

Review of NRW's approach to regulating the shooting and trapping of wild birds:

Report on the Call for Evidence

Report No: 564

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- Maintaining and developing the technical specialist skills of our staff;
- Securing our data and information;
- Having a well resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

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List of abbreviations

APHA	Animal and Plant Health Agency
BASC	British Association for Shooting and Conservation
BPCA	British Pest Control Association
BTO	British Trust for Ornithology
CA	Countryside Alliance
FUW	Farmers' Union of Wales
GWCT	Game and Wildlife Conservation Trust
NFU	Cymru National Farmers' Union Cymru
NRW	Natural Resources Wales
RSPB	Royal Society for the Protection of Birds
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SNH	Scottish Natural Heritage (now NatureScot)
SSSI	Site of Special Scientific Interest

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Crynodeb Gweithredol

Mae Cyfoeth Naturiol Cymru (CNC) yn cynnal adolygiad o sut yr ydym yn rheoleiddio saethu a dal adar gwyllt a dinistrio eu hwyau a'u nythod. Un o nodau allweddol yr adolygiad yw gwella'r sail dystiolaeth yr ydym yn gwneud y penderfyniadau rheoleiddiol hyn arni.

Gwnaethom gynnal galwad cyhoeddus am dystiolaeth, a diben hwn oedd casglu unrhyw dystiolaeth berthnasol oedd ar gael, nad oeddem eisoes yn ymwybodol ohoni, a allai ein helpu i asesu pa mor dda mae ein dulliau presennol yn gweithio, ynghyd â'n helpu i wella'r ffordd rydym yn cyflawni'r rôl hon i gyflenwi gwell ganlyniadau ar gyfer yr amgylchedd a phobl Cymru. Bwriad y galwad am dystiolaeth oedd darparu'r cyfle a'r modd i unrhyw un oedd â thystiolaeth berthnasol ei rhannu gyda ni.

Roedd y galwad am dystiolaeth ar agor o 2 Rhagfyr 2020 hyd at 27 Ionawr 2021. Cafodd ei gyhoeddi yn y Gymraeg a'r Saesneg ar hwb ymgynghori ar-lein CNC. Ar ôl gofyn i ymatebwyr ddarparu manylion am eu hunain, gofynnodd y galwad am dystiolaeth gyfres o gwestiynau wedi'u targedu mewn perthynas ag agweddau allweddol ar yr adolygiad. Roedd hefyd cyfle i ymatebwyr ddarparu unrhyw wybodaeth berthnasol ychwanegol nad oedd yn rhan o'r cwestiynau a ofynnwyd.

Roedd y rhan fwyaf o feysydd ymateb ar ffurf testun rhydd a gallai ymatebwyr hefyd gyflwyno dogfennau drwy e-bost neu'r post. Esboniwyd mai galwad am dystiolaeth oedd hwn ac nid ymgynghoriad yn ceisio barn neu safbwyntiau neu gynigion heb dystiolaeth ategol. Roedd mathau derbyniol o dystiolaeth yn cynnwys cyhoeddiadau wedi'u hadolygu gan gymheiriaid, pob ffurf ar lenyddiaeth 'lwyd', gwybodaeth storiol os cafodd ei hategu gan ddeunydd ysgrifenedig, a barn arbenigol os cafodd ei hategu gan dystiolaeth o gymwysterau neu brofiad.

Derbyniwyd cyfanswm o 40 o ymatebion, yn cynnwys wyth ymateb gan sefydliadau cenedlaethol a 32 o ymatebion gan unigolion neu sefydliadau lleol bach. Derbyniwyd y rhan fwyaf o ymatebion trwy'r hwb ymgynghori, tra ymatebodd nifer fach o ymatebwyr dros e-bost, ac ni ymatebodd nifer ohonynt yn uniongyrchol i'r cwestiynau penodol a ofynnwyd.

Roedd y dystiolaeth a gyflwynwyd yn cynnwys y canlynol:

- deunydd cyhoeddedig wedi'i adolygu gan gymheiriaid megis erthyglau mewn cyfnodolion a phenawdau o lyfrau;
- deunydd cyhoeddedig nad yw'n ddarostyngedig i adolygiad ffurfiol gan gymheiriaid, megis adroddiadau technegol, dogfennau polisi a datganiadau sefyllfa a gyhoeddwyd gan amrywiaeth o gyrff y llywodraeth a chyrff anllywodraethol;
- gwybodaeth storiol ar ffurf tystiolaethau personol gan unigolion, gan gynnwys gwybodaeth wedi'i choladu gan aelod-sefydliadau o arolygon o'u haelodau;
- sylwebaeth a gwaith dadansoddi ar ganfyddiadau deunydd cyhoeddedig gan gynrychiolwyr sawl sefydliad cenedlaethol.

Mae'r adroddiad hwn yn disgrifio'r amrywiaeth o dystiolaeth a dderbyniwyd ac yn crynhoi'r themâu allweddol sy'n dod i'r amlwg o'r dystiolaeth honno, mewn perthynas â phob un o'r cwestiynau a ofynnwyd. Mae rhestr o'r holl gyfeiriadau at ffynonellau cyhoeddedig a ddarparwyd gan yr ymatebwyr hefyd wedi'i chynnwys.

Executive summary

Natural Resources Wales (NRW) is undertaking a review of how we regulate the shooting and trapping of wild birds and the destruction of their eggs and nests. A key aim of the review is to improve the evidence base on which we make these regulatory decisions.

We carried out a public call for evidence, the purpose of which was to obtain any relevant available evidence, which we are not already aware of, which could help us assess how well our current approaches are working and help improve the way we carry out this role to deliver better outcomes for the environment and the people of Wales. The call for evidence was intended to provide the opportunity and the means for anyone with relevant evidence to share it with us.

The call for evidence was open from 2 December 2020 to 27 January 2021. It was published in Welsh and English on NRW's online Consultation Hub. After asking respondents to provide details about themselves, the call for evidence asked a series of targeted questions related to key aspects of the review. There was also an opportunity for respondents to provide any additional relevant information not falling within the questions asked.

Most response fields were in free text form and respondents could also submit documents by email or post. It was made clear that this was a call for evidence rather than a consultation seeking views or opinions or proposals without supporting evidence. Acceptable evidence types included peer reviewed publications, all forms of 'grey' literature, anecdotal information if supported by written material and expert opinion if supported by evidence of qualifications or experience.

A total of 40 responses were received, consisting of 8 responses from national organisations and 32 responses from individuals or small local organisations. Most responses were received via the consultation hub while a small number of respondents responded by email, several of which did not directly respond to the specific questions posed.

The evidence submitted included:

- published peer reviewed material such as journal articles and book chapters;
- published material not subject to formal peer review, such as technical reports, policy documents and position statements issued by a range of government and non-government organisations;
- anecdotal information in the form of personal testimonies from individuals, including information collated by membership organisations from surveys of their members;

- commentary and analysis on the findings of published material, by representatives of several national organisations.

This report describes the range of evidence received and summarises the key themes emerging from that evidence, in relation to each of the questions posed. A list of all the references to published sources which were provided by respondents is also included.

1. Introduction

Natural Resources Wales (NRW) is undertaking a review of how we regulate the shooting and trapping of wild birds and the destruction of their eggs and nests. A summary of the scope of the review can be found [HERE](#).

A key aim of the review is to improve the evidence base on which we make these regulatory decisions. To do this we commissioned contracts to address key gaps in evidence and carried out a public call for evidence. The purpose of the call for evidence was to obtain any relevant available evidence, which we were not already aware of, which could help us assess how well our current approaches are working and help improve the way we carry out this role to deliver better outcomes for the environment and the people of Wales. The call for evidence was intended to provide the opportunity and the means for anyone with relevant evidence to share it with us.

2. Methodology

The call for evidence used a series of targeted questions to cover the broad subject areas within the scope of the review. There were 19 questions, including those asking for information about the respondent. Most of the questions invited free text answers (with a large word count limit) and others required tick box answers.

The call for evidence was published bilingually on NRW's online Consultation Hub. The full English language text of the call for evidence (now closed) is given in Appendix 1.

In the call for evidence we emphasised that it was not a consultation of any proposals, and that we were seeking evidence rather than views, opinions, or ideas. We made clear that any proposals will be subject to public consultation at a later date. We asked people to send us any relevant evidence of the following types:

- Peer reviewed scientific literature (particularly evidence syntheses and reviews);
- Technical / research papers and reports;
- Official publications, such as Government agency, research group or committee reports and working papers;
- Questionnaires undertaken by membership organisations, including membership surveys if accompanied by details of methodology;

- Anecdotal findings, if accompanied by material evidence such as video, photos or written records;
- Expert opinion if accompanied by evidence of experience and/or professional standing.

Responses were welcomed from anyone, anywhere, and in English and/or Welsh.

It was made clear to respondents that any personal information they provided would be treated in accordance with relevant data protection legislation. Respondents were also invited to note any special confidentiality requests relating to any of the information they provided.

The draft text of the call for evidence was informally shared with a number of stakeholder bodies, and the questions were redrafted in light of their feedback.

The external stakeholder group for the wild bird review programme was briefed on a number of occasions that we would be carrying out the call for evidence, and when it was launched it was publicised via NRW social media accounts and notified by email to the stakeholder group and to the academic community via the Evidence Platform Wales. A number of membership organisations drew it to the attention of their members.

The call for evidence opened on 2 December 2020 and ran for 8 weeks until 27 January 2021. Responses could be submitted online through the NRW Consultation Hub, by email to a dedicated email account, or by post to NRW's office in Bangor. Online responders wishing to provide actual documents were asked to email them to a dedicated email account (or post them to NRW's), as it was not possible to create a facility to upload documents via the Consultation Hub.

3. Overall summary of responses to the call for evidence

We received 40 responses, of which 32 were from individuals or small local organisations, and eight from Wales-wide or GB-wide bodies and membership organisations. More details are given in Tables 1 and 2.

Table 1: Number of responses		
Responses received	No.	%
Responses submitted online	34	85
Response submitted by email	6	15
Responses submitted by post	0	0
'Blank' responses ¹	1	2
Responses using Welsh version of consultation hub page	0	0
Total	40	100

¹ No response to questions - only registering interest in receiving announcements about the review.

Table 2: Number of responses by type of respondent		No.	%
Responses from individuals not naming an organisation		30 ²	75
Responses from small, local organisations		2	5
Responses from national (Wales or UK) organisations		8	20
National organisations which responded	British Association for Shooting and Conservation British Pest Control Association Countryside Alliance Farmers' Union of Wales Game and Wildlife Conservation Trust Cymru National Farmers' Union Cymru Royal Society for the Protection of Birds Royal Society for the Prevention of Cruelty to Animals		

Some further information about the respondents is given in Appendix 2.

Almost all of the individual respondents appeared to be, or to have previously been, engaged in control of wild birds for one or more purpose. Most individuals and organisations responding ticked multiple boxes in response to the question “*What is the reason for your interest in the shooting and trapping of wild birds in Wales or destruction of eggs and nests? (please tick all those that apply to you)*” – see Table 3.

Table 3: Reason for interest		
	No.	%
Academic/scientific/research	1	4
Animal welfare	12	44
Falconry	0	0
Farming - arable	10	37
Farming - livestock	15	56
Fishery or fish stock management	2	7
Gamebirds	15	56
Landowner/occupier/manager	16	59
Pest control	22	81
Recreation	9	33
Wildfowling	9	33

² One individual who submitted two online responses has been counted as a single response)

Wildlife conservation	20	74
Other	1	4
Not Answered	0	0

Table 4 summarises the evidence submitted in each of the main categories of evidence we were calling for.

Table 4: Summary of evidence received by type of evidence requested	
Peer reviewed scientific literature (particularly evidence syntheses and reviews)	<p>GWCT, RSPB, BASC, FUW and two individual respondents cited or provided a number of existing publications. All the references provided by any respondent in relation to any of the questions are listed in section 5 below.</p> <p>The submissions from GWCT, RSPB, BASC and FUW included discussion, analysis and conclusions/views drawing on the references they provided, as well as providing the references themselves.</p>
Official publications, such as Government agency, research group or committee reports and working papers	<p>A number of the references cited or provided by respondents and listed in section 5, fall into this category rather than constituting peer reviewed literature, for example reports published by APHA, Defra and SNH/NatureScot.</p>
Technical / research papers and reports (other than those published by government bodies or statutory agencies)	<p>RSPCA's response included a summary table of animal welfare incidents involving wild birds which have been reported to them.</p> <p>BPCA provided a document summarising gull control scenarios encountered by BPCA members.</p>
Questionnaires undertaken by membership organisations, including membership surveys if accompanied by details of methodology	<p>GWCT's response included the results of a membership survey they conducted with members in Wales Dec 20-Jan 21 specifically to inform GWCT's response to NRW's call for evidence. Details of the methodology used by GWCT to gather this information were also provided. GWCT's response also included a copy of the report of their 2019 survey on use of general licences by their members.</p> <p>The responses from NFU Cymru and FUW are based on a collation of information gathered from their members, but no details of methodology were provided.</p> <p>BASC's response included information about the 2019 survey of their Wales membership's use of general licences.</p>
Anecdotal findings, if accompanied by material	<p>The majority of the responses from private individuals fall into this category, namely first hand personal</p>

evidence such as video, photos or written records	<p>observations and/or second hand accounts of observations reported by others.</p> <p>Two individual respondents provided additional documents or references in support of their statements.</p> <p>The results of the membership surveys conducted by some of the organisation respondents (GWCT, BASC, NFU Cymru and FUW) also constitute collations of anecdotal findings.</p>
Expert opinion if accompanied by evidence of experience and/or professional standing.	<p>The responses from national organisations include evidence which falls into this category, where their response draws on the expertise/experience of the staff in those organisations/preparing the response, including where they have reviewed and drawn conclusions from previously published works.</p> <p>Many of the individual respondents, both directly to NRW and in response to membership surveys also made reference to their experience as practitioners engaged in the killing/taking of wild birds.</p>

Four respondents criticised the way in which the call for evidence was conducted and/or the way in which the questions were framed. One individual respondent indicated that they considered it unnecessary to be seeking evidence on questions for which the answers are well known and self-evident (for example question 7 asking for evidence of wild birds causing problems). Another said the questions implied an unrealistic and unfair emphasis on seeking research-based, peer reviewed or empirical evidence at the expense of anecdotal evidence from those with practical experience and knowledge. The response from one organisation expressed concern that private individuals would be reluctant to respond in case their personal details became public. Another organisation stated that the call for evidence should have been open for longer than 8 weeks.

In terms of the size/detail of responses, there was a clear divide between the responses from individuals, which were mostly quite short and were generally not supported with additional documentation or references, and the organisational responses which were mostly more detailed and lengthy and in some case included references or links to previously published works.

BASC and CA said that they had circulated information about the call for evidence to their members and encouraged them to respond individually.

4. Evidence received in response to each question: main themes

4.1 Question 7: Do you have any evidence of particular species of wild birds in Wales causing problems, such as damaging crops, livestock or fisheries, posing a risk to public health or safety, or harming the conservation of other species? If yes, please provide more information here....

This question invited free text responses.

Number of responses to this question – 35 (6 organisations, 29 individuals).

Some respondents identified impacts caused by specific species, but many used the generic terms 'corvids' (carrion crow, magpie, jackdaw, rook or jay) or 'pigeons' (feral pigeon and wood pigeon). Some respondents provided anecdotal experiences detailing concerns and examples of the impacts of species, predominantly corvids causing serious damage to livestock (e.g. carrion crow and magpie), crops (e.g. jackdaw) and/or harming the conservation of scarce/declining species of lowland and upland farmed landscapes and woodlands (e.g. carrion crow, magpie, jackdaw, jay).

Some respondents, such as the farming unions, GWCT and BASC, provided a synthesis of the responses and testimonial statements they had received from membership surveys. Here, responses and first-hand accounts from members corresponded to those expressed by individual respondents, namely issues of serious damage caused by crows and pigeons to agricultural practices and crows causing harm to birds of conservation concern. The overall response can be summarised as:

- Anecdotal evidence that carrion crow and magpie cause serious damage to livestock, for example crow attacks on cast and/or pregnant ewes, new-born sheep and free-range poultry.
- Anecdotal evidence that rook, jackdaw, feral pigeon, wood pigeon cause serious damage to agricultural crops by pecking and digging up newly drilled seeds or emerging seedlings.
- Reports that Canada goose cause serious damage to crops and pastures by trampling and grazing pressure.
- Anecdotal evidence that crows damage silage bales by puncturing the plastic wraps resulting in contamination and spoil.
- Increasing reported incidences of attacks on sheep by ravens resulting in 'financial damage' and 'animal suffering'.
- Reporting of cattle reacting to the avian element of TB, where one respondent stated '*that some form of transmission of avian TB was taking place between birds and cattle.*'

- Well established scientific evidence showing the predation impacts of corvids, predominantly caused by carrion crow and magpie, on other wild birds, particularly ground-nesting birds (waders, gamebirds).

Other respondents supported these comments and one respondent referenced the lack of scientific evidence for some agricultural damage, namely attack and predation events on livestock, citing the 2019 literature review undertaken by Scottish Natural Heritage (now Nature Scot).

The NFU referenced the review undertaken by APHA (2014), highlighting woodpigeon management strategies and their poor effectiveness in reducing crop damage, particularly to brassicas, salad crops, peas and oilseed rape. They recognised that although not all crops listed in the APHA review apply to Wales the principle of damage remains, and that impacts can often be compounded by birds congregating on certain fields due to the relatively low area of crops in Wales compared to areas of permanent grassland. The NFU quoted directly from the APHA review stating '*a small group of farmers estimated woodpigeons caused in the order of 10- 40% loss in yield.*'

Three organisations provided scientific evidence of the impacts by corvid predation on other UK wild bird populations. GWCT and BASC provided a synopsis of similar scientific peer-reviewed evidence in relation to the impacts of corvid predation, predominantly involving carrion crow and magpie, and response effects of removal on the populations of upland breeding waders, grey partridge and farmland songbirds. Both organisations highlighted that many of these studies represented manipulative experiments based on predator removal and often involved the management of multiple predator species simultaneously. The RSPB provided scientific evidence that carrion crow occur at high densities in the UK compared with other European countries and that predation by carrion crow can limit populations of ground-nesting seabirds, breeding waders and gamebirds. However, they strongly suggested that such scientific studies, despite the high and increasing densities of predators, found little evidence that corvid predation limited populations of pigeons, woodpeckers and passerines. Further thoughts by some respondents were provided on the impact of predation by fish-eating birds, predominantly cormorant and goosander, on fisheries, but no supporting evidence was provided.

The RSPB emphasised the complexity of predator-prey interactions with two ecological points: firstly that avian predation may be the proximate cause of nest/chick losses but the ultimate cause may be a result of other pressures on the wider environment, and secondly that although there is some limited evidence of some species of crow causing a risk to the conservation of other species this is entirely in the breeding season, when generalist predators can disrupt the breeding attempts or their predation can limit the productivity of some species of high conservation concern.

No respondents provided evidence, either scientific or anecdotal, of birds causing harm to public health and safety.

4.2 Question 8: Do you have any evidence about the effectiveness of lethal methods of controlling wild birds

(through shooting, trapping or destruction of eggs/nests) as a way to prevent damage to crops or livestock or for protecting public health or safety? If yes, please provide more information here....

This question invited free text responses.

Number of responses to this question: 33 (5 organisations, 28 individuals)

A large number of respondents reported a range of harm caused by corvids, pigeons and geese on crops, livestock and public health or safety, without providing scientific evidence about the efficacy of lethal methods as a means of controlling wild birds to prevent serious damage. However, the RSPB promoted two views from independent scientific studies:

- i) When addressing any wildlife-resource conflict it is important that the effectiveness of control should be evaluated in terms of damage prevented and not the numbers of animals killed.
- ii) Predator removal appears to be effective for only the short-term, and that predator removal is typically an ineffective and costly approach to conflicts between humans and predators.

In relation to bird control in urban environments the response from the British Pest Control Association (BPCA) suggested that once a nest has been established on a rooftop, non-lethal control is usually no longer practical or safe. An egg and nest removal programme is then usually the only way to control the birds, prevent damage to buildings and protect people while working on these areas. In relation to gull control they further added, *'that managing a stable colony of gulls nesting on roofs of buildings by egg removal rather than allowing uncontrolled population growth is an important way we ensure colonies and the health risks associated with those don't get out of hand.'*

BASC reported that based on their 2019 Wales membership survey, the addition of lethal control (mainly shooting) alongside non-lethal methods roughly doubled its effectiveness as a deterrent. BASC went on to say *'For control measures to be effective in the long term they need to represent an actual, rather than perceived, threat. Without any actual threat to the birds they will quickly habituate and resume causing damage.'*

The GWCT provided scientific evidence and views from their membership about the effectiveness of lethal control as a conservation tool to conserve endangered or declining bird species, this is referenced in our assessment of responses to question 9.

The BPCA stated, in relation to the control of birds for public health and public safety reasons) that although deterring or preventing birds from entering sensitive sites is a core principle of pest management, in most cases lethal control (i.e. the killing of adults or chicks or the destruction of eggs and nests) is the only appropriate means of dealing with the problem once birds are inside premises or have established nests. In most such situations encountered by BPCA members, use of non-lethal alternatives is considered ineffective (in terms of resolving the problem) and/or impractical (e.g. because the method

cannot be used safely). Lethal control can also be preferable from an animal welfare point of view.

About half of the individual respondents to this question stated that lethal control, and in particular shooting, is the most effective, or most cost effective, method of control and that non-lethal alternatives are not effective. Two individual respondents states that shooting to kill works best in combination with scaring and deterring birds. Three respondents stated that they had personal experience of lethal control leading to actual reductions in attacks on livestock and crops.

4.3 Question 9: Do you have any evidence that lethal control of corvid species (the ‘crow family’, which includes carrion crow, magpie, jay and jackdaw) leads to increases in populations of other species of birds? If yes, please provide more information here....

This question invited free text responses.

Number of responses to this question – 29 (3 organisations, 26 individuals)

The majority of individual respondents referred to personal observation of local increases in populations of songbirds and waders in areas where either they themselves or others had carried out some degree of corvid control, either through trapping or shooting, particularly of magpie and carrion crow. Most of these respondents expressed high levels of confidence both that corvid control had led to reduction in predation levels, and that that reduction in predation had benefitted avian prey populations. No individual respondent provided any details of their observations, such as locations, number of birds controlled, positive response rates of prey populations or timeframes. Although not providing any references themselves, a small number of respondents stated that the negative impact of corvid predation on other species, and the conservation benefits of corvid control, is well documented in the literature.

A small number of individual respondents reported having witnessed predation on songbird nests, eggs and chicks by corvids, without expressing any views on the overall effect of such predation on songbird populations.

Detailed evidence in response to this question was given by RSPB, BASC and GWCT.

RSPB provided a number of scientific references (see Section 5) and a commentary upon the evidence base, considering the evidence in relation to individual species of corvid. They stated that although there is some evidence that reducing populations of corvids can have localised benefits for populations of other wild bird species, those studies do not enable wider conclusions to be drawn about the benefits of local control on wider bird populations. They also cited the difficulty of disaggregating the impacts of corvid predation from other pressures on wild populations including predation by other avian and non avian species or other, anthropogenic drivers of population decline, making it difficult to

determine the effectiveness of controlling corvids as a means of conserving other wild birds. They also suggested that removing several generalist predator species is more likely to lead to a detectable increase in prey numbers than when only one generalist predator species was removed. RSPB also said that there is no clear or consistent evidence showing that jay, jackdaw, magpie or rook are the cause of national declines in the populations of other wild bird species.

BASC provided a number of references (see Section 5) and a commentary upon the evidence base. Like RSPB, BASC also considered the scientific evidence on a species by species basis. They stated that carrion crow are a significant source of predation on wader eggs and that studies have shown that lethal control of carrion crow along with other species has led to increases in breeding success of waders. In relation to jackdaw, jay, magpie and rook BASC cited a number of studies demonstrating these species' well-documented predatory behaviour, including in relation to nests, eggs and chicks of songbirds, waders and passerines. As well as references to published literature, BASC also reported on the results of a survey of their members, in which a significant proportion of members (a) carry out corvid control and (b) consider that corvid is important for conserving other species of birds.

GWCT provided a number of references (see Section 5) and commentary on the evidence base. They highlighted a number of experimental interventions and monitoring studies which demonstrated predator removal (including control of corvids and some cases other species as well as corvids) led to increases in breeding success of other bird populations, notably breeding gamebirds, waders and farmland songbirds. In a number of these studies, GWCT acknowledge that the benefits to other bird populations observed may only be partly attributable to the control of corvids, and partly attributable to other predator control and wider habitat management. GWCT also undertook a survey of its members in Wales specifically to inform their response to NRW's call for evidence, asking respondents to report which species they consider cause which types of harm and which species they control. A significant proportion of GWCT members responding to the survey reported that they consider that corvids cause damage to other bird species and that they carry out corvid control for bird conservation purposes, as well as in many cases for other reasons such as preventing serious damage to livestock.

4.4 Question 10: Do you have any evidence that lethal control of fish-eating birds, in particular cormorant and goosander, leads to increases in wild fish populations? If yes, please provide more information here....

This question invited free text responses.

Number of responses to this question – 9 (2 organisations, 7 individuals)

Several responses provided scientific evidence and personal views of the impact of predation by cormorant and goosander on fisheries, but no evidence was provided or views expressed on the response of wild fish populations, particularly salmonids, following lethal control of fish-eating birds. One respondent presented two reports on the

observations of fish-eating birds on the River Usk during the salmon smolt run. Though the findings of these reports highlight the spatial and temporal distribution of fish-eating birds on the River Usk, they do not present evidence of fish population response to fish-eating bird control measures. The RSPB summarised the challenge to the scientific community to address this complex question by stating '*Demonstrating evidence of the effectiveness of lethal control in river systems, especially on wild migratory fish species, is even greater owing to the far greater number of confounding factors, both natural and anthropologic, in a complex ecosystem.*'

4.5 Question 11: Do you have any evidence about the effectiveness of alternative non-lethal methods of addressing problems that wild birds may be causing, such as damaging crops, livestock or fisheries, posing a risk to public health or safety, or harming the conservation of other species? If yes, please provide more information here....

This question invited free text responses.

Number of responses to this question – 33 (5 organisations, 28 individuals)

Some organisational respondents provided a detailed, evidence-based synopsis on the effectiveness of non-lethal measures deployed for a range of problems/purposes. Others provided evidence relating only to one problem, for example the conservation of wild birds. One respondent provided references to initiatives elsewhere in the UK and Europe to assess the effectiveness of non-lethal measures to reduce predation impacts by fish-eating birds on fisheries.

A number of responses mentioned a range of non-lethal management measures (as an alternative to lethal control), detailing type and efficacy of method used. These submissions have been organised into six key categories (auditory, visual, diversionary feeding, chemical, exclusion and habitat manipulation) and are summarised as:

Auditory

Some respondents mentioned that loud noises, such as generated by gas cannons, pyrotechnics, rope bangers, blank ammunition, had short-term benefit as birds causing the harm quickly habituated to regular noise. This view was highlighted for example by BASC, who further commented that for auditory deterrents to be effective they need to be varied in timing, location and direction. BASC also reported that findings from their 2019 membership survey suggested 54% of members found audio methods on their own were effective but only in the short term, a view supported by BPCA, who also stated that '*Ultrasonic systems are ineffective due to bird hearing range being the same as humans, limiting their effectiveness.*'

Some respondents referred to the NFU Bird Scarers Code of Practice, which recognises that some form of audio techniques can cause significant nuisance (e.g. gas cannons) and/or are vandalised if located near residential or sensitive areas. The NFU outlined that auditory bird scarers are not only increasingly unpopular with the general public but maybe inappropriate for use in close proximity to livestock.

The RSPB outlined a number of audio techniques trialled to deter large gulls from breeding on the roseate tern colony at Coquet Island, Northumberland, with the most effective method being regular loud bangs and gull distress calls. However they stressed these could not be used in the breeding season because of the issue of disturbance to other breeding seabirds. In another trial, the RSPB deployed an audio gull scarer at a tern colony in North Wales and reported this technique actually exacerbated the problem by attracting gulls onto the breeding tern islands.

The NFU submission reported members used a range of audio devices in conjunction with lethal shooting and that the overall response was that devices have limitations and were largely ineffective spatially and temporally.

Visual

Five respondents submitted evidence covering a range of methods including laser hazing, tapes and wires, raptor-like kites, mirrors and reflectors (e.g. old CDs), scarecrows and human presence. The RSPB provided information on the efficacy of hand-held lasers as a method of deterring avian predators at two Welsh tern colonies (The Skerries and Gronant) and reported that the trials showed mixed success. BASC also reported trials on the use of hand-held lasers and suggested they are of limited use to prevent wood pigeon or crow damage to crops, as the effectiveness of lasers decreases with increasing light levels.

One respondent used bags and kites and stated that '*The number required to effectively cover the acres involved, and the need to reposition them daily to keep them as an effective deterrent, undermine their overall effectiveness.*'

The RSPB reported that human presence to deter large gulls from preying Arctic tern chicks at a North Wales tern colony proved to be time consuming and ineffective. One respondent reported that drones have been trialled in Scotland to deter geese from arable fields and although these had proved effective in some circumstances they had not led to long-term reductions in damage, are costly to buy, require a trained operator and birds rapidly habituated to them.

BPCA stated that visual deterrents (such as models of birds of prey) are generally ineffective, but some visual devices such as kites can be useful accompaniment to other deterrence measures.

Diversionsary feeding

One respondent, the RSPB, reported diversionsary feeding as a non-lethal deterrent technique to reduce predation by birds of prey on other wild bird species. Here they referenced the diversionsary feeding trials at Langholm in Scotland to reduce hen harrier predation on red grouse chicks, which showed some success, and trials of kestrel diversionsary feeding to reduce predation pressure at two little tern colonies in Norfolk and Wales that resulted in increased tern productivity.

Chemical

Very little evidence was submitted on the use of chemical alternatives (e.g. repellents, fertility control). BASC considered that given conflicting evidence around their effectiveness and given the cost it seems unlikely that many farmers would risk using a potentially ineffective product. They further suggested that chemical repellents to control birds in order to conserve flora and fauna would be restrictive in application as they are expensive to trial and produce. BPCA referred to the use of repellent gels, for example to deter birds from ledges on buildings, but their effectiveness is short-lived.

Exclusion

A small number of respondents referenced the use of exclusion methods (e.g. wires, lines, nest cages, nets, spikes). The RSPB referred to two methods as possible non-lethal means to increase tern breeding productivity. First was the deployment of chick shelters in roseate tern colonies to reduce predation of eggs by gulls and carrion crows. Although the RSPB suggest the published evidence for the efficacy of chick shelters is 'mixed', they may be useful as part of an integrated management strategy. Second was the use of bamboo canes as a simple and low-cost method to reduce gull predation on breeding terns, although there are few examples where sufficient monitoring has been undertaken to assess effectiveness.

BASC suggested exclusion techniques are usually extremely effective but that efficacy depends on the degree to which birds are excluded but emphasised the greater the exclusion the greater the cost, for this reason deployment of exclusion measures tends to be restricted to high value crops or prevention of costly damage. BASC highlighted the use of wires and coloured tape but pointed out that birds can habituate to these measures very quickly. BASC provided supporting anecdotal evidence from Islay in Scotland showing that within a week of fully covering a fresh grass field with a tight mesh of red and white tape 'geese' (species not specified) had habituated to the tape and found ways to get underneath it to access the field and graze.

BPCA stated that if properly installed, nets are effective at keeping birds off some buildings but for large areas the cost can be prohibitive, and they can also hinder building maintenance. Spikes and electric deterrents also work well in certain situations but can be prohibitively expensive if used over large areas. Strip curtains can be effective at preventing birds from entering buildings, but there are many situations where they are not suitable.

Habitat manipulation

Habitat manipulation involves a wide range of techniques aimed at modifying habitat composition and structure to be less conducive to particular species. Several respondents referenced habitat modification studies and trials. For example, the RSPB reported at breeding wader sites in the UK, vegetation height was manipulated to reduce the risk of predation. Other modification techniques used by the RSPB included the removal of trees and scrub, that act as avian predator perches, in sensitive wader breeding areas to reduce predation events. This method was advocated as a good management intervention or precursor to lethal control. BASC noted that habitat modification techniques are generally considered to be effective and environmentally friendly but are rarely investigated scientifically. They promoted the role of habitat modification in protecting fauna and flora conservation priorities but recognised the limit to the type of modification that can be conducted without financial subsidy as part of a national integrated damage control plan. Without supporting subsidy, habitat modification schemes tend to be prohibitively expensive to farmers due to a combination of loss of productive land, and expenditure on 'more attractive' sacrificial crops.

Other comments on effectiveness of non-lethal alternative methods included:

- Birds quickly habituate to most non-lethal audio and visual deterrents (or example, gas bangers, rope bangers, rockets & fireworks, horns and sirens, flags & kites (including replica birds of prey), rotating bird scarers and globes, inflatable figures, scarecrows, strips of plastic, old CDs, chase over fields on quad bike, fire gun to startle, blow horn on tractors and fly drones).
- In cases where deterring birds from a site is effective, it can simply displace the problems they are causing to another location, such as another building or a neighbouring landholding.

4.6 Question 12: Have you (personally, or as an organisation) in the past 5 years used any of NRW's general licences allowing the lethal control of wild birds?

Number of responses to this question – 35

Yes – 25

No – 10

If Yes, please tell us about any problems or difficulties you have had in using NRW's general licences...

This question invited free text responses. The points made in the responses are summarised into broad categories in Table 5.

Number of responses to this question – 26 (23 individuals and 3 organisations)

Table 5: Type of problem or difficulty in using general licences	Number of respondents
No particular problems encountered in using the general licences	11
Lack of understanding by the general public that wild bird control is necessary and is permitted by general licences (e.g. hostility towards licence users, damage to set traps)	5
Additional species should be included, particularly on GL001 and particularly rook, starling and raven	3
General licence terms/conditions are too complex/hard to understand, what is/is not legally allowed changes too often	3
General licence terms and conditions are too restrictive, inflexible or impractical to follow	2
Problems associated with the general licences not applying in or near certain SSSIs	2
There are problems with general licences – but no further detail given	1
Appeared to misunderstand question as being about specific licences (this response is included in the summary of responses to Question 13 below)	1

While not a user of NRW General Licences, the RSPCA reported that the general lack of transparency surrounding the system of NRW General Licences makes the investigation of certain acts of potential wildlife crime, particularly bird shootings, very difficult. They also referred to their long standing concerns that the knowledge and expertise of many who rely on General Licences in the carrying out of their work may not be sufficient to ensure that animal welfare standards are maintained.

4.7 Question 13: Have you (personally or as an organisation) in the past 5 years used or applied for one or more specific licences from NRW to control wild birds (of any species) by shooting, trapping or destruction of eggs or nests?

Number of responses to this question - 35

Yes – 5

No – 30

If Yes, please tell us about any problems or difficulties you have had in using NRW's general licences.

This question invited free text responses. The points made in responses are summarised into broad categories in Table 5.

Number of responses to this question – 7 (5 individuals, 2 organisations)

Table 6: Types of problem or difficulty in using specific licences	Number of respondents
Application process is difficult/complex and/or takes too long	4
Information given about specific licences used/applied for, but no reference to any problems encountered	2
Number of birds (starling) allowed to be killed was much too small	1
Licence terms and conditions were complicated and difficult to comply with	1
There are problems with specific licences – no further detail given	1

4.8 Question 14: Have you (personally or as an organisation) in the past 5 years applied to NRW for consent or assent (under section 28 of the Wildlife and Countryside Act 1981) to carry out operations which entail killing or taking of wild birds in or near an SSSI?

Number of responses to this question – 36

Yes – 4

No – 32

If yes, please tell us what the consent or assent was for and about any difficulties you had in applying for or using it....

This question invited free text responses.

Number of responses to this question: 4 (1 organisation, 3 individuals)

Of the four respondents that answered 'yes', three provided evidence of having applied for consent/assent to carry out operations which entail killing or taking of wild birds in or near an SSSI. The reasons given for applying for a consent/assent to carry out operations which entail killing or taking of wild birds in or near an SSSI were: conservation (all three respondents; public health and safety (two respondents); crop protection (one respondent). The target species for the operations were: Canada geese, corvids and gulls.

Two respondents referred to difficulties with the application process, although it was not clear whether the difficulties were directly in relation to the SSSI consents/assents process alone, or the section 16 licencing process, or both. The difficulties were the nature of the process (particularly where the length of time between application and a decision rendered the licence irrelevant), and the amount of information required. Another respondent's evidence ran contrary to this view.

BASC responded that they have applied for consents on SSSIs to carry out operations which entail killing or taking of wild birds, in effect operating as agents for some of their clubs and syndicates as well as applying directly for a limited number of consents themselves. They stated that they did not know of any cases where consent had been declined.

In GWCT's survey of their membership in relation to NRW's call for evidence, one of the questions was "Do you control birds within an SSSI or Special Protection Area (SPA)?" About 10% of the 307 respondents answered "Yes". However, as the question did not make any reference to applying for SSSI consent, it is not clear how many respondents to GWCT's survey had applied for consent, or whether any had experienced problems with the SSSI consenting process.

4.9 Question 15: Do you know of any published or unpublished reports, surveys or other evidence about the use of cage traps to catch wild birds in Wales? If yes, please provide more information here...

This question invited free text responses.

Number of responses to this question: 12 (6 organisations, 6 individuals)

A number of individual and organisation respondents to this question, including the Countryside Alliance, cited the work of and studies undertaken by GWCT. Several respondents also made reference to the RSPB. The USA-based organisation, Ducks Unlimited was also referred to by one individual respondent, although no specific reports were cited. One individual response made reference to being aware that Larsen traps are used to great effect in catching corvids, in particular magpies, but did not provide further evidence to support this position.

BASC referred to its 2019 survey of its members in relation to General Licences in Wales. In that survey 49% of the 1000 respondents stated trapping was at least one of the methods deployed; 28% used only trapping, 19% trapping and shooting and 2% trapping and other legal means of control.

The Countryside Alliance drew attention to the evidence provided by them, GWCT and others to the National Assembly for Wales in relation to a petition (P-05-813) submitted to the Assembly's Petitions Committee, calling for a ban on the use of Larsen traps in Wales.

NFU Cymru stated that collective experience shows that the use of both trapping and shooting will improve the effectiveness of control of certain wild bird species. They also noted the importance of trapping in circumstances where shooting is not practical on health and safety grounds.

The RSPB response referred to evidence of the illegal use of cage traps to catch unauthorised species, such as such as raptors. They noted that a review of the illegal persecution of birds of prey in Wales (to be published later in 2021) provides evidence of buzzard, peregrine and tawny owl having been caught or died in cage traps as well as the illegal use of pigeon as bait within traps, indicating that goshawk or sparrow hawk were the intended target species. RSPB also mentioned evidence from Scotland about illegal use of cage traps, including a prosecution in relation to the use of multi-catch cage traps to take/kill two goshawks and a buzzard, which resulted in a custodial sentence. They stated that they have received significant intelligence from the shooting industry and elsewhere of the use of cage traps for the illegal control of raptors. RSPB also noted a lack of quantitative evidence in this field because it is illegal, and thus covert.

The RSPCA provided information on the 23 incidents which have been reported via its Incident line since 2018 in relation to the use of Larsen traps, including two reports of the capture of non-target species (cat and fox).

A number of respondents to the GWCT survey of members undertaken in response to the Call for Evidence cited trapping as a method they use – the information gathered is summarised in the context of Q16 below. The GWCT response cited several papers and studies in relation to corvid control, primarily in the context of the conservation of (other) wild birds.

4.10 Question 16: Have you (personally or as an organisation) in the past 5 years used a cage trap to catch wild birds in Wales?

Number of responses to this question – 34

Yes – 15

No - 19

If yes, please tell us what type(s) of trap you have used, which species you have targeted and for what purpose and whether it was under a general or specific licence from NRW. We would also be interested to hear of any problems you have encountered with licence conditions relating to the use of cage traps.

This question invited free text responses.

Number of responses to this question: 19 (3 organisations, 16 individuals)

Of those individuals who responded to this question the use of a Larsen trap was the most used (14 respondents), with a small number also mentioning ladder cage trap (3 respondents) Larsen mate (1 respondent) and multi-catch crow trap (1 respondent). The number of responses referring to particular target species were:

- magpie (10 responses);
- carrion crow (7 responses);
- jackdaw (3 responses);
- jay (1 response);
- rook (1 response).

Two respondents stated that they had previously used cage traps but no longer did so. The reasons given for this were having insufficient time to check traps and believing that they were no longer allowed.

RSPB noted that they use Larsen traps to control carrion crow for the purpose of conserving wild birds; specifically, waders at one nature reserve, terns at another nature reserve and curlew as part of the Trial Management project.

BASC's response noted that they do not undertake bird trapping at their premises in Wales, but that their membership does, both as owners and occupiers.

GWCT conducted a survey of its membership in response to this Call for Evidence, which included asking their members to state how many traps of different types they use (*Larsen*, *Larsen mate type*, and *Crow letterbox/multi-catch type*). The responses they received to this question were not explicitly presented in the GWCT submission to NRW. However GWCT members did report use of traps, for example in relation to the following species and purposes:

- Carrion crow: to prevent killing of new-born lambs and ewes, to protect crops, to protect songbirds, waders (curlew, lapwing), other ground nesting birds (red grouse) and other wildlife (leverets, young hedgehogs);
- Magpie: to prevent killing of lambs, to protect nesting wild birds, to protect free-range chickens and eggs, pheasant and partridge chicks, to protect mammals (leverets), to prevent contamination of foodstuffs for livestock;
- Rook: to protect crops, nesting birds, to prevent destruction of animal feed;
- Jay: to protect hedgerow nesting birds, woodland nesting birds (spotted flycatcher), to protect hens' eggs and chicks;
- Jackdaw: to protect nesting garden birds, to protect of crops and animal feed, to prevent damage to farm buildings;
- Wood pigeon: to protect crops.

4.11 Question 18 Do you have any other evidence which you think may be relevant to our review which you'd like to share with us? If yes, please provide more information here...

This question invited free text responses.

A total of 20 online respondents (2 organisations and 18 individuals) included information in response to this question. The responses included:

- Reiteration of points made by the respondent in answer to earlier questions.
- Anecdotal accounts of the benefits of controlling predators – particularly corvids – for other wildlife and to protect livestock.
- Negative comments on NRW's overall approach and effectiveness, suggesting that NRW should focus less on regulation and more on positively supporting those who manage the Welsh countryside. Some respondents also warned of the dangers of being influenced by the biased opinions of those opposed to wild bird control and/or ignorant of the need for, and benefits of, controlling certain species of wild birds.

- Statements that it is essential to retain general licences for wild bird control. However one respondent (RSPB) suggested that licensed control of wild birds – particularly where used for conservation purposes - is more effective, targeted, proportionate and transparent if carried out and reported on under specific licences, rather than authorised by general licences.
- One individual respondent provided additional documented evidence relating to abundance of impact of fish eating birds on the River Usk.
- One respondent (BPCA) provided additional information relating to examples of control of gulls for public health/public safety purposes.

BASC provided links to the information they had previously provided to Defra in 2019 concerning the use of, and benefits of, general licences in England, indicating that this evidence is equally relevant to Wales.

Aside from RSPB, BPCA and BASC, the other organisation respondents did not specifically respond to this question. Any evidence they provided is covered above in the summaries of the evidence provided under the preceding questions in the Call for Evidence.

5. Collated list of documents and references received

		Provided by	In relation to which question?
A	Aebischer, N.J., Ewald, J.A., & Kingdon, N.G. (2018). Working towards the recovery of a declining quarry species: the grey partridge in the UK. In: Baxter, GS, Finch, NA & Murray, PJ (eds) Advances in Conservation Through Sustainable Use of Wildlife: 55-62. Wildlife Science Unit, University of Queensland, Gatton, Australia.	GWCT	N/A
	Akers P. and Allcorn R.I. 2006. Re-profiling of islands in a gravel pit to improve nesting conditions for terns <i>Sterna</i> and small gulls <i>Larus</i> at Dungeness RSPB reserve, Kent, England. Conservation Evidence 3: 96-98	RSPB	Q8
	APHA (2014) <u>“Woodpigeon management strategies and their effectiveness in reducing crop damage in Brassicas, salad crops, peas and oilseed rape”</u> . Review for ADHB.	NFU	N/A

	Amar A. and Redpath S.M. 2002. Determining the cause of hen harrier decline on the Orkney Islands: an experimental test of two hypothesis. <i>Animal Conservation</i> 5: 21-28)	RSPB	Q9
	Andren, H. (1992) Corvid Density and Nest Predation in Relation to Forest Fragmentation: A Landscape Perspective. <i>Ecology</i> , 73(3): 794-804.	BASC	Q9
	Anglestam P. (1986) Predation on Ground-Nesting Birds' Nests in Relation to Predator Densities and Habitat Edge. <i>Oikos</i> , 47(3), 365–373.	BASC	Q9
B	Bodey, T. W. et al. (2011) 'Absence of effects of predator control on nesting success of Northern Lapwings <i>Vanellus vanellus</i> : Implications for conservation', <i>Ibis</i> , 153(3), pp. 543–555. doi: 10.1111/j.1474-919X.2011.01132.x.	BASC	Q9
	Bishop, J. D. et al. (2003) 'Review of international research literature regarding the effectiveness of auditory bird scaring techniques and potential alternatives', Department of Food and Rural Affairs, (December), pp. 1–52. Available at: https://www.researchgate.net/publication/242454383	BASC	Q11
	Bolton, M., Tyler, G., Smith, K. and Bamford, R. 2007. The impact of predator control on lapwing <i>Vanellus vanellus</i> breeding success on wet grassland nature reserves. <i>Journal of Applied Ecology</i> 44: 534–544).	RSPB	Q9
	Bolton, M. et al. (2007) 'Remote monitoring of nests using digital camera technology', <i>Journal of Field Ornithology</i> , 78(2), pp. 213–220. doi: 10.1111/j.1557-9263.2007.00104.x.	BASC	Q9
	Booth V. & Morrison P. 2010. Effectiveness of disturbance methods and egg removal to deter large gulls <i>Larus</i> spp. from competing with nesting terns <i>Sterna</i> spp. on Coquet Island RSPB reserve, Northumberland. <i>Conservation Evidence</i> 7: 39-43)	RSPB	Q11
	Boothby, C., Redfern C. and Schroeder, J. 2018. An evaluation of canes as a management technique to reduce predation by gulls of ground nesting seabirds. <i>Ibis</i> 161(2): 453-458.	RSPB	Q11
	BASC (2019) Benefits of General Licences (England) https://basc.org.uk/wp-	BASC	Q18

	content/uploads/downloads/2019/05/Benefits-of-general-licence-control-FINAL-V1.0-1.pdf		
	BASC response to Defra's call for evidence on general licences May 2019 https://old.basc.org.uk/wp-content/uploads/downloads/2019/05/BASC-CFE-on-GL-130519-updated.pdf	BASC	Q18
	BASC response to Defra's Wild Birds General Licence Survey December 2019 https://basc.org.uk/basc-responds-to-general-licence-consultation/	BASC	Q18
	BTO (2019) Bird Indicators. https://www.bto.org/science/monitoring/developing-bird-indicators	CA	N/A
	Brough T. and Bridgman C.J. 1980. An evaluation of long grass as a bird deterrent on British airfields. <i>Journal of Applied Ecology</i> 17: 243-253.	RSPB	Q11
	Brown, D. et al. (2015) 'The Eurasian Curlew-the most pressing bird conservation priority in the UK?', <i>British Birds</i> , 108(11), pp. 660–668.	BASC	Q9
C	Capstick, L. A. (2018). Variation in the effect of corvid predation on songbird populations. Unpublished PhD thesis, University of Exeter.	GWCT	N/A
	Cowx, I. G. [Ed] (2003). <i>Interactions Between Fish and Birds: Implications for Management</i> . doi: 10.1002/9780470995372.	BASC	Q10
	Conover, M. R. and Perito, J. J. (1981) 'Response of Starlings to Distress Calls and Predator Models Holding Conspecific Prey', <i>Zeitschrift für Tierpsychologie</i> , 57(2), pp. 163–172. doi: 10.1111/j.1439-0310.1981.tb01320.x.	BASC	Q11
D	Dunn, J. C., Hamer, K. C. and Benton, T. G. (2010) 'Fear for the family has negative consequences: Indirect effects of nest predators on chick growth in a farmland bird', <i>Journal of Applied Ecology</i> , 47(5), pp. 994–1002. doi: 10.1111/j.1365-2664.2010.01856.x.	BASC	Q9
	¹ Defra. (2018). 'Farming Statistics Provisional crop areas, yields and livestock populations At June 2018 - United Kingdom'. Available at: https://assets.publishing.service.gov.uk/government/uploads/s	BASC	Q11

	ystem/uploads/attachment_data/file/747210/structure-jun2018prov-UK-11oct18.pdf		
E	-		
F	Feltham, M. J. (1995). 'Consumption of Atlantic salmon smolts and parr by goosanders: estimates from doubly-labelled water measurements of captive birds released on two Scottish rivers.' <i>Journal of Fish Biology</i> , 46(2), 273-281.	BASC	Q10
	Fletcher, K., Aebischer, N.J., Baines, D., Foster, R. & Hoodless, A.N. (2010). Changes in breeding success and abundance of ground-nesting moorland birds in relation to the experimental deployment of legal predator control. <i>Journal of Applied Ecology</i> , 47: 263-272).	BASC, GWCT	Q9
	Forgrave, A. (2015) Crows vs farmers: age-old battle intensifies as corvid numbers increase. <i>Daily Post</i> , 22 May. https://www.dailypost.co.uk/news/local-news/crows-vs-farmers-age-old-battle-9310144	CA	N/A
G	GWCT (2010) Waders on the fringe. https://www.gwct.org.uk/policy/policy-reports/waders-on-the-fringe	CA	N/A
	GWCT (2019) General Licence survey results.	GWCT	N/A
	GWCT (2014) Position statement on predation control and conservation https://www.gwct.org.uk/policy/position-statements/predation-control-and-conservation/	CA	N/A
	GWCT (2014) Hints for using Larsen traps. https://www.gwct.org.uk/media/372992/Larsen-use-guidelines-2014.pdf	CA	N/A
	GWCT (2021) GWCT Wales response to Call for evidence to inform the review of NRW's approach to regulating the shooting and trapping of wild birds in Wales	GWCT	N/A
	Gooch, S., Baillie, S. and Birkhead, T.R. 1991. The impact of Magpies <i>Pica pica</i> on songbird populations. <i>Retrospective</i>	RSPB	Q9

	investigation of trends in population density and breeding success. <i>J. Appl. Ecol.</i> , 28: 1068-1086.		
	Groom, D. W. (1993) 'Magpie <i>pica pica</i> predation on blackbird <i>turdus merula</i> nests in urban areas', <i>Bird Study</i> , 40(1), pp. 55–62. doi: 10.1080/00063659309477129.	BASC	Q9
H	Harris, S.J., Massimino, D., Balmer, D.E., Eaton, M.A., Noble, D.G., Pearce-Higgins, J.W., Woodcock, P. and Gillings, S. 2020. <i>The Breeding Bird Survey 2019</i> . Thetford: BTO Research Report 726).	RSPB	Q9
	Harris, Catriona M., et al. (2008) 'Impacts of piscivorous birds on salmonid populations and game fisheries in Scotland: a review.' <i>Wildlife biology</i> 14.4: 395-411.	BASC	Q10
	Humphreys, E. M. et al. (2016). 'An update of the review on the impacts of piscivorous birds on salmonid populations and game fisheries in Scotland.' Available at: https://www.nature.scot/sites/default/files/Publication 2016 - SNH Commissioned Report 884 - An update of the review on the impacts of piscivorous birds on salmonid populations and game fisheries in Scotland.pdf .	BASC	Q10
I	-		
J	Jepsen, Niels & Dalby Ravn, Henrik & Pedersen, Stig. (2018). Change of foraging behavior of cormorants and the effect on river fish. <i>Hydrobiologia</i> . 820. 10.1007/s10750-018-3656-2.	Indiv.	Q10
K	-		
L	Laidlaw, R.A., Smart, J., Smart, M.A. and Gill, J.A. 2017. Scenarios of habitat management options to reduce predator impacts on nesting waders. <i>Journal of Applied Ecology</i> 54: 1219–1229).	RSPB	Q11
	Lennox, R.J., Gallagher, A.J., Ritchie, E.G. and Cooke, S.J. 2018. Evaluating the efficacy of predator removal in a conflict-prone world. <i>Biological Conservation</i> 224: 277-289	RSPB	Q8
	Liordos, V. and Lauder, A. W. (2015) 'Factors Affecting Nest Success of Tufted Ducks (<i>Aythya fuligula</i>) Nesting in Association with Black-Headed Gulls (<i>Larus ridibundus</i>) at	BASC	Q9

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O	-		
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Q	-		
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	RSPB (undated) Curlew recovery programme. https://www.rspb.org.uk/our-work/conservation/projects/curlew-recovery-programme/	CA	N/A
	RSPB (undated) Legal magpie control methods. https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/magpie/legal-magpie-control-methods/	CA Indiv.	Q15
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U	-		
V	-		

W	Weidinger, K. (2009) 'Nest predators of woodland open-nesting songbirds in central Europe', <i>Ibis</i> , 151(2), pp. 352–360. doi: 10.1111/j.1474-919X.2009.00907.x.	BASC	Q9
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Appendix 1: Copy of the call for evidence

Call for evidence to inform the review of NRW's approach to regulating the shooting and trapping of wild birds in Wales

Closes 27 Jan 2021

Opened 2 Dec 2020

Overview

Natural Resources Wales (NRW) is undertaking a review of how we regulate the shooting and trapping of wild birds and the destruction of their eggs and nests.

All wild birds in Wales have legal protection. NRW has a number of powers under which we can authorise others to kill or take particular species of wild birds for certain purposes, for example in order to prevent serious damage to crops, livestock or fisheries, to protect public health or safety or to conserve other species of wildlife.

Our review is looking at how we exercise these powers and is made up of several projects or workstreams including:

- Ensuring continuity of service for the delivery of wild bird control licensing while the review is being carried out;
- Review of NRW's approach to wild bird control licensing (general and specific licences), including in relation to the outcome of the current legal challenge to some of our general licences;
- Review of NRW's approach to regulating the shooting or capture of wild birds on SSSIs;
- Review of the impact on Welsh fisheries by fish-eating birds to inform NRW's approach to wild bird control licensing;
- Review of NRW's approach to the regulation of the use of cage traps for the control of wild birds.

More information about the review can be found [HERE](#)

To help inform our review we are encouraging anyone who has evidence relevant to the review to make it available to us. We are interested in evidence which can help us assess how well our current approaches are working, and which can help improve the way we carry out this role to deliver better outcomes for the environment and the people of Wales.

At this stage, we are looking for scientific or anecdotal evidence which we will use, along with other evidence sources including specialist evidence contracts, to carry out a comprehensive review of our approach.

This is not a consultation and therefore we are not looking for views or opinions at this stage. We are not currently proposing any changes to the way in which we license or provide advice on the shooting and trapping of birds or the destruction of eggs and nests. Following our review, any proposals to change the way in which we carry out these functions will be subject to public consultation in 2021, which will give everyone the opportunity to give us their opinions.

Who can submit evidence?

We welcome relevant evidence from any person or organisation.

What kinds of evidence is NRW looking for?

Through this call for evidence we are interested in evidence of the following types:

- Peer reviewed scientific literature (particularly evidence syntheses and reviews);
- Technical / research papers and reports;
- Official publications, such as Government agency, research group or committee reports and working papers;
- Questionnaires undertaken by membership organisations, including membership surveys if accompanied by details of methodology;
- Anecdotal findings, if accompanied by material evidence such as video, photos or written records;
- Expert opinion if accompanied by evidence of experience and/or professional standing.

We are not asking for the following:

- Opinions which are not supported by evidence;
- Ideas, concepts or proposals.

Please note that we cannot accept copies of any material which is subject to copyright restrictions if those restrictions would be breached by you providing us with the material. Please check the copyright status of any documents before sending them to us. If in doubt and if information has been published, it may be preferable to send us only the reference or web link (URL).

We welcome evidence in English and/or Welsh but we may not be able to use evidence provided in other languages. If you have relevant evidence in a language other than English or Welsh, please consider whether you could get it or a summary of it translated, before sending it to us.

Should I send you evidence I have provided in response to other related calls for evidence?

We already have access to the information provided in response to the following calls for evidence:

- NRW call for evidence on use of firearms on land managed by NRW (February-April 2017):

- [Call for evidence](#)
- [Reports](#)
- Defra's call for evidence on the use of general licences to control wild birds (May 2019):
 - [Call for evidence](#)
 - [Report](#)

If you submitted evidence in response to either of the above, you do not need to resend that same information to us. However, the scope of this review is different, so you may have relevant evidence that you have not already provided. You may also have submitted evidence in response to other recent surveys or calls for evidence carried out by a number of other organisations which will be helpful to our review, particularly if it is relevant to and/or specific to Wales. If in doubt, please send us evidence which you think may be relevant to the questions we are asking.

How to respond

- **Using this consultation hub:** This is the best way to respond - start by clicking on the link below which will take you to the questions. If you wish to send us any documents, please email or post them to us at the addresses below. If emailing or sending any documents, please make sure to clearly state your **unique response ID number** which you will receive automatically after submitting your online response. This is so that we can link your online response with any documents you send us.
- **By email or post:** If you don't wish to use the consultation hub, you can submit evidence by email to: **Wildbird.Review@cyfoethnaturiolcymru.gov.uk**, or by post to: **Wild Bird Review Call for Evidence, Natural Resources Wales, Maes y Ffynnon, Bangor LL57 2DW**. If responding by email or post rather than online, we encourage you to read the questions on the online form, to ensure that any evidence you send is relevant. Please include your name, organisation (if applicable) and a means for us to contact you if required.

How your evidence will be used

Please note that in the interests of transparency and openness all responses to this call for evidence, including the names of respondents (but not their private contact details) and reports or documents provided to us, may be shared with other organisations or made publicly available, and may be published on the NRW website, subject to copyright requirements.

Information provided in response to this call for evidence may also be subject to release to the public or other parties in accordance with access to information law (these are primarily the Environmental Information Regulations 2004 and the Freedom of Information Act 2000).

If you want your response kept confidential, please tell us clearly what information you would like to be kept confidential and why. If responding using the online consultation hub, please include this in your answer to Question 19 (the last question). We need to balance requests for confidentiality against our obligations for disclosure. If we receive a request for

your name or any evidence provided to be kept confidential, we will take full account of your reasons for requesting confidentiality, but we cannot guarantee that confidentiality can be maintained in all circumstances.

Privacy and data protection information

[Read NRW's privacy policy.](#)

About you

1. What is your name?
2. It would be helpful if you could provide us with an email address, in case we need to contact you in relation to any evidence you have submitted:
3. If you are responding on behalf of an organisation, please tell us which one:
4. If you are based in the UK, what is the first part of your postcode (for example "LL57")? If you are based outside UK, please tell us where are you based:
5. What is the reason for your interest in the shooting and trapping of wild birds in Wales or destruction of eggs and nests? (please tick all those that apply to you):
 - Academic/scientific/research
 - Animal welfare
 - Falconry
 - Farming – arable
 - Farming – livestock
 - Fishery or fish stock management
 - Gamebirds
 - Landowner/occupier/manager
 - Pest control
 - Recreation
 - Wildfowling
 - Wildlife conservation
 - Other. If other, please specify:
6. Would you like us to contact you directly when we publish information or make any announcements about the review?
Yes / No
If ticking Yes, please make sure you have given us a correct email address above.

Licences to control wild birds

Under section 16 of the Wildlife and Countryside Act 1981 (as amended), NRW may grant licences which authorise the control of wild birds, for one or more of the purposes defined in the Act. The purposes for which NRW may authorise lethal control of wild birds include prevention of serious damage to crops, livestock, fisheries, timber and inland waters, for public health and safety reasons and preventing spread of disease, and in order to conserve other species. Before granting a licence, NRW must be satisfied that there is no other satisfactory solution. Licences must specify the species which may be controlled and the circumstances under which action may be taken.

7. Do you have any evidence of particular species of wild birds in Wales causing problems, such as damaging crops, livestock or fisheries, posing a risk to public health or safety, or harming the conservation of other species?
If Yes, please provide more information here:
8. Do you have any evidence about the effectiveness of lethal methods of controlling wild birds (through shooting, trapping or destruction of eggs/nests) as a way to prevent damage to crops or livestock or for protecting public health or safety?"
If Yes, please provide more information here:
9. Do you have any evidence that lethal control of corvid species (the 'crow family', which includes carrion crow, magpie, jay and jackdaw) leads to increases in populations of other species of birds?
If Yes, please provide more information here:
10. Do you have any evidence that lethal control of fish-eating birds, in particular cormorant and goosander, leads to increases in wild fish populations?
If Yes, please provide more information here:
11. Do you have any evidence about the effectiveness of alternative non-lethal methods of addressing problems that wild birds may be causing, such as damaging crops, livestock or fisheries, posing a risk to public health or safety, or harming the conservation of other species?
If Yes, please provide more information here:
12. Have you (personally, or as an organisation) in the past 5 years used any of NRW's general licences allowing the lethal control of wild birds?
Yes/No
If Yes, please tell us about any problems or difficulties you have had in using NRW's general licences:
13. Have you (personally or as an organisation) in the past 5 years used or applied for one or more specific licences from NRW to control wild birds (of any species) by shooting, trapping or destruction of eggs or nests?
Yes/No
If yes, please tell us here what the licence(s) were for and about any problems or difficulties you had in applying for or using them:

Killing or taking birds on SSSIs

Under section 28 of the Wildlife and Countryside Act 1981, owners and occupiers of land within Sites of Special Scientific Interest (SSSIs) must obtain consent from NRW before carrying out, or permitting others to carry out, operations in the SSSI which may damage its features of special interest. The shooting or trapping of species of birds listed on Schedule 2 of the Act (including wildfowling and shooting of gamebirds) does not generally require a section 16 licence, but if it takes place within an SSSI it may require SSSI consent from NRW.

14. Have you (personally or as an organisation) in the past 5 years applied to NRW for consent or assent (under section 28 of the Wildlife and Countryside Act 1981) to carry out operations which entail killing or taking of wild birds in or near an SSSI?
Yes/No
If Yes please tell us what the consent or assent was for and about any problems or difficulties you had in applying for or using it

Use of cage traps

The use of cage traps is one of the methods which may be used to control wild birds under licences granted by NRW. In this context, cage trap means a trap which has been set with the aim of live trapping a wild bird, alive and unharmed, either for release elsewhere (catch and release) or in the case of certain corvid species (the crow family) to be humanely killed. A number of different traps are used and known by a variety of names including corvid cage trap, multi-catch crow trap, Larsen trap, Larsenmate trap and Larsenpod trap. Use of cage traps to catch wild birds in Wales may in most cases only be done lawfully under a licence issued by NRW under section 16 of the Wildlife and Countryside Act 1981. This includes complying with the conditions specified in the licence, including conditions concerning animal welfare

15. Do you know of any published or unpublished reports, surveys or other evidence about the use of cage traps to catch wild birds in Wales?
If yes, please provide more information here:
16. Have you (personally or as an organisation) in the past 5 years used a cage trap to catch wild birds in Wales?
Yes/No
If yes, please tell us what type(s) of trap you have used, which species you have targeted and for what purpose and whether it was under a general or specific licence from NRW. We would also be interested to hear of any problems you have encountered with licence conditions relating to the use of cage traps:
17. Would you be willing to take part in a more detailed survey on the use of cage traps in Wales?
Yes/No

If Yes, please make sure you have provided a correct email address in response to Question 2.

Finally

18. Do you have any other evidence which you think may be relevant to our review which you'd like to share with us?
If yes, please provide more information here:
19. Do you want any part of your response to this call for evidence to be kept confidential?
Yes/No
If yes, please tell us here what information you would like to be kept confidential and why. Please note that we will always do our best to respect requests for confidentiality, but this cannot be guaranteed in all circumstances:

Almost done...

You are about to submit your response. By clicking 'Submit Response' you give us permission to analyse and include your response in our results. After you click Submit, you will no longer be able to go back and change any of your answers.

We consult because your input helps us to improve our ideas and to shape our work. It enables us to be more effective in the work we do. We consult on new or change to policy and strategy, projects such as proposed flood schemes and also certain types of permit applications.

We want our consultation process to improve our work and be more accessible to you. If you would like to comment on our approach, please feel free to contact us.

Email enquiries@naturalresourceswales.gov.uk or call 0300 065 3000 (Mon-Fri, 9am - 5pm)

If you provide an email address you will be sent a receipt and a link to a PDF copy of your response.

Email address:

Appendix 2: Other information about respondents

Question 2: Email address

Number of respondents providing an email address – 39 (98%)

Question 4: Location of respondents

Postcodes in Wales – 29 (73%)

Postcodes in England – 3 (7%)

Wales-wide or UK organisations – 8 (20%)

Responses from elsewhere in UK or overseas – 0

Question 6: Further direct contact from NRW

34 respondents (26 individuals and all organisations) said they wanted to be contacted directly when any information is published or announcements made about the review.

Question 17: Participation in a possible survey of cage trap use

18 respondents (14 individuals and 4 organisations) indicated they would be willing to take part in a survey on use of cage traps in Wales.

Question 19: Confidentiality requests

Three respondents (all individuals) asked for their name and/or location to be kept confidential. In addition, one respondent asked for a document submitted provided to be kept confidential because it was still in draft, but subsequently provided a final copy with no confidentiality restrictions.