A THINK PIECE BASED ON SCIENTIFIC AND PRACTITIONER EVIDENCE

Managing for More

Why predation management is needed for nature recovery

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Game & Wildlife
CONSERVATION TRUST

As food security becomes increasingly important, nature recovery on a national scale will depend on intervention including habitat creation and predation management.

The Peppering Project in West Sussex has reversed the decline of red-listed species alongside profitable farming by applying the three-legged stool of habitat creation, winter feeding and predator control.

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CONTENTS

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INTRODUCTION

Predation pressure is a very real threat to the conservation of many vulnerable species. Losses of eggs and juveniles to predators is a large driver of declines and can prevent successful species recovery[1,2]. there is consensus that declining and threatened species should be a conservation priority and that, where reasonable action can be taken to help conserve these species, it should be. However, this agreement is often overshadowed by debate surrounding whether predation management should be endorsed and at what intensity. In order to be effective and therefore ethical, it is essential that predation management for biodiversity conservation should be able to make use of the most appropriate methods, including lethal control, provided it is carried out according to the principles explained below.

In the UK breeding curlew are now largely confined to islands and areas where predation management takes place. They are likely to be extinct in Wales in seven years.

KEY MESSAGES

1. **Scientific evidence supports predation management as a conservation tool**
   Robust scientific studies by the GWCT and other research bodies carried out over the past 40 years, shows that predation management is an essential component in stabilising and increasing certain vulnerable prey species. This is a change from much of the 20th century when the general view among scientists was that predators mainly took the excess production or "doomed surplus", so did not impact on the overall population.

2. **Prey and predator balance has shifted**
   The reasons why the prey/predator balance has shifted is complex and includes a reduction in suitable habitat for prey species, human disturbance, climate change, lack of apex predators, which previously controlled generalist predators and increased availability of anthropogenic food sources. We don't yet know why predators have increased to such an extent in the UK and more research is needed. For example, GWCT scientists are currently researching what is causing increased numbers of foxes in parts of the South of England.

3. **Urgent need to save vulnerable species**
   Because the balance has shifted, it is more urgent than ever to address the reasons for the reduced number of red-listed prey species beyond habitat loss. Unless action is taken, more local populations will become extinct and nationally they will be reduced to smaller and more isolated areas.

4. **It's a global issue affecting a wide range of species**
   The problem of prey/predator relationships is faced by conservationists in all parts of the world and affects not just ground-nesting birds but also mammals, reptiles and fish. For this reason, UK conservation organisations carry out the lethal control of native predators on an annual basis to protect vulnerable species, though they sometimes differ on what approach they regard as effective.

5. **Responsibility to future generations**
   As a result of the prey/predator imbalance, we are faced with tough choices, we have to take responsibility for both action and inaction in the context of a highly managed landscape and increased disturbance from human activity. We have to ask ourselves what do we want for future generations. For example carrion crows, curlews and lapwing or just carrion crows?

6. **Must be part of a three-legged stool**
   Predator control should not be carried out in isolation, but as part of a three-legged stool of conservation. Without provision of suitable habitat and food, it will fail to increase or maintain prey populations and is, therefore, unjustifiable. Equally, the provision of perfect habitat acting as a 'honey pot' and attracting vulnerable species to it without supporting predation management is both unethical and a waste of resources. In such cases, lethal control of generalist predators needs to be funded as part of an integrated conservation plan. Mitigating the impact of disturbance and disease is an additional and increasingly important part of the package.

7. **Monitored and proportionate**
   Similarly, it must be proportionate, outcome focussed, carefully monitored and adapted to particular circumstance. If, for example, the number of lapwing chicks eaten by carrion crows on a water meadow is preventing recovery, the control efforts should be increased accordingly. Not to do so is potentially amounts to killing a small number of predators for no gain. At the same time, if increased lethal control is failing to have a positive impact on prey productivity, it should be discontinued in favour of addressing the root causes of predator abundance and additional limiting factors.

8. **Targeted around the breeding season according to strict codes of practice**
   In keeping with this, predator control should always be, highly targeted and applied according to the law and strict codes of practice with

Curlew with chicks © David Mason

the specific aim of relieving the pressure on prey species during the breeding season. Practitioners should only use devices that meet the strict welfare standards of the Agreement on International Humane Trapping Standards (AIHTS). Moreover, the approach should be consistent over time. To carry it out on an ad hoc basis will expose prey populations to increased risk, fail to achieve the desired outcome. There is no evidence that predator control has reduced the national population of native predator species and this should never be the aim.

9. Wildlife managers should have legal access to the most appropriate measures

Working Conservationists should have access to the full range of species management tools including non-lethal methods such as electrified fencing and diversionary feeding, contraception and lethal control methods including shooting and trapping. Measures should be taken including habitat improvement to minimise the need for lethal control, but to rely solely on methods such as fencing or cages around nesting sites is not always practical, affordable or adequate, especially when protecting chicks.

10. Need for adaptive evidence-based policy within reason

An adaptive approach must be taken by policy makers and practitioners whereby as scientific understanding develops, so does best practice. Any change in policy towards predator management must be based on the quality of scientific evidence. Increasingly, political decisions to restrict certain practices or take species off the General Licence for conservation purposes appear to be driven by ideological motives, putting at risk the survival of vulnerable species. Equally, unrealistic requirements for evidence provision before predation management is permitted, can put prey species at risk. For example, we know that magpies predate on songbirds but proving the impact of a particular predator on a specific prey species is not always experimentally possible.

11. Species protections should be subject to review

Illegal killing of wildlife should not be tolerated in any circumstances. At the same time, it is wrong that vulnerable species should suffer from the failure of the licensing system for control of protected predators, either due to stifling bureaucracy or political pressure. Moreover, protection of some species has resulted in them no longer being vulnerable. Therefore, the level of protection for predators should be reviewed based on increases and abundance of population and their impact on prey species with the overall aim of preventing extinction and increasing biodiversity.

12. Ideological positions risk threatening the survival of threatened species

There is an increasing risk that ideological prejudice, blind to the scientific evidence, is threatening conservation efforts and shaping policy decisions.

NB: Predation management can include both lethal and non-lethal control of predators. Non-lethal control includes: electrified fencing, diversionary feeding, and habitat management to reduce the likelihood and impact of predator-prey interactions. In this article, predator control is the term used to describe the legal, lethal control of abundant generalist predators through methods such as shooting and trapping. Both approaches can, and are, used to manage the impact of mammalian and avian predators. ■

Golden plover chick © Sandra Standbridge/Shutterstock.com

Predation management is widely recognised as a vital conservation tool, which can both stabilise and boost populations of vulnerable prey species.

Trends recorded at the Otterburn Upland Predation experiment in Northumberland suggested that, after ten years without predator control, curlew numbers would likely drop by 47% and lapwing and golden plover (pictured) by 81%.

WHY PREDATION MANAGEMENT IS NEEDED FOR NATURE RECOVERY

In the Avon Valley in Hampshire, privately funded gamekeeping has played a key role in reversing the decline of lapwing. Where there is no gamekeeper, agri-environment scheme funding for lethal predator control could achieve similar success on a landscape scale at a relatively low cost.

SCIENTIFIC EVIDENCE SUPPORTS PREDATION MANAGEMENT

Robust research by the GWCT and other scientific bodies carried out over the past 40 years shows that predation management is a vital conservation tool, which through lethal and non-lethal control measures can both stabilise and boost populations of vulnerable prey species[3–8] such as capercaillie[9–11], waders[12–21], grey partridge[22,23], songbirds[24,25], and hares[26–28]. Our latest research continues to support this[17]. A recent peer-reviewed study showed that curlew breeding success was four-fold higher on moors where predation management took place and similar differences were apparent in other wader species[17]. Conversely, studies also show that where lethal predator control ceases, numbers of many species sharply decline, including golden plover, red-listed lapwing and globally near threatened curlew. The Otterburn Upland Predation Experiment, among others[12,19,29], demonstrated that year-round control of foxes and crows resulted in breeding numbers of these species greatly increasing, and subsequently falling once lethal control was stopped[3,12,30,31] (see **FIGURE 1**). Trends recorded at Otterburn suggested that, after ten years without predation management, curlew numbers would likely drop by 47% and lapwing and golden plover by 81%.

This is a marked change from much of the 20th century, when the general view among scientists was that predators mainly took the excess production or 'doomed surplus', which were likely to be lost to factors such as over-winter starvation or disease[32,33]. Predators consuming surplus animals are unlikely to have an impact on populations. However, when predation levels rise and losses add to rather than replace other causes of death, predators can limit prey populations and cause them to decline[4,33,34].

PREY AND PREDATOR BALANCE HAS SHIFTED

Many studies report that predator numbers have increased in Europe over the last few decades[34–36], with crows, magpies, and foxes substantially more common than they were a hundred years ago[12]. The UK has the highest density of crows of any

Lapwing with chick © Bahadir Yeniceri/Shutterstock.com

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country in Europe and the third highest density of foxes, following Italy and Spain[21]. Long-term trends from the National Gamebag Census, Breeding Bird Survey, and other reviews tell us that fox and crow numbers have steadily increased since the 1960s[4,21,37,38] with numbers of stoat, weasel, mink, and common avian predators also rising in this time[21]. In the last 40 years, predation of oystercatcher, lapwing, black-tailed godwit, curlew, and redshank nests has increased by around 40% across Europe[36], with numbers of avian predators now far outweighing those of red-listed waders[39]. As overall predator numbers have risen substantially, prey numbers have dramatically declined (see **FIGURE 2** overleaf).

Since 1970 the UK has lost 73 million wild birds[41], and farmland species have shown the biggest decline overall with 63% of species showing a decrease[42]. This, combined with habitat loss, has caused a huge reduction in range for many once-widespread species. For example, breeding curlew are now largely confined to moorland where predator control takes place, and islands, where there are few predators present[17]. They are reduced to one or two breeding pairs on former strongholds of Dartmoor and south-west Scotland, and at the current rate it is estimated they will become extinct in Wales by 2030[43]. Conservation organisations often state publicly that predator control should always be a last resort. This position is understandable, but no good last minute and therefore too late. Early deployment may be much more effective in certain circumstances.

The reasons why the prey-predator balance has shifted are complex and include: a reduction and fragmentation of habitat for prey species; changes in land use patterns more suited to generalist predators; urban expansion; human disturbance; climate change; and lack of apex predators – all leading to added pressures on prey species and increases in generalist predator abundance[15,21,44]. We don't yet know for sure why predators have increased to such an extent. Ongoing GWCT research indicates it is a complex picture with no one predominant food source and anthropogenic food comprising 12-15% of fox diet on one study area. We are currently undertaking research to discover why there are now so many foxes in parts of the south of England. Gamebird releasing is often blamed for fuelling the fox population to the detriment of wild prey species. However, early indications from a two-year study comparing ten release sites and eight non-release sites are that there is no difference in the activity of foxes. So before reaching to conclusions about what's led to the increase in the UK fox population, more research is needed.

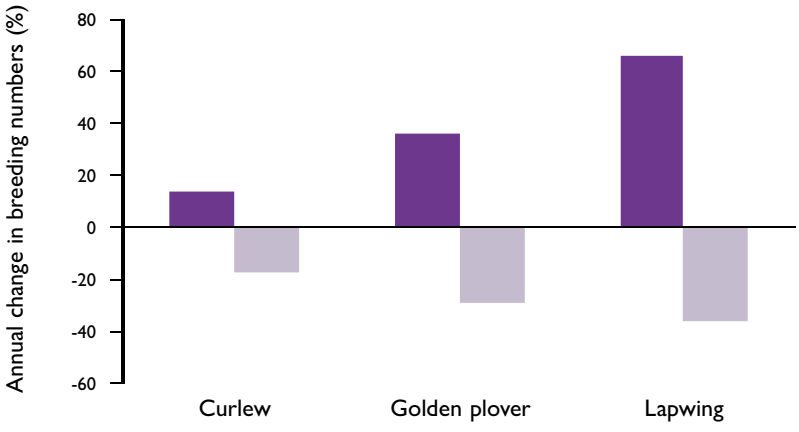


FIGURE 1

Changes in abundance of ground-nesting birds monitored as part of the Upland Predation Experiment after controlling for site and year effects[12].

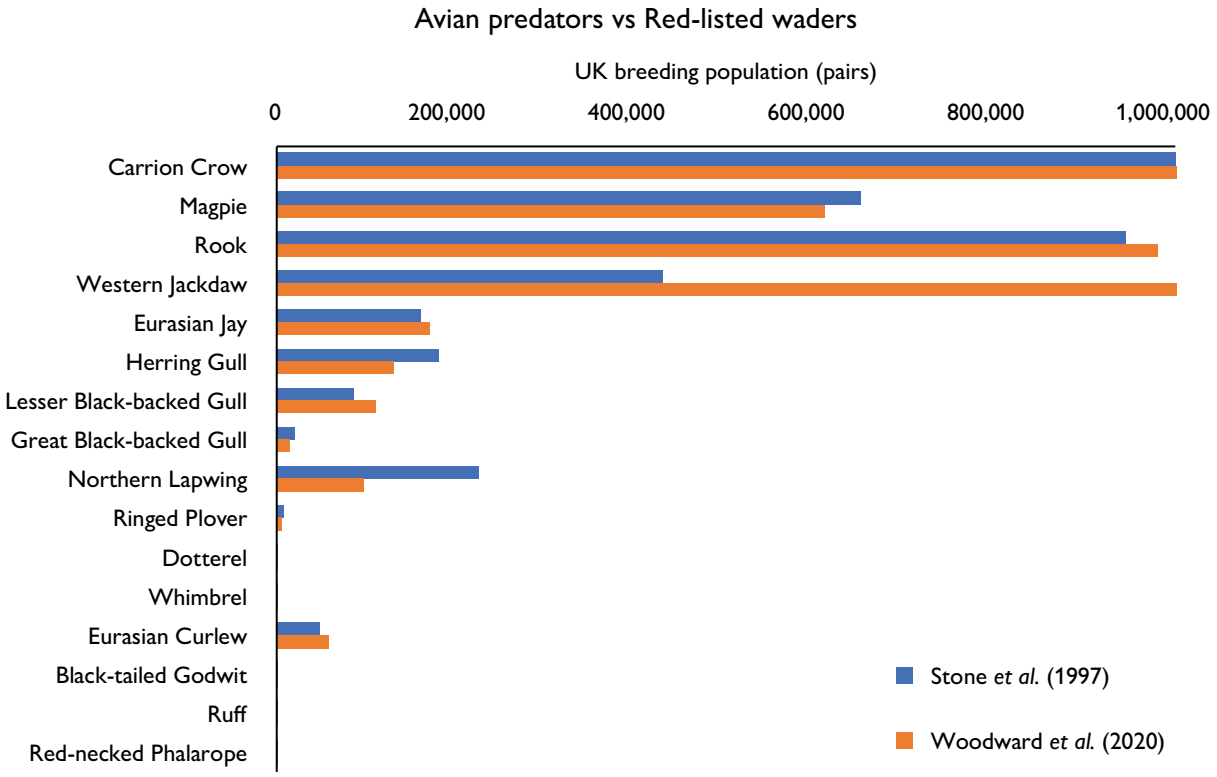


FIGURE 2

UK breeding population numbers for wading birds and their avian predators[39,40].

PREDATION IN NUMBERS

357,000
FOXES

1 MILLION
CARRION CROWS

40% INCREASE
IN WADER PREDATION

Carrion crows rob a curlew egg. Between 1970 and 2014, the UK crow population grew by 99%[21]. © Elli Rivers

URGENT NEED TO SAVE VULNERABLE SPECIES

It is more urgent than ever to address the reasons why amber and red-listed prey species are declining. Unless action is taken, local populations will become extinct and national populations will be reduced to smaller and more isolated enclaves, unable to sustain themselves and too remote for most people to access.

A large proportion of the research investigating the impact of predation on threatened species looks at red-listed ground-nesting birds, with one review finding that breeding bird success increased by 71% in areas with predator control[6]. Over half of the studies looking at waders report that 50% of clutch failures are attributable to predation alone[45], with efforts to reverse wader declines typically limited by nest and chick predation[46]. Figures vary across different pieces of research, but in one study as many as 97% of curlew nest failures were the result of predation by mink, foxes, gulls, and crows[47], with curlew numbers 2-3 times higher on moors where predator control is carried out[3,14,16–19]. On average, numbers of lapwing and golden plover are 3-5 times higher[14,19] when predators are controlled, with their breeding success also improving[3]. Densities of red and black grouse, common snipe, greenshank, and meadow pipit also improve following predator control[3,14,16–19]. Long-term research demonstrates that grey partridge populations are boosted at least 3.5 times when predators are controlled, with autumn densities and breeding pair densities increasing by as much as 75% and 35% respectively[22,23].

A number of studies highlight that predator control can also greatly benefit birds of prey such as hen harriers[19], with the birds successfully rearing chicks 80% of the time when generalist predators are controlled, compared to just 38% of the time when they are not[48]. Merlin are known to do well on moors where there is a combination of habitat management and predator control[49], which the GWCT's Merlin Magic project has been investigating. Species such as buzzard, short-eared owl, and black-headed gull are also known to benefit from predator control[14,19,50].

Some mammals can also be positively affected. Several studies from GWCT demonstration sites such as Salisbury Plain, Loddington, and Royston reveal brown hare numbers rising to 28.5-52.3 hares per km^2 when predators are controlled, compared to just 7.3-11.9 hares per km^2 when they are not[26].

In the uplands, mountain hares are also known to benefit[27,28]. Additionally, there is some evidence that generalist predator control can support rarer predators. For example, pine martens may be limited by fox predation in some places and contexts[51] with remains sometimes found in fox scats[52,53].

HABITAT IS NOT ENOUGH ON ITS OWN

Though there is an urgent need for predation management to be included in public sector funded species recovery programmes, it should not be carried out in isolation but as part of a cohesive "three-legged stool" of conservation action: habitat provision, year-round availability of food, and predator control. Take away a leg, and the stool falls over. Without the provision of suitable habitat and food, predator control will fail to increase or maintain prey species productivity and is, therefore, unjustifiable. Indeed, poor habitats and fragmentation can actually lead to predation effects being more severe[35]. Therefore, habitat quality should be addressed first to ensure there is sufficient food, winter cover, adequate breeding sites, freedom from human disturbance, and protective cover for prey species, with measures taken to make the landscape less 'predator friendly'. For example, this can be done by creating or improving hedgerows, removing dead trees and fence posts, which act as perches and better managing commercial forestry and amenity woodlands[4,15,21,54].

However, in many situations, habitat management or creation alone is not enough to improve the conservation status of many species[4]. Notably, populations of waders and other ground-nesting birds have continued to decline despite the creation and maintenance of suitable habitat[4,21,46,55,56]. Agri-environment schemes on their own, without predator control, also seem unable to give rise to an abundance of breeding waders or produce a significant improvement in sparse populations[12]. Moreover, the provision of good quality habitat without predator control can be counterproductive by creating a 'honey pot' effect, attracting vulnerable species only to expose them to high levels of predation. In this situation, lethal predator control should be considered to improve breeding productivity[1,4]. Where predator numbers are high, a three-legged stool approach is likely to be needed[57].

Fox disturbing a curlew captured by a GWCT nest cam in the New Forest, Hampshire. © Elli Rivers/GWCT

A good illustration of this is the Waders for Real project in the Avon Valley, where the GWCT has been monitoring lapwing and redshank since 1996. These species had been declining, and by 2015 there were just 61 breeding pairs of lapwing remaining, despite the best efforts of Natural England to recruit farmers into agri-environment schemes[85]. In 2015, GWCT ecologists and advisors began working with local farmers, gamekeepers, and river keepers on a landscape scale to improve habitat and protect the remaining breeding birds. A key part of the initiative was increasing legal control of foxes and crows during the breeding season, focusing efforts in the areas with the most lapwing breeding activity. By 2019 the number of pairs in the study area reached 105 and last year's counts showed they had doubled since the start of the project.

Another example of the efficacy of the three-legged stool approach is the positive impact on local farmland bird populations of a combination of supplementary winter feeding, habitat improvement, and control of generalist predators on Loddington Estate at the GWCT's Allerton Project in Leicestershire. In the first eight years of management, from 1992-2000, breeding songbird abundance increased by 102%[58]. Despite songbird numbers rising so successfully in response to game management (FIGURE 3), they showed a gradual decline once feeding and predator control were stopped, having fallen to just 30% above the 1992 baseline by 2011[58].

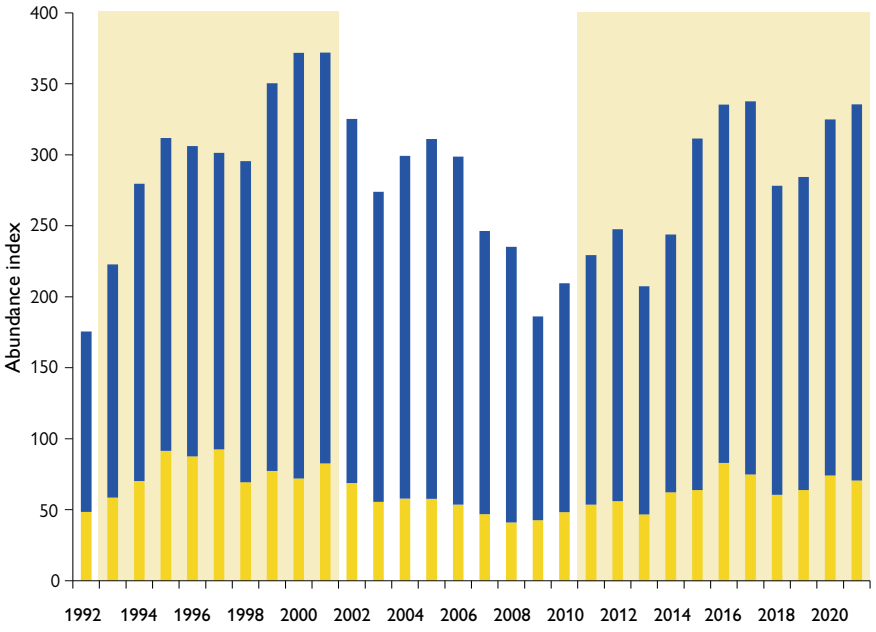


FIGURE 3

Changes in the abundance of songbirds at Loddington Estate in response to different management approaches[86].

EFFORTS MUST BE MONITORED, PROPORTIONATE, AND ACCORDING TO BEST PRACTICE AND THE LAW

Predation management – particularly lethal control – must be legal, ethical, proportionate, outcome-focused, and carefully monitored. There is no evidence that predator control has reduced the national population of native predator species, and this should not be the aim[7]. Working Conservationists must ensure there is a genuine need for and benefit sought by lethal control, and should review its intensity and results regularly[59]. This includes understanding the local predator populations having an impact at their site before embarking on management or control strategies[59,60], so that lethal control is appropriately targeted and only completed, if necessary, to achieve a specific outcome[46]. What works in one part of the country may not elsewhere.

For example, nest and chick monitoring undertaken by GWCT scientists in certain parts of the New Forest, suggests that lethal control of foxes is not sufficient to bring about curlew recovery. This is likely to be partly due to high levels of chick predation by protected avian predators. In addition, there is an unusually high population of foxes in the area due to the ready availability of anthropogenic or human-derived food sources. These include waste from fast food outlets and domestic refuse and an increase in abandoned dog faeces, which has been found in extensive fox stomach analysis. Furthermore, disturbance by dog walkers in the breeding season is also likely to be having a detrimental impact on breeding success in that area of the New Forest.

Lethal control should always be highly targeted and applied according to the law and strict codes of practice, with the specific aim of relieving the pressure on prey species during the breeding season, which for wild birds is January to July[7]. Practitioners must follow the relevant sections of the Wildlife and Countryside Act 1981 and abide by the terms of the General Licences and individual licences. They must follow the codes for rodenticide use, night shooting and trapping pest birds and mammals, including those for the use of humane cable restraints (HCRs) and Larsen traps.

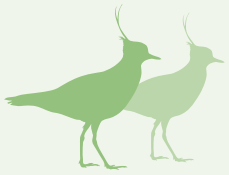
Lethal control should be consistent over time to produce results beneficial to prey species, rather than short-term, temporary results unlikely to be helpful[6]. Regular monitoring of predators and their impacts throughout and following the control period is essential, as results can sometimes be hard to predict. If, for example, carrion crow numbers increase on a water meadow and the number of lapwing chicks being killed is preventing recovery, control efforts should be increased accordingly to reduce the impact of crow predation. Failure to proportionally increase control efforts is potentially unethical, as it amounts to killing a small number of animals for little to no conservation gain[20]. In certain cases, control of several predator species in one area has been found to be more effective than the control of single predators[6,8,20,21]. Equally, if removing one 'rogue' predator will achieve the desired result for threatened species, there may be no need to

PREDATION IN NUMBERS

102% INCREASE IN SONGBIRDS WHEN GAME MANAGEMENT STARTED

61 PAIRS OF LAPWING AT BEGINNING OF WADERS FOR REAL

122 PAIRS OF LAPWING AFTER SEVEN YEARS



control more. Inappropriate lethal control is likely to subject prey populations to temporary benefits and potentially increased risk[20,24], fail to achieve the desired outcome and so is unjustifiable. Furthermore, conservation organisations sometimes express the view that predator control should only be maintained until the natural balance is restored. It may be that the level of intensity can be reduced over time, but in highly managed landscapes the desired equilibrium is unlikely to be achieved and an element of management will always be required.

Fox predation can be a limiting factor on hare recovery.

WILDLIFE MANAGERS SHOULD HAVE LEGAL ACCESS TO THE MOST APPROPRIATE MEASURES

Land managers have made successful use of both non-lethal and lethal methods to reduce the impact of predation on prey species[61] and this should continue uninhibited. Working Conservationists should have access to the full range of existing predation management tools including non-lethal methods such as electrified fencing, diversionary feeding and lethal control methods including shooting and trapping, to ensure they can achieve their conservation aims. A combination of measures should be used as needed[46] and as practical within time and financial means[62]. Practitioners should use the best devices available including those that meet the strict welfare standards of the Agreement on International Humane Trapping Standards (AIHTS), such as the humane cable restraint. HCRs, if applied correctly, will not cause suffering to the target species[63]. They should be recognised as distinct from older snares and acknowledged as a vital conservation tool in certain landscapes and seasons[64]. For example, around the time that birds are rearing broods, crops grow tall and make fox control with a rifle less effective. HCRs offer a method that can be reliably deployed when other methods are unusable. For red-listed species like curlew, skylark or grey partridge, every conservation measure available should be deployed. Equally, lethal control of predators becomes unethical, if you exclude HCRs in areas where threatened species recovery depends on their use. There is a risk of this where conservation organisations are reluctant to use legal trapping methods for fear of negative publicity.

Measures such as habitat improvement, food provision, and disturbance reduction should be taken to minimise the need for lethal control, but to rely solely on methods such as fencing or cages around nesting sites is not always practical, affordable, or adequate, especially when protecting chicks. Electrified fencing can be a useful tool for reducing predation of nesting colonies by mammals but is ineffective at reducing predation by other birds, with other methods such as nest caging, sound deterrents, and use of predator-proof nest boxes having largely untested, varying success[4].

Lethal control can be an emotive and controversial conservation tool but may be the only feasible option in some landscapes for the benefit of certain species[46]. It is not just used by farmers and gamekeepers, but also on designated sites and nature reserves, being supported by public-sector funding in some places[61]. For example, following efforts on Lundy Island through the Seabird Recovery Project between 2002 and 2004 to eradicate non-native black and native brown rats, the island was declared rat-free in 2006[65–68]. As a result, the number of red-listed puffins increased from 13 birds in 2000 to 375 in 2018, with the number of amber-listed Manx shearwaters rising from 297 pairs to 5,504 in the same period. By 2021 there were over 26,000 seabirds breeding on Lundy Island, compared to just 7,351 prior to rat eradication, including 848 puffins[65,66,69]. Some animal rights groups argued it was unethical to favour one species over another, but the cull was generally accepted by the public, the media, and environmental NGOs[67,70–72].

Red fox holding caught hare © WildMedia/Shutterstock.com

PREDATOR CONTROL CAN BE AFFORDABLE IN THE LONG TERM

Objections are sometimes made to predator control on the grounds that it is too expensive to fund in the long term. There are instances where the volume of predators is so high that the resources required to manage them are unaffordable. In such cases efforts may be better spent addressing the root causes of the imbalance in prey/predator populations. However, in many parts of the country, it has been carried out consistently for decades supported by private investment. In the Avon Valley Waders for Real project (referred to above), privately funded keepering played a key role in reversing the decline of lapwing and redshank in the catchment, an effort that continues today. Where there is no gamekeeper, agri-environment scheme funding for lethal predator control could achieve similar success on a landscape scale at a relatively low cost. Analysis shows that the cost of lethal control can be broadly equivalent to the cost of habitat management for the same area of land[87]. Paying a warden to carry out predator control could be considerably cheaper than employing non-lethal control measures such as fencing on a catchment scale. There are also practical considerations that could have financial implications, such as managing fencing and cages in a farmed environment.

Moreover, whatever the cost, failure to fund predator control – where it is necessary – is a false economy and potentially wastes large sums of public money. An example is capercaillie conservation. The species is now largely confined to Strathspey, and as a result of severe national declines is afforded the highest level of protection under UK and European law. This means considerable funds have been spent trying to save the species in the UK, including a £5 million EU LIFE project in one of its last strongholds, Abernethy Forest. Despite successful efforts to improve habitat, productivity continues to decline along with the overall population, which now stands at 304[73]. A recent NatureScot report listed predation as one of the key limiting factors on capercaillie productivity[74] and yet no predator control is carried out in Abernethy Forest[75] or much of the surrounding area, putting the species at risk of extinction and effectively rendering any further funding pointless. Furthermore, around 72% of the UK is farmed or privately managed[76], with land protected primarily for nature only making up around 8% of the UK[77,78]. Therefore, if investment in conservation is focused only on reserves, it may support small, isolated populations, but will fail to achieve species recovery at a national level.

NEED FOR ADAPTIVE SCIENCE-BASED LICENSING POLICY INCLUDING PRACTITIONER EVIDENCE

An adaptive approach must be taken by policy makers and practitioners – whereby as scientific understanding develops, so does best practice guidance. Any change in policy towards predator management must be based on robust, high quality scientific evidence. Increasingly, political decisions to restrict certain practices or take species off the General Licence for conservation purposes appear to be influenced by ideological campaigns, threatening the survival of vulnerable species. Equally, unrealistic requirements for evidence provision before predation management is permitted also puts prey species at risk. We know that magpies often predate songbirds[79–81] but proving the impact of a particular predator on a specific prey species is not always experimentally possible, or quick to demonstrate. Policy needs to take observational and anecdotal evidence into account and be flexible enough to allow practitioners to act in changing scenarios.

For example, when the General Licences (GLs) were suspended in 2019, the GWCT asked its members to submit anecdotal evidence of predation of farmland birds by species previously permitted to be controlled. It received 2,951 responses from expert practitioners, of which 514 reported problems with rooks and 423 with jackdaws either taking grain intended for conservation purposes, damaging cover crops, or predating the eggs of red-listed species. In spite of the GWCT submitting this evidence to the consultation, in November 2020, Defra announced that rooks and jackdaws could no longer be controlled under the GL40 the General Licence "to kill or take wild birds to conserve wild birds and to conserve flora and fauna"[82]. This required practitioners to apply for an individual licence for the conservation of red-listed species. A GWCT advisor with 25 years of experience running a grey partridge recovery project applied for such a licence. He provided eyewitness accounts of jackdaws and rooks in his conservation area, feeding on the grain he had put out for red-

listed wild grey partridges, but was denied the licence on the grounds of "insufficient evidence". Unreasonable demands for evidence that would have been impossible to provide, therefore threatened a quarter of a century of conservation efforts[83].

Other countries have restricted predator control to an even greater extent than the UK. Despite huge resources being put into habitat improvement in the Netherlands, efforts in the north of the country to save the black-tailed godwit – Holland's national bird – are failing due to the protection afforded to stone marten. This predatory species was protected in 1949 but, until relatively recently, was absent from Groningen province, where godwit conservation efforts are focused. In the past ten years, they have moved over the border from Germany and are now widespread and a limiting factor in wader recovery, yet conservationists are still not permitted to control them[84].

Illegal killing of wildlife should not be tolerated in any circumstances. At the same time, it is wrong that vulnerable species suffer due to the failure of the licensing system for control of protected predators, either due to stifling bureaucracy or political pressure. Protection of some species has resulted in their being no longer vulnerable. Therefore, to maintain biodiversity, the level of protection for predators should be continuously reviewed and based on increases and abundance of population, and their impact on prey species.

PREDATION IN NUMBERS

2,951
RESPONSES TO CONSULTATION

514
REPORTED ISSUES WITH ROOKS

423
REPORTED ISSUES WITH JACKDAWS

In the Netherlands restrictions on predator control threaten the black-tailed godwit, Holland's national bird.

Rook with a lapwing egg. In 2020 Defra took the species off the General Licence designed to conserve wild birds.

Black-tailed godwit © Firat Dulger/Shutterstock.com

...we are faced with tough choices, and have to take responsibility for both action and inaction in the context of highly managed landscapes impacted by centuries of human activity.

RESPONSIBILITY FOR FUTURE GENERATIONS

In conclusion, we are faced with tough choices, and have to take responsibility for both action and inaction in the context of highly managed landscapes impacted by centuries of human activity. **What do we want for ourselves and our grandchildren? Do we want a countryside alive with a wide range of birds and mammals, or are we happy to accept a dwindling number of species dominated by generalist predators?** If we aim for a balance, learn from the past, make use of evidence-based tools and methods, and work together on a landscape scale, we can achieve a shared vision of a thriving countryside rich in biodiversity for generations to come[12,46]. ■

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About us

The Game & Wildlife Conservation Trust is the home of working conservation. We believe that wildlife can thrive if we focus on integrating it alongside other land uses. From producing food to providing space for nature, we understand these need to happen in the same place. To balance these needs we use our outcomes approach, and its importance is growing. The GWCT is unique in the breadth of research it carries out seeking to ensure that game management continues to be sustainable and to benefit wider wildlife at a landscape scale.

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