A PEOPLES MANIFESTO FOR WILDLIFE

DRAFT ONE - CHRIS PACKHAM ET AL

A People's Manifesto For Wildlife
Draft One
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This manifesto has no party-political bias.

It is critical of governance and its affiliation is to the wildlife and people of the UK.

This manifesto is controversial.

It is informed by sound science and fact.

This manifesto is entirely financially independent.

It has no economic dependence or influence.

This manifesto is immune from lobbying.

It has not been influenced or funded by any vested interest groups.

This manifesto is political.

It calls for change in the way we treat nature in the UK - this will require strong and swift government action.

I believe that conservation and environmental care should be wholly independent from any party politics.

I believe we need a greater political consensus on what needs to be done for nature – saying ‘we care’ is not enough – we need informed action.

I believe conservation policies should be informed by sound science and fact but also motivated by the desire to be kinder and fairer to the living world.

I think that lobbying from vested interest groups working to discredit such facts should be terminated immediately.

I believe that an independent public service body should be established to oversee all conservation and environmental care and that it should receive significant, long-term, ring-fenced funding, so that it is independent from the whims of party politics and different periods of government.

That body – **LIFE UK** – would thus address issues from climate change, biodiversity loss, landscape and conservation management through to wildlife crime, all of which (and more) are discussed in this manifesto.

As the UK’s nations have devolved government, **LIFE UK** could be publicly funded with an independent tax akin to the BBC licence fee, payable by all UK adults and similarly scaled. We want and need our wildlife back – so we will all have to pay fairly for it. But we want results too – so its conservation must be independent, informed, efficient and deliver real benefits in real time.

We should all invest in our wildlife.

Let’s end the war on wildlife.

‘Between 1970 and 2013, 56% of UK species declined. Of the nearly 8,000 species assessed using modern criteria, 15% are threatened with extinction. This suggests that we are among the most nature-depleted countries in the world.

Of the 218 countries assessed for ‘biodiversity intactness’, the UK is ranked 189, a consequence of centuries of industrialisation, urbanisation and overexploitation of our natural resources.’

- **State of Nature Report, 2016**

It’s horrifying. Depressing. Disastrous. And yet somehow we have grown to accept this as part of our lives – we’ve normalised the drastic destruction of our wildlife.

To our shame, we are careless with our language. We say that ‘we’ve lost 97% of our flower rich meadows since the 1930s’ or that ‘we’ve lost 86% of the Corn Bunting population’. We speak of ‘a loss of 97% of our Hedgehogs’. Loss, lost… as if this habitat and these species have mysteriously disappeared into the ether, as if they’ve accidentally vanished. But they haven’t – they’ve been destroyed.

Our lazy, self-excusing terminology is representative of our chronic acceptance of such appalling catastrophes. We share these shocking statistics amongst ourselves like a vicious game of top trumps – to the extent that they have lost their meaning. We’ve forgotten that they are a death toll, that they are the dwindling voices of vanished millions, a tragic echo of a recent time of plentiful life.

It’s time to wake up. We must rouse ourselves from this complacent stupor, because we are presiding over an ecological apocalypse and precipitating a mass extinction in our own backyard. But – vitally – it is not too late. There is hope we can hold to, and there is action we can take.

In July this year I conducted a UK Bioblitz and with the help of 785 recorders and 13 recording centres our team clocked up a notable 4828 different species. Lots of exciting plants, animals and fungi – but also lots of passionate, energetic, skilful, imaginative and creative conservationists. Some were in gardens, some in community wildlife areas, others on wildlife-friendly farms or big flashy nature reserves – all were making a difference in their own important and impressive ways.

We have plenty of tools in the conservation box – we can rebuild, restore, reinstate or reintroduce. But we have one collective handicap – we are shying away from seeing the bigger picture. Too often we distract ourselves with projects which work, but which are too small to stop the rot. Another successful dormouse re-introduction is great, but it's not going to help redress the degradation of our landscape. We know the bigger issues we need to deal with, and we must summon the courage to face them and fight to fix them.
Together.

So all you farmers, foresters, reserve wardens, teachers, students and children, all of you 'ologists', scientists, artists, writers and bloggers, you activists, volunteers, gardeners, can everyone please see that this is not your last chance to make a difference – it's ours. The UK's conservation community cannot be selfish. We must let bygones be bygones, all put our egos back in the box and forget about corporate strategies or 'our competitors'. We do not all have to agree about all the details – but we must agree on a shared agenda. We must stand shoulder-to-shoulder with all of those who care enough to take some action and be part of making a difference.

Our wildlife needs us – and it needs you more than ever.

MINISTRY FOR NATURAL CULTURE AND EDUCATION

DR ROBERT MACFARLANE

READER, UNIVERSITY OF CAMBRIDGE

“A culture is no better than its woods” wrote WH Auden in 1953. Sixty-five years on, Auden’s words carry a very modern warning. As the living world is diminished around us, so we are also losing language, stories, songs, poems, dreams and hopes. We need nature for its own sake above all, but also because it is vital to our imaginations and our spirits. We think *with* nature. We learn *from* it and *in* it, as well as about it.

But shifting baseline syndrome means that each new generation becomes normalised to an impoverished version of the natural world. And a basic ‘natural literacy’ is slipping away up and down the ages, as nature itself slips away. A 2017 Wildlife Trusts survey found a third of adults unable to identify a barn owl, three-quarters unable to identify an ash tree – and two-thirds feeling that they had “lost touch with nature”*. A three-year RSPB research study[1] found only one in five British children to be “positively connected to nature”.

How to bring nature back into the heart of culture and education in this country? At the core of the change that is needed are wonder, knowledge and regular positive engagement: “We change people by delight and pleasure” (St Thomas Aquinas). We will not save what we do not love – and we rarely love what we cannot name or do not see.

Heart, head and hand must all be engaged. The huge inequalities in the distribution of access to the natural world need urgent fixing. Nature needs to be seen as a vital part of everyday life – shaping mental and physical health, play, friendship, imagination – rather than as something hived off and distant, to be visited occasionally on a school trip or family outing, or existing as a specialist subset of science.

There are good grounds for hope. Many young people are actively engaged in driving change, especially with regard to the plastics crisis, climate change and biodiversity loss. There are also thousands of small, grass-roots organisations contributing countless small acts of good.

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* The report, carried out by Jordans Cereals and commissioned by the Wildlife Trust, is no longer available online.

The nationwide response to *The Lost Words*, and the grass-roots movement to re-green primary education that has sprung up in response to it, suggests the huge hunger for change that presently exists in communities and individuals. But much larger-scale structural change is needed to close the gap between 'nature' and 'culture' in this county.

PROPOSALS:

1. Rewrite Section 78 of The Education Act to place nature at the centre of the state curriculum from nursery to secondary school.

Section 78 of the Education Act covers the general requirements in relation to the curriculum. Currently, it states that: "the curriculum for a [...] school satisfies the requirements of this section if it is a balanced and broadly based curriculum which:

(a) promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society, and
(b) prepares pupils at the school for the opportunities, responsibilities and experiences of later life."

A recommendation to amend this section to include Nature has already been put forward by a number of organisations. A campaign by Sustainability and Environmental education (SEEd) proposed the addition of a third section: "(c) instils an ethos and ability to care for oneself, others and the natural environment, now and in the future". A similar recommendation has also come from the RSPB and the Wildlife Trusts in their Nature and Wellbeing act, where it is proposed to "include learning to care for the natural environment as a requirement of a balanced and broadly based curriculum for all schools in England".[2]

2. Outdoor learning one day a fortnight, or equivalent, for every child in primary education.

There is mounting empirical evidence that interacting with nature delivers measurable benefits to children, both from a physical, cognitive, psychological and spiritual point of view, as well as improving their ability to focus while learning to work with others.[3,4,5] But children are not the only ones to benefit from this: nature has just as much to gain. Connecting to nature is a strong predictor of children's interests in environmentally friendly practices, and without the opportunity and encouragement to establish this connection, we may be losing an entire generation of future guardians for the environment.[1]

3. Youth-led re-wilding project of scale to be established in the UK, where all decisions are taken by young people aged 12–21.

Rewilding, in conservation biology, is the large-scale restoration of ecosystems where nature can take care of itself. It seeks to reinstate natural processes and, where appropriate, missing species – allowing them to shape the landscape and the habitats within. Rewilding also focuses on creating a balance between people and the rest of nature, so that living systems can provide the ecological functions on which we all depend, and for people to reconnect with nature. This recommendation is already being explored by Action For Conservation, a youth conservation charity working to inspire and empower young people aged 12–18.

4. The John Muir Award which encourages “people of all backgrounds to connect with, enjoy and care for wild places” to be massively extended in scope across the UK.

5. All UK cities and towns to increase their tree canopy cover to 20% (15% for coastal cities), with the planting done by children from local schools.

When viewed from above, the tree canopy cover is the layer of leaves, branches, and tree stems that cover the ground. The advantages of having a larger tree canopy (ie, more trees) in an urban area are many: they cool down the city in summer, absorb carbon dioxide and release oxygen, reduce the amount of particulates reaching the ground, provide shelter and food for urban wildlife, and increase wellbeing. The average urban tree canopy cover in England is 16%.[6] See Ministry for Urban Spaces for more on this topic.

6. Hospitals and hospices in Britain to increase access to and provision of 'nearby nature' for both patients and relatives.

7. Give all primary and secondary school children access to outdoor growing facilities to provide ‘Edible Playgrounds’.

At a time when the disconnect with nature is increasing and obesity among children is soaring, there is an especially urgent need to re-engage children with the origins of food, nutrition, and cooking. Alarming statistics tell us that one in four primary school children thinks cheese comes from plants, bread comes from meat, and fish finger are made from either pigs or chickens.[7] Access to outdoor growing facilities, as encouraged by the Trees For Cities ‘Edible Playgrounds’ initiative, is a crucial first step towards connecting children to the food they eat and therefore to the importance of preserving a healthy environment.

8. Five Ways To Wildness: like the Five-A-Day food recommendation, frequent engagements with nature to become part of our regular ‘diet’.

The body of scientific research looking into the positive effect of interacting with nature is huge, and increasing every year. From physical to psychological, time spent outdoors is likely to make one healthier, more resilient to stress, promote high-order cognitive functioning, enhancing observational skills and the ability to reason.[8] With conditions such as heart disease, diabetes and depression on the increase each year, five-a-day with nature should be an obvious recommendation to anyone wishing for a healthy and balanced lifestyle.

9. The BBC to make a major documentary series addressing the biodiversity crisis.

The ‘Blue Planet Effect’ concerning the plastics crisis has shown the huge potential of culture to shift both public attitudes and policy nationally and abroad. One reason for the worsening of the biodiversity crisis is

that it largely lies beneath public visibility, and its consequences are hard to see or comprehend. A blue-chip documentary series has the power to change awareness and action around biodiversity loss.

10. Instigate teacher-training programmes to train primary and secondary school teachers in outdoor learning.

Outdoor play in contact with nature fosters opportunities for creativity, imagination and social connections. However, according to a government study, 12% of under 16s visits a natural environment less than once a year, and 18% just once a month or less.[9] This lack of access to nature is especially pronounced in children from deprived backgrounds. An entire generation is missing out on time spent outdoors, so more than ever there is a need for schools to provide these important moments of personal and social growth.

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"The modern losses we bewail of the seabird colonies, the insects, the red-backed shrikes, the water voles, they all simply mask a black hole of historic destruction which is so horrifyingly huge that it is almost incomprehensible.

As conservationists study the diminishing delights in intricate detail they commonly fail to understand that these jewels, these fragments, now inhabit greying wastelands which fade with every ticking second.

While we should react with a desperate drive to restore, to heal, to make better, in reality we bicker and viciously squabble. We belittle those who seek to promote change and lose ourselves in a labyrinth of pointless diversion which achieves nothing at all.

We desperately need more conservationists who are independent thinkers. Who ‘do’ rather than witlessly ‘discuss’. Those individuals, who find ways around obstacles with a devilish glee, set examples of lives which are truly worthwhile. Lives for and on behalf of nature."

Derek Gow Wildlife Consultant and Conservationist

MINISTRY FOR WILDLIFE WELFARE

DOMINIC DYER

ANIMAL WELFARE CAMPAIGNER

Wildlife in Britain today is under severe threat. A combination of industrial farming, over-fishing, hunting and shooting is wreaking havoc on species and their habitats from farmland to the hills to the coast.

Despite this grim picture, our system of government continues to allow the levers of power to remain firmly in the control of the farming, fishing, shooting and hunting industries that are doing so much damage to wildlife. The impact of putting the interests of these sectors above that of protecting wild species is catastrophic.

Since 2013, under huge pressure from the industrial farming lobby, the government has wasted an estimated £50 million of public money on a cruel, ineffective and scientifically unsound badger cull.* This failed attempt to stop the spread of bovine TB in cattle has resulted in the largest destruction of a protected species in living memory.**

Despite being one of the most popular pieces of legislation on the statute books, the Hunting Act of 2004 continues to be a target for the pro-fox hunting lobby, who use their political influence to seek to scrap, weaken or sabotage the Act. From the development of trail hunting, which is simply a ruse to mask the illegal hunting of foxes,[1] to use of the 'Research and Observation' exemption in the Hunting Act as an excuse for the continuation of stag hunts,[2] the illegal hunting of wild animals with dogs remains all too common across the British countryside.

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* The last full breakdown Defra produced on cull costs to the tax payer was for the period 2013-2016 (over £23 million).[3] However, these figures are incomplete as they do not include the substantial legal costs of defending the policy in High Court and in the Information Tribunal, nor for carrying out environmental impact assessments, which are rising rapidly. Currently there are 32 cull zones, with rapidly rising police, equipment, monitoring and assembly costs. As a recent freedom of information request revealed, in Cheshire alone in 2017 the police charged the Home Office £831,000 and that was just one of the seven police force areas involved last year.

** A total of 34,103 badgers have been killed since the trials started in 2013, and another 42,100 are expected to be culled in 2018[4], making it the largest deliberate attack on a native protected species in living memory. What's more, 60% of badgers culled in 2017 was killed by free shooting, a method judged inhumane by the British Veterinary Association.[5]

On eastern Scottish Moorland, culling by grouse moor managers and habitat loss has resulted in a catastrophic collapse in mountain hare populations to less than 1% of the level recorded more than 60 years ago.[6] With as many as 38,000 mountain hares being killed on hunting estates across Scotland, these iconic and beautiful animals could disappear completely from parts of the Eastern Highlands in our lifetimes.

The annual commercial seal cull in Canada is rightly the subject of huge international concern, but it will come as a nasty shock to many people to learn that hundreds of seals are also shot every year in Scotland to protect fish farms and wild fisheries.[7] The salmon farming, wild netting and angling industries are worth over £600 million to the Scottish economy every year,[8] but many of these businesses are unwilling to invest in predator exclusion methods, when it is cheaper to obtain a government licence to shoot seals.

For a nation of animal lovers the cruelty inflicted on our wildlife is woeful and widespread – so what can be done?

PROPOSALS:

1. Call an immediate halt to the badger cull.

Bovine tuberculosis (bTB) is a contagious bacterial disease of cattle, but which also affects a large number of mammals in the UK, including badgers, deer, dogs, sheep or, as DEFRA puts it, "nearly all warm-blooded animals".[9] bTB outbreaks in England have been rising since the 1980s,[10] posing a serious problem to the farming industry as they are difficult to control, cost the taxpayers over £100m every year, and cause pain and distress to the infected cattle. Since badgers are known to be implicated in the transmission of the disease, the Government in England decided to first trial and then implement a badger culling policy since 2011. Since then, 34,103 badgers have been killed[3] and an estimated £50 million have been spent, while the science behind the effectiveness of the cull remains unconvincing and non-conclusive. In fact, the largest independent study on bTB, commissioned by Defra and known as the Randomised Badger Cull Trials (RBCT), took 10 years to run and concluded that "badger culling can make no meaningful contribution to cattle TB control in Britain".[11] Both the Independent Study Group from the RBCT and former members from the group also concluded in a number of other publications that "badger culling is unlikely to contribute effectively to the control of cattle TB in Britain".[11,12,13] This is especially true when the economics of the cull are considered. A later analysis noted that although "extensive badger culling could reduce rates in cattle, overall an economic loss would be more likely than a benefit."[14] This is the case because, although proactive culling reduced TB incidence in the specific areas where the cull took place, it increased the incidence in the neighbouring areas, possibly due to induced changes in badgers' behaviour caused by a breakdown of the their territorial system, therefore increasing their movements and contact rates.[15,16,17] Finally, although badgers can carry and spread bTB to cattle, later analysis of the RBCT data showed that once cattle-to-cattle transmission was excluded, only 5.7% of transmissions were badger-to-cow.[18,19] Nonetheless, cull licenses are being granted each year, with 2017 hitting the highest record to date (19,274 badgers culled) and 2018 setting out to more than double that number.[3,4]

2. Launch a publicly funded national badger vaccination programme to reduce the level of TB in badgers.

Badger vaccination against TB became available in 2010 and has been proven to reduce the risk of TB infection.[20] Six badger vaccination trials were planned to go ahead in 2010, but five out of the six were cancelled by the government, as it wasn't deemed to be a good use of public expenditure.[21] The Badger Edge Vaccination Scheme (BEVS) was eventually launched in 2014 and, after a period of global shortage of the vaccine, it resumed in Spring 2018.[22] BEVS has recently been renewed, however, with just £700,000 set aside to compensate only 50% of the cost of privately led vaccination projects over the course of four years, the scheme is clearly underfunded. For comparison, in 2016 alone, £5.4 million were spent on culling badgers.[3] Why is so much funding going towards a cull, when vaccination is both more humane and more effective at eradicating disease, as the history of human epidemiology has shown? Not least importantly, vaccination is also the most economically viable route, as the average cost of killing a single badger was calculated at £496.51 in 2016,[3] compared to that of vaccinating one at £82. In some instances, this difference can be even greater, as the 2016 Welsh trial showed, where each badger killed (and subsequently found healthy in post-mortem tests) cost the taxpayer £76,622,[23] an extortionate sum of money which could have vaccinated thousands of individuals.

3. Bovine TB in cattle to be reduced through a combination of improved TB testing, tighter movement and bio security controls, risk based cattle trading and a TB cattle vaccination programme.

Existing diagnostic tests for bTB are limited and unreliable,[24] with too many cases going regularly undiagnosed,[25] or resulting in false positives.[23] New tests are currently being designed and trialled, and the government should be placing the research and development of these at the top of its priorities. It is of no use to be culling badgers and slaughtering sick cattle if some of the infected cows aren't detected by the current tests and remain in the herd as "hidden reservoirs" of bTB on the farm. As well as having poor diagnostic tools, we also still have much to understand about the disease itself and how it spreads. Until recently it was thought that infected animals had to come into close contact for the transfer to happen. However, research has shown that badger-to-cattle and cattle-to-cattle transmission is more likely to happen through the environment or, in other words, through the slurry or manure deposited on the pasture the cattle are grazing.[26] This has huge implications for the management of bTB, as it would imply that simply isolating and slaughtering the infected cattle isn't enough if the environment left behind isn't also treated. Furthermore, alongside better diagnostic tools and bio security controls, there should be a much tighter regulation in the trade of cattle across the country, as this has been responsible for a number of outbreaks. For example, of the 31 outbreaks recorded in the North-East of England between 2002 and 2004, 30 have been traced to the purchase and trade of animals from high risk areas such as Cheshire, Wales and Ireland.[27] Furthermore, urgent work is also needed to establish the risks involved with other mammalian carriers of the disease. Alarmingly, hunting hounds have been found to carry bTB and when 164 hounds from the Kimblewick Hunt's pack were tested, 97 were found to be infected.[28,29] This requires immediate attention as the hounds, by the very character of the hunts, are able and encouraged to move freely across the country, potentially spreading the disease. Finally, just as a TB vaccination programme for badgers should be made available, a TB vaccine for cattle would also help contain the spread of disease. Overall, bTB eradication in England can only be achieved with the implementation of a complete programme that aims to achieve better and more regular tests, strict biosecurity for farms and slaughterhouses, mass vaccination of cattle and badgers and movement/trade restrictions.

4. The use of dogs below ground by hunts which leads to the death of foxes and badgers to be prohibited under the Hunting Act.

The use of dogs for hunting was banned in Scotland in 2002 and England and Wales in 2004. However, the Hunting Act includes a number of exemptions to this rule. One of them is the use of a maximum of two dogs below ground, known as terrier work, where dogs may be used to flush out a fox to be shot for the purpose of protecting game birds reared for shooting. This obviously opens a dangerous loophole which can be exploited by huntsmen. In the year 2000 the Burns Inquiry into hunting with dogs concluded that the inability to escape dogs underground causes the fox 'extreme fear' and is a 'serious compromise of its welfare.' Foxes forced to face terriers underground can also suffer injuries to the face, head, and neck, as, of course, can the terriers, who are often left with untreated injuries and will be shot when they are no longer of use.

5. A 'reckless provision' clause to be inserted in the Hunting Act to stop hunters using the false alibi of trail hunting.

The hunting of mammals like foxes, hares and deer using dogs has been illegal in the UK since the 2004 Hunting Act came into force. Trail hunting was invented after the ban, and it consists of getting the hounds to follow an animal-based scent trail which has been previously laid, often in areas where foxes or hares are likely to be. The dogs are supposed to follow the laid-trail, but this can often get mixed up with an actual animal trail, which leads to countless hunting accidents ending up with animal deaths. The hunt can then claim that it was an accident, thus avoiding any charges and getting away with it. Whether some hunts may be genuinely just using trails or whether this may be a complete cover for illegal hunting, this practice opens up too many ways of circumventing the Hunting Act, and should therefore be banned. The only way to do this is to introduce a "reckless provision" in the Act, which would enable people to be prosecuted when it can be proved that they were reckless by not preventing their dogs from chasing and hunting a wild animal.

6. The 'Observation and Research' exemption which has been abused by stag hunts to be immediately removed from the Act.

The Hunting Act contains "exemptions" built into its Schedule, which were designed to prevent the ban affecting activities which Parliament did not intend to prohibit. Unfortunately, hunts often use these exemptions as an excuse if they are caught hunting. For example, staghunts use the 'Research and Observation' exemption that was designed for researchers and not hunters, and some fox hunts carry birds of prey in order to claim that they use the 'falconry' exemption, which was designed for falconers.

7. The indiscriminate and ruthless slaughter of Scotland's mountain hares to stop immediately.

Mountain hares, native to the Highlands, are being culled each year by gamekeepers as part of tick control measures to reduce the spread of "louping-ill" flavivirus (LIV) to the grouse population. In 2003 a study predicted that by reducing hare numbers, a decline in ticks would follow, which would in turn reduce grouse mortality and therefore increase their numbers.[30] A response to that study was quickly published, the following year, highlighting the lack of evidence to connect the culling of hares with an increase in

grouse numbers,[31] and advising that the conclusion was premature. Since then, no other scientific evidence has been brought forward supporting the culling of hares, but nonetheless hares have remained a huntable species even though they are now classed as "near threatened" in the UK. Furthermore, their large-scale cull is not monitored and is completely unregulated during the open season, raising welfare concerns as well as ecological ones. In 2014 alone, 37,681 hares were killed,[32] a shocking and unjustifiable number, especially when placed in the context of the vertiginous collapse this species is experiencing, now -99% of what it used to be in 1954.[33]

8. Management of mountain hare numbers to be more tightly controlled by Scottish Natural Heritage to safeguard populations.

9. The Scottish government to cease the issuing of any further licences for the culling of seals.

Common and grey seals are protected under Scottish and EU law. Nonetheless, on 31 January 2011, Part 6 of the Marine (Scotland) Act 2010 came into force, in which "Scottish Ministers may grant a licence (a "seal licence") authorising the killing or taking of seals to protect the health and welfare of farmed fish and to prevent serious damage to fisheries or fish farms".[34] As many as 1,628 seals have been killed since the Scottish licence scheme was introduced in 2011,[53] but many more may have died and gone unreported since licence holders are not monitored by government officials when they are shooting seals. Furthermore, it is impossible to calculate the impact of the shootings given that there is no closed season, which means that pregnant and lactating mothers can also be shot.

10. The Scottish government to introduce a funding programme to help fish farms and wild fisheries meet the costs of non-lethal protection methods to deter seal incursion.

Non-lethal protection to deter seal incursions exist, are widely used in other countries, such as Canada and Chile, but are still uncommon in Scotland. Predator nets surrounding the entire cage system, from surface to seabed, are a good management technique, although their effectiveness depends on the intensity of the tidal currents. Net tensioning is also widely cited as being a critical issue in minimising seal depredation. Also, the speedy removal of dead fish, changes in net shape and size and the use of alternative materials are all known methods used by fish farming companies abroad to minimise seal depredation. Fish farms and wild fisheries need to be able to identify and test different techniques to protect their stocks, and this should be funded by the Scottish government.

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MINISTRY OF WILDLIFE CRIME

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Wildlife crime has been broadly defined as, "*Any action which contravenes current legislation governing the protection of the UK's wild animals and plants*"[1], although there is also an international dimension and also considerable overlap with animal welfare legislation. In Scotland, wildlife crime has been defined with more precision and with reference to specific legislation.[2] The UK legislation is voluminous, complex and full of loopholes which highly-paid defence lawyers are easily able to exploit.[3]

To maximise the use of limited resources, the National Wildlife Crime Unit prioritises specific crimes across the UK that are assessed as posing the greatest current threat to either the conservation status of a species or which show the highest volume of crime and therefore require an immediate UK-wide response. These strategic assessments are conducted every two years and the most recent UK Wildlife Crime Priorities (2018-2020) have been identified as follows:[4]

- Badger persecution
- Bat persecution
- CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) with a focus on European eel, raptors, ivory, medicinal & health products, reptiles, rhino horn & timber
- Freshwater pearl mussels
- Poaching (with a focus on deer poaching/coursing, fish poaching and hare poaching, alongside associated anti-social & threatening behaviour)
- Raptor persecution (with a focus on hen harrier, goshawk, golden eagle, white-tailed eagle, red kite and peregrine)

Understanding the scale and frequency of wildlife crime is crucial, not only to allocate scarce resources appropriately but also to inform governments to enable them to develop effective policies to reduce crime. The European Parliament recently voted[5] to upgrade wildlife trafficking to be categorised as 'serious and organised crime', the same category as terrorism, human trafficking and arms smuggling. Serious and organised crime is defined as:

'*Serious crime planned, coordinated and conducted by people working together on a continuing basis. Their motivation is often, but not always, financial gain*'.[6]

Given this definition, other types of wildlife crime should also be similarly classified, notably the widespread and systematic persecution of several raptor species on driven grouse moors. However, despite the gravity of offences, current wildlife crime recording requirements are inadequate and ineffective resulting in chronic under-recording.[7,8]

The extent of the under-recording of all wildlife crime is exceptionally difficult to quantify and this 'dark figure' is widely accepted as being a considerable hindrance in tackling the issue.[9,10]

Under-reporting (and subsequent under-recording) is largely due to the remoteness of some wildlife crime locations, especially those in rural areas where circumstances severely limit the number of potential witnesses. Indeed, what is usually found is the aftermath of a crime, as opposed to the witnessing of a crime in progress. Most evidence, often in the form of victims of the crime, is found purely by accidental discovery (e.g. by passing walkers).

It is also known that some offenders take extra measures to prevent the detection of their crimes, e.g. by hiding material evidence such as pearl-fished shells[11] and by removing injured birds[12] or dead birds and badgers[13,14,15] from the crime scene and relocating them elsewhere, sometimes to a roadside to be disguised as accidental victims of a road traffic collision.[16] There is growing concern that the UK government's controversial badger cull is also being used to disguise and facilitate the barbaric offence of badger baiting.[17]

With the added complication of inconsistent decisions on the legal admissibility of covert video evidence,[18,19] along with social and cultural pressures preventing whistle-blowing and inhibiting certain sectors of both the urban and rural community from reporting wildlife crime incidents, it is inevitable that under-reporting (and thus under-recording) will hinder the quantification of wildlife crime.

This leads to a vicious cycle of being unable to provide sufficient evidence to convince governments that further action is justified, although recent improvements have been made in Scotland following new legislation (Wildlife

& Natural Environment (Scotland) Act 2011) which compels the Scottish government to publish an annual report on wildlife crime figures.[20]

For some wildlife crime, notably raptor persecution, its extent and scale can be determined by other sources of evidence. Long-term scientific data have emphatically shown that raptor persecution is so prevalent, particularly on land managed for driven grouse shooting, that it is having population-level effects on some species, e.g. golden eagle;[21,22,23,24,25] hen harrier;[26,27,28,29] peregrine;[30,31,32,33] goshawk;[34,35] red kite.[36,37] The Scottish government has begun to utilise these data to identify wildlife crime hotspots and exert additional pressure[38] but the Westminster government remains wilfully blind,[39] largely due to vested interests and the hugely influential landowners' lobby.

A further consequence of under-recording is an inconsistent approach to the police investigation of reported wildlife crime. If the data aren't available to demonstrate wildlife crime as a local problem, Police Crime Commissioners will struggle to allocate sufficient funding and resources from already over-stretched budgets, resulting in poor quality follow-up investigations.[40] There are some notable exceptions, for example the recent establishment of an award-winning full time Rural Crime Team by North Wales Police[41] which has proved so successful the model is now being replicated by some other police forces. In addition, there are examples of specifically focused police operations such as Operation Owl[42] (North Yorkshire Police, focusing on raptor persecution) and Operation Galileo[43] (Lincolnshire Police, focusing on hare coursing) that are proving highly effective, but the fact remains that many police forces expect their specialist wildlife crime officers to undertake investigations secondarily to other policing duties.

Unsurprisingly against this backdrop, prosecutions for wildlife crime are rare and even when a conviction is secured, penalties are inconsistently applied and often with little or no consideration of the wider conservation impacts of the crime.[7,40] This is in sharp contrast to enforcement measures and penalties in other European countries, notably Spain and Italy, where the authorities deploy specially-trained canine units to detect poisoned baits and routinely undertake proactive spot checks and searches.[44,45] Penalties on conviction have included custodial sentences, a ban on hunting, and significant fines to be paid to the government for the estimated conservation value of the poisoned victims and the money is used specifically to support future monitoring and conservation efforts.[45,46] In one case a farmer who laid out nine poisoned baits and poisoned six Spanish Imperial Eagles and one fox

was sentenced to 18 months imprisonment AND a three-year disqualification from hunting AND a fine of 360,000 Euros (£259,762.62) to be paid to the regional government for the estimated value of the six eagles.[47]

Currently, many wildlife crime offenders in the UK can be seen to be 'getting away with it' because penalties have little personal consequence but even if stiffer penalties were applied, the deterrent effect would still be minimal because offenders know that the chances of prosecution are so slim that this outweighs the risk of committing the offence in the first place.[10,48]

So what needs to happen?

PROPOSALS:

1. All wildlife crimes should be recordable offences using official Home Office codes.

Unlike in Scotland, most wildlife crimes in England and Wales are currently recorded as 'miscellaneous' offences, which means they are invisible crimes in police records. This is unhelpful for determining trends and in setting strategies and priorities. A recent report[8] demonstrated that the perception that enhanced recording would be an additional burden to those responsible for recording can be debunked, since existing systems would be utilised and overall efficiency would be improved. Earlier this year DEFRA's Wildlife Minister Dr Therese Coffey claimed there was no need for additional reporting on wildlife crime because the data collected by the Office for National Statistics and the Ministry of Justice was already sufficient.[49] However, Dr Coffey has failed to understand the limitations of current crime recording systems as the data are wholly insufficient to identify many wildlife crimes even at the National Wildlife Crime Priority level.

2. The English & Welsh governments to publish an annual wildlife crime report, as they do already in Scotland.

Now in its fifth year of reporting, the Scottish Government's annual wildlife crime reports are still a long way from being perfect, partly due to Police Scotland still withholding data on some live investigations.[50] However, these reports are heading in the right direction and their annual publication provides the Scottish Parliament's Environment Committee, and the public, an opportunity to regularly scrutinise the Scottish Government's performance on tackling wildlife crime. Compulsive annual reporting would prevent the Westminster Government's current wilful blindness to the extent of some wildlife crimes.[51]

3. Create a national, multi-agency response unit to investigate all offences that fall under the National Wildlife Crime Priorities.

This should not to be confused with the existing National Wildlife Crime Unit (NWCU), which is a police intelligence unit whose main function is to obtain, analyse and disseminate information on wildlife crime

and assist police forces with investigations. A new national, multi-agency response unit would combine the expertise of many specialist organisations, including the police, Badger Trust, Bat Conservation Trust, RSPB, RSPCA, SSPCA, Border Force, water bailiffs etc. Such combined experience and expertise would increase the quality of wildlife crime investigations and minimise the sometimes long delays and subsequent loss of crucial evidence created by limited police resources. Some police forces routinely work in partnership with specialist agencies but others do not, and the decision to collaborate is often left to the personal discretion of a senior police officer which has sometimes resulted in the deliberate exclusion of some agencies, to the detriment of an investigation.[7]

4. This unit needs to be proactive, rather than reactive, conducting regular unannounced spot checks in known wildlife crime hotspots.

Many wildlife crimes take place in remote landscapes with few witnesses and are often not discovered until sometime after the crime has taken place and the offender has had an opportunity to remove any incriminating evidence. Routine and unannounced spot checks in areas known to be wildlife crime hotspots would help to disrupt these crimes and would act as an additional deterrent to would-be offenders. This approach has been deployed successfully in other European countries.[44,45]

5. Introduce the offence of vicarious liability for all landowners in England and Wales, to make them responsible for wildlife crimes on their land as is the case in Scotland.

Vicarious liability is where one person is legally liable for the actions of another person under their supervision or control. This is often used in the workplace where an employer is culpable for the acts of one of their workers. In the case of crimes committed against wildlife, be it cases of poisoning, shooting, trapping or disturbance, it is often hard to identify the offender who operates outdoors, over large territories and often at night. If however it was the employer (for example a landowner), rather than the employee (for example a gamekeeper), who became liable for such offences, we would be sure to start seeing the numbers of wildlife crime incidents fall. To be noted is that vicarious liability for certain wildlife crimes (some types of raptor persecution and possession of banned poisons) was introduced in Scotland from 1 January 2012 as a provision in the Wildlife and Natural Environment (Scotland) Act 2011. However, a prosecution can only take place if prosecutors can demonstrate that the original wildlife crime offence took place and that it was committed by a third party who has a specific relationship to the person being charged with vicarious liability. However a defence is available if the accused can demonstrate that he/she did not know the offence was being committed AND he/she took all reasonable steps AND exercised all due diligence to prevent the offence being committed. So even with the introduction of vicarious liability, it can be extremely hard to achieve a successful prosecution. In fact, so far there have only been two successful prosecutions in Scotland[52,53] (although there should have been more, but legal loopholes were exploited[54,55]) so it hasn't been the solution that many had hoped for, but it has increased pressure on landowners and managers to pay more attention to their managerial responsibilities and monitor the activities of their employees and contractors. The Westminster Government has so far resisted calls for the introduction of vicarious liability but claims to be monitoring the situation in Scotland to see whether the approach is "necessary and proportionate" to assist tackling wildlife crime in England[39].

6. Substantial increases in penalties for all wildlife crime and additional penalties for crimes with conservation impact and those committed inside National Parks.

Wildlife crime can include barbaric acts of cruelty, and can have significant consequences for the conservation status of protected species. Penalties need to be dissuasive and of personal significance to act as a deterrent. However, currently penalties have been applied inconsistently, are too lenient and offer little deterrent effect. For example, a woman convicted of exporting and selling tiger parts only received a 12 month community order to undertake 120 hours of unpaid work, and a house owner and a developer were fined just £83 and £127 respectively, after unlawfully destroying a bat roost, with the owner having previously indicated a willingness to accept a fine rather than to delay work.[56] Part of the problem rests with the inexperience of judges in the lower courts where wildlife crime cases are only heard infrequently and the judges don't have the necessary expertise to assist their deliberations. In 2016 the Scottish Government agreed to accept the recommendations of the Poustie Review[57] and substantially increase the penalties for wildlife crime. The Scottish Sentencing Council has also indicated its intention to produce a Scottish wildlife crime guideline by 2018.[58] Although courts in England and Wales now have the authority to impose unlimited fines, those for wildlife crimes seldom approach the previously allowed maximum.[56] Sentencing guidelines for wildlife crime in England and Wales are urgently required.

7. Remove all public subsidies for landholdings where there is evidence that employees/tenants have committed wildlife crimes, based on civil burden of proof.

Many private landholdings receive funding from public subsidies for participating in various agri-environment schemes whereby considerable payment is made in return for the landowner farming in a way that supports biodiversity, enhances the landscape and improves the quality of air, water and soil. When breaches occur (e.g. a wildlife crime is committed by the landowner or employee), a subsidy penalty may be imposed under cross compliance regulations,[59] although these are complex and there are many loopholes. The percentage of subsidy loss is calculated on many different factors and can be severe,[60,61] although it may not be applied if the wildlife crime took place on a part of the landholding for which subsidies were inapplicable. For example, a subsidy penalty was not applied to a grouse moor owner in Yorkshire because the gamekeeper's illegal poisons cache was found in a small plantation of trees and not on the 'agricultural land' for which the landowner was claiming subsidies, even though the illegal poisons were likely to have been used on that 'agricultural land'.[62] There have been other, similarly shocking decisions.[63,64] Where there is sufficient evidence (based on the civil burden of proof) that wildlife crime has been committed by landholders and/or their employees/contractors, the landholder does not deserve to receive public funding and all public subsidies, not just a percentage, should be automatically withdrawn for a period commensurate with the severity of the crime.

8. Automatically remove firearms and shotgun certificates for 10 years following any individual's conviction for any wildlife crime, regardless of the sentencing tariff.

Permission to possess or to purchase or acquire a firearm in the UK is granted to an individual who is assessed by the licensing authority, the police, as not posing a threat to public safety and having good

reason to own a firearm.[65] A person sentenced to imprisonment or corrective training for a term of three years or more is prohibited from ever having a firearm in their possession. A person who has been sentenced to imprisonment for a term of three months or more but less than three years, is prohibited from possessing a firearm for a period of five years from the date of release from prison. For crimes that attract a less significant sentence (e.g. most wildlife crimes), or even when a conviction hasn't been secured, the police may use their discretion to revoke an individual's firearms certificates for a set period if the individual is deemed 'unfit', although this may be challenged and the decision overturned.[66] However, even if an individual has had their firearms certificates revoked, they may still use somebody else's firearm as long as the firearm certificate holder is present. Having access to firearms in the UK is a privilege, not a right. Those convicted of wildlife crime cannot be deemed to be responsible and trustworthy and should be prevented from using a firearm for a mandatory period of 10 years on conviction. This penalty would be a significant deterrent to those considering to commit wildlife crime but who need access to firearms for their work (e.g. gamekeepers).

9. A new law for England & Wales to make it an offence to possess specified banned poisons commonly used for wildlife crime, as in Scotland.

Legislation enacted in Scotland (The Possession of Pesticides (Scotland) Order 2005) bans the possession of certain named poisons commonly used to kill birds of prey. There have been over ten successful prosecutions under this legislation and it has proven particularly useful because prosecutions for actually poisoning wildlife are so difficult to secure; a prosecution for merely 'possessing' the banned poison is easier to prove. For example, in 2011 a Scottish gamekeeper was convicted for the possession of 10.5kg of the banned poison Carbofuran (a huge cache, enough to kill every raptor in the UK) after three golden eagles were found poisoned on the Skibo Estate.[67] There was insufficient evidence to demonstrate he had laid the poison baits that killed the eagles, but at least a conviction was secured for 'possession'. However, despite calls for similar legislation to be enacted in England,[68] so far the Westminster Government has refused with a former Environment Minister (Richard Benyon MP) claiming that outlawing named poisons "may not be a proportionate course of action". Caroline Lucas MP (Green Party) accused Mr Benyon of "putting the interests of his wealthy [game-shooting] friends before the interests of British wildlife".[69] Enacting this legislation is a no-brainer and should be done with immediate effect.

10. We must urgently address and resolve issues concerning inadmissibility of evidence pertaining to the use of covert cameras to monitor wildlife crime committed in remote areas.

When wildlife crime is committed in remote landscapes with few witnesses, covertly-filmed video footage may be the only evidence available. The decision to accept covertly-filmed video footage as admissible evidence in prosecution cases is undertaken on a case-by-case basis and with reference to the specific case circumstances. Over the years there have been several successful convictions secured on the basis of covert video evidence,[70,71,72,73] but in recent months a number of prosecutions for seemingly clear-cut raptor persecution crimes have been dismissed because the legislation has been inconsistently applied. Complex legal argument and, in one case, a seemingly underprepared prosecutor, have led to the collapse of some high profile cases, including the shooting of a protected hen harrier at its nest on the Cabrach Estate in Morayshire[74] and the shooting and trapping of a pair of protected breeding peregrines on the Bleasdale Estate in Bowland, Lancashire.[75] Statutory agencies, such as the police, must apply for authority to install covert cameras under the Regulation of Investigatory Powers Act 2000 (RIPA, and in Scotland, RIPSA) as

part of an investigation, but authority will only be given if the activity is considered 'proportionate' and when the crime being detected is considered 'serious', as determined by the Sentencing Council (i.e. where the penalty would constitute a term of imprisonment for three years or more), so authority will not be granted to detect most wildlife crimes. RIPA was established to protect a potential suspect's human rights to privacy and was intended to cover activity such as the installation of covert cameras around a suspect's home. The RSPB, as a charity, is not eligible for RIPA authorisation but has installed covert cameras at the nest sites of specially protected birds of prey, often in remote landscapes and well away from private dwellings, and without seeking landowner permission, to monitor the birds' breeding attempts, which have subsequently recorded obvious wildlife crime. There needs to be an urgent review of the admissibility of covert video footage in prosecutions and resolutions found as currently the legislation is not fit for purpose in relation to detecting wildlife crime in remote landscapes where the landowner may have a vested interest in the commission of that wildlife crime.

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Is shooting in the UK out of control?

There are real conflicts of interest between shooting and conservation in the UK, notably wildlife crime, the use of lead shot, the continued harvesting of endangered species and the ecological impact of non-native game species. Central to this is a lack of regulation.

The UK has some of the most intensive game bird management systems in the world but they are very poorly regulated compared to other countries. This lack of regulation thus contrasts sharply with the licensing systems in place overseas. In the UK game shooting is only controlled by having an open and closed season, which restricts the time of year when birds may be shot, and firearms legislation which places restrictions on who may have access to guns. There is some other legislation covering the use of traps and snares but this is rarely if ever enforced. In contrast in Germany and Spain there are powers in place to remove hunting licences and firearm certificates where wildlife crimes are committed and strict habitat management plans and game bag returns are also required in order to inform real conservation for the populations of shootable species. So what should we do?

Introduce licencing for shooting estates and individual licenses for shooters including a two-part practical and theoretical examination to ensure suitability and competence. Implement the ability for regulators to permanently revoke a licence for an estate or individual if the law is broken. Introduce strict harvest quotas and independently scrutinised bag monitoring to better understand the impacts of shooting and inform conservation.

There are other serious issues concerning shooting which deserve urgent attention.

The public subsidy of the UK shotgun licence should be ended immediately to bring it in line with other unsubsidised licenses such as the driving licence and passport.

The cost of shotgun licence renewal is £49 but police forces say the administration cost can be in excess of £200 meaning that they and the taxpayer shoulder the burden. Further, as part of the application process our beleaguered NHS GP's are required to supply information about patients seeking a licence but are not paid for this.[1,2] I believe that the NHS should not be subsidising non-NHS work but recognise it is obviously important that relevant medical conditions should be flagged to police. Thus in line with applications for pilots, divers, parachutists and other private hobbyists, shooters should also be fully charged for their medicals.

A moratorium on the shooting of Woodcock and Common Snipe should be implemented immediately and the impact of shooting them measured through rigorous and independent research.

Both these species can be legally shot in the UK despite declines in their UK populations between 1974 and 1999 of 76% and 67% respectively.[3,4] Woodcock are red listed and snipe are amber listed. The reasons for their decline include habitat loss and drainage – not solely shooting. Woodcock shooters claim that shooting after December 1st avoids killing UK breeding birds but their own data confirms that 17% killed are resident birds.[5] The migrant populations may also be declining. Some shoots have voluntarily ceased hunting these species but the numbers shot are at a historically high level. The effects of this harvesting on the population are unstudied and unknown.

The effects of introducing a minimum of 44 million non-native Ring-necked Pheasants and 9 million Red-legged Partridges* into the UK countryside each year should be immediately measured through rigorous and independent research.

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* Figures range from study to study, with an average of 35 million Pheasants released each year,[6] to supplement the 'wild' population of 1.9m pairs. Taking into account the chicks they produce during the spring and summer which survive to the start of the shooting season (chicks numbers vary greatly from place to place, year to year, study to study, and range from 0-7 chicks/hen Pheasant), then we could say that a ballpark working estimate of 9 million shootable 'wild' Pheasants enter the shooting season. In late summer, before the shooting season opens, we could then say there are roughly 44 million Pheasants in the UK.

Vast numbers of these birds are released to be shot, presumably because native species such as Grey Partridge, Black Grouse, woodcock, etc have all but vanished. But in line with the lack of regulation in UK shooting we don't actually know how many of these birds are released to be shot nor what impact they have on the ecology of our countryside. The releasing of other non-natives is strictly controlled or illegal. Given the available, but incomplete, data we can estimate that more than half the biomass of our British birds in late summer is made up of Pheasants. Their sheer numbers suggest they compete for resources with other seed eating birds and small mammals. Near their release sites, they have been observed to alter woodland flora[7] and to impact invertebrate communities[8] and hedgerow ecology[9]. They have also been linked to a decline in woodland birds[10] and there is anecdotal evidence to implicate predators which in turn have a disproportionate impact on rare native species.[11,12] And to ensure enough survive to be shot (sic) hundreds of thousands of native mammal and bird predators are legally killed each year.

Millions of shot birds, mostly Pheasants, are wastefully dumped because the market is so saturated they have no financial value.[13] And because they are killed with lead shot consuming them represents a public health risk. (See Ministry of Lead)

Driven grouse shooting should be banned.

This intensive practice is so destructive in so many ways that its tenure has long expired. The on-going and serious criminal persecution of protected birds of prey is limiting their population recoveries or driving them towards extinction.[14,15,16] The wholesale slaughter of mountain hares – to supposedly reduce the transmission of disease to red grouse – has reduced their population density in parts of north-east Scotland to 1% of its 1950s level.[17] Upland areas are damaged by grouse moor management which drains moors leading to flooding downstream.[18,19,20] The burning of moors to benefit grouse exacerbates climate change and destroys internationally important blanket bogs.[21-24] The excessively high densities of grouse encourages disease which is transmitted via medicated grit trays.[25,26] There is an almost complete lack of monitoring to test whether these veterinary medicines reach the human food

chain.[27] And we pay for it, the ten largest English grouse moors are paid more that £3 million in farm subsidies every year.[28]

The best way to deal with this litany of environmental destruction is to ban driven grouse shooting.

All forms of snaring should be outlawed immediately in line with most other European Countries.

In 2012 a government study found that only 32% of the animals trapped in snares were the intended targets – normally foxes. The remaining 68% caught, severely injured or killed in these nooses included hares, badgers, family cats and dogs, deer and even otters. It is estimated that snares may trap up to 1.7 million animals every year.[29]

The House of Commons debated the use of snares in July 2016 and MPs advocated a ban. However, the government ignored the vote and pushed ahead with the introduction of a revised voluntary code of practice. A study by the shooting industry revealed that less than half of the gamekeepers polled had ever read the code. Currently 77% of the British public think snares should be illegal and 68% of MPs also support a ban on snares.[30,31] The UK is one of only 5 of the 28 EU member states where snaring is legal.

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MINISTRY OF LEAD AMMUNITION

DR ROB SHELDON

CONSERVATIONIST

In the first century CE Dioscorides – a physician in Nero's army – observed that "*Lead makes the mind give way*". The toxicity of lead has been understood for millennia.

As we further our scientific understanding of lead toxicity we have discovered that even low levels of lead are toxic to humans[1] and other animals.[2] In the UK, lead was banned from use in petrol, paint and water pipes decades ago, with most other uses strictly controlled. Lead ammunition (gunshot and bullets) remains a glaring and largely unregulated exception. In England, even the limited restrictions from 1999 banning certain uses of lead gunshot are largely ignored.[3] At least 5000 tonnes of lead ammunition are deposited into the UK environment annually,[4] accumulating a toxic legacy and causing suffering and death to large numbers of birds. As well as polluting the environment, lead ammunition often fragments on hitting an animal, leaving tiny lead particles in the animal's tissues. These fragments can then be eaten by predatory or scavenging birds or by people eating the game meat.

Waterbirds (like ducks, swans and geese) and terrestrial gamebirds (like pheasants and partridges) eat spent lead gunshot directly, mistakenly for grit or food, whereas predatory or scavenging birds (like eagles or kites) eat ammunition or lead fragments in the flesh of injured or dead game animals. Once absorbed, lead can paralyse muscles, affect behaviour and reproduction, and when enough is absorbed it kills. An estimated 50,000-100,000 wildfowl die of lead poisoning each winter in the UK[4] along with many more terrestrial birds, and lead likely affects the populations of some threatened species, like the Common Pochard.

People who frequently eat game shot with lead ammunition are also at risk, especially children and pregnant women. Numerous scientific studies have identified an association between increased levels of lead in the blood and reduced IQ in children. The European Food Safety Authority concluded that "efforts should continue to reduce lead exposure from all sources".[5,6,7,8]

This poisoning is unnecessary. Effective alternatives to lead ammunition already exist. Denmark banned the use of lead gunshot for all shooting (game and targets) as long ago as 1996.[9] It is time for the UK to catch up and stop

lead ammunition from polluting the environment and poisoning wildlife and people.

A total ban on the use of lead ammunition will benefit wildlife, people and the environment. To encourage this action:

PROPOSALS:

1. Government to put the UK on the front foot by introducing a ban on the sale, possession and use of all lead ammunition across the UK.

2. Food Standards Agency and National Health Service to undertake a public awareness campaign to promote the health risks from consumption of game shot with lead, especially to pregnant women and young children.

3. Individuals, NGOs and Statutory Agencies that manage land to ensure that any shooting that takes place on their land uses non-toxic ammunition.

4. Statutory Agencies to ensure that these restrictions can be readily monitored and enforced and that penalties are appropriate, including the withdrawal of firearms licences for those who flout the law.

5. Government to support the current European Chemicals Agency (ECHA) proposal to ban the use of lead gunshot in wetlands and support future restrictions in the use of lead ammunition for all shooting.

6. Restaurateurs and celebrity chefs to ask suppliers to provide only game that has been shot with non-toxic ammunition and promote this in recipes and restaurants.

7. Concerned members of the public to write to their MPs about the need to ban lead ammunition.

8. Supermarkets that sell game shot with lead ammunition to be boycotted with explanation.

9. Concerned shooters to use non-toxic ammunition and to encourage fellow shooters to do likewise.

10. Campaigns mounted focussing on shooting organisations, asking them to publicise the evidence and the need for a switch to non-toxic ammunition.

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MINISTRY OF WILDLIFE LAW

CAROL DAY

SOLICITOR

We are witnessing catastrophic declines in plants and animals and there is ever more evidence that we are pushing the planet beyond safe limits. There has never been a greater need for a strong legal basis to halt biodiversity loss and achieve improved animal welfare.

In the absence of a written UK constitution, the right to a clean and healthy environment for current and future generations, and nature itself, should be at the heart of a new Environment Act – Brexit or not. This will require the Governments of the UK to set ambitious targets to restore habitats and recover species and ecosystems to a favourable, self-sustaining status within the national and international context. It will also require the imposition of duties on public bodies to respect fundamental environment principles and to empower civil society to defend wildlife through strong environmental rights. This includes the right to environmental information (the right to know), the right to engage in decisions affecting the environment (the right to participate) and, ultimately, the right to take legal action against those whose decisions and activities threaten the environment (the right to challenge).

While these rights should be fundamental, they must not replace the Government's responsibility to enforce environmental law. The European Commission currently plays a crucial enforcement role and this function must be replicated, and reinforced, if we are to leave the EU. We need a new Watchdog empowered and resourced to investigate complaints from the public and take legal action in its own right on an informed, scientific basis. That Watchdog must also enjoy the power to refer cases to court and not be vulnerable to dissolution in the face of unpalatable action against the State.

The rule of the law is the foundation of democracy but to serve the needs of the environment, the judicial system needs an overhaul. There are approximately 1,500 environmental courts and tribunals operating in 44 countries world-wide delivering effective and cost-efficient environmental

justice. There is no such court in the UK. We need a bespoke environmental forum to hear civil and criminal cases staffed by judges and technical advisers with a robust understanding of environmental issues. Judicial Review, the process through which the actions of public bodies are scrutinised, should be more concerned with the merits of a decision than purely the *process* by which a decision was made. People should not have to face crippling legal costs to bring public interest cases to court but, on the other hand, the courts should be able to impose dissuasive penalties (financial and otherwise) proportionate to the environmental impact of the offence committed. Habitats must be restored, individuals should be held accountable for the acts of the businesses from which they profit and responsibility must bite on those who turn a blind eye to crime on their behalf.

PROPOSALS:

1. A new Environment Act, similar to the Human Rights Act, with the core principle that everyone, and nature itself, has the legal right to live in an environment adequate to their health and well-being.

2. The new Act to impose a duty on public bodies and the courts to act in compatibility with it, and to enforce planetary boundaries and environmental principles - such as "polluter-pays" and sustainable development.

3. The new Act to include duties to restore habitats and species to favourable conservation status, to recover terrestrial, aquatic and marine ecosystems to good ecological status, and to prevent the mistreatment of animals.

4. The Act also to impose a statutory duty on the governments of the UK to meet the commitments of international environmental agreements, such as the Biodiversity Convention's Aichi Targets, the Paris Agreement on Climate Change and the UN's Sustainable Development Goals, through cooperation, consultation, action, monitoring and reporting.

5. Every citizen to be empowered to defend nature and the environment by enshrining environmental rights in law, allowing participation in environmental decision-making, and placing environmental information in the public domain.

6. In order to protect these environmental rights, the government to establish an Environmental Court with environmentally literate judges, technical advisers and bespoke rules on standing, costs, intensity of review and penalties/remedies.

7. Public funding to be provided for cases brought in the public interest by individuals and NGOs.

8. If we leave the EU, an independent watchdog with sharp teeth and a wide remit to be established, empowered and resourced to take up cases on behalf of the public and initiate enforcement action of its own volition against all bodies performing public functions.

9. Penalties for wildlife crime and animal welfare offences to be dissuasive and proportionate to the offence committed, and an offence of vicarious liability to be established outwith Scotland in relation to raptor persecution.

10. The playing field of planning to be levelled by introducing a third-party right of appeal, so the public have the same right as developers to challenge the merits of planning decisions.

Introduction

We are witnessing catastrophic declines in plants and animals at both UK and global levels. Over half of all UK species declined between 1970 and 2013 (with 40% showing strong or moderate declines) and of the nearly 8,000 species assessed using modern Red List criteria, 15% are extinct or threatened with extinction from Great Britain.[1] A new measure assessing how intact a country's biodiversity is, suggests that the UK has lost significantly more nature over the long term than the global average and suggests that we are among the most nature-depleted countries in the world. Many factors have resulted in changes to the UK's wildlife over recent decades, but the RSPB's *State of Nature* 2016 Report[2] concludes that policy-driven agricultural change was by far the most significant driver of declines. Climate change has had a significant impact too, and remains one of the greatest long-term threats to nature globally.

WWF's Living Planet Report states that we are entering a new era in Earth's history: the Anthropocene – an era in which humans rather than natural forces are the primary drivers of planetary change[3]. In 2009, the director of the Stockholm Resilience Centre (SRC), Johan Rockström, and 28 internationally renowned scientists, identified nine processes that regulate the stability and resilience of the Earth system[4]. Crossing these boundaries increases the risk of generating large-scale abrupt or irreversible environmental changes. In 2015, SRC research concluded that four of the nine planetary boundaries have been crossed as a result of human activity[5] including climate change, loss of biosphere integrity (biodiversity loss and extinctions), land-system change and altered biogeochemical cycles (phosphorus and nitrogen).

Not only do we have a moral obligation to save nature, it provides us with essential and irreplaceable benefits that support our welfare and livelihoods. There has never been a greater need for a strong legal basis to reverse biodiversity loss and improve animal welfare.

A New Environment Act

Everyone, and nature itself, should have the legal right to live in an environment adequate to their health and well-being. Such a right for every person of present and future generations already exists in Article 1 of the UNECE Aarhus Convention.[6] However, while the UK ratified the Aarhus Convention in 2005, it also submitted a Declaration limiting any legal rights enjoyed by civil society to the three pillars of the

1 Statistics taken from the *State of Nature 2016*, RSPB Report available here

2 *Ibid*

3 WWF (2016) *Living Planet Report 2016 - Risk and resilience in a new era* - see here

4 The nine planetary boundaries include stratospheric ozone depletion, loss of biosphere integrity (biodiversity loss and extinctions), Chemical pollution and the release of novel entities, climate change, ocean acidification, freshwater consumption and the global hydrological cycle, land system change, nitrogen and phosphorus flows to the biosphere and oceans and atmospheric aerosol loading - see here

5 Steffen et al. (2015). *Planetary Boundaries: Guiding human development on a changing planet.* Science Vol. 347 no. 6223

6 UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters - available here

Convention, concerning the right of access to environmental information, public participation in decision-making and access to justice in environmental matters.[7] We therefore need an Act - similar to the Human Rights Act 1998[8] - that creates a right for present and future generations, and nature itself, to live in an environment adequate to their health and well-being.

The Act should also recognise, and enforce adherence to, planetary boundaries and environmental principles. The Government has recently recognised the importance of a number of EU environmental principles in the EU (Withdrawal) Act 2018, but neither the list of principles in the Act - nor the obligation to comply with them - go far enough.[9] The environmental principles to be included in a new Environment Act should include all those listed in the EUWA 2018 and other recognised principles of international environmental law.[10] These include the non-regression principle - an emerging principle of international law as acknowledged by the International Union for Conservation of Nature (IUCN), which provides that there should be no weakening of environmental standards in law or lowering of environmental ambition in policy-making. The principle can also incorporate the idea of "progression", in that environmental standards should be continuously improving towards a stated objective (as in the Climate Change Act 2008). Other examples of environmental principles that should be in the new Environment Act include (but are not limited to):

- the "no deterioration" principle as given legal status in the Water Framework Directive;[11]
- the principle that full regard should be paid to the welfare requirements of animals, recognising that animals are sentient beings (currently enshrined in Article 13 of the Treaty on the Functioning of the European Union (TFEU));[12]

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7 Declaration made upon signature and confirmed upon ratification: "*The United Kingdom understands the references in article 1 and the seventh preambular paragraph of this Convention to the 'right' of every person 'to live in an environment adequate to his or her health and well-being' to express an aspiration which motivated the negotiation of this Convention and which is shared fully by the United Kingdom. The legal rights which each Party undertakes to guarantee under article 1 are limited to the rights of access to information, public participation in decision-making and access to justice in environmental matters in accordance with the provisions of this Convention.*"

8 Available here

9 Section 16 of the EU (Withdrawal) Act 2018 requires the Secretary of State to publish (within six months) a draft Bill consisting of a set of environmental principles and a statement of policy in relation to the application and interpretation of the principles in connection with the making and development of policies by Ministers of the Crown. The Act also provides for a duty on Ministers to have regard to the statement in the exercise of their statutory functions. The environmental principles must include the following: (a) the precautionary principle so far as relating to the environment; (b) the principle of preventative action to avert environmental damage; (c) the principle that environmental damage should as a priority be rectified at source; (d) the polluter pays principle; (e) the principle of sustainable development; (f) the principle that environmental protection requirements must be integrated into the definition and implementation of policies and activities; (g) public access to environmental information; (h) public participation in environmental decision-making; and (i) access to justice in relation to environmental matters.

10 Text in this section draws on Wildlife & Countryside Link's response to the Defra consultation on Environmental Principles and Governance after the UK leaves the EU dated 2nd August 2018 (available here) and a presentation given by Kate Cook (Matrix Chambers) to a seminar on Governance post Brexit hosted by Leigh Day and Matrix Chambers on 24th May 2018 (presentation available on request)

11 See Articles 1(a) and 4(a)(i) and 4(b)(i) of Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy

12 See here

- the duty to cooperate with international and EU partners in accordance with transboundary obligations, as reflected in the United Nations Convention on the Law of the Sea[13] (UNCLOS), the Convention on Biological Diversity[14] (CBD) and the 1979 UN Convention on Long-Range Transboundary Air Pollution;[15]
- Impact assessment – see, for example, the UNECE Espoo Convention[16] and the CBD;[17]
- Transparency – see the Marine Strategy Framework Directive;[18]
- Ecosystem approach – this is highlighted in relation to fisheries in the Government's 25 Year Plan,[19] the Common Fisheries Policy Regulation[20] and the CBD[21] (in situ conservation);
- Sustainable use and the conservation of biodiversity – see the Marine Strategy Framework Directive[22] and the Habitats Directive.[23]

The Act should impose a duty on Ministers of the Crown, public bodies and bodies performing public functions to respect planetary boundaries and act in accordance with the environmental principles in the exercise of their statutory duties, thus giving the principles a level of certainty and endurance currently enjoyed by EU principles under the Treaties. The duty to comply with the principles would encompass central and local Government, bodies such as the Environment Agency and utilities performing public functions such as privatised water companies.

The new Act should also include duties to restore habitats and species to favourable conservation status and recover terrestrial, aquatic and marine ecosystems to good ecological status. In order to achieve these objectives, the Act must include ambitious, measurable and legally binding goals for nature's recovery to ensure that the natural environment is healthy, resilient and sustainable for the benefit of people, plants and wildlife. In particular, new legislation must build on the obligations and objectives already enshrined in domestic legislation, developing the 'outcome-focused' approach of EU laws such as the Habitats and Species Directive (e.g. the duty to achieve "favourable conservation status" for listed habitats and species listed in the Directive[24] and the Bonn Convention),[25] and the Water Framework Directive (the duty to achieve "good ecological status" in respect of water bodies).[26] A statutory duty to meet the commitments

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13 See UNCLOS, Article 63(1) available here

14 See CBD, Article 5 available here

15 See the Preamble and Articles 7,8 and 14 available here

16 UNECE Convention on Environmental Impact Assessment in a Transboundary Context available here

17 See Article 14, CBD

18 See Preamble 9 to Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy available here

19 See *A Green Future: Our 25 Year Plan to Improve the Environment* (2018) available here

20 See the Preambles and Article 2(3) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC available here

21 CBD, Preambles and Article 8

22 See MSFD Preambles and Article 1(3)

23 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora - available here

24 See Article 2(2), Habitats Directive

25 See Article 1(c) UN Convention on the Conservation of Migratory Species of Wild Animals available here

26 See, WFD Preambles and Articles 4(3)(a) and 4(7)

of international environmental agreements, such as the Biodiversity Convention's Aichi Targets,[27] the Paris Agreement on Climate Change,[28] the World Organisation for Animal Health[29] and the UN's Sustainable Development Goals[30] through cooperation, consultation, action, monitoring and reporting is also fundamental to achieving these outcomes.

A pivotal component of the new Act would also be empowering civil society to defend wildlife through strong environmental rights. This includes the right to environmental information (the right to know), the right to engage in decisions affecting the environment (the right to participate) and, ultimately, the right to take legal action against those whose decisions and activities threaten the environment (the right to challenge). In this way, all three pillars of the UNECE Aarhus Convention would be properly and coherently enshrined in domestic law. Presently, only the requirements of the first two pillars of the Convention concerning access to environmental information[31] and public participation in decision-making[32] have been transposed into UK law as they are the subject of EU Directives. There is no EU Directive covering Article 9 of the Convention (which concerns access to justice) and the Court of Justice of the European Union (CJEU) has held that although Member States must give the fullest extent possible to the provisions of Article 9(3) of the Convention, it does not have "direct effect". This means that claimants cannot rely on the access to justice provisions of the Convention in domestic courts.[33] It is only by enshrining all three pillars of the Convention in UK law that this long overdue deficiency will be recognised.

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27 The Aichi Biodiversity Targets include: Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use; Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services; and Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building – available here

28 The central aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework – more information is available here

29 The World Organisation for Animal Health (OIE) is the intergovernmental organisation responsible for improving animal health worldwide. It is recognised as a reference organisation by the World Trade Organization (WTO) and in 2018 has a total of 182 Member Countries, including the UK. See here for information about its objectives

30 Information about the UN's 17 SDGs (incorporating 169 targets) is available here

31 Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC available here

32 Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC available here

33 In Case C-240/09, *Lesoochranarske zoskupenie* (LZ I, also known as "Slovak Brown Bears case"), the CJEU held that it is for national courts to interpret, to the fullest extent possible, the procedural rules relating to the conditions to be met in order to bring administrative or judicial proceedings in accordance with the objectives of Article 9(3) Aarhus convention and the objective of effective judicial protection of the rights conferred by EU law (para 51).

There are also numerous deficiencies in the manner in which the UK has implemented the requirements of the Aarhus Convention. This includes, for example, the failure to require the Government to consult the public during the preparation of Executive Regulations and/or Generally Applicable Legally Binding Normative Instruments (Article 8 of the Convention). In 2017, Friends of the Earth submitted a Communication to the Aarhus Convention Compliance Committee (ACCC) concerning the UK Government's failure to consult the public on the content of the "Great Repeal Bill" (the European Union (Notification of Withdrawal) Bill 2017) subsequently passed by Parliament on 16th March 2017.[34] Other deficiencies include a failure to comply with Articles 9(2), (3) and (4) of the Convention with regards to the cost of legal proceedings and the intensity of judicial review (see later) and anomalies concerning the disclosure of environmental information where it would adversely affect international relations, defence, national security or public safety even when that information concerns emissions. There are more deficiencies – but transposing the requirements of the Convention into UK law would provide the Governments of the UK with the opportunity to address them.

Finally, any new Act should also provide for all protection measures currently afforded to animals under EU regulations to be transposed into UK law. It should ensure that public funds, where used, incentivise and reward best practice in animal welfare in the UK, thus setting the highest standards for our internal markets. It should also ensure that UK welfare standards are met in trade deals and overseas investment policies, and that where possible trade deals support enforcement of animal protection laws. The definition of "animal" in the UK's Animal Welfare Acts and in the EU-derived regulations on Welfare at the Time of Killing should also be extended to include decapod crustaceans and cephalopods, in recognition of the growing scientific evidence that they can experience suffering. This would be in line with the approach already taken by countries such as Norway, New Zealand and Switzerland.[35]

The Government would say that such an Act is an idealistic impossibility. They said the same thing about a Marine Act in the early 2000s - until environmental NGOs published their own versions and enough people started calling for one. The result was the Marine and Coastal Access Act 2009 (for England and Wales), followed by similar acts in Scotland and Northern Ireland.[36] An Environment Act incorporating the above ingredients is ambitious but it is not impossible – it just requires enough political will, research, creative drafting and a whole lot of public support.

The Rule of Law and the Judicial System

The rule of the law is a principle of the (uncodified) UK constitution that means politicians govern within their powers, the law applies equally to all and that the law is certain.[37] It is the foundation of any

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34 See Communication ACCC/C/2017/150 United Kingdom available here

35 For further information about the necessary animal welfare components of any new Environment Act, please see *Brexit – Getting the best deal for animals*, a report published by Wildlife & Countryside Link and the UK Centre for Animal Law (A-Law) in January 2018 available here

36 See here

37 On 16th November 2006, the Centre for Public Law held the sixth in the series of lectures in honour of Sir David Williams. The lecture, entitled "The Rule of Law" was given by The Rt. Hon Lord Bingham of Cornhill KG, House of Lords. In this lecture, Lord Bingham identified eight principles to define the Rule of Law as follows: (1) The law must be accessible, clear & predictable; (2) Questions of legal rights should be resolved by the law and not the exercise of discretion; (3) The law should apply equally to all, except where objective differences justify differentiation; (4) Ministers must act within their powers and not exceed their limits; (5) The law must afford adequate protection of fundamental human rights; (6) The law should provide access to justice, especially where people cannot resolve

democracy. In the Supreme Court case of *Alconbury,*[38] Lord Hoffman described the significance of Judicial Review in the following terms: '*The principles of Judicial Review give effect to the Rule of Law. They ensure that administrative decisions will be taken rationally in accordance with a fair procedure and within the powers conferred by Parliament'*. However, my experience of Judicial Review is that it is a wholly blunt instrument – at least from the point of view of those seeking to rely on it.

The intensity of Judicial Review

For the claimant, the central weakness of JR is that it is rarely concerned with the "merits" of a decision, or whether the public body has made the "right" decision - the only question before the court is whether the public body has acted unlawfully in accordance with established legal principles. In particular, it is not the task of the courts to substitute its judgement for that of the decision maker, although it can intervene in appropriate circumstances.

The main grounds for JR (which are neither exhaustive nor mutually exclusive)[39] include: (1) illegality (primarily in not applying the correct statutory test(s)); (2) irrationality (*Wednesbury* unreasonableness – see later); (3) procedural unfairness; and (4) incompatibility with the European Convention on Human Rights and/or EU law. The process of JR contrasts markedly with the function of a planning appeal. Developers who wish to challenge a Local Planning Authority's refusal of planning permission (or the conditions attached to a Decision Notice) may apply for a full merits review within six months of the Decision Notice being issued. Third parties (for which there is no right of appeal) must apply to the Court for a Judicial Review of the lawfulness of a decision within six weeks (see later).

The only review of the "merits" of a decision that can currently take place in JR is to consider whether the decision was "*Wednesbury* unreasonable". In *Associated Provincial Picture Houses Ltd. v Wednesbury Corporation,*[40] the English court set out the standard of unreasonableness of public-body decisions that would make them liable to be quashed by way of JR. This came to be known as '*Wednesbury* unreasonableness' and was later articulated in *Council of Civil Service Unions v Minister for the Civil Service*[41] by Lord Diplock as a decision: "*So outrageous in its defiance of logic or accepted moral standards that no sensible person who had applied his mind to the question to be decided could have arrived at it*". It essentially means the court does not intervene and set aside an administrative decision unless it is so outrageous as to be perverse.[42]

Wednesbury unreasonableness is a very high threshold to reach and there is no special provision in the common law for environmental cases. The consequence of this limitation is that challenges that do proceed rely almost wholly on procedural grounds. This often renders JR ineffective as the decision-maker can simply remit the decision back to the relevant committee and make the same decision again with the procedural irregularities rectified. For example, in *R (Andrew Cawdron) v North Norfolk Council and Balfour Beatty Civils Ltd,*[43] the Council agreed to quash approval for the North Norfolk Distributor Road within weeks of legal proceedings being issued. While the clients were initially delighted with the result, it soon

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inter-personal disputes themselves; (7) Courts and tribunal processes should be fair; and (8) The state should comply with international law

38 *R (Alconbury Developments Ltd) v Secretary of State for the Environment, Transport and the Regions* [2001] UKHL 23

39 *Wheeler v. Leicester City Council* [1985] AC 1054, 1078 B-C

40 *Associated Provincial Picture Houses Ltd. v Wednesbury Corporation* [1948] 1 KB 223

41 *Council of Civil Service Unions v Minister for the Civil Service* A.C. 374, 410 per Lord Diplock

42 Arden, Lady Justice. (2013). *Proportionality: the way ahead*? Public Law P.L. (2013) July Pages 498-518

43 Unreported

became apparent that the Council intended to immediately remit the decision back to the Planning Committee with the acknowledged procedural defect rectified on the papers. Permission was duly granted again within a matter of weeks, essentially rendering the procedure (in the eyes of the client) little more than a costly exercise in delay.

The judiciary has been asked to consider whether *Wednesbury* is the appropriate standard of review in numerous environmental cases in recent years (including EIA and Habitats and Species Directives cases).[44] However, the courts have consistently held that *Wednesbury* is the correct standard of review. The intensity of review is partly a function of the degree to which the courts consider it necessary to defer to the executive. Where the decision-maker has discretion to balance competing considerations, the courts tend to be even more deferential. Thus, in the majority of town and country planning cases, for example, the view of the court is that it is entirely for the decision maker to attribute to the relevant considerations such weight as it thinks fit. In fact the courts can, and do, conduct a forensic analysis of the relevant technical issues in some cases (for example in private environmental law cases). The point is that they choose not to do so in public law cases.

In addition to the cases cited above, the limitations of the *Wednesbury* test are borne out by practical experience. The Environmental Planning and Litigation Service (EPLS) was established as a partnership between Leigh Day and Landmark Chambers in September 2013 to provide specialist advice on prospective environmental JRs. It has since advised some 120 clients as to whether they have arguable grounds to challenge the decisions of public bodies by way of JR. Of those enquiries (most of which concern planning proposals), counsel advised that 15 cases had grounds for JR with reasonable prospects of success (i.e. they demonstrated identifiable legal errors extending beyond merits review type complaints). The vast majority of the remaining cases raised substantive review issues but were advised that they would not meet the threshold for *Wednesbury* review, despite instances where – for example – decisions have been made on the basis of very little information, or it is clear that only scant consideration has been given to consultation comments from the public.

Most individuals and community groups understandably have limited experience of the process of JR. Many allege the decision-maker has acted unreasonably and unlawfully, only to be advised that the decision cannot be challenged because the Courts will not intervene in matters of judgment or on the merits (i.e. there is no effective substantive review available to them in the absence of a perverse or absurd decision). Most go away disappointed and baffled that the law does not allow them to question a decision that seems indefensible as a matter of common sense, or ask for a review on the basis of what is reasonable or

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[44] See, for example, *R (on the application of Loader) v Secretary of State for Communities and Local Government* [2011] EWHC 2010 (Admin) and *R (on the application of Loader) v Secretary of State for Communities and Local Government* [2012] EWCA Civ 869, *R (Bowen-West) v Secretary of State* [2012] EWCA Civ 321, [39], *R (Evans) v Secretary of State for Communities and Local Government* [2013] EWCA Civ 114, [32]-[43], *R (on the application of (1) Derek Foster (2) Tom Langton (claimants)) v Forest of Dean District Council (Defendant) & (1) Homes & Communities Agency (2) Natural England (Interested Parties)* [2015] EWHC 2648 (Admin), *Smyth v Secretary of State for Communities and Local Government* [2015] EWCA Civ 174, [79]–[80], *Abbotskerswell Parish Council v (1) Teignbridge District Council (2) Secretary of State for Communities & Local Government* [2014] EWHC 4166 (Admin), *Feeney v Oxford City Council* [2011] EWHC 2699 (Admin) at [81], *Cairngorms Campaign v Cairngorms National Park Authority* [2013] CSIH 65, at [63] to [64], *R (the RSPB) v Secretary of State for the Environment, Food and Rural Affairs & BAE Systems (Operations) Ltd (Interested Party)* [2015] EWCA Civ 227, *R (on the application of Richard McMorn) v Natural England & Defra* [2015] EWHC 3297 (Admin) and *R (on the application of Dillner) v. Sheffield City Council* [2016] EWHC 945 (Admin)

proportionate or better informed. Many point out the inequity that exists between third parties and developers, the latter enjoying the right to appeal a decision and receive a full merits review.

The UNECE Aarhus Convention[45] requires contracting Parties to ensure that members of the public concerned have access to a legal review procedure to challenge the substantive and procedural legality of decision, acts or omissions subject to Article 6 of the Convention (essentially cases concerning EIA) and other environmental cases. Unfortunately, the Convention fails to define what "substantive legality" means and there are varying standards of review available in the courts and tribunals of the Parties to the Convention, some of which (as in the Swedish Land and Environment Courts) provide a full merits review. The Court of Justice of the European Union (CJEU) applies a proportionality test in environmental cases.[46] The intensity with which it is employed varies depending on whether the national measure interferes with a freedom guaranteed by an EU treaty, relies on derogation from an EU treaty, or simply implements EU law.[47] The Aarhus Convention Compliance Committee has previously suggested that the application of the proportionality principle could potentially provide a more appropriate standard of review in cases within the scope of the Aarhus Convention provided that the principle does not exclude any issues of substantive legality from review.

In December 2017, the RSPB, Friends of the Earth, Friends of the Earth Scotland and Leigh Day submitted a Communication to the ACCC alleging that the UK is in breach of the relevant provisions of the Aarhus Convention for a failure to provide a review of procedural and substantive legality.[48] The Communication was declared admissible by the Compliance Committee in March 2018 and a hearing will hopefully take place in 2019. If the Committee finds the UK in non-compliance with the relevant provisions of the Convention, the Governments of the UK will be prompted to decide what intensity of review is Aarhus-compliant and how it might be guaranteed.

The cost of taking legal action

In addition to the problems around intensity of review, people should not have to face crippling legal costs to bring public interest cases to court. Following the submission of a complaint to the European Commission by a coalition of environmental NGOs in 2005[49] (resulting in infraction proceedings against the UK),[50] the Governments of the UK introduced bespoke costs rules for environmental (Aarhus) cases. The new rules were a significant improvement on the previous regime of Protected Costs Orders (following a case called *Corner House*[51]) because they offered prospective claimants in environmental cases absolute advance certainty as to the extent of their adverse costs liability (i.e. the legal costs payable by them to the

45 The UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters done at Aarhus, Denmark on 25th June 1998 and ratified by the UK in February 2005 – see here

46 See Jacobs, F. (2006) The Role of the European Court of Justice in the Protection of the Environment. Journal of Environmental Law (2006) Vol 18 No 2, 185–205. The paper discusses relevant judgments of the court including ADBHU (Case 240/83 Association de défense des brûleurs d'huiles usages (ADBHU) [1985] ECR 531), the Danish Bottles Case

47 *R (oao Lumsdon and others) v Legal Services Board* [2015] UKSC 41 [37]-[73]

48 Communication ACCC/C/2017/156 UK – see here

49 Complaint submitted by the Coalition for Access to Justice for the Environment (CAJE), which then comprised WWF, the RSPB, Friends of the Earth, Greenpeace, the Environmental Law Foundation and Capacity Global

50 Case C-530/11, *Commission v UK* judgment available here

51 *R (Corner House) v Department of Trade and Industry* [2005] EWCA Civ 192

defendant public body if they were unsuccessful). The cap on adverse costs liability for individual claimants was £5,000 and in all other cases it was £10,000.

In 2017, the Ministry of Justice implemented a number of changes to the costs regime for Aarhus cases. These changes were progressed in the face of substantial public opposition and Parliamentary concern[52] and irrespective of the fact that environmental cases only constitute around 1% of JRs taken (approx. 150 of some 15,000+ cases annually).[53] The new Rules remove prior certainty for claimants with regard to adverse costs liability in environmental cases.[54] Claimants must now provide a schedule of their financial resources when applying for JR. On the basis of this information, defendants can apply for the "default caps" of £5,000 and £10,000 to be varied (for which read increased). While the court must ultimately ensure that costs are not "prohibitively expensive" for the claimant as a result of EU law,[55] the fact that the cap may be increased will undoubtedly have a "chilling" effect on potential claimants – as illustrated by the case below.

The Liverpool Green Party (LGP) is an unincorporated association, which means it has no separate legal personality and can only bring a claim through an individual who acts on behalf of its members. It was advised by counsel that it had a strong claim for JR against a recent decision of Liverpool City Council to grant planning permission for a 333 car car-park in an Air Quality Management Area without undertaking an air quality assessment. LGP sent a letter in accordance with the Judicial Review Pre-Action Protocol outlining their grounds of claim. The Council's response did not properly engage with the substance of those grounds. In relation to costs, however, it stated: "*Please note that any claim for a cost protection order will be carefully examined. In particular it is noted that the court now has discretion under CPR 45.44 to vary the limits on maximum costs liability for Aarhus Claims and the Council will therefore require confirmation of the financial resources of your client in the event that it seeks a protective costs order*". In light of this correspondence, LGP was unable to find an individual prepared to act as claimant in that claim for a JR of the Council's decision. The requirement to submit their personal financial resources for scrutiny and the risk of a potentially large order for costs against them (as an individual) deterred anyone from bringing a claim on behalf of the unincorporated association.

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52 In February 2017, the House of Lords Secondary Legislation Scrutiny Committee concluded: "*While asserting that the changes are to "discourage unmeritorious claims"... [and] the MOJ states that its policy objective is to introduce greater certainty into the regime, the strongly negative response to the consultation and the submission received indicate the reverse outcome, and that as a result of the increased uncertainty introduced by these changes, people with a genuine complaint will be discouraged from pursuing it in the courts..."* (see here). Additionally, on 14th March 2017, Lord Marks of Henley-on-Thames laid a Motion of Regret in the House of Lords "*that this House regrets that the Civil Procedure (Amendment) Rules 2017 have been laid with insufficient regard to the overwhelmingly negative response to the proposed Rules during the consultation and to the lack of evidence that significant numbers of unmeritorious environmental claims are currently brought; that they may escalate claimants' legal costs and act against the intention of the Aarhus Convention that the cost of environmental litigation should not be prohibitive; and that they are likely to have the effect of deterring claimants from bringing meritorious environmental cases (SI 2017/95 (L. 1)). 25th Report from the Secondary Legislation Scrutiny Committee*" (see here). A subsequent debate on the Motion in the House of Lords on 13th September 2017 resulted in a defeat for the Government.

53 Information obtained from the Ministry of Justice under EIRs 2004 and Ministry of Justice Civil Justice Statistics Quarterly, England and Wales, October to December 2017 – see here

54 Civil Procedure Rules, Part 45.44 – see here

55 See Case C-530/11 *Commission v UK* and Case C-260/11 (request for a preliminary ruling under Article 267 TFEU from the Supreme Court of the UK) *The Queen, on the application of Edwards v Environment Agency, First Secretary of State, Secretary of State for Environment, Food and Rural Affairs*

There are other aspects of the costs regime that are problematic for those seeking to bring environmental cases. The CPR limits the amount of legal costs that successful claimants can recover from the defendant public body to £35,000 inclusive of VAT (this is called the "reciprocal cap" or the "cross cap") and it can make cases too expensive to win. Ironically, this was the case in the JR referred to above by the RSPB, Friends of the Earth and Client Earth challenging the changes to the 2017 Aarhus costs regime – the claimants were successful in securing a number of helpful changes to the CPR as a result of the JR but their lawyers were unable to recover their full costs because of the reciprocal cap.[56]

Interestingly, the approach to costs in the UK courts differs markedly from the approach in the CJEU, where unsuccessful applicants are not expected to pay the EU institution's legal costs on the basis that the Community institutions are already funded by the public purse (in effect, double recovery). The only costs payable are the travel and subsistence costs of EU legal staff attending the hearing, which usually (in my experience) amounts to no more than a few hundred euros.

Remedies in JR

There are a number of remedies available in JR proceedings. The most common is a quashing order, which nullifies a decision made by a public body. It is usually made where an authority has acted outside the scope of its powers (*ultra vires*). If the court makes a quashing order it can send the case back to the original decision maker directing it to remake the decision in light of the court's findings. Very rarely, if there is no purpose in sending the case back, it may take the decision itself. A prohibiting order is similar to a quashing order, in that it prevents a tribunal or authority from acting beyond the scope of its powers. A Mandatory order compels public bodies to fulfil their duties. A declaratory judgment clarifies the respective rights and obligations of the parties to the proceedings, without actually making any order. Damages are available as a remedy in JR, but only where requested and in limited circumstances. For damages to be available there must be either: (i) a recognised private law cause of action such as negligence or breach of statutory duty or; (ii) a claim under EU law or the Human Rights Act 1998.

Finally, there is injunctive relief, which prevent a public body from acting in an unlawful way. Where there is an imminent risk of damage or loss, and other remedies would not be sufficient, the court may grant an interim injunction to protect the position of the parties before going to a full hearing. If an interim injunction is granted pending final hearing, it is possible that the party benefitting from the injunction will be asked to give an undertaking (sometimes called a cross-undertaking in damages) that if the other side is successful at the final hearing, the party which had the benefit of the interim protection can compensate the other party for its losses. This does not happen where the claimant is legally aided but it can happen in environmental cases and the extent of the undertaking required has prevented claimants from being able to secure interim relief. For example, in the *Lappel Bank* case, the RSPB requested an interim injunction to protect Lappel Bank (part of the Medway Estuary and Marsh system, a large wetlands area serving as a breeding ground, migratory route and wintering area for substantial numbers of wildfowl and water species, including two species listed on Annex I of Wild Birds Directive) from development as a port for the duration of the legal proceedings. However, the RSPB was unable to compensate the Port of Sheerness for losses resulting from the imposition of interim relief. The RSPB subsequently won the case, which went all

[56] *The Royal Society for the Protection of Birds, Friends of the Earth & Client Earth v Secretary of State for Justice* [2017] EWHC 2309 (Admin)

the way to the House of Lords and involved a referral to the European Court of Justice (as was) but it was a somewhat pyric victory as by that stage the mudflats had been developed as a car park.[57]

The discretionary nature of the remedies outlined above means that even if a court finds a public body has acted wrongly, it does not *have* to grant any remedy. Contrast the CJEU, in which the remedies are genuinely dissuasive. Fines for non-compliance with CJEU judgments routinely extend to a lump sum payment and daily penalties. For example, a failure to comply with judgments concerning the implementation of the Urban Waste Water Directive in Belgium recently resulted in a lump sum fine of €15,000,000 and a daily penalty of €62,000.[58]

The JR climate

Against the limitations outlined above, there have been a number of other unhelpful changes to the JR regime generally in recent years. These include:

- **Oral renewal** - as of 2013, there is no oral renewal for claims deemed "totally without merit" (this applied to some 18% of JR applications in 2017);[59]

- **Criminal Justice and Courts Act 2015**[60] – changes introduced under the CJCA 2015 include the "Significant difference test" (s.84), in which the court can refuse an application for JR where it considers that the outcome for the applicant would not have been substantially different if the conduct complained of had not occurred and the introduction of costs orders against interveners in certain circumstances (s.87);

- **Time limits** - there is now a reduced (and very challenging) time limit for challenging decisions under the Planning Acts of 6 weeks. In reality, it is extremely difficult for individuals and community groups to find lawyers, secure legal advice, fundraise and decide to embark on legal action within the deadline;

- **Court fees** – the Administrative court fee has doubled in recent years to just under £1,000[61] and fees in the Supreme Court routinely amount to approximately £5,000;[62]

- **Legal aid** – while public funding is theoretically still available in environmental cases, there are strict merits and means requirements (NGOs do not qualify in any event). Where awarded, a Community Contribution in the order of several thousands of pounds is usually required.

An Environmental Court or Tribunal

To protect the environmental rights created under the new Environment Act, the Government should establish an Environmental Court with environmentally literate judges, technical advisers and bespoke rules on standing, costs, intensity of review and penalties/remedies.

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57 For a fuller discussion of the case, please see the UNECE Handbook on Access to Justice under the Aarhus Convention (1st Edition) (2003) available here

58 See European Commission Press Release here

59 Ministry of Justice Civil Justice Statistics Quarterly, England and Wales, October to December 2017 – see here

60 See here

61 See the Administrative Court Judicial Review Guide 2018 (Annex 2 – Forms and Fees) available here

62 See Schedule 1 of The Supreme Court Fees Order 2009 available here

There has been an exponential growth in environmental courts or tribunals in recent decades. By 2016, more than 1,200 (not including those at local or municipal level) were dispersed in 44 countries world-wide.[63] According to the world's pre-eminent experts, Professors (Rock) Pring and Catherine Pring, who for more than a decade have studied the development of those institutions, this development is 'dramatically changing the playing field for environmental justice around the world'.[64] As of 1st March 2018, nearly 1,500 ECTs existed.[65] This expansion has engendered significant attention for the way in which it has changed judicial responses to environmental problems, according to Brian J Preston SC, Chief Judge of the Land and Environment Court in New South Wales, Australia, and one of the world's leading experts on the development of ECTs. In 2014, the Hon. Justice Preston identified the 12 key characteristics that are required for an ECT to operate successfully in practice.[66] Of crucial importance is the requirement that ECTs are independent of Government and impartial, but other factors with immediate resonance for the UK include the fact that such courts have a comprehensive and centralised jurisdiction covering administrative, civil and criminal proceedings – thus ensuring that cases with one or more elements can be dealt with holistically.

Other key factors seem to be that the judiciary are environmentally literate and have access to scientific and technical experts acting as advisers. The Land and Environment Court in NSW has a continuing education programme for judges, including seminars and training programmes on current environmental issues and advances in knowledge.[67] Environmental courts and tribunals also facilitate access to justice and develop environmental jurisprudence. During its 38 years of operation, the Hon Justice Preston reports that: '*Government policy and decision making has altered to take account of and implement the Court's decisions. In the Court's merits review jurisdiction, the Court's decisions and reasons for decisions have influenced strategic policy and decision-making processes of local and State government. For example, environmental planning instruments and development control plans have been amended to incorporate principles and reasoning articulated by the Court in its judgments. In the Court's judicial review jurisdiction, government has remade decisions and delegated legislation in accordance with the Court's decisions. Government has also altered policies or made new policies to account for the Court's decisions*'.[68]

No such court or tribunal exists in the UK and while the issue has been repeatedly raised,[69] there are concerns around the practicality and cost of restructuring the courts and tribunal system to create a specialised environmental forum. On this point, Judge Preston observed that the ability of the court to look at multiple aspects and deal with issues quickly and effectively meant that the court comprehensively pays for itself. I believe that serious consideration should be given to the creation of UK environmental courts or

63 Smith, D. C. Journal of Energy & Natural Resources Law, 2018, Vol 36, No 2, 137-140

64 George (Rock) Pring and Catherine Pring, Environmental Courts & Tribunals: A Guide for Policy Makers (UN Environment Programme 2016) – see here

65 *Ibid*

66 Brian J Preston, 'Characteristics of Successful Environmental Courts and Tribunals' (2014) 26 Journal of Environmental Law, 365, 387

67 Presentation given by the Hon. Brian J Preston SC, Chief Judge of the Land and Environment Court of New South Wales, Australia at an event hosted by the UK Environmental Law Association on 'An Environmental Court after BREXIT' on 24th July 2018 and subsequent personal communication 30th July 2018

68 *Ibid*

69 See, for example: (i) *The Environmental Court Project - Final Report to the Department of Environment, Transport and the Regions* by Professor Malcom Grant (1999) available here; (ii) M. Woods, R. Macrory '*Environmental Civil Penalties'* (2003) Centre for Law and the Environment, Faculty of Laws, University College London; and (iii) The Environmental Justice Project (2004) *Environmental Justice* available here

tribunals with the central objective of enforcing the environmental rights described above. Such a forum should have bespoke rules in order to comply with the requirements of the UNECE Aarhus Convention, including:

- The six-week deadline in planning cases in England and Wales should be extended in order to ensure fairness to claimants in accordance with Article 9(4) of the Aarhus Convention;

- The existing liberal standing requirements for Judicial Review should be extended to all statutory reviews;

- Any new environmental court or tribunal should provide a review of procedural and substantive legality as required by Articles 9(2), (3) and (4) of the Aarhus Convention. Proportionality (the standard of review applied in the Court of Justice of the European Union (CJEU)) is one possibility but there may be others - many ECTs apply a full merits review;[70]

- The court should be staffed by environmentally literate judges assisted by scientific and technical experts;

- The costs regime for environmental cases should be revised to restore advance certainty in respect of adverse costs liability, court fees should be reduced and the reciprocal cap should be abolished. There is no basis for it in the Aarhus Convention as the concept of "fairness" in Article 9(4) relates to the claimant, not the defendant public body.[71] Third party interveners should not be at risk of costs;

- The costs regime for private law environmental cases (including nuisance cases) should be modified to ensure that costs are not prohibitively expensive for claimants, following the findings of the Aarhus Convention Compliance Committee in 2016;[72]

- Consideration should be given to the requirement that certain environmental cases should have an automatic suspensory effect.[73] Ideally, there should be no requirement on the claimant to provide the court

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70 For example, the Swedish Land & Environment Courts, the Land and Environment Court of New South Wales, the Netherlands Administrative Court and the New Zealand Environment Court. For a thorough and extensive examination of the issue, please see Professor Malcom Grant's Final Report to the DETR on Environmental Courts (1999) available here

71 This point was clarified in Communication ACCC/C/2008/33 UK (paragraph 135) available here

72 See Communications ACCC/C/2013/85 and ACCC/C/2013/86, in which the ACCC concluded: "*by failing to ensure that private nuisance proceedings within the scope of article 9, paragraph 3, of the Convention, and for which there is no fully adequate alternative procedure, are not prohibitively expensive, the Party concerned fails to comply with article 9, paragraph 4, of the Convention"* (see here)

73 The commencement of proceedings in the Land and Environment Court may or may not have a "suspensory effect" depending on the nature of the proceedings. Appeals against a decision of a consent authority (such as local council or a Minister) to grant development consent to carry out development does suspend the operation and effect of the consent pending the appeal. If the Court determines to refuse consent on the appeal, the consent granted by the consent authority ceases to have effect. If the Court determines to grant consent, that consent is taken to be a consent granted by the consent authority (in substitution for the earlier consent). Appeals against development control orders or other administrative orders (such as stop work orders or orders to do work) do not effect a stay of the orders. Proceedings to enforce, by civil means, compliance with planning and environmental laws do not operate to prohibit or compel conduct in breach of the laws; an interlocutory injunction must be sought. Depending on the nature and subject matter of the

with a cross-undertaking in damages in order to secure interim relief in environmental cases but, at the very least, the quantum of any cross-undertaking should form part of the assessment as to what level of costs is prohibitively expensive for the claimant;

- The court should have the power to award dissuasive and innovative remedies including restoration orders, damages and measures requiring personal accountability; and

- There should be public funding for cases brought in the public interest by individuals and NGOs. People should not have to prove they are "poor enough" - and communities should not be expected to raise substantial sums of money - to qualify for it. Such a fund would guarantee compliance with Article 9(5) of the Aarhus Convention, which requires contracting Parties to consider the establishment of appropriate assistance mechanisms to remove or reduce financial and other barriers to access to justice.

A New Environmental Watchdog[74]

The European Commission currently plays a crucial enforcement role. At present, any individual, community group or NGO can submit a complaint to the European Commission concerning an alleged breach of EU environmental law. The Commission will investigate the complaint and has the discretion to pursue it without the complainant having any financial exposure or obligation to resource it. The Commission will attempt to resolve the issue with the Member State through a pre-litigation procedure involving the issuing of a letter of formal notice and a reasoned opinion, both of which give the member state a fixed time to comply. If these measures fail, the Commission can then refer cases to the CJEU, which will reach judgments and, where necessary, impose hefty fines to ensure compliance.

If the UK is to replicate and reinforce these functions, we will need an independent Watchdog with sharp teeth and a wide remit – and a radical overhaul of the judicial system (see above). Any new Watchdog should be empowered and resourced to consider complaints about potential infringements of environmental law on the part of all bodies performing public functions (not just Ministers of the Crown or public bodies) submitted by individuals, community groups and NGOs. It should have the discretion to refer cases to Court and initiate enforcement action of its own volition. It is unacceptable for the Government to assume that the public will assume the responsibility (and cost) of ensuring compliance with environmental law. Not only is this flawed in principle (as any new Watchdog must be able to refer cases to court to at least achieve parity with EU complaints process), the mechanism by which the public is expected to

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proceedings and the identity of the plaintiff, the Court may or may not require the plaintiff to provide an undertaking as to damages as the "price" for obtaining interlocutory injunctive relief. An undertaking as to damages is not usually required where the plaintiff is a public authority responsible for enforcing the law or in proceedings brought in the public interest. In the latter instance, the Court has a rule, r 4.2(3) of the Land and Environment Court Rules 2007 (NSW), which provides: (3) In any proceedings on an application for an interlocutory injunction or interlocutory order, the Court may decide not to require the applicant to give any undertaking as to damages in relation to: (a) the injunction or order sought by the applicant, or (b) an undertaking offered by the respondent in response to the application, if it is satisfied that the proceedings have been brought in the public interest. Further information about injunctions in environmental cases, including interlocutory injunctions is provided in: B J Preston, "*Injunctions in planning and environmental cases*" (2012) 36 Australian Bar Review 84-152.

[74] This section draws heavily on Wildlife & Countryside Link's response to the Defra consultation on Environmental Principles and Governance after the United Kingdom leaves the European Union dated 2nd August 2018. The response was drafted on behalf of Link by Matthew Stanton (WWF) and myself with helpful input from other members of the Legal Strategy Group. The response is available here

perform this function - JR - is blunt in itself for the reasons outlined above. There is precedent for such powers – the Equality and Human Rights Commission ("EHRC") can institute legal proceedings directly and intervene in legal proceedings brought by other parties.[75]

If the Watchdog is to have a truly strategic approach to the implementation and enforcement of environmental law, it will need a robust scientific and technical basis against which informed decisions can be made, action progressed and progress measured. The enforcement process must therefore be complemented by an informed and robust system of technical information gathering and reporting, thus enabling any new Watchdog to: (i) assess overall compliance with environmental law; (ii) determine whether public complaints are one-off instances of non-compliance or indicative of an underlying problem with regard to implementation; (iii) identify problems and progress own-initiative legal action that is strategic, targeted and resource efficient; and (iv) report publicly on compliance with environmental law and how legal action is helping to achieve stated objectives.

The European Commission is currently supported in this strategic function by the network of Committees and scientific bodies. These functions must be replicated in order to ensure the new body can initiate informed, strategic enforcement action against public bodies of its own volition. EU laws routinely require Member States to report on implementing measures and evaluate the impact of those measures on achieving the objective(s) of the law. The Commission is then required to prepare a composite report based on the information provided by the Member States. Directives also commonly require the establishment of a committee consisting of representatives of the Member States and chaired by a representative of the Commission. The objective of these so-called "Comitology" Committees is to assist the Commission in information gathering, reporting and identifying measures to be taken in order to achieve compliance with the objectives of the Directive. By way of example, the relevant provisions in the Habitats and Species Directive can be found in Articles 17, 20 and 21 and in the Water Framework Directive, Articles 15, 18 and 21.

There were 31 active comitology committees in the environment sector in 2016 including the Committee on the Conservation of Natural Habitats and of Wild Fauna and Flora (HABITAT) and the Committee on the Marine Strategy Framework Directive.[76] The committees decide their operating procedures (based on standard committee rules of procedure) and meet several times a year, following which the Commission publishes the voting results and the summary record of the meeting in the comitology register.[77]

The Commission is also assisted in its functions by "Expert Groups", which provide expertise to the Commission in preparing and implementing policy as well as delegated acts. Expert groups provide a forum for discussion on a given subject and are based on a specific mandate involving high-level input from a wide range of sources and stakeholders that takes the form of opinions, recommendations and reports. This input is not binding on the Commission.

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75 Following debate and amendment, please note that section 16(1) (d) of the European Union (Withdrawal) Act 2018 now provides that any new Watchdog must have the power to commence legal proceedings in its own right – see here

76 Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)

77 The comitology register contains a list of all comitology committees, as well as background information and documents relating to the work of each committee – see here

While Comitology committees and expert groups exhibit numerous differences in their manner of operation (principally as either political or technical bodies), their functions are complementary. Together, they serve to support the Commission in the effective development, implementation and enforcement of environmental law. In order for the new Watchdog to operate effectively as an informed body, these functions must be replicated. The establishment of devolved and UK expert advisory functions would enable an effective UK-wide approach to the implementation and enforcement of key pieces of environmental legislation.

The legal status and resourcing of the Watchdog are crucial to its effective functioning and ensuring it is independent in line with the objectives. Firstly, the status of the new body should be permanently assured. In 2012, over 100 non-departmental public bodies were abolished, despite widespread public opposition to the so-called "bonfire of the quangos". These bodies included (amongst others of environmental importance) the Sustainable Development Commission (SDC), and the Royal Commission on Environmental Pollution (RCEP). It is therefore important to ensure that the existence and operation of the new body is not susceptible to the whim of Government.

The Press Recognition Panel (PRP) was created as a result of the Leveson Inquiry into press standards, which followed widespread concern about alleged unlawful activities carried out by some sections of the press, such as phone hacking. The PRP is a body established by Royal Charter, thus ensuring that it remains wholly independent of any other body or influence and that it is also very difficult to dissolve. Essentially, board members can only be removed by the unanimous agreement of the other board members. The Royal Charter itself, which gives the Board Members that security of tenure, can only be amended by a two thirds majority of each of the House of Commons, the House of Lords and the Scottish Parliament, and with the unanimous agreement of the Board itself. Any new Watchdog must be established in a similarly robust manner. It should also be in receipt of adequate ring-fenced funding. The PRP received guaranteed funding from the Treasury for the first three years of its operation (and, crucially, the Treasury had no control over how the PRP spent that money).[78]

The new Watchdog should be able to enforce all environmental law, including the UK's obligations under the Climate Change Act 2008,[79] compliance with Multilateral Environmental Agreements (in addition to civil society's ability to make a complaint to the relevant committee of the MEA) and the application of environmental policy and law within the planning system.

Finally, the European Commission routinely publishes guidance on the implementation of various provisions of EU law, much of which contain helpful practical steps and case studies to aid compliance (see, for example, guidance on the EIA Directive,[80] Habitats and Birds Directives[81] and the Water and Marine Strategy Framework Directives).[82] The production of such guidance is overseen by the Comitology committees, thus helping to ensure that it ultimately reflects EU-wide issues and solutions. The publication of Guidance on the implementation of environmental law, and a compendium of jurisprudence on environmental cases, could be other useful functions the new Watchdog could perform.

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78 David Wolfe, QC, Chair of the Press Recognition Panel, speaking at a seminar on Governance post Brexit hosted by Matrix Chambers on 24th May 2018. Information about the PRP can be found here

79 See here

80 See here

81 See here and here

82 See here (WFD) and here (MSFD and WFD)

Environmental & Wildlife Crime[83]

Wildlife crime can be defined as: "*Any action, which contravenes current legislation governing the protection of the UK's wild animals and plants*".[84] It is widely accepted that many wildlife crimes amount to serious crime,[85] with offenders often being involved in other types of crime, especially those where a substantial financial benefit can be gained - organised crime groups have been identified as having particular involvement in the illegal trade in endangered species.[86] Other wildlife crimes can involve barbarous cruelty and have a significant effect on the conservation status of protected species.

The UK has introduced international obligations to address wildlife crime.[87] The general principal of domestic legislation - i.e. that sentencing should be dissuasive and that crime should not pay - reinforces those obligations. However, that is sadly often not the case.

Set in the context of the total number of cases heard by the courts, there are few prosecutions for wildlife crime. A magistrate may hear a wildlife crime case perhaps once a decade. Wildlife and Countryside Link members have spoken with magistrates that often feel unable to make informed decisions on sentencing when hearing wildlife crime cases.[88] Invaluable guidance for Magistrates in the form of *Costing the Earth – Guidance for Sentencers*[89] – was published by the Magistrates' Association in 2010 but many now believe that formal sentencing guideline is urgently needed.

Furthermore, many argue that wildlife offences, including those resulting in conservation impact, should be capable of being heard by the upper courts. Such a recommendation was also noted in the Law Commission's recent review of wildlife law, suggesting that all wildlife crime should be heard in the upper courts.[90]

When individuals are convicted of crime against wildlife, it is very rare that they receive custodial sentences. A recent report by WWF found that 74% of wildlife trafficking cases resulted in non-custodial sentences.[91] Whilst the lower courts now have authority to impose unlimited fines, fines for wildlife crimes seldom approach the previously allowed maximum. WWF's report found that fines for wildlife trafficking offences were low, with 88% less than £2,500 and 70% less than the wildlife product value.[92]

All too often, sanctions imposed by magistrates are simply inadequate, and cannot be regarded as dissuasive. Examples of such inadequate penalties include:

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83 Text in this section draws on, amongst other sources, a report by Wildlife & Countryside Link *Wildlife Crime in 2016 - A report on the scale of wildlife crime in England and Wales* – available here and a Link Briefing on Sentencing Guidelines for Wildlife Crime available here

84 National Wildlife Crime Unit: "*What is wildlife crime*" (see here)

85 New Scientist (2015) "*UN puts wildlife crime on a par with drug and people trafficking*" – see here

86 Telegraph (2016) "*Traveller gang jailed over £57 million rhino horn thefts*" – see here

87 For example, the Convention on International Trade in Endangered Species of Fauna and Flora (CITES). EU Birds Directive 79/409/EEC & EU Habitats Directive 92/43/EEC

88 WWF (2017) Sentencing wildlife trade offences in England and Wales: consistency, appropriateness and the role of sentencing guidelines

89 See here

90 Law Commission Wildlife Law Volume 2 Draft legislation (Law Com 362) – see here

91 WWF (2017) Sentencing wildlife trade offences in England and Wales: consistency, appropriateness and the role of sentencing guidelines

92 *Ibid*

- In April 2010, one of the most serious cases of wildlife poisoning ever heard in the UK noted that numerous poisoned baits were placed in the open air, some near rights of way. A number of dead birds, thought to have been poisoned, were also found. A professional gamekeeper was fined just £1,000. The sentencing for this case does not reflect the seriousness of the crime, not only because of the intention to gruesomely kill random wildlife, but also because of the obvious threat to public and domestic animal health posed by the possession and use of an illegal poison;

- In March 2015, a woman was found guilty of selling and exporting tiger parts, a species at real risk of extinction largely due to illegal killing and trafficking. However, she only received a 12 month community order to undertake 120 hours of unpaid work, and was ordered to pay costs;

- In December 2016, a number of men were convicted of 22 charges of using dogs to kill wild deer, and were given suspended custodial sentences. Further charges were brought relating to dogs being severely injured during prolonged fights with a badger. These offences clearly involved appalling cruelty;

- In April 2017, a house owner and a developer were fined just £83 and £127, respectively, after unlawfully destroying a bat roost. The owner had previously indicated a willingness to accept a fine rather than to delay work. The work was undertaken at a time when breeding bats may have been present and an alternative roost that had been provided was not fit for purpose. The owner, by undertaking the work without a licence, saved several thousands of pounds.

Penalties for wildlife crime and animal welfare offences should be proportionate to the offence committed. This could include including unlimited fines, prison sentences and actions against individuals. There should also be an offence of vicarious liability in relation to raptor persecution.

Despite the breadth of wildlife crime, there are a number of common challenges associated with addressing wildlife crime. These include the following: (i) the lack of a comprehensive system for recording wildlife crime, hampering the analysis of trends, the setting of appropriate priorities, and the effective allocation of resources; (ii) the willingness and ability of the police to effectively address wildlife crime; and (iii) uncertainty as to the admissibility of evidence. In order to address these problems, it is recommended that:

- Wildlife crime should become notifiable and recordable crimes to be included in statistical returns made by the police to the Home Office;

- The Home Office should produce an annual report on wildlife crime, identifying trends and recommending appropriate priorities and resource allocation;

- Each police force should appoint a force champion for wildlife crime, with coordinating responsibilities for a team of trained wildlife crime officers;

- Police officers and appropriate members of staff receive sufficient training to enable them to identify reports of wildlife crime and to respond in an effective manner;

- The Crown Prosecution Service ensures that specialist wildlife crime prosecutors continue to be available in all parts of England and Wales;

- Contentious issues around the admissibility of evidence be identified, discussed and remedied;

- In order to aid informed and adequate sentencing, a comprehensive wildlife crime sentencing guideline be produced by the Sentencing Council; and

- A partnership approach to all types of wildlife crime aimed at raising public awareness and crime prevention be pursued.

A Third Party Right of Appeal in planning[93]

The "first party" in development control in planning is the applicant for planning permission and the "second party" is the local planning authority (LPA). So-called "Third parties" are anyone else with a view on a planning application, whether they have a direct interest (e.g. as owner of the land on which the application is submitted) or a personal interest (e.g. as a neighbour) or a wider interest (e.g. as a parish council, community group or NGO).

Where an LPA refuses planning permission, grants planning permission subject to condition(s), or fails to determine the application within the relevant deadlines, the first party applicant has the right to appeal to the Planning Inspectorate within six months of the date on the decision notice. However, there is no third party right of appeal (TPRA) - so if a local resident or NGO has objected to a planning application and it is subsequently approved by the LPA, there is no right of appeal.[94] If the project is one of more than local significance, one may persuade the Secretary of State to "call in" the application for his/her own determination under section 77 of the Town & Country Planning Act 1990.[95] However, while the power to call-in planning applications under the TCPA 1990 is very general in scope, it is Government policy to call-in a very small number of planning applications every year.[96] In October 2010, the former coalition Government stated its policy that they will exercise the power to call in only very sparingly where matters of significant national interest and policy are concerned.[97] The position was reaffirmed in May 2012 when the Minister of State, Department for Communities and Local Government (Greg Clark) confirmed that call-in powers should be used sparingly. Essentially, the powers are only used when matters are of national significance.[98]

If the application is called in, the Secretary of State normally holds a Public Inquiry at which the merits of the proposed development will be considered with a full opportunity usually given to the public to make written and oral representations at the Inquiry. However, where an objector fails to have an application called in and planning permission is granted by the LPA, their only remedy is to challenge the decision to grant permission through JR. Save where the decision is *Wednesbury* unreasonable, the Court will be

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93 Text in this section draws on a research project I was involved in for the (as was) Council for the Protection of Rural England (CPRE), the Royal Society for the Protection of Birds (RSPB), WWF-UK, the Civic Trust, Friends of the Earth, the Town and Country Planning Association (TCPA), the Environmental Law Foundation (ELF) and ROOM in 2001. The Research was jointly undertaken by Green Balance, Leigh Day & Co Solicitors, John Popham and Professor Michael Purdue. The Report, Third Party Rights of Appeal in Planning, was published in 2002 and is available here

94 There is more information about appeals on the Planning Portal website (see here) or the Government's website (see here)

95 See here

96 For more information on the call-in procedure, please see House of Commons Briefing Paper Number 00930 *Calling-in planning applications* dated 17th July 2017 available here

97 House of Commons Debate 21st October 2010 c1122

98 House of Commons Debate 30th April 2012 c1234

unconcerned with the merits of the development and limit its consideration to the lawfulness of the decision making process (see the discussion on intensity of JR above).

I believe the current arrangements for challenging planning approvals are inadequate in a democratic society and that there is a strong case for the introduction of a qualified third party right of appeal in planning. Whilst this would have an impact on the speed of planning decisions, these concerns would be outweighed by the benefits of raising public confidence in the planning system and introducing higher standards for deciding planning applications. Increased transparency at an early stage and a right of redress at a later stage would go a long way to addressing public concerns about the way planning decisions are taken at present.

Some other countries with advanced democratic planning systems have third party rights of appeal including Ireland, Denmark, Sweden and Australia. Personal research conducted on the experience in Ireland demonstrated that third party appeals were made against 2.6% of all planning applications and that 37% of these resulted in refusals of permission, 60% with revised conditions and just 3% in a planning permission with the same conditions as those given by the local authority. It is also interesting to note that nearly 36% of those that appealed sought only to change the type or design of the development rather than prevent it.[99] Given that over 10% of appellants became aware of the proposed development after the local planning authority had made a decision, the opportunity for appeal by third party is critical – in the absence of this the group would not have had any opportunity to participate in the decision-making process.

Article 6(1) of the European Convention on Human Rights (ECHR) provides that, in the determination of their civil rights and obligations, everyone is entitled to a fair and public hearing by an independent and impartial tribunal established by law.[100] It is clear that prospective developers enjoy the protection of Article 6. The jurisprudence of the European Court of Human Rights would suggest that immediate neighbours to a proposed development have rights under Article 6 if the development will have direct adverse effects on their property. There are also arguments that third party rights arise under Article 1 of the First Protocol and Article 8 (a right to respect for private and family life, home and correspondence).[101]

The Aarhus Convention does not directly require a right of third party appeal. Two UK communications to the Compliance Committee alleged non-compliance with the Convention in respect of Articles 6 and 7 of the Convention. These arose in the context of the proposed construction of a superstore in Kent and various planning applications in London.[102] The Committee examined the communicants' arguments about whether the planning laws and procedures of England and Wales met the standards regarding public participation required in Articles 6 and 7, including whether the fact that oral hearings might not be held at meetings of planning committees breached the Convention. In rejecting these submissions, the Committee found nothing to substantiate the more general allegations about the planning system in England and Wales.[103] However, it has been argued that the creation of a right for third parties to have the merits of

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99 This research was conducted in 2001 so it is conceded that it is now somewhat out of date. It would be helpful to confirm the present position.

100 The text of the ECHR is accessible here

101 For a fuller explanation of the position, see pages 13-14 of the 2002 Report on TPRAs referred to above

102 Joined communications ACCC/C/2010/45 and ACCC/C/2011/61 (United Kingdom)

103 There is interesting commentary on the Communications referred to above here

proposed development examined at a public inquiry, at which their comments could be expressed and taken into account, would further the public participation requirements of Article 6 of the Convention.[104]

It is recognised that it would be appropriate to introduce a number of safeguards into any new TPRA system. The right should be qualified, in that only those who have objected to the original planning application should be permitted to appeal (with any exceptions at the discretion of the Inspectorate). Secondly, there would need to be measures to prevent any abuse of the right of appeal by those seeking simply to delay development, to gain commercial advantage, to secure benefits from a developer in return for the withdrawal of an appeal, or to gain publicity. It may also be necessary to control the volume of appeals by limiting it, at least initially, to a number of categories as recognised in the 2002 Report including:

- when the planning application is contrary to the provisions of an adopted development plan;
- when the planning application is one in which the local authority has an interest;
- major applications (as defined by the Planning Inspectorate);
- when the application is accompanied by an Environmental Impact Statement; and
- when the planning officer has recommended refusal of planning permission to the members.

There should, however, be no restriction on the grounds of appeal and there should be parity of choice (written representations or oral hearing) between developers and third parties. Although first parties have six months to lodge an appeal, the need for developers to have certainty with regard to development decisions is recognised and I would therefore suggest that the time limit for lodging an appeal should be something akin to 28 days from the granting of the full or outline planning permission. There should be no costs awarded in written representation cases and costs should be awarded for unreasonable or vexatious behaviour in oral hearing cases, including against third parties. The Secretary of State should set administrative targets for efficient handling of third party appeals.

[104] See paper written by John Litton QC, Landmark Chambers. The Second Pillar Public Participation in Decision Making, dated 8th February 2013 available here

“The landscape in the UK is shaped by farming. Yet not all change in recent times has been desirable: soils have been depleted, water courses degraded and nature has struggled to cope with the pace of change.

However, many farms are bucking this trend. Soils are being restored, nature is thriving and if more farmers followed this lead we can reverse these declines. With over 70% of the UK being farmland, we need to act now to deliver for wildlife at a landscape scale.

Nature friendly farmers believe that now is the moment for radical change in agricultural policy that rewards farmers for the conservation of natural resources alongside sustainable food production.”

Martin Lines
Farmer & UK Chair of Nature
Friendly Farming Network

Farmers are not the problem - they are a solution

There is a growing animosity in the conservation movement towards intensive farming. In 2017 a scientific report revealed that 76% of flying insects had vanished from German nature reserves over the last 25 years.[1] In March this year two studies in France recorded a decline of 30-80% in farmland bird numbers in the last 15 years,[2,3] matching our own UK figure of a 54% reduction between 1970 and 2015.[4] In all cases habitat destruction and pesticide use are implicated. And if these trends continue then we are facing an ecological apocalypse across Europe.[5-7]

There is no doubt that industrial farming is a central part of the problem, but is it fair to blame farmers and will it help wildlife's cause? No.

Farmers as individuals are very rarely the issue and many should be the most effective part of the solution. There is a large, profitable, organic farm which I visit where there is a far greater biodiversity than on the SSSI next door. It is brimming and buzzing with life, it is beautiful, I always leave with my faith in the partnership between sustainable farming and conservation intact. The problem is simply that those who are farming in harmony with wildlife are too few and the areas they are improving are still far too small. The excellent Nature Friendly Farming Network describes this cohort as 'many', a 'figure' often quoted widely in the farming fraternity, but its subjectivity hides the fact that this 'many' are not yet contributing anything meaningful... because there are not enough of them to turn the tides of ecological destruction. Why?

Because – just like other conservationist groups – theirs is a movement motivated by a slowly growing coalition of personally motivated energies. The broader farming movement is not being properly encouraged to join in, and one of the principal barriers to this is the National Farmers Union.

This organisation is neither national nor properly representative of all farmers' interests, and nor is it really a 'union', as in a democratic association of

workers created to help represent their collective interests in negotiations with their employer. As highlighted by the Ethical Consumer investigation into the premise and practices of the NFU, ‘English Agribusiness Lobby’ would be a better name.[8] Scotland, Wales and Northern Ireland have their own ‘unions’. The attention of these ‘unions’ to the interests of smaller farmers is slight, compared to the focus given by them to larger intensive farming methods, and their relationships with powerful agrichemical companies such as Syngenta are notable and significant.[8,9] These ‘unions’ don’t appear to like science much unless it suits their agenda: in the teeth of the weight of scientific opinion they have been keen advocates of the badger cull,[10] they steadfastly fought against the withdrawal of the neonicotinoid pesticides and have resisted restrictions in the use of Glyphosate.[11,12] Why?

Sadly the ‘NFU’ don’t appear to like conservationists much either, doing little to encourage relationships between us and farmers; indeed some of their members have branded us as ‘anti-farming’, thereby polarising the two obviously closely allied groups. Sadly this has found traction in the farming fraternity, especially amongst the large chemically dependent and intensive sector. This is disappointing and especially harmful when the wholesale declines in biodiversity due to intensive agriculture must be addressed by farmers and conservationists together. So what should we do?

Expose the actual agenda of the farming ‘unions’, restrict their lobbying power within government, encourage them to embrace a real interest in wildlife friendly farming initiatives, including a properly proportional representation and promotion of organic farming, and press the ‘unions’ to educate their members to implement clear science-led policies and more sustainable long term farming strategies.

And outside of this it is down to all of us to support the UK farming fraternity. Our hunger for the cheapest food means that someone is paying the real cost... our farmers. Many struggle to realise a profit on their produce, thus becoming dependent on our tax hand-outs, because we rush to supermarkets to spend on cheaper food from overseas. We must start putting our pounds into UK farmers’ pockets even if it costs us a little more. How can we summon

the temerity to ask them to do this, that or the other for conservation if we turn our backs on their beleaguered economy in the aisles of Tesco, Sainsburys or Waitrose? They are the only people out there on that 70% of our landscape used for farming who can actively make the difference. So please support ethical, wildlife-friendly farmers, and help them to lead the way to a new farming future: **a future where wildlife thrives.**

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“Some people think that ‘farmers’ and ‘environmentalists’ are locked in a fight about nature. I don’t.

I think if it becomes a fight we all lose. It is time to put egos aside and work together to change things.

I am a farmer. I want more nature in our countryside. These two statements are not in conflict.

Britain is overwhelmingly farmland, so the main opportunity for change is on farmland, IF we can find compromises between our need for food and our need for nature.

I am trying to massively improve my land for nature and trying to make a living and pay my bills by doing so. It is almost impossible.

So I, and thousands of other farmers, need your help to create a food system that values and rewards nature-friendly farming, and discourages and disadvantages damaging farming practices. This requires all of us rethinking the way we live, shop, cook, and eat, and vote, so that we wean ourselves off the damaging farming that has fed us cheaply, but at an appalling price to nature.

The love that most farming people have for their land, and their wish to be respected and appreciated by the rest of us, is the essential foundation for building this change.”

James Rebanks, author of ‘The Shepherd’s Life’, and ‘Lake District Farmer

MINISTRY OF PESTICIDES

PROFESSOR DAVE GOULSON

UNIVERSITY OF SUSSEX

The State of Nature 2016[1] report describes Britain as being “among the most nature-depleted countries in the world”. The once-familiar hedgehog is almost gone, its population down more than 90% since the 1950s.[2] The total wild bird population of the UK has fallen by 44 million since 1970.[3] The ranges of our wild orchids on average halved in the same period. Butterflies, moths and beetle populations all show alarming evidence of long-term decline. There is abundant evidence from scientific studies that industrial farming systems, and in particular the growing reliance of farmers on a barrage of pesticides, has played a significant role in driving these declines.

Conventional, industrial farming sees the repeated application of multiple pesticides to our landscape on a breath-taking scale. About 500 different ‘active ingredients’ (i.e. poisons) are licensed for use in the EU.[4] In 2016, 16.9 thousand tonnes of ‘active ingredient’ were applied to the farmlands of Great Britain, comprising 5.9 thousand tonnes of fungicide, 7.8 thousand tonnes of herbicide, and 315 tonnes of insecticide[5] (this excludes veterinary, amenity, and domestic use of pesticides). The number of pesticide applications to crops continues to rise; on average, each farmers’ field was treated with 17 different pesticide applications in 2016, approximately double the number of pesticide applications made 25 years ago[6]. In short, our farmland is being subjected to a massive barrage of poisons, leading to contamination of soils, hedgerows, rivers and ponds. All farmland wildlife is being chronically exposed to a complex mixture of pesticides, the effects of which are far beyond the capacity of scientists to predict or understand.[7,8] The same is true of the effects on humans consuming food generated in this way, for from conception onwards we are also chronically exposed to mixtures of pesticides in our food and drink.[9,10]

The regulatory system for pesticides has repeatedly failed to prevent harmful chemicals from being approved for use in our countryside; for example the organochlorides, organophosphates, and neonicotinoids were only banned after decades of use and environmental damage. As Ian Boyd,

Defra's chief scientists, recently admitted "*The current assumption underlying pesticide regulation—that chemicals that pass a battery of tests in the laboratory or in field trials are environmentally benign when they are used at industrial scales—is false*".[3]

It is often argued that pesticides are essential if we are to feed the world. However, recent studies suggest that much pesticide use is unnecessary, and that most farmers would be financially better off if they used fewer pesticides.[11] Many pesticides are now used prophylactically, rather than in response to a pest problem.[3] Despite the enormous number of pesticides plus synthetic fertilisers used in industrial farming, organic farming manages to produce on average 80 to 92% of the yield.[12,13] Organic farming receives just 0.5% of global spend on farming research and development,[14] and so it is highly likely that this gap could be closed (in contrast £ billions have been invested in developing new chemicals, crop varieties etc. for industrial farming). With small savings in food waste (currently about 30% of food is wasted[15]) and slight reductions in meat consumption, pesticides could become unnecessary. So what should we do right now to address this?

PROPOSALS:

1. Set target for a 50% reduction in both the weight of pesticides used and the number of pesticide applications per field by 2022. France and Denmark have recently set clear reduction targets of 50% and 40%, respectively.

Many pesticides today are used in a preventative manner, rather than when indispensable to fight an existing pest problem. Therefore, by addressing challenges on a farm by farm basis and adopting innovative techniques such as new methods for mechanical weeding, it would be possible to decrease the overall deployment of chemicals in the countryside whilst maintaining similar levels of productivity. In fact, a study carried out in France has shown that a substantial decrease in pesticide use would have no negative impact on either productivity or profitability on 77% of 946 non-organic farms analysed.[11] Therefore, a 50% reduction isn't an unrealistic target to achieve - and in fact both France and Denmark have recently set clear reduction targets of 50% and 40%, respectively.

2. Introduce a pesticide tax. Denmark recently did so, the tax representing 34-55% of sale price of the pesticides.

The idea of taxing pesticides with the purpose of reducing environmental and health risks associated with their use has been around since the mid 1980s, with Sweden leading the way and introducing the first pesticide charge in 1984. Since then, other Scandinavian countries have implemented a similar model. In Denmark, for example, taxation is calculated based on the quantified damage on the environmental and human health resulting from the actual use of the pesticide and studies have shown that the human health risk has decreased sharply since the introduction of such policies.[16]

3. Use revenue from the pesticide tax to fund an independent advisory service for farmers, with on-farm field trials to test effectiveness of pesticide reduction measures / alternatives to pesticides.

Many reviews have highlighted the primary challenge in pesticide use reduction in the widespread adoption of best practices.[17] In other words, how do we let every farmer know what the best practice is? This is where the importance of applied research, demonstration farms, advisory resources, on-field trials and the dissemination of knowledge comes in and is absolutely crucial. Of course, this costs money. What better way to fund these positive initiatives than by using the revenue from a pesticide tax?

4. Set a target for 20% of UK farmland to be organic (or in conversion) by 2022, supported by diverting existing 'pillar one' area-based farm subsidies.

The Common Agricultural Policy (CAP) is the EU's largest single item of expenditure, taking up nearly 40% of the total EU budget and delivering around £3 billion to British farmers every year. The so called "pillar one" area-based farm subsidies make up the bulk (roughly 3:1) of this sum, and are calculated on the basis of the area of land, independent of the type of production. Though there is some conditionality applied, this is basically a payment for owning land, which does not affect output, boost production or have any direct effect on the level of pollution.[18] If those subsidies were diverted towards conversion of at least 20% of farmland to organic, an important and much needed shift would take place: ownership of land would no longer automatically entitle one to receive generous subsidies, but responsible food production that is good for environmental and human health would.

5. Ban glyphosate, with a time-limited derogation for use in no-till farming systems until alternative weed control methods are developed.

Glyphosate, also known by its commercial name Roundup, is the most used herbicide on the planet. Used in both agriculture and in urban areas to control weeds, it has been classified by multiple studies as likely to be carcinogenic and an endocrine disruptive agent.[19, 20] This has placed it at the centre of a public debate on whether its liberal use should be reduced or eliminated.[21,22] As well as being potentially toxic for humans, its fate in the environment raises much concern due to its contaminating effect for both soil and groundwater, and its toxicity to aquatic life.[23]

No-till farming is a method which preserves soil quality and resilience by decreasing soil disturbance and increasing water retention, which in turn boosts biodiversity in the soil. However, most no-till systems currently use glyphosate to control weeds, which is why it is suggested that a temporary exception is made on the ban of glyphosate for these farms, while alternative methods are developed.

6. Make all records of pesticide use transparent and open access, so that anyone can see what pesticides are used on each field. At present farmers are obliged to record these data but they are never made public.

Many pesticides are airborne and can be spread beyond the boundaries of the farm, depending on weather conditions. Studies have shown that rural residents can be exposed to agricultural pesticides through the proximity of their homes to crop fields,[24] but at the moment they cannot find out what pesticides are being applied. Ready access to pesticide use data would greatly facilitate scientific research into associations between patterns of pesticide use and both environmental and human health.

7. Labelling of fresh produce: all fruit and veg to be labelled with the pesticides used in their cultivation. If it is not practical to put such labels on every item, the list should be posted on the retailer's website.

According to the most recent 2017 independent report on pesticide residue in UK foods,[25] 47% of tested fruit and veg samples contained a residue, 3.3% of which was over the maximum recommended level. Given these results, consumers should be made aware of the types and quantities of pesticides that have been used on each food they purchase, both for transparency and to help them make the most informed choices.

8. Make cities/towns/villages pesticide free, as has happened in many cities abroad, such as Toronto.

Outside of agricultural use, pesticides are also heavily used in towns and cities across the UK. Schools, playgrounds, public parks, streets, hospitals, road verges and private gardens - basically all the places where we spend most of our time. "There are 41 different kinds of pesticides that are used in towns and cities, and 11 of those are either proven, possible or probable human carcinogens, so we are spraying cancer-causing chemicals needlessly around the places we and our children frequent", says Nick Mole, PAN UK policy officer. So why are we doing this? This has no bearing on food production or security, and there are many alternative methods to control weeds in urban areas.
Many cities around the world are adopting a ban on all urban pesticides. In Europe, Copenhagen, Paris and Barcelona have been leading the way and, as of 2017, the whole of France has banned the use of pesticides in urban areas.[26] Unsurprisingly, the outcomes are often welcomed by citizens. Ghent in Belgium has been free from pesticides since 2009 and according to its Mayor Daniel Termont "The streets are obviously greener as we are no longer using chemical weed killers: poppies, buttercups and daisies are peppering the edges of our pavements." Similarly in Lyon, France, pesticides were completely banned from as early as 2008, reducing maintenance costs by €30k a year.[27]

9. Ban neonicotinoids from use as flea treatments on pets or as ant baits (these uses are not covered by the new EU ban).

Neonicotinoids are a class of insecticides which attack the nervous system of insects by binding to their nicotinic receptors and paralysing them. They are implicated as contributing to the rapid ongoing declines in insect life in Europe, with a consequent decline in insect-eating birds and small mammals. In 2018, the

European Union voted to ban the use of three controversial neonicotinoid insecticides on all crops grown outdoors. However, their use is still allowed for flea treatments on pets and as ant baits, both of which pose serious threats to water invertebrates once the products wash off into the waterways. According to a recent report,[28] surprisingly high levels of imidacloprid were found in a number of rivers across the UK, including remote Scottish streams in the Cairngorms, the source of which is likely to be from treated dogs washing in streams.

10. Set up a nationwide scheme to measure levels of pesticides in soils and rivers

At present, there is no routine monitoring of levels of pesticide contamination of the UK environment. Some pesticides, such as glyphosate and neonicotinoids, have proved to be far more persistent than their manufacturers initially claimed. For example, neonicotinoids had been in use for over 20 years before it emerged that these neurotoxins had been accumulating in soils, and are now widely present in rivers and in the pollen and nectar of wildflowers. If environmental samples were routinely tested for pesticides then this would have been detected much earlier and steps taken to prevent further contamination.

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“Some 50 to 60 years ago, the countryside was a myriad of diversity, with small fields enclosed by thick hedges, ancient copses, ponds and rough places nestled between the permanent pastures, leguminous leys, cereals and root crops like turnips and mangolds. These were, with the local breeds of sheep and cattle, the instruments of a sustainable mixed farming system. Crop rotations built soil fertility and controlled damaging pests and weeds.

Subsequently, the introduction of toxic pesticides and artificial fertilisers factored a new ethos. The countryside, once managed in a compromise between conservation and food production, had now to be re-engineered to one sole purpose – industrial agriculture. To achieve the uniformity demanded, hedges were excised, woodlands torn down, plants and wildlife exposed to a toxic medley of agrichemicals and the atmosphere and ground water polluted by nitrogenous derivatives. The inherent fertility and substance of the ground is now eroding away so that soon, the soil itself will be no longer capable of yielding a crop. The consequences are that most wildlife has been lost and what is left threatened.

Farmers induced by agrichemical companies have ignored the past and stolen the future.

A return to sustainable agricultural practice and building fertility naturally, would transform the countryside, help mitigate global warming and restore wildlife.”

Henry Edmunds FRES
Farmer and Conservationist

MINISTRY FOR FARMING AND FOOD

MILES KING

ENVIRONMENTAL POLICY RESEARCHER AND ADVOCATE

Access to nutritious food is a fundamental human right. The current food system fails to ensure this right is met in the UK. On the one hand food is too expensive for the poorest. On the other it is too cheap meaning the costs to the environment are too high. Too much of the capital produced in the food industry is extracted by shareholders, in agribusiness and retail giants.[1,2] Our tax system also encourages land to be used in unsustainable ways.

Public health has to be seen as a public good alongside environmental ones. The overwhelming power of the big three/four retail giants has to be broken.

On an island particularly suited to it we only produce 23% of the fruit and veg that we consume.[3] That means we are exporting the social and environmental costs of producing that food – mostly to Spain and the Netherlands. Brexit is now causing a big shortfall in seasonable labour. Wages must increase to attract workers to these vital jobs.

Half of the wheat produced in the UK is used to feed animals, while 85% of UK farmland is used to produce meat and it only provides around 18% of the calories we need.[4,5] This is unsustainable. A plant-based diet cuts the use of land by 76% and halves the greenhouse gases and other pollution that are caused by food production. Also between 30 and 50% of all food produced is wasted.[6]

Fifty percent of the world's human population is sustained by food produced with artificial nitrogen fertiliser,[7] but the figure is much higher for the UK, with organic accounting for only 1.5% of the total UK food and drink market.[8] Over-use of Nitrogen has caused widespread environmental damage to rivers, wetlands, by polluting drinking water and compromising soil health. It also means food is less nutritious than it used to be.

Farmland wildlife has massively declined over the past 70 years and that's down to government policies and subsidies. We are now in danger of having

farmland that is devoid of wildlife other than a few very common species, which can benefit from the intensive industrial approaches.

Agri-environment schemes have failed to stem these declines, though intensive management for a few species, such as Cirl Bunting, Adonis blue butterfly, have been successful. Increasingly farmers do care about the wildlife on their farmland, but, thanks to Shifting Baseline Syndrome*, they cannot appreciate what has already been lost. The economic and peer-group pressure to maintain or increase food production as the primary reason for farming also forces farmers to eradicate what little wildlife is left.

These pressures have combined with long-term problems such as too much nitrogen and phosphate accumulation, decades of pesticides use, wetland drainage, woodland & hedgerow loss and wholesale conversion of wildlife-rich grassland to intensive grass monocultures. We are now at crisis point in the farmed environment. So what can we do?

PROPOSALS:

1. Focus on increasing domestic fruit and vegetable production with special support for small-scale producers.

In the face of rising uncertainties, both economical (the exit from the EU) and environmental (the changing climate and the increase in unpredictable weather events), it is of the utmost importance that the focus is shifted towards food production and security. The UK is currently importing over 50% of its food and feed and is therefore heavily reliant on foreign markets.[10] This leaves Britain at the mercy of global economic trends and environmental fluctuations. Domestic fruit and vegetable production should therefore be increased, with special attention and economic aid given to small scale producers, who devote a greater proportion of their production to food, account for greater crop diversity and have the least post-harvest loss compared to larger farms.[11]

2. Launch a public education campaign to change what we eat - less meat and more fruit, vegetables and pulses.

While meat, aquaculture, eggs and dairy provide just 18% of calories and 37% of protein, their production uses 83% of farmland and produces 60% of agriculture's greenhouse gas emissions. A recent study suggests

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*With ongoing environmental degradation at local, regional, and global scales, people's acceptedL thresholds for environmental conditions are continually being lowered. In the absence of past informationL or experience with historical conditions, members of each new generation accept the situation in whichL they were raised as being normal. This psychological and sociological phenomenon is termed shiftingL baseline syndrome (SBS), which is increasingly recognized as one of the fundamental obstacles toL addressing a wide range of today's global environmental issues.[9]

that moving from current diets to one that excludes animal products has the transformative potential of reducing food's land use by 76%, greenhouse gas emissions by 49%, acidification by 50% and eutrophication by 49% for a 2010 reference year.[5] Such a shift wouldn't benefit just the planet, but also humans: given the global obesity crisis, a diet with less livestock produce and more vegetables and fruit has the potential to make both us and the planet healthier.

3. Tackle the use of farmland as a tax haven, reforming the tax system so benefits are tied to providing public benefits

Land has never been so expensive in Britain, with prices up by 277% in a decade. There are many reasons for this. First, farmland is free from inheritance and capital gains tax, which encourages owners to hang on to it, making prices rise. Second, agriculture is a heavily subsidised industry, receiving billions of pounds each year from the EU's common agricultural policy. It is therefore a perfect investment, both tax-free and recession-proof. Like a vicious circle, the more land prices increase, the less people are willing to sell - and especially with the constant housing shortage this country experiences, land with planning permission for development can be worth shockingly inflated prices. This is land that can sit still, barely used, receiving public money in the form of subsidies while producing very little public goods. In other words, a form of tax haven.

4. Introduce 'Fertiliser Taxes' and use the income to fund environmental clean-ups and organic conversion.

In 1984 Sweden introduced a tax on mineral fertilisers to curb leaching of nitrogen into drinking water and the Baltic Sea. The tax targeted nitrogen, phosphorus and subsequently cadmium, and it applied to both importers and manufacturers, with no opportunities for reductions, amounting to about 20% of the cost of mineral fertilisers. The tax provided an incentive to reduce excessive applications, as well as promoting the use of nutrients from farm animals or encourage manure trade between livestock and arable crop farmers. Recent analyses found a positive correlation between this fertiliser taxation and a net reduction in nitrogen leaching of about 6%, corresponding annually to about 10,000 tonnes of nitrogen. Unfortunately in 2009, following the financial crisis, the tax was suddenly revoked under pressure from farmers. Today this remains a highly debated topic, with environmental NGOs advocating it and farmers opposing it.[12]

5. Break the power of the big supermarkets through a much stronger competition regulator.

The UK has a long history of investigations into the groceries sector by the Competition Commission. In a number of extremely long legal battles, started in 1999, the big supermarkets have been challenged several times and accused of preventing, restricting and distorting competition in a number of ways: from price fixing to holding undeveloped land to impede the entry by rival grocery retailers. However, the current situation remains very similar to how it was 20 years ago, with the groceries market in the hands of few large supermarket chains, whose business practices (including order cancellations, retrospective changes to supply agreements and use of cosmetic specification to reject produce) are major drivers of food waste.

6. Pay farmers a fair price for the food they produce in return for producing it much more sustainably.

This is the principle behind "Fairtrade": it is about better prices for those who produce goods, ensuring good working conditions, local sustainability, and fair terms of trade. But whereas most people would think of Fairtrade in connection with developing countries, the same should also be true close to home. By paying farmers a fair price for food that is produced sustainably, we can address and reverse the ecological damage caused by intensive farming techniques which are causing biodiversity loss, soil erosion, water pollution and unsustainable consumption of resources.

7. Fund support for zero-till and other types of farming which restore soil health.

Tillage is the agricultural preparation of soil by mechanical agitation, such as digging and overturning. Tillage pulverises the soil exposing it to the rain and wind that act as strong eroding forces, which can contribute to the loss of up to 30-50% of the initial soil organic matter.[13] No-till farming, on the contrary, is a way of growing crops without disturbing the soil, which protects it from erosion and helps retain moisture, while also boosting soil biodiversity. However, tillage is crucial in removing weeds before planting a new crops, which is why no-till farming is dependent on the use of herbicides (like glyphosate), at least while alternative methods are developed.

8. 10% of every farm to be managed for wildlife through wide field margins, sown wildflowers, restored farm ponds and wetlands, etc.

Over 70% of the UK's land is farmed, so how this land is managed has a big impact on wildlife. But the opposite is also true. A healthy farmland requires insects to pollinate crops, birds and bats to control pests, trees and hedgerows to retain moisture and prevent nutrient run-off etc. A thriving natural environment fundamentally underpins our ability to grow food, but the intensification of farming has already led to a dramatic decline in wildlife. Over a quarter of all British birds are under threat, three-quarters of all flying insects have disappeared since 1945 and one in five British mammals is at risk of extinction. The countryside has never been so silent and so devoid of biodiversity as it is today, which is why it should be compulsory for every portion of land that is exploited for production to also provide essential habitats for nature.

9. All surviving remnants of wildlife-rich farmland complete legal long term protection as nature conservation areas.

Roughly two thirds of England's best wildlife sites are given legal protection as Sites of Special Scientific Interest. But for some habitats, such as the critically threatened wildflower meadows, this figure is nearer 50%. These are what is left today of England's former wildlife-rich farmed landscapes. They urgently need to be given legal protection by Natural England. A programme is now needed to identify the remnants of wildlife-rich farmland (including arable land supporting important populations of birds, plants invertebrates etc.) which qualify as SSSIs, and to carry out the necessary legal process of protecting them. Ring-fenced funding is also needed to support the sympathetic management of these sites.

10. Launch a massive drive to reduce food waste at all points in the system.

Food waste represents an ecological catastrophe of staggering proportion. In the UK, 10.2 million tonnes of food are wasted each year, 7.3 of which is household waste, equivalent to £13 billion worth of food each year.[14] Meanwhile, 8.4 million people in the UK are struggling to afford to eat.[15] Looking at the figures for food waste in the UK, it becomes apparent that it isn't more or better fertilisers that are needed, or more land devoted to agriculture, but better use of the resources already available, starting from waste reduction at every level of the supply chain.

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"During my career as a Rural Chartered Surveyor, the government's principal environmental policy has been delivered through the Countryside Stewardship Scheme. With 12,000 acres under management including cereals, livestock and vegetable enterprises, we have witnessed the tragic decline in biodiversity that is mirrored throughout England. Only after deciding to break with Stewardship requirements have we seen a significant turnaround, with insect and bird life returning to levels not seen for a generation. The fault with Stewardship is that it dictates what conservation measures are required of a farmer from a desktop, rather than knowledge of the land and particularly of the soil itself. The process is looking through the telescope from the wrong end and until this is reversed, the degradation of our natural history will continue. Countryside Stewardship Schemes have failed and Brexit provides the chance to make radical changes before it is too late."

Anonymous Land Manager & Farmer

IMPORTANT

The comments below are not directed at the highly capable, hard-working and committed staff of these agencies who despite difficult circumstances strive to be effective conservationists. You have our utmost respect and admiration.

Due to devolved government it is impossible to make direct comparisons between the various UK statutory agencies responsible for wildlife conservation. They all have different roles and remits, and different structures. For instance in England the Forestry Commission is separate from Natural England but Natural Resources Wales has absorbed that body, as they have the Environment Agency. Nevertheless there are parallels in their problems - most notably those of under-funding and loss of trust.

Natural England

Are not fit for purpose. Which is sad. This once-effective independent advisory body has not only been rendered impotent, but also sometimes presents a significant handicap to conservation in England. Its leadership has not delivered progress; its board includes members with interests which potentially conflict with conservation of the natural environment; it is necessarily beleaguered by a litany of Freedom of Information Requests and Judicial Reviews, despite its public ownership; and its remaining staff are in a state of poor morale, but afraid to speak out.

The considerable expertise of these staff is being undermined by these circumstances, and they are denied the ability to make informed decisions. Thus many of NE’s actions – or inactions – are embarrassing, inexplicable or in some cases even dangerous to wildlife. It has struck deals with developers, grouse-moor owners and others with economic interests, freeing them from

regulatory restraint without any or sufficient ecological benefit in return. Monitoring of SSSIs has been all but abandoned, and its National Nature Reserves are imperilled. NE is frequently at odds with the farming fraternity due to late payments of agricultural stewardship subsidies. We have to ask why.

In March a report revealed that since it was founded in 2006, NE's budget has been slashed by 44%, drastically reducing its ability to function. Subsequently a further 14% cut has been implemented.[1]

In summary NE, the custodian of the wild natural environment in England, is financially crippled, ethically compromised, and rudderless.

Scottish Natural Heritage

Is not fit for purpose. A similarly grim scenario. This summer's fiasco surrounding the Strathbraan Raven cull – which SNH sanctioned and which its own investigation described as 'completely inadequate' in a damning report into its validity[2] – highlights such bad decision-making that unless it can be explained as wholesale incompetence, there must be something else going on.

Thankfully, the report has plumped for the former explanation. But the 'major flaws' discovered in the Raven cull extend throughout this agency and its practices, and many believe that SNH 'should be completely re-designed rather than (modified).'[2] It has refused to properly promote the re-introduction of the Beaver nationally,[3] failed to protect those Beavers on the Tay which continue to be inhumanely shot and burned,[4] has done nothing to address the on-going excesses of Mountain Hare killing on grouse moors,[5,6] and like its English counterpart has ineffectually presided over a continual decline in the wildlife under its jurisdiction.[7] The reasons are as above: serious lack of investment, ineffective management, and demoralised staff.

Natural Resources Wales

I'm afraid I have little knowledge as to the health and efficacy of Natural Resources Wales, but I know a man who does. Here is what broadcaster and campaigner Iolo Williams has to say:

A recent internal survey showed that only 14% of NRW staff are happy with the way they are managed.[8] The Wales Audit Office recently queried NRW's accounts for the third year in a row. The chairwoman, Diane McCrea resigned in July following the scandal of under-selling timber to a single private buyer.[9]

NRW have constantly blocked attempts to reintroduce beavers to Wales despite the full support of all the major conservation organisations. Morale is rock-bottom with conservation staff leaving en masse and not being replaced. There have been dozens of major slurry pollution incidents on once-famous salmon and sea trout rivers in West Wales over the past twelve months, killing tens of thousands of fish.[10,11,12,13] There have been NO prosecutions by NRW relating to any of these incidents.

Fundamentally, NRW needs individuals in the senior management team and on its board that are committed to our environment and its wildlife. At present, there is no respected conservationist in senior management. This would help tackle its woeful record on nature conservation and help solve its staff dissatisfaction difficulties. It also needs to overhaul Glastir, its completely ineffective agri-environment scheme. At present, its success is measured in terms of percentage of land in the scheme, as opposed to measured increases in target species. The prescriptions and monitoring are woeful.'

Northern Ireland

I'm afraid I know nothing of the situation in Northern Ireland, nor anyone I could trust to provide an objective report.

Perhaps the most tragic aspect of these agencies' declines is the wholesale loss of trust between them and the wider conservation movement, which continues to grow and gain widespread attention. Few within the conservation sector now believe that NE, SNH and NRW are properly independent or impartial. And the commendable staff who remain have lost their voices – they should be able to publicly speak their minds to governments.

So what can be done to fix these agencies?

Firstly can, or should, we fix these agencies? As long as they are funded by governments can they be secure and truly independent? I believe instead that they need very significant, ring-fenced, apolitically influenced long-term public funding, as is the case with **LIFE UK.** Indeed – **LIFE UK** should assume and eclipse their roles.

However, in the short term, a major injection of public money, a complete re-structuring of leadership, management and the boards to include properly qualified and independent ecologists, investment in staff training and retention, and complete transparency and access to data would perhaps reinstate some impartial influence and re-engender some respect in these agencies. In regard to NE therefore, we are asking for nothing that the House of Lords didn't already request in March of this year.

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The Future of the Welsh Uplands

“Past financial, scientific and cultural processes have created the upland landscapes of Wales. Despite over 70 years of government financial inducement to plough, drain, re-seed, heavily stock or blanket with alien conifers in an ill-considered and often hopeless pursuit of profit, and being deluged in acidic pollutants since the start of the industrial revolution, the Welsh upland landscapes, often without the benefit of any landscape protection designations, still retain a quality the envy of much of the world.

“Deep Wales” has in its beauty the ability to attract a young creative class of entrepreneurs to bring new financial prosperity to its towns and to refresh and nourish the social and psychological needs of our now mostly urbanised Western European population. Life in the countryside has been dependant for over 70 years on government subsidy payments. No post Brexit scenario paints a profitable future for sheep – its current mainstay. Without support payments land prices will decline, encouraging blanket afforestation with conifers. Rewilding through abandonment in a landscape now dominated by acid-rain-loving grasses is equally unattractive and the loss of an important farm-based culture is entirely undesirable.

If a new young and dynamic land managing community can be created, willing to sell goods we all want – high quality food and timber from a rich and biodiverse land we can relate to, producing clean air and drinking water, with a reduced flood-risk downstream and all in a landscape to refresh us and be proud of, finding the finances to fund this vision should be easy.”

Ray Woods, Botanist

MINISTRY OF UPLAND ECOLOGY

DR MARK AVERY

AUTHOR AND ENVIRONMENTAL CAMPAIGNER

Our uplands, places over 1000 feet in altitude, are loved for their landscapes, dark night skies and peace and quiet. Their harsh climates and poor soils make them difficult places to grow crops so they are frequently given over to sheep, grouse or commercial forestry plantations. Only through distortions of the means of production through public intervention (in the case of the Forestry Commission), public subsidy (in the cases of grouse shooting, sheep production and forestry) or wildlife crime (grouse shooting) can nominal profits be made.

The true costs of these three upland land uses include lost wildlife, increased carbon emissions, increased flood risks, damaged landscapes and polluted watercourses.[1,2,3,4] When loss of ecosystem services are taken into account the current system of public support to upland land uses looks ecologically unsound and also unfair to the taxpayer.[5] We have supported land uses which flood our homes, remove our wildlife and increase our water bills – how daft is that? Leaving the European Union allows, indeed necessitates, a radical rethink of how taxpayers' money is spent: our guiding principle will be 'Public money for public goods'.

The uplands are perfect places to deliver public services such as restored wildlife, cleaner water, increased carbon storage, more recreational access and reduced flood risk. We will work with the grain of nature instead of against it and that means a move towards rewilded landscapes which have more natural woodland spreading onto the hilltops from the river valleys and undamaged blanket bogs storing carbon and water on the tops of the hills. Such habitats are cheap to maintain and deliver greater benefits than so-called traditional land uses. They will also be rich in wildlife and will be places where extirpated wildlife such as European Beavers, Pine Martens and Lynx can be reintroduced. They will be true national assets where there is space for many recreational activities including hiking, cycling, fishing,

some hunting of game, and wildlife tourism. This aligns the economic value of the uplands with their ecological value. It is a win for the public purse and for the public's quality of life.

Capital land values will fall in the uplands with the removal of subsidies and a clamp down on wildlife crime (which underpins the profits of grouse shooting) so government will be able to acquire land at below current, falsely-inflated, prices. Then, through public ownership, landscape-scale regeneration of upland ecosystems can proceed at a rapid pace.

PROPOSALS:

1. Downgrade all National Parks to AONBs – they are not yet worthy of the name of National Park – and then call all these areas Upland Nature Areas (UNAs).

The Environment Act of 1995 set out two statutory purposes for national parks in England and Wales (with minor differences for Scotland): 1. Conserve and enhance the natural beauty, wildlife and cultural heritage 2. Promote opportunities for the understanding and enjoyment of the special qualities of national parks by the public. Furthermore, a recommendation made in 1974, known as the 'Sandford Principle', states that "where irreconcilable conflicts exist between conservation and public enjoyment, then conservation interest should take priority".

Yet, the UK's wildlife areas are failing both us and the environment; they are too small, fragmented, insufficient and degraded, unable to form a resilient ecological network that can halt the current wildlife decline we're seeing in the UK, and indeed globally.[6] The UK national parks' weak power to protect nature is even recognised by the IUCN [7] (the international authority on the status of the natural world), which classifies protected areas on a scale from 1-6, where Category 1 areas have the greatest level of protection. Most national parks fall under category 2, but UK ones only score 5.

2. Withdraw subsidies from farming and forestry in all UNAs.

The current system of subsidies for farming and forestry in upland areas is allocated through funding from the Common Agricultural Policy (CAP). The great majority of these subsidies, so called "pillar one", are calculated on the basis of the area of land, independent of the type of production, whether the land provides a public service or not. If one agreed that public funding should go into public services, then the entire subsidy system for the uplands should be re-examined in haste.

3. Use money saved by subsidy withdrawal for a land purchase fund so that more and more upland land is publicly owned.

If the Government were to decide to withdraw or significantly reduce farm subsidies, land prices would fall, which in turn would encourage a shift of land ownership from private to public hands. Publicly owned land, funded by public money, can be used to return public services like clean water, carbon capture and storage, flooding risk alleviation, biodiversity protection etc.

4. Maintain grants for environmental action on upland farms but only on the basis that each payment is a down-payment on eventual purchase by the. taxpayer.

Grant payments for environmental action at the moment represent only a leasing of environmental good practice. Because the schemes are voluntary, a land owner (perhaps after the death of the previous land owner) can exit such schemes and undo the environmental good work of the previous owner, which had been funded by the taxpayer. Our aim should be to increase land ownership by the State in the uplands and therefore at least an element of grants paid should be seen as a deposit against eventual purchase. This is akin to 'equity release schemes' which allow homeowners an income paid against the value of their home on death.

5. Nationalise water companies so that their land can be managed for multiple benefits including cheaper water bills, reduced flood risk and more wildlife.

Utility companies such as Yorkshire Water, United Utilities and Severn Trent Water own large areas of upland land. As private limited companies they must pay a dividend to shareholders and they do not need to take account of sustainable development issues or the knock-on impacts of their decisions on other aspects of the economy (this is what economists call taking account of the externalities). Under public ownership, however, much larger areas of land would be managed for the general public good including recreation, biodiversity, carbon storage and flood alleviation.

6. Create a new government agency, perhaps an offshoot of the Forestry Commission, to acquire and manage land for this new future.

The Forestry Commission has a much better record of on-the-ground delivery and a greater level of trust from the public than does, for example, the Scottish Natural Heritage (SNH) or Natural England (NE) - so that would be the place we should look to create a new body fit for purpose.

7. As rapidly as possible replace the Forestry Commission's exotic plantations with native woodlands and open spaces delivering ecosystem services.

Native woodlands are one of our oldest land uses and most diverse ecosystems in Britain. They have often taken hundreds if not thousands of years to develop, with rich wildlife communities that have co-evolved to survive within them. A single oak tree can host 284 different invertebrate species, but in comparison the non-native walnut will only host 3, the acacia will host 1 and the London Plane none at all.[8,9]

Having more native trees might also help the dwindling populations of woodland birds, which have declined by 23% since the 1970s.[10] Adding to these frightening declines is the fact that the UK is one of the least forested countries in Europe, with less than 1.4% of ancient native woodland cover,[11] which makes any scheme to substantially increase native woodland cover seem not just necessary, but also urgent.

8. Plan for new infrastructure to facilitate growth of recreation-based businesses – public transport links, improved internet connectivity, etc.

Recreation-based businesses provide both an economic and cultural incentive for maintaining a healthy ecosystem and making it accessible to all. Time spent outdoors (walking, nature-watching, doing sport, enjoying fresh air, etc) provides a number of benefits, from increasing human health and wellbeing, to a spiritual and aesthetic appreciation of nature. Furthermore, when people visit nature they tend to directly contribute to the economy by purchasing outdoors equipment, food and drinks, and using public transport. In 2005 nature-related tourism in England (which includes visits to the countryside and the coast) brought £11.5 billions to the economy,[12] which strengthens further the economic argument for facilitating the growth of this sector and making the infrastructure to access nature more efficient and affordable.

9. Use the uplands as test beds for reintroduction of keystone and charismatic species such as Beavers, Golden Eagles and Lynx to boost wildlife tourism.

The most extensive upland habitats are blanket bogs and upland heathland, covering around 3.3 million hectares combined.[13] Once rewilded, partly reforested, and allowed to regenerate from intensive overgrazing, these upland habitats could support a healthy population of species such as eagles, beavers and even the lynx. These key species are not just beautiful in their own existence, they are also key players in the ecological restoration of the environment (by shaping river courses, increasing fish numbers, controlling the deer population etc), and would attract more tourism and play an important role in reconnecting people with nature.

10. Artificially maintain small areas of overgrazed sheep walk in the Lake District and driven grouse shooting in the North York Moors as lessons to future generations of how wildlife-poor upland areas once were.

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MINISTRY FOR REWILDING

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There is almost nowhere in Britain where you can escape from extreme human impacts. To experience wild nature, you must go abroad.

This is not because our population is so high. The 66 million people of Britain are confined to 7% of its land area*. Parts of this country, such as the Scottish Highlands and the Cambrian Mountains, have some of the lowest population densities in the temperate world. It is because our land and seas have been systematically trashed.

In the infertile uplands, where you might expect to find wild and thriving ecosystems, sheep farming has scoured the land of almost all wildlife. By nibbling out tree seedlings and other edible plants, sheep create a wet desert. Upland sheep make a loss: we pay for this destruction through public subsidies. And the few places not wrecked by sheep are ravaged for grouse shooting estates or deer-stalking. Our upland national parks offer no protection from these three forms of destruction: all of them are ecological disaster zones.

Commercial fishing is excluded from just 0.01% of our marine territorial waters: three pocket handkerchiefs of sea, amounting to 7.6 km². Most of our marine reserves are nothing more than paper parks**.

It needn't be like this. We should rewild at least 10% of our uplands. We should re-establish some of the magnificent native species that once lived in this country, including beavers, boar, lynx, cranes, storks, white-tailed eagles and pelicans. We should help species now confined to a few tiny enclaves, such as wild cats, pine martens, capercaillies, goshawks, hen harriers and golden eagles, to spread across the United Kingdom.
We should rewild river corridors, creating buffer zones that provide continuous habitat while preventing pollution from entering the water, stopping floods and building ecological connections between the countryside

*More than 6.8% of the UK's land area is now classified as 'urban', with more than 10% of England,L1.9% of Scotland, 3.6% of Northern Ireland and 4.1% of Wales contributing to this habitat (UK nationalLecosystem assessment 2011)

**Many marine protected areas exist on maps and in legislation but offer little real protection in the water. OftenL referred to as "paper parks", these sites represent a failure of efforts to protect resources and ecosystems.

and our cities. This will let wonderful wild animals, such as otters and dippers, to move between the two.

We should declare 30% of the UK's seas off-limits to commercial fishing and other forms of extractive industry. This will allow fish and crustaceans to breed and reach large sizes, before spilling over into surrounding waters. When fish numbers recover, we expect humpback whales to resume their historical migrations up the Irish Sea, and bluefin tuna, fin and sperm whales once more to follow the herring around our northern and eastern coasts.

Britain will again become a magnificent place in which to see wildlife. Ecotourism and associated businesses will boost jobs and income. The catastrophic decline of our ecosystems will be reversed. So, how can we make this happen?

PROPOSALS:

1. Stop using public money to fund ecological destruction.

Public money should be spent on public goods, not on funding practices or giving tax exemptions to businesses which destroy the environment. The list is very long, but just to provide a few examples, we may want to consider the area-based farming subsidies worth £3.6bn a year that largely go to support unsustainable and environmental damaging activities such as: intensive sheep farming, with complete disregard for the alarming rate of soil erosion and biodiversity loss; careless use of fertilisers, pesticides and herbicides, subsidised by public money, polluting rivers and exterminating insect life; generous tax loopholes for firms that invest in shale gas exploration;[1] £6bn a year donated to the fossil-fuel industry, almost twice the financial support provided to renewable-energy providers;[2] tax breaks on fuel use by airlines which amount to about £8.5bn a year;[3] £4m of taxpayer's money given to 30 grouse shooting estates in 2014 alone, 4 of which are owned offshore[4] and of course gun licences for bloodsports, which are also subsidised by public money.

2. Use a significant sum of the money we now spend on farm subsidies for restoring ecosystems and reintroducing missing wildlife.

The British ecosystems, by which we mean the web of interactions between biological organisms and their physical environment, are in dire need of help. Plant and animal life are disappearing from this country; soil and water, the very basic elements that allow life on Earth to exist, are poisoned and degraded, progressively unable to sustain life. It is not too late to reverse this trend, nature has a surprising ability to regenerate. However, attention, work, hope and, indeed, money are needed. If a potion of the £3bn currently used to subsidise destructive farming methods (which include: overgrazing, cutting, burning, liberal use of pesticides, herbicides and fertilisers which leech into waterways etc...) were instead used to restore lost and wounded ecosystems and reintroduce missing wildlife, we wouldn't need to wait long to see a reawakening of Nature in all its abundance.

3. Set a target of rewilding at least 10% of our uplands to begin with immediate effect.

What would happen if 10% of the uplands were allowed to regenerate? By relieving grazing pressure from sheep and cattle, banning the regular burns that take place over grouse shooting estates, and allowing shrubs and trees to come back, we could transform some areas currently devoted to hilltop farming into multi-purpose woodland. The animals would slowly come back and birdsong would be heard again. The soil on the forest floor would become rich in nutrients, the root system of trees would prevent erosion and, like a sponge, absorb water during periods of heavy rainfall, decreasing the risk of floods downhill. The argument stands from a financial point of view just as well: more trees and more wildlife attract more ecotourism, which, in places like Wales, already contributes far more to the economy than farming does (agriculture in 2003 contributed £418 million, against £1900 million from "wildlife-based-activities"[5])

4. Create a list of species to be re-established in the UK, a meaningful timetable to achieve it and significant public and private funding to pay for it.

Many important species that were common in Britain have disappeared due to hunting pressure, climate change or habitat loss. These include large browsers like the moose, top predators like the lynx and the wolf, and large sized birds like the crane and the stork, among many others. Their vanishing from this island has left the ecosystem fragmented and imbalanced, with the ecological niches once occupied by these animals now empty. For example, without natural predators the deer population is growing out of control, and without beavers, the hydrology of rivers has changed. However, with appropriate planning and funding, we can help some of these animals come back and restore the ecological processes they once provided.

5. Make our national parks worthy of the name, by allowing habitats to recover and wildlife to return.

National parks in the UK are not doing a great job of protecting nature and allowing wildlife to thrive. According to the IUCN, the international body for the conservation of nature, protected areas are classified on a scale from 1 to 6 based on their ecological value, with 1 being the highest score. Generally, national parks receive a score of 2, but in the UK they are only classed as level 5, due to their weak ability to protect nature. It therefore looks like our national parks, which by definition should be providing nature with a safe haven, are performing inadequately at this task, a trend which should be reverted immediately.

6. Ban driven grouse shooting.

Driven grouse shooting is the hunting of the red grouse, where the birds are flushed by a group of "beaters" and driven towards a line of gunmen, waiting to shoot them as they fly past. Red grouse cannot be reared and released like pheasants, so driven grouse moors are managed to maximise the number of birds available at the beginning of the shooting season. This leads to a number of environmentally destructive consequences. For example, controlled burns of hectares of uplands are performed on rotation each year, to produce a near-monoculture of low heather, an ideal habitat for grouse and little else. The soil is regularly drained, to allow for even more heather growth. Any natural predator of the grouse and its chicks are promptly dispatched, raising many pressing issues about and wildlife crime and persecution (refer to

the Wildlife Crime manifesto). This systematic pillaging of the environment is driven by money. When a single day of shooting for a party of 6 can cost over £24,000[6] and when the costs of running a grouse shooting estate are covered by generous public subsidies (£56 per hectare per year, which sums up to £156,800 for a 2800 hectare estate[7]), the math is simple. Grouse shooting estates make big money and are increasingly subsidised by the public at a time of national austerity.

7. Set a maximum population density for deer on stalking estates, which will allow trees to grow once more.

Deer are browsing animals, meaning they eat tree leaves, including those of seedlings and young trees, which are easier to reach. They also strip the bark off trees, often causing their premature death. Therefore deer numbers, when too high, can affect the age diversity of a woodland, and prevent forests from regenerating, which in turn has a negative impact on other mammals, birds and invertebrates.[8] Today there are thought to be 2 million deer in Britain, the highest level for 1000 years, and their population has doubled since 1999.[9] The Scottish Natural Heritage report spending £4.8m a year on deer fencing but assume that the cost of damage to forestry is more than that,[10] while the damage to crops in the East of England averages at £3.21 million per year.[11] And this is without taking into consideration the downstream negative ecological impact on biodiversity. There are two reasons for this: on one hand deer don't have any natural predators to keep their population in check (in the past there would have been lynx, bears and wolves doing that), and on the other hand in many Scottish deer stalking estates the numbers are maintained artificially high through winter feeding. Without reducing their numbers forests and woodlands all across the country are unable to regenerate and once the old trees die, there won't be any young ones to replace them.

8. Use natural flood management, including beavers, to hold back the water that falls on our hills, ensuring a safe and steady flow down our rivers.

The British uplands, bare and overgrazed as they currently are, offer little protection against the risk of downhill floods after heavy rainfall. The lack of vegetation and severe soil erosion increase the rate of water run-off and thereby prevent rainfall from being absorbed and stored as groundwater.[12] The most intuitive natural flood management plan would be to reduce grazing pressure on the uplands near areas at high risk of flooding and allow shrubs and trees to recolonise the land. Comparisons of water run-off between pasture land and a 10 year-old tree shelterbelt show significantly reduced water flow where trees are present.[13] Stabilising river banks by re-vegetation can also be particularly effective, as it prevents natural bank erosion. Another way of mitigating flood risks is to reintroduce beavers and allow them to do the work for us. Beavers naturally build dams, which trap sediment and reduce the mean velocity and discharge of water downstream, facilitating floodplain development.[14]

9. Create buffer zones between farmland and rivers, to block pollution and floodwater and establish significant wildlife corridors.

Buffer zones are defined as permanently vegetated areas of land separating agricultural fields from neighbouring waterways and they provide a high diversity of natural functions and services. First of all, they act as physical barriers, retaining farming pollutants such as nitrogen, phosphorous and pesticides and preventing them from running off into the waterways.[15] A study carried out in Japan found that where

buffer zones are present the amount of nitrates dissolved in water are 43.7% less than in the upland stretches.[16] Buffer zones are also dynamic systems that modulate water flows. During high rainfall water travels rapidly from the catchment to the rivers, and with large bursts of water the surrounding landscapes can flood. Buffer zones act like sponges and slow the flow of water from catchment to river, thus reducing the risk of floods. They can also reduce sediment loss into rivers by holding the bank together, which further reduces flood risk. Furthermore, they can serve as wildlife movement corridors, a critical tool for reconnecting fragmented habitats, allowing animals to move across otherwise isolated patches of nature.[17] Their cost effectiveness has been evaluated in several studies: while their presence may result in additional costs to the landowner, either for maintenance or as a loss from reduced agricultural land, these are outweighed by the many benefits to the public (and to public spending on flood mitigation). These range from improved bank stability, greater water quality, enhanced fish and wildlife habitat, and greater aesthetic value.

10. Declare 30% of the UK's seas off-limits to commercial fishing, drilling, dredging and other forms of extractive industry.

3 billion people rely on marine and freshwater fish as a major source of protein. Yet fish stocks around the world are more depleted than ever before: today the oceans have lost 50% of the fish since 1970, 29% of commercial fish stocks are now classed as overexploited and 61% as fully exploited.[18] The UK, whilst relying heavily on the fishing industry, has only managed to grant genuine protection to 7.4 Km^2 of sea, out of the 48,000 Km^2 of territorial waters. This is neither an informed nor forward looking policy. Closing more areas to fishing is crucial if we want to allow fish stocks to recover and sealife to thrive again. It is also an optimal solution from an economic point of view, because marine reserves allow for the fish inside them to live longer, grow larger and produce more eggs. Over time, as the population increases, adult fish leave the protected reserve and add to the catches in neighbouring areas, and their eggs, transported by the currents, go on to spawn in new places. In other words, no-take zones act as nurseries of the sea, providing us with an insurance policy for the fisheries, as well as a healthier more thriving and more resilient marine ecosystem.[19] A WWF report calculated the ecosystem benefits that no-take zones result in and revealed that every dollar invested to create a marine protected area could yield triple the benefits through factors including employment, coastal protection, and fisheries.[20] Economically speaking, this is a no-brainer for the fishing industry, the country and the marine ecosystem.

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“We’re living in exciting times. Rewilding has shown how we can reverse wildlife declines and how ecosystems can be rebuilt. Here, at Knepp, on land that was intensively farmed for 60 years, with no thought for the soil or future generations, we now have thriving populations of turtle doves, nightingales and purple emperor butterflies. We have peregrine falcons and long-eared owls. All these and many more have found us in less than 20 years. It just shows how nature will bounce back – if only we let it. We’ve got to encourage our politicians and policy-makers to focus on the environment – our lifesupport system. This has to be the future – finding ways to allow space for nature, rebuilding our soils for sustainable farming, restoring habitats for wildlife and recovering species we have lost, creating wild places where we can live and breathe and hear again: providing a future that is richer for us all.”

Isabella Tree and Charlie Burrell
Knepp Wildland Project

MINISTRY OF HEDGEROWS & VERGES

HUGH WARWICK

AUTHOR & ECOLOGIST

The cult of tidiness must end. Its end will see the beginning of a move to reconnect our landscape for wildlife.

The cult of tidiness forces land managers to destroy wildlife habitats and wildlife corridors; hedges are flailed to within an inch of their lives, often just before berries burst into life, or when birds are nesting. Road verges are stripped of floral abundance because the rhythms of a contractor have precedence over the rhythms of nature. Trees along a railway are chipped to prevent their leaves causing delay.

The lines that these habitats create are crucial components of efforts to overcome one of the most serious issues facing wildlife – habitat fragmentation. Chopping up the landscape into ever-smaller patches leads to piecemeal extinctions as populations become unviable. And these barriers can come in many different forms – the most obvious, such as busy roads, prevent animals from moving through the landscape, either because they are killed or too scared. Back in 1960 the Road Death Enquiry estimated that 2.5 million birds are killed annually on the roads in the UK[1], a number which will have increased given the increase in both traffic and released gamebirds. Other barriers are more subtle – hedge-free fields of oilseed rape prevent much wildlife moving through them due to the hostility of the agrochemically-saturated land and the absence of routes that might act as highways.[2]

This fragmentation must be addressed by using an asset already in place. Our landscape is crossed by a linescape – a series of linear features that, if managed properly, can provide essential corridors for wildlife.

Hedgerows are often what we think of when we turn our minds to the British countryside. They are fabulously biodiverse habitats: a recent survey showed that just 85 metres of a Devon hedge had over 2,000 different species.[3] The value of these hedgerows is elevated by the ‘standard’ trees that emerge from them. Unfortunately, these trees are alarmingly similar in age and when they die or are removed, flailing prevents new trees replacing them.[4] Tree-lines and standard trees are vital in urban habitats too. The management of these life-giving presences must be ecologically considerate.

Hedgerows are wildlife arteries. But they are not alone in providing wildlife with a way to move through the landscape. Tragically, given the parlous state of our farmed landscape, the verges of the road network have also become a valuable resource for wildlife: the 'unofficial countryside', in Richard Mabey's famous phrase. Plantlife have revealed that they are now home to over 700 species of flowering plant and that in turn have become important corridors for invertebrates and larders for vertebrates.[5]

So how can we reinvigorate our linescapes and create wild lines for wildlife?

PROPOSALS:

1. Replant hedgerows: we need 300,000km more to get us back to where we were 60 years ago.

The dramatic loss of hundreds of thousands of kilometres of hedgerows has been predominantly attributed to lack of management and the advent of modern farming practices. This has resulted in the slow conversion of hedgerows into lines of trees and shrubs and the formation of relict hedges with large gaps and no base, caused by careless trimming with flails[6].

2. 60% of hedgerows currently not in 'favourable condition', they should be repaired by plugging gaps, with financial support for the 'laying' of hedges.

There are various parameters that define the health of a hedgerow, but broadly speaking these can be divided into five categories: integrity, size, species composition, nutrient richness and perennial vegetation cover. So for example, if there are too many gaps in the hedgerow, integrity is affected; too short and too thin is also not good, or with more than 10% of non-native species composition, etc. Hedges can survive indefinitely (and indeed they do, some are hundreds of years old), but they need regular upkeep and must be laid every 15 to 25 years. Hedgelaying involves cutting nearly all the way through the base of the stems and laying them over at an angle of about 30 degrees. This is an ancient craft, which is thought to have been practiced since Roman Britain, but without financial support or good enough incentives, it is easy to see how so many kilometres of precious habitat have become neglected.

3. Hedgerow trees to be celebrated and replenished – they are almost uniform in age and are not being replaced as they die.

Hedgerow trees are trees that emerge out of a hedgerow. However, many of these were planted at a similar time and are now aging and getting towards the end of their lives. Unless these trees are actively replaced, we will be losing this important feature from the countryside.

4. Mandatory introduction of hedgerow management practices to eliminate 'flailed stumps' and promote ecological value, to include rotational cutting and avoidance of fruiting and bird nesting periods.

5. Expand the use of mechanical hedge-laying techniques – quick, crude but cheaper and effective for wildlife.

Mechanical laying consists of cutting stems with a powered pruning saw, and then crashing the hedge down and shaping it by pushing the cut stems into position. This technique may not be as elegant as traditional laying, but due to the high cost of traditional maintenance and a shortage of skilled labour, mechanical laying may be the most cost-effective method to quickly restore hedgerows that badly need it.

6. Where no safety is compromised ban the cutting of verges while in flower.

7. Councils to be supported in investing in cutting machinery to collect trimmings from verge maintenance – which in turn can become a resource for energy generation.

Lincolnshire County Council are currently trialing this. Throughout the summer they have been using roadside verge cutting to generate electricity and heat by employing a specially designed harvesting machine that takes the biomass to an anaerobic digestion plant. The trial provides a number of benefits: it generates cheap energy, reduces verge cutting costs and, by removing cuttings, increases verge biodiversity.[7] However, careful management must be in place to ensure that verges are not cut while in flower.

8. Mandatory ecological management of the verges of our road, rail and other networks to maximise wildlife corridors through the landscape.

9. Significant urban trees to be named and owned by primary school classes in perpetuity to form lifelong bonds between people and trees.

10. Street trees' value in terms of environmental services should be considered first in all street tree management or replacement decisions.

Ecosystem services can be defined as the benefits that people derive from nature. Urban trees provide numerous services that are extremely useful for us, the citizens who live alongside them. And what's more, all the services they provide come without an invoice - they are, in other words, free. Most of the services provided to us by urban trees are of the regulating type, such as carbon sequestration, temperature regulation, stormwater alleviation, air purification and noise mitigation.[8] Valuing these services is relatively easy - all we need to do is calculate what it would cost us to build infrastructure to replace what the trees

do for us. For example, the 8.4 million trees of London provide £132.7 million worth of benefits each year.[9] However, trees also provide cultural and spiritual services, and it is much harder to put an economic value on those. The mental health benefits, the beauty, the inspiration, the nature connection, the cultural significance of trees, the animals they host, the perch they provide for the singing birds, the shimmering sunlight they filter through their canopy in summer. All of these aspects must be considered, calculated and weighed carefully before any of these extraordinarily beautiful and useful living organisms are felled or replaced in an urban setting.

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“If you’ve not been paying attention to the rich and beautiful British spring birdsong in the early morning countryside, you’re already too late.

It’s gone.

Tucked up in tractor cabs and wearing ear protectors as they spray the fields, our farmers haven’t noticed the loss of three-quarters of skylarks in a generation.

The supermarket buyers don’t really care that half the yellowhammers that delighted Hardy have joined him in the heavens. The pesticide salesmen and their bosses have controlled the peewits that once thundered across the fields.

The curlews and the Snipe that “curlied” and winnowed through our landscape, they are gone and the clockwork Grey Partridge, and the Quail who can no longer “wets his lips” in the long grasses are going.

The Cuckoo will be next, followed by Spotted Flycatchers, Nightingales and the Wood Warbler. Silent Springs are coming to our countryside, if not next year, then the year after.”

Mark Constantine, The Sound Approach

MINISTRY OF TREES

JILL BUTLER

ANCIENT TREE SPECIALIST

Trees and shrubs as individuals, in groups or woods, make our countryside, towns and cities beautiful and give us free national spectacles – blackthorn spring, a bluebell haze, autumn colour. They refresh the air we breathe, improve soil health, play host to multitudes of other species and provide innumerable other benefits. They have been painted, photographed, filmed, written and sung about by artists, writers, poets and singers down the centuries. Every aspect of our lives is touched; they add great pleasure to our lives and are central to our physical and mental well-being.

The UK has an historic treescape that is still rich in ancient trees and old-growth –such as Caledonian pine forest, Sherwood Forest and other mediaeval woods, parks and commons. These are habitats full of old, open grown trees, with an associated rich and unique wildlife not found elsewhere. Few trees make it to old age and the species that are reliant on them are also rare and becoming ever more threatened. According to the IUCN almost 20% of wood-decay beetles are at risk of extinction due to ongoing decline in large veteran trees across Europe.[1] Older, larger, open grown trees are generally the most loved and often associated with particular places, people, or historic events, but despite being the trees that serve us most and longest, they are the most vulnerable. Why is that? Is it that they appear to be common and found everywhere, eternal, unchanging, just part of the background to our lives and taken for granted until a favourite tree or woodland is threatened directly by development or by disease? It needs everyone to step up and do more – individuals, owners of trees and woods, NGOs and government.

From earliest times, trees were highly valued for practical reasons, for pleasure and often as statements of status. Monarchs surveyed the land to understand the extent and condition of this resource and passed laws to protect trees and forests and their wildlife in their own and national interest. Modern regulation – felling licenses, tree preservation orders, conservation areas, wildlife acts and associated policies mostly do the same today. However, valuable trees and woods can still slip through the net and are

increasingly doing so through the lack of resources and skills to manage them effectively. There is a lack of political will to apply regulation and monitor where regulation is failing.

Safeguarding important trees and shrubs in the 21st century cries out for new measures aimed at celebrating their value to society, reducing conflict and supporting their guardians. Trees are not just nice; they are essential to all of us.

PROPOSALS:

1. Every tree counts! No avoidable loss of trees other than those cultivated as a crop. The older the tree (relative to its species or wood) the greater its value.

2. National and local government must have sufficient tree specialists to safeguard, restore and expand treescapes by supporting owners and applying regulations wisely and robustly.

3. Make sure deterrents to prevent damage to, or loss of trees are effective and proportionate.

4. Give national status and recognition to ancient and other trees of special interest, ancient woodland, wood-pasture and parkland for their historic, landscape, wildlife and other ecosystem benefits.

5. Ensure trees and shrubs and tree-rich habitats are restored and looked after properly through incentivising good practice – public money for public goods for tree benefits in urban as well as rural environments.

6. Clean-up air, soils and water and prevent pollution – healthy environments are essential for trees to thrive, combat disease and live long lives.
Identify no-dig Root Protection Areas (RPAs) around valuable trees and protect them.

7. Identify no-dig Root Protection Areas (RPAs) around valuable trees and protect them.

8. Create new wood pastures or parkland especially where they will extend existing mediaeval forests, deer parks or ancient wood pastures.

9. Establish new open grown trees to be the ancients of the future, especially pollards, to ensure continuity of this distinctive heritage feature of the countryside.

10. Re-wild trees – allow trees and shrubs to establish by themselves naturally in grazed, landscape scale areas.

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MINISTRY FOR URBAN SPACES

KATE BRADBURY

GARDENER & AUTHOR

Urban areas can be some of the most biologically diverse habitats in the country. Gardens and parks – comprising lawn, shrubs and flowering plants – provide food and shelter for a huge array of wildlife. And yet these spaces are disappearing from our towns and cities.

In a report published in 2016, the Royal Horticultural Society (RHS) said the percentage of front gardens lost to paving, concrete or gravel had risen to 24%, from just 8% in 2005[1]. The results, based on a poll of 1,492 people, suggested that more than 4.5 million of Great Britain's front gardens were entirely paved, while 7.2 million were mostly paved. Another report, published by London Wildlife Trust in 2011, compared aerial surveys of London taken in 1998 and 2006. It found that domestic gardens (both front and back) made up nearly 24 per cent of the London's total area, but that in those eight years nearly two thirds of its front gardens had been covered with hard surfaces, while the amount of green space in back gardens had shrunk, largely due to the popularity of garden offices[2]. "An area of vegetated garden equivalent to 21 times the size of Hyde park was lost between 1998 and 2006," said the author of the report, Chloë Smith. That's an average of two Hyde Parks per year (and a further 14 Hyde Parks since 2011).

Space is at a premium in urban areas. Front gardens are paved to park cars, while back gardens are lost to anything from garden offices to low-maintenance paving, decking and fake lawns. Some are being lost completely, as gardens are 'grabbed' by developers and used to build a new house. Those gardens that are left are often fenced off so wildlife, such as hedgehogs and amphibians, cannot pass through them.

In a similarly bleak trend, our homes, once used by swifts, starlings and house sparrows, are being made more energy efficient – holes are bricked up and eaves are blocked off. New-builds provide little or no nesting opportunities. Increasingly, councils are forced to sell parks to developers to fund basic services. Buildings are erected or updated; their outdoor spaces paved for ease of use or maintenance. We're paving over our towns and cities, paving over our wildlife.

The decline of many wildlife species is more pronounced in urban areas than in the countryside: butterflies are vanishing from our towns and cities, house sparrows suffer greater losses in urban areas. Indeed, in roughly the same timescale (1994 to 2004) as Chloë Smith noted the huge loss of gardens in London, another survey, conducted by the British Trust for Ornithology (BTO), found that London's house sparrow populations had decreased by 59%[3]*. We have to take action to stop this creeping grey tide engulfing our cities. We need legislation to re-wild our urban spaces.

PROPOSALS:

1. Planning permission should be required for the paving, decking and fake-turfing of more than 10% of any garden.

Private house gardens, when considered together in an urban setting, form a coherent network of green spaces which are extremely valuable in a city. Paving, decking and fake-turfing these spaces can increase chances of localised flooding by leaving less soil available to absorb rainwater, as well as removing important habitat favoured by many declining species, such hedgehogs or house sparrows.

2. Hedgehog holes should be made compulsory in all new fencing.

The hedgehog, one of the most iconic and loved animals of the British countryside, is vanishing before our eyes. Their population is thought to have declined from 1.55 million in 1995 to fewer than 1 million in 2015,[4] mostly due to urbanisation, habitat loss and pesticide use.[5] What this means in practice is that entire areas of the countryside, such as rural south-west of England, are now completely devoid of hedgehogs.[4] However, research has also highlighted the value of back gardens as a refuge, and how vital these small green oasis can be[5]. For example, hedgehogs' favourite gardens are those of semi-detached and terraced houses, as the larger gardens may include habitat favoured by their natural predators.[6] Also of crucial importance is that gardens can be linked up by small CD-sized holes in the fencing (these are known as Hedgehog Highways), which makes it easier for hedgehogs to roam and forage.

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*This figure corresponds to the recorded decline from 1994 to 2004. Earlier records, however, tell us aL different, much more dramatic story. When Max Nicholson, the founding father of WWF, surveyed theL house sparrow population of Kensington gardens in 1925, he counted 2,603 individuals. In the year 2000,L when he repeated the count for the last time, he only found 8. This suggests we may have lost 99% of theL house sparrow population in the UK, and highlights the importance of looking at historical records to get aL bigger, more truthful picture.

3. Swift/sparrow/starling boxes must be built into all new-build homes, with incentives for retro-fitting of nest boxes on older properties.

Swifts, house sparrows and starlings have all suffered a huge decline. Swifts have declined by 51% since 1975,[7] while house sparrows, a species well known for its ability to thrive in urban areas, has declined by 60% in London between 1994 and 2004.[8] Part of this decline is due to habitat loss. Swifts have traditionally found sanctuary in our urban environment during their summer visits from Africa, but new builds or retrofits are seldom designed with wildlife in mind.[9] Swift bricks are a specially designed brick with a built-in swift nest inside. They have been designed to fit neatly alongside standard UK brick sizes, while also serving as a nest box for our summer visitors.[10] It has been estimated that we need to create 20,000 new swift nesting sites every year to stabilise the current population.

4. Native shrubs and trees must be used in municipal planting schemes and new build gardens to increase insect abundance.

Native shrubs attract invertebrates, which lay eggs on the leaves and stems of plants, as well as visit the flowers for nectar and pollen. Many species of moth and butterfly, for example, cannot complete their life-cycle without specific plants, such as birch, oak, hawthorn and buckthorn.[11] The more native plants we grow in new-build developments and municipal planting schemes, the more invertebrates will be able to feed and breed. This will also provide food for those animals further up the food chain, such as birds, hedgehogs, amphibians and bats.

5. There should be greater incentives such as free compost bins and reduced council tax bills for home-composting.

Home composting has multiple benefits: enriching your garden's soil with a natural fertiliser,[12] reducing unnecessary waste going to landfill and in turn lowering pressure on local authorities. Compost heaps also provide habitats for wildlife such as hedgehogs, bumblebees and slow worms.

6. Significant public funding should be available to keep parks and urban green spaces open.

Even though park use is rising in the UK, with 57% of adults and 90% of families with children under five years old visiting their local park at least once a month, park maintenance budgets and staffing levels are being cut.[13] This trend need to be reversed at once, as urban green spaces not only ensure people have regular access to nature, but also provide a much needed refuge for wildlife. Parks are also extremely important in reducing air pollution and noise, whilst lowering the impact of extreme weather events, such as heatwaves or floods.[14] Furthermore, regular access to green space has a positive impact on people's mental health and wellbeing[15] and public parks are especially important for this as they provide a safe space where people can connect with each other.

7. There should be long-term and secure public funding to transform our cities into National Parks.

Transforming cities into National Parks may hold a number of benefits, from giving the plants and animals that inhabit them further legal protection, to promoting the use and maintenance of green spaces, to making the cities greener and healthier. Greening our cities will not only improve conditions for their residents but attract more wildlife to live among us. Cities have the potential to be green, habitat-rich areas, packed with trees and parks for people to enjoy and wildlife to live among. But these things need to be valued and protected. London has 8.4 million trees, which provide the city with 13% tree cover: enough to define the city as a forest by the UN's own definition[16]. These trees deliver £132.7 million worth of ecosystem services to London each year,[17] from carbon storage, flood mitigation, pollution removal and temperature regulation. They also make streets more pleasant, help lower city temperatures and reduce the velocity of wind.

8. All municipal parks should have a minimum of 10% given over to wildflower meadows and have mandatory wildlife friendly ponds.

Between 1930 and 1983 we have lost 97% of the wildflower-rich meadows in England and Wales,[18] and the decline hasn't stopped. These precious, biodiverse and quintessentially British ecosystems now survive almost exclusively in the memories of those who are old enough to remember them. However, those same flowers that characterised our lowland meadows can be successfully planted within urban settings, providing all the same benefits to people and wildlife alike. Transforming 10% of all municipal parks into wildflower meadows would restore a significant amount of land in the UK back to floristically rich grasslands, supporting the recovery of pollinators around the country and creating more opportunities for outdoor education.

9. All new-build estates must have a communal pond and wildlife friendly communal 'green spaces' to be maintained by development or management company.

Common frog, common toad and natterjack toad populations have been in decline since the 1970s, while recent research conducted by Froglife and the University of Zurich suggests that common toad populations have declined across the UK by 68% over the past 30 years.[19] Reasons for these losses include the loss and degradation of ponds in the wild, as well as the disappearance of garden ponds in suburban and urban areas. Ponds also provide habitats for invertebrates with aquatic larvae, as well as a drinking and bathing spot for birds and mammals. Designing all new-build estates with a communal pond and wildlife friendly green spaces will offer a safe environment for families and adults to connect with nature, as well as giving our urban wildlife a habitat to feed and breed.

10. Areas earmarked for future development should be used as temporary 'pop-up' habitats typically sown with quick-growing annual flower mixes to provide food for pollinators.

This is a cheap and easy way to support urban wildlife - by creating more floristically rich grassland in our towns and cities, we can both provide food for pollinators and quickly build green corridors for roaming mammals, such as hedgehogs and foxes.

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Pets and Wildlife

Many of us love our pets – but it's time to stop denying that some of them can have a serious negative impact on wildlife.

Cats

According to research our cats kill 55 million songbirds every year in the UK and predate a total of 220 million other animals, including mammals, reptiles, amphibians and insects.[1] Given the great pressures this wildlife is under elsewhere these losses are almost certainly now significant.

It's not the cat's fault! And there are easy steps to take to reduce this toll. We must ask their owners to take responsibility, and here's how…

Keep cats in at night – this can reduce overall predation by up to 50% Unless you plan to breed your pets, have them neutered

It should be mandatory that all free-roaming cats are fitted with a collar and bell. This can reduce bird predation by 50%.[2,3] That's 27 million more birds in our gardens every year.

Dogs

The terrible impact that dogs can have on farm stock is mostly well known, but many owners are unaware of the disturbance that their best friends exact on the c. 47% of birds in the UK which nest on or near the ground. Roaming dogs can flush birds from their nests, leaving the eggs and young susceptible to chilling or vulnerable to predators. In areas popular with dog walkers this will rapidly lead to desertion and breeding failure. In many places dogs are required to be 'under control', but the ambiguous nature of this definition or its complete disregard urgently needs addressing – and here's how.

In areas designated as nature reserves, dogs – with the exception of assistance dogs – to be banned. On areas or footpaths adjacent to nature reserves, dogs should be on their leads at all times.

In National Parks and other non-nature reserve protected areas, zones sensitive to disturbance should be identified. Between March 1st and July 31st, dogs should be excluded or must be on leads.

In natural spaces with nature conservation interests, dog-walking hotspots should be established to attract owners away from wildlife sensitive areas by offering greatly improved facilities, including: properly maintained free car parking, covered areas, grey-water washing facilities for dogs, regularly serviced dog-waste bins, trails with canine exercise props, pop-up veterinary advice centres and proper dog-friendly cafes.

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MINISTRY OF SOCIAL INCLUSION & ACCESS TO NATURE

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Nature is a human need – central to the quality of our most fundamental physiological requirements (water, air, food), as well as our physical, mental and emotional wellbeing.[1,2] Thus access to diverse nature should be recognised as a human right. Allied to this right is a right to fight for nature and express an opinion about it. And if the naturally diverse opinions of a society are to be considered – representation matters.

You don't have to be a white, able-bodied, middle-aged, middle-class, cis-male to write about nature, photograph it, present it on TV, or discuss it intelligently in a public forum. But you wouldn't necessarily know that from media output, or from the speaker line-ups at many high-profile wildlife events. The fact is that while women are catching up after centuries of overt discrimination, pushing forward wildlife research and practical conservation, participating in citizen science and campaigning for environmental causes with passion and courage, they are still widely, woefully, embarrassingly and inexcusably underrepresented in the public face of the wildlife sector.[3]

There's something else a majority of women from all social backgrounds do for most of their lives. Almost three-quarters now do it alongside their paid jobs.[4] Yet the wildlife community has overlooked a group responsible for most day-to-day consumer decisions and for shaping the world view of future generations. Is it possible, somehow, that we have *forgotten* mothers? Most don't have much time for recreational wildlife-watching, but that doesn't mean they don't care, or that they won't fight for the future their children are growing into.

Making women and men of all social backgrounds a proportionate part of the wildlife movement isn't political correctness, it's a matter of necessity. We *need* diversity. We need the engagement of stay-at-home and working parents of all genders, just as much as we need professors and professional commentators. We need wildlife-loving teachers, imams and local councillors, business leaders and farmers, allotment-tending retirees and streetwise teens; we need environmentally aware shop and office workers, call centre operatives, doctors, accountants, engineers and lawyers. We need their perspective, their energy, their compassion, their voices and their votes.

So let's look closely and critically at conservation's public face. We need to recognise and expand its constituency, bring people from all walks of life to nature, find new and more effective ways of sharing its message, and ensure that when someone chooses to engage with the wildlife and conservation community, they feel respected, represented and welcome, whoever they are.

PROPOSALS:

1. Recognise access to diverse nature as a human right, and reinstate that access to all members of society.

Regular access to nature improves mental and physical health: it calms the mind, lowers blood pressure, increases concentration, boosts self-confidence, and mediates our most human traits of emotions, meaning and compassion.[5,6] Nature has forever been a universal language across cultures, and it must continue to be freely accessible to all in our society.

2. Voluntary full- or part-time eco-community service for all, with a small increment on benefit payments (from universal credit to pensions) in return for hours worked on local wildlife conservation or environmental schemes.

The Conservation Volunteers are one of several nationwide organisations offering free training programmes for people to gain skills that will help them find employment. Incremental bonuses (not necessarily of financial nature) for hours spent volunteering on environmental issues are good incentives, and can act as gateways for improving environmental awareness amongst key groups.

3. Where wild areas are open to the public, ensure all people are able to enjoy them, by providing adequate accessibility infrastructure.

4. Make reserves and natural areas more welcome to visitors with less visible ability differences – for example autism-friendly areas, noisy sessions, baby-changing facilities, Braille and signed guides.

5. NHS to work with environmental organisations to offer eco-prescriptions such as ***shinrin yoku*** (forest bathing) – prescribed in Japan for conditions as diverse as anxiety depression, obesity, heart disease and diabetes.

6. Create a network of neighbourhood nature ambassadors to inform, inspire and encourage social integration in their communities and serve as a connection with nationwide conservation.

Community networks of nature ambassadors can also take certain pressures off local authorities, such as taking ownership of nature reserves and parks through community asset transfer.[7] They can act as

communication hubs (managed by local people for local people), and serve as a space for multicultural thinking.

7. Subsidised childcare at nature reserves and “green days” for mothers and babies at Sure Start centres to facilitate access to nature for parents of young children.

8. Recruit, educate and inspire the next generation with all schools having a Wild Thought for the Day – based on real experiences from outdoor trips and outdoor learning.

A study by Natural England found that one in nine children had not set foot in a park, forest, or other natural environment over the previous year,[8] with the area that children are able to roam freely decreasing by 90% since the 1970s. Access to nature is essential for personal development, but it is also essential for cultivating an understanding of, and respect for, nature itself - regardless of background. If children do not grow up valuing nature, they will not want to protect it.

9. Ensure there is a 50:50 gender balance among contributors to nature and environment discussion panels, wildlife TV shows and other forms of environmental journalism.

Every year new industries are being scrutinised and emerge as gender unbalanced.[9] Encouraging the broad nature, environment and conservation industry to have a 50:50 gender balance offers more than just a balance of gender. A diverse group of role models reaching out to the widest possible audience, who are united over a common cause, sends a powerful message (especially to children).

10. Zero tolerance for sexist or racist trolling in wildlife social media discussions – perpetrators should be outed and penalised.

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What we can all do

It's easy to imagine that 'they' will fix the environment. But 'they' won't, whoever 'they'are. **We** need to do it – **me** and **you**. Together we are stronger. Together we can make a difference.

Identify your local green space (park, roadside verges, school field, cemetery, allotment, farmer's field, golf course, industrial park, derelict land). Find out who manages it. Offer to help them, join the committee, volunteer, persuade them to leave wild areas. Steps to help nature are simple, cheap, and often save money. No green piece of Britain exists today without local people having taken local action. Join this noble tradition!

Introduce a child to nature. Let them touch and feel it. Take them for a walk and give them the freedom to explore, climb a tree, catch a bug, bring a feather home. Do it once. Do it again.

Visit a farm. Learn about where our food comes from, how it is grown and the pressures on British farmers. Buy local food grown with care. Britain's wildlife won't be saved if we don't support good farmers.

Urban trees are invaluable for everyone: politely liaise with your local council to protect existing trees and plant additional ones for the future.

If you live in a house or flat, install swift, sparrow or bat boxes by the eaves.

If you have a garden, stop using pesticides – weedkillers, ant sprays, slug pellets. Liberate your lawn, let some grass grow long, leave piles of sticks in corners for invertebrates, sow native wild flowers for pollinators, feed garden birds, erect bee and bird boxes. Dig a pond – even a washing-up bowl-sized pond will boost biodiversity.

Connect with nature through what you eat. Grow some food – rocket and tomatoes in window boxes; cucumbers, runner beans, raspberries, blackberries. Home-grown tastes amazing.

If you are a member of a conservation charity communicate with them. Don’t just pay your membership – volunteer if you can. Or tell them what you think they do well and where they should try harder. You are a shareholder in conservation.

Join in with social media campaigns, sign petitions, explore new ideas, find your voice. Numbers count – be counted.

Visit a green space you’ve never been to before. Look around, listen, breathe deeply. Feel a connection with nature. Share its beauty with others. Know its real value in your life.

MINISTRY OF DIVERSITY IN NATURE AND CONSERVATION

MYA-ROSE CRAIG

PRESIDENT BLACK2NATURE

Why is it that despite rural roots and a natural, human love for nature, many people claim that visible minority ethnic (VME) people are not interested?

One issue is the mono-ethnic view of how we should engage with nature which excludes VME experiences and thus alienates them. Many in these communities view themselves as urbanites who do not belong in the countryside and worry about visiting this landscape through fear of prejudice and hate crime. Other barriers identified by VME experts include the countryside being elitist, the lack of public transport and a cultural fear of dogs.

Another reason the environmental sector struggles to engage VME people is due to the lack of diversity of its staff. Only 3% of people in the environmental sector are VME, making it the second worst employer in the UK in this respect[1]. These shockingly low numbers mean that there are virtually no staff to whom VME people can relate or be inspired by. It is also essential that we reach out and connect with communities in their own spaces, as 83% of the UK live in cities and a disproportionate number of VME people live in inner-city areas[2].

The environmental sector must step outside of the echo chamber of agreement and communicate with everyone. Diversity brings a wider range of people to organisations and leads to improved performance. Diversity must be at the heart of their strategy. To protect the environment is to leverage the input and contribution of as many people as possible.

Some argue that the issue is not one of ethnicity but of poverty. However, research has been published which shows that 65% children from lower socio-economic groups (C & D) interact with nature regularly, but this drops to 56% for VME children no matter their socioeconomic status[3]. Clearly ethnicity has a larger impact than poverty.

Education is also a problem. Parents of VME children who are interested in an environmental career may not be supportive due to a lack of familiarity with the sector. Also, many environmental jobs require unpaid internships, contacts, and access to the countryside, which create barriers.

There are also opportunities in HR, IT and Finance, for instance, within the environmental sector which could be filled by VME people, especially with diverse cities within commuting distance.

However, change is coming with VME people climbing mountains for charity, Rehan Siddiqui being British Mountaineering Council president, Mohammed Saddiq being Bristol Green Capital Partnership Chair and nature TV having both Liz Bonnin and Anita Rani. The National Trust are leading with their 2017 staff conference on diversity and events attracting 3,000 VME people.

PROPOSALS:

1. Acknowledge and address the low visible minority ethnic representation across the environmental sector.

Racial diversity in nature and conservation organisations is a longstanding and deep-rooted problem, and recently there have been calls from around the world to address it [4,5,6]. Gender diversity is changing slowly, but there is still a long way to go to have balanced representation of our diverse society; an endeavour that will not only enrich our society, but will contribute to better science, better communication, and better communities for everyone.

2. The sector to obtain advice from VME Race experts and formulate a diversity plan suitable for all organisations including making nature relevant to the VME community by engaging them with nature in a way that they can relate to.

3. Environmental organisations to obtain advice on unconscious bias and how they can increase visible minority ethnic representation, publishing their strategies and progress in annual reports.

4. Environmental organisations to adopt excellent equal opportunities and recruitment policies including mandatory diversity training for all Trustees, staff and volunteers.

5. The sector to monitor, measure and publish diversity data for Trustees, employees, volunteers, applicants and members.

Publishing anonymised diversity data is essential in raising awareness of VME people in the conservation sector. Transparency of data will not only help to celebrate the successes, but it will also make it possible to learn from other organisations about how to think differently.[7]

6. Online and printed environmental media to be diverse in content with images reflective of UK society and more VME role models visible on nature TV programmes.

7. The Government to commission research into the barriers to VME going out into natural spaces, what can be done to overcome the hurdles and take action to make change.

8. The Government to ensure regular cheap public transport from inner cities to the countryside especially National Parks and Nature Reserves.

9. Government Departments to provide mandatory information evenings targeting VME secondary age children and their parents, explaining careers in the sector and encouraging an interest in relevant courses.

10. Universities to mentor and support VME students taking nature-related degrees in order to combat racism and isolation.

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MINISTRY FOR YOUNG PEOPLE IN CONSERVATION

BELLA LACK & GEORGIA LOCOCK

SCHOOL PUPIL & STUDENT

Aside from our burgeoning population, the major reason for almost all ecological declines can be attributed to our estrangement from the natural world.

Ritu Ghatourey said: “Every child is born a naturalist. (Their) eyes are, by nature, open to the glories of the stars, the beauty of the flowers, and the mystery of life.” This quote captures the innate sense of wonder that all children have about the natural world. You can see it in their eyes as they stroke an earthworm or watch a colony of ants diligently constructing their nest. However, those same eyes are now being drawn away and trained upon objects that provide instant, superficial gratification. We have seen this in our generation – their youthful admiration of wildlife leaching out of them until no fondness for nature remains.

The ideas, views and opinions of our generation matter more than anyone else’s. But paradoxically, those of us who stand up to voice our concerns find it isn’t easy. We struggle to make our voices heard, face enormous difficulties in finding a career in this sector, and feel massively undervalued. This situation is exacerbated by nature and wildlife being restricted to isolated areas. Remote rural nature reserves are completely inaccessible for many young people. Nature should not be something confined to a reserve which we occasionally visit as a special treat. It must be allowed to flourish in school grounds, gardens and towns.

Social media and new technologies are often blamed for our generation’s disconnection from nature - but all is not lost. In many instances, these technologies and platforms enable us to engage instantaneously with huge and important communities to highlight the beauty and importance of the natural world. For students in their final years at school or in higher education social media is particularly influential. However, nothing is better than the real thing, and many higher education institutes are ideally placed to reconnect young people with nature through their abundant green spaces. These leafy campuses should be compulsorily used to celebrate the importance of nature with this age group.

David Attenborough said: “No one will protect what they don’t care about; and no one will care about what they have never experienced.” It is crucial that

young people are allowed to explore if we do not want them to exploit. They must be allowed to discover if we do not want them to disregard. We must cure this epidemic of Nature Deficit Disorder in young people.

PROPOSALS:

1. Every urban area to host an annual 'Borough Bioblitz', where children conduct audits of their local wildlife, assessing ecological health of an area and how to improve it.

A bioblitz is an intense period of biological surveying in an attempt to record all the living species within a designated area. Recording is an extremely useful way to monitor population trends of various species, and therefore help protect them. It can also help people connect with and develop an appreciation of the wildlife on their doorstep.

2. 'Wild Zones' – outdoor teaching areas – in every school, with government funding to support ponds, flowers and trees.

3. PSHE or wellbeing classes to include a section on the importance of regular contact with nature to benefit physical and mental health.

PSHE stands for Personal, Social, Health and Economic education. The curriculum should have a strong emphasis on the importance of regular contact with nature, as the benefits both from a psychological and physiological perspective are countless, especially for developing children.[1,2]

4. Every primary school in Britain to be twinned long-term with a farm as a means of 'growing' farming into children's lives, and also for them to shape farming in return.

It's one thing to believe nature is good for kids and another thing to establish habits that put that belief into practice. Gardening is the sort of activity that can bridge this gap, whether this is done in an outdoor space or in a couple of pots at home. Children who grow their own fruit and veg and cook it are more likely to eat it: they will understand where it comes from, will feel a sense of achievement and will be excited to eventually see it on their plate. This promotes a sense of ownership and responsibility, as well as a much deeper connection with nature and, last but not least, improves the eating habits of young gardeners.[3]

5. Pre-downloaded educational apps on school technology to include at least two nature/conservation apps.

More and more teaching today is delivered through the use of technology and educational apps and the global education apps market is expected to grow at a Compound Annual Growth Rate of 27.46% during the period 2018-2022. Appropriate technology can support and enhance the outdoors learning of the children and make them aware of wider ecological issues.

6. A national campaign to promote the importance of nature for mental health, specifically focused on how it can benefit young people.

7. A nature conservation work placement programme offering 5,000 annual placements to inner city pupils by large NGOs (RSPB, National Trust, etc...)

8. A government-funded nature apprenticeship scheme to widen access to conservation jobs, with one trainee warden for every national nature reserve.

9. An annual competition celebrating the best young nature vloggers and bloggers on social media, backed by BBC channels and magazines.

10. The creation of a Young Person's Nature Advisory Panel for the UK within government, giving young people a long-term and powerful voice in environmental decision-making.

The government represents all citizens, not only those legally allowed to vote. Representation is more than just participation or citizenship, but children and youth rarely enjoy significant democratic rights to influence policies, shape laws, or elect representatives. A panel of young nature advisors would allow the younger citizens to express their needs and concerns, and advise on changes to current legislation that would benefit them. In a truly democratic system, this would be possible.

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MINISTRY OF WILDLIFE OVERSEAS

RUTH PEACEY

CAMPAIGNER

For generations migration was observed through the passing of seasons and little was known about species when they moved beyond our surrounding landscapes. We saw “our” birds and looked at “our” whales, unaware that for the rest of the year people in other nations would encounter the same individuals with the same feeling of “ownership”.

Wildlife is naive to the boundaries we have marked on maps. It sees no borders where our passports must be shown and baggage checked. Wildlife crosses such lines by air or sea, without concern for checkpoints. Animals carry out functions as required wherever they need to be, dictated by the environment, climate and food supply. Paradoxically and incompatibly we have generated a mess of different attitudes, beliefs, traditions and laws to protect these animals, or not, in almost every country.
For example, whilst we provide Countryside Stewardship payments to protect a landscape in which Turtle Doves can feed and breed in the UK (£120/ha pa to establish and manage a modified seed mix specifically for these birds in addition to payments for hedgerow protection for various breeding bird species including Turtle Doves),[1] an estimated minimum of more than two million are legally shot each year in ten EU member states, including Greece, France and Austria.[1] We are doing the creatures we protect a disservice whilst also wasting money and resources.
Wildlife is also transported across our constructed borders. We buy and import products made from plants, animals and other living things that we don’t need to survive and, sadly, are often not valued as much in our homes as they would be if left in situ. Individual sharks will bring economic benefit for years through tourism (shark diving is estimated to be worth more than US$170million pa across just three of the most popular countries globally).[2]

Organisations and governments already come together and discuss multi-national issues affecting wildlife, but rules are often broken and simply not enforced. “Tradition” is a word that is banded around as an excuse to exercise such violations. Tradition must have contemporary relevance to justify any persistence in practice – our streets aren’t cobbled nowadays because it is better for current vehicles to run on tarmac.

We are all part of the natural world and we all share responsibility for it.

We should work together to overcome differences and teach and celebrate cultural traditions which are no longer sustainable in books and art, allowing wildlife to thrive in the here and now and, ultimately, be shared by all.

PROPOSALS:

1. There will be no ambiguity in the laws relating to whaling. These animals should not be killed or captured by any country for any purpose, be it under the guise of science or openly for meat or entertainment.

2. All marine protected zones should be respected by all countries so that boundaries set for fishermen in one country are not breached by those from others.

3. Loopholes in the trade of shark fin and bushmeat to be immediately closed with a comprehensive ban on the trade in wild animal parts – be it for food or trophies.

An EU loophole is allowing the import of shark fins into Britain under the personal allowance rule, the same rule that covers tobacco and alcohol, but that prohibits the import of meat and cheese. Under current regulation, travellers are able to bring back up to 20Kg of dried shark fins, which have a market value of £3600, are enough to make 705 portions of soup and represent the death of approximately 25 sharks. Sharks are slipping towards extinction worldwide,[3] and the insatiable demand for their fins to be used in traditional Chinese cuisine is one of the contributing factors to their decline. Shark and marine conservation charity Bike-Back has been petitioning for the immediate closure of this loophole but, at present, unregulated shark fin movement is still possible across 28 countries.

4. Wild animals should no longer be taken from the wild in any country for the pet trade or other human entertainment. Exemptions may be made for conservation programmes requiring captive breeding.

5. The hunting of birds during breeding seasons and during migration to be outlawed internationally.

6. The use of traps to capture finches, waders and other birds for the captive bird trade and/or meat to be banned worldwide immediately.

Current trapping methods mean that non-target species are captured and the numbers harvested are unsustainable.

7. An immediate moratorium placed upon the hunting of any species that is shown to be in significant decline in any part of its range (as defined by the IUCN). An animal should not be shot in one country when money is being invested in its protection in another.

8. Conservation targets and plans should be officially coordinated internationally by the IUCN (or similar body) and become legally binding, with protection offered not just for species with declining populations but also their habitats, resting spaces and food sources.

9. International laws to properly protect wildlife drawn up, upheld by all nations and protected by a new International Environment Court.

10. An international student-linking programme to facilitate an understanding of wildlife and conservation issues in other countries and to develop compatible and mutual support.

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MINISTRY OF MARINE CONSERVATION

MARK CARWARDINE

CONSERVATIONIST, BROADCASTER, AUTHOR

Our island nation has 32,018 kilometres of coastline, overlooking the English Channel, Celtic Sea, Irish Sea, North Sea and, of course, the open North Atlantic Ocean. We are surrounded by some of the richest seas in the world, teeming with an astonishing abundance and diversity of marine wildlife.

We provide a home to some eight million breeding seabirds[1] – including globally important populations of gannets, manx shearwaters and great skuas – and have some of Europe's most important seabird colonies. A wide variety of cetaceans are seen regularly in our waters, including minke whales, killer whales, Risso's dolphins, bottlenose dolphins, and harbour porpoises, along with everything from otters and grey seals to basking sharks and white-tailed eagles. There are estimated to be 8,500 marine species living in UK seas altogether.[2]

But we do a shockingly bad job of looking after them. We take out far too many fish and shellfish, often catching them in destructive ways that have devastating impacts on other wildlife, and we use the seas as a dumping ground for an insidious tide of plastic waste and all sorts of other pollution. Add to that threats from rising sea temperatures, oil and gas exploration/extraction, and coastal development, and it's not really surprising that we are losing our marine wildlife like never before. Many seabird populations are in steep decline, at least 1,500 dolphins and thousands of porpoises, dolphins and other cetaceans die in fishing nets around the country every year,[3] and dredging for scallops and other shellfish results in the complete annihilation of seabed habitats.

The good news is that we can turn the tide. With proper management we can ensure that our seas are brought back to full health and remain healthy for generations to come. Marine wildlife can flourish, coastal communities can prosper, and everyone will be able to enjoy the sheer wonder of the marine world and all its remarkable wildlife.

To achieve this we must establish an ecologically coherent network of properly managed marine protected areas, with 30% of our seas off-limits to commercial fishing, scallop-dredging and other damaging activities (currently, only 0.001% is given this level of protection)*. This would include our entire exclusive economic zone, to 200 nautical miles from shore, allowing

populations to recover in the absence of human pressure. As fish numbers increase, they will spill out into the surrounding seas, increasing catches for local fisheries, and providing more food for seabirds, whales and all the other creatures that rely on our care and support.

We are very fortunate to have such a rich, abundant marine wildlife – we have a duty to look after it, so here's what we should do.

PROPOSALS:

1. Create an "ecologically coherent" network of significantly large marine reserves for all species inhabiting our seas.

Many marine species move around day by day, season by season or year by year, for food, to reproduce, and for other reasons. Therefore it's not enough to protect only one area when they might spend much of their lives elsewhere. A network of marine reserves that is ecologically coherent is one that considers the entire marine environment – not just isolated pockets – as well as the species (including all their life stages) and habitats most needing needing protection. This ensures that they are protected wherever and whenever they are at their most vulnerable. Developing this requires considerable research[4] and complex mapping to identify where our species live, when they are there, how they behave, and what threatens them. Currently, only 0.001% of UK seas are no-take zones and only 4% has some kind of designation.[5] Not only that, the current set of designations are not ecologically coherent, protecting only specific species or habitats in isolation. The huge risk that that, without proper ecological coherence, our marine protected areas will be nothing more than 'paper parks'.

2. Make 30% of our seas off-limits to commercial fishing and other damaging activities.

Why 30%? 144 scientific studies[6] modelling how much ocean needs protecting to achieve conservation goals, such as conserving biodiversity, avoiding collapse of populations, and providing value to fisheries, was reviewed. More than half of the studies calculated that at least 30% of waters need protecting to achieve such conservation goals. The International Union for Conservation of Nature (IUCN) has also adopted this target by 2030 after 129 member states voted for it[7]. This is the minimum amount of protection we should be seeking to ensure we can continue to fish and use the sea sustainably, and this 30% needs to be ecologically coherent. Trawling takes huge numbers of species out of the water and bottom-fishing, such as dredging and bottom-trawling, damages large areas of seabed, which can take up to 6 years to recover from a single pass.[8] Marine protected areas need to be more than lines on a map, they need real management that restricts activity to maintain habitats.

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* Currently there are only three no-take-zones in the UK which receive complete protection from destructive fishing activities. These are Lundy (4 Km^2), Lamlash (2.6 Km^2) and Flamborough Head (1 Km^2). The entire British exclusive economic zone (EEZ) is 756,639 km^2, which means that only 0.001% of the EEZ is fully protected.

3. Ensure greater transparency and accountability into the way we fish including mandatory on-board cameras to monitor what boats catch.

At present the UK fishing fleet and fish processing industry are monitored by Seafish.[9] The Marine Management Organisation (MMO) is required to collect data relating to fishing effort and quotas. Inshore fisheries, which are not under the EU's Common Fisheries Policy, are monitored by the Inshore Fisheries and Conservation Authorities (IFCA) who have the power to set local bye-laws. Monitoring fishing activity serves two purposes. First, it enables collection of valuable data that informs fisheries scientists and marine ecologists about the health of identifiable areas of the sea. Second, the fishing industry is subject to many regulations that stipulate what can be caught, how much and where, and what can be thrown back. To enforce these rules, authorities need evidence that will hold up in court. The gaps in the current system relate to the activity of fishers at sea. Modern technology can hugely improve monitoring of fishing at sea. A vessel monitoring system (VMS) is a 'black box' that records the location of a fishing vessel and the speed it is travelling. This gives evidence of potential fishing activity in closed or restricted areas. To give more weight to this circumstantial evidence, images of fishing gear being used that are time-stamped provide definite evidence of illegal fishing that will hold up in court. This is a low-cost way of enforcing fishing regulations at sea.

4. Reform the system by which the total allowable catches for each stock are set each year, to make sure that they are based on the best and most recent available science, prioritising evidence over politics for the good of stocks and the fishing industry.

Every year, in December, fisheries ministers across Europe have to agree on total allowable catches (TACs) for commercial fish stocks, which fix the level of fish quotas that can be caught by EU member states for the following 12 months (and for shared stocks with non-EU countries, e.g. Norway). Scientific bodies, predominantly the International Council for the Exploration of the Sea (ICES), provide information about the state of most stocks and recommend maximum catch levels. However, for many years, this scientific advice has been mostly disregarded. Historical analysis of agreed TACs for all EU waters between 2001 and 2017 shows that, on average, seven out of every 10 TACs were set above scientific advice.[10] The fact that the negotiations over TACs are held behind closed doors doesn't help either, and it means that ministers are off the hook when they ignore scientific advice and give priority to short-term interests that risk the health of fish stocks. Sadly, The UK and Ireland come top on the list as worst offenders in terms of the total tonnage of TACs set above advice[10]. In the December 2017 negotiations, of the 124 TAC decisions made, 57 were set above advice, amounting to over 206,000 tonnes of excess TAC, continuing the trend of permitting overfishing in EU waters. If the fishing industry was properly managed, following scientific advice, damaged fish stocks could rebuild, and we could enjoy their full potential within a generation, providing food for an additional 89 million EU citizens and an extra €1.6 billion in annual revenue.[10]

5. Just as land managers can be rewarded for farming in a way that benefits wildlife, review and reinforce the MCS to ensure grants to fisheries only encourage exploitation of marine resources in a sustainable way.

The Marine Stewardship Council has, for twenty years, practiced a certification of sustainably fished products. The MSC Fisheries Standard allows a blue label accreditation on products which fulfil the criteria of being fished from sustainable stocks with minimal environmental impact, and good fisheries management. The MSC Chain of Custody Standard applies to the processing of fish, and requires assurance that fish with the Fisheries Standard blue label must be traceable and identifiable, and separated from fish without the label. The ASC-MSC Seaweed Standard accredits sustainably harvested seaweed. These standards empower consumers to make sustainable choices in their seafood purchasing. Grants for the

fishing industry, currently come from the European Maritime and Fisheries Fund. To be eligible for these grants, a UK project must meet the following eligibility requirements:

- make the fisheries and aquaculture sectors more sustainable
- conservation of the marine environment
- support growth and jobs in coastal communities

In the event of a Brexit deal which removes access to this fund from the EU, it is imperative that the UK government replaces it with a grant scheme that likewise encourages sustainability. Any new scheme would have the freedom to go much further in promoting research and practice that will improve fishing sustainability. The recently closed consultation on the UK government fisheries white paper includes a range of proposals around improving the sustainability of the UK fishing industry.

6. Severely limit destructive fishing practices such as scallop-dredging and bottom-trawling.

Dredging and bottom-trawling are fishing techniques which catch bottom-dwelling fish such as flatfish and cod, and shellfish such as scallops and oysters. A dredge net is dragged along the seabed, scouring it with metal teeth, to dislodge the shellfish and catch them in the net. Bottom trawl nets vary, some having a metal or wooden frame to hold the net open, others having panels at the sides of the mouth and a weighted rope in contact with the seabed. The amount of damage they cause therefore depends on the design of the fishing gear, but all bottom gear is in contact with the seabed and will scour it and struggle with by-catch.[11] Recovery of the seabed varies, ranging from a few hours in turbulent sandy sediment,[12] to decades in the deep sea.[13,14,15] The techniques disturb seabed habitats, expose bottom dwelling animals (making them more vulnerable to predation), and release trapped chemicals[16] from the sediment into the water. As well as incorporating selective panels or release nets to reduce by-catch, bottom-trawls and dredge-nets should not be used on areas of the seabed where there are vulnerable or protected species or habitats, and any use should be proportional to the recovery time of the seabed. Some areas are already closed to bottom trawling to protect soft corals, for example. But, as things currently stand, there is a negligible amount of UK seabed which is not vulnerable to this damaging fishing practice.

7. Ban the production and use of plastics that cannot be recycled, in order to reduce the flow of plastic pollution into our marine environment.

Plastics are already the commonest marine pollutants,[17] found floating on the ocean surface, littering the seafloor , and strewn along beaches – yet plastics production is increasing. There are two main sources. First, there are large items such as bottles, drinking straws and bags. In the UK alone, we throw away 38.5 million plastic bottles (about half are recycled),[18] nearly 7 million disposable coffee cups,[19] and 23 million plastic straws *every day*.[20] Second, there are so-called microplastics – ranging from microscopic particles to bits the size of a sesame seed – are formed when larger items break down, or they are manufactured as 'microbeads' for use in everything from toothpaste and make-up to detergents and cleaners. Together, they find their way into the ocean through coastal and marine littering, wastewater discharge (improper disposal of plastics down the toilet and microplastics from washing clothes, for example), lost fishing gear, shipping or riverine accidents, and active dumping at sea in countries where municipal waste collection isn't available. Once in the marine environment, larger items are frequently mistaken for food and eaten, causing turtles, seabirds and many other animals to choke or, ultimately, starve. Microplastics are known to affect reproductive success and growth rates, and are likely to impact other biological functions. Another concern is that chemical toxins attach to microplastic particles and enter the food chain when they are ingested. The ocean is an open system, so the effects of plastic pollution can be felt very far from the source.

The UK Government's 25 year Environmental Plan commits the UK to zero avoidable plastic waste by 2042 and aims to prevent all kinds of marine plastic pollution, through measures at production, consumption and end of life.[21] There are numerous initiatives to reduce our plastic consumption, such as the 5p bag charge

which has seen single use plastic bag use reduce by 83%[21], and the Surfers Against Sewage plastic-free accreditation. Evidence of efficacy of such initiatives in reducing marine plastics is still lacking.[22] Regulating the use of virgin materials to encourage recyclable plastics would address both plastic production and end of life, reducing the amount of non-recyclable waste and improving recovery rates.[23] Scientists believe this requires global agreement, which might look similar to the Montreal Protocol which led to the reduction of ozone depleting air pollutants and considerable carbon dioxide reduction.

8. Set up an equivalent of the Farmland Bird Index to track the populations of significant species of marine mammals, birds and fish so that we can take conservation action before it is too late.

The UK Farmland Bird Indicator was set up in 1999 in response to the decline in farmland birds, and is concerned with 19 key indicator species which are dependent upon farmland. It is calculated through data collected by the Common Bird Census and the Breeding Bird Survey, which are long-standing citizen science projects, with volunteers collecting data in a consistent way year on year. There is a global network of bird censuses which are aggregated to produce the Wild Bird Index.

Within the coastal and marine environment, there are a large number of research, voluntary and citizen science census and recording projects. Some examples include the Cornish Seal Survey, cetacean recording charities such as Sea Watch Foundation, ORCA and MARINElife, shark tagging schemes, the national citizen science project examining rocky shore biodiversity called Capturing Our Coast, the Continuous Plankton Recorder, the underwater recording project Seasearch, and many others targeted on certain species or locations. Data is often collated through apps such as iRecord, coordinated by the National Biodiversity Network. Unlike land birds, which tend to return to the same areas to nest and can be counted by anyone trained in bird identification, marine species are much more difficult to monitor. Often it is only the most charismatic species that encourage volunteers to give up their time to recording. Therefore, the disparate nature of recording projects and opportunities makes it difficult to assess population change. A nationally funded and coordinated approach, using modern technology and big data techniques, would enable more consistent data collection, submission, and analysis.

9. Appoint a high profile marine environment ambassador, a 'Sea Tzar', to celebrate our marine wildlife and raise awareness of the issues that threaten it.

10. Set up a significant fund to allow children, especially those from disadvantaged or urban backgrounds, to see some of our spectacular marine wildlife for themselves.

Research from Keep Britain Tidy[24] found that one third of children have never been on holiday to the British coast, and one in five have never set foot on a British beach. 36% of children under 15 have never rockpooled. Anecdotal evidence[25] from marine projects around the UK coast suggests that - even among children who live in coastal communities - some never visit the sea, often due to lack of accessibility and transport cost. Schools take children on fewer field trips than in the past.[26] Yet research shows that that visiting the marine environment is good for human wellbeing and encourages a keen awareness of the marine environment.[27,28] People who are strongly attached to a place are more likely to care about it, and this passion is sparked in childhood. Therefore, this is an important time to provide experience of the marine and coastal environment. A fund for schoolchildren to enjoy and learn about the sea - together with advice on good spots to visit - would break down the barriers caused by distance, deprivation or inaccessibility. It would enable a whole generation to develop an attachment to the sea and grow up to be more responsible towards the marine environment.

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Dr Amy-Jane Beer earned a PhD studying the developmental neurobiology of sea urchins at Royal Holloway, University of London. She spent several years in magazine publishing and now works as a freelance science and nature writer and editor. She has authored several dozen reference books for all ages and edited over 200 scientific manuscripts. She writes features for magazines including ‘BBC Wildlife’, is a Country Diarist for the ‘Guardian’ and a new columnist for ‘British Wildlife’. @AmyJaneBeer

Kate Bradbury is an award-winning author and journalist, specialising in wildlife gardening. She writes for a number of newspapers and magazines and is author of best-selling gardening book ‘The Wildlife Gardener’ (2017). Her latest book, ‘The Bumblebee Flies Anyway’ (2018), documents the transformation of a tiny decked patio in Brighton into a glorious wildlife oasis. She's passionate about inspiring others to create better habitats for wildlife in their own gardens and outside spaces. @Kate_Bradbury

Jill Butler has worked in countryside management and has been a volunteer with her local Wildlife Trust and for the Ancient Tree Forum. For the past 30 years she has travelled Europe to study trees, especially ancient trees and wood pastures, and has learnt that there is a unique biodiversity, heritage and

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Carol Day has a degree in Environmental Sciences and a Masters in Nature Conservation. She has spent over thirty years working in the voluntary sector, including Warwickshire and Surrey Wildlife Trusts and WWF. She converted to law in 2002 and now splits her time as a consultant solicitor between the RSPB and public interest law firm Leigh Day, working on a wide variety of environmental issues. @CHatton_Day

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