern are both widespread and we can conclude therefore that the circumstances in which lethal control may be necessary are also sufficiently widespread to warrant a general licence.

We have considered whether to restrict where and when lethal control of magpie is allowed under general licence for the purpose of conserving wild birds. Stakeholders have given the example of conservation of curlew, which has breeding grounds confined to certain parts of the country so argue that control of species that predate curlew eggs or chicks should be confined to those breeding grounds and not, for example, be permissible in counties like Cornwall where curlews are generally only found in winter.

We judge that limiting general licence activity by geography would run counter to the broad intent of contributing to conservation outcomes. Location and species-specific restrictions would be complex to define. They would also be:

- slow to adapt to changes in range e.g. Atlases of the ranges of breeding and wintering birds are produced rarely;
- coarse in scale e.g. we would expect to see prey birds respond to landscape and ecosystem improvements as we implement the 25 Year Environment Plan and the scale of that response may differ from the scale of any geographical restrictions; and
- hard to communicate and use e.g. involving overlapping spatial definitions by species.

Under the wild bird conservation purpose, we have taken the approach of analysing the scientific evidence, combined with consideration of wider relevant issues where appropriate to make precautionary decisions, our intent being to contribute to the conservation of red and amber-listed birds. Since both magpie and red and amber-listed bird species are widespread across the country, we judge that it is more efficient for the intent of the conservation purpose and less burdensome for the licensed user who we wish to deliver that intent, to not restrict it by species and location. However, the licence conditions are clear that authorised users need to have a valid reason for acting under the licence, which may be challenged if found to be inappropriate by an enforcement officer by reason of the location at which the activity is taking place for a particular purpose.

Another way in which general licences could be further tightened is by limiting the time of year when action can be taken. The greatest predation threat to the conservation of wild birds is during the breeding season, because it is the eggs and chicks that are the target of predation.

Firstly, there is the practicality of defining any time of year precisely. The “breeding season” will vary with latitude and between years (the UK Spring Index ‘timing of biological spring’ has varied by around 23 days since 1999), and is advancing (since 1999, the annual mean observation date is 6 days in advance of the early 20th century equivalent). This will affect nesting dates.

Beyond this, a particular issue to consider is around animal welfare. The current general licences encourage control outside of the breeding season wherever possible to protect dependent young. The proposed new general licences also encourage this – they state in the advisory section: “To protect the welfare of dependent young, you should avoid lethal control of birds under this licence during the breeding season whenever possible, by acting under this licence at other times of year or using non-lethal methods of control.”

Restricting lethal control under the conservation general licence to the breeding season would not mean that such control could not take place at other times, but people wishing to do this would need to apply for an individual licence. We believe that this requirement would encourage more control during the breeding season and reduce sensible anticipatory action at other times. Such anticipatory action could involve lethal control before the breeding season to reduce the breeding population of the predator species, with the intention of lessening the need for lethal control when there are dependent young.

On balance, therefore, in relation to the conservation purpose we recommend retaining flexibility for users to control birds all year round under a general licence, to avoid an increase in animal welfare issues related to dependent young and to allow control to happen at the most effective time in the specific circumstances.

We recommend that magpie should be included on general licence under s.16(1)(c) for the purpose of conserving red or amber-listed bird species.

Conservation of Fauna

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

936 (35%) respondents to this question identified a need to include magpie on general licence for the purpose of conserving fauna.

The main reason that respondents identified for including magpie for this purpose was that they kill other wild animals. Respondents also said that magpie consume or damage some habitats, and that they outcompete other native species.

Most respondents provided simple statements like “magpies predate on animals” as reasons why magpie should be included on a general licence to conserve fauna.

One correspondent said: “I have also observed them predating reptiles, including lizards, slow worms and adders”.

Another respondent said that “they cause significant damage to the young of other fauna such as leverets and frogs/toads”.

Another respondent said: “Their current populations (left uncontrolled) present a serious threat to a wide range of bird and mammal populations already under stress from industrial agriculture and over development.”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

83 (23%) respondents who answered this question considered that magpie should not be included on a general licence to conserve fauna.

The main reason provided for not including magpie for the conservation of fauna was that they were better controlled for this purpose through individual licences instead.

Organisational responses

BASC said that, in the light of insufficient evidence, magpie should not be controlled under general licence for this purpose.

The RSPB said that “we are not aware of any clear, consistent evidence that implicates magpies in the decline of other species, and certainly not to the extent of justifying unlimited, unregulated and unmonitored killing under General Licence authority”.

The Born Free Foundation said in relation to a number of corvid species, including magpie, that it knows of “no studies demonstrating that magpies cause nature conservation problems….or land-owning nature conservation organisation that kills magpies for conservation (or any other) purposes”.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie for the conservation of fauna.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control magpie to conserve fauna, this was limited. There was no scientific evidence identified in the APHA Species Report that identified an impact of magpie on the conservation of fauna.

We conclude that there is not a genuine need in this case.

We do not recommend that magpie should be included on general licence under s.16(1)(cb) for the purpose of conserving fauna.

Conservation of Flora

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

298 (11%) respondents to this question identified a need to include magpie on the general licence for the purpose of conserving flora.

The main reason given was that they damaged plants.

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

79 (22%) respondents who answered this question considered that magpie should not be included on a general licence to conserve flora.

The main reason provided for not including magpie for the conservation of flora was that they were better controlled for this purpose through individual licences instead.

Organisational responses

BASC said that, in the light of insufficient evidence, magpie should not be controlled under general licence for this purpose.

The RSPB said that "we are not aware of any clear, consistent evidence that implicates magpies in the decline of other species, and certainly not to the extent of justifying unlimited, unregulated and unmonitored killing under General Licence authority".

The Born Free Foundation said in relation to a number of corvid species, including magpie, that it knows of "no studies demonstrating that magpies cause nature conservation problems….or land-owning nature conservation organisation that kills magpies for conservation (or any other) purposes".

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie for the conservation of flora.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1) (cb)

Although responses to the Defra survey identified some need to control magpie to conserve flora, this was limited. There was no scientific evidence identified in the APHA Report that identified an impact of magpie on the conservation of flora.

We conclude that there is not a genuine need in this case.

We do not recommend that magpie should be included on general licence under s.16(1)(cb) for the purpose to conserve flora.

Rook

1,465 respondents identified a need to include rook on the conservation general licence and 145 said that it should be removed (for all conservation sub-categories, 'wild birds', 'fauna' and 'flora').

Respondents were able to select species against each of the three sub-categories under the conservation purpose (conservation of 'wild birds', 'flora' and 'fauna'). Results of the survey are broken down by these sub-categories for the survey questions A1 and A3 in Theme A (question A2 is dealt with in a separate section of this report).

Conservation of Wild Birds

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

1,204 (46%) respondents to this question identified a need to include rook on general licence for the purpose of conserving wild birds.

The main reason respondents identified for including rook for this purpose was that they kill or take the chicks or eggs of other wild birds. The majority of respondents who identified a need provided simple statements such as control of rook being necessary "to prevent predation of songbirds and smaller birds" and to limit "the stealing of young birds and eggs" without going into detail regarding specific species or circumstances. The species group most often mentioned as being impacted by rook predation was songbirds.

One respondent explained how they had "several large rookeries on the farm containing many hundreds of birds. We have observed them in large numbers feeding on pasture thus depriving other wild birds of food. We have observed these birds driving away other species."

Another said: "The rooks are getting out of hand they have no natural enemies so have to be controlled by shooting them, I go to a rookery every year on one of my permission farms in springtime in May to control the young rooks as they leave the nests I have been doing that for the last 15 years and the numbers never decrease."

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

138 (38%) of respondents to this question said that rook should not be on general licence for the purpose of conserving wild birds.

The main reason given was that control would be better authorised through individual licences.

A respondent said that rooks are responsible for "limited egg predation which is not a conservation issue at least in general, [although] a few examples of pressure on localised rare breeding waders [and] terns exist". This respondent also said that the "large rookery at Martin Down National Nature Reserve (NNR), [has had] no impact on large passerine population[s], breeding grey partridge, turtle dove, stone curlew or lapwing".

Organisational Responses

The Tenant Farmers Association (TFA) said, as it did with other corvid species: "We have had numerous examples of a lot of farmers up and down the country who frequently witness rooks destroying the nests and eating the eggs of ground nesting birds which both farmers and Government schemes are trying to protect such as the Skylark, the Meadow Pipit, and Reed Bunting to name just a few. Examples are from wide ranges of England such as Sussex, Devon and Cumbria."

The Countryside Alliance said: "There is a broad consensus that rooks predate nest sites… Because rooks occur in high population densities their effect can be severe in localised settings. Although the population of rooks has fallen in the UK, they remain a green listed species and are very abundant. They should therefore be included on the general licences."

17% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control rook and of those 33% gave conservation as a reason. GWCT said that rooks "are primarily controlled for agricultural reasons", but also that "they are reported to raid nests for eggs and chicks as well as attacking broods of ground-nesting birds."

In contrast, the RSPB said that "There is almost no evidence of conservation impact from rooks", citing research by Scottish Natural Heritage[22] which said that "there was no evidence that rooks are an important nest predator, or that they are likely to impact otherwise on the conservation of wild birds to support its inclusion on General Licence 1." It went on to say that "NRW have recently concluded that there is little or no published evidence that rooks are an important predator of the eggs/chicks of wild birds".

SongBird Survival said that "the evidence that rooks pose a significant threat to wild birds is unclear, and may be offset by the beneficial impact they have upon agricultural pests such as leather-jackets, weevils etc".

Wild Justice said that it knew of "no studies demonstrating that rooks cause nature conservation problems. We know of no land-owning nature conservation organisation that kills rooks for conservation (or any other) purposes. If there are any rare instances where rooks cause problems for nature conservation interests, then application in writing for specific licences to deal with specific issues would be a perfectly adequate remedy."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **low-medium** strength of evidence for an impact of rook on the **conservation of wild birds**.

[22] Newson, S.E., Calladine, J. & Wernham, C. 2019. Literature review of the evidence base for the inclusion of bird species listed on General Licences 1, 2 and 3. Scottish Natural Heritage Research Report No. 1136.

Studies did not always differentiate between the impact on red, amber and green-listed birds but, where they did, the strength of evidence varied between different avian groups:

- Overall, there is **medium strength** of evidence for an impact of rook on the **conservation of red-listed wild birds**.
- For conservation of amber-listed wild birds, the sample size is too small to be able to draw a meaningful conclusion

What do the strength of evidence categories 'medium' and 'low medium' mean?

Medium means likely that some predation occurs in some circumstances with the level of predation having an effect on individual breeding pairs but unlikely at a level that has a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Low-Medium means some likelihood that some predation occurs in some circumstances with the level of predation having an effect on individual breeding pairs but unlikely at a level that has a subsequent effect on breeding numbers or the local conservation status of the breeding population.

Detailed consideration of evidence of impact

The APHA Species Report provides the following evidence:

16 interactions[23] in the scientific literature considered rook predation on wild birds. For discussion here are only those with a medium or high level of scientific rigour. More than four times as many studies found low/nil effect as found an effect (i.e. rook predating nests and chicks).

The interactions can also be broken down further by 'Birds of Conservation Concern' status where specific species are noted in the studies. This gave impact for red-listed species of Medium, with sample sizes too low for amber- and green-listed.

The strength of evidence for rook is low and does not support the hypothesis that they have a detrimental impact on the conservation status of other species of wild birds. Some limited nest predation may occur, but it is not at a level that may have any population impact.

Recommendation

[23] An interaction is a record in a scientific paper of a predator preying upon a prey species, or a species exposing humans to its pathogens. A paper that considered a single predator and several prey species would therefore have several interactions.

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c)

The responses to our survey suggest there is a strong identified need to control rooks, where they predate on some wild birds. Respondents have shared direct [proximate] experience of rooks predating on the eggs and / or chicks of other wild birds, and in some cases cited songbirds as the group of birds most impacted by this predation. A smaller number of respondents suggested that there were population impacts of predation by rook on songbirds.

Given that predation is a natural process, user evidence of witnessing predation by rooks is not sufficient to be able to issue a general licence for the purpose of conservation. This requires testing the scientific evidence for population-level impacts on prey species.

The scientific evidence suggests some predation by rook on other wild birds may occur. However, the strength of evidence for rooks having a detrimental impact on the conservation status of other species of wild birds is low. So, whilst respondents may have witnessed nest predation by rook on songbirds, or other species, there is no evidence that this predation is impacting the conservation status of these wild bird species.

It is worthy of note that there are fewer scientific studies involving the rook (16) than for crow and magpie (97 and 54 respectively). There is no reason to suppose that the rook is understudied (indicating an evidence gap), nor that this under-studying is masking finding population effects of their predation on other species.

Firstly, many studies referred to a suite of predators that were removed, so it was overall predator reduction, prey response, and also at times landscape management that were being measured. This must mean that the rook features very much less frequently in such predator suites compared to other species. There will be relatively few opportunities to engage in such studies, so it is unlikely that those involved in the studies would be unduly selective in what is included e.g. the gamekeeper who will do the removal.

Secondly, whilst the decline in the rook population might at first sight be considered to have reduced the incidence of studies considering it, the decline has only been taking place for 15 years, before which there was a stable population.

We conclude that there is not a genuine need in this case.

We recommend that rook should not be included on general licence under s.16(1)(c) for the purpose of conserving wild birds.

Conservation of Fauna

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

753 (28%) respondents to this question identified a need to include rook on general licence for the purpose of conserving fauna.

The main reason respondents gave for including rook on general licence to conserve fauna was that they kill other animals. Respondents also cited habitat damage and that rooks carry disease.

Most respondents who identified a need to include rook for this purpose provided simple statements like “They eat small mammals”, including mice, hedgehogs, red squirrels and voles.

One respondent said: “They are also known predators of bats however the impact they have on bat populations is unknown (Speakman, 1991).”

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

84 (23%) respondents to this question said that rook should not be included on general licence for the purpose of conserving fauna.

The main reason people said for not including rook for the conservation of fauna was that they were better controlled for this purpose through individual licences instead.

Organisational responses

In relation to the rook, BASC said: “They are also known predators of bats however the impact they have on bat populations is unknown (Speakman, ‘The impact of predation by birds on bat populations in the British Isles’ 1991). Further research is needed in this area to investigate the scale of damage caused by this species before it is removed from the general licence to prevent any potential damage occurring.”

The RSPB and Born Free Foundation said there was no clear evidence of a need to include rook for the purpose of conserving fauna and that individual licences would be a better mechanism for regulating such control.

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There was one review in relation to rook for the conservation of fauna (Speakman 1991), that includes rook amongst the list of bird species recorded to have predated on bats.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control rook to conserve fauna, this was limited. There was only one piece of scientific evidence identified in the APHA Species Report that identified predation of bats by rook.

We conclude that there is not a genuine need in this case.

We do not recommend that rook should be included on general licence under s.16(1)(cb) for the purpose of conserving fauna.

Conservation of Flora

A.1. Which bird species do you consider need to be controlled under general licence for conservation purposes and why?

687 (26%) respondents to this question identified a need to include rook on general licence for the purpose of conserving flora.

The main reasons respondents identified for including rook for this purpose was that they damage or feed on flora.

Most respondents provided simple statements like “crop damage” and “rook have a veracious appetite for our cereal crops and can congregate in their hundred's and cause untold damage”. These reasons relate to the serious damage licence rather than the conservation licence purpose.

One respondent said: “Seen damaging flora in SSSI.” Others referred to damage to habitat for example “cause loss of habitat for other bird species”.

Similarly, where more detailed information was provided, respondents pointed to crop damage.

A.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

82 (23%) respondents to this question said they did not want rook included on general licence for the purpose of conserving flora.

The main reason that respondents said that they did not want rook included on general licence for the purpose of the conservation of flora mirror those given for the conservation of wild birds, i.e. that they were better controlled through individual licences. Most respondents provided simple statements to support their view.

One respondent said: “No evidence that the rook exerts a significant detrimental effect on species of conservation concern.” Another said: “Given their diet is largely worms/grubs…I don’t perceive them as a significant threat to UK flora.”

Organisational Responses

The Game and Wildlife Conservation Trust (GWCT) said that “rooks damage headlands that are planted with wild bird seed mix and therefore farmland birds do not benefit as they should from this agri-environment measure”.

BASC said that, in the light of insufficient evidence, rook should not be controlled under general licence for this purpose.

The RSPB and Born Free Foundation said there was no clear evidence of a need to include rook for the purpose of conserving flora and that individual licences would be a better mechanism for regulating such control.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to rook for the conservation of flora.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(cb)

Although responses to the Defra survey identified some need to control rook to conserve flora, this was limited. There was no scientific evidence identified in the APHA Report that identified an impact of rook on the conservation of flora.

We conclude that there is not a genuine need in this case.

We do not recommend that rook should be included on general licence under s.16(1)(cb) for the purpose of conserving flora.

Theme B – Purpose 'to preserve public health or public safety'

Respondents were able to select species against each of the four sub-categories for the survey questions B1 and B3 in Theme B (question B2 is dealt with in the 'additional species' section of the main report).

Carrion crow

790 respondents identified a need to include carrion crow on the public health and public safety general licence and 115 said that they should be removed (for all public health and public safety sub-categories, 'prevention of slips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

Prevention of Slips and Falls

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

164 (8%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing slips and falls.

The main reason respondents identified the need for including carrion crow for this purpose was that they leave faeces on paths and other surfaces. Other reasons included the risk of human disease transmission, the risk of human injury from nesting or scavenging birds and too many birds.

The majority of respondents who identified a need provided simple statements like "present a slip hazard for public on metaled surfaces" and "Droppings in and around grain stores".

One respondent said: “Carrion crow excrement poses a slip hazard as well as potentially spreading harmful bacteria to humans when the crows are present in high densities in areas such as farm yards and urban areas such as parks etc.”

Another said: “Populations can build to significant levels locally, particularly in public environs as a species well adapted to exploit human habitation. Droppings in public places present an[sic] health and safety issue [such as] slips / trips and falls.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

100 (58%) respondents who answered this question considered that carrion crow should not be included on general licence for the purpose of preventing slips and falls.

Where reasons were given, the majority of respondents who said that carrion crow should not be on general licence for this purpose backed this up with simple statements such as that there was no evidence of a risk or that alternative solutions should address the issue.

One respondent said: “As carrion crows nest in trees, usually some distance from houses, I fail to see how they present a risk to public health or public safety except in the rarest of occasions. This risk would be expected to be the same as that of other birds that are not included on this licence, and therefore it does not seem correct to include this species.”

Organisational responses

1% of the NFU’s survey respondents indicated that carrion crow should be included on general licence for this purpose. No supporting statements from their respondents were submitted.

The Born Free Foundation said: “General licences have no place in controlling wild birds for the purpose of public health and safety. The need for any control of wild birds should be considered utilising decision-making resources, such as the International Consensus Principles for Ethical Wildlife Control, and where lethal control is deemed necessary it should be strictly limited and monitored by specific licence to allow only the minimum number of birds to be targeted in order to achieve the required outcome.”

Wild Justice said: “DEFRA has no idea how many crows have been killed, allegedly for this purpose. Our guess is very few and the onus is on DEFRA to provide the evidence for widespread, regular and common need not me to provide evidence from a current licensing system that collects no data. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested.”

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to carrion crow and the prevention of slips and falls.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Although responses to the Defra survey identified an apparent need to control carrion crow for the purpose of preventing slips and falls, this was very limited. The APHA Species Report did not identify any relevant studies in relation to the purpose of preventing slips and falls.

We conclude that there is not a genuine need in this case.
We do not recommend that carrion crow should be included on general licence under s.16(1)(i) for the purpose of preventing slips and falls.

Spread of Human Disease

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

357 (18%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing the spread of human disease.

The main reasons respondents identified for including crow for this purpose were the risk of human disease transmission, crows being carriers of disease, and faeces on paths and other surfaces. Specific diseases picked out were Avian Flu, paratuberculosis, West Nile Virus, Escherichia coli, Listeria, Campylobacter and salmonella which could be passed onto humans via food contamination if not directly.

One respondent said: “This species forms large flocks (often with other species) that deposit large quantities of faeces. This can lead to the potential spread of disease and bacterial infection when humans come into contact with it…”.

Another respondent said: “Carrion Crow and other corvids should be controlled as their droppings contain numerous human pathogens such as Psittacosis; as such property owners need to be able to control the source of this hazard in order to meet their responsibilities under COSHH regulations.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

90 (53%) respondents who answered this question considered that carrion crow should not be included on general licence for the purpose of preventing the spread of human disease.

Where reasons were given, the majority of respondents who said that carrion crow should not be on general licence for this purpose backed this up with simple statements such as that alternative solutions should address the issue, there was insufficient risk, and that lethal control should not be an option.

One respondent said: “This species does not appear to cause enough genuine health and safety problems to warrant a general licence. I believe that applications should be made and assessed individually.”

Organisational responses

The Tenant Farmers Association said: “These birds are scavengers and are so overpopulated, in recent research, Prions—the infectious proteins that cause illnesses such as mad cow disease, scrapie, chronic wasting disease and Creutzfeldt-Jakob disease—can pass through the digestive systems of crows. These birds have no predator and if they cannot be controlled then obviously this will cause a huge issue to health and safety of animals and humans and an imbalance of nature.”

BASC said: “Corvids are known to be carriers of a range of diseases that have to [sic] potential to cause harm to humans, either directly or through the consumption of contaminated food products. Corvids may also exacerbate issues through their presence in livestock areas, scavenging infected prey, and travelling wide distances (Daniels et al., 2003). Avian influenza has been found in corvids and this poses a disease risk to livestock through direct and indirect contact (e.g. contamination of feed, water, bedding and equipment) which in turn could pose a risk to humans.”

The Game & Wildlife Conservation Trust (GWCT) said that 46% of respondents to their survey identified a need to control crow and of those 5% gave public health as a reason. 7% of the 148 respondents to the NFU’s online survey identified a need for crow control to prevent the spread of human disease. No supporting statements from their respondents were submitted regarding public health.

In contrast, the RSPB said: “We observe that presence of microorganisms – including pathogens - in the faeces of wild birds is hardly unexpected. The ability of these to transmit to humans etc. in situations that pose a threat to health will be determined by specific circumstances.

Carrion crows appear to pose no risks that would be mitigated by this licence and should not be included. In Natural Resources Wales own General Licence review they concluded that, in relation to crows, “there is little/no published scientific literature to demonstrate transmission of enteropathogens to humans (in Newson et al. 2019)”.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-low** strength of evidence for an impact of carrion crow on public health. However, this relates to the evidence for crow carrying pathogens common to humans; evidence for actual transmission of disease to humans is not shown.
- The latter reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission.

What does the strength of evidence category ‘medium-low’ mean?

Medium-low means it is likely that individuals of the species carry disease common to people but the transmission route is not shown.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified apparent need to control carrion crow for the purpose of preventing the spread of disease to humans.

The scientific literature shows evidence that carrion crow carry pathogens harmful to human health. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to human health unless there is significant exposure of humans that could enable transmission.

The scientific literature has either not demonstrated or not considered routes of transmission to humans. This represents a scientific evidence gap. User evidence could fill this gap if it demonstrated significant exposure of humans. Respondents to the survey, however, only occasionally indicated that there was exposure and provided little evidence for it.

In conclusion, the evidence for crows carrying pathogens is likely to be consistent with that of many or all other bird species. No routes of transmission or significant exposure of humans have been demonstrated either through the scientific or survey evidence, such that a common and widespread issue exists.

We conclude that there is not a genuine need in this case.

We do not recommend that carrion crow should be included on general licence under s.16(1)(i) for the purpose of spread of human disease.

Issues in Relation to Birds Nesting

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

637 (32%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing issues in relation to birds nesting.

The main reasons respondents identified the need for including carrion crow for this purpose were nesting, faeces on paths and other surfaces, and issues with carrion crows nesting in chimneys.

One respondent said: “They nest too close to or in buildings creating poo piles and a lot of noise. Picking at materials to take and use for nesting and stealing horse feed (straw).”

Another respondent said: “Chimney blockages increase in[sic] danger of fire and smoke damage.” In addition to building and structural related concerns, several respondents cited noise pollution with one respondent saying: “The concentration of crow nesting sites also creates a large amount of noise pollution which can have a detrimental effect on peoples physical and emotional health as these birds can make a significant amount of noise throughout the day but most especially in the morning and evenings.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

93 (54%) respondents who answered this question considered that carrion crow should not be included on general licence to prevent issues relating to birds nesting.

Where reasons were given, the majority of respondents who said that carrion crow should not be on general licence for this purpose backed this up with simple statements such as that alternative solutions should address the issue, there was insufficient risk, and that lethal control should not be an option.

One respondent said: “there is a lack of solid scientific evidence. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested.”

Another respondent said: “As carrion crows nest in trees, usually some distance from houses, I fail to see how they present a risk to public health or public safety except in the rarest of occasions. This risk would be expected to be the same as that of other birds that are not included on this licence, and therefore it does not seem correct to include this species.”

Organisational responses

22% of the 148 respondents to the NFU’s online survey identified a need for a need to control carrion crow to prevent issues in relation to birds nesting. No supporting statements were submitted from their respondents concerning this specific purpose with regard to crow nests themselves.

The Game & Wildlife Conservation Trust (GWCT) said that 46% of respondents to their survey identified a need to control crow and of those 5% gave public health as the reason. No supporting statements were submitted from their respondents concerning this purpose.

Wild Justice said: “DEFRA has no idea how many crows have been killed, allegedly for this purpose. Our guess is very few and the onus is on DEFRA to provide the evidence for widespread, regular and common need not me to provide evidence from a current licensing system that collects no data. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested. Charging for making a licence application would be a perfectly reasonable response to land managers who wish to be licensed to carry out an otherwise unlawful action.”

The National Pest Technicians Association did not express a need to be able to deal with crows’ nests for public health and safety purposes under general licence.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to carrion crow and issues with birds nesting.

Nesting behaviour

Carrion crows are fairly solitary, usually found alone or in pairs, although they may form occasional flocks.[24] Carrion Crows are solitary nesters, breeding pairs maintaining a large breeding territory (average 475 square meters) centred on the nest. However, crows from neighbouring territories may work together to see off intruders or potential predators.[25]

The nest which is a rather large structure based on sticks and twigs, with a deep cup thickly lined with soft materials, is usually built in the crown of a tall tree or cliff edge, but may also occasionally be built on man-made structures, e.g. an electricity pylon or a building ledge.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Respondents to the Defra survey identified an apparent need to control carrion crow in relation to their nesting activities and public health and public safety. However, the APHA Species Report did not identify any relevant studies.

Survey responses often described communal nesting in, on or around buildings and the problems it causes. However, crows are not communal nesters, instead building solitary nests, usually in trees, and defending territories. It is much more plausible that respondents are not differentiating between crows, jackdaws and rooks. We do not, therefore, consider that these responses require further consideration.

Combining the two evidence types does not indicate any general problem and may not even indicate a real problem caused by crows. We conclude that there is not a genuine need in this case.
We do not recommend that carrion crow should be included on general licence under s.16(1)(i) for the purpose of preventing issues with birds nesting.

Other Reasons

We included this category in the survey in case respondents wanted to raise other public health and public safety issues which did not fit into the other identified categories.

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[24] https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/carrion-crow/

[25] https://www.bto.org/our-science/projects/gbw/gardens-wildlife/garden-birds/a-z-garden-birds/carrion-crow

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

90 (4%) respondents to this question identified a need to include carrion crow on general licence for other reasons relating to public health and safety.

The main reasons that respondents identified were disease risk to livestock, risk of human disease transmission, noise nuisance and nests causing blockages and obstructions. Nearly all of the reasons given were covered by the other licence purposes.

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

12 (7%) respondents who answered this question considered that carrion crow should not be included on general licence for other reasons relating to public health and public safety.

Reasons provided for not including carrion crow included that alternative solutions should address the issue, and that lethal control should not be an option.

Organisational responses

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to carrion crow and other issues in relation to public health and public safety.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Although responses to the Defra survey identified an apparent need to control carrion crow for other public health and public safety reasons, this was very limited and generally related to other licence purposes. The APHA Species Report did not identify any relevant studies in relation to other issues with public health and public safety.

We conclude that there is not a genuine need in this case.

We do not recommend that carrion crow should be included on general licence unders.16(1)(i) for other public health and public safety reasons.

Feral pigeon

1,424 respondents identified a need to include feral pigeon on the public health or public safety general licence and 67 said that it should be removed (for all public health or public safety sub categories ‘slips and falls’, ‘spread of human disease’, ‘issues in relation to birds nesting’ and ‘other reasons’).

Prevention of Slips and Falls

B.1. Which bird species do you consider need to be controlled under general licence for public health and public safety purposes and why?

770 (38%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing slips and falls.

The main reason that respondents identified the need to control feral pigeon for this purpose were that they deposit faeces on paths and other surfaces.

The majority of respondents who identified a need provided simple statements like “soiling from faeces increases slip risk in yards from roosting on buildings” and “City centres seem to be awash with these birds and the pavements covered in their droppings”.

Where more detailed information was provided by respondents, one respondent said: “Feral pigeon like to roost and nest inside buildings and structures. On one occasion I travelled by rail into a London mainline station. On alighting the train, several passengers, including myself slipped on pigeon droppings that were littering the newly tiled surface of the station concourse. I completely lost my balance and landed flat on my back with my clothing covered in pigeon excrement.”

Another respondent said: “Witnessed faeces on roof plant causing risks to engineers, and slip trips and falls, witnessed high number of faeces in public places - under bridges in town centres etc. Nests at roof plant spaces, nests in farm buildings resulting in faeces.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

57 (33%) respondents who answered this question considered that feral pigeon should not be included on general licence for the purpose of preventing slips and falls.

Where respondents said there was no need for feral pigeon to be on general licence for this purpose, they backed this up with simple statements like “They are not a trip hazard” and “I see no circumstances where control is warranted in relation to: Public Health & Safety”.

One respondent said: “The purpose 'prevention of trips, slips and falls' is a trivial one and certainly very unlikely in almost all cases to be a direct or necessary consequence of bird activity. This purposes [sic] places undue weight on human claims of trivial risk versus the lives, welfare and conservation of the relevant species. Prevention of 'trips, slips and falls' might under almost all if not all circumstances be achieved through measures to avoid human-risk-taking behaviour rather than presuming to kill, cull destroy or otherwise 'control'.”

Another respondent said: “Feral Pigeon is not a big threat to public health or safety. Lethal methods should not be used to control it. Where control is shown to be necessary, deterrents should be used. An individual licence should be required to be applied for if there is a problem, so that the need for control can be analysed and confirmed, and to

ensure proper procedure in control and containment. Councils and Parks can deal with problems by using deterrents, or by putting up warning signs, or by putting up signs to educate people about not feeding and not littering food, and by cleaning up."

Organisational responses

The National Pest Technicians Association said that feral pigeon "droppings can also be a slip hazard when present in quantity in wet conditions. Their presence can therefore pose a significant threat to human health and safety… These are obviously time critical situations and given the delay in receiving licenses this does have the potential to cause a public health threat or result in significant economic loss."

The Great Broughton Woodpigeon Club (GWBC) said: "Feral Pigeons roost and nest on buildings, both in towns and on farms, and can build up to significant numbers, especially where they are fed by members of the public. Large numbers of faeces deposited on pavements are a health and slipping hazard that can only effectively be reduced by lowering the numbers of birds involved, and for this the general licence is required. GBWC is frequently asked to control the numbers of Feral Pigeons, especially around farm buildings, and members spent 38 days per year on average over the last 3 years doing so."

In contrast, the Born Free Foundation said: "General licences have no place in controlling wild birds for the purpose of public health and safety. The need for any control of wild birds should be considered utilising decision-making resources, such as the International Consensus Principles for Ethical Wildlife Control, and where lethal control is deemed necessary it should be strictly limited and monitored by specific licence to allow only the minimum number of birds to be targeted in order to achieve the required outcome."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary the report found that there were no relevant studies in relation to feral pigeon and public safety.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified an apparent need to control feral pigeon for the prevention of issues associated with slips and falls due to faeces on surfaces.

Whilst the APHA Species Report did not identify any relevant scientific studies in relation to the impact of feral pigeon on public safety, it is reasonable to consider that there is exposure of humans to fall risk from feral pigeon faeces on surfaces. Both individual and organisational responses to the survey identified the risks of slips and falls posed by feral

pigeon droppings. Some facilities can be bird-proofed (under bridges for instance), but some cannot (railway/bus stations are usually impossible to proof completely).

In conclusion, although there is no evidence in the APHA Species Report relating specifically to feral pigeon and public safety, it is accepted from the respondents' statements that there is some likelihood of slips and falls occurring in some circumstances due to feral pigeon faeces on surfaces, principally in urban environments and in and around farm buildings where feral pigeon population densities are high and where nesting is likely. There is therefore strong evidence from the Defra survey to conclude there is a genuine need to control feral pigeon under general licence to prevent slips and falls.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Lethal control to protect public safety is proportionate to the scale of the problem, as the problem is widespread with user evidence indicating the public are exposed to fall risk created by feral pigeon faeces on surfaces. Lethal control of feral pigeon will reduce populations and therefore reduce faecal quantities.

Taking the above into consideration we conclude that the use of a general licence for these purposes is appropriate in principle.

We have considered whether to restrict where and when lethal control of feral pigeon is allowed under general licence for the purpose of preventing slips and falls.

Given the relatively large numbers of feral pigeons in urban environments as well as other areas such as around farm buildings and docks, it would not be feasible or desirable to restrict control by geography. For example, farms exist across the country in many different types of rural and peri-urban settings.

Another way in which general licences could be further tightened is by limiting the time of year when action can be taken. We do not consider that this is appropriate in this case, since the health and safety issues involved can occur at any time of year.

We recommend that feral pigeon should be included on general licence under s.16(1)(i) for the purpose of preventing slips and falls.

Spread of Human Disease

B.1. Which bird species do you consider need to be controlled under general licence for public health and public safety purposes and why?

1,234 (61%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing the spread of human disease.

The main reasons respondents identified for including feral pigeon for this purpose were the risk of human disease transmission and that they are carriers of disease. Other reasons provided by respondents were not relevant to this sub-purpose.

Specific diseases picked out were, for example, salmonella which could be passed onto humans via food contamination if not directly.

The majority of respondents who identified a need provided simple statements like "Spread too many diseases", "Make a huge mess in urban areas creating reservoirs of salmonella" and "Carry disease and often make their way into buildings where they deficate [sic] everywhere".

One respondent said: "Working in the rail industry, where new engineering schemes such as HS2 are disturbing existing roost sites, pigeons are roosting on equipment and on structures where access is required for maintenance and we are finding that these sites are in poor safety state due [to] high levels of roosting birds and their excrement being a significant health risk to staff and requiring specialist cleaning before maintenance can be carried out."

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

60 (35%) respondents to this question considered that feral pigeon should not be included on general licence for the purpose of preventing the spread of human disease.

Where respondents said there was no need for feral pigeon to be on general licence for this purpose, they backed this up with simple statements like "Basic hygiene will mean no problem" and "I am not aware of any reason to control(kill) this species to protect public health or safety".

One respondent said: "Do pigeons carry disease? Many websites list the diseases recorded in feral pigeons. How very scary. But let's put this in context – many more diseases are known in people and their pets. Moreover, all animals carry diseases: the key issue is how often they transfer to humans, and there is little evidence of this happening with feral pigeons. Plus, domestic pigeons often come into contact with feral pigeons but stay perfectly healthy. In other words, feral pigeons simply do not pose a significant health risk. It's a non-issue."

Another respondent said: "The UK's Chief Veterinary Officer, when addressing the House of Lords in 2000 on the issue of intimate human contact with the pigeons feeding in Trafalgar Square, was asked if this represented a risk to human health. The Chief Veterinary Officer told The House that in his opinion it did not."

Organisational responses

The National Pest Technicians Association said: "Feral Pigeon droppings can harbour many micro-organisms, including some that can be detrimental to human health, including Chlamydia psittaci, which can lead to potentially fatal Ornithosis. They also freely nest within buildings and the build-up of nesting and associated guano can lead to health issues.

Many of our members service both food production and food retail facilities, where the risk of contamination of food stuffs, with potentially pathogenic organisms should feral pigeons enter food storage or production areas is high. In our experience, our members do as

much as possible in these situations to prevent having to ‘dispatch' birds. For example, by leaving doors open and turning the lights off and attempting to encourage the pigeon to leave. However, in some cases this is not possible (or does not achieve the desired result) meaning that the bird has to be culled. These are obviously time critical situations and given the delay in receiving licenses this does have the potential to cause a public health threat or result in significant economic loss.”

The Countryside Alliance said that “feral pigeons are a well-documented threat to public health and safety, resulting from their defecation in and around farm buildings used for food storage. Various studies have showed that netting and other non-lethal methods are inadequate at preventing damage. A 2003 study showed that a test group of Feral Pigeons harboured 60 pathogens that could be transmitted to humans. The fact that they colonise areas with high human populations, scavenging human food waste, makes transmission more likely. They should therefore be included on the general licences.”

The Tenant Farmers Association said: “It is known that the most common pathogens which can cause disease transmitted from pigeons to humans are: e coli, St. Louis encephalitis, histoplasmosis, candidiasis and salmonellosis.

Pigeons are hugely over populated, and numbers need controlling. They also like to reside in farmers grain and livestock sheds which cause a huge problem for farmers who need to comply with farm assurance schemes to enable the production of safe food for human consumption. Bird infestation, along with the diseases they spread, can conflict with food safety standards and regulations, resulting in the contamination of food products and outbreaks of food-borne diseases.

Pigeons, for example, are hosts to parasitic pests such as pigeon ticks, fleas and bird mites, which can spread to people. The pest insects live on the birds, their droppings and nesting materials. The parasites can invade buildings in search of a new food source.”

The RSPB said: “We observe that presence of microorganisms – including pathogens - in the faeces of wild birds is hardly unexpected. The ability of these to transmit to humans etc. in situations that pose a threat to health will be determined by specific circumstances.

We note that Natural Resources Wales recently concluded that “Combatting the spread of disease to humans is critically important. However, we do not believe the best way to approach this issue is using a General Licence, other than in relation to Feral pigeon where we consider that control is necessary to address a likely risk of disease transmission to humans (for example through the contamination of human food). This means that the number of species which are covered by GL002 has been reduced to one species, namely Feral pigeon.” We suggest that this is a sensible approach and agree with NRW’s conclusion.”

No organisations provided reasons specifically relating to why feral pigeon should not be included on general licence for this purpose.

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-high** strength of evidence for an impact of feral pigeon on public health. However, this relates to the evidence for feral pigeons carrying pathogens common to humans; evidence for actual transmission of disease to humans is rare.
- The latter largely reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission. However, feral pigeon is one of the few species for which transmission has been shown.

What does 'medium-high' strength of evidence mean?

Medium-high strength of evidence means it is very likely that individuals of the species carry disease common to people with some likelihood of transmission in some circumstances.

The evidence is that feral pigeons carry pathogens that are common to humans, although evidence for transmission is rare. Few studies have shown transmission of pathogens or parasites from feral pigeons to humans. Three referred to transmission of *Chlamydia psittaci*, which causes respiratory psittacosis in humans (Dickx *et al*. 2010, Haag-Wackernackel & Moch 2004, Haag-Wackernackel 2006). One also referred to transmission of *Cryptococcus neoformans* (Haag-Wackernackel & Moch 2004). Two studies referred to transmission of ectoparasites, including pigeon fleas, to humans (Haag-Wackernackel & Spiewak 2004, Haag-Wackernackel *&* Bircher 2010). All of the other studies related to evidence of feral pigeon carrying pathogens common to humans, but without showing transmission. These pathogens include West Nile Virus, Borna Virus, *Escherichia coli*, *Campylobacter spp*., *Cryptosporidium homini*, *Clostridium difficile*, *Enterocytozoon bieneusi*, *Encephalitozoon spp*., *Salmonella spp*., *Cryptococcus spp., Enterococcus spp*., and *Candida spp*..

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

There was an apparent identified need from respondents for including feral pigeon on general licence for this purpose. Both individual and organisational responses to the survey described how feral pigeons can pose a serious risk in relation to contamination of food stuffs, and potential risks of the transmission of disease. The APHA Species Report found studies which showed feral pigeon carrying pathogens that are common to humans and some disease transmission, with experiential evidence of exposure of humans to feral pigeons in and around buildings, other than via contaminated foodstuffs.

It is accepted that there is exposure of humans and their food to feral pigeons (see the survey responses outlined above). Some facilities can be bird-proofed (under bridges for instance), but some cannot. Additionally, urban parks and other open pedestrian areas inevitably make bird proofing less easy. Storage of food stuffs is generally good, but again there is an opportunity for exposure if feral pigeons are present, especially in high densities (again, see the survey responses outlined above).

A combination of the information provided in the survey and the scientific evidence indicates there is a genuine need for a licence to allow the lethal control of feral pigeons to

prevent an impact on human health through the spread of disease both directly and through contamination of feedstuff (resulting in the spread of disease).

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Combining the scientific evidence of feral pigeon as a pathogen carrier and of some transmission, with experiential evidence of exposure of humans and their food to feral pigeons, the use of a general licence for these purposes is appropriate.

Lethal control to protect public health is proportionate to the scale of the problem, as the problem is widespread with experiential evidence indicating the public and food stuffs are exposed to feral pigeon. Lethal control of feral pigeon will reduce populations and therefore reduce the risk of exposure of humans and their food to feral pigeon.

We have considered whether to restrict where and when lethal control of feral pigeon is allowed under general licence for the purpose of preventing spread of disease.

Given the relatively large numbers of feral pigeons in urban environments as well as other areas such as around farm buildings and docks, it would not be feasible or desirable to restrict control by geography. For example, farms exist across the country in many different types of rural and peri-urban settings.

Another way in which general licences could be further tightened is by limiting the time of year when action can be taken. We do not consider that this is appropriate in this case, since the health and safety issues involved can occur at any time of year.

We recommend that feral pigeon should be included on general licence under s.16(1)(i) for the purpose of preventing the spread of human disease.

Issues in Relation to Birds Nesting

B.1. Which bird species do you consider need to be controlled under general licence for public health and public safety purposes and why?

656 (33%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing issues relating to birds nesting.

The main reason that respondents identified for controlling feral pigeon for this purpose were that their nesting can cause blockages and obstructions. Other reasons due to nesting were risk of human disease transmission and faeces on paths and other surfaces.

Where respondents said there was a need for feral pigeon to be on general licence for this purpose, they backed this up with simple statements like “damage to buildings and property”, and “Large amounts of waste under bridges and roost / nesting areas”.

One respondent said: “Having worked in Local Authority as a building Surveyor I know the problems associated with nests and droppings of these birds, both health wise and health and safety.”

Another respondent said: “They can be a big pest in the city centres nesting on old buildings and eating from the streets. The risk of infection if living by a nesting spot from the mess they make is huge and dead chicks or adult birds only brings in more pests to any location they nest in like maggots/fly, mice, rats.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

52 (30%) respondents to this question considered that feral pigeon should not be included on general licence to prevent issues relating to birds nesting.

Organisational responses

The National Pest Technicians Association said: “Feral Pigeon droppings can harbour many micro-organisms, including some that can be detrimental to human health, including Chlamydia psittaci, which can lead to potentially fatal Ornithosis. They also freely nest within buildings and the build up of nesting and associated guano can lead to health issues.”

The Great Broughton Woodpigeon Club (GBWC) said: “Feral Pigeons roost and nest on buildings, both in towns and on farms, and can build up to significant numbers, especially where they are fed by members of the public. Feral pigeons will nest in any convenient hole in town and farm buildings, and on ledges, beams and rafters. This can result in blocking of gutters, drains and downpipes causing damage to the structure of the buildings.”

In contrast, Animal Aid quoted from research by Haag-Wackernagel, D., & Geigenfeind, I. (2008) which said "Pest control companies offer different deterrent systems, of widely varying efficacy, for proofing buildings against feral pigeons. A better solution is avoiding attractive structures during building design or subsequent alterations of existing structures used by feral pigeons.”

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to feral pigeon and public safety.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Responses to the Defra survey identified an apparent need to control feral pigeon for the prevention of issues associated with nesting, including disease transmission and slips and falls due to faeces and structural damage to buildings and structures.

Whilst the APHA Species Report did not identify any relevant studies in relation to the impact of feral pigeon on public safety, it is accepted that there is exposure of humans to

risk from feral pigeon faeces on surfaces and structural damage to buildings from nesting activity. Both individual and pest control organisational responses to the survey said that feral pigeon nests and roosts can pose a serious threat in terms of droppings and potential transmission of human diseases, citing specific examples of where problems had occurred. Some facilities can be bird-proofed (under bridges for instance), but some cannot (railway/bus stations are usually impossible to proof completely).

In conclusion, although there is no evidence in the APHA Species Report relating specifically to feral pigeon and nesting, it is reasonable to assume from the respondents' statements that there is a genuine need for a licence to allow the lethal control of feral pigeons to prevent an impact on human health occurring in some circumstances due to nesting activity, principally in urban environments and in and around farm buildings where pigeon population densities are high.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Combining the scientific evidence of feral pigeon as a pathogen carrier and of some transmission, with experiential evidence of exposure of humans to safety risk due to nesting activities, the use of a general licence for these purposes is appropriate.

Lethal control to protect public safety is proportionate to the scale of the problem, as the problem is widespread with experiential evidence indicating the public are exposed to risk created by feral pigeon nesting activities. Lethal control of feral pigeon will reduce populations and therefore reduce feral pigeon nesting activities.

We have considered whether to restrict where and when lethal control of feral pigeon is allowed under general licence for the purpose of issues relating to nesting.

Feral pigeon nest in buildings, both in urban areas and in other environments such as farms. Therefore, it would not be feasible or desirable to restrict control by geography. For example, farms exist across the country in many different types of rural and peri-urban settings.

Peak breeding season for feral pigeon is during the spring period, but they can breed all year round. Therefore we do not consider that a time of year restriction is necessary.

We recommend that feral pigeon should be included on general licence under s.16(1)(i) for the purpose of preventing issues in relation to birds nesting.

Other Reasons

We included this category in the survey in case respondents wanted to raise other public health and public safety issues which did not fit into the other identified categories.

B.1. Which bird species do you consider need to be controlled under general licence for public health and public safety purposes and why?

170 (4%) respondents to this question identified a need to include feral pigeon on general licence for other public health or safety purposes.

The main reasons that respondents identified were disease risk to livestock, risk of human disease transmission, faeces on paths and other surfaces and nests/faeces could cause structural failure. Nearly all of the reasons given were covered by the other licence purposes.

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

7 (4%) respondents to this question considered that feral pigeon should not be included on general licence for other public health or safety purposes.

Organisational responses

No organisations submitted statements to expressly support control of feral pigeon for another public health and safety purpose.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to feral pigeon and other public health and public safety purposes.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified an apparent need to control feral pigeon for other public health and public safety reasons, this was very limited and generally related to other licence purposes. The APHA Species Report did not identify any relevant studies in relation to other issues with public health and public safety.

We conclude that there is not a genuine need in this case.

We do not recommend that feral pigeon should be included on general licence under s.16(1)(i) for other public health and public safety reasons.

Jackdaw

801 respondents identified a need to include jackdaw on the public health or safety general licence and 114 said that it should be removed (for all public health or safety sub categories, ‘prevention of slips and falls’, ‘spread of human disease’, ‘issues in relation to birds nesting’ and ‘other reasons’).

Prevention of Slips and Falls

B.1. Which bird species do you consider need to be controlled under general licence for the purpose of preventing slips and falls and why?

168 (8%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing slips and falls.

The main reason that respondents identified for controlling jackdaw for this purpose were that they deposit faeces on paths and other surfaces. Other reasons provided were not relevant to this sub-purpose.

The majority of respondents who identified a need provided simple statements like “Public areas covered in excrement” and “Droppings in and around grain stores”.

One respondent said: “Populations can build to significant levels locally, particularly in public environs as a species well adapted to exploit human habitation. As a colony nesting species, droppings in public places present a health and safety issue.”

Another respondent said: “Jackdaw excrement poses a slip hazard as well as potentially spreading harmful bacteria to humans when the jackdaws are present in high densities in areas such as farm yards and urban areas such as parks and town centres or when roosting in and around buildings.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

94 (55%) respondents who answered this question considered that jackdaw should not be included on general licence for the purpose of preventing slips and falls.

The main reasons provided for not including jackdaw for this purpose were that there was no evidence of a risk and that alternative solutions should address the issue.

One respondent said: “The purpose 'prevention of trips, slips and falls' is a trivial one and certainly very unlikely in almost all cases to be a direct or necessary consequence of bird activity. This purposes places undue weight on human claims of trivial risk versus the lives, welfare and conservation of the relevant species.

Prevention of 'trips, slips and falls' might under almost all if not all circumstances be achieved through measures to avoid human-risk-taking behaviour rather than presuming to kill, cull destroy or otherwise 'control' these bird species…. Birds should not be controlled, culled etc simply because there is some purported claim of a risk rather than clear evidence that such a risk to health [and safety] would or would be likely to arise and be significant in its effects.”

Organisational responses

The Game & Wildlife Conservation Trust (GWCT) said that 14% of the 2,951 respondents to their survey identified a need to control this species and of those 33% gave public

health as a reason. 2% of the 148 respondents to the NFU's online survey identified a need for jackdaw control to prevent slips and falls. No further information from their respondents were submitted with regard to this specific purpose.

BASC did not identify a need for jackdaw to be on general licence for public safety purposes.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw and preserving public health or public safety in relation to the prevention of slips and falls.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Although responses to the Defra survey identified an apparent need to control jackdaw for the prevention of slips and falls, this was very limited. The APHA Species Report did not identify any relevant scientific studies in relation to jackdaw and preserving public health or public safety in relation to the prevention of slips and falls.

We conclude that there is not a genuine need in this case.
We do not recommend that jackdaw should be included on general licence under s.16(1)(i) for the purpose of preventing slips and falls.

Spread of Human Disease

B.1. Which bird species do you consider need to be controlled under general licence for the purpose of preventing the spread of human disease and why?

357 (18%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing the spread of human disease.

The main reason respondents identified for including jackdaw for this purpose were that jackdaws are carriers of disease. Other reasons provided were not relevant to this sub-purpose.

Specific diseases respondents stated were avian flu, paratuberculosis, West Nile Virus, campylobacter and salmonella which could be passed onto humans via food contamination if not directly.

The majority of respondents who identified a need provided simple statements like "Jackdaws can spread disease due to their habit of feeding on or near grain stores" and "Overpopulated in human areas due to large amounts of food sources present".

One respondent said, with regard to jackdaw and other corvid species: "Bird infestation, along with the diseases they spread, can conflict with food safety standards and

regulations, resulting in the contamination of food products and outbreaks of food-borne diseases."

Another respondent said: "Jackdaw and other corvids should be controlled as their droppings contain numerous human pathogens such as Psittacosis as such property owners need to be able to control the source of this hazard in order to meet their responsibilities under COSHH regulations."

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

89 (52%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing the spread of human disease.

The main reasons provided for not including jackdaw for the spread of human disease were that alternative solutions should address the issue and that there was no evidence of a risk.

One respondent said: "This species does not appear to cause enough genuine health and safety problems to warrant a general licence. I believe that applications should be made and assessed individually."

Another respondent said: "There is a lack of solid scientific evidence. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested."

Organisational responses

Although they didn't refer specifically to jackdaw and this sub purpose, BASC said that: "Corvids are known to be carriers of a range of diseases that have the potential to cause harm to humans, either directly or through the consumption of contaminated food products. Corvids may also exacerbate issues through their presence in livestock areas, scavenging infected prey, and travelling wide distances (Daniels et al., 2003). Avian influenza has been found in corvids and this poses a disease risk to livestock through direct and indirect contact (e.g. contamination of feed, water, bedding and equipment) which in turn could pose a risk to humans."

The Countryside Alliance said of jackdaw that they "travel wide distances and have long been considered as vectors for disease, in particular: avian flu and paratuberculosis."

The Tenant Farmers Association said jackdaw "can conflict with food safety standards and regulations, resulting in the contamination of food products and outbreaks of food-borne diseases."

The Game & Wildlife Conservation Trust (GWCT) said that 14% of respondents to their survey identified a need to control jackdaw and 33% of those gave public health as a reason for control. 7% of the 148 respondents to the NFU's online survey identified a need for jackdaw control to prevent the spread of human disease. One respondent to their

survey said: “Waste food [at the nest] has to be a health hazard as it goes mouldy or rots and smells.”

In contrast, the RSPB said: “We observe that presence of microorganisms – including pathogens – in the faeces of wild birds is hardly unexpected. The ability of these to transmit to humans etc. in situations that pose a threat to health will be determined by specific circumstances.

Jackdaws appear to pose no risks that would be mitigated by this licence and should not be included. In Natural Resources Wales’ own General Licence review they concluded that, in relation to jackdaw, “there is little/no published scientific literature to demonstrate transmission of enteropathogens to humans (in Newson et al. 2019).”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium** strength of evidence for an impact of jackdaw on public health. However, this relates to the evidence for jackdaws carrying pathogens common to humans; evidence for actual transmission of disease to humans is not shown.
- The latter reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission.

*What does ‘**medium** strength of evidence’ mean?*

‘Medium**’** means that it is very likely that individuals of the species carry disease common to people, but the transmission route is not shown.

However, detailed inspection of the studies that led the report to arrive at a Medium score shows that it is the result of two studies that fall either side of ‘Medium’. One shows a transmission route and one does not show either pathogens common to humans or a transmission route. Because one shows a transmission route, it warrants further attention as it is a human health issue.

There was only one study which showed transmission of pathogens from jackdaws to humans. Hudson *et al*. (1991) traced the source of human campylobacter infections in Gateshead to infected jackdaws (and magpies) pecking milk bottle tops. As delivery of milk bottles to household doorsteps is now much less common than previously, the likelihood of transmission via this route is significantly reduced. All of the other studies related to evidence of jackdaw carrying pathogens common to humans, but without showing transmission. These pathogens include Borna Virus, West Nile Virus, *Campylobacter spp., Giardia spp.,* and *Cryptosporidium spp*..

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified apparent need to control jackdaw for the purpose of preventing the spread of disease to humans.

The scientific literature shows evidence that jackdaw carry pathogens harmful to human health. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to human health unless there is significant exposure of humans that could enable transmission.

The scientific literature found transmission in a certain specific circumstance (milk bottle tops, as described above). This is not sufficient to demonstrate a genuine need. User evidence could supplement the science if it demonstrated significant exposure of humans. Respondents to the survey, however, only occasionally indicated that there was exposure and provided little evidence for it.

In conclusion, the evidence for jackdaw carrying pathogens is likely to be consistent with that of many or all other bird species. No routes of transmission or significant exposure of humans have been demonstrated either through the scientific or survey evidence, such that a common and widespread issue exists.

We conclude that there is not a genuine need in this case.

We do not recommend that jackdaw should be included on general licence under s.16(1)(i) for the purpose of preventing the spread of human disease.

Issues in Relation to Birds Nesting

B.1. Which bird species do you consider need to be controlled under general licence for the purpose of preventing issues relating to birds nesting and why?

641 (31.8%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing issues in relation to birds nesting.

The main reason that respondents identified for controlling jackdaw for this purpose were that when they nest in chimneys where they can cause blockages and obstructions. Another reason due to nesting was faeces on paths and other surfaces.

Where respondents said there was a need for jackdaw to be on general licence for this purpose, they backed their view up with simple statements like “nesting habits in houses etc” and “Nesting issues with excrement”.

One respondent said: “Jackdaws have caused many problems with blocked flues, in some cases resulting in house fires, occasionally with serious & sometimes tragic consequences.”

Another respondent said: “Nesting birds in chimneys resulting in (partially) blocked flues and potential for fly problems (disease transmission from carrion and other microorganisms from nesting material) when a chick dies. Not always necessary to harm the birds, depending on the weather and what the chimney serves (personal experience with this kind of problem).”

Another said that “jackdaws will nest in any convenient hole in town and farm buildings. This can result in the blocking of gutters, drains, downpipes resulting in water damage to

the buildings, and even blocking chimneys when large quantities of sticks are used creating a fire hazard."

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

94 (55%) respondents to this question considered that jackdaw should not be included on general licence in relation to birds nesting.

The main reasons identified for not including jackdaw for dealing with issues in relation to birds nesting were that alternative solutions should address the issue and there was insufficient risk.

One respondent said: "Jackdaws sometimes nest in houses, so I can appreciate that there may be a chance that this species could cause issues related to public health and safety. However, the risk of catching a disease from wild birds is low, and the risk to health and safety of jackdaws nesting in roofs is low, so I do not think this warrants their inclusion on a general licence rather than an individual licence."

Another respondent said: "I know of no evidence of Jackdaws needing to be killed for reasons of public safety. Presumably if there is such evidence then it would have been collected under existing licences. If there are specific issues or instances, then these could be licensed - if indeed that was the correct response to an evidence-based problem - by issuing a specific licence for the place and time."

Organisational responses

The National Pest Technicians Association said that jackdaws have a habit of making nests in chimneys, with obvious dangers to the health and safety of people living in the affected properties. They said that such blocked chimneys must be cleared out before they can be safely used again.

14% of the 148 respondents to the NFU's online survey identified a need to control jackdaw to prevent issues in relation to birds nesting. No supporting statements were submitted by their respondents concerning this specific purpose.

The Game & Wildlife Conservation Trust (GWCT) said that 14% of the 2951 respondents to their survey identified a need to control jackdaw and of these 33% gave public health as a reason. One of the respondents to their survey said: "Constantly nesting in the house chimneys. Debris brought in for nesting material, including food scraps are dropped down the roof and lodge in the gutters eventually causing blockages in the downpipes and thus overflowing gutters. Waste food has to be a health hazard as it goes mouldy or rots and smells."

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw and the prevention of issues relating to birds nesting.

Nesting behaviour

The jackdaw is a secondary cavity nester, nesting in holes in trees, cliffs and buildings. Being cavity nesters, jackdaws are more predisposed to utilising buildings for nesting than other corvids with chimneys being an obvious and common location.[26]

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified an apparent need to control jackdaw for the prevention of issues to do with nesting. The APHA Species Report did not identify any relevant studies in relation to the impact of jackdaw on public safety. However, there is a known risk of exposure of humans from jackdaw nesting activities, as set out by, for example, the National Pest Technicians Association. This is because jackdaws are known to nest in chimneys which presents a fire risk. Both individual and organisational responses to the survey said that jackdaw nests can pose a serious threat in terms of fire risk, structural damage and potential transmission of human diseases, citing specific examples of where problems had occurred. Whilst chimneys can be proofed outside of the nesting season, there are circumstances where urgent action is required to halt nesting activity and destroy nests whilst they are being built, followed by non-lethal measures to prevent re-entry to chimneys and other nesting holes.

We conclude that there is a genuine need in this case.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem or need.

With organisational and experiential evidence of exposure of humans to health and safety risk due to unforeseen nesting activities, the use of a general licence for this purpose is appropriate.

Nest destruction to protect public health and safety is proportionate to the scale of the problem, as the problem is widespread with the public exposed to potentially lethal risk created by unforeseen jackdaw nesting activities. Action might have to be taken immediately and/or there would be less of a welfare issue if action was taken promptly. Nests could be destroyed before eggs are laid, or any eggs hatched. It is considered appropriate that action could be taken immediately in these circumstances. The alternative would be to have to await an individual licence being issued by Natural England before action could be taken.

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[26] Cramp S., Perrins C. M. 1993. Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of the Western Palearctic. Crows to Finches. Vol. VIII. Oxford, Oxford Univ. Press.

We have considered whether to restrict where and when lethal control of jackdaw is allowed under general licence for the purpose of issues relating to nesting.

Being cavity nesters, jackdaws are more predisposed to utilising buildings for nesting than other corvids with chimneys being an obvious and common location. This can present a fire risk. Given that both the jackdaw and buildings in which they nest are widespread across England, it would not be feasible or desirable to restrict control by geography.

Jackdaws use chimneys all year round, for nesting but also for roosting. As such they can present a health and safety hazard at any time of year. Such a hazard would need to be dealt with as it arose. Therefore our view is that a time of year restriction is not necessary, since this purpose is inherently self-limiting – if a jackdaw nest is involved in a chimney health and safety issue, then it must be dealt with as it arises.

We recommend that jackdaw should be included on general licence under s.16(1)(i) for the purpose of preventing issues in relation to birds nesting.

Other Reasons

We included this category in the survey in case respondents wanted to raise other public health and public safety issues which did not fit into the other identified categories.

B.1. Which bird species do you consider need to be controlled under general licence for other public health and public safety purposes and why?

88 (4%) respondents to this question identified a need to include jackdaw on general licence for other public health or safety purposes.

The main reasons that respondents identified were disease risk to livestock, risk of human disease transmission, noise nuisance and nests causing blockages and obstructions. Nearly all the reasons given as to why respondents identified the need to control jackdaw for other health and safety purposes were covered by the other licence purposes.

One respondent said that “Jackdaws can also be a nuisance to homeowners by … causing considerable noise when in large groups”.

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

13 (7.6%) respondents to this question considered that jackdaw should not be included on general licence for other public health or safety purposes.

The main reasons identified for not including jackdaw were that there are alternative solutions and lethal control should not be an option.

Organisational responses

No organisation specifically said that jackdaw should be added or removed from general licence for this purpose.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw and other public health and public safety purposes.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified an apparent need to control jackdaw for other public health and public safety reasons, this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of jackdaw on the prevention of other public health and public safety issues.
We conclude that there is not a genuine need in this case.

We do not recommend that jackdaw should be included on general licence under s.16(1)(i) for other public health and public safety reasons.

Magpie

812 respondents identified a need to include magpie on the public health or safety general licence and 109 said that they should be removed (for all public health or safety sub categories 'prevention of slips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

Prevention of Slips and Falls

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

152 (8%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing slips and falls.

The main reason respondents identified the need for including magpie for this purpose was that they leave faeces on paths and other surfaces.

One respondent said in relation to magpie that they can cause "huge areas of droppings causing hazardous conditions".

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

91 (53%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing slips and falls.

The main reasons provided for not including magpie for preventing slips and falls included that alternative solutions should address the issue, there was no evidence of a risk, and that lethal control should not be an option.

One respondent said: “Where lethal control is deemed necessary it should be strictly limited and monitored by specific licence to allow only the minimum number of birds to be targeted in order to achieve the required outcome.”

Organisational responses

54% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) identified a need to control magpie and of those 2% said they should be controlled for public health reasons. 1% of the NFU’s 148 survey respondents identified a need for magpie control to prevent slips and falls. No supporting statements were submitted by their respondents.

Great Broughton Woodpigeon Club (GBWC) said: “GBWC has no evidence that the Magpie needs to be controlled to preserve public health and public safety. We have no record of ever being asked to control this species for this purpose in the 43 years that the club has been operating”.

The RSPB said that “Beyond the limited and non-specific disease risk …magpies appear to pose no risks that would be mitigated by this licence and should not be included”.

BASC did not identify a need for magpie to be on general licence for public safety purposes.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie and the prevention of slips and falls.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified an apparent need to control magpie for the prevention of slips and falls. However, this was very limited. The APHA Species Report did not identify any relevant studies in relation to the impact of magpie on public safety in relation to the prevention of slips and falls.

We conclude that there is not a genuine need in this case.
We do not recommend that magpie should be included on general licence under s.16(1)(i) for the purpose of preventing slips and falls.

Spread of Human Disease

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

296 (15%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing the spread of human disease.

The main reasons respondents identified the need for including magpie for this purpose were that there is a risk of human disease transmission, they are carriers of disease, and that they deposit faeces on paths and other surfaces.

Some respondents specified specific diseases in relation to magpie and human disease transmission, including Escherichia coli, Salmonella, Avian Flu, Listeria, Campylobacter and West Nile Virus.

One respondent said: “Corvids - including magpies - are known to be carriers of a range of diseases that have the potential to cause direct and/or indirect harm to humans, potentially as a result of consumption of contaminated food products; corvids also represent a disease risk to livestock and then by extension to humans, through direct and indirect contact (e.g. contamination of feed, water, bedding and equipment).”

Another respondent said: “Magpie and other corvids should be controlled as their droppings contain numerous human pathogens such as Psittacosis as such property owners need to be able to control the source of this hazard in order to meet their responsibilities under COSHH regulations.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

81 (47%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing the spread of human disease.

The main reasons provided for not including magpie for the spread of human disease were that alternative solutions should address the issue, there is no evidence of a risk, and the level of risk will be determined by specific circumstances.

One respondent said that “their choices of food helps the environment and prevents disease spreading to humans eg: carrion, insects, pests.”

Organisational responses

54 % of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) identified a need to control magpie and of those 2% said they should be controlled for public health reasons. 3% of the NFU’s 148 survey respondents identified a need for magpie control to prevent the spread of human disease. No supporting statements were submitted by their respondents.

The Tenant Farmers Association said for magpie: “Bird infestation, along with the diseases they spread, can conflict with food safety standards and regulations, resulting in the contamination of food products and outbreaks of food-borne diseases.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-high** strength of evidence for an impact of magpie on public health. However, this largely relates to the evidence for magpies carrying pathogens common to humans; evidence for actual transmission of disease to humans is rare.
- The latter reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission.

*What does '**medium-high**' strength of evidence mean?*

'**Medium-high**' means that it is very likely that individuals of the species carry disease common to people with some likelihood of transmission in some circumstances.

There was only one study which showed transmission of pathogens from magpies to humans. Hudson *et al*. (1991) traced the source of human campylobacter infections in Gateshead to infected magpies (and jackdaws) pecking milk bottle tops. As delivery of milk bottles to household doorsteps is now much less common than previously, the likelihood of transmission via this route is significantly reduced. All of the other studies related to evidence of magpie carrying pathogens common to humans, but without showing transmission. These pathogens include West Nile Virus, *Campylobacter spp*., *Giardia spp.,* and *Cryptosporidium spp*..

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified apparent need to control magpie for the purpose of preventing the spread of disease to humans.

The scientific literature shows evidence that magpie carry pathogens harmful to human health. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to human health unless there is significant exposure of humans that could enable transmission.

The scientific literature found transmission in a certain specific circumstance (milk bottle tops, as described above). This is not sufficient to demonstrate a genuine need. User evidence could supplement the science if it demonstrated significant exposure of humans. Respondents to the survey, however, only occasionally indicated that there was exposure and provided little evidence for it.

In conclusion, the evidence for magpie carrying pathogens is likely to be consistent with that of many or all other bird species. No routes of transmission or significant exposure of humans have been demonstrated either through the scientific or survey evidence, such that a common and widespread issue exists.

We conclude that there is not a genuine need in this case.

We do not recommend that magpie should be included on general licence under s.16(1)(i) for the purpose of preventing the spread of disease.

Issues in Relation to Birds Nesting

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

693 (34%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing issues in relation to birds nesting.

The main reasons respondents identified the need for including magpie for this purpose were nests causing blockages and obstructions or structural failure, faeces on paths and other surfaces, risk of human injury from nesting or scavenging birds and risk of human disease transmission.

One respondent said that “Magpies can nest in areas which cause inconvenience to human activities, such as nesting in chimneys”, and another respondent said that “Magpies nest wherever they can - especially in animal shelters and barns”.

Another respondent said: “They nest too close to or in buildings creating poo piles and a lot of noise. Picking at materials to take and use for nesting and stealing horse feed (straw).”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

92 (54%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing issues relating to birds nesting.

The main reasons provided for not including magpie for the purpose of preventing issues relating to birds nesting were that alternative solutions should address the issue, lethal control should not be an option, there is no evidence of a risk and the level of risk will be determined by specific circumstances.

One respondent said: “They tend not to nest in areas where people walk.”

Another respondent said: “As magpies nest in trees rather than houses, and nests are sparsely distributed, they pose very little risk to public health and safety and I see no valid reason why they should be included on a general licence for this purpose.”

Organisational responses

54% of the 2951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control magpie and of those 2% gave public health as a reason (public safety was not expressly mentioned but is assumed to be included here). 23% of the NFU’s 148 survey respondents identified a need for magpie control to prevent issues to do with birds nesting. No supporting statements were submitted from their respondents concerning this specific purpose and magpie nests.

The National Pest Technicians Association did not express a need to be able to deal with magpie nests for public health and safety purposes under general licence.

The RSPB said that "Beyond the limited and non-specific disease risk …magpies appear to pose no risks that would be mitigated by this licence and should not be included."

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie and the prevention of issues relating to birds nesting.

Nesting behaviour

Magpie build large, domed nests in thorny bushes or high up in tall trees;[27] in urban environments, nesting will be confined to areas with such features. Magpies are territorial (around a 5ha breeding territory)[28] so that nests are spaced out. If occurring, nesting on or in buildings would be a rare occurrence.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Respondents to the Defra survey identified an apparent need to control magpie in relation to them nesting. The APHA Species Report did not identify any relevant studies in relation to the impact of magpie on public health and public safety with regards to their nesting.

Survey responses often described communal nesting in on or around buildings and the problems it causes. However, magpie are not communal nesters, instead building solitary nests, usually in trees and bushes, and defending territories.[29] We do not, therefore, consider that these responses require further consideration. Combining the evidence does not indicate any general problem and may not even indicate a real problem caused by magpie. We conclude that there is not a genuine need in this case.

We do not recommend that magpie should be included on general licence under s.16(1)(i) for the purpose of preventing issues in relation to nesting.

Other Reasons

We included this category in the survey in case respondents wanted to raise other public health and public safety issues which did not fit into the other identified categories.

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[27] https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/magpie/life-cycle/

[28] As above.

[29] Birkhead T. R. 1991. The Magpies. Poyser, London & Cramp S., Perrins C. M. 1993. Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of the Western Palearctic. Crows to Finches. Vol. VIII. Oxford, Oxford Univ. Press.

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

88 (4%) respondents to this question identified a need to include magpie on general licence for other reasons relating to public health and safety.

Nearly all the reasons given as to why respondents identified the need to control magpie for other health & safety purposes were covered by the other licence purposes.
One respondent said that “these birds can make a significant amount of noise throughout the day but most especially in the morning and evenings”. Another respondent said that “They also pull rubbish out of bins and make a mess everywhere”.

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

12 (7%) respondents to this question considered that magpie should not be included on general licence for other public health or safety purposes.

The main reasons provided for not including magpie for other health or safety purposes was that alternative solutions should address the issue, lethal control should not be an option, and that the level of risk will be determined by specific circumstances.

Organisational responses

No organisations provided reasons specifically relating to why magpie should or should not be included on general licence for other public health or public safety reasons.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie and other public health or safety issues.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Respondents to the Defra survey identified an apparent need to control magpie for other public health or safety reasons, but this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of magpie with regard to other public health and public safety issues.

We conclude that there is not a genuine need in this case.

We do not recommend that magpie should be included on general licence under s.16(1)(i) for other health and safety reasons.

Rook

666 respondents identified a need to include rook on the public health or public safety general licence and 113 said that they should be removed (for all public health or public safety sub categories ‘prevention of slips and falls’, ‘spread of human disease’, ‘issues in relation to birds nesting’ and ‘other reasons’).

Prevention of Slips and Falls

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

168 (8%) respondents to this question identified a need to include rook on general licence for the purpose of preventing slips and falls.

The main reason respondents identified a need for including rook for this purpose was that they leave faeces on paths and other surfaces.

The majority of respondents who identified a need provided simple statements such as “Huge areas of droppings causing hazardous conditions” without going into detail regarding specific circumstances.

One respondent said: “The farms where I control rooks suffer from a large amount of droppings from these birds. Not only does this create a risk of slipping to those working in the farm it also poses a serious risk to human health when it gets onto stored foodstuffs, tools, machinery, door handles etc.”

Another respondent said: “Rooks soil the ground in our car parks and public areas of our museum.”

Another respondent said: “Beneath rookeries there is a large build up of droppings, this is hazardous to walkers and riders.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

95 (56%) respondents to this question considered that rook should not be included on general licence for the purpose of preventing slips and falls.

The main reasons provided for not including rook for preventing slips and falls were that alternative solutions should address the issue, there was insufficient risk, or no evidence of a risk and that lethal control should not be an option.

Organisational Responses

The Game & Wildlife Conservation Trust (GWCT) said that 17% of their survey respondents identified a need to control rook and of those 20% cited public health as a reason for control being necessary.
2% of the 148 respondents to the NFU’s online survey identified a need for rook control to address slips and falls risk. No supporting statements from their respondents were submitted regarding public safety.

The Great Broughton Woodpigeon Club (GBWC) said: “Rooks nest in large, communal groups in tall trees, often in public places, e.g. church yards, public parks, car parks, and the faeces and general debris accumulating under their nests can be a significant hazard to people using the area below. Due to the public nature of the nest site and the height above ground it is usually not possible to effect control of numbers where the actual hazard is being created so it is necessary to do so when the birds fly off to feed on local farm land. GBWC members have been asked to control the numbers of birds in rookeries.”

BASC, however, concluded that rook should not be on general licence to prevent slips and falls.

Wild Justice said: “DEFRA has no idea how many Rooks have been killed, allegedly for this purpose. Our guess is very few and the onus is on DEFRA to provide the evidence for widespread, regular and common need not me to provide evidence from a current licensing system that collects no data. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested.”

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to rook and the prevention of slips and falls.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified an apparent need to control rook for the prevention of slips and falls, but this was limited. The APHA Species Report did not identify any relevant studies in relation to the impact of rook on public safety in relation to the prevention of slips and falls.

We conclude that there is not a genuine need in this case.

We do not recommend that rook should be included on general licence under s.16(1)(i) for the purpose of preventing slips and falls.

Spread of Human Disease

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

330 (16%) respondents to this question identified a need to include rook on general licence for the purpose of preventing the spread of human disease.

The main reasons respondents identified for including rook for this purpose were the risk of human disease transmission, the deposition of faeces on paths and other surfaces, that rooks are carriers of disease and consume food products that results in their contamination.

Where respondents said there was a need for rook to be on general licence for this purpose, they backed this up with simple statements like “Mass nesting and grazing creates immense amount of faeces which can spread disease” and “Spreading disease from landfill to amenity areas”.

One correspondent said: “The farms where I control rooks suffer from a large amount of droppings from these birds. Not only does this create a risk of slipping to those working in the farm it also poses a serious risk to human health when it gets onto stored foodstuffs, tools, machinery, door handles etc.”

Another respondent said: “Populations can build to significant levels locally, particularly in public environs as a species well adapted to exploit human habitation. As colony nesting species, droppings in public places present an[sic] health and safety issue; Slips / trips and falls, the spreading of disease (e.coli, salmonella,botulism, listeria).”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

87 (51%) respondents to this question considered that rook should not be included on general licence for the purpose of preventing the spread of human disease.

Where reasons were given, the majority of respondents who said that carrion crow should not be on general licence for this purpose backed this up with simple statements such as that alternative solutions should address the issue, there was insufficient risk, and that lethal control should not be an option.

One respondent said: “There is no evidence to suggest that Rooks need to be controlled under general licence for preserving public health and public safety purposes. They do not represent a hazard and they do not spread human diseases.

Organisational responses

The Game & Wildlife Conservation Trust (GWCT) said that 17% of their survey respondents identified a need to control rook and of those 20% cited public health as a reason for control being necessary. One of their respondents said that “1000+ roost on farm over winter carry disease farm to farm”.

8% of the NFU’s survey respondents identified a need for rook control to address public health risk. No supporting statements from their respondents were submitted regarding public health.

BASC said that rook should be on general licence for the purpose of spread of disease, saying: “Corvids are known to be carriers of a range of diseases that have to [sic] potential to cause harm to humans, either directly or through the consumption of contaminated food products. Corvids may also exacerbate issues through their presence in livestock areas, scavenging infected prey, and travelling wide distances (Daniels et al., 2003). Avian influenza has been found in corvids and this poses a disease risk to livestock through direct and indirect contact (e.g. contamination of feed, water, bedding and equipment) which in turn could pose a risk to humans.”

The Countryside Alliance said: “Corvids travel wide distances and have long been associated as vectors for disease, in particular: avian flu and paratuberculosis. Corvids have been demonstrated to spread diseases amongst animals and livestock in a 2001 paper published in The Journal of Clinical Microbiology. These diseases could cross over to humans and become increasingly difficult to control.”

The RSPB said that “beyond the limited and non-specific disease risk …. rooks appear to pose no risks that would be mitigated by this licence and should not be included”. The RSPB agreed with Natural Resource Wales’ conclusion that this general licence be restricted to feral pigeon quoting NRW as follows: “Combatting the spread of disease to humans is critically important. However, we do not believe the best way to approach this issue is using a General Licence, other than in relation to Feral pigeon where we consider that control is necessary to address a likely risk of disease transmission to humans (for example through the contamination of human food).”

Wild Justice said: “DEFRA has no idea how many Rooks have been killed, allegedly for this purpose. Our guess is very few and the onus is on DEFRA to provide the evidence for widespread, regular and common need not me to provide evidence from a current licensing system that collects no data. Any cases should be dealt with by application for specific licences to deal with specific issues at a specific site after non-lethal methods have been tested.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium** strength of evidence for an impact of rook on public health. However, this relates to the evidence for rooks carrying pathogens common to humans; evidence for actual transmission of disease to humans is not shown.
- The latter reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission.

What does ‘medium’ strength of evidence mean?
In this context, “**medium** strength of evidence” means that it is very likely that individuals of the species carry disease common to people but the transmission route is not shown. The APHA Species Report states that all the studies that were examined were related to evidence of rook carrying pathogens common to humans, but without showing transmission to humans. These pathogens include Campylobacter spp., Listeria spp., Escherichia coli, Agrobacterium radiobacter, Enterocytozoon bieneus, Encephalitozoon hellem, Salmonella spp., Staphylococcus spp., Streptococcus spp., Acinetobacter spp., Cryptosporidium spp., Giardia spp., Mucor spp., Cladosporium spp., Rhodotorula rubra, Aspergillus spp., and Candida spp.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Responses to the Defra survey identified apparent need to control rook for the purpose of preventing the spread of disease to humans.

The scientific literature shows evidence that rook carry pathogens harmful to human health. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to human health unless there is significant exposure of humans that could enable transmission.

The scientific literature has either not demonstrated or not considered routes of transmission to humans. This represents a scientific evidence gap. User evidence could fill this gap if it demonstrated significant exposure of humans. Respondents to the survey, however, only occasionally indicated that there was exposure and provided little evidence for it.

In conclusion, the evidence for rooks carrying pathogens is likely to be consistent with that of many or all other bird species. No routes of transmission or significant exposure of humans have been demonstrated either through the scientific or survey evidence, such that a common and widespread issue exists.

We conclude that there is not a genuine need in this case.
We do not recommend that rook should be included on general licence under s.16(1)(i) for the purpose of preventing the spread of human disease.

Issues in Relation to Birds Nesting

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

494 (25%) respondents to this question identified a need to include rook on general licence for the purpose of preventing issues in relation to birds nesting.

The main reasons respondents identified the need for including rook for this purpose were nesting, the deposition of faeces on paths and other surfaces, issues with nesting in chimneys, and the risk of human disease transmission.

One respondent said that rooks “will nest in/on chimney pots causing fires or carbon monoxide poisoning”.

Another respondent said: “Regularly witness droppings around nesting sites and around animal food stores.”

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

94 (55%) respondents to this question considered that rook should not be included on general licence in relation to birds nesting.

The main reasons provided for not including rooks were that alternative solutions should address the issue, lethal control should not be an option, no evidence or insufficient evidence of a risk.

One respondent said: “Rooks do not represent a threat to humans - either slipping etc. They tend not to nest in areas where people walk, and in fact their choices of food helps the environment and prevents disease spreading to humans eg: carrion, insects, pests.”

Another respondent said: “Rooks nest colonially but they construct their nests in trees away from buildings so it is unlikely that they would pose a threat to public health and safety. Any instances that arise could be dealt with under an individual licence.”

Organisational responses

The Great Broughton Woodpigeon Club (GBWC) said: “Rooks nest in large, communal groups in tall trees, often in public places, e.g. church yards, public parks, car parks, and the faeces and general debris accumulating under their nests can be a significant hazard to people using the area below. Due to the public nature of the nest site and the height above ground it is usually not possible to effect control of numbers where the actual hazard is being created so it is necessary to do so when the birds fly off to feed on local farm land. GBWC members have been asked to control the numbers of birds in rookeries.”

The National Pest Technicians Association did not express a need to be able to deal with rook nests for public health and safety purposes under general licence.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to rook and the prevention of issues relating to birds nesting.

Nesting behaviour

Rooks are colonial nesters (Clayton & Emery 2007[30]), building twig nests in tall trees usually in open agricultural areas with pasture or arable land. Rooks are often associated with human settlements, nesting near farms, villages and open towns, but not in large, heavily built-up areas.

According to the British Trust for Ornithology: “Rooks are very sociable birds and are rarely seen alone, nesting communally and foraging in groups. Successful pairs stay together for several years, often for life, and rear their young in the familiar rookeries.”[31]

[30] https://www.cell.com/current-biology/pdf/S0960-9822(07)01494-7.pdf

[31] https://www.bto.org/our-science/projects/gbw/gardens-wildlife/garden-birds/a-z-garden-birds/rook

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Respondents to the Defra survey identified an apparent need to control rook in relation to them nesting. The APHA Species Report did not identify any relevant studies in relation to the impact of rook on public health and public safety with regards to nesting.

There may be occasional problems related to specific circumstances, but the need to control for this purpose is not general or widespread enough to justify their inclusion on general licence.

We conclude that there is not a genuine need in this case.

We do not recommend that rook should be included on general licence under s.16(1)(i) for the purpose of preventing issues in relation to birds nesting.

Other Reasons

We included this category in the survey in case respondents wanted to raise other public health and public safety issues which did not fit into the other identified categories.

B.1. Which bird species do you consider need to be controlled under general licence for preserving public health or public safety purposes and why?

105 (5%) respondents to this question identified a need to include rook on general licence for other public health or public safety purposes.

The main reasons that respondents identified were faeces on paths and other surfaces and noise nuisance. Nearly all of the reasons given were covered by the other licence purposes.

B.3. Are there any bird species listed below that you consider should NOT be controlled under general licence for the purposes listed?

13 (8%) respondents to this question considered that rook should not be included on general licence for other public health or public safety purposes.

The main reasons provided for not including rook were that alternative solutions should address the issue, lethal control should not be an option, level of risk will be determined by specific circumstances, and no or insufficient evidence of a risk.

One respondent said: “The inability to tolerate a rookery or the activities of its inhabitants is a problem of the humans concerned, not the birds.”

Organisational responses

No organisation said that rook should be added or removed from general licence for other public health and public safety reasons.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to rook and the prevention of issues relating to other public health and public safety reasons.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(i)

Although responses to the Defra survey identified an apparent need to control rook for other public health and public safety reasons, this was very limited and generally related to other licence purposes. The APHA Species Report did not identify any relevant studies in relation to other issues with public health and public safety.

We conclude that there is not a genuine need in this case.

We do not recommend that rook should be included on general licence under s.16(1)(i) for other public health or public safety reasons.

Theme C – Purpose 'to prevent serious damage'

Respondents were able to select species against each of the eight sub-categories we offered in the survey under the prevention of serious damage purpose – that is 'livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters'. All the evidence submitted for these sub-categories has been analysed. In carrying out this analysis, it has become clear that some evidence in relation to spread of disease to livestock was provided under both the livestock and feedstuffs sub-categories. In addition, the issues raised in relation to crops, fruit and vegetables were similar.

This has highlighted a need for the sub-categories on the licences themselves to be amended to be precise and helpful for users. We have therefore decided to use the following categories in our licences:

- livestock attacks;
- feedstuffs and the spread of disease;
- crops, fruit and vegetables;
- growing timber;
- fisheries; and
- inland waters.

This means that the issue of the spread of disease through all forms of transmission is included under the category of “feedstuffs and the spread of disease”, while the “livestock attacks” category covers direct attacks on livestock.

Below, we set out the evidence against the original categories, and then the recommendations follow the new categories.

Carrion Crow

1,402 respondents identified a need to include carrion crow on the preventing serious damage general licence and 90 said that it should be removed for all serious damage sub-categories.

Preventing serious damage to livestock & feedstuffs for livestock

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

1,260 (60%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing serious damage to livestock and 665 (32%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing serious damage to livestock feedstuffs.

The main reason respondents identified the need for including carrion crow in relation to preventing serious damage to livestock was that they attack lambs.

The majority of respondents who identified a need backed this up with simple statements such as “Damage to new-born lambs”, without going into detail regarding specific circumstances.

One respondent said: “Carrion crows attack both healthy and poorly lambs in all parts of the country they will eat the tongues and anus of new born lambs and go for their eyes. With healthy lambs whilst the mother is giving birth to her second lamb this is when the crows will go for the lamb, they will be watching and waiting. This causes an incredible amount of pain to the lambs resulting in the farmer having to euthinase [sic] the lambs. This is not a rare occurence [sic] unfortunately it is becoming very typical due to the overpopulation of these birds which have no preditors [sic]. The result of this causes welfare concerns for the lambs and farmers who are losing money.”

Another said: “Carrion crows regularly predate on young lambs. I have witnessed many instances of injury and death caused by carrion crows. In 2019 I lost 6 new-born pedigree Texel lambs worth approximately £250 each to carrion crows. Some were found still alive but with eyes removed or disembowelled via the anus. The affected lambs had to be euthanised.”

And another said: “Crows kill new-born lambs, usually by pecking out their eyes. It's a terrible thing to witness when one isn't in a position to do anything about it. Carrion Crows also take …young chicks from free range hens, and piglets under the same circumstances.”

The main reasons respondents identified the need for including carrion crow in relation to preventing serious damage to livestock feedstuffs was that they cause damage or contamination.

One respondent said: “Defecate in livestock feed. Carrion crows are extremely intelligent birds and soon work out how to get into feeders designed to keep them out.”

Another respondent said: “Crows also steal food from livestock feed stations and gamebird feed hoppers, an issue in itself but also providing a vector to spread livestock diseases.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

82 (54%) respondents to this question said they did not want carrion crow included on general licence for the purpose of preventing serious damage to livestock and 70 (46%) respondents to this question said they did not want carrion crow included on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

The main reasons that respondents identified were that alternative solutions should address the issue, lethal control should not be an option, or that there was no evidence of serious damage.

One respondent said that “Crows do not inhibit viable farming methods and are essential in helping to dispose of carrion”.

In relation to feedstuffs, one respondent said: “I know of absolutely NO evidence that the Carrion Crow causes any such damage. The onus should be on people to keep eg livestock feed in bins or and protecting farmed birds from having their food stolen by wild birds. not a valid reason for allowing lethal control under a General Licence.”

Organisational Responses

National Sheep Association (NSA) members gave accounts of attacks on ewes and lambs saying: "Carrion Crows cause devastation in outdoor lambing flocks and cast sheep. We lost four ewes cast in 2018 which were disembowelled by crows.

Every year we have to euthanase [sic] at least 10-15 otherwise fully viable lambs that had had their tongues, navels and /or eyes pecked out by carrion crows either just after being born or indeed quite often whilst only having reached the “head out” stage. Crows could be seen sitting in the trees on field boundaries waiting for ewes to start lambing. They work so fast that I could check round a 25-acre paddock only to find that a lamb freshly born and Ok as I entered the field was mutilated 5 -10 minutes later! The only possible course of action was to put the lamb down.

Another favourite target is “cast” ewes. Here again, eyes are a favourite target, with teats also in danger. In addition, it was not unusual to find holes pecked in their distended abdomen, all this in the still living sheep!! Euthanasia was then often the only option a considerable financial loss with a heavily pregnant ewe, plus, disposal cost...not to mention the emotional cost to the shepherd/farmer involved."

46% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control carrion crow and of those 53% gave agriculture as a reason.

The predominant reason given was protection of vulnerable livestock, for example new born lambs.

60% of 148 respondents to the NFU's online survey considered that carrion crow needs to be controlled as they attack young lambs, weak sheep, ewes when lambing, calves and poultry. One of their respondents said: "We lamb indoors; turn lambs out 3-7 days old. Crows and gulls take eyes out as lambs sleep, usually causing death to the lamb. This is usually specific birds that learn to use this food source; it's about lethal control of specific birds." Another said: "I lamb inside and then turn out to lessen predation. It works but is a more expensive and input heavy way of producing lamb."

24% of respondents to the NFU survey said that there was a need to have carrion crow on the general licence to prevent serious damage to feedstuffs for livestock. One respondent to that survey said that "Crows enter animal feed stores and tear open wrapped silage bales looking for insects and grubs", whilst another said that "They peck holes in silage bale plastic when food is short, this allows air in and initiates spoilage of the silage so reducing its nutritional value and causing health hazards from mould toxins".

Regarding the spread of disease, NFU members commented that "We now store all feed bags and blocks indoors, but they do peck at the blocks in the fields and could easily spread disease", "They contaminate feeding areas, with faeces", and that "They make a big mess with the livestock feed by spreading it everywhere and pooing in it which will then pass diseases onto the livestock".
The Great Broughton Woodpigeon Club (GBWC) said that: "carrion crows, along with rooks and jackdaws, cause serious damage to silage bales by pecking holes in the plastic cover, letting in air and ruining the whole bale. GBWC members have protected crops from carrion crows and other corvids on about 46 occasions each year."
BASC said "we recommend that carrion crows remain on the general licence to prevent damage to foodstuffs for livestock", in relation to crows consuming crops, some of which would be used to feed livestock.

The RSPB said they were aware of no evidence supporting retention of this species on the serious damage licence and went on to quote SNH Research report 1136[32] which concluded: "There was little evidence in the literature that magpie, carrion/hooded crow or jackdaw are likely to impact on livestock or agriculture to support their inclusion on General Licence 2." They went on to refer to the Natural Resources Wales General Licence review which concluded that there was "No published scientific evidence that this species may cause serious damage/harm to livestock or crops."

[32] NRW General Licence Review Report. Assessment of the evidence base and recommendations for inclusion of wild birds listed on General licences (001, 002, 003 & 004) in Wales and whether there are other non-lethal satisfactory solutions available.

In conclusion the RSPB acknowledged that "there may be some circumstances where carrion crows can cause serious damage but recommend that this is best dealt with under individual licences."

Wild Justice said: "We recognise that Carrion Crows do occasionally attack livestock, particularly newly born lambs (and as we understand it pigs and some poultry (maybe)). The evidence quoted by Natural England in their licence determination document for GL26 relies largely on Houston 1977[33] for impact even though this was a study carried out in Scotland (not England) which mainly looked at Hooded Crow (not Carrion Crow) and is over four decades old.

Houston showed that most cases of Carrion Crows attacking lambs (and this is dealing with an upland situation lot [sic] lowland farms) were after the lamb had died, or of lambs that were dying and where the crow attack would have caused distress and pain but was not the cause of death. These are essentially issues of sheep husbandry not wildlife damage.

We accept that a general licence might be justified for these cases, but this should be strictly prescribed to prevent misuse. For example, the general licence for killing Carrion Crows to protect sheep should specify clearly the non-lethal methods that must be employed and frequent visiting of livestock should be a large part of this. Any licence should only be valid during the months of February-April inclusive- the main outdoor lambing season."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **medium-low** strength of evidence for an impact of carrion crow on livestock through predation or damage.
- Overall, there is **medium-low** strength of evidence for an impact of carrion crow on livestock through the spread of disease. However, this relates to the evidence for crows carrying pathogens common to livestock; evidence for actual transmission of disease to livestock is not shown. The latter reflects an evidence gap as few studies have attempted to quantify either the risk or actual rates of transmission.
- There were no specific studies relating to serious damage of feedstuffs for livestock.

What does "medium-low strength of evidence" mean?

[33] Houston, D. 1977. The Effect of Hooded Crows on Hill Sheep Farming in Argyll, Scotland: Hooded Crow Damage to Hill Sheep. Journal of Applied Ecology, Vol. 14, No. 1: 17-29

In relation to serious damage, **Medium-Low** means some likelihood of an effect in some circumstances, and this effect on livestock predation or harm does not result in significant damage.

In relation to livestock disease, **Medium-low** means that it is likely that individuals of the species carry disease common to livestock, but transmission is not shown.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

The responses to the Defra survey identified a very strong need to control carrion crow for the prevention of serious damage to livestock, particularly through predation (damage) on lambs and ewes. Respondents to the survey said they have observed livestock, and particularly ewes and lambs, being injured or killed by carrion crow predation.

In respect of predation/harm, all the studies identified in the APHA Report are from the period 1963-1994. There have been several changes that will affect the exposure of livestock to predation since then:

- Animal husbandry has changed. For example, extensively managed flocks that lamb outside and are without constant supervision are, due to pressure on lamb prices, increasing. Other extensive systems for poultry and pigs also exist.

- Since 1995 the crow population has increased 29% in UK.

Whether predated animals were dead or terminally ill before the attacks happened is unknown, but this would make up at least a proportion of the impact. However, the experiences provided by respondents to the Defra survey said that in many cases the animals were alive, including attacks that have occurred whilst for example ewes were lambing. That carrion crow peck out the eyes and attack the soft tissue of animals brings stockholders in conflict with their duties under the Animal Welfare Act 2006 to prevent unnecessary suffering.

We conclude that there is a genuine need in this case.

Regarding serious damage to feedstuffs and spread of disease, there are several interrelated issues to consider:

- Serious damage to feedstuffs can include consuming those feedstuffs; as well as spreading disease through contaminating them; and
- Birds spreading disease to livestock is often likely to be linked to feedstuffs, whether through direct contamination or because those feedstuffs attract the birds to areas where the livestock live, eat and drink, and the birds then contaminate these areas via, for example, their faeces.

Respondents identified a strong need to control carrion crow in relation to these issues. For example, respondents said they had experienced carrion crow consuming and fouling in feedstuffs, as well as wider disease problems related to this activity.

The scientific literature shows evidence that crow carry pathogens harmful to livestock. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to livestock unless there is significant exposure that could enable transmission. The scientific literature has either not demonstrated or not considered routes of transmission to livestock. This represents a scientific evidence gap.

We consider that user evidence fills this gap, as it has demonstrated the exposure of livestock. Both individual and organisational responses to the survey said that carrion crow can pose a serious threat to livestock in terms of consumption, spoiling and contamination of feedstuffs and wider issues around spread of disease, citing specific examples of where problems had occurred.

We conclude that there is a genuine need in this case.

In conclusion, we find that:

- there is a genuine need to include carrion crow for the purpose of preventing livestock attacks; and
- there is a genuine need to include carrion crow for the purpose of preventing serious damage to feedstuffs and the spread of disease.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread livestock attacks, consumption and contamination of livestock feedstuffs and associated disease risks by carrion crow, suggest the use of a general licence for this purpose is appropriate.

Regarding livestock attacks, there is sufficient evidence of how widespread this issue is, how carrion crow predate, how husbandry and carrion crow numbers have changed since the science was done, and the experience of stockholders and their legal duties, to warrant a general licence for this purpose.

Lethal control in these areas is proportionate to the scale of the problem, as the problems are widespread with supporting statements from the survey indicating that livestock, their living areas and livestock feedstuffs are exposed to carrion crow in significant quantities. On the assumption of a viable transmission route for disease, lethal control of crows will reduce local populations and therefore reduce the risk of transmission.

We have considered whether to restrict where and when lethal control of carrion crow is allowed under general licence for these purposes.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Issues relating to damage to livestock feedstuffs and spread of disease can happen at any time of year. While lambing occurs during the springtime, other livestock can be vulnerable to attack throughout the year. For example, sows may breed two or more times a year and poultry can be raised year-round. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g.

where from past experience a farmer considers that crows are likely to attack certain livestock and, to prevent or mitigate this, the farmer wants to reduce crow numbers before the time when the livestock is vulnerable.

Our view is therefore that a time of year restriction is not warranted.

We recommend that carrion crow should be included on general licence under s.16(1)(k) for the purposes of :

- **preventing serious damage to livestock; and**
- **preventing serious damage to livestock feedstuffs, and the spread of disease.**

Prevention of serious damage to crops, vegetables and fruit

The survey responses were similar for 'crops', 'vegetables' and 'fruit', so they have been considered together in this section.

C.1.Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

761 (36%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing serious damage to crops.

312 (15%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing serious damage to vegetables.

263 (13%) respondents to this question identified a need to include carrion crow on general licence for the purpose of preventing serious damage to fruit.

Where respondents gave reasons as to why carrion crow should be on general licence for this purpose, they tended to be simple statements such as "carrion crow cause damage". Where respondents specified a specific crop type, the most specified was newly sown cereal crops.

One respondent said: "They will attack a field that has just been sown with crop and literally walk down the lines where the crops have been planted and peck out each seed."

Another respondent said that "they have a huge impact of apple, pear and cherry crops and will attack the moment the crops are ripe enough".

Another respondent said: "Observed large flocks decimating own apple trees."

C.3.Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

73 (48%) respondents to this question considered that carrion crow should not be included on general licence for the purpose of preventing serious damage to crops.

74 (48%) of respondents to this question considered that carrion crow should not be included on general licence for the purpose of preventing serious damage to vegetables.

75 (49%) of respondents to this question considered that carrion crow should not be on general licence for the purpose of preventing serious damage to fruit.

The main reasons that respondents identified for not including carrion crow on general licence for these purposes were that alternative solutions should address the issue, lethal control should not be an option, and that there was no evidence of serious damage.

One correspondent said: “Carrion Crows eat carrion [road kill], insects, worms, seeds, fruit, eggs and any scraps. They do not represent a threat to: … crops, vegetables, fruit”.

Organisational responses

The Great Broughton Woodpigeon Club (GBWC) said: “Carrion crows (along with the other corvids) cause serious damage to wheat and barley crops when the first shoots appear above ground as they pull out and eat the seed. It is not uncommon for 25% to 30% of a field to be destroyed in this way. They also consume ripening crops prior to harvest, usually starting from the edge of a field or on a patch that has been laid by wind or rain and have been seen to move at the rate of 1 – 2 metres per day consuming their way across the field.”

32% of the 148 respondents to the NFU’s online survey said that carrion crow damages crops, and 6% and 7% indicated that crows should be controlled to protect vegetables and fruit respectively. One respondent to that survey said: “As an arable farm we have seen the devastating effect carrion crow can cause on newly-drilled crops, where they have the intelligence to walk along rows picking off not only the emergent shoot but to anticipate the seed.” Another said: “Beans/Peas crops can be severely affected because of the low seed rate and palatability (high seed cost) Barley grazing in the pre-harvest period can lead to crop contamination, lodging and re-growth.”

A third respondent to that same survey said: “Carrion crows will join large flocks of rooks and jackdaws and pigeons to pull down barley crops (and even wheat) at the cheesy-ripe stage before harvest. Many acres of crop can be destroyed like this. They are very intelligent birds that learn very quickly.” A fourth said: “…And they also cause damage to the fruit while it’s still on the tree before its ready to pick!”

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there was insufficient data in relation to carrion crow and the prevention of serious damage to crops.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

The APHA Species Report found that there was insufficient data to make a judgement.

Responses to the Defra survey identified a strong need to control carrion crow for the prevention of serious damage to crops, fruit and vegetables. This was more limited in relation to vegetables and fruit, reflecting the relative size of the horticultural sector in

England. It is noted however that respondents may have been conflating damage to vegetables and fruit with damage to crops more generally.

Both individual and organisational responses to the survey said that carrion crow can pose a serious threat to crops in terms of consumption and spoiling, citing specific examples of where problems had occurred. Respondents described having witnessed carrion crow feeding on and damaging crops, vegetables and fruit.

We conclude that there is a genuine need in this case.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of crops by carrion crow, including vegetables and fruit, suggest the use of a general licence for these purposes is appropriate.

Lethal control to protect crops is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating crops are exposed to carrion crow in significant quantities. Lethal control of carrion crow will reduce populations and therefore reduce the level of impact on crops.

We have considered whether to restrict where and when lethal control of carrion crow is allowed under general licence for the purpose of preventing serious damage to crops including fruit and vegetables.

Farms exist across the country in many different types of rural and peri-urban settings; therefore we do not consider that a restriction by geography is necessary or feasible.

Serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that carrion crows are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce carrion crow numbers before the crop is planted. Our view is therefore that a time of year restriction is not warranted.

We recommend that carrion crow should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to crops, including fruit and vegetables.

Prevention of serious damage to growing timber, fisheries and inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1.Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

57 (3%) respondents to this question considered that carrion crow should be included on general licence for the purpose of preventing serious damage to growing timber.

78 (4%) respondents to this question considered that carrion crow should be included on general licence for the purpose of preventing serious damage to fisheries.

61 (3%) respondents to this question considered that carrion crow should be included on general licence for the purpose of preventing serious damage to inland waters.

C.3.Which bird species do you consider should NOT be controlled under general licence for preventing serious damage to growing timber, fisheries and inland waters and why?

69 (45%) respondents to this question considered that carrion crow should not be included on general licence for the purpose of preventing serious damage to growing timber.

70 (46%) respondents to this question considered that carrion crow should not be included on general licence for the purpose of preventing serious damage to fisheries.

69 (45%) respondents to this question considered that carrion crow should not be included on general licence for the purpose of preventing serious damage to inland waters.

Where respondents said that carrion crow should not be on general licence for these purposes, they said that this was because alternative solutions should address the issue and that lethal control should not be an option.

Organisational responses

No organisation said that carrion crow should be added or removed from general licence specifically relating to the prevention of serious damage to growing timber, fisheries and inland waters.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to carrion crow and the prevention of serious damage to growing timber, fisheries and inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified some need to control carrion crow for the purposes of the prevention of serious damage to growing timber, fisheries and inland

waters, this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of carrion crow on the prevention of serious damage to growing timber, fisheries and inland waters.

We conclude that there is not a genuine need in these cases.

We do not recommend that carrion crow should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to growing timber, fisheries or inland waters.

Feral Pigeon

1,267 respondents identified a need to include feral pigeon on the serious damage general licence and 60 said that they should be removed for all serious damage sub-categories.

Preventing serious damage to livestock & feedstuffs for livestock

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

319 (15%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to livestock and 838 (40%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

The main reasons respondents identified for including feral pigeon for the preventing serious damage to livestock purpose were that they attack livestock.

Most respondents who identified a need backed this up with simple statements like “to protect farm animals/poultry from attack and Disease” as reasons why feral pigeon should be included on a general licence to protect livestock.

No detailed information was provided regarding feral pigeon attacks on livestock.

The main reasons respondents identified for including feral pigeon for the purpose of preventing serious damage to feedstuffs were that they spoil and consume the feedstuffs.

Most respondents who identified a need backed this up with simple statements like “spoiling of livestock feeds have been witnessed” and “consume large amounts of crops and feed stuffs”.

Where more detailed information was provided regarding livestock food consumption, one respondent said: “Feral Pigeons are attracted to farms both for nesting sites and for the supply of food. Food that is available to large animals will inevitably be accessible to birds.”

Another respondent said: “Feral pigeons are drawn to buildings, particularly with livestock in, their droppings are in the animal feedstuffs, [of] which the pigeons consume considerable amounts.”

With regard to disease risk, one respondent said: “Feral Pigeons carry and spread several serious diseases. Their contaminated droppings foul the food-stocks and drinking water of farmed animals (cows and sheep) and pose a serious health risk to farmed animals.”

Another respondent said: “At a chicken farm where I have controlled birds the excrement within the chicken pen and food storage area poses a risk of diseases such as bird flu of which a few years ago caused the death of the entire flock of egg laying hens.”

C.3. Which bird species do you consider should NOT be controlled under general licence to prevent serious damage and why?

51 (33%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to livestock and 47 (31%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

In both cases, where reasons were given, these included that alternative solutions should address the issue and that there was no evidence of serious damage.

The majority of respondents who said they did not want feral pigeon on general licence backed this up with simple statements like “Wild birds should only be killed or taken as a last resort” or “Lethal control can only be justified when a genuine and serious problem exists”.

One respondent said: “Feral Pigeons eat: almost anything and everything, however this does not represent a threat to livestock…So there is NO evidence to suggest that Feral Pigeons need to be controlled under general licence to prevent serious damage to livestock.”

Another respondent said: “Feral Pigeon is not a serious threat to livestock…If it is shown that there is a serious threat, an individual licence is adequate to cope with a demonstrated need in a particular instance. Deterrence or bird proofing will be more successful than killing.”

Organisational Responses

5% of the 148 respondents to the NFU’s online survey indicated that feral pigeon should be on the general licence to prevent serious damage to livestock, but no supporting information relating to feral pigeon attacking or predating livestock was submitted.

In relation to preventing serious damage to livestock feedstuffs, the Great Broughton Woodpigeon Club (GBWC) said: “Feral Pigeons are attracted to farms both for nesting sites and for the supply of food. Food that is available to large animals will inevitably be accessible to birds. GBWC is regularly requested to control Feral Pigeons around farm buildings. On one farm where large numbers of Feral Pigeons were flying several miles from the local town about 1600 birds were culled before the problem was brought under control.”

35% of the 148 respondents to the NFU's online survey indicated that feral pigeon should be on the general licence to prevent damage to livestock feedstuffs. Comments from their respondents include: "Feral pigeon faeces on livestock feeding areas which increase the chance of avian infections within cattle", "We have numerous feral pigeons eating and fouling livestock feed", "Yards close to villages and houses where feed has been stored have been vulnerable for feedstuffs", and "Feral pigeons roost and feed in sheds and near feedstuffs and their droppings contaminate".

The Countryside Alliance said: "Feral pigeons occur in large numbers around grain stores and areas that store food stuffs for livestock. They scavenge this food at flock levels and can lead to severe loss of quantity and quality of food stuffs."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There were no relevant studies in relation to feral pigeon attacking livestock.
- Overall, there is **medium-high** strength of evidence for an impact of feral pigeon on livestock through the spread of disease. However, this relates to the evidence for feral pigeon carrying pathogens common to livestock; evidence for actual transmission of disease is rare. The latter reflects and evidence gap as few studies have attempted to quantify either the risk or actual rates of transmission.
- Overall, there is **medium-high** strength of evidence for feral pigeons causing serious damage to foodstuffs for livestock.

What does 'Medium-High strength of evidence' mean?

In relation to animal disease **Medium-High** means it is very likely that individuals of the species carry disease common to livestock with some likelihood of transmission in some circumstances.

In relation to serious damage **Medium-High** means some likelihood that a high effect occurs in some circumstances, and this effect on foodstuffs for livestock results in significant damage.

For both their effect on livestock through the spread of disease and on livestock foodstuffs, more studies with medium or high scientific rigour found a high impact than a low/nil impact, and so the strength of evidence for an effect is considered to be medium-high and worthy of further consideration.

The evidence is mixed on whether birds access stored grain or only take spilled grain. It is likely that ease of access is the main determinant. All of the studies on foodstuffs for

livestock refer to stored grain. Pimentel et al. (2000, 2001)[34] state that feral pigeons cause large amounts of damage to stored grain in the U.S. Several studies refer to damage to stored grain without quantifying it (FERA 2009[35], Giunchi et al. 2012[36], Johnston & Janiga 1995[37], Saini & Toor 1991[38]). Murton et al. (1972)[39], however, found that feral pigeons at Salford docks only took spillage grain, therefore did not contribute to losses.

Recommendations

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although some respondents referred to feral pigeon attacking livestock, no detailed information was submitted and there were no studies relating to this impact to assess as part of the APHA Species Report.

We conclude that there is not a genuine need in relation to livestock attacks.

Regarding serious damage to feedstuffs and spread of disease, there are several interrelated issues to consider:

- Serious damage to feedstuffs can include consuming those feedstuffs; as well as spreading disease through contaminating them; and
- Birds spreading disease to livestock is often likely to be linked to feedstuffs, whether through direct contamination or because those feedstuffs attract the birds

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[34] Pimentel D, Lach L, Zuniga R, Morrison D. 2000. Environmental and Economic Costs of Nonindigenous Species in the United States. BioScience, 50(1) pp: 53-65

Pimentel D, McNair S, Janecka J, Wightman J, Simmonds C, O'Connell C, Wong E, Russel L, Zern J, Aquino T, Tsomondo T. 2001. Economic and environmental threats of alien plant, animal, and microbe invasions. Agriculture, Ecosystems & Environment 84(1) (March 2001), pp: 1-20

[35] Fera. 2009. Overview of conflicts between human and wildlife interests in the UK. Report to Defra.

[36] Giunchi D, Albores-Barajas YV, Baldaccini NE, Vanni L & Soldatini C. 2012. Feral pigeons: problems, dynamics and control methods. In Integrated pest management and pest control-Current and future tactics. IntechOpen.

[37] Johnston RF & Janiga M. 1995. The Feral Pigeons, Oxford University Press, ISBN 0195084098, London

[38] Saini HK & Toor HS. 1991. Feeding ecology and damage potential of feral pigeons, *Columba livia*, in an agricultural habitat. Le Gerfaut 81: 195-206

[39] Murton RK, Thearle RJP & Thompson J. 1972. Ecological Studies of the Feral Pigeon *Columba livia* var. I. Population, Breeding Biology and Methods of Control. Journal of Applied Ecology. 9(3): 835-874

to areas where the livestock live, eat and drink, and the birds then contaminate these areas via, for example, their faeces.

Respondents identified a strong need to control feral pigeon in relation to these issues. For example, respondents said they had experienced feral pigeon consuming and fouling in feedstuffs, as well as wider disease problems related to this activity.

The APHA Species Report identified medium-high strength of evidence for an impact of feral pigeon both through the spread of disease and through the consumption and spoiling of feedstuffs. The scientific literature shows evidence that feral pigeon carry pathogens harmful to livestock. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to livestock unless there is significant exposure that could enable transmission. The scientific review provided limited evidence of transmission to livestock, representing an evidence gap.

We consider that user evidence fills this gap, as it has demonstrated the exposure of livestock. Both individual and organisational responses to the survey said that feral pigeon can pose a serious threat to livestock in terms of consumption, spoiling and contamination of feedstuffs and wider issues around spread of disease, citing specific examples of where problems had occurred.

Our view is that some livestock rearing facilities and areas where foodstuffs are present can be proofed against access by feral pigeon. However, some cannot. Bird proofing of cattle barns can reduce ventilation and lead to pneumonia in livestock for example. Stored feedstuffs (prior to them being made available to livestock to consume) can be exposed to and consumed or spoilt by feral pigeons.

We conclude that there is a genuine need in this case.

In conclusion, we find that:

- there is no genuine need to include feral pigeon for the purpose of preventing livestock attacks; and
- there is a genuine need to include feral pigeon for the purpose of preventing serious damage to feedstuffs and the spread of disease.

We recommend that feral pigeon should not be included on general licence under s.16(1)(k) for the purpose of preventing livestock attacks.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of livestock feedstuffs and associated disease risks by feral pigeon, suggest the use of a general licence for these purposes is appropriate.

Lethal control in these areas is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating that livestock, their living areas and livestock feedstuffs are exposed to feral pigeon in significant quantities. On the assumption of a viable transmission route for disease, lethal control of rooks will reduce local populations and therefore reduce the risk of transmission.
We have considered whether to restrict where and when lethal control of feral pigeon is allowed under general licence for the purpose of preventing serious damage to livestock

feedstuffs and spread of disease. Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible. In addition, issues relating to damage to livestock feedstuffs and spread of disease can happen at any time of year, therefore we do not believe that a time of year restriction is warranted.

We recommend that feral pigeon should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to livestock feedstuffs and preventing the spread of disease.

Preventing serious damage to crops, vegetables and fruit

As the conclusions of the APHA Species Report and responses to survey were similar for 'crops', 'vegetables' and 'fruit', they have been considered together in this section.

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

1,115 (53%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to crops.

570 (27%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to vegetables.

436 (21%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to fruits.

The main reasons that respondents identified the need for controlling feral pigeon for this purpose were that they eat and damage crops.

Most respondents who identified a need backed this up with simple statements like "they cause damage to crops" and "They eat corn at harvest" as reasons why feral pigeon should be included on a general licence to protect crops.

Where more detailed information was provided, one respondent said that "feral pigeon causes significant amount of damage to crops every year as each bird will consume in the region of a golf ball of crop 4-5 times a day".

Another respondent said that "feral pigeons often join flocks of wood pigeon to feed on a wide variety of crops, seedlings, and near to harvest (Cereals, Peas, Rape, any leafy vegetables such as brassicas, lettuce etc...)".

Another respondent said: "There is a substantial Feral Pigeon population in the UK. The RSPB website gives the population at 550,000 breeding pairs. They have green status and are of least conservation concern. Their diet is of seeds and cereals. In my experience of protecting crops for farmers, I have seen local populations of feral pigeons which tend to reside in and around farm buildings, feeding upon animal feed, but also raiding growing crops in the same way that Wood Pigeons do. They contribute to overall pigeon crop damage."

Another respondent said: "Feral pigeons cause massive amounts of damage to stone fruit crops by ripping off buds."

C.3. Which bird species do you consider should NOT be controlled under general licence to prevent serious damage and why?

55 (36%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to crops.

47 (31%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to vegetables.

50 (33%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to fruits.

The main reasons that respondents identified were that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.

Where respondents said they did not want feral pigeon on general licence for this purpose, they backed this up with simple statements like “Wild birds should only be killed or taken as a last resort. Lethal control can only be justified when a genuine and serious problem exists” and “This is a native species. It is NEVER acceptable to use lethal control on a native species for economic benefit”.

One correspondent said: “Feral Pigeon is not a serious threat to crops…. General licences are not necessary or desirable to control Feral Pigeon, because businesses and farmers can use deterrents to protect their produce. If it is shown that there is a serious threat, an individual licence is adequate to cope with a demonstrated need in a particular instance. Deterrence or bird proofing will be more successful than killing.”

Organisational Responses

The Tenant Farmers Association said that: “[Feral] Pigeons destroy oil seed rape and other brassica crops even when a bird deterrent device is used in the field, pigeons will still eat the crops. Farms are overrun with wild birds especially pigeons. The bird population needs to be controlled within the immediate vicinity of farm storage buildings to enable farmers to have a chance of meeting the requirements of farm assurance schemes which require farmers to prevent bird entry to all long-term storage.”

One respondent to the GWCT survey in respect of the Defra 2019 call for evidence said: “Being relatively tame, they are not afraid of the human presence and encourage Wood Pigeons in as decoys in effect.”

Another respondent to that survey said: “Whilst not as numerous as Woodpigeons, Feral Pigeons are just as damaging to newly sown crops and ripening crops.”

64% of the 148 respondents to the NFU’s online survey indicated that feral pigeon should be on the general licence to prevent damage to crops. One respondent said that feral pigeon “devastated a pea crop – loss of yield and therefore loss of income – sheer numbers cause thousands of pounds of damage”.

18% of the 148 respondents to NFU survey said feral pigeon should be on the general licence to protect vegetables. One respondent said that they “can't grow any brassica crops or Sunflower crops for pollen and nectar and for wild bird seed without controlling wood pigeon and feral pigeon”.

The RSPB said for serious damage: “We have no issue with feral pigeon being retained on this licence.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **Medium-High** strength of evidence for an impact of feral pigeon on crops.

What does “Medium-High” strength of evidence mean?

In relation to serious damage**, Medium-High** means some likelihood that a high effect occurs in some circumstances, and this effect on crops results in significant damage.

Of the nine relevant studies, two presented high strength of evidence and seven presented medium strength of evidence, providing an overall medium-high strength of evidence for an effect of feral pigeon on crops.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Responses to the Defra survey identified a strong need to control feral pigeon for the prevention of serious damage to crops, fruit and vegetables. This was more limited in relation to vegetables and fruit, reflecting the significantly smaller horticulture sector compared to the cereal crop sector. It is noted however that respondents may have been conflating damage to vegetables and fruit with damage to crops more generally.

The APHA Species Report concludes that there is some likelihood that significant crop damage occurs in some circumstances. Both individual and organisational responses to the survey said that feral pigeon can pose a serious threat to crops in terms of consumption and spoiling, citing specific examples of where problems had occurred. Respondents described having witnessed feral pigeon feeding on and damaging crops, vegetables and fruit. This feeding activity occurs both in the field where crops are being cultivated and in and around farm building where they are stored.

We conclude that there is a genuine need in this case

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of crops by feral pigeon, including vegetables and fruit, suggest the use of a general licence for these purposes is appropriate.

Lethal control to protect crops is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating crops are exposed to feral pigeon in significant quantities. Lethal control of feral pigeon will reduce local populations and therefore reduce the level of impact on crops.

We have considered whether to restrict where and when lethal control of feral pigeon is allowed under general licence for the purpose of preventing serious damage to crops including fruit and vegetables.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that feral pigeons are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce feral pigeon numbers before the crop is planted. Our view is therefore that a time of year restriction is not warranted.

We recommend that feral pigeon should be included on general licence under s.16(1)(k) for the purposes of preventing damage to crops, vegetables and fruit.

Preventing serious damage to growing timber, fisheries and inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

57 (3%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to growing timber.

57 (3%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to fisheries.

59 (3%) respondents to this question identified a need to include feral pigeon on general licence for the purpose of preventing serious damage to inland waters.

Of those that gave reasons which identified the need for controlling feral pigeon for this purpose, the most popular related to damage.

One respondent said: “damages… trees by eating blossoms and buds”.

Another respondent said: “To minimise damage to … fisheries and inland waters.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

48 (31%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to timber.

48 (31%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to fisheries.

49 (32%) respondents to this question said they did not want feral pigeon included on general licence for the purpose of preventing serious damage to inland waters.

The main reasons that respondents identified were that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.

Organisational responses

No organisations submitted statements to expressly support control of feral pigeon for this purpose or otherwise gave specific reasons as to why feral pigeon should not be included on general licence for this purpose.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to feral pigeon and the prevention of serious damage to growing timber, fisheries and inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified an apparent need to control feral pigeon for the prevention of serious damage to growing timber, fisheries and inland waters, this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of feral pigeon on the prevention of serious damage to growing timber, fisheries and inland waters.

We conclude that there is not a genuine need in these cases.

We do not recommend that feral pigeon should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to growing timber, fisheries and inland waters.

Jackdaw

989 respondents identified a need to include jackdaw on the preventing serious damage general licence and 94 said that it should be removed for all serious damage sub-categories.

Preventing serious damage to livestock & feedstuffs for livestock

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

640 (30%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to livestock and 626 (30%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

In relation to serious damage to livestock, the main reason respondents identified was that they attack livestock by pecking.

The majority of respondents who identified a need did so via simple statements like “They kill my lambs”.

One respondent said that “Jackdaws eat the eyes and other soft tissue on many new-born or older livestock” while another respondent said: “Can be both harmful to both new born lambs & pigs, also a threat to maternal sheep & sows after giving birth.”

In relation to serious damage to feedstuffs for livestock, the main reasons respondents identified were that they contaminate and damage feedstuffs for livestock.

The majority of respondents who identified a need did so via simple statements such as “Regular poaching of feedstuffs in high numbers”.

One respondent commented on the risk of disease transmission: “Jackdaws are attracted to farm buildings both for nesting sites and for the supply of food. Food that is available to large animals will inevitably be accessible to birds. Consequently, both animal feed and water troughs become contaminated with faeces which can result in the transmission of disease, with lambs, calves and piglets especially vulnerable.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

87 (57%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to livestock and 69 (45%) respondents to this question said they did not want jackdaw included on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

The main reasons that respondents identified were that alternative solutions should address the issue, lethal control should not be an option, and that there was no evidence of serious damage.

One respondent said: “Very little evidence other than anecdotal that Jackdaw predate livestock.”

Organisational responses

In relation to serious damage to livestock, 24% of the 148 respondents to the NFU’s online survey identified a need for jackdaw control. One respondent said that “Jackdaws will attack animals when they have lambed or calved or are ill”, whilst another said: “They cause harm to the sheep by pecking their eyes out while they are still alive if the sheep has gone ill and is unable to defend itself”.

The National Sheep Association did not indicate a need to include jackdaw on general licence for this purpose.

In relation to serious damage to feedstuffs, the Game & Wildlife Conservation Trust’s (GWCT’s) response to the review said that farmers described damage to harvested silage and contamination of feed and water for livestock, with some reports of direct mortality as a result. One respondent to the GWCT survey said: “Bird control of the species listed is crucial for us. When we stopped controlling jackdaws due to the 'ban' our pig food costs went up by 110% in a week as did our poultry feed. The disease control had to be increased and our egg yield fell as eggs were being taken all of the time”. Another said: “Defecating over feed for milking cows and breaking into silage clamps. Causing damage to seed drillings and also damage in livestock sheds and grain stores”.

BASC said: “Damage can also be caused to food stored for livestock and in Ireland jackdaws were one of the main species that damaged plastic film on baled grass silage, these holes can result in serious forage losses (McNamara, O’Kiely, Whelan, Forristal, & Lenehan, 2002; McNamara et al., 2004)[40].”

30% of the 148 respondents to the NFU’s online survey identified a need for jackdaw control in relation to the prevention of damage to feedstuffs for livestock. One respondent to their survey said: “Can eat animal feedstuffs in the field and in stores with potential for contamination from their droppings.”

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[40] An Investigation into the Pattern of Bird Damage to the Plastic Stretch Film on Baled Silage in Ireland K. McNamara, P. O'Kiely, J. Whelan, P. D. Forristal, J. J. Lenehan and J. P. Hanrahan

Biology and Environment: Proceedings of the Royal Irish Academy Vol. 104B, No. 2 (Aug., 2004), pp. 95-105

In contrast, the RSPB said: “We are aware of no evidence supporting retention of this species on this licence. SNH Research report 1136[41] found that “There was little evidence in the literature that magpies, carrion/hooded crow or jackdaw are likely to impact on livestock or agriculture to support their inclusion on General Licence 2.”

Wild Justice said: “No evidence for serious impacts as far as we know - certainly not enough to justify a general licence rather than licensing on a case-specific basis on application.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There were no studies on jackdaw predating or damaging livestock, apart from one which reported that jackdaws have been observed pulling wool off of the backs of sheep.
- There were no studies on jackdaw causing serious damage to feedstuffs for livestock.
- Overall, there is **Medium** strength of evidence for an impact of jackdaw on livestock through the spread of disease. However, this relates to the evidence for jackdaw carrying pathogens common to livestock; evidence for actual transmission of disease to livestock is not shown. The latter reflects an evidence gap as few studies have attempted to quantify either the risk or actual rates of transmission.

What does “Medium” strength of evidence mean?

In relation to livestock disease, **‘Medium’** means it is very likely that individuals of the species carry disease common to livestock, but the transmission route is not shown.

Recommendations

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

There were no scientific studies regarding jackdaw predating or damaging livestock, apart from one involving them pulling the wool off the backs of sheep. The responses to the Defra survey, however, identified a strong need to control jackdaw for this purpose through predation. Respondents to the survey said they have observed livestock being injured or killed by jackdaw. That jackdaw peck out the eyes and attack the soft tissue of animals brings stockholders in conflict with their duties under the Animal Welfare Act 2006 to prevent unnecessary suffering.

[41] Newson, S.E., Calladine, J. & Wernham, C. 2019. Literature review of the evidence base for the inclusion of bird species listed on General Licences 1, 2 and 3. Scottish Natural Heritage Research Report No. 1136.

We conclude that there is a genuine need in this case.

Regarding serious damage to feedstuffs and spread of disease, there are several interrelated issues to consider:

- Serious damage to feedstuffs can include consuming those feedstuffs; as well as spreading disease through contaminating them; and
- Birds spreading disease to livestock is often likely to be linked to feedstuffs, whether through direct contamination or because those feedstuffs attract the birds to areas where the livestock live, eat and drink, and the birds then contaminate these areas via, for example, their faeces.

Respondents identified a strong need to control jackdaw in relation to these issues. For example, respondents said they had experienced jackdaw consuming and fouling in feedstuffs, as well as wider disease problems related to this activity.

The scientific literature shows evidence that jackdaw carry pathogens harmful to livestock. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to livestock unless there is significant exposure that could enable transmission. The scientific literature has either not demonstrated or not considered routes of transmission to livestock. This represents a scientific evidence gap.

We consider that user evidence fills this gap, as it has demonstrated the exposure of livestock. Both individual and organisational responses to the survey said that jackdaw can pose a serious threat to livestock in terms of consumption, spoiling and contamination of feedstuffs and wider issues around spread of disease, citing specific examples of where problems had occurred, for example defecating in areas where livestock are housed and/or feedstuffs are stored.

We conclude that there is a genuine need in this case.

In conclusion, we find that:

- there is a genuine need to include jackdaw for the purpose of preventing livestock attacks; and
- there is a genuine need to include jackdaw for the purpose of preventing serious damage to feedstuffs and the spread of disease

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread livestock attacks, consumption and contamination of livestock feedstuffs and associated disease risks by jackdaw, suggest the use of a general licence for this purpose is appropriate.

Lethal control in these areas is proportionate to the scale of the problem, as the problems are widespread with supporting statements from the survey indicating that livestock, their living areas and livestock feedstuffs are exposed to jackdaw in significant quantities. On the assumption of a viable transmission route for disease, lethal control of jackdaws will reduce local populations and therefore reduce the risk of transmission.

We have considered whether to restrict where and when lethal control of jackdaw is allowed under general licence for these purposes.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Issues relating to damage to livestock feedstuffs and spread of disease can happen at any time of year. While lambing occurs during the springtime, other livestock can be vulnerable to attack throughout the year. For example, sows may breed two or more times a year and poultry can be raised year-round. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that jackdaws are likely to attack certain livestock and, to prevent or mitigate this, the farmer wants to reduce jackdaw numbers before the time when the livestock is vulnerable.

Our view is therefore that a time of year restriction is not warranted.

We recommend that jackdaw should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to livestock, feedstuffs for livestock and preventing the spread of disease.

Preventing serious damage to crops, vegetables and fruit

As the conclusions of the APHA Species Report and survey responses were similar for 'crops', 'vegetables' and 'fruit', they have been considered together in this section.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

702 (33%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to crops.

315 (15%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to vegetables.

272 (13%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to fruit.

Respondents who said that jackdaw should be on general licence for these purposes backed this up with simple statements such as "jackdaw causes damage to, or grazes crops". Where respondents specified a specific crop type, the most specified was newly sown cereal crops.

One respondent said that jackdaw causes "damage to young crops by pulling at emerging leaf and pulling up seed".

Another respondent said jackdaw had been "seen damaging fruit trees".

Another said: "I have witnessed Jackdaw feeding on cereal crops and commercial fruit farms."

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

78 (51%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to crops.

75 (49%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to vegetables.

77 (50%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to fruit.

Respondents who said that jackdaw should not be on general licence for these purposes said that alternative solutions should address the issue, there was no evidence of serious damage, and that lethal control should not be an option.

One respondent said: “Jackdaws eats invertebrates, fruit, seeds and carrion, and occasionally takes eggs and nestlings, however this does not represent a threat to…crops, vegetables, fruit... There is no evidence to suggest that Jackdaws need to be controlled under general licence to prevent serious damage to crops, vegetables, fruit…”

Another respondent said: “There is little evidence to substantiate Jackdaws have a major negative impact of farming. In fact, recent evidence has shown that Jackdaws are actually quite useful, feeding on grubs and worms, which might otherwise damage the crops, from freshly-turned farm soil. They also help prune the crops, picking at the corn when it begins to poke through and continuing until it has grown two more inches, at which point they leave it alone to flourish.”

Organisational Responses

31% of the 148 respondents to the NFU’s online survey said that jackdaw should be on general licence to protect crops, 6% to protect vegetables and 8% to protect fruit. Respondents said that jackdaws “attack growing crops as well as eating grain just before harvest” and “will join large flocks pulling down cereal crops to eat the grain just before harvest”.

14% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control jackdaw and of those 56% gave agriculture as a reason. GWCT said: “Many farmers describe crop damage, with arable crops being affected, and specific mentions of barley, maize, oats, wheat, and oil seed rape as well as damage to harvested silage”.

BASC said: “Jackdaws are known crop pests and therefore should remain on the general licence to prevent damage to crops. There are several papers which talks about the damage to crops caused by jackdaws and economic crop losses from birds can be quite large.

Jackdaws have also been observed damaging fruit and vegetable crops. Peas, beans, apples and pears are taken by Rooks and Jackdaws and potatoes and root crops are also

attacked during hard weather in winter. The damage cited in these studies is quite substantial and therefore we recommend that jackdaws remain on the general licence to prevent damage to crops."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **Medium** strength of evidence for an impact of jackdaw on crops.

What does 'medium' strength of evidence mean?

In relation to serious damage, **'Medium'** means it is likely that some effect occurs in some circumstances and this effect on crops (including vegetables and fruit) does not result in significant damage.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Responses to the Defra survey identified a strong need to control jackdaw for the prevention of serious damage to crops, but this was more limited in relation to vegetables and fruit, reflecting the significantly smaller horticulture sector compared to the cereal crop sector. It is also noted that respondents may have been conflating damage to vegetables and fruit with damage to crops more generally. Respondents described having witnessed jackdaw feeding on and damaging crops, vegetables and fruit.

The APHA Species Report concludes that although it is likely that some effect occurs in some circumstances, this effect does not result in significant damage. However, the survey responses have told us there is a strong user need and it is hence accepted that jackdaw causes serious damage to crops, fruit and vegetables. Both individual and organisational responses to the survey said that jackdaw can pose a serious threat to crops in terms of consumption and spoiling, citing specific examples of where problems had occurred.

We conclude that there is a genuine need in this case.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of crops by jackdaw, suggest the use of a general licence for these purposes is appropriate.

Lethal control to protect crops is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating crops are exposed to jackdaw in significant quantities. Lethal control of jackdaw will reduce local populations and therefore reduce the level of impact on crops.

We have considered whether to restrict where and when lethal control of jackdaw is allowed under general licence for the purpose of preventing serious damage to crops including fruit and vegetables.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that jackdaws are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce jackdaw numbers before the crop is planted. Our view is therefore that a time of year restriction is not warranted.

We recommend that jackdaw should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to crops, vegetables and fruit.

Prevention of serious damage to growing timber, fisheries and inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

51 (2%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to growing timber.

53 (3%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to fisheries.

44 (2%) respondents to this question identified a need to include jackdaw on general licence for the purpose of preventing serious damage to inland waters.

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

72 (47%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to growing timber.

74 (48%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to fisheries.

72 (47%) respondents to this question considered that jackdaw should not be included on general licence for the purpose of preventing serious damage to inland waters.

Respondents who said that jackdaw should not be on general licence for these purposes said that alternative solutions should address the issue, lethal control should not be an option, or that there was no evidence of serious damage.

Organisational Responses

No organisations submitted specific information to support or not support the inclusion of jackdaw on general licence for these purposes.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to jackdaw and the prevention of serious damage to fruit, growing timber, fisheries and inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified some need to control jackdaw for the purposes of the prevention of serious damage to growing timber, fisheries and inland waters, this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of jackdaw on the prevention of serious damage to growing timber, fisheries and inland waters.

We conclude that there is no genuine need in these cases.

We do not recommend that jackdaw should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to growing timber, fisheries and inland waters.

Magpie

944 respondents identified a need to include magpie on the preventing serious damage general licence and 92 said that it should be removed for all serious damage sub-categories.

Preventing serious damage to livestock & feedstuffs for livestock

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

824 (39%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to livestock and 443 (21%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to feedstuffs for livestock.
Where respondents said that magpie should be on general licence for the purpose of preventing serious damage to livestock, the main reason identified was that they attack livestock, in particular lambs.

One respondent said that magpie needed to be controlled for the “protection of young stock and free-range chicken eggs which magpies will take”.

Another respondent said: “Magpies will also attack livestock if they are ill or otherwise immobile & unable to drive the birds off, newborn lambs may be attacked, and young chicks of poultry& domestic ducks are also sometimes taken.”

The main reasons that respondents identified the need for controlling magpie for the purpose of preventing serious damage to feedstuffs for livestock were that they caused damage to or grazed on feedstuffs for livestock or contaminated them with faeces.

Relating to feedstuffs and spread of disease, one respondent said that magpies “will often take advantage of animal feed where they will consume and excrete on and around the food source”, whilst another said they “Have seen them eating livestock feed and defecating in the feed and water troughs”.

Another said: “Damage is caused through direct ‘take’ of feedstuff from troughs to soiling of feedstuff in storage / feeding areas and of equipment making feed not suitable for use.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

82 (54%) respondents to this question said they did not want magpie included on general licence for the purpose of preventing serious damage to livestock and 66 (43%) respondents to this question said that they did not want magpie on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

Respondents who said that magpie should not be on general licence for these purposes said that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.

In relation to preventing damage to livestock, one respondent said: “No scientific evidence or guidance from conservation organisations to support any such practice.”

In relation to preventing serious damage to feedstuffs for livestock, one respondent said: “All birds are protected by law. DEFRA's job is to limit killing of all birds to those circumstances where there is serious damage to crops, livestock etc. and where non-lethal methods have been tried and failed. The starting point has to be that specific licences are an adequate way to deal with specific serious issues at specific sites. DEFRA needs and should look very carefully at the evidence brought forward for any need for a general licence that cannot be met by application of specific licences.”

Organisational responses

The Great Broughton Woodpigeon Club (GBWC) said: “Magpies will attack vulnerable livestock in the same way as Carrion Crows. They will peck out the eyes of living sheep that are “rigged” i.e. unable to get up and will eat the flesh of immobilised animals causing serious injury and often death to new born animals.”

The Tenant Farmers Association (TFA) said: “Magpies will take the cords from the lambs’ navels and disembowel them, pulling organs out while they are living. Pulling guts out through the back passage also happens.”

The National Sheep Association, however, did not indicate a need to include magpie on general licence for this purpose.

One respondent to The Game & Wildlife Conservation Trust (GWCT) survey said: “I have a small free-range commercial egg laying flock of chickens. magpie and carrion crow populations in our area predate our eggs on a daily basis, we try everything to prevent the problem but these birds are clever, I’m afraid that trapping and shooting them is the only way for our business to survive, they would otherwise eat every egg as it’s laid.... literally!!”

Another said: “Birds on a free-range farm that may be unwell but will be okay after a little treatment or recovery are being pecked out (slowly killed) by magpies. They mob like wolves, attack and then scatter, leaving an unwell but otherwise healthy bird to suffer and die. If there is a quick temperature change e.g. a freak cold snap for a day, then a huge number of birds can exhibit unwell-type behaviour. It is not be unheard of to get a call from a friend who may have lost as many as 30+ birds in a week from magpies and other corvids.”

57% of the 148 National Farmers Union (NFU) respondents to their survey said that magpie should be on the general licence to prevent serious damage to livestock, as they attack ewes and lambs. A respondent to that survey said: “The jackdaw, magpie and crow all kill and maim livestock especially sheep and lambs in the same way. Pecking out eyes from live lambs and weak vulnerable adults.” Another respondent said: “They sit on the backs of sheep and peck holes in their skin which along with their droppings attract blowflies which causes flystrike, a big welfare problem.”

In addition, 20% of respondents to the NFU survey said that magpie should be on general licence regarding feedstuffs, also commenting on spread of disease issues. One respondent to their survey said that “They can split cattle feed bags and spill feed around troughs which can intern [sic] encourage rats and disease that is detrimental to hygiene.” Others commented that “They get into blocks and bagged feed and peck holes in silage wrap” and that “They make a big mess with the livestock feed by spreading it everywhere and pooing in it which will then pass diseases onto the livestock!”

BASC said that: “Damage can also be cause[d] to food stored for livestock; magpies, along with some other bird species are known to cause an issue with silage bales. Birds will peck holes in the plastic wrap which causes the anaerobic conditions to cease, allowing mould to form and the silage to become spoiled (Mickan, 2003[42]). The damage cited in these studies is quite substantial and therefore we recommend that magpies remain on the general licence to prevent damage to foodstuffs for livestock.”

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[42] Mickan, F. (2003). *Can Irish ideas reduce bird damage to wrapped bale silage?*

The RSPB said: “We are aware of no evidence supporting retention of this species on this licence. SNH Research report 1136[43] found that “There was little evidence in the literature that magpies, carrion/hooded crow or jackdaw are likely to impact on livestock or agriculture to support their inclusion on General Licence 2.”

Wild Justice said: “No evidence for serious impacts as far as we know - certainly not enough to justify a general licence rather than licensing on a case-specific basis on application.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There were no studies on direct predation or damage to livestock caused by magpies.
- There were no studies on serious damage to feedstuffs for livestock caused by magpies.
- Overall, there is **medium-low** strength of evidence for an impact of magpie on livestock through the spread of disease. However, this relates to the evidence for magpie carrying pathogens common to livestock; evidence for actual transmission of disease to livestock is not shown. The latter reflects an **evidence gap** as few studies have attempted to quantify either the risk or actual rates of transmission.

What does ‘medium-low’ strength of evidence mean?

In relation to animal disease, **Medium-low** means it is likely that individuals of the species carry disease common to livestock but the transmission route is not shown.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

There were no studies on direct predation or damage to livestock caused by magpie in the APHA report.

Responses to the Defra survey, however, identified a strong need to control magpie for the prevention of serious damage to livestock. Respondents described having witnessed magpie feeding on and attacking livestock.

Animal husbandry has changed over recent years. For example, extensively managed flocks that lamb outside and are without constant supervision are, due to pressure on lamb

[43] Newson, S.E., Calladine, J. & Wernham, C. 2019. Literature review of the evidence base for the inclusion of bird species listed on General Licences 1, 2 and 3. Scottish Natural Heritage Research Report No. 1136.

prices, increasing. Other extensive systems for poultry and pigs also exist. This may make livestock in some cases more vulnerable to attack.

Whether predated animals were dead or terminally ill before the attacks happened is unknown, but this would make up at least a proportion of the impact. However, the experiences provided by respondents to the Defra survey said that in many cases the animals were alive, including attacks that have occurred whilst for example ewes were lambing. That magpie peck out the eyes and attack the soft tissue of animals brings stockholders in conflict with their duties under the Animal Welfare Act 2006 to prevent unnecessary suffering.

We conclude that there is a genuine need in this case.

The APHA Species Report found studies which showed magpie carrying pathogens common to livestock, although they did not show transmission.

In relation to the spread of disease, the APHA Report cites a single study that presented high impact on livestock related to an outbreak of West Nile Virus in horses in Italy (Calistri et al. 2010[44]), with several avian species, including magpie, from the surrounding area testing positive for the disease. However, it is not clear if contaminated feedstuffs were the vector route, nor which species were implicated. Jourdain et al. (2007)[45] also isolated West Nile Virus from magpie in southern France.

Other studies found evidence of magpies carrying Toxoplasma gondii, Neospora caninum, and several species of parasitic helminth, but without providing evidence of transmission to livestock (Darwich et al. 2012, Luft 1960)[46]. The scientific literature therefore has either not demonstrated or not considered routes of transmission to livestock. This represents a scientific evidence gap.

In addition, the APHA Species Report found no studies relating to serious damage to feedstuffs for livestock.

Our view is that responses to the Defra survey do not provide sufficient additional evidence to fill these scientific evidence gaps. In particular, user demand was lower for magpie overall regarding livestock feedstuffs and we do not consider that the issues identified by some respondents are sufficiently widespread for inclusion on a general licence.

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[44] Calistri P, Giovannini A, Savini G, Monaco F, Bonfanti L, Ceolin C, Terregino C, Tamba M, Cordioli P & Lelli R. 2010. West Nile Virus Transmission in 2008 in North-Eastern Italy. Zoonoses and Public Health 57(3): 211–19.

[45] Jourdain E, Schuffenecker I, Korimbocus J, Reynard S, Murri S, Kayser Y, Gauthier-Clerc M, Sabatier P & Zeller HG. 2007. West Nile Virus in Wild Resident Birds, Southern France, 2004. Vector-Borne and Zoonotic Diseases 7(3): 448–52.

[46] Darwich L, Cabezon O, Echeverria I, Pabon M, Marco I, Molina-Lopez R, Alarcia-Alejos O, Lopez-Gatius F, Lavin S, Almeria S. 2012. Presence of Toxoplasma gondii and Neospora caninum DNA in the brain of wild birds. Veterinary Parasitology 183: 377-381.

We conclude that there is no genuine need in this case.

In conclusion, we find that:

- there is a genuine need to include magpie for the purpose of preventing livestock attacks; and
- there is no genuine need to include magpie for the purpose of preventing serious damage to feedstuffs and the spread of disease.

We recommend that magpie should not be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to feedstuffs for livestock and the spread of disease.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread attacking and killing of livestock by magpie suggests that the use of a general licence for this purpose is appropriate.

Although no scientific studies on direct predation or damage to livestock caused by magpies were identified in the APHA Report, lethal control to protect livestock is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey (individual & organisational responses) indicating livestock are exposed to magpie predation in significant quantities. Lethal control of magpie will reduce local populations and therefore reduce the level of impact.

We have considered whether to restrict where and when lethal control of magpie is allowed under general licence for the purpose of livestock attacks.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

While lambing occurs during the springtime, other livestock can be vulnerable to attack throughout the year. For example, sows may breed two or more times a year and poultry can be raised year-round. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that magpies are likely to attack certain livestock and, to prevent or mitigate this, the farmer wants to reduce magpie numbers before the time when the livestock is vulnerable. Our view is therefore that a time of year restriction is not warranted.

We recommend that magpie should be included on general licence under s.16(1)(k) for the purpose of preventing livestock attacks.

Prevention of serious damage to crops, vegetables and fruit

As the conclusions of the APHA Species Report and survey responses were similar for ‘crops’, ‘vegetables’ and ‘fruit’, they have been considered together in this section.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?'

397 (19%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to crops.

240 (11%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to vegetables.

238 (11%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to fruit.

The majority of respondents who gave reasons as to why magpie should be on general licence for this purpose said that this was because they damaged crops.

Almost all respondents who identified a need backed this up with simple statements like "destroys worms and crops vegetables and fruit" and "eat crops, fruit and vegetables. Mess up 10 times what they actually consume."

One respondent said: "Serious damage to arable, fruit and vegetable crops by feeding on seeds and shoots of drilled crops and ripening crops. Damage to fruit by feeding on forming fruit."

Another respondent said: "Having farmed across a large area of North Norfolk for the past 75 years, we have regularly witnessed extensive damage to all those areas we have selected. They also regularly destroy a range of arable crops."

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious and why?

75 (49%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing serious damage to crops.

71 (46%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing serious damage to vegetables.

72 (47%) respondents to this question considered that magpie should not be included on general licence for the purpose of preventing serious damage to fruit.

Reasons provided for not including magpie for this purpose were that alternative solutions should address the issue, that there is no evidence of serious damage, or that lethal control should not be an option.

Organisational Responses

10% of the 148 respondents to the NFU's online survey said magpie need controlling to protect crops, 3% to protect vegetables and 5% to protect fruit.

BASC said: “Magpies are also known to cause damage to crops. Grain is an important food source of crows, rooks, jackdaws and magpies (Holyoak, 1968[47]). Jackdaw, magpie and jay are known to damage newly sown and ripening grains, seed, potatoes, peas, apples and pears in Holland (Seubert, 1964[48]). Cereals make up an important component in the diets of magpies, making up 59.3% of the diet (Soler, Soler, & Martinez, 1993[49]).”

54% of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey identified a need to control magpie and of those 11% gave agriculture as a reason. No supporting statements were submitted with regard to the prevention of serious damage to crops, vegetables and fruit.

Wild Justice said: “No evidence for serious impacts as far as we know - certainly not enough to justify a general licence rather than licensing on a case-specific basis on application.”

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie and the prevention of serious damage to crops, vegetables or fruit.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Responses to the Defra survey identified an apparent need to control magpie for the prevention of serious damage to crops and vegetables, but this was not strong. The APHA Species Report did not identify any relevant studies in relation to the impact of magpie on the prevention of serious damage to crops, vegetables or fruit. There is insufficient scientific evidence or significant evidence from the Defra survey to be able to conclude there is a genuine need for a licence allowing the killing or taking of magpie to prevent serious damage to crops, vegetables or fruit.

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[47] Holyoak, D. (1968). A comparative study of the food of some British Corvidae. *Bird Study*, *15*(3), 147–153. https://doi.org/10.1080/00063656809476194

[48] Seubert, J. L. (1964). *HIGHLIGHTS OF BIRD CONTROL RESEARCH IN ENGLAND, FRANCE, HOLLAND, AND GERMANY*. Retrieved from http://digitalcommons.unl.edu/vpc2http://digitalcommons.unl.edu/vpc2/24

[49] Soler, J. J., Soler, M., & Martinez, J. G. (1993). Grit Ingestion and Cereal Consumption in Five Corvid Species. *Ardea*, *81*(2), 143–149. Retrieved from http://www.eeza.csic.es/Documentos/Publicaciones/soler_4752.pdf

We do not recommend that magpie should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to crops vegetables or fruit

Prevention of serious damage to growing timber, fisheries and inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

54 (3%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to timber.

59 (3%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to fisheries.

53 (3%) respondents to this question identified a need to include magpie on general licence for the purpose of preventing serious damage to inland waters.

In relation to preventing serious damage to timber one respondent said: “They can eat the apical bud off Christmas trees stunting their growth by up to 3 years.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

69 (45%) respondents to this question said they did not want magpie included on general licence for the purpose of preventing serious damage to timber

69 (45%) respondents to this question said they did not want magpie included on general licence for the purpose of preventing serious damage to fisheries.

67 (44%) respondents to this question said they did not want magpie included on general licence for the purpose of preventing serious damage to inland waters.

Reasons provided for not including magpie for these purposes were that alternative solutions should address the issue, lethal control should not be an option, or that there is no evidence of serious damage.

Organisational responses

One of the GWCT survey respondents said: “Extensive damage to Christmas tree plantations, Nordman Fir. Territorial birds perch on delicate lead shoots in May and June, often breaking them. The tree has great difficulty recovering.”

No other organisation said that magpie should be added or removed from general licence specifically relating to the prevention of serious damage to growing timber, fisheries, or inland waters.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to magpie and the prevention of serious damage to growing timber, fisheries and inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified an apparent need to control magpie for the purposes of the prevention of serious damage to growing timber, fisheries and inland waters, this was extremely limited. In terms of relevant science, the APHA Species Report did not identify any relevant studies in relation to the impact of magpie on the prevention of serious damage to growing timber, fisheries and inland waters.

We conclude that there is no genuine need in these cases.

We do not recommend that magpie should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to growing timber, fisheries and inland waters.

Rook

1,105 respondents identified a need to include rook on the serious damage general licence and 90 said that they should be removed for all serious damage sub-categories.

Preventing serious damage to livestock

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

658 (31%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to livestock and 593 (28%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to livestock feedstuffs.

Where respondents gave reasons for including rook on general licence in relation to preventing serious damage to livestock, the main reason stated was that they attack lambs and other livestock.

Most respondents who identified a need backed this up with simple statements such as “Lambs attacked out in field” and “Will attack new-born livestock”.

Where more detailed information was provided, one respondent said: “As both livestock and arable farmers, we have witnessed these birds take and eat wild/commercial bird eggs. This species poses a threat … to our own flocks of free-range hens where eggs are being taken by these birds”.

The main reason respondents identified for including rook in relation to preventing serious damage to feedstuffs for livestock were that they damage and consume those feedstuffs.

Most respondents who identified a need backed this up with simple statements such as “Eat silage etc. plus cow feed on local farms”, and “contaminate feedstuffs with their droppings”.

One respondent said: “They contaminate feed and eat grain proportion of a mixed ration. It is extremely difficult to physically exclude them from housing areas of free-range birds and cattle (roaming free between milking robot, shelter, supplementary feed and grazing). Rooks pierce holes in crop cover destroying air tight seals. Not just clamps also silage bales in field while they peck at molluscs and insects climbing up them.”

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

80 (52%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to livestock and 64 (42%) of respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

The main reasons that respondents identified were that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.

One respondent said: “The Rook is not a serious threat to …livestock feedstuffs… It can be controlled humanely to reduce threats to …livestock feedstuffs. General licences are not necessary or desirable, because businesses and farmers can use deterrents to protect their produce. If it is shown that there is a serious threat, an individual licence is adequate to cope with a demonstrated need in a particular instance. Deterrence or bird proofing will be more successful than killing.”

Organisational Responses

28% of the 148 respondents to the NFU’s online survey said that they would like rook on the general licence in relation to serious damage to livestock, mainly referring to predation. One respondent said: “We lamb sheep outdoors. Rooks will peck out new-born lambs’ eyes, tongues or anus whilst being born or if prostrate immediately after a difficult birth, or whilst the ewe is having a second lamb.”

The Tenant Farmers Association said: “Rooks attack both healthy and poorly lambs in all parts of the country they will eat the tongues and anus of new born lambs and go for their eyes. …This is not a rare occurrence unfortunately it is becoming very typical due to the overpopulation of these birds which have no predators.”

BASC said: “Rooks as well as other corvids have been identified as utilising outdoor poultry units. A Defra project by Baxter et al., 2007 cited in (Parrott, 2012[50]) stated that rooks have been seen to predate on ducklings however the extent of this is unknown.”

In addition, 33% of respondents to the NFU’s survey said they wanted rook on the general licence in relation to feedstuffs for livestock. One respondent said: “Silage clamps and bales can be badly damaged by rooks. They peck the outside of the plastic leaving the silage vulnerable to mould growth. This leaves the feedstuff unpalatable to livestock.”

BASC said: “Damage to livestock feed is quite extensive by rooks. Changing agricultural practice has provided rooks with another source of food in the form of animal feed. The paddock system of rearing pigs has provided a feeding opportunity of which they have taken advantage (Wright, 1982). Rooks and jackdaws were the primary users of grass silage stubbles and the main species that damaged baled plastic stretch film. The incidence of damage was sporadic, but when it occurred was often substantial (McNamara et al., 2001[51], 2004[52]). If not repaired quickly, these holes can lead to large losses of silage dry matter and quality (Mickan, 2003[53]).

The Great Broughton Woodpigeon Club reflected on the risk of spread of disease: “Rooks are attracted to farm food supplies and can be seen in large numbers on external feed storage bins although they are more wary of venturing inside buildings. Consequently, both animal feed and water troughs become contaminated with faeces which can result in the transmission of disease, with lambs, calves and piglets especially vulnerable.”

In contrast, the RSPB said: “We are aware of no evidence supporting retention of this species on this licence. We acknowledge that there may be some circumstances where rooks can cause serious damage but recommend that this is best dealt with under individual licences.”

Wild Justice said: “Little evidence for serious impacts as far as we know - certainly not enough to justify a general licence rather than licensing on a case-specific basis on application.”

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[50] Parrott, D. (2012). *Reviews of selected wildlife conflicts and their management*.

[51] K. McNamara, P. O'Kiely, J. Whelan, P. D. Forristal, H. Fuller & J. J. Lenehan (2001) Vertebrate pest damage to wrapped, baled silage in Ireland, International Journal of Pest Management, 47:3, 167-172, DOI: 10.1080/09670870010011082

[52] McNamara, K., et al. “An Investigation into the Pattern of Bird Damage to the Plastic Stretch Film on Baled Silage in Ireland.” *Biology and Environment: Proceedings of the Royal Irish Academy*, vol. 104B, no. 2, 2004, pp. 95–105. *JSTOR*, www.jstor.org/stable/20500212. Accessed 11 Aug. 2020.

[53] Mickan, F. (2003). *Can Irish ideas reduce bird damage to wrapped bale silage?*

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There was **insufficient data** in relation to the impact of rook on livestock (spread of disease). The three studies found evidence of rook carrying pathogens common to livestock (Mycobacterium avium, Pasteurella multocida), but without showing transmission (Beard et al. 2001[54], Daniels et al. 2003[55], Strugnell et al. 2011[56]).
- There were no studies on rook predating or damaging livestock.
- There were no studies on rook causing serious damage to feedstuffs for livestock.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

There were no scientific studies regarding rook predating or damaging livestock, but the responses to the Defra survey identified a strong need to control rook for this purpose, particularly through predation (damage) on lambs and ewes. Respondents to the survey said they have observed livestock, and particularly ewes and lambs, being injured or killed by rook predation. That rook peck out the eyes and attack the soft tissue of animals brings stockholders in conflict with their duties under the Animal Welfare Act 2006 to prevent unnecessary suffering.

We conclude that there is a genuine need in this case.

Regarding serious damage to feedstuffs and spread of disease, there are several interrelated issues to consider:

- Serious damage to feedstuffs can include consuming those feedstuffs; as well as spreading disease through contaminating them; and
- Birds spreading disease to livestock is often likely to be linked to feedstuffs, whether through direct contamination or because those feedstuffs attract the birds to areas where the livestock live, eat and drink, and the birds then contaminate these areas via, for example, their faeces.

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[54] Beard PM, Daniels MJ, Henderson D, Pirie A, Rudge K, Buxton D, Rhind S, Greig A, Hutchings MR, McKendrick I, Stevenson K & Sharp JM. 2001. Paratuberculosis Infection of Non-ruminant Wildlife in Scotland. Journal of Clinical Microbiology 39(4): 1517–1521.

[55] Daniels MJ, Hutchings MR, Beard PM, Henderson D, Greig A, Stevenson K & Sharp MJ. 2003. Do Non-ruminant Wildlife Pose a Risk of Paratuberculosis to Domestic Livestock and Vice Versa in Scotland? Journal of Wildlife Diseases 39(1): pp. 10–15.

[56] Strugnell BW, Dagleish MP, Bayne CW, Brown M, Ainsworth HL, Nicholas RAJ, Wood A & Hodgson JC. 2011. Investigations into an Outbreak of Corvid Respiratory Disease Associated with *Pasteurella multocida*. Avian Pathology 40(3): 329–36.

Respondents identified a strong need to control rook in relation to these issues. For example, respondents said they had experienced rook consuming and fouling in feedstuffs, as well as wider disease problems related to this activity.

The scientific review found that there was insufficient data regarding spread of disease to livestock, albeit three studies showed rook carrying pathogens common to livestock. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to livestock unless there is significant exposure that could enable transmission. The scientific literature has either not demonstrated or not considered routes of transmission to livestock. This represents a scientific evidence gap.

We consider that user evidence fills this gap, as it has demonstrated the exposure of livestock. Both individual and organisational responses to the survey said that rook can pose a serious threat to livestock in terms of consumption, spoiling and contamination of feedstuffs and wider issues around spread of disease, citing specific examples of where problems had occurred.

We conclude that there is a genuine need in this case.

In conclusion, we find that:

- there is a genuine need to include rook for the purpose of preventing livestock attacks; and
- there is a genuine need to include rook for the purpose of preventing serious damage to feedstuffs and the spread of disease.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread livestock attacks, consumption and contamination of livestock feedstuffs and associated disease risks by rook, suggest the use of a general licence for these purposes is appropriate.

Lethal control in these areas is proportionate to the scale of the problem, as the problems are widespread with supporting statements from the survey indicating that livestock, their living areas and livestock feedstuffs are exposed to rook in significant quantities. On the assumption of a viable transmission route for disease, lethal control of rooks will reduce local populations and therefore reduce the risk of transmission.

We have considered whether to restrict where and when lethal control of rook is allowed under general licence for these purposes.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Issues relating to damage to livestock feedstuffs and spread of disease can happen at any time of year. While lambing occurs during the springtime, other livestock can be vulnerable to attack throughout the year. For example, sows may breed two or more times a year and poultry can be raised year-round. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that rooks are likely to attack certain

livestock and, to prevent or mitigate this, the farmer wants to reduce rook numbers before the time when the livestock is vulnerable.

Our view is therefore that a time of year restriction is not warranted.

We recommend that rook should be included in the general licence under s.16(1)(k) for the purpose of preventing livestock attacks, serious damage to livestock feedstuffs and preventing the spread of disease.

Preventing serious damage to crops, vegetables and fruit

As the conclusions of the APHA Species Report and survey responses were similar for 'crops', 'vegetables' and 'fruit', they have been considered together in this section.

C.1. Which bird species do you consider need to be controlled under general licence for preventing serious damage and why?

881 (42%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to crops.

350 (17%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to vegetables.

285 (14%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to growing fruit.

Where respondents gave reasons for including rook on general licence in relation to preventing serious damage to crops, the main reasons stated were that they eat and damage crops.

Almost all respondents who identified a need backed this up with simple statements like "rook will descend on a newly sown cereal crop and take a lot of the seed", "damages and eats crops just before harvest", "damage fruit" and "rooks damage growing crops and vegetables" as reasons why rook should be included on a general licence to protect crops, vegetables and fruit.

One respondent said: "Serious damage to arable, fruit and vegetable crops by feeding on seeds and shoots of drilled crops and ripening crops. Damage to fruit by feeding on forming fruit".

Another respondent said: "I have witnessed and shot Rooks eating newly emerging crops and vegetables, in large numbers this can cause a significant amount of damage."

Another respondent said: "I have experienced severe damage to ripened strawberries on a field scale."

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

74 (48%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to crops.

69 (45%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to vegetables.

70 (46%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to fruit.

The main reasons that respondents identified for not including rook on general licence for these purposes were that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.

Where respondents said they did not want rook on general licence for this purpose, they backed this up with simple statements like: “Wild birds should only be killed or taken as a last resort. Lethal control can only be justified when a genuine and serious problem exists.”

One respondent said: “There is no convincing evidence that rooks pose a threat of any kind.”

Another said: “From personal observation, rooks rarely cause damage to crops but on occasion they can damage newly sown seed beds. On balance, they seem to do more good than harm and I would be very unlikely to shoot them ever.”

Another respondent said, “The Rook is not a serious threat to … crops, vegetables, fruit... It can be controlled humanely to reduce threats to .. crops, vegetables, fruit. General licences are not necessary or desirable, because businesses and farmers can use deterrents to protect their produce.”

Organisational Responses

The Game & Wildlife Conservation Trust (GWCT) said that 17% of respondents to their survey identified a need to control rook and of those 84% gave agriculture as a reason. They went on to say that: “Rooks are primarily controlled for agricultural reasons, with 84% of those carrying out control, citing agricultural drivers. The most common reason specified is crop protection, with rooks causing damage to seed and young plants, but also animal feed. Farmers have specified damage to wheat, barley, maize, oil seed rape, beans and peas amongst others.”
70% of the 148 respondents to the NFU’s online survey said rook need controlling to protect crops, 12% to protect vegetables and 7% to protect fruit as they can damage newly sown crops on a large scale. One respondent said: “at the end of July / August rooks start to gather in my location and about a week after the new seeds are drilled is the danger time for these crops. At times they can severely damage newly emerging cereal crops and occasionally feed on ripening cereal crops.” Another of their respondents said: “Rooks are

intelligent birds capable of clearing large areas of newly planted oats peas and beans. We have had large areas of crops of eating peas destroyed by rooks."

GBWC agreed, saying: "Rooks (along with other corvids) cause serious damage to wheat and barley crops when the first shoots appear above ground as they pull out and eat the seed. It is not uncommon for 25% to 30% of a field to be destroyed in this way. They also consume ripening crops including maize prior to harvest, usually starting from the edge of a field, and have been seen to move at the rate of 1 – 2 metres per day consuming their way across the field. In my experience locally Rooks form about 50% of the corvids shot when carrying our crop protection."

BASC said that rooks should be on general licence to protect crops, but not vegetables or fruit: "Rooks are known to cause damage to crops. A reduction of seedling density in cereal crops due to feeding by rooks can severely reduce grain yields (Feare, 1974)[57], this study also showed that a range of scaring devices failed to prevent rooks feeding in cereal crops… Both juvenile rooks and jackdaws feeding in barley and wheat fields likely caused a significant loss in yield (O'Leary, 1995) [58]."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **Medium-High** strength of evidence for an impact of rook on crops.

What does 'medium-high' strength of evidence mean?

In relation to serious damage, **Medium-High** means some likelihood that a high effect occurs in some circumstances, and this effect on crops results in significant damage.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Responses to the Defra survey identified a strong need to control rook for the prevention of serious damage to crops, but this was more limited in relation to vegetables and fruit, reflecting the significantly smaller horticulture sector compared to the cereal crop sector. It is also noted that respondents may have been conflating damage to vegetables and fruit

[57] Feare, C. J. (1974). Ecological Studies of the Rook (Corvus frugilegus L.) in North-East Scotland. Damage and Its Control. The Journal of Applied Ecology, 11(3), 897. https://doi.org/10.2307/2401752

[58] O'Leary, E. (1995). Habitat utilisation and distribution of several common farmland bird species (Durham University). Retrieved from http://etheses.dur.ac.uk

with damage to crops more generally. Respondents described having witnessed rook feeding on and damaging crops, vegetables and fruit.

Analysis of the evidence in the APHA Species Report concludes that there is some likelihood that significant crop damage occurs in some circumstances. Crop damage attributed to rook was almost always cereals and the few studies that found damage suggested a lot of damage.

The APHA Species Report did not identify any relevant studies in relation to the impact of rook on serious damage to vegetables or fruit. Both individual and organisational responses to the survey said that rook can pose a serious threat to vegetable and fruit crops in terms of consumption and spoiling, citing specific examples of where problems had occurred. Respondents described having witnessed rook feeding on and damaging crops, vegetables and fruit.

We conclude that there is a genuine need in this case.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meet the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of crops by rook, including vegetables and fruit, suggest the use of a general licence for these purposes is appropriate.

Lethal control to protect crops is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating crops are exposed to rook in significant quantities. Lethal control of rook will reduce local populations and therefore reduce the level of impact on crops.

We have considered whether to restrict where and when lethal control of rook is allowed under general licence for the purpose of preventing serious damage to crops including fruit and vegetables.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that rooks are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce rook numbers before the crop is planted. Our view is therefore that a time of year restriction is not warranted.

We recommend that rook should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to crops, vegetables and fruit.

Preventing serious damage to growing timber, fisheries or inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

61 (3%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to growing timber.

51 (2%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to fisheries.

44 (2%) respondents to this question identified a need to include rook on general licence for the purpose of preventing serious damage to inland waters.

C.3. Which bird species do you consider should NOT be controlled under general licence for preventing serious damage and why?

68 (44%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to growing timber.

67 (44%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to fisheries.

66 (43%) respondents to this question said they did not want rook included on general licence for the purpose of preventing serious damage to inland waters.

One respondent said: “Many of the categories in this list are laughably inappropriate (e.g. in this case livestock, fisheries and inland waters).”

Organisational responses

No organisations submitted statements to expressly support control of rook for these purposes or otherwise gave specific reasons as to why rook should not be included on general licence for these purposes.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to rook and the prevention of serious damage to growing timber, fisheries and inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified some need to control rook for the prevention of serious damage to growing timber, fisheries and inland waters, this was extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of rook on the prevention of serious damage to growing timber, fisheries and inland waters.

We conclude that there is not a genuine need in these cases.

We do not recommend that rook should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to growing timber, fisheries or inland waters.

Woodpigeon

1,510 respondents identified a need to include woodpigeon on the serious damage general licence and 70 said that they should be removed for all serious damage sub-categories.

Preventing serious damage to livestock & feedstuffs for livestock

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

246 (12%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to livestock and 700 (33%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to livestock feedstuffs.

The main reason respondents identified for including woodpigeon for the preventing serious damage to livestock purpose was that they attack livestock.

Most respondents who identified a need backed this up with simple statements like woodpigeon “damage livestock” or “attack sick livestock”.

No detailed information was provided regarding woodpigeon attacks on livestock.

The main reasons respondents identified for including woodpigeon for the purpose of preventing serious damage to feedstuffs were that they spoil and consume the feedstuffs.

Most respondents who identified a need backed this up with simple statements like “Increased local population is causing spoiling of livestock feed”, “eat turnips in winter intended for sheep feed” and, “to prevent contamination of animal foodstuffs and spread of disease in foodstuffs”.

Where more detailed information was provided, one respondent said that in relation to woodpigeon “damage is caused through direct ‘take’ of feedstuff from troughs to soiling of feedstuff in storage / feeding areas and of equipment, making feed not suitable for use”.

With regard to disease risk one respondent said that “their contaminated droppings foul the food-stocks and drinking water of farmed animals (cows and sheep) and pose a serious health risk to farmed animals”.

C.3. Are there bird species that you consider should NOT be controlled under general licences to prevent serious damage and why?

56 (37%) respondents to this question said they did not want woodpigeon included on general licence for the purpose of preventing serious damage to livestock and 50 (33%) respondents to this question said they did not want woodpigeon included on general licence for the purpose of preventing serious damage to feedstuffs for livestock.

Where respondents said they did not want woodpigeon on general licence for these purposes, they backed this up with simple statements like: “Wild birds should only be killed or taken as a last resort. Lethal control can only be justified when a genuine and serious problem exists.”

One respondent said: “Wood Pigeons do not really represent a threat to livestock, … So, there is NO evidence to suggest that Wood Pigeons need to be controlled under general licence to prevent serious damage to livestock.”

Another said: “Woodpigeon is not a serious threat to livestock feedstuffs…. General licences are not necessary or desirable to control woodpigeon, because businesses and farmers can use deterrents to protect their produce. If it is shown that there is a serious threat, an individual licence is adequate to cope with a demonstrated need in a particular instance. Deterrence or bird proofing will be more successful than killing.”

Organisational responses

27% of the 148 respondents to the NFU’s online survey indicated that woodpigeon should be on the general licence to prevent damage to livestock feedstuffs. One of their respondents said: “Destroys crops, eats and mess in cattle feed”.

The Great Broughton Woodpigeon Club (GBWC) said: “Woodpigeons … cause serious damage to wheat, barley and maize crops when they are starting to ripen but the grains are still soft. They will use any point of access where they can fly in and crops laid down by wind and rain are especially vulnerable with the birds only stopping when disturbed or they have a full crop. GBWC is rarely informed of the end use of the crop being protected so it is not possible to distinguish between crops and livestock feedstuffs.”

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- There were no relevant studies in relation to woodpigeon attacking livestock or causing damage to feedstuffs.
- Overall, there is **Medium-Low** strength of evidence for an impact of woodpigeons on livestock through the spread of disease. However, this relates to the evidence

for woodpigeons carrying pathogens common to livestock; evidence for actual transmission of disease to livestock is not shown. The latter reflects an evidence gap as few studies have attempted to quantify either the risk or actual rates of transmission.

What does 'medium-low' strength of evidence mean?

In relation to livestock disease, **Medium-Low** means that it is likely that individuals of the species carry disease common to livestock but transmission route not shown.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although some respondents referred to woodpigeon attacking livestock, no detailed information was submitted and there were no studies relating to this impact to assess as part of the APHA Species Report.

We conclude that there is not a genuine need in relation to livestock attacks.

Regarding serious damage to feedstuffs and spread of disease, there are several interrelated issues to consider:

- Serious damage to feedstuffs can include consuming those feedstuffs; as well as spreading disease through contaminating them; and
- Birds spreading disease to livestock is often likely to be linked to feedstuffs, whether through direct contamination or because those feedstuffs attract the birds to areas where the livestock live, eat and drink, and the birds then contaminate these areas via, for example, their faeces.

Respondents identified a strong need to control woodpigeon in relation to these issues. For example, respondents said they had experienced woodpigeon consuming and fouling in feedstuffs, as well as wider disease problems related to this activity.

The APHA Species Report identified medium-low strength of evidence for an impact of woodpigeon through the spread of disease. There were no relevant studies in relation to the consumption and spoiling of feedstuffs.

The scientific literature shows evidence that woodpigeon carry pathogens harmful to livestock. Such pathogens are widespread in populations of an extensive range of species. That does not make them a threat to livestock unless there is significant exposure that could enable transmission. The scientific review provided limited evidence of transmission to livestock, representing an evidence gap.

We consider that user evidence fills this gap, as it has demonstrated the exposure of livestock. Both individual and organisational responses to the survey said that woodpigeon can pose a serious threat to livestock in terms of consumption, spoiling and contamination of feedstuffs and wider issues around spread of disease, citing specific examples of where problems had occurred.

Our view is that some livestock rearing facilities and areas where foodstuffs are present can be proofed against access by woodpigeon. However, some cannot. Stored feedstuffs

(prior to them being made available to livestock to consume) can be exposed to and consumed or spoilt by woodpigeon.

We conclude that there is a genuine need in this case.

In conclusion, we find that:

- there is no genuine need to include woodpigeon for the purpose of preventing livestock attacks; and
- there is a genuine need to include woodpigeon for the purpose of preventing serious damage to feedstuffs and the spread of disease.

We do not recommend that woodpigeon should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to livestock.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of livestock feedstuffs and associated disease risks by woodpigeon suggest the use of a general licence for these purposes is appropriate.

Lethal control in these areas is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating that livestock, their living areas and livestock feedstuffs are exposed to woodpigeon in significant quantities. On the assumption of a viable transmission route for disease, lethal control of woodpigeon will reduce local populations and therefore reduce the risk of transmission.

We have considered whether to restrict where and when lethal control of woodpigeon is allowed under general licence for the purpose of preventing serious damage to livestock feedstuffs and spread of disease. Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible. In addition, issues relating to damage to livestock feedstuffs and spread of disease can happen at any time of year, therefore we do not believe that a time of year restriction is warranted.

We recommend that woodpigeon should be included on general licence under s.16(1)(k) for the purpose of preventing serious damage to livestock feedstuffs and preventing the spread of disease.

Preventing serious damage to crops, vegetables and fruit

As the conclusions of the APHA Species Report and responses to survey were similar for ‘crops’, fruit and ‘vegetables’, they have been considered together in this section.

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

1,460 (69%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to crops.

843 (40%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to vegetables.

595 (28%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to fruit.

The main reasons respondents identified for including woodpigeon for this purpose were that they eat and damage crops, including vegetable and fruit crops. Oilseed rape was the most mentioned crop, but cereals were also often mentioned. Another common reason was that respondents said that there were too many woodpigeons.

The majority of respondents who identified a need backed this up with simple statements like “in winter they take the tops off sprouts”, “visual evidence each year of pigeon damaging and feeding off vegetable crops”, “They feed opportunistically on seed, young plants and fruit, causing major yield losses unless controlled”, “Crop damage including fruit and vegetables”, and “Regularly witness the taking of crops, drillings, fruit buds and blossom and cabbage plugs”.

One respondent said: “I have observed and undertaken lethal control for Woodpigeon eating / damaging: sewn maize, beans, peas, wheat, barley, linseed and oilseed rape as well as eating / damaging growing / ripening maize, beans, peas, wheat, barley, oats, linseed and oilseed rape. With growing crops, the damage is not only the eating, but in the ‘trampling / treading / flattening’ of crops which impacts on ripening and ability to harvest. These all lead to reduced productivity / yield of the crops. Non-lethal methods are impractical / ineffective merely shifting the problem elsewhere.”

Another respondent said: “I shoot over a large market garden and they are on there in droves on the soft fruit. Starting with the plums, then gooseberries, raspberries and strawberries. May until September. With forays onto the cherries.”

Another respondent said: “Throughout the year this species is a predator to growing crops:-On this farm - Peas, beans, vegetables, maize, sweetcorn, strawberries, currants, blackberries, raspberries, gooseberries, wheat.”

Another respondent said: “the estimated RSPB population of the Woodpigeon is 10 million, this is probably nearer 20 million. They eat between 35-65 grams of biomass per day, 365 days a year and the breeding season seems to be increasing in length due to the general trend of climate change. The damage wood pigeon cause to crops is almost uncalculatable and runs into millions of pounds, not to mention the carbon footprint of planting and managing crops to be eaten by pigeons.”

Finally, another respondent said: “Farmers are clear that the woodpigeon is the main agricultural pest in the UK and that they are capable of causing significant economic damage if not controlled (ref BASC 'Woodpigeon Shooting in the UK').BASC estimates woodpigeon damage to oilseed, brassica and pea crops in the UK costs around £115 million annually (ref as above). The Agriculture and Horticulture Development Board estimates that woodpigeons are responsible for yield losses of 10-40% (ref BASC 'Woodpigeon Shooting in the UK').Agricultural growers estimated their annual financial loss from woodpigeons at £125/hectare for oilseed rape, £250/ hectare for peas and £330 - £1,250 for brassicas (ref Animal and Plant Health Agency: 'A review of the woodpigeon costs to brassicas, salad crops etc 2014).”

C.3. Are there bird species that you consider should NOT be controlled under general licences to prevent serious damage and why?

62 (41%) respondents to this question said they did not want woodpigeon included on general licence for the purpose of preventing serious damage to crops.

52 (34%) respondents to this question said they did not want woodpigeon included on general licence for the purpose of preventing serious damage to vegetables.

55 (36%) respondents to this question said they did not want woodpigeon included on general licence for the purpose of preventing serious damage to fruit.

The main reasons that respondents identified were that lethal control should not be an option, that alternative solutions should address the issue, and that there is no evidence of serious damage.
One respondent said: “Wood Pigeon is not a serious threat to livestock, crops, vegetables, fruit, livestock feedstuffs, growing timber, fisheries or inland waters. It can be controlled humanely to reduce threats to crops, vegetables, fruit, livestock feedstuffs. General licences are not necessary or desirable to control Wood Pigeon, because businesses and farmers can use deterrents to protect their produce. If it is shown that there is a serious threat, an individual licence is adequate to cope with a demonstrated need in a particular instance. Deterrence or bird proofing will be more successful than killing.”

Organisational responses

The Countryside Alliance said: “Woodpigeons are one of the most serious agricultural pests in the UK, each year doing £1-2 million worth of damage to cereal crops and in excess of £2 million worth of damage to brassicas, especially oil seed rape. In addition, it is estimated that the population has grown 134% between 1970 and 2011. For these reasons it must be included on this general licence.”

The Tenant Farmers Association said: “The woodpigeon does a significant amount of damage to crops which causes a loss of profit, yield and quality of crop.”

Similarly, 90% of the 148 respondents to the NFU’s online survey considered that woodpigeon needs to be controlled in relation to crop damage. One respondent said woodpigeon can “decimate a crop leading to bare patches and weeds and the need for more herbicide.” In relation to vegetables and fruit, 33% and 14% of respondents respectively said that woodpigeon needs to be controlled. Responses showed that woodpigeon attack vegetable crops, particularly brassicas, with one of the respondents saying: “I can't grow any brassica crops or Sunflower crops for pollen and nectar and for wild bird seed without controlling woodpigeon and feral pigeon.”

GWCT said in their response: “Almost all participants (over 99%) report witnessing this damage being caused by woodpigeons, and 70% feel their local population is increasing, with most of the other respondents feeling it is stable…Farmers responding to this survey overwhelmingly describe crop damage, specifically wheat, barley, peas, beans and many

mentions of oilseed rape. The extremely high numbers of woodpigeons are described as causing serious damage to crops, with alternative methods being tested but ineffective."

The RSPB said: "We have no issue with woodpigeon being retained on this licence. However, it is apparent that some proportion of woodpigeon shooting is solely recreational or is shooting for commercial sale of pigeon meat, neither of these being legally possible under the licence. There needs to be further and stronger information relating to this on the licence itself or an associated guidance note."

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

- Overall, there is **Medium-High** strength of evidence for an impact of woodpigeon on crops.
- Overall, there is **Medium-High** strength of evidence for an impact of woodpigeon on vegetables (brassicas).
- There were no relevant studies in relation to woodpigeon for the protection of fruit.

What does the strength of evidence category 'medium-high' mean?

In relation to serious damage, **'Medium-High'** means some likelihood that a high effect occurs in some circumstances, and this effect on crops and vegetables results in significant damage.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

The responses to our survey suggest there is a very strong apparent identified need to control woodpigeon for the prevention of serious damage to crops. This identified need was somewhat more limited in relation to vegetables and fruit, likely reflecting the significantly smaller horticulture sector compared to the cereal crop sector. It is noted however that respondents may have been conflating damage to vegetables and fruit with damage to crops more generally.

The APHA Species Report concludes that there is some likelihood that significant crop and vegetable damage occurs in some circumstances. The science suggests a wide range of crops were found to be damaged by woodpigeon including brassicas (especially oilseed rape), legumes, cereal, fruit and beet. Respondents have shared experience of woodpigeon feeding and damaging not only cereal crops but vegetable and fruit crops as well. This damage is likely to lead to serious loss of crop yield.

We conclude that there is a genuine need in this case.

Tests:(ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Supporting statements from the survey indicating the widespread consumption and spoiling of crops by woodpigeon, including vegetables and fruit, suggest the use of a general licence for these purposes is appropriate.

Lethal control is proportionate to the scale of the problem, as the problem is widespread with supporting statements from the survey indicating that crops, including fruit and vegetables, are exposed to woodpigeon in significant quantities. Lethal control of woodpigeon will reduce local populations and therefore reduce the level of impact on crops.

We have considered whether to restrict where and when lethal control of woodpigeon is allowed under general licence for the purpose of preventing serious damage to crops including fruit and vegetables.

Farms exist across the country in many different types of rural and peri-urban settings, therefore we do not consider that a restriction by geography is necessary or feasible.

Serious damage to crops can occur at different stages of production and will be more important at certain times depending on the crop. Additionally, under the serious damage purpose, users have a legitimate desire to be able to take anticipatory action to prevent the problem occurring. It is our view that anticipatory action is permissible in limited circumstances e.g. where from past experience a farmer considers that woodpigeons are likely to eat a particular crop and, to prevent or mitigate this, the farmer wants to reduce woodpigeon numbers before the crop is planted. Our view is therefore that a time of year restriction is not warranted.

We recommend that woodpigeon should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to crops, vegetables, and fruit.

Preventing serious damage to growing timber, fisheries or inland waters

The levels and types of evidence relating to damage to growing timber, fisheries and inland waters are relatively low or limited. The sections in relation to these sub purpose categories have therefore been grouped here.

C.1. Which bird species do you consider need to be controlled under general licence to prevent serious damage and why?

84 (4%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to growing timber.

41 (2%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to fisheries.

39 (2%) respondents to this question identified a need to include woodpigeon on general licence for the purpose of preventing serious damage to inland waters.

The main reasons respondents identified for including woodpigeon for these purposes were that they cause damage (in particular to tree buds), graze and predate, and that there are too many birds.

Most respondents who identified a need backed this up with simple statements highlighting tree damage, such as “they can cause damage to woodland” as reasons why woodpigeon should be included on a general licence to protect growing timber. None were relevant to the protection of fisheries and inland waters.

One respondent pointed to the ‘RSPB Complete Birds of Britain and Europe’ which says they “eat buds, leaves, berries and fruit from trees”.

Another said: “With fruit trees, the numbers are smaller, but the effect is the same, with branches being completely stripped of buds.”

C.3. Are there bird species that you consider should NOT be controlled under general licences to prevent serious damage and why?

51 (33%) respondents to this question considered that woodpigeon should not be included on general licence for the purpose of preventing serious damage to growing timber.

52 (34%) respondents to this question considered that woodpigeon should not be included on general licence for the purpose of preventing serious damage to fisheries.

52 (34%) respondents to this question considered that woodpigeon should not be included on general licence for the purpose of preventing serious damage to inland waters.

The main reasons given were that lethal control should not be an option and alternative solutions should address the issue.

Organisational responses

No organisations submitted statements to expressly support control of woodpigeon for these purposes or otherwise gave specific reasons as to why woodpigeon should not be included on general licence for these purposes.

The Scientific Review

The APHA Species Report is included at Annex 1. The report found that there were no relevant studies in relation to woodpigeon and the prevention of serious damage to growing timber, fisheries or inland waters.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(k)

Although responses to the Defra survey identified an apparent need to control woodpigeon for the prevention of serious damage to growing timber, fisheries or inland waters, this was

extremely limited. The APHA Species Report did not identify any relevant studies in relation to the impact of woodpigeon on the prevention of serious damage to growing timber, fisheries or inland waters.

We conclude that there is not a genuine need in these cases.

We do not recommend that woodpigeon should be included on general licence under s.16(1)(k) for the purposes of preventing serious damage to growing timber, fisheries or inland waters.

Invasive non-native species

What are they and why are they a problem?

Invasive non-native species (INNS) or 'invasive alien species' (IAS) are species of plants and animals that colonise with through human assistance, and which go on to have negative impacts (either on the environment, economy or human health). This does not include species that colonise solely due to climate change.

Overall, these are species that cost the UK economy at least £1.8 billion a year. In Great Britain there are approx. 2,000 established non-native species, about 15% of which have known negative impact and are thus considered 'invasive'. On average 10 new non-native species become established in the wild every year.

What is the Government's strategy for INNS?

Defra is committed to combatting the serious risk posed by INNS and to this end the GB Invasive Non-native Species Strategy[59] follows the principles of the Convention on Biological Diversity (CBD) in prioritising prevention and rapid eradication over long-term management and control. It also follows the precautionary approach – the first of the guiding principles of the CBD. This states that "The precautionary approach should also be applied when considering eradication" and "Lack of scientific certainty about the various implications of an invasion should not be used as a reason for postponing or failing to take appropriate eradication, containment and control measures". Measures to prevent the introduction of INNS will not always be successful. The sooner action is taken to address any threat, the greater the chance of success and the less costly it will be.

The role of Risk Assessments

The GB non-native species secretariat has written a number of risk assessments in relation to non-native species. Risk assessment is used to assess the risk of a non-native species entering, establishing, spreading and causing impacts in Great Britain.

[59] https://www.gov.uk/government/publications/the-great-britain-invasive-non-native-species-strategy

Risk assessments can be used to aid prioritisation, to help enable effective rapid responses and for underpinning decision-making. The Non-Native Risk Assessment (NNRA) scheme was established in December 2006. Within this scheme, risk assessments on non-native species are carried out by independent experts, which are then reviewed by one peer reviewer and GB's independent panel of risk analysis experts (known as the NNRAP). Following this process, risk assessments are available for comment before being finalised.

All of the current relevant risk assessments can be found at:

http://www.nonnativespecies.org/index.cfm?pageid=143

General licences as a tool for managing INNS

Although the main emphasis of the GB Invasive Non-native Species Strategy is directed towards prevention and rapid response, there is still a need to manage the impacts of the large number of INNS that are already established in GB. There are four main types of long-term management: large scale eradication, containment, control, and mitigation.

For all of the INNS considered in this review, although removal under general licence does not represent a strategic approach to their management, it does provide an additional mechanism through which the GB Invasive Non-native Species Strategy can be implemented. Any targeted strategic management of an INNS (e.g. as currently for ruddy duck and monk parakeet) would benefit from any additional control that may be taken under general licence. As INNS have been present in GB for significantly less time and in fewer numbers compared to native species, evidence for detrimental impacts here can often be less evident; hence the adoption of the precautionary principle.

INNS considered in this review

In relation to this Chapter, we are dealing with six species of bird. These are:

Canada Goose (*Branta canadensis*)

Egyptian Goose (*Alopochen aegyptiaca*)

Indian House-Crow (*Corvus splendens*)

Monk Parakeet (*Myiopsitta monachus*)

Ring-Necked Parakeet (*Psittacula krameria*)

Sacred Ibis (*Threskiornis aetiopicus*)

These are the non-native species of bird currently considered for inclusion in one or more of the general licences in this review. The above geese and parakeet species are already established and, in some cases, cause serious impacts. The sacred ibis and Indian house-crow were added to the conservation General Licence (currently GL40) at the request of the Invasive Non-Native Species Bird Control Group to allow timely action when control of these invasive species is required in England.

This review did not propose adding any other non-native species, but respondents were able to propose the listing of additional species (both native and non-native) for control

under one or more of the purposes covered by the three general licences. Such proposals are considered in the 'additional species' section of this annex on page 187.

Rationale for invasive non-native species assessments for general licences

We consider that inclusion on general licence for a particular purpose is justified where the scientific evidence from the APHA Species Report is stated as Medium-High (MH), High-Medium (HM) or High (H), or where the findings in the APHA report were lower than this but the NNRAP Risk Assessments judge the impact risk to be either "Moderate" or "Major". This is considered in each of the species profiles in Annex 3.

Two species-purpose combinations - Canada goose for conservation and monk parakeet for conservation - rely on the NNRAP Risk Assessment. In both cases they have entered and established, and Canada goose has also spread. As they are INNS, it is appropriate to adopt this more precautionary interpretation of the evidence and its context, rather than rely only on the available science which is limited.

We have also taken into account the responses given in relation to these species in the Defra survey. As a result, for Canada goose, we have in addition to the consideration of the APHA Report and NNRAP Risk Assessment information made a licensing recommendation based upon that information.

The main reasons provided by respondents to the Defra survey for not including a particular species on a general licence were that they would be better controlled on a case by case basis through individual licences, that alternative solutions should address the issue and that there was insufficient evidence to warrant control.

Where we conclude that INNS species should be included on general licence for a particular purpose, we consider that any time of year or geographical restrictions to the lethal control would run counter to the policy intent of delivering the GB INNS Strategy, so a precautionary approach is warranted.

Invasive non-native species-purpose combination assessments

Egyptian Goose

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **medium-high** strength of evidence for an impact of Egyptian goose on the conservation of wild birds.

What does "medium-high" mean in this regard?

Some likelihood that a high effect occurs in some circumstances, and that this effect (e.g. competition for breeding sites or other resources) has the potential to affect the local conservation status of other species.

Preventing serious damage to crops

- Overall, there is **medium-high** strength of evidence for Egyptian goose causing serious damage to crops.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs, and this effect on crops results in significant damage.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Minor impact rating for Egyptian goose, stating: “There has been little study of the impacts of this species in its introduced range. In its native range, areas with high densities of this species may experience crop damage and Egyptian Geese presence may reduce the breeding success of other hole-nesting species with which they compete. Competitive exclusion of other waterbirds, habitat damage and eutrophication are suspected in the introduced range, but further research is required to understand these impacts.”

Overall, the risk assessment concludes: “Egyptian Geese are already present in the UK, with established populations in the East and South-East of England and scattered records elsewhere in England, Wales and Scotland. It is possible that they may compete with native waterbirds or hole-nesting species and may cause damage to grassland habitats and cereal crops. However further research is required to investigate these impacts.”

Defra Survey responses

Theme A - Conservation

533 respondents identified a need to include Egyptian goose on the conservation general licence for one or more of the conservation sub-purposes (‘conserving wild birds’, ‘conserving fauna’, and ‘conserving flora’).

98 respondents said that they should be removed for one or more of the conservation sub purposes (‘conserving wild birds’, ‘conserving fauna’, and ‘conserving flora’).

232 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of conserving **wild birds**.

86 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of conserving **wild birds**.

163 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of conserving **fauna**.

61 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of conserving **fauna**.

422 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of conserving **flora**.

51 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of conserving **flora**.

The reasons respondents identified the need for including Egyptian goose on the conservation general licence included that they are non-native, they displace or out-compete other wild bird species, and that they cause damage through feeding or trampling habitat.

Theme B – Preserving public health and public safety

Egyptian goose was not on the health and safety general licence at the time of the survey so no questions in relation to this species and this purpose were covered in the Defra survey. No respondents suggested this species for inclusion on general licence for this purpose.

Theme C – Preventing serious damage

435 respondents identified a need to include Egyptian goose on the serious damage general licence for one or more of the conservation sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

57 respondents said that they should be removed for one or more of the conservation sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

68 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of preventing serious damage to **livestock**.

51 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of preventing serious damage to **livestock**.

165 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

43 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

373, 185 and 97 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

46 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

22, 127 and 179 respondents to this question identified a need to include Egyptian goose on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

46, 49 and 50 respondents to this question considered that Egyptian goose should not be included on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

The main reasons respondents identified the need for including Egyptian goose on the preventing serious damage general licence were that they consume or cause damage to crops and livestock feeds, and contaminate inland waterways.

Organisational responses

Theme A - Conservation

BASC said that this species should be on the conservation licence to conserve wild birds and flora. They went on to say: “Egyptian geese can exhibit dominant and aggressive behaviour towards other birds, prevent smaller native species from establishing territories, can reduce the productivity of birds of prey such as osprey and barn owl by usurping nests and outcompeting them for artificial nesting platforms or nest boxes. Competitive exclusion of other waterbirds, habitat damage and eutrophication are suspected in the introduced range, but further research is required to understand these impacts.”

22 (1%) of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey said Egyptian goose should be controlled, of which 55% cited conservation reasons. GWCT said: “Conservation reasons for Egyptian goose control include aggression towards native species, particularly waterfowl, and competing for nest sites, with native owl species mentioned. Destruction of riverbank habitat is reported.” One of their respondents was quoted saying: “They come on the pond which is on one of my permission farms and have killed all young ducks & water hens, as an invasive species they should not be here.”

2% of the NFU’s 148 survey respondents identified a need for Egyptian goose control to conserve wild birds, 7% to conserve flora and 2% to conserve fauna. No supporting statements were submitted with their response.

Theme C – Preventing serious damage

22 (1%) of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey said Egyptian goose should be controlled, of which 50% said for agricultural reasons. They said: “As with other geese, Egyptian geese are reported to cause damage to crops, including barley, wheat and oats, maize, oil seed rape and peas. Damage is also reported to pasture, grass silage and wild bird seed crops.”

1% of the NFU’s 148 survey respondents identified a need for Egyptian goose control to protect livestock, 5% to protect livestock feedstuffs, 11% to protect crops, 4% to protect vegetables and 2% to protect fruit. Supporting statements were received regarding

protection of crops, including “Loss of grazing grass for livestock and the complete loss of 2 ha of spring barley this spring of which they completely ate” and “In large numbers they will puddle and kill grassland”.

BASC said: “There has been little study of the impacts of this species in its introduced range. In its native range, areas with high densities of this species may experience crop damage.”

Recommendation

Test: (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

Greatest need from the survey was identified for the sub-purposes of conserving wild birds, flora and serious preventing serious damage to crops. The APHA Species Report found a medium-high strength of evidence for conserving wild birds and serious damage to crops. Given that this species is already established in England and due to the strength of evidence we believe that this test is met based on the precautionary approach to support the Government’s overall approach to non-native species as set out above.

Although there was some user need identified through the online survey for the other purposes, this was not supported by the APHA Species Report. In particular, user demand was relatively high for the conserving flora category but this was not supported by the scientific evidence of the known impacts of this species. We have therefore concluded that there is no genuine need for these purposes.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

We believe that these tests are met based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above. Lethal control is proportionate to the scale of the problem, as the impacts of this species are well known within their native range and in other locations into which they have been introduced, and these impacts have been noted by respondents to the online survey in England across their range here. Permitting the lethal control of Egyptian goose would enable these negative impacts to be mitigated.

We recommend that Egyptian goose is added to general licence for the following purposes:

1. **The purpose of conserving wild birds**
2. **The purpose of preventing serious damage to crops, including fruit and vegetables**

Canada Goose

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **medium-low** strength of evidence for an impact of Canada goose on the conservation of wild birds.

What does “medium-low” mean in this regard?

Some likelihood that some effect occurs in some circumstances, and that this effect (e.g. competition for breeding sites or other resources) is on individual animals but unlikely having a subsequent effect on breeding numbers or the local conservation status of other species.

Conservation of flora

- Overall, there is **medium-high** strength of evidence for an impact of Canada goose on the conservation of flora.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs in some circumstances, and that this effect (e.g. grazing, trampling, faecal deposition) has the potential to affect the local conservation status of the flora species.

Preserving public health or public safety

- Overall, there is **medium-low** strength of evidence for an impact of Canada goose on public health.

What does “medium-low” mean in this regard?

Likely that individuals of the species carry disease common to people, but the transmission route is not shown.

Preventing serious damage to crops

- Overall, there is **high** strength of evidence for an impact of Canada goose on crops.

What does “high” mean in this regard?

High likelihood that a high effect occurs in some circumstances on crops and results in significant damage.

Preventing serious damage to inland waters

- There is **insufficient data** to evaluate the strength of evidence for an impact of Canada goose on inland waters. To note that the effect on reedbeds and bankside vegetation is covered under conservation in the flora sub-purpose.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Moderate impact rating for Canada goose, stating: "No national assessment of economic loss has been attempted in GB, but local damage can be severe. No national assessment on their negative impact on other waterbirds in GB has been investigated. The species is a potential vector for avian and human pathogens including the avian flu virus but there in no confirmed evidence of transmission to humans. There is clear evidence of agricultural damage, nuisance and defecation in parkland and risks to flight safety. It is possible that erosion, displacement of other bird species and disease transmission may also be a feature of this species and its expansion. No national quantification of the levels of any such impact has, however, been undertaken."

Overall, the risk assessment concludes: "Continued entry is likely through on-going expansion of the established population. There may be some limited, natural vagrancy. Establishment is likely to continue aided by high breeding success at some localities, longevity and an abundance of suitable habitat. The species is likely to spread further over GB although the speed of the spread is difficult to establish. Economic loss through agricultural damage, amenity damage… can be high but has not been assessed on the national scale. Control measures such as removal at the moult, shooting and egg management can reduce losses but may require ongoing activity at the local scale or extensive action on a national scale to be fully effective."

Defra Survey responses

Theme A - Conservation

1,595 respondents identified a need to include Canada goose on the conservation general licence for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

136 respondents said that they should be removed (for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

571 respondents to this question identified a need to include Canada goose on general licence for the purpose of conserving **wild birds**.

122 respondents to this question considered that Canada goose should not be included on general licence for the purpose of conserving **wild birds**.

641 respondents to this question identified a need to include Canada goose on general licence for the purpose of conserving **fauna**.

86 respondents to this question considered that Canada goose should not be included on general licence for the purpose of conserving **fauna**.

1,195 respondents to this question identified a need to include Canada goose on general licence for the purpose of conserving **flora**.

81 respondents to this question considered that Canada goose should not be included on general licence for the purpose of conserving **flora**.

The main reasons respondents identified the need for including Canada goose on the conservation general licence were that they displace or out-compete other wild bird species and attack other wild birds, they cause damage in large numbers, and that they defecate in and pollute water courses.

Theme B - Preserving Public Health and Public Safety

1,214 respondents identified a need to include Canada goose on the public health or public safety general licence (for one or more of the public health or safety sub-purposes 'prevention of trips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

82 respondents said that they should be removed (for one or more of the public health or public safety sub-purposes 'prevention of trips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

967 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing **trips and falls**.

75 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing **trips and falls**.

835 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing **spread of human disease**.

70 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing **spread of human disease**.

334 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing **issues in relation to birds nesting**.

65 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing **issues in relation to birds nesting**.

154 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing **other health and safety issues**.

12 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing **other health and safety issues**.

The main reasons respondents identified for the need for including Canada goose on the preserving public health or public safety general licence were faeces on paths and other

surfaces, risk of human disease transmission and risk of human injury from nesting or scavenging birds.

Theme C – Preventing serious damage

1,379 respondents identified a need to include Canada goose on the serious damage general licence for one or more of the serious damage sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

78 respondents said that they should be removed for one or more of the serious damage sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

186 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing serious damage to **livestock**.

70 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing serious damage to **livestock**.

400 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

62 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

1,032, 482 and 190 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

67, 65 and 66 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

54, 511 and 566 respondents to this question identified a need to include Canada goose on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

68, 67 and 65 respondents to this question considered that Canada goose should not be included on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

The main reasons respondents identified the need for including Canada goose on the preventing serious damage general licence were that they attack livestock, graze, damage and contaminate livestock feed and crops, damage and contaminate fisheries and inland waters, leading to the reduction and condition of fish stocks.

Organisational responses

Theme A - Conservation

4% of the NFU's 148 survey respondents identified a need for Canada goose control to conserve wild birds, 20% to conserve flora and 3% to conserve fauna. They said that Canada goose destroy waterside habitats and grass leys. Other reasons given were "Out competes other species and also strips flora too tightly" and "Paddling of conservation areas and destroying habitat".

260 (9%) of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey said Canada goose should be controlled, of which 15% said for conservation reasons. They said that conservation reasons for Canada goose control include damaging the banks of rivers and lakes, driving native species such as lapwing away from suitable habitat or competing for nest sites. Aggression towards native species is cited as a reason by some. One of their respondents said: "Considerable damage to crops and banks of the river and lakes due to the high numbers of them trampling and defecating on areas which should have ground flora that benefit the wider range of wildlife." Another said: "We try to encourage different duck species to our man - made water reservoir and ponds, but the large amount of Canada geese seems to turn grass bank areas to mud in just a few days making it undesirable for other duck to graze from."

The Angling Trust said: "A review of 26 invasive alien birds in Europe, found Canada goose to have the greatest environmental impact and greatest impact on the economy (Kumschick and Nentwig, 2010). They pose a significant threat to the health of water bodies and the wildlife they contain through the toxicity of their excrement which is deposited in large quantities at the waters edge. The high phosphorous content of their faeces can lead to significant algae blooms which can kill fish and damage invertebrates."

BASC said that this species should be on the conservation licence to conserve wild birds and flora.

In contrast, the RSPB said: "We note that NRW have recently concluded that there is no established scientific and anecdotal evidence that this species [Canada goose] predates on wild bird eggs and chicks or causes significant changes in the abundance of any wild bird population and have therefore removed it from their equivalent General Licence."

Animal Aid said: "Canada geese can be controlled non-lethally including by habitat modification/management. For detail, see Heintzelman, DS, Canada Goose Habitat Modification Manual.[60]"

[60] Heintzelman, DS, Canada Goose Habitat Modification Manual. https://aplnj.org/wpcontent/uploads/2019/01/Goose_Habitat_Modification.pdf

Theme B - Preserving Public Health and Public Safety

BASC said that Canada goose should be on general licence for the purpose of prevention of trips and falls. They mention the amount of defecation in parkland.

Many responses received where this purpose was selected were from fishing clubs and angling associations, the majority of which relate to faeces being slippery, especially on fishing platforms. The Kelvedon and District Angling Association said they "have fishing on a small reservoir of approx 3 acres. When, at certain times of the year, upwards of 150 Canada geese take up residence, the volume of faeces deposited on the bank, where anglers sit and dog walkers pass through, is a major slip hazard and health hazard." The Norfolk Flyfishers Club said: "At any one time, particularly during the breeding season we can have up to 500 geese on our lake / its surrounds, The amount of excreta left on the bankside surrounds of the lake is very unpleasant to look at; offensively smelly and as it covers a lot of platforms from which our members fish and large areas of lake bankside on which members and the public walk / sit constitutes a health hazard to anglers and members of the public who enjoy our fishery."

The Angling Trust said: "Research has shown that the excrement of Canada geese contains a wide variety of pathogens capable of infecting humans and that can also be transferred to the water and air quality. These include three parasites that are a concern to human health; cryptosporidium, giardia and toxoplasmosis. The bacteria transferred from Canada geese that cause humans concern are chlamydiosis, e-coli, listeria, pasteurella multocida and salmonella. A recent cost-benefit analysis for management of Canada geese in Belgium showed that the cost of additional management was always outweighed by the reduction in damage costs (from eutrophication, human health, grassland damage etc) (Reyns et al., 2018)[61]."

11% of the NFU's 148 survey respondents identified a need for Canada goose control to prevent slips and falls, 8% to prevent the spread of disease and 4% to prevent issues concerning nesting birds. No supporting statements from their respondents were submitted.

260 (9%) of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey said that Canada goose should be controlled, of which 36% said for public health reasons. They said: "Public health concerns are once again related to defecation contaminating land, grazing and water courses, including with effects on local fisheries."

[61] Cost-benefit analysis for invasive species control: the case of greater Canada goose Branta canadensis in Flanders (northern Belgium). Reyns et al, https://peerj.com/articles/4283.pdf

The National Pest Technicians Association said: “Canada Geese can cause damage by fouling of grassland in amenity areas, particularly around lakes denuding areas around lakes. Populations also have a tendency to get very large with the potential to cause erosion issues around pond/lake edges.”

In contrast, the RSPB said: “The limited and non-specific disease risk …may be slightly greater for this species [Canada goose] given that many individuals are relatively tame and inhabit public open spaces such as parks. This is an assumption more than an evidenced position and the mere general nuisance of Canada goose presence is not itself legal justification for inclusion. Although we do not object to the species’ inclusion on the licence, we take the view that management of non-natives in general and of goose populations in particular is best done by targeted and funded projects and we cannot see that inclusion amounts to an effective solution for the perceived problems.”

Animal Aid said: “Canada geese can be controlled non-lethally including by habitat modification/management. For detail, see Heintzelman, DS, Canada Goose Habitat Modification Manual.[62].”

Theme C – Preventing serious damage

3% of the NFU’s 148 survey respondents identified a need for Canada goose control to prevent serious damage to livestock, 11% feedstuffs for livestock, 41% crops, 8% vegetables and 3% fruit. One of their respondents said: “Canada geese arrive in large flocks and will decimate a crop with their feet in the wet winter and graze what they have not destroyed with their feet. We have lost large areas of cereal crops to Canada geese in the past.” Another said: “Canada geese, arriving in force, will decimate certain foliage crops and recently planted seeds.”

260 (9%) of the 2,951 respondents to the Game & Wildlife Conservation Trust (GWCT) survey said Canada goose should be controlled, of which 76% said for agricultural reasons. GWCT said: “Those controlling for agriculture describe the loss of large areas of various crops very quickly, as they are grazed by large flocks of geese. Canada geese also overgraze pasture, both depleting the grass available for livestock, as well as contaminating the areas with their droppings.”

One of their respondents said: “I control and shoot Canada Geese to prevent large scale crop damage and loss. Canada Geese are big birds and 100 of them can wipe a whole crop out in a week. Shooting them seems to have been the only effective way of control as scaring tactics have not worked and other preventions are impractical.”

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[62] Heintzelman, DS, Canada Goose Habitat Modification Manual. https://aplnj.org/wpcontent/uploads/2019/01/Goose_Habitat_Modification.pdf

Another said: “We have a large wildflower meadow and when it's cropped the cattle are let in to graze it to supplement their winter feeding. The Canada geese fly in from the fishing lakes and leave their droppings all over the meadow which hampers the cattle grazing. I shoot them as they come onto the meadow. They also leave their droppings on the public walks around the estate.”

Many responses received where this purpose was selected were from fishing clubs and angling associations, the majority of which relate to the damage to fisheries and inland waters. The Angling Trust said: “They pose a significant threat to the health of water bodies and the wildlife they contain through the toxicity of their excrement which is deposited in large quantise [sic] at the waters edge. the high phosphorous content of their faeces can lead to significant algae blooms which can kill fish and damage invertebrates.”

In contrast, Animal Aid said: “Canada geese can be controlled non-lethally including by habitat modification/management. For detail, see Heintzelman, DS, Canada Goose Habitat Modification Manual.[63]”

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

Responses to the Defra survey identified a very strong need for Canada goose on general licence for the purposes of conserving flora and preventing serious damage to crops. The APHA Species Report found medium-high strength of evidence for conserving flora and high for serious damage to crops. There was less, although still quite strong, apparent user need for conserving wild birds and medium-low strength of evidence in the APHA Species Report. Taking into account organisational responses and noting the conclusion of the GB NNRAP Risk Assessment, especially around the likely ongoing population increase and range extension, we believe that this test is met based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

Based on the evidence from the GB NNRAP risk assessment, user evidence and the APHA report, we conclude that there is a genuine need for Canada goose in regard to the following purposes:

1. The purpose of conserving wild birds
2. The purpose of conserving flora
3. The purpose of preventing serious damage to crops, including fruit and vegetables

[63] Heintzelman, DS, Canada Goose Habitat Modification Manual. https://aplnj.org/wpcontent/uploads/2019/01/Goose_Habitat_Modification.pdf

Based on the results of the Defra survey, we also assessed whether there is an apparent and genuine need for the following purposes:

1. The purpose of conserving fauna
2. The purpose of preventing serious damage to fisheries
3. The purpose of preventing serious damage to inland waters
4. The purpose of preserving public (human) health or public safety (specifically in relation to the spread of disease, issues with nesting, and preventing trips and falls)

The purpose of conserving fauna

The purpose of preventing serious damage to fisheries

The purpose of preventing serious damage to inland waters

The survey results identified quite strong user need for the purposes of preventing serious damage to fisheries and inland waters. Respondents told us that Canada geese have negative impacts caused by fouling on fish stocks. The high levels of fouling that can be associated with areas with a high Canada goose population causes the lowering of oxygen levels and increases in nitrates and phosphates. The survey results also identified a strong user need for the purpose of conserving fauna, with users telling us of the pollution of water through faeces as well as the damage caused to habitats.

Having considered the responses to the Defra survey in relation to the effects upon fauna, fisheries, and inland waters, we conclude that whilst the scientific literature is too sparse to inform a decision on its own, there is sufficient information when combined with the Defra survey information to conclude that this test is met for the purposes above taking a precautionary approach.

The purpose of preserving public (human) health or public safety (specifically in relation to the spread of disease, issues with nesting, and preventing trips and falls)

The survey results have told us that Canada geese have negative impacts upon public health and public safety and that there was a strong need to prevent trips and falls and to prevent the spread of disease in parks/open spaces and around lakes. In relation to birds nesting, respondents raised a number of issues including problems with faeces and aggressive behaviour towards people.

We have considered the responses to the Defra survey in relation to the above. There is insufficient scientific information alone, likely to be as a result of a combination of lack of study (trips and falls) and difficulty of study (disease transmission). However, when combining the scientific evidence we have on the pathogens carried by Canada geese that are harmful to human health with the results from the Defra survey, this tells us that there is significant interaction between Canada geese and humans such that humans can be ‘exposed’ to these pathogens to a significant degree. The Defra survey also tells us that in a number of locations there are significant numbers of Canada geese resident on and around lakes and other waterbodies to which the public have access. In and around these areas there can be considerable accumulations of droppings that present a risk of trips and falls. The Defra survey also tells us of related health and safety issues to do with nesting.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

We believe that these tests are met based on the precautionary approach in terms of the Government's overall approach to non-native species as set out above. Lethal control is proportionate to the scale of the problem, as the impacts of this species are well known within their native range and these impacts have been noted by respondents to the online survey in England across their range here. Permitting the lethal control of Canada goose would enable these negative impacts to be mitigated in appropriate circumstances.

We recommend that Canada goose is included in general licence for the following purposes:

1. **The purpose of conserving wild birds**
2. **The purpose of conserving fauna**
3. **The purpose of conserving flora**
4. **The purpose of preventing serious damage to crops, including fruit and vegetables**
5. **The purpose of preventing serious damage to fisheries**
6. **The purpose of preventing serious damage to inland waters**
7. **The purpose of preserving public (human) health or public safety in relation to the spread of disease**
8. **The purpose of preserving public (human) health or public safety in relation to preventing trips and falls**
9. **The purpose of preserving public (human) health or public safety in relation to nesting activities**

Indian House Crow

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **high-medium** strength of evidence for an impact of Indian house crow on the conservation of wild birds.

What does "high-medium" mean in this regard?

Moderate likelihood that a high effect occurs in some circumstances, and that this effect (e.g. predation or competition for breeding sites or other resources) has the potential to affect the local conservation status of other species.

Prevention of serious damage to crops

- Overall, there is **medium-high** strength of evidence for an impact of Indian house crow on crops.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs in some circumstances and this effect on crops results in significant damage.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Major impact rating for Indian House Crow, stating: “The Indian House Crow, which occupies urban/semi-urban/peri-urban habitat, is regarded as a widespread major pest in Asia and Africa. It is a major predator of other birds and is implicated in reductions in populations of a range of species. In addition to direct predation, it also displaces indigenous avian species through competition and aggression. Further problems are associated with public health issues arising from the House Crow’s communal roosting and scavenging behaviours.”

Overall, the risk assessment concludes: “Likelihood of entry, by ship-assisted transfer, is highest if the population in the Netherlands is allowed to persist and expand. Colonisation of further European countries, including the UK, is highly likely to originate from there. Entry could also originate via ship-assisted transfer from other countries within its existing range. On entry the species is highly likely to establish successfully; it specialises in exploiting resources in urban areas and has repeatedly proven its ability to successfully invade new areas. Principal risk area comprises urban/semi-urban/ peri-urban habitat around ports and along coasts. The most important potential impacts are environmental with significant predation of local avifauna.”

Defra survey responses

Theme A - Conservation

639 respondents identified a need to include Indian house crow on the conservation general licence for one or more of the conservation sub-purposes (‘conserving wild birds’, ‘fauna’, and ‘flora’).

75 respondents said that they should be removed (for one or more of the conservation sub-purposes (‘conserving wild birds’, ‘fauna’, and ‘flora’).

578 respondents to this question identified a need to include Indian house crow on general licence for the purpose of conserving **wild birds**.

70 respondents to this question considered that Indian house crow should not be included on general licence for the purpose of conserving **wild birds**.

397 respondents to this question identified a need to include Indian house crow on general licence for the purpose of conserving **fauna**.

47 respondents to this question considered that Indian house crow should not be included on general licence for the purpose of conserving **fauna**.

236 respondents to this question identified a need to include Indian house crow on general licence for the purpose of conserving **flora**.

47 respondents to this question considered that Indian house crow should not be included on general licence for the purpose of conserving **flora**.

The main reasons respondents identified the need for including Indian house crow on the conservation general licence were that they are non-native, consume, attack or damage wild birds and their eggs, fauna, flora and their habitat.

Theme B – Preserving public health and public safety

Indian house crow was not on the health and safety general licence at the time of the survey so no questions in relation to this species and this purpose were covered in the Defra survey. Only a very small number of respondents asked for Indian house crow to be considered for other purposes, so it has not been considered.

Theme C – Preventing serious damage

Indian house crow was not on the serious damage general licence at the time of the survey so no questions in relation to this species and this purpose were covered in the Defra survey. Only a very small number of respondents asked for Indian house crow to be considered for other purposes, so it has not been considered.

Organisational responses

Theme A - Conservation

SongBird Survival said: “As the Indian house crow's effect on other native species and agriculture is known to be adverse (GB NNSS, 2019[64]), the Precautionary Principle (European Commission, 2017[65]) should be applied and the birds should be eradicated wherever it attempts to colonise the UK. As is well known and widely accepted, acting too late with invasive species is always a very bad idea and much more expensive to resolve in the long-term.”

[64] GB Non-native Species Secretariat (2019) ‘Indian House Crow, Corvus splendens’ [Online]. Available at http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=924 (Accessed 06 November 2019).

[65] European Commission (2017) ‘The precautionary principle: Decision-making under uncertainty’ [Online] Available at http://ec.europa.eu/environment/integration/research/newsalert/pdf/precautionary_principle_decision_making_under_uncertainty_FB18_en.pdf (Accessed 06 October 2019)

The Tenant Farmers Association said: “We have had numerous examples of a lot of farmers up and down the country who frequently witness Indian House crows destroying the nests and eating the eggs of ground nesting birds which both farmers and Government schemes are trying to protect such as the Skylark, the Meadow Pipit, and Reed Bunting to name just a few. Examples are from wide ranges of England such as Sussex, Devon and Cumbria. Like the Carrion crowm, [sic] there are examples where the Indian House Crow if they are not actively managed through the lapwing breeding and rearing period, a significant number of pairs of lapwings do not end up with any surviving chicks.”

In contrast, Animal Aid said: “Defra’s own description of the status of the Indian House Crow is that it is "currently absent from the UK"[66]. We object to its inclusion under the general licence regime. By being absent it cannot present any sort of conservation threat in the UK and should be removed from the list.”

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

As a species that is currently not present in England, user experiences will be more limited. Nonetheless there was some evidence of need provided by those who anticipate the effects of it arriving and becoming established in regard to conserving wild birds, which was confirmed by the APHA Species Report concluding a high-medium strength of evidence for this purpose. This report also highlighted a medium-high strength of evidence around serious damage to crops.

Given its status and the need to eradicate the species were it to arrive, we therefore believe that this test is met for these two purposes based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Were the species to arrive and start to establish, lethal control would be a proportionate response especially as we would need to seek to eradicate it whilst the opportunity was there. We believe that these tests are met based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

We recommend that Indian house crow is added to general licence for the following purposes:

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[66] Defra, July 2019, Use of general licences for the management of certain wild birds - Government response to the call for evidence, p58

1. **The purpose of conserving wild birds**
2. **The purpose of preventing serious damage to crops, including fruit and vegetables**

Monk Parakeet

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **medium** strength of evidence for an impact of monk parakeet on the conservation of wild birds.

What does “medium” mean in this regard?

Likely that some effect occurs in some circumstances, and that this effect (e.g. competition for breeding sites or other resources) is on individual animals but unlikely having a subsequent effect on breeding numbers or the local conservation status of other species.

Preserving public health or public safety (nest building)

- Overall, there is **high-medium** strength of evidence for an impact of monk parakeet on infrastructure and public safety through nest building activities.

What does “high-medium” mean in this regard?

Likely that an effect (trips, slips and falls; issues in relation to birds nesting; or any other impacts) occurs in some circumstances and has the potential to affect public safety.

Preventing serious damage to fruit

- Overall, there is **medium-high** strength of evidence for an impact of monk parakeet causing serious damage to fruit.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs in some circumstances, and this effect on fruit results in significant damage.

Preventing serious damage to crops

- Overall, there is **medium-high** strength of evidence for an impact of monk parakeet causing serious damage to crops.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs in some circumstances and this effect on crops results in significant damage.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Moderate impact rating for monk parakeet, stating: "The Monk parakeet is considered an agricultural pest in its native South American range, although recent reports indicate that damage is severe locally, but less significant regionally. It is also reported to be an agricultural pest is some areas of the United States and could damage fruit and grain crops in the risk assessment areas if very large populations are allowed to establish themselves. Damage to artificial structures as a result of colonial nest building is likely, as well as some noise nuisance. There is potential for disease transmission to wild native birds, poultry and theoretically to humans. Although there is unlikely to be competition with native birds for nesting sites, competition for food may be an issue since Monk parakeets are known to dominate feeding areas and act aggressively to competitors."

Overall, the risk assessment concludes: "Although importation of pet birds either from within the EU or outside of it is not prohibited, it is only allowed under specific licence requiring 35 days of quarantine (Defra website, 2007). Since birds may still be brought into the country as pets, a relatively high risk exists of escaped and released birds forming feral populations in urban and semi-urban areas."

Defra survey responses

Theme A - Conservation

515 respondents identified a need to include monk parakeet on the conservation general licence for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

86 respondents said that they should be removed (for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

377 respondents to this question identified a need to include monk parakeet on general licence for the purpose of conserving **wild birds**.

78 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of conserving **wild birds**.

195 respondents to this question identified a need to include monk parakeet on general licence for the purpose of conserving **fauna**.

52 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of conserving **fauna**.

309 respondents to this question identified a need to include monk parakeet on general licence for the purpose of conserving **flora**.

48 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of conserving **flora**.

The main reasons respondents identified the need for including monk parakeet on the conservation general licence were that they are non-native, out compete or displace other wild bird species and cause damage to flora and habitats.

Theme B – Preserving public health or public safety

253 respondents identified a need to include monk parakeet on the public health or public safety general licence (for one or more of the public health or safety sub categories 'prevention of trips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

63 respondents said that they should be removed (for one or more of the public health or public safety sub categories 'prevention of trips and falls', 'spread of human disease', 'issues in relation to birds nesting' and 'other reasons').

72 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing **trips and falls**.

59 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing **trips and falls**.

126 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing **spread of human disease**.

49 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing **spread of human disease**.

163 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing **issues in relation to birds nesting**.

48 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing **issues in relation to birds nesting**.

56 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing **other health and safety issues**.

5 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing **other health and safety issues**.

The main reasons respondents identified the need for including monk parakeet on the public health or public safety general licence were the risk of human disease transmission, faeces on paths and other surfaces and nests causing blockages, obstructions and structural failure.

Theme C – Preventing serious damage

238 respondents identified a need to include monk parakeet on the serious damage general licence for one or more of the conservation sub-purposes ('prevention of serious

damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

52 respondents said that they should be removed for one or more of the conservation sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

51 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing serious damage to **livestock**.

48 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing serious damage to **livestock**.

96 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

44 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

154, 128 and 181 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

49, 46 and 46 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

53, 22 and 23 respondents to this question identified a need to include monk parakeet on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

46, 46 and 45 respondents to this question considered that monk parakeet should not be included on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

The main reasons respondents identified the need for including monk parakeet on the preventing serious damage general licence were that they consume and cause damage to livestock feedstuffs, crops, vegetables, fruits and trees.

Organisational responses

Theme A - Conservation

2% of the NFU's 148 survey respondents identified a need for monk parakeet control to conserve wild birds, 1% to conserve flora and 0% to conserve fauna. No supporting statements were submitted with their response.

BASC said that this species should be on the conservation licence to conserve wild birds. They quoted from the GB non-native species secretariat risk assessment for this species, saying: "Although there is unlikely to be competition with native birds for nesting sites,

competition for food may be an issue since Monk parakeets are known to dominate feeding areas and act aggressively to competitors."

The Countryside Alliance said: "The Monk Parakeet is a non-native species, with the potential to become invasive. They are known to compete for nesting sites with native birds.

In contrast, Animal Aid said: "We question the inclusion of monk parakeet. Overall numbers are extremely small. By Defra's own account there are only 20 individual birds at a single location, and we have seen no evidence that they are causing conservation impacts."

Theme B – Preserving public health or public safety

1% of the NFU's 148 survey respondents identified a need for monk parakeet control to prevent slips and falls, the spread of disease and issues concerning nesting birds. No supporting statements from their respondents were submitted.

The National Pest Technicians Association said: "Although a relatively recent issue, monk parakeets should be kept on license to prevent future issues. They have been proven to cause major issues due to their nesting behaviour on phone masts, electricity pylons etc."

Animal Aid said: "We specifically question the inclusion of monk parakeet. Overall numbers - only 20 individual birds at a single location, by Defra's own account - are unlikely to pose a risk. The Defra summary assessment of health and safety impact says "'Well established' evidence of risk to public health or public safety from nesting on electrical utility structures (in USA)." We question how this can be evidence for a risk in the UK, especially with such a small number of birds in the wild.[67]"

Theme C – Preventing serious damage

The Countryside Alliance said: "The Monk Parakeet is a non-native species, with the potential to become invasive. They are …a considerable agricultural pest in their native South America, affecting food crops and timber."

1% of the NFU's 148 survey respondents identified a need for monk parakeet control to prevent serious damage to livestock, 1% feedstuffs for livestock, 2% crops, 1% vegetables and 4% fruit, respectively. No supporting statements from their respondents were submitted.

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[67] Defra, July 2019, Use of general licences for the management of certain wild birds - Government response to the call for evidence p65.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/816268/general-licences-government-response-to-call-for-evidence.pdf

Animal Aid said: “We question the inclusion of monk parakeet. Overall numbers are extremely small and therefore unlikely to cause serious damage.”

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

Given the small population of this species in England, user evidence is more limited. The APHA Species Report found medium strength of evidence for the conserving wild birds purpose, high-medium for health and safety (nesting) and medium-high for serious damage to crops and fruit. We therefore believe that this test is met for these purposes based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

There was some user need identified in the survey for conserving flora but this was not backed up by the science, although they are known to consume native flora as part of their diet. Given that the impacts of this species are well known both in their native range and where they have become established there is no reason to believe that there is a gap in the scientific evidence, so we are not recommending it for this purpose.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Lethal control is appropriate as this species has shown itself capable of establishing a population and is currently subject to a removal programme. We believe that these tests are met based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

We recommend that Monk Parakeet is added to general licence for the following purposes:

1. **The purpose of conserving wild birds**
2. **The purpose of preventing serious damage to crops, incl. fruit and vegetables**
3. **The purpose of preserving public health or public safety - nesting behaviour**

Ring-necked Parakeet

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **high-medium** strength of evidence for an impact of ring-necked parakeet on the conservation of wild birds. This is largely due to competition for nest sites with native cavity-nesting birds.

What does “high-medium” mean in this regard?

Moderate likelihood that a high effect occurs in some circumstances, and that this effect (e.g. competition for breeding sites or other resources) has the potential to affect the local conservation status of other species.

Conservation of fauna

- Overall, there is **medium-high** strength of evidence for an impact of ring-necked parakeet on the conservation of wild fauna. This is largely due to competition for cavities and aggressive attacks on bats.

What does “medium-high” mean in this regard?

Some likelihood that a high effect occurs in some circumstances, and that this effect (e.g. competition for breeding sites or refuges, predation or harm) has the potential to affect the local conservation status of the prey species.

Prevention of serious damage to crops & fruit

- Overall, there is **high-medium** strength of evidence for ring-necked parakeets causing serious damage to crops.
- Overall, there is **high-medium** strength of evidence for ring-necked parakeets causing serious damage to fruit.

What does “high-medium” mean in this regard?

Moderate likelihood that a high effect occurs in some circumstances and this effect on crops and fruit results in significant damage.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Moderate impact rating for ring-necked parakeet, stating: “Ring-necked Parakeets are considered a serious agricultural pest in its native range and have shown signs of causing significant damage to crops in the risk assessment area. It has also been demonstrated that introduced populations can have a negative association with native secondary cavity nesters. They may additionally carry several diseases which could be harmful to poultry, native fauna and humans. Since they are quite vocal, they could potentially cause noise nuisance in residential areas.”

Overall, the risk assessment concludes: “The risk assessment area already has an introduced population of Ring-necked Parakeets that entered and established nearly forty years ago and is now expanding exponentially in number. The potential for impact on economic activities (agriculture) and native birds and fauna is high. Containment is still possible although considerable will and resources are required.”

Defra survey responses

Theme A - Conservation

592 respondents identified a need to include ring-necked parakeet on the conservation general licence for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

77 respondents said that they should be removed (for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

435 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of conserving **wild birds**.

71 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of conserving **wild birds**.

217 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of conserving **fauna**.

48 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of conserving **fauna**.

331 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of conserving **flora**.

45 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of conserving **flora**.

The main reasons respondents identified the need for including ring-necked parakeet on the conservation general licence were that they are non-native, out compete or displace native wild bird and fauna species and consume or cause damage to flora.

Theme B – Preserving public health and public safety

Ring-necked parakeet was not on the health and safety general licences at the time of the survey so no questions in relation to this species and these purposes were covered in the Defra survey. Only a very small number of respondents asked for ring-necked parakeet to be added for other purposes so it has not been considered.

Theme C – Preventing serious damage

245 respondents identified a need to include ring-necked parakeet on the serious damage general licence for one or more of the conservation sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

52 respondents said that they should be removed for one or more of the conservation sub-purposes ('prevention of serious damage to livestock', 'feedstuffs for livestock', 'crops', 'vegetables', 'fruit', 'growing timber', 'fisheries' or 'inland waters').

50 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of preventing serious damage to **livestock**.

48 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of preventing serious damage to **livestock**.

88 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

45 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of preventing serious damage to **livestock feedstuffs**.

150, 125 and 193 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

49, 46 and 46 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of preventing serious damage to **crops**, **vegetables** and **fruit** respectively.

50, 20 and 21 respondents to this question identified a need to include ring-necked parakeet on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

47, 47 and 46 respondents to this question considered that ring-necked parakeet should not be included on general licence for the purpose of preventing serious damage to **growing timber**, **fisheries** and **inland waters** respectively.

The main reasons respondents identified the need for including ring-necked parakeet on the preventing serious damage general licence were that they consume and cause damage to livestock feedstuffs, crops, vegetables, fruits and tree buds and blossoms.

Organisational responses

Theme A - Conservation

2% of the NFU's 148 survey respondents identified a need for ring-necked parakeet control to conserve wild birds, 1% to conserve flora and 1% to conserve fauna. No supporting statements were submitted with their response.

The Countryside Alliance said: "The Ring-necked Parakeet is a non-native species, with the potential to become invasive. They are known to compete for nesting sites with native birds in their native South America, affecting food crops and timber."

BASC said that this species should be on the conservation licence to conserve wild birds. They quoted from the GB non-native species secretariat risk assessment for this species, saying: “It has also been demonstrated that introduced populations can have a negative association with native secondary cavity nesters.”

SongBird Survival said: “There is compelling evidence that the invasive, non-native ring-necked parakeet (RNP), exerts an exclusionary effect on songbirds at garden feeding stations (Peck, et al, 2014[68]) and probably elsewhere, and that the species outcompetes native hole-nesting birds for nesting cavities (Strubbe & Matthysen, 2007[69] & 2009[70]). RNP breed earlier than many native species and are very aggressive in defence of nesting holes and cavities. In our view, the RNP is in its 'break-out' phase with the population having reached critical mass in England and will, like many invasive non-native species, now rapidly colonise most suitable habitat in UK in the same way that the non-native grey squirrel spread post-1945. For example, the species has already been recorded colonising suitable habitat as far north as Glasgow & Edinburgh (BBC, 2019), and it is now present in many UK towns and cities in varying numbers and density (Leake, 2019[71]). Climate change will undoubtedly help its further, northward, spread.

Species likely to benefit from killing or taking of this specific, problematic, non-native species include native hole and crevice-nesting song and other small birds such as Red-listed starling, spotted & pied flycatchers; Amber-listed common redstart and other more common Green-listed species like the nuthatch – and non-songbirds such as Amber-listed tawny & little owl and stock dove.”

In contrast, Animal Aid said: “We do not accept there is any case for including the ring-necked parakeet. Defra’s own assessment, from July 2019, is that on conservation grounds "No studies have yet found an impact in the UK".”

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[68] Peck, H. L., Pringle, H. E., Marshall, H. H., Owens, I. P. F., & Lord, A. M. (2014) ‘Experimental evidence of impacts of an invasive parakeet on foraging behaviour of native birds’ [Online]. Available at http://m.beheco.oxfordjournals.org/content/early/2014/03/06/beheco.aru025.full.pdf

[69] Strubbe, D. & Matthysen, E. (2007) ‘Invasive ring-necked parakeets Psittacula krameri in Belgium: habitat selection and impact on native birds’ [Online] Available at https://onlinelibrary.wiley.com/doi/abs/10.1111/j.0906-7590.2007.05096.x

[70] Strubbe, D. & Matthysen, E. (2009) ‘Experimental evidence for nest-site competition between invasive Ring-necked Parakeets (Psittacula krameri) and native Nuthatches (Sitta europaea).’ [Online] Available at https://www.researchgate.net/publication/248200004_Experimental_evidence_for_nest-site_competition_between_invasive_Ring-necked_Parakeets_Psittacula_krameri_and

[71] Leake, J. ‘And I would squawk 500 miles…..green parakeet invasion reaches Scotland ‘ [Online]. Available at https://www.thetimes.co.uk/edition/news/and-i-would-squawk-500-miles-green-parakeet-invasion-reaches-scotland-f69xlvbgt (Accessed 04 December 2019).

Theme C – Preventing serious damage

The Countryside Alliance said: “The Ring-necked Parakeet is a non-native species, with the potential to become invasive. They are a considerable agricultural pest in their native South America, affecting food crops and timber.”

BASC said: “Parakeets are considered agricultural pests throughout their native ranges (Tayleur 2010[72]). A report to Defra in 2009[73] found the ring-necked parakeet was a major crop pest and identified seven commercially important crops grown in the UK that are potentially vulnerable to parakeet damage: maize, sunflower, tomato, grape, wheat, apple and pear.”

1% of the NFU’s 148 survey respondents identified a need for ring-necked parakeet control to prevent serious damage to livestock, feedstuffs for livestock, crops, vegetables respectively and 5% for fruit. No supporting statements from their respondents were submitted.

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

As with all INNS covered in the survey, user information was more limited for ring-necked parakeet, although greater than for monk parakeet, reflecting its much greater population in England. There were supporting statements indicating the damage the species cause particularly to cereal and fruit crops as well as their aggressive behaviour towards native species and potential competition for nest holes.

The APHA Species Report found high-medium strength of evidence for conserving wild birds; medium-high for conserving fauna; and high-medium for serious damage to crops and fruit. We believe that this test is met for these purposes based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

There was some user need identified in the survey for conserving flora but this was not backed up by the science, although they are known to consume native flora as part of their diet. Given that the impacts of this species are well known both in their native range and

[72] A comparison of the establishment, expansion and potential impacts of two introduced parakeets in the United Kingdom. John R. Tayleur Published 2010

[73] Rose-ringed parakeets in England: a scoping study of potential damage to agricultural interests and management measures. - WM0104

where they have become established, there is no reason to believe that there is a gap in the scientific evidence so we are not recommending it for this purpose.

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Lethal control is appropriate as this species is established and growing exponentially.

We believe that these tests are met based on the precautionary approach in terms of the Government's overall approach to non-native species as set out above.

We recommend that ring-necked parakeet is added to general licence for the following purposes:

1. **The purpose of conserving wild birds**
2. **The purpose of conserving fauna**
3. **The purpose of preventing serious damage to crops, including fruit and vegetables**

Sacred Ibis

The Scientific Review

The APHA Species Report is included at Annex 1. In summary, the report found the following:

Conservation of wild birds

- Overall, there is **medium-high** strength of evidence for an impact of sacred ibis on the conservation of wild birds.

What does "medium-high" mean in this regard?

Some likelihood that a high effect occurs in some circumstances, and that this effect (e.g. predation or competition for breeding sites or other resources) has the potential to affect the local conservation status of other species.

Conclusion of GB NNRAP Risk Assessment

The NNRAP Risk Assessment gives a Major impact rating for sacred ibis, stating: "Sacred Ibises can have serious impacts on other bird species due to predation of eggs and chicks. Colonial-nesting species such as terns and seabirds are particularly vulnerable. They could cause nuisance or environmental health concerns by scavenging from rubbish bins in areas of human habitation. It is possible that they may also carry disease which could be harmful to poultry, native fauna and humans."

Overall, the risk assessment concludes: "Sacred Ibises already occur occasionally in the risk assessment area, but usually only single birds are seen. The risk of further introductions either due to escape from captivity in the UK, or due to spread from the

established and expanding introduced populations in the near-continent, remains likely. The potential for impact on native fauna, particularly terns and seabirds, is high."

Defra survey responses

Theme A - Conservation

205 respondents identified a need to include sacred ibis on the conservation general licence for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

123 respondents said that they should be removed (for one or more of the conservation sub-purposes ('conserving wild birds', 'fauna', and 'flora').

150 respondents to this question identified a need to include sacred ibis on general licence for the purpose of conserving **wild birds**.

119 respondents to this question considered that sacred ibis should not be included on general licence for the purpose of conserving **wild birds**.
109 respondents to this question identified a need to include sacred ibis on general licence for the purpose of conserving **fauna**.

68 respondents to this question considered that sacred ibis should not be included on general licence for the purpose of conserving **fauna**.

108 respondents to this question identified a need to include sacred ibis on general licence for the purpose of conserving **flora**.

70 respondents to this question considered that sacred ibis should not be included on general licence for the purpose of conserving **flora**.

The main reasons respondents identified the need for including sacred ibis on the conservation general licence were that they are non-native, and that they consume and damage other wild bird species (including their eggs), fauna and flora.

Theme B – Preserving public health and public safety

Sacred ibis was not on the health and safety general licence at the time of the survey so no questions in relation to this species and these purposes were covered in the Defra survey. No respondents suggested this species for inclusion on general licence for this purpose.

Theme C – Preventing serious damage

Sacred ibis was not on the serious damage general licence at the time of the survey so no questions in relation to this species and this purpose were covered in the Defra survey. No respondents suggested this species for inclusion on general licence for this purpose.

Organisational responses

Theme A - Conservation

SongBird Survival said: “The sacred ibis is an opportunistic feeder and will predate on eggs and young of other birds. In France, predation of tern colonies has been observed, as well as the nests of mallards and a variety of other waterbirds. The species is dominant at multi-species bird colonies and can outcompete other species for nest sites. Their large size represents a bird-aircraft strike hazard.”

BASC said that this species should be on the conservation licence to conserve wild birds and fauna. They quoted from the GB non-native species secretariat risk assessment for this species, saying: “Sacred Ibises can have serious impacts on other bird species due to predation of eggs and chicks. Colonial-nesting species such as terns and seabirds are particularly vulnerable. It is possible that they may also carry disease which could be harmful to native fauna.”

In contrast, Animal Aid said: “Defra’s own assessment[74] concedes: “The Sacred Ibis is not established in the UK”. Defra’s report of "occasional sightings, largely in southern and eastern England" cannot present any significant conservation risk and certainly does not justify killing these birds under general licence.”

Recommendation

Test (i) whether there is an apparent and genuine need for a licence allowing the killing or taking of the species of wild birds in question for one or more of the purposes outlined in s.16(1)(c), (cb) and (i) to (k)

Given that this species occurs only occasionally at present, user need was not well supported in the survey. However, there were supporting statements indicating the predation of bird colonies in their native range and where they have become established. The GB NNRAP Risk Assessment states that the risk of further introductions is likely and the potential for impact on native fauna is high consistent with the medium-high strength of evidence for conserving wild birds in the APHA Species Report. We believe that this test is met based on the precautionary approach in terms of the Government’s overall approach to non-native species as set out above.

[74] Defra, July 2019, Use of general licences for the management of certain wild birds - Government response to the call for evidence p79.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/816268/general-licences-government-response-to-call-for-evidence.pdf

Tests: (ii) whether a general licence is appropriate in principle; (iii) whether the licensed action will contribute to resolving the problem, or meeting the need; (vii) whether the action to be licensed is proportionate to the scale of the problem, or need

Lethal control is appropriate as the species is likely to continue to arrive and were it to establish the risk of impact is high.

We believe that these tests are met based on the precautionary approach in terms of the Government's overall approach to non-native species as set out above.

We recommend that Sacred Ibis is added to general licence for the following purpose:

The purpose of conserving wild birds

Additional Species (Questions A2, B2 & C2)

We gave survey respondents the opportunity to suggest new species for inclusion on the general licences with evidence to support their suggestion. Several species were suggested (including woodpigeon for conservation, gulls for health and safety purposes and raven to prevent serious damage) but the numbers of respondents making these requests were low, so we have not considered them further.

Organisational responses gave some suggestions including cormorants (considered further below) and gulls (from the National Pest Technicians Association and Tenant Farmers Association). The then Secretary of State took the decision to remove the only listed gull species, herring and lesser black-backed gulls, from the general licences last year due to their poorer conservation status, and the evidence has not changed since then.

Cormorant

In response to the Defra survey, the Angling Trust launched a campaign to have cormorants added to the general licences, having actively campaigned for this over a number of years. The campaign resulted in around 1,900 responses to our survey asking for cormorants to be added to general licences. The purposes raised – protection of fisheries and inland waters, and conservation of wild fish – related to the impacts of cormorant predation.

The Angling Trust also provided an organisational response to our survey that particularly focused on conserving wild fish stocks, raising the issue of the impact of cormorant predation on reaching Good Ecological Status (GES) for our still waters and rivers under the Water Framework Directive (WFD).

Regarding conservation of wild fish stocks, we do not have evidence that cormorant predation is causing a conservation impact on wild fish assemblages, therefore we cannot conclude that there is an apparent and genuine need (Test I).

Regarding serious damage to fisheries and inland waters, there is evidence to conclude a need, and that this need is widespread coupled with an overall increasing cormorant population. However, we have a significant concern that under a general licence the current holistic approach (where individual and area licences are issued to allow lethal control up to a threshold determined by population modelling) would be eroded, and significantly more birds would be shot to reduce local population densities, rather than to reinforce other scaring techniques.

We consider that this poses a risk to the cormorant's conservation status. Defra therefore conclude that it was not appropriate to control cormorants under general licence to protect fisheries and inland waters (Test II).

Defra's conclusion

Conserving wild birds and flora or fauna

The interim general licence for this purpose (GL34) included the following wild bird species for conservation of any wild bird, flora or other fauna:

(1) Carrion Crow (*Corvus corone*);
(2) Jackdaw (*Corvus monedula*);
(3) Jay (*Garrulus glandarius*);
(4) Magpie (*Pica pica*);
(5) Rook (*Corvus frugilegus*);
(6) Goose, Canada (*Branta Canadensis*);
(7) Goose, Egyptian (*Alopochen aegyptiacus*);
(8) Parakeet, Monk (*Myiopsitta monachus*);
(9) Parakeet, Ring-necked (*Psittacula krameri*);
(10) Sacred Ibis (*Threskiornis aethiopicus*); and
(11) Indian house-crow (*Corvus splendens*).

Defra consider that Tests I, II, III and VII are met and that satisfactory evidence of the need for a general licence for this overall purpose exists for the species listed in the previous paragraph, except for rook and jackdaw. Table 1 below sets out which of the purposes we are including for each species for GL40.

Table 1: Table showing conservation species-purpose combinations for GL40.

Species (Common name / *scientific name)*	**Conserving endangered wild birds (red/amber listed)**	**Conserving flora**	**Conserving fauna**
Carrion Crow *Corvus corone*	Yes	No	No
Indian house crow	Yes	No	No

Corvus splendens			
Magpie *Pica pica*	Yes	No	No
Jay Garrulus glandarius	Yes for endangered woodland birds only	No	No
Canada goose *Branta Canadensis*	Yes	Yes	Yes
Egyptian goose *Alopochen aegyptiacus*	Yes	No	No
Monk parakeet *Myiopsitta monachus*	Yes	No	No
Ring-necked parakeet *Psittacula krameri*	Yes	No	Yes
Sacred ibis *Threskiornis aethiopicus*	Yes	No	No

The detailed assessments of evidence underpinning these species-purpose combinations can be found in the species-purpose combination assessments which start on pages 12 (native) and 154 (invasive non-native). From our online survey, it is clear that large numbers of users believe that all corvids should be included on the general licence for conserving other species of wild bird. In their responses, users mostly provided only simple statements in support of this view and those statements were very similar in nature and number across all corvids.

However, in considering the scientific evidence, there is much greater difference between the species in terms of factors such as numbers, habitats, behaviour, and predation effect. Comparing the two types of evidence, it is Defra's view that only some of the corvids should be included in the conservation licence for this purpose: namely carrion crow, magpie, and, for conservation of woodland birds, jay.

Invoking the conservation purpose for a general licence requires there to be a population-level predation impact by corvid species on the other wild bird species to be conserved. This is because, if there is no population-level impact, then there is no need for lethal control of the predator species, since the predator-prey relationship is in a natural balance. Where gamekeepers and other conservation licence users observe predation by corvid

species, that predation may well simply be a natural activity which does not have a conservation or population-level impact on those species being predated.

In reviewing the scientific evidence, our conclusion is that rook and jackdaw should not be included for the purpose of conserving wild birds. In the context of Test I, the user evidence shows an apparent need for these species, but the scientific evidence does not give any evidence of a population-level impact on the prey species, so we cannot conclude that there is a genuine need for a general licence for the purpose.

Regarding the crow's impact on ground-nesting birds, the scientific evidence was strong enough to support inclusion on the general licence. Beyond this, in our assessments of crow, magpie and jay, we have taken a precautionary decision to include them on this licence given wider factors such as the pressures on endangered birds and particular habitats that support them.

We have already discussed limiting this licence to conserving red and amber-listed birds. Some organisations take the view that the licence should be further limited to only a few prey species such as curlew. However, the evidence shows that crow, magpie and jay are generalist predators that will seek out different prey depending what is available. There is therefore no need for further limitation on this licence in our view, since spatial coincidence of predator and prey makes it self-selecting in any case.

While there is some evidence that larger-bodied red and amber-listed birds may be at lower risk of predation, we are taking a precautionary decision in respect of the value of the birds of conservation concern, so still view that it is justified to alleviate predation pressure in these cases.

Preserving public health or public safety

The interim general licence for this purpose (GL35) includes the following wild bird species for any purpose relating to preserving public health or safety:

(1) Carrion Crow (*Corvus corone*);
(2) Jackdaw (*Corvus monedula*);
(3) Magpie (*Pica pica*);
(4) Pigeon, Feral (*Columba livia*);
(5) Rook (*Corvus frugilegus*);
(6) Goose, Canada (*Branta Canadensis*); and
(7) Parakeet, Monk (*Myiopsitta monachus*).

We consider that Tests I, II, III and VII are met and that satisfactory evidence of the need for a general licence for this overall purpose exists for the species listed in the previous paragraph, except for carrion crow, magpie and rook. Table 2 below sets out the public health or public safety species-purpose combinations for GL41.

The detailed assessments of evidence underpinning these species-purpose combinations can be found in the species-purpose combination assessments which start on pages 12 (native) and 154 (invasive non-native). There is no scientific evidence to consider

regarding slips and falls. In relation to spread of human disease, there is evidence that each of the species can carry various diseases, but the science does not generally demonstrate evidence of transmission to humans. This represents an evidence gap.

In order to reach a judgement for these purposes, we therefore need to consider the level of risk involved. The relative public health and safety risk posed to people by a bird species will be related to the level of exposure, which broadly comprises two elements: species abundance and proximity of birds or their actions to people.

With their relatively large numbers in urban areas and around other areas such as farm buildings, and communal nesting and roosting behaviour, feral pigeons present a markedly higher exposure risk to people than the corvid species in relation to spread of disease and slips and falls.

Regarding non-native species, we assess that Canada goose also represents a higher exposure risk for these purposes. This is borne out by the user evidence we received through the survey. We therefore have removed all species from these purposes except for the feral pigeon and Canada goose.

Table 2: Table showing public health or public safety species-purpose combinations for GL41

Species (Common name / scientific name**)**	**Slips and falls**	**Spread of human disease**	**Birds nesting**
Jackdaw Corvus monedula	No	No	Yes
Feral pigeon Columba livia	Yes	Yes	Yes
Canada Goose Branta Canadensis	Yes	Yes	Yes
Monk parakeet (Myiopsitta monachus)	No	No	Yes

Regarding nesting problems, there is no scientific evidence, but large numbers of users expressed a need for all corvids and feral pigeons to be controlled for this reason. However, the National Pest Technicians Association representing over 1,000 members only identified a need for jackdaw, feral pigeon and monk parakeet. In the case of feral pigeon, nesting issues are closely linked to issues around slips and falls and spread of human disease.

Specific nesting habits of the jackdaw (in chimneys causing a fire risk) and monk parakeet (communal nesting sometimes on key infrastructure such as masts and pylons) present a particular health and safety risk and therefore we include them on the general licence for this purpose. Beyond this, ecological evidence about other corvid nesting habits does not warrant their inclusion.

Preventing serious damage

The interim general licence for this purpose (GL36) includes the following wild bird species for all serious damage purposes:

(1) Carrion crow (*Corvus corone*);
(2) Jackdaw (*Corvus monedula*);
(3) Magpie (*Pica pica*);
(4) Pigeon, Feral (*Columba livia*);
(5) Rook (*Corvus frugilegus*);
(6) Woodpigeon (*Columba palumbus*);
(7) Goose, Canada (*Branta Canadensis*);
(8) Parakeet, Monk (*Myiopsitta monachus*);
(9) Parakeet, Ring-necked (*Psittacula krameri*); and
(10) Goose, Egyptian (*Alopochen aegyptiacus*).

Defra consider that Tests I, II, III and VII are met and that satisfactory evidence of the need for a general licence for this overall purpose exists for the species listed in the previous paragraph. The Indian House Crow was not on the interim licence for this purpose but is proposed for addition now as a result of the scientific evidence we have gathered and its INNS risk assessment which says the species is highly likely to establish successfully on entry. Table 3 below sets out which of the purposes we have included for each species for GL42.

The online Defra survey allowed respondents to select species against eight sub-categories: ‘livestock’, ‘feedstuffs for livestock’, ‘crops’, ‘vegetables’, ‘fruit’, ‘growing timber’, ‘fisheries’ and ‘inland waters’. Defra analysed all the evidence submitted for these sub-categories. During this analysis, it has become clear that some evidence in relation to spread of disease to livestock was provided under both the livestock and feedstuffs sub-categories. In addition, the issues raised in relation to crops, fruit and vegetables were similar.

This has highlighted a need for the sub-categories on the licences themselves to be amended to be precise and helpful for users. The new licences therefore use the following categories:

(1) livestock attacks;
(2) livestock feedstuffs and the spread of disease;
(3) crops, including vegetables and fruit;
(4) growing timber;
(5) fisheries; and
(6) inland waters.

This means that the issue of the spread of disease through all forms of transmission is included under the category of “feedstuffs and the spread of disease”, while the “livestock attacks” category covers direct attacks on livestock only.

The detailed assessments of evidence underpinning these species-purpose combinations can be found in the species accounts section below. There is limited scientific evidence to guide decision making for this purpose. However, whereas the conservation purpose requires there to be a population-level impact on the prey species as outlined above, the serious damage purpose relates to prevention of serious damage in a particular instance e.g. to a single farmer's crops or livestock (noting that the serious damage issue needs to be widespread enough across the country to warrant the granting of a general licence).

Therefore, we consider it justifiable and sensible to place more weight on the user evidence in making species-purpose combination decisions for this purpose.

Table 3: Table showing serious damage species-purpose combinations for GL42

Species (Common name */ scientific name)*	**Livestock attacks**	**Livestock feedstuffs and spread of disease**	**Crops, including vegetables & fruit**	**Timber**	**Fisheries**	**Inland waters**
Crow Corvus corone	Yes	Yes	Yes	No	No	No
Jackdaw Corvus monedula	Yes	Yes	Yes	No	No	No
Magpie Pica pica	Yes	No	No	No	No	No
Feral pigeon Columba livia	No	Yes	Yes	No	No	No
Rook Corvus frugilegus	Yes	Yes	Yes	No	No	No
Woodpigeon Columba palumbus	No	Yes	Yes	No	No	No
Canada Goose Branta Canadensis	No	No	Yes	No	Yes	Yes
Monk parakeet Myiopsitta monachus	No	No	Yes	No	No	No
Ring-necked parakeet	No	No	Yes	No	No	No

Psittacula krameri						
Egyptian Goose Alopochen aegyptiacus	No	No	Yes	No	No	No
Indian House Crow Corvus splendens	No	No	Yes	No	No	No

Tests IV and V: Are there are other satisfactory solutions other than killing or taking the wild bird(s) for the relevant purposes?

Section 16(1) of the Act allows a licence to kill or take wild birds to be granted for certain purposes. Section 16(1A)(a) of the Act provides that the appropriate authority "shall not grant a licence for any purpose mentioned [in section 16(1)] unless it is satisfied that, as regards that purpose, there is no other satisfactory solution". As part of the review, Defra considered the evidence to determine whether there is no other satisfactory solution other than killing or taking under licence.

Summary of practitioner experiential evidence

A species by species account of the survey results can be found in the 'Summary of survey results: Theme D' section in the main report.

Question D.1. For each species where you have knowledge of alternative measures to killing or taking, can you indicate what evidence you have for its effectiveness?

The summary highlights the three most popular alternative measures indicated by respondents for each species – audio-visual deterrents, other measures and exclusion. Respondents largely provided most evidence for the prevalent methods for each species although the number providing evidence was significantly lower than the number responding to the question.

Generally, respondents used a mix of the alternative measures for all the species with more than 40% indicating they used each of the alternative measures. In addition, the evidence supplied for these additional measures were mostly irrelevant thus limiting the data available from the survey to adequately determine effectiveness.

Question D.2. If you have proposed additional species for inclusion on a general licence in Themes A-C, do you have knowledge of the use of one or more alternative measures when acting under the purposes in this survey for those species?

Over 400 (70%) of the 574 respondents indicated they adopted each of the measures for dealing with cormorants. However, evidence on the effectiveness of the measures was mainly provided for audio-visual deterrents, other measures and exclusion. For these three measures, respondents mainly noted habituation, ineffectiveness and variation of methods

Table 4: Summary based on survey responses, of which non-lethal methods are used to mitigate impacts of avian species (Other includes human disturbance and shooting to scare)

Non-lethal methods used to mitigate impacts of species listed under general licences GL34-36					
Audio-Visual	**Chemical Repellents**	**Exclusion**	**Habitat Management**	**Livestock/Crop Management**	**Other**
Canada Goose Carrion Crow Egyptian Goose Feral Pigeon Indian House Crow Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Sacred Ibis Wood Pigeon		Canada goose Egyptian goose Feral Pigeon Indian House Crow Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Wood pigeon		Carrion Crow Sacred Ibis	Canada Goose Carrion Crow Egyptian Goose Feral Pigeon Indian House Crow Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Sacred Ibis Wood Pigeon

Non-lethal methods used to mitigate impacts of additional species proposed by respondents for inclusion on a general licence					
Audio-Visual	**Chemical Repellents**	**Exclusion**	**Habitat Management**	**Livestock/Crop Management**	**Other**
Cormorant		Cormorant	Cormorant	Cormorant	Cormorant

The Scientific Review

APHA conducted a review of published and grey literature relating to bird management in order to evaluate the availability of non-lethal measures to mitigate the detrimental impacts of avian species listed under General Licences GL34-36. The report (Annex 2) summary is as follows:

- Traditional visual and auditory scaring techniques have been frequently deployed against pest birds; with varying degrees of deterrence and duration of their effectiveness being reported. Virtually all visual and auditory deterrents, used on their own, will gradually become less effective due to habituation.

  Most animals will exhibit fear or wariness towards any novel object placed in their environment and will avoid it. Dispersal can also be induced through a startle reflex as a result of the sudden presentation of visual or auditory stimuli. However, animals come to realise that the deterrent does not actually present a real threat and gradually ignore the stimulus (a process called habituation). Thus, for all visual and auditory deterrents any initial effectiveness will inevitably decline.

- Chemical techniques are generally found to be very effective in laboratory and cage trials, but less effective in the field. They are also relatively expensive and are time-consuming and difficult to apply. Only one chemical is licensed for use as bird repellent in the UK.

- Nets, covers, closely spaced wires are generally considered to be very effective. Effectiveness depends on the degree to which birds are excluded (e.g. closer spacing between wires); the closer that wires are installed the more they approximate to a net. Properly installed and maintained netting will provide complete protection for a crop and is often recommended as the only technique that is consistently effective in preventing bird damage. The greater the degree of exclusion, however, the more expensive the technique is. For this reason, netting tends to be restricted to high value crops.

- Habitat manipulation techniques are generally considered to be effective and environmentally friendly but are rarely investigated scientifically. These aim to mitigate the detrimental impacts of agricultural practices that have reduced the availability of suitable cover and food for birds, thereby helping to reduce predation and increase productivity of prey species.

- Crop practices have been advocated that reduce the attractiveness of crops, such as siting vulnerable crops away from woodland or near to human disturbance. For livestock (e.g. gamebirds) practice, stocking densities should be used that are below that which impact detrimentally on the habitat, thereby preserving important cover for wild birds.

- A recurring theme in the mitigation of the detrimental impacts of avian pests is the necessity for an integrated management strategy. When aiming to deter birds such an approach involves combining and interchanging a suite of different scaring techniques (including shooting to scare or kill) deployed unpredictably both spatially and temporally. Deterrence requires a proactive approach which involves monitoring the bids response to the current deterrent strategy and modifying the approach when appropriate.
- A number of the techniques reviewed: audio-visual deterrents reinforced with human activity, automated lasers, exclusion, habitat modification and crop and livestock practices, can contribute to mitigating the impacts of species listed under General Licences GL34-36.

Table 5: A summary of APHA's conclusion as to which non-lethal methods have the potential to mitigate impacts of avian species listed under General Licences GL34-36

Audio-Visual	Chemical Repellents	Exclusion	Habitat Management	Livestock/Crop Management
Canada Goose Carrion Crow Egyptian Goose Feral Pigeon Indian House Crow Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Sacred Ibis Wood Pigeon		Canada Goose Carrion Crow Egyptian Goose Feral Pigeon Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Wood Pigeon	Canada Goose Carrion Crow Egyptian Goose Feral Pigeon Indian House Crow Jackdaw Jay Magpie Monk Parakeet Ring-necked Parakeet Rook Sacred Ibis Wood Pigeon	Carrion Crow Jackdaw Jay Magpie Rook

In terms of effectiveness, the APHA report identified that exclusion and habitat modification were relatively the most effective categories albeit with very small sample size of studies in these categories. This was considered a reflection of the relative practicalities of implementing, monitoring and evaluating their effects. In terms of application, however, exclusion and habitat modification measures require significantly less day-to-day maintenance and will not suffer from the limitations of habituation inherent in more easily applied auditory and visual deterrents.

The dominant method for all the species was the audio-visual method with most respondents indicating that birds habituate eventually, and it was then ineffective. As highlighted by the report this would be because these are easily applied techniques. Other measures were the second method mostly used by respondents and the indication was also a high degree of habituation.

Exclusion measures was the third in the method ranking following the same trend of habituation and ineffectiveness from the evidence provided by respondents. Although, the report reported this as the most effective, issues around practicalities of implementing, monitoring and evaluating their effects may be responsible for the relative low survey evidence sample.

As highlighted above, over 40% of respondents for each species attempted every method with insufficient evidence on the effectiveness especially for chemical repellents and habitat management. For chemical repellents, this may be due to the cost, time consumed and difficulty in applying identified by the APHA report. Furthermore, only one chemical is licensed for use as bird repellent in the UK.

The report highlights that habitat manipulation techniques are generally considered to be effective and environmentally friendly but are rarely investigated scientifically and could possibly explain paucity of evidence despite high level of use by respondents.

For question D2, the dominant species was cormorants with significant use (over 70%) of five techniques by respondents. For each technique, respondents mainly recorded ineffectiveness, habituation and the need to vary methods. This somewhat gives credence to the case for including the species in the licences.

The evidence above validates APHA’s conclusion that “a recurring theme in the mitigation of the detrimental impacts of avian pests is the necessity for an integrated management strategy. When aiming to deter birds such an approach involves combining and interchanging a suite of different scaring techniques (including shooting to scare or kill) deployed unpredictably both spatially and temporally”.

A combination of lethal and non-lethal methods is thus required to effectively mitigate impacts of avian species listed under General Licences GL34-36 – replaced by GL40-42 from 1 January 2021.

Defra's conclusion

In considering whether there are other satisfactory solutions which would avoid the need for killing or taking under licence, we considered the following questions for each species purpose combination;

1. If there is a genuine need for licenced action (test I) and the licensed action will contribute to resolving the problem or meeting the need (test III), are there any satisfactory solutions other than killing or taking the wild bird(s) for the purpose in question (test IV)?
2. If there are some circumstances in which there are other satisfactory solutions - can these circumstances be distinguished i.e. should some species and/or activities be excluded from a licence (test V)?

Both the APHA report and survey evidence identified that there are a range of legal, non-lethal methods available to manage these species and that it is likely that use of a combination of these methods will satisfactorily resolve the identified problems in some cases. However, the evidence also considered that all the methods have limitations and, even when used in combination and according to good practice, it is unlikely that these methods alone will be capable of resolving the problem or meeting the need. It is therefore reasonable to conclude that, at a macro level, there is no other satisfactory solution to achieving the relevant purposes other than issuing licences authorising lethal control of the relevant species.

The new general licences include a condition relating to 'Alternative lawful methods', which requires that the person acting under the licence or the person authorising such action must make reasonable endeavours to achieve the relevant purpose by using alternative, lawful methods both before and while acting under the licence (unless this is impractical, without effect or disproportionate in the circumstances) . See the species purpose combination section starting on page 12 for a more detailed analysis in relation to specific species and licence purposes.

Test VI: Enforcement of general licences

Compared to the interim licences (GL34-36), the new licences (GL40-42) have been redrafted to improve accessibility, ensure the conditions are clear and to facilitate compliance. Defra have undertaken a similar exercise with Natural England regarding GL33, which sets out standard licence conditions concerning trapping wild birds, to ensure that they are clear and accessible.

We have also considered measures that can be taken to support and educate users to increase compliance and whether there should be any other conditions attached to the licence to ensure workability, enforceability and compliance with legal requirements, including, recording and reporting.

Whilst there are benefits in principle that could be delivered by a well-run trap tagging and registration scheme, there is not currently clear evidence of the delivery for such benefits in practice. We propose to watch how the NatureScot scheme in Scotland progresses. This will give an idea as to whether the scheme delivers the desired benefits.

Tests VI and VIII: Recording and reporting

Defra's general licences advise users to make a written record of the actions they take under the general licences, as soon as possible after taking them. This will help show that they have complied with the terms and conditions of the general licences.

The general licences recommend that users should record:

- any action that they, or a person other than they, has taken to comply with condition 1: alternative lawful methods
- the date of any action they have taken
- where they took the action
- the species and conservation purpose for which they take action
- the number of birds killed, or nests or eggs destroyed, for each species and purpose
- the method used to kill birds, or destroy nests or eggs

It is also recommended that they:

- keep these records for 3 years, starting on the date on which the action is taken
- are able to produce these records on request

A requirement to record and report the number of birds killed, or nests or eggs destroyed under general licence would enable Defra to monitor and quantify the impact of licensed control on the conservation status of managed species, allowing pre-emptive removal of listed species from the licences before they become species of conservation concern.

However, it is Defra's view that introducing a mandatory reporting requirement at this stage would be practically very difficult. It would require a procedure to be put in place and appropriate consultation with those impacted to make sure that it was workable in practice. It would also remove one of the key distinctions between most general licences and more restrictive class and individual licences.

In addition, our view is that it is sensible to develop an approach for recording activity first. Greater certainty about what is to be recorded and how could, if desired in due course, facilitate the design of a reporting requirement. Defra has therefore decided to continue with advisory record keeping and will further consider carrying out a trial of how mandatory record-keeping could operate.

Further considerations concerning key elements of the review

Licensed activity on European sites

European sites are internationally important for conservation and include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and, as a matter of UK policy, Ramsar wetland sites. In England all such sites on land are also notified as Sites of Special Scientific Interest (SSSIs) under the Wildlife and Countryside Act (WCA).

Under regulation 63 of the Conservation of Habitats and Species Regulations 2017 (the "Habitats Regulations"), before authorising a plan or project which is likely to have a significant effect on a European site and which is not directly connected with or necessary to the management of that site, the relevant decision maker or "competent authority" must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives. A licence to kill or take a wild bird, issued under section 16 of WCA, which includes general licences, is a plan or project for these purposes.

Since taking on responsibility for the issuing of the relevant general licences, Defra has become the relevant competent authority under regulation 63 of the Conservation of Habitats and Species Regulations 2017 ("2017 Regulations") in respect of any decision to authorise the use of general licences on any European site in England. This means that Defra may only grant a general licence if either:

(a) the general licence will not have a likely significant effect on a European site; or
(b) if the general licence would have a likely significant effect on a European site, following an appropriate assessment the Secretary of State is certain that the general licence will have no adverse impact on the site's integrity.

Of these two tests, (a) is a screening decision i.e. plans or projects that will not have a likely significant effect may be authorised without further assessment, and (b) is the assessment needed for activities where a likely significant effect cannot be discounted under (a).

Defra has looked to ensure that whenever and wherever lethal control is carried out in England under general licences issued by the Secretary of State, there is no adverse impact from that activity on the integrity of these internationally important sites. Defra has sought to provide this protection though the systematic screening of sites and the development of tailored conditions for particular vulnerable sites.

All current European sites have been screened by NE to assess their vulnerability to the general licence activities. Where it was not possible to rule out a likely significant effect on a specific site, we applied tailored conditions to the use of general licences for each of these sites and set a bespoke buffer zone around each site so as to ensure no adverse impact on site integrity from GL activities.

Site vulnerability was assessed based on the presence of site-specific circumstances which would make it more likely for there to be a spatial overlap between vulnerable protected bird species and general licence activity, and also on assessing whether it was possible to rule out , for a given site, population-level impacts arising from the disturbance caused by general licence activity. Population-level impact relates to the impact of disturbance at a site in effectively reducing the area or quality of potential habitat available to the birds, creating sub-optimal conditions for breeding success.

The site-tailored conditions state clearly what must be achieved, for example on a named coastal site designated for little tern, the condition is: “You must not disturb any little tern while it is searching for a nest site, building a nest, in, on or near a nest containing eggs or young. You must not disturb its dependent young.” Guidance on the licence assists users in understanding the distances from these birds within which it is likely that users will need to take further action to avoid disturbance. Users are signposted to further advice on what this action could be, but the user is responsible for assessing site conditions and deciding what measures to deploy.

The evidence to inform the decisions on disturbance distances has been assessed by Defra’s Habitats Regulations Assessment (HRA) technical panel. The disturbance distance selected is the more robust of either a) the relevant distance recommended by the review we commissioned from APHA, which is set at species-group level and cites widely from published literature; or b) NE’s more species-specific disturbance distances which rely on fewer sources but contain some site-specific experimental data. The HRA panel decision on these disturbance distances has been recorded in relation to each species and each site identified as vulnerable.

It is a requirement of the 2017 Regulations that the decision maker must ensure that sites and their species are not adversely impacted by any activity, whether that is taking place on site or off-site. Therefore, Defra has concluded that “buffer zones” are required to extend the protective measures needed within identified vulnerable sites, so that they further cover areas within a specified distance beyond the site boundary. The buffer zone for each vulnerable site, as defined in the new general licences, has been based on the largest agreed disturbance distance for any designated bird species on that site.

For some species or species groups, the distance within which disturbance can lead to population-level effects varies, depending on whether the bird is entering or in the breeding season, or on a winter roost. Therefore, some of the prescribed disturbance distances vary in accordance with the particular times of the year and/or stages of the breeding season where the HRA has concluded that activities carried out in England under general licence could adversely impact the integrity of the site in question.

Welfare – the impacts of trapping and shooting activities undertaken under the licences and how to improve welfare through revised licence conditions

Defra held several workshops with each of the key stakeholder groups (shooting and landowning, conservation and welfare, farming, and pest control) to enable them to share their views and feed into proposals for change.

It was highlighted to Defra that shooting stakeholders have a code of good shooting practice[75], which includes a section on predator and pest bird control and Defra concludes that it is for industry to address welfare issues relating to shooting activity undertaken in England under the general licences.

The two key policy questions were;

1. how best to ensure licence users are aware of and can comply with the relevant animal welfare standards when acting (e.g. shooting and trapping) under the general licences?
2. how best to minimise control under general licence during the breeding season and the various stages of reproduction (i.e. what would be the close season if their hunting was being regulated under Article 7) to minimise adverse welfare impacts on breeding adults and dependent young?

The workshops considered

1. How animal welfare legislation and best practice apply to wild birds (when controlled under general licences);
2. What best practice may look like and what the benefits / dis-benefits and costs of following this are;
3. The level and impact (in terms of animal welfare) of action under the general licences in the breeding season, in particular

    a. on dependent young left on nests

    b. on winged' birds not immediately dispatched.

    c. due to poor shooting and trapping skills

    d. due to poor shooting and trapping practice

As discussed in the 'enforcement' section on page 199, we considered measures that can be taken to support and educate licence users to ensure that users are aware of and can

[75] http://www.codeofgoodshootingpractice.org.uk/

comply with the relevant animal welfare standards when acting (e.g. shooting and trapping) under the general licences and to more effectively enforce welfare offences.

From the evidence provided Defra concluded that retaining flexibility for users to control birds all year round under a general licence was required. This was so to avoid any increase in animal welfare issues related to dependent young. This flexibility will allow for control to take place at the most effective times of year and allow for actions to be carried out which account for the specific circumstances of the site/target birds and wider welfare concerns. See the ‘Time of year’ section on page 10 for a more detailed discussion.