Death by a Thousand Failures

A critique of DEFRA's governance and its devastating toll on nature

By

Protect the Wild

Contents:

Executive Summary

Farming covers around 70% of the UK's land area and is therefore one of the most powerful forces influencing its wildlife, soils, and waterways. Yet successive governments have failed to govern this industry in a way that adequately protects nature. Policy too often appears designed to minimise inconvenience to the industry, rather than to prevent – forcefully and effectively – the environmental damage it causes.

This report examines how the government's approach to agricultural governance has systematically let down wildlife, with a particular focus on England.

Key Points:

• **An Agricultural Tilt:** Over the last 15 years, DEFRA's leadership has brought greater experience in farming than in environmental science or conservation – and the farming industry has significant access to policymakers through lobbying and industry actors' inclusion in advisory groups. This means that farming interests have considerable influence, which is reflected in the government's policy direction.

• **Badgers Betrayed**: Since 2013, 250,000 badgers – a protected species – have been killed under a cull policy that is deeply unpopular with the public. Successive governments have pressed ahead despite mounting evidence that culling badgers is not an effective approach to tackling bovine tuberculosis in cows, reflecting DEFRA's alignment with farming interests rather than evolving science or public opinion.

• **Carrots, not Sticks:** Public money flows into farming through subsidies and grants, which were redesigned in recent years to incentivise farmers to adopt environmentally beneficial practices. But the existing system lacks robust regulatory deterrents to balance out these incentives, with enforcement bodies taking a co-operative and partnership-based approach to compliance. Weak planning and permitting regimes have also allowed intensive farms to proliferate.

• **Widespread Violations**: The inadequacy of the current approach to governance – reliant on incentives, friendly enforcement, and deficient permissions regimes – is clear from the routine breaches of environmental regulations that occur. Dairy farming is a hotspot: between 2020 and 2025, around 70% of inspected dairy farms in England were found to be in breach of regulations each year.

• **Wildlife in Decline**: Monitoring of the farming industry's ecological impacts is insufficient, leaving significant knowledge gaps. But the available evidence paints a troubling picture: declining wildlife populations, nutrient-polluted woodlands, degraded river systems, and climate impacts. Collectively, these trends demonstrate that the current governance framework is failing to safeguard, or meaningfully restore, the natural environment.

Although there have been some improvements in recent years, the system of farming governance in England is failing to adequately protect wildlife and the health of ecosystems. Policymakers appear to have, at best, pursued an impossible balance – attempting to satisfy the demands of industrial farming while meeting the needs of wildlife and the environment. In practice, this approach has become a death by a thousand failures for wildlife – so far doing little to slow the UK's nature crisis.

Introduction

This report examines why British farming policies, particularly in England, are failing to protect wildlife.

Globally, anywhere between one and two million wild species are currently at risk of extinction[12], according to scientists. In Great Britain alone, at least 16% of species are known to be threatened with extinction[3]. The drivers of this catastrophic situation for wildlife are diverse, but they mostly share a common source: human activity.

How humans have shaped, changed, and exploited the world has affected wild species immensely. The climate crisis is one example of our influence, predominantly driven by the actions of people in richer countries. This emergency is spiralling quickly, with some scientists predicting it might become the leading cause of terrestrial biodiversity loss by mid-century[4].

According to a 2019 global assessment, two other drivers presently dominate in damaging wild species and the ecosystems they call home. Exploitation is one of them, meaning our plundering of the ocean and land to use or trade wild animals and plants for food, medicine, fashion, entertainment, and other purposes[5].

The leading cause of the extinction crisis is land and sea use change, particularly for agriculture. In 2021, a landmark research paper by Chatham House outlined the problem: food systems are overwhelmingly responsible for changes to land use, such as deforestation. This agriculture-related land use change occurs to create grazing land or cropland, much of which is used for farmed animal feed. Food systems also contribute over 28% of human-led greenhouse gas emissions globally[6]. Both these factors have significant impacts on wildlife, as do other practices associated with intensive animal farming, such as the use of antibiotics and agrochemicals, and emissions of pollutants like ammonia.

As Chatham House researchers stressed in a further paper the following year, richer countries are particularly culpable for the situation due to their “legacy” of GHG emissions and biodiversity loss[7]. However, these countries’ responsibility for the problem is not solely historic. Contemporary populations in wealthy nations typically consume more farmed animal products than people elsewhere, meaning the ‘legacy’ endures[8].

This legacy is felt deeply abroad. Global Witness has calculated that UK imports of “forest-risk” products in 2024 contributed to 13,500 hectares of deforestation globally[9]. These high-risk products include commodities such as beef and soy. Most imported soy is used as farmed animal feed.

The Environment Act 2021 is supposed to eliminate products linked to illegal deforestation from UK supply chains. But key secondary legislation is yet to be introduced and enacted, rendering the law impotent at achieving its intended aim.

On UK soil, the state of farmland birds provides alarming insight into agriculture’s environmental legacy. Government data released in September 2025 showed that populations of these wild birds have declined by 62% since 1970[10].

11% of the UK's farmland bird decline has occurred since 2019. Severe declines are even now happening among adaptable, 'generalist' species, rather than solely inflexible 'specialist' birds.

This report analyses the shortcomings of the government's strategy for addressing the negative impacts of agriculture on wildlife. The discussion primarily focuses on England, with some limited references to broader UK data and examples. It explores the possible reasons why wildlife populations continue to be threatened by farming despite the UK government pledging decades ago to make sustainability the "guiding principle" underlying all government actions[11], including those related to agriculture.

DEFRA’s Roots and Influences

The policies designed to protect wildlife from agricultural impacts are not made in a vacuum – they are shaped by the interests and expectations surrounding decision-makers.

In recent years, the Department for Environment, Food and Rural Affairs relocated its staff to a building on Marsham Street in Westminster. Before this, the department operated across multiple locations, most notably Nobel House at 17 Smith Square.

DEFRA is the ministerial department responsible for “improving and protecting” the natural environment. It also regulates agriculture, fisheries, and the food and drink industries, and oversees broader rural affairs.

Although its headquarters is in Warwickshire, the National Farmers’ Union has previously had an address at King’s Building, 16 Smith Square[12] – adjacent to DEFRA’s Noble House. In 2018, the organisation opened a new Westminster hub at 18 Smith Square, on the other side of Noble House.

The NFU’s then president, Minette Batters, suggested the opening of its new hub would offer more access to policymakers and opportunities to help “shape the food and farming debate,” FarmingUK reported[13]. However, given the NFU’s previous proximity to DEFRA, access to policymakers had never been in short supply. This close relationship was further underlined when Batters stepped down as NFU president in 2024 and accepted a crossbench peerage the same year.

NFU Shaping Politics

The NFU has a long history of attempting to ‘shape’ the food and farming debate in parliament – the association is credited with spearheading professional lobbying in the UK. Between 1913 and 1916, it employed barrister Charles Weller Kent as ‘parliamentary lobbyist’. In a paper on the subject, the University of Ulster’s Conor McGrath said Kent’s appointment “marks the emergence of modern professional lobbyists in the UK.”[14]

A century later, the NFU’s lobbying efforts are still going strong. According to Transparency International UK’s lobbying register, UK government disclosures show that NFU representatives attended more than 770 meetings with government officials between 2012 and mid-2025[15]. This figure includes meetings where the NFU attended alongside other organisations.

However, data on lobbying activities in the UK is patchy because, unlike many other countries, it does not have a comprehensive statutory lobbying register. Moreover, meetings between lobbyists and opposition politicians take place under the radar, as there is no requirement for disclosure, as highlighted by openDemocracy[16].

Considering that the NFU said its chief Tom Bradshaw was “first through the doors” of the new DEFRA secretary Steve Reed’s office after the 2024 election, it’s clear the organisation was no stranger to opposition politicians before the vote[17]. At an event in September that year, Reed thanked the NFU for its support during the election, saying: “I was all over the country being taken on visits around farms of every shape and variety and I was blown away by the quality of support we were shown.”[18]

In 2023, environmentalist George Monbiot told ENDS Report that the relationship between DEFRA and the NFU is “so close it amounts to regulatory capture.”[19]

A few years earlier, Monbiot had revealed that the NFU was lobbying the government to permit the application of dangerous, banned pesticides to crops after Brexit[20]. The Conservative government obliged, authorising the emergency use of neonicotinoid Cruiser SB on sugar beet crops in England within days of leaving the EU in 2021[21]. Officials continued to approve its use for four years running. The Labour government rejected an application from the NFU and British Sugar for its use in 2025.

George Monbiot’s criticism of DEFRA’s close relationship with the NFU followed revelations by ENDS Report that DEFRA adjusted an emissions inventory to exclude a farming-related source of ammonia pollution after lobbying from the NFU. Lawyers said this adjustment effectively allowed DEFRA to present the UK as having made progress towards international air quality targets without actually reducing emissions.

Neonicotinoids are known to be deeply harmful to pollinators like bees and can ultimately make their way into rivers, causing harm to life there too[22]. As the Woodland Trust has highlighted, the UK’s bees are in “severe decline” and, due to the pollination services they provide, they are essential to the health of people and the natural environment[23].

What’s more, farmers would be poorer without bees. Analysis produced in 2012 shows that they would have to pay £1.8bn a year to pollinate crops in these insects’ absence[24], a service that bees provide for free.

Put simply, approving Cruiser SB for potato beet production was bad for bees, the wider farming community, and for human and environmental health. As The Wildlife Trusts’ director of policy and public affairs, Joan Edwards, has said, “There is simply no place in modern sustainable agriculture for highly toxic pesticides that kill bees and poison soils and rivers.”[25]

In July 2024, another exposé by ENDS Report revealed that the government authorised the approvals without assessing how the move would impact protected sites, as is required by law[26].

Materials obtained by The ENDS Report through a Freedom of Information request showed that officials knew they were obliged to carry out an assessment. But they decided it was not possible because it was unclear which sugar beet farmers would be using the pesticide, and the crop is grown in a part of England with “many hundreds of protected areas,” according to a briefing document provided to then farming minister Mark Spencer.

These facts – the abundance of protected areas in sugar beet regions and the uncertainty about which would be affected – should have been reason enough not to approve use of Cruiser SB. Instead, Spencer gave it the green light.

Ministerial Experience

In an interview with Farmers Weekly after losing his seat in the 2024 election, Spencer explained how he pushed back against pesticide prohibitions while in office[27].

He said each year brought a "huge discussion" about Cruiser SB and other banned pesticides like Asulox, which is toxic to birds, honeybees, earthworms, and most aquatic life[28]. "I was able to dig in and say: 'We need to get this balance right, because if you remove that product from the marketplace, you're going to wipe out production of that crop in the UK," Spencer told the publication.

Spencer attributed his success in defending pesticides to his background in farming. This experience is not historic. According to the Register of Members' Financial Interests, Spencer was a partner and shareholder in his family's farm businesses while in office[29].

The situation illustrates another link between political decision-making and the farming industry: politicians may be farmers themselves or own land used for farming.

This is not a new phenomenon. The first ever president of DEFRA's earliest iteration – the Board of Agriculture – was the MP Henry Chaplin[30]. The MP, who was voraciously fond of bloodsports, owned vast estates including extensive farmland[31].

It should not be surprising – or scandalous – that politicians end up in government departments linked to their background experience. George Eustice spent almost a decade in DEFRA positions, including serving as environment secretary between 2020 and 2022. Speaking on the Shoot Room Sessions, a podcast by Oxygen Conservation, he explained that "there's two different ways people can do politics: some of them will go into it and want to learn new things and try new things, I decided to stick very much with what I knew."[32]

As Eustice said, he was the sort of politician to focus on familiar issues: his family owns Trevaskis Farm, a mixed operation producing fruit, vegetables, and farmed animals.

However, sticking with 'the issues they know' becomes problematic when politicians make decisions in office that stand to benefit themselves, their families, or associates. After stepping down as environment secretary, George Eustice sparked controversy by campaigning for £10m in government funding to support producers of rare and native farm animal breeds – a sector in which his own family farm is directly involved.

But having someone in a ministerial post who has experience in the field is not intrinsically questionable. However, in departments with multiple, interlinked points of focus like DEFRA, it is imperative that the experience of appointees reflects the diversity of the topics at hand. Otherwise, there is a risk that some portfolios may dominate others.

Between 2010 and 2025, three DEFRA environment secretaries came from agricultural backgrounds: Caroline Spelman (2010–2012), who worked in agriculture for 15 years, including a spell at the National Farmers' Union; Owen Paterson (2012–2014), who worked in his family's leather business and served as

President of the European Tanners' Confederation; and George Eustice (2020–2022), who worked on his family's farm and remained a trustee of its shares while in office.

None of the 12 environment secretaries appointed during this period had formal education or professional experience outside parliament in environmental science or conservation. Thérèse Coffey (2022–2023) studied chemistry – a field with environmental relevance – but built her career as an accountant for Mars before entering politics.

This pattern reveals a systemic imbalance at the heart of DEFRA's leadership. While farming backgrounds accounted for roughly a quarter of all secretarial appointments over the 15-year period, expertise in environmental or scientific disciplines was almost entirely absent.

Wider Sphere of Influence

To understand the reach of the farming sector's influence within DEFRA, it's essential to look beyond the NFU and ministers' personal ties.

DEFRA is not just a department; it has, as the National Audit Office notes, a complex and sprawling institutional ecosystem, encompassing 34 agencies and public bodies[33].

Its core delivery bodies are the Animal and Plant Health Agency, Environment Agency, Forestry Commission, Marine Management Organisation, Natural England, Rural Payments Agency, and the Water Services Regulation Authority (Ofwat). DEFRA plans to dismantle Ofwat and create a single water regulator, merging the water-related functions of other agencies.

DEFRA also has a board that provides "strategic, corporate leadership" and monitors its performance and delivery. It consists of DEFRA ministers, senior officials (civil servants), and non-executives. The latter group comprises external appointees intended to bring external expertise, yet environmental representation within this group is limited.

DEFRA's board currently includes six non-executive members, four appointed by the Labour government. Their professional backgrounds span economics, technology, business, and law. A recent addition, Allison Ogden-Newton, who was appointed in September 2025, brings environmental experience as chief executive of Keep Britain Tidy.

Agriculture is prominently represented through lead non-executive Heather Hancock, appointed in 2023. She has extensive farming-sector links, including being the chair of the Agricultural Forum, vice president of the Upper Wharfedale Agricultural Society, and chair of the Royal Countryside Fund, which supports farming families and rural communities[34].

Outside its board and network of agencies, DEFRA has a satellite of advisory groups, committees, councils, boards, and commissions. The focus of these advisory entities spans the department's varied areas of responsibility and include the following:

Committee/Group	Description
Science Advisory Council (SAC)	Body comprising of academics to provide advice on policy and strategy
Biodiversity Expert Committee	SAC specialist sub-group
Social Science Expert Group	SAC specialist sub-group
Exotic and Emerging Animal Diseases	SAC specialist sub-group
Advisory Committee on Releases to the Environment	Provides advice on the risks posed to human and environmental health from the release of genetically modified organisms
Air Quality Expert Group	Advises DEFRA on air pollution issues
Land, Nature and Adapted Systems Advisory Group	Provides advice on what constitutes sustainable land use

DEFRA has several further groups heavily populated with industry interests, such as the Council for Sustainable Business, which acts as a ‘sounding board’ for ideas about how businesses can help to meet targets set out in the Environmental Improvement Plan. Published in 2023, that plan updated the government’s 25 Year Environment Plan, outlining how it intends to improve the environment within a generation.

Another is the Food and Drink Sector Council, a group drawn from across the agri-food chain that partners with DEFRA to discuss matters such as the ‘future of food’, sustainability, and workforce issues.

After it took office, the Labour government created a new group: the Food Strategy Advisory Board (FSAB). Its role is to advise DEFRA on developing a food strategy that advances public health, food security, environmental health, and economic growth. DEFRA says the strategy aims to “reduce the impact of farming and food production on nature, biodiversity and climate.”

Most members of the FSAB come from industry, including the animal farming sector. As Wicked Leeks observed in a July 2025 article, the board’s composition means that “more than half of its members have vested interests in the very businesses who need to radically change their practices so that we can deliver a more sustainable and healthier food system.”[35]

This reflects a broader pattern within the governing party. As openDemocracy reported, Labour held hundreds of meetings with lobbyists, business groups, and financial institutions in the 18 months leading up to the 2024 general election – regularly opening its doors to industry representatives to help shape policy while still in opposition[36].

Badgers Betrayed

While DEFRA's institutional structure is extensive and multifaceted, farming interests retain significant influence – through the NFU's strong lobbying presence, the predominance of ministers with agricultural backgrounds over environmental expertise, and the prominent role of agri-food businesses in several advisory bodies.

This concentration of agricultural representation is reflected in the government's policy direction, the badger cull being a prime example.

Since 2013, more than 250,000 badgers have been killed in England under a state-sanctioned cull, introduced on the premise that badgers contribute significantly to the transmission of bovine tuberculosis (bTB) to cows. Proponents argue that reducing badger populations in areas where cow herds suffer outbreaks of bTB can lower levels of the disease in the farmed animals.

Put bluntly, the government has spent substantial public funds to kill 250,000 members of a protected species in order to sustain the beef and dairy industry.

However, it is not clear what role badgers play in the spread of bTB to cows. There are fundamental gaps in scientific understanding, including whether bTB exists in badgers in a way that makes it essential to address the disease in their populations in order to eliminate it in cows. The disease would have to be self-sustaining in badgers for this to be the case, and a plausible, persistent route of infection to outdoor cattle shown, which has not been demonstrated[37].

The absence of scientific consensus is evident in the divergent interpretations of existing research. Take the Randomised Badger Cull Trial (RBCT) as an example, which sits at the core of the government's case for, and design of, the badger culls since 2013. Conducted between 1998 and 2005, the RBCT examined whether cattle herd bTB rates dropped when badgers were killed, meaning it investigated association, not causation. The Independent Scientific Group on Cattle TB (ISG) analysed the results and published their findings in a 2006 study. It concluded that while culling badgers reduced bTB rates in some areas, it increased them in others due to badger dispersal[38]. The ISG advised against culling, stating it would not meaningfully control cattle TB[39]. However, the government's chief scientific adviser at the time disagreed, claiming culling would significantly reduce TB in cattle if done over larger areas[40]. More recent research has found the 2006 study to involve naïve and unnatural analysis and concluded the trial offers no evidence that badger culling lowers bTB in cattle herds[41].

Other examples of the ever-changing understanding about the possible links between badgers, cows, and bTB include a 2022 study that aimed to disentangle the effects of different bTB measures on disease rates in cows[42]. Badger culls invariably happen alongside other bTB control measures, such as increased cattle testing, making it difficult to determine which actions actually influence infection rates – a crucial distinction rarely examined in studies that point to bTB reductions in cull areas. The 2022 paper concluded that cow-focused measures, such as annual tuberculin and enhanced testing, were likely responsible for disease reductions in the High Risk Area of southwest England since 2013. It found no evidence that killing badgers meaningfully assists in the eradication of bTB in cows.

Decisions Fail to Align with Shifting Science

Given the evolving evidence base, it might be expected that the UK government's approach to tackling bTB would have shifted accordingly by scaling back culling, particularly in light of the statutory duty on public authorities in England to consider the conservation and enhancement of biodiversity, an obligation further strengthened in 2023.

However, successive governments have continued to endorse badger culling since the RBCT, with only limited exceptions.

In 2008, the Labour environment secretary, Hilary Benn, ruled out introducing a cull, aligning with the ISG's conclusions. More than a decade later, prime minister Boris Johnson expressed concerns about a proposed Derbyshire cull in 2019, leading to George Eustice, who was the farming minister, concluding that it should not proceed.

Other ministers have pledged to end the cull but have acted otherwise – including the current Labour government. The party vowed ahead of the 2024 election to end the "ineffective" badger cull but continued it once in office by 'honouring' the cull schedule planned by previous Conservative governments.

This means that, in practice, official decisions have tended to align more closely with the position of industry actors like the NFU than with the shifting scientific evidence.

The NFU has consistently advocated culling as an essential component of bTB control. As the Environment, Food and Rural Affairs Committee noted in a 2007-08 report, the industry group had by then already submitted a proposal for "an organised licensed cull by farmers, or their contractors."[43]

Although the then Labour government ultimately rejected culling, Conservative Party leader David Cameron publicly endorsed it in the lead-up to the 2010 election. Dominic Dyer, who was CEO of the Badger Trust between 2013 and 2020, has said this was a political move by Cameron to "shore up support for the Tory Party in rural communities."

Pilot culls began in 2013, predominantly to test the "the effectiveness, humaneness and safety" of using 'controlled shooting' – the killing of free-roaming badgers – as a cull method. The pilots were launched under DEFRA secretary Owen Paterson, the former leather industry executive.

The pilots proved disastrous, failing to meet standards of effectiveness or humaneness, according to an assessment by the Independent Expert Panel (IEP)[44]. Nevertheless, the NFU insisted that continued culling was essential because "it is vital that we do everything we can to tackle the disease," an argument DEFRA echoed in its response[45]. While the department delayed a wider rollout in response to the report, it simultaneously disbanded the IEP and conducted monitoring itself in 2014, the Ethical Consumer Research Association highlighted in a 2016 report[46].

Continued Culling Under New Policies

Although the decision to embark on the cull aligned with the NFU's long-standing demands, the policy has been consistently unpopular with the public. A BBC-commissioned poll in 2011 found that around two-thirds of UK respondents opposed culling. Just 31% of those polled were in favour.

A decade later, a YouGov poll showed similar sentiment in England: over half opposed culling, with just 15% in favour and 31% undecided.

Amid ongoing public concern, environment secretary Michael Gove commissioned an independent review in 2018, led by Sir Charles Godfray. The review supported the continuation of large-scale culling but concluded that a transition from lethal to non-lethal control, such as badger vaccination, was "highly desirable."[47] It also emphasised that the farming industry was "severely hampering" efforts to control bTB, such as through poor take up of biosecurity measures.

In the years that followed, government rhetoric began to shift. Ministers pledged to "phase out" the cull and introduced measures such as ending the issuance of new intensive cull licences (four-year licences) after 2022 – a move opposed by the NFU. Nevertheless, badgers continued to be killed in large numbers, a toll further increased by Natural England's (NE) approval of extensions to existing cull areas from 2017 onwards.

NE is the licensing authority for the cull. It too has attracted controversy by twice approving supplementary culls – additional culls conducted after the four-year intensive period – contrary to the advice of its own director of science, Dr Peter Brotherton, who concluded the culls lacked justification. These approvals, made in 2024 and 2025, spanned both Conservative and Labour governments.

NE is embroiled in legal action over the 2024 authorisations, accused of unlawfully exercising its powers for an improper purpose – specifically, to maintain farmers' confidence. The legal challenge followed the disclosure of correspondence in which DEFRA warned NE that failing to approve the culls would "seriously undermine our ability to engage constructively with the [farming] industry on future disease control interventions."

The previous Conservative government proposed to extend culling indefinitely, developing plans for "targeted" badger culls from 2025 onwards, as the existing policy period expired. The incoming Labour government rejected that plan and assembled a panel to update the 2018 review, led again by Godfray, to inform the development of a new "bTB eradication strategy."

In other words, the Labour government has maintained to a significant extent the framework established under its Conservative predecessor, honouring the existing cull schedule and relying on some of the same expert advisers.

The government has also continued the practice of not routinely testing culled badgers for bTB. This is a striking decision as the government has promised to develop a "national wildlife surveillance programme" to provide an "up-to-date understanding of disease in badgers." Few measures could offer a more immediate source of data than post-mortem testing of culled animals.

With the final cull schedule initiated under the previous government ending after the 2025 season, one newly licensed cull area will remain in 2026 – introduced under Labour in summer 2024 – which could continue up to 2029. Looking ahead, the government has proposed badger vaccination as the preferred approach to culling.

The current policy landscape therefore leaves culling still possible, though on a much-reduced scale, while advancing a strategy – badger vaccination – that continues to place significant responsibility for bTB transmission on wildlife rather than purely on agricultural practices.

Carrots, not Sticks

The badger cull exemplifies how successive governments' policies have aligned with the interests of the farming sector, rather than with evolving scientific evidence, public opinion, or their duty to protect wildlife.

Less visibly, DEFRA's approach to regulating the farming industry's environmental impacts – when considered in full – appears more accommodating to agricultural interests than to the natural environment.

It is worth noting that in 2024, agriculture accounted for only 0.6% of the UK economy and employed just 1.3% of the workforce[48]. In terms of the metrics governments typically prioritise – economic output, provision of jobs – the sector's contribution is relatively small.

On the other hand, the sector produces around 65% of the food eaten in the UK and commandeers around 70% of the country's land mass. Around 85% of this land is used directly or indirectly for animal agriculture[49]. The sector is also intertwined with a range of related industries, which are often dominated by multinational giants, as noted by political scientist Wyn Grant[50]. These industries include veterinary medicines, farm animal genetics, food processors and retailers, agrochemicals, fossil fuels, and major food companies, which often contract small-scale farmers.

In other words, while farming is not an economic powerhouse in itself, it is a critical cog in a broader industrial and commercial system.

Changing Face of Subsidies

The government adopts a two-pronged approach to farm sector governance in England. First, it supports the industry through public subsidies. In practice, this means the public funds an enabling environment for the broader industrial and commercial system to which farming belongs.

In Europe, public subsidies for farming have existed since the early 1960s. Initially linked to productivity, they were altered in 2005 to tie payments to the amount of land managed. Later reforms introduced "greening" measures, making a portion of payments conditional on farmers adopting environmentally beneficial practices[51].

In England, subsidies have undergone further transformation in recent years. On the grounds that the payments offer "poor value for money" and do not necessarily deliver environmental benefits, policymakers have begun restructuring them around a 'public money for public goods' principle, under which farmers are primarily rewarded for practices that deliver environmental benefits.

As researchers observed in a 2023 paper, this model allows policymakers to "address a cluster of policy challenges" simultaneously, including providing a "more publicly defensible justification for continuing farm subsidies post-Brexit" and "achieving better environmental outcomes."[52]

Direct payments to farmers based on land area are due to be fully phased out by 2028. The support schemes that replace them mainly fall within the Farming and Countryside Programme. The various types of support include:

Scheme/Programme	Provider	Purpose/Focus
Agri-environment schemes: Countryside Stewardship (mid-tier, higher-tier), Sustainable Farming Incentive, Landscape Recovery	DEFRA	Support for business practices and land management actions that benefit the environment
Capital Grants	DEFRA	Support for actions required under Agri-environment schemes or for standalone improvements
Farming Investment Fund	DEFRA	Grants aimed at benefiting the environment, productivity, animal health and welfare, includes support for equipment and infrastructure improvements
Farming Innovation Programme	DEFRA, UK Research and Innovation	Awards funding for farming innovation projects, aims to increase sustainability, productivity, and resilience
Catchment Sensitive Farming	Natural England, DEFRA, Environment Agency,	Gives training and advice to farmers on limiting diffuse water pollution, also offers capital grants for farm infrastructure improvements

Sticks Wielded like Carrots

These forms of subsidy, financial assistance, and complimentary initiatives, such as training and advisory schemes, constitute the ‘carrot’ in DEFRA’s governance of the farming sector, designed to reward and incentivise good practice.

Governance models built on rewards typically also rely on penalties – a ‘carrot and stick’ approach. In theory, DEFRA employs both, using regulation as the stick. In practice, however, DEFRA’s sticks often resemble carrots, with enforcement approaches that tend to prioritise encouragement and cooperation over penalisation of non-compliance.

The Environment Agency (EA) is England's primary environmental regulator, enforcing many rules and laws relevant to farming. These include the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations, commonly called the Farming Rules for Water (FRfW), the Silage, Slurry and Agricultural Fuel Oil (SSAFO) Regulations, and regulations governing Nitrate Vulnerable Zones (NVZs).

The FRfW aim to limit water pollution from farming by regulating the management of fertilisers, soils, and farmed animals to an extent. All farms must prevent water pollution, but additional requirements apply in NVZs. These areas are particularly vulnerable to nitrate pollution from agriculture. Currently, around half of England has an NVZ designation.

Other agencies also have compliance and enforcement roles. For instance, the Rural Payments Agency (RPA) conducts various inspections, including visits to monitor adherence with certain Farming and Countryside Programme schemes.

In a 2025 farmer's guide about preparing for an inspection, the EA emphasised that "Inspections are not about catching you as farmers out but helping you to comply with regulations and adopt sustainable practices that benefit both the farm and the environment."[53]

This cooperative approach is further explained in the statutory guidance for enforcing the FRfW, which states: "The Environment Agency will generally prioritise giving advice and guidance before taking enforcement action."[54]. It further specifies that the EA "may" take enforcement action in particular circumstances, primarily where advice, guidance, and warning letters fail to result in "the necessary change in behaviours."

The RPA takes a comparable approach. In its 2024-25 annual report, it noted that inspections are now "more partnership-based, working together with farmers to achieve beneficial environmental outcomes."[55] Reflecting this change, the agency has removed the word 'inspection' from its vocabulary, describing its regulatory work as "farmer-focused" rather than "penalty-based." Inspections are now called "visits," inspectors titled "field officers," and the inspectorate is referred to as the "Regulatory and Advice Service."[56]

Taken together, these examples encapsulate DEFRA's enforcement philosophy. What should serve as the 'stick' – a means of ensuring accountability – has been reframed as a form of support and guidance, ultimately reinforcing the department's incentive-led, rather than punitive, approach to farm governance.

Planning and Permitting Regime

The Environment Agency's (EA) regulatory responsibilities also include deciding whether to issue environmental permits for new intensive farmed animal operations involving pigs and poultry in England and enforcing permitting requirements for approved operations. Farms that house at least 40,000 birds, 2,000 pigs, or 750 sows are classed as intensive.

This element of farm governance is not meant to be a carrot or a stick. Rather, it is part of the process that determines what developments can go ahead and how they must be managed once approved.

Permitting decisions are distinct from planning decisions, though the two are closely linked. Permitting determines whether and how an operation can prevent or minimise pollution, whereas planning assesses whether a proposed farm is an appropriate use of land.

Local councils are responsible for deciding whether planning applications receive approval. Their decisions are guided by the National Planning Policy Framework for England and informed by advice from the EA and Natural England (NE) on applications, both of which act as statutory consultees in the planning process. Broadly, the EA is consulted on developments that concern waste, air quality or water pollution, while NE provides input on applications that could impact wildlife.

The planning system has faced criticism for appearing to favour development over environmental protection and nature recovery. The system has led to a situation where certain counties, such as Lincolnshire, Shropshire, and Norfolk, have become saturated with intensive farms.

Similarly, the nonprofit Wildlife and Countryside Link (WCL) argued in a 2024 briefing that the permitting regime – along with the planning system – has manifestly "failed to constrain diffuse water and air pollution (such as ammonia emissions) from intensive operations, as well as other equally important environmental externalities arising from intensive farming, including poor animal welfare and overgrazing."[57]

According to WCL, these failures stem from the permitting rules being "very weak and narrow," with thresholds for when they apply being too high and too few operations – only pigs and poultry – being covered by the regime.

However, rather than broadening regulatory coverage, the Labour government intends to streamline permitting further, empowering the EA to exempt certain activities it considers low risk from requiring environmental permits. The EA will be required to consult on proposed exemptions, which DEFRA maintains will ensure that exemption decisions do not "come at the expense of the environment."[58]

Light Oversight and Legal Challenges

A 2022 report by Herefordshire Council on the impacts of intensive poultry production on human health and wellbeing identified further weaknesses in the regulatory system. It argued that oversight of intensive poultry farming was very "light," evidenced by the fact that volunteers had to demonstrate the growth of intensive poultry units in Herefordshire and surrounding counties by "painstakingly checking dispersed records" of unit size and location because they could not secure this "vital" information from regulators[59].

The report, which was produced by the council's Intensive Poultry Industry Scrutiny Task and Finish Group, also highlighted an absence of accurate national monitoring of manure volumes and management, as well as a lack of real-time emissions data for air pollutants, such as ammonia, from intensive poultry units.

Both the planning and permitting regimes include provisions relating to manure and emissions. For instance, on-farm manure and slurry storage is included in applicable permits, and permitted farms must "keep written evidence of the quantities, date/s of transfer and destination under their Duty of Care" for exported manure and slurry, according to the Environment Agency[60]. Permitted farms must also report their estimated emissions of varied pollutants, which they typically calculate using models provided by regulators.

What the Herefordshire Council report underscores is the apparent absence of empirical records – both emissions data collected in real time and a comprehensive national inventory of manure production and management. In other words, the current system is not equipped to generate the macro-level insight needed to inform regulation and guide effective decision-making.

Furthermore, decision-makers are partly reliant on materials provided by applicants to support their planning and permitting proposals, such as impact assessments and management plans related to air quality and odour. This applicant-provided evidence can be inadequate. For instance, greenhouse gas emissions have been "routinely excluded" in planning applications, according to Lily O'Mara and Ruth Westcott, who work for Sustain: the alliance for better food and farming[61].

Local councils can also fail to properly discharge their duties when assessing applications. Among other things, councils must carry out a Habitat Regulations Assessment (HRA) for proposals that may impact protected nature sites, such as Sites of Special Scientific Interest. Yet in June 2025, North Norfolk District Council approved plans for a large poultry farm apparently without conducting its own HRA, as revealed through a challenge brought by the Coalition Against Factory Farming. The challenge ultimately led the council to reverse its decision in August 2025.

In recent years, several court rulings have set important precedents clarifying local authorities' legal obligations in the planning process, which have the potential to strengthen accountability and address some of these weaknesses.

Date	Court/Location	Key Ruling
June 2024	Supreme Court, Surrey	Judged planning permission for fossil fuel project to be unlawful because the Environmental Impact Assessment did not consider the full climate impact of the development, including both emissions from generation and ultimate combustion.

June 2025	High Court, Shropshire	Overturned planning permission for an Intensive Poultry Unit (IPU) because Shropshire Council failed to assess its cumulative impacts alongside other IPUs and did not properly assess downstream impacts.
March 2025	High Court, Herefordshire	Ruled that manure from poultry farms can be classified as industrial waste (not just an agricultural by-product) until transferred or sold, requiring robust disposal plans in planning applications in the county.

In sum, the rulings indicate that planning applications for intensive animal farms should include assessments of both upstream and downstream greenhouse gas emissions, consider cumulative environmental impacts, and set out plans for safely disposing of manure and slurry waste in areas vulnerable to river and soil pollution, according to Sustain's O'Mara and Westcott.

Additionally, animal welfare has been routinely disregarded in planning decisions. It has been treated as not a 'material planning consideration', meaning not an issue that can be taken into account in planning decisions. However, a High Court ruling concerning an on-land salmon megafarm established that animal welfare can be a material consideration, which campaign group Animal Equality described as a "crucial legal victory."[62]

Widespread Violations

It is evident that the current farming governance system – with its carrots, minimal sticks, and flawed permissions processes – has failed to adequately regulate the sector's environmental impacts.

The governance system's shortcomings are reflected in the high concentration of intensive farming operations within specific regions and the unsustainable management of the large volumes of manure they produce. According to a 2022 Environmental Audit Committee report, intensive animal farming is placing immense pressure on specific catchments, with agricultural pollution being a major cause of the poor condition of England's rivers[63].

Further evidence of this systemic failure is found in the persistent frequency of regulatory breaches uncovered during official inspections.

Increasing Levels of Inspections

For years, farm inspections have been constrained by limited resources. The World Wide Fund for Nature reported that the Environment Agency (EA) only carried out 300-400 farm inspections annually in England between 2018 and 2020, meaning that farms could expect a visit once every two hundred years or less on average[64]. These are inspections of non-permitted farms to assess compliance with regulations such as the Farming Rules for Water (FRfW).

Inspection numbers have increased since and the EA aims to conduct 6,000 per year by 2029. Still, with approximately 102,000 farm holdings in England, the level of inspections remains low relative to the scale of the sector. In 2024/25, the EA carried out 4,545 inspections, according to the Agricultural Industries Confederation, which amounts to around 4% of farms in England[65].

The River Wye stretches from Wales' Cambrian Mountains to the Severn Estuary. In recent years, it has turned at times into what environmentalists described as "pea soup" because of increasingly frequent algal blooms, as the Guardian reported. These blooms are caused by an overabundance of nutrients in waterways, which fuel the growth of algae. They block sunlight and deplete oxygen, causing severe harm to ecosystems and wildlife.

The Wye's surrounding poultry farms are heavily implicated in its demise. These farms produce large quantities of manure rich in the nutrient phosphorus, which comes from the soy chickens are fed. This manure is sold to other farmers to spread on their land and can find its way into waterways through runoff from soils.

In 2022, researchers from Lancaster University and the University of Leeds determined that at least 60–70% of the Wye's phosphate load derived from agriculture, with the poultry industry as the most dominant contributor.

The findings from these inspections reveal that non-compliance is widespread. In 2024/25, at least one non-compliance was recorded in 2,211 inspections, roughly half of all visited farms. This level of non-compliance is typical, according to the EA, although the agency does prioritise targeting higher-risk areas and activities, which increases the likelihood of detecting issues.

Common breaches of the FRfW include farmers not testing their soils at least every five years and lacking a nutrient management plan for spreading manure and fertiliser on their land. Both requirements are essential for minimising pollution risks.

In 2023/24, around 30% of farms inspected were unable to provide evidence of nutrient management planning. In 2024/25, that figure fell to 14%, according to figures provided by the EA in response to Freedom of Information requests, suggesting some improvement[66]. 39% of those farms were in Nitrate Vulnerable Zones (NVZs), areas particularly at risk of nitrate pollution.

The EA's support-based approach to enforcement means that the likelihood of farmers facing severe penalties for breaches is low, except for persistent offenders. This is reflected in enforcement statistics: while the EA issues thousands of improvement actions and hundreds of warnings or notices each year, civil and criminal sanctions remain relatively rare.

The EA brought two prosecutions for FRfW breaches in 2024/25, one of which also related to the Environmental Permitting Regulations, the agency revealed in its FOI responses[67]. Additionally, it issued three monetary penalties, and accepted two enforcement undertakings, whereby offenders committed to remedying harms caused and ensuring offences do not happen again.

The EA also brought two prosecutions under the Environmental Permitting Regulations in the same period, one of which also related to FRfW non-compliance.

Non-compliance in Cow Farming

Eight out of the nine sanctions outlined by the Environment Agency (EA) in its FOI responses involved cattle, with one case additionally involving sheep. The cattle sector appears to be a hotspot of non-compliance, with 69% of English dairy farms subject to EA inspections between 2020 and 2021 found to be in breach of environmental regulations, the Guardian reported in 2024[68]. The issue is not limited to England – high levels of non-compliance were observed on dairy farms in Wales, Scotland, and Northern Ireland in inspections spanning 2020-23.

The situation does not appear to have improved in England. In its FOI responses, the EA revealed levels of non-compliance on English farms with dairy cows between 2022 and 2025, which remained consistent with those from 2020 and 2021.[69]

Year	Total Inspections	Non-compliant inspections	Percentage of inspections with at least one non-compliance
2022/23	955	663	69%
2023/24	1,204	869	72%
2024/25	1,198	824	69%

In each of these years, around half of the inspected farms with dairy cows were found to be in breach of the key environmental regulations, namely the Farming Rules for Water (FRfW), the Silage, Slurry and Agricultural Fuel Oil (SSAFO) Regulations, and regulations governing Nitrate Vulnerable Zones (NVZs):

Year	FRfW Breaches (% of farms)	SSAFO Breaches (% of farms)	NVZ Breaches (% of farms)
2022/23	47%	50%	47%
2023/24	55%	55%	49%
2024/25	53%	52%	52%

These figures help explain why DEFRA has faced pressure to include cattle farming in the environmental permitting regime. The government had planned to extend permitting to dairy and intensive beef production by 2025. But the proposal faced industry opposition, such as from the NFU, and appears to have stalled.

In July, the Environment and Climate Change Committee, a Lords Select Committee, released a report titled Nitrogen: Time to Reduce, Recycle, Reuse, which again urged the government to extend Environmental Permitting Regulations (EPR) to large-scale beef and dairy farms within two years. The Committee cited the sector's responsibility for 43% of the UK's ammonia emissions and the higher compliance rates typically observed among farms already subject to permitting.[70]. Facilities regulated under EPR are rated on a scale and 93% of permits were in the top two compliance bands in 2023, according to the EA[71].

However, while the government reports high levels of compliance with permitting conditions within the intensive farming sector, FOI disclosures offer a somewhat different picture.

In June 2025, South West Norfolk MP Terry Jermy revealed through an FOI request that intensive animal farms in England breached environmental regulations almost 7,000 times between 2015 and 2025, with breaches identified in 75% of inspections[72]. The MP said there was a "shocking" number of incidents involving pollution of watercourses.

Further information obtained by Jermy showed that the EA's initial response to even serious breaches was often limited to minimal enforcement action. In over half of these cases, the EA took no further action or issued only advice, guidance and warnings, while prosecutions were recommended in fewer than 1% of incidents.

Hidden Footprints of Animal Farming

The Wildlife Trusts have also urged the government to reform the environmental permitting regime, calling for a broader range of operations to be covered and the inclusion of a wider range of these operations' environmental impacts.

A report published in August 2025 by consultancy Cumulus for the Wildlife Trusts, focusing on pig and poultry farming, highlighted that existing permitting thresholds on animal numbers results in only 38% of England's breeding pig herd falling inside the regime[73]. Similarly, many poultry units do not meet the threshold for inclusion.

The report further noted that the feed needs of pig and poultry units represent a “hidden land take” by the operations, such as an estimated 520,00-580,000 hectares of wheat grown in the UK. This land use has environmental impacts due to associated soil erosion, pesticide use, and fertiliser application that are not currently considered in the permitting regime.

Other farmed animals have land footprints that extend beyond their immediate farm boundaries. For example, maize can form part of the diets of cows and sheep, as well as farmed animals like pigs and chickens. It is also used as a feedstock in anaerobic digestion, a process that converts plant and animal materials, such as manure, into products like fertiliser and biogas. Anaerobic digestion is increasingly promoted as a solution for managing waste produced by intensive animal farms.

In 2024, maize cultivation covered around 266,000 hectares of land in the UK[74], representing an 11% increase on the previous year and up from just 8,000 hectares of land in the early 1970s[75].

European research, including some UK studies, has shown that conventional production of maize can degrade soils[76] and reduce arthropod (insects, spiders, etc.) biodiversity[77]. Studies have also linked maize cultivation to declining populations of wild animals like hares[78] and farmland birds[79], which maize crops afford few resources for[80].

Maize farming also tends to involve high agrochemical inputs, including pesticides, according to a 2015 report by the Soil Association. Due to farming practices that leave soil exposed at various points, runoff is a particular problem, making maize a contributor to waterway pollution[81].

Enforcement at a Glance

- **Limited Inspection & High Violations**: Regulatory coverage is low, with only a small fraction of farms inspected each year. Frequent violations are reported, including issues with nutrient management.
- **Sector Hotspots**: Cow farming is a significant non-compliance hotspot; although the government cites high compliance rates in permitted farms, FOI requests revealed nearly 7,000 incidents of breaches on permitted farms in England between 2015 and 2025
- **Calls for Regulatory Reform**: There is mounting pressure on DEFRA to expand the permitting regime – both to cover all types of cow farming and smaller pig and poultry units, and to ensure a broader range of farming-related environmental impacts are considered in decision-making.

Cumulative Harms and Inadequate Monitoring

The environmental harms caused by individual farms may appear relatively minor when viewed in isolation, but their cumulative impact over time exerts significant pressure on ecosystems and wildlife.

The same principle applies to the governance of the farming sector. Consider the elements outlined throughout this report: DEFRA's proximity to industry actors, the imbalance in ministerial experience, a carrot-and-stick model weighted heavily toward incentives, and inadequate regulation and enforcement. Each factor alone may not constitute an existential threat to the environment, yet together they form a systemic pattern of governance that poses a clear danger to nature and wildlife – a danger whose full extent remains obscured by inadequate monitoring of ecosystems and species.

The ecological crisis in the River Wye illustrates this systemic inadequacy. Had there been robust monitoring of the river catchment, the pollution caused by manure spreading could have been detected and addressed before the situation became critical. Moreover, it fell to locals to 'prove' the Wye was polluted through their own water testing, as the Guardian reported[82]. This would not have been the case if effective monitoring had been in place.

This is not to suggest that the authorities do not monitor water quality. The Environment Agency (EA) maintains water sampling points across England to assess water quality, along with sites monitoring air quality. But the existing sampling network is clearly insufficient.

Lack of Adequate Monitoring

Monitoring of the impacts of farming and other industries on wildlife is also inadequate. Natural England (NE) – the agency whose core purpose is to "help conserve, enhance and manage the natural environment" – is responsible for monitoring England's protected nature sites, such as Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation.

Farms can overlap with or be in close proximity to protected sites, a relationship reflected in DEFRA's Farming in Protected Landscapes programme, which provides grants to farmers and land managers for projects within national parks and other protected landscapes[83].

> Lake Windermere, the largest lake in England, offers another example of the limitations of current monitoring levels.
>
> The EA samples water quality at four bathing locations in Lake Windermere, all of which were rated "excellent" in its 2024 assessment. Yet, a two-year-long citizen water sampling project involving 110 sites found that several areas of the lake had poor bathing water quality during the summer months, when recreational use is highest, due to elevated concentrations of bacteria like E. coli.
>
> The citizen project also found that all tested areas of the lake exceeded phosphorus levels required for a "good" phosphorus status. Lake Windermere's phosphorus load largely derives from sewage and runoff from rural and built up areas.
>
> The Freshwater Biological Association, which co-ordinated the project alongside the University of Lancaster, has warned that pollution in Lake Windermere risks devastating its rare and threatened biodiversity unless urgent action is taken, as reported by the Independent.

Protected areas are the “cornerstone of effective nature conservation efforts in the UK,” yet monitoring of them is “often lacking or irregular,” Wildlife and Countryside Link (WCL) wrote in a report released in September 2025[84]. The report said that just 6% of land in the UK is currently effectively protected for nature, with only 2.83% of that well-protected land in England. Similarly, Greenpeace’s Unearthed calculated that as of mid-2024, around 72% of SSSI land had not been subject to an NE assessment for six years[85].

Other efforts exist to monitor and assess wildlife, including in relation to farming. Some of these initiatives have been project-based, such as an assessment by the Joint Nature Conservation Committee analysing how nitrogen air pollution affects butterflies and moths[86], and an evaluation of the response of various taxa to Agri-environment schemes, carried out as part of NE’s work on monitoring the schemes’ effectiveness[87].

Other efforts are longer running, including schemes that surveil diseases and incidents involving wildlife, which can be relevant to agricultural issues like pesticide use. Additionally, a network was formed in 2018 to monitor the impact of air pollutants on nature – the UK Air Pollution Impacts on Ecosystems Networks (APIENs) – and reports every four years[88]. APIENs comprises several monitoring networks covering varied ecosystems that pre-date its formation.

In recent years, DEFRA has also established the Natural Capital and Ecosystem Assessment programme, which surveys England’s ecosystems to, among other aims, improve how “environmental data, evidence and insight are used in government decisions.”[89]

> The Office of Environmental Protection (OEP) released a report in January that highlights a lack of evidence showing that monitoring efforts are translating into policy.
>
> The report analysed the government’s progress towards meeting its environmental goals, targets, and commitments to halt nature declines and improve water and air quality.
>
> The OEP report highlighted that there has been increased uptake of Agri-environment schemes by landowners and farmers. But “evidence on the roll-out of the scheme does not specify which schemes are important to nature recovery or whether they align spatially with where they are most needed,” it said.
>
> It further indicated that the government is relying heavily on these schemes to meet its targets to halt and reverse species’ declines. This is a “high-risk strategy,” warned the OEP, especially considering that progress is mixed for other actions relating to these targets. These actions include NE’s Species Recovery Programme and the Species Survival Fund, which the OEP indicated suffer from insufficient investment.

These examples are not exhaustive, but they demonstrate that wildlife and ecosystem monitoring mechanisms do exist in England. However, as highlighted in the WCL report, some are lacking or irregular. Additionally, although environmental monitoring does inform some policy decisions, such as the designation of NVZs, evidence is limited that wildlife monitoring data is meaningfully informing agricultural policy or practice.

Harmful to Nature

The absence of robust monitoring of the impact of farming on wildlife means we do not fully see the consequences for species and ecosystems. However, it is clear from the available evidence and wider scientific understanding that the consequences can be severe.

The agricultural industry's contribution to climate change is one of the ways it harms wildlife. In 2022, the UK's agricultural sector produced an estimated 12% of the country's greenhouse gas emissions (GHGs), according to government data[90]. Although the sector's emissions have fallen by roughly 12% since the 1990s, progress has stalled since the 2010s, leaving agriculture with a "slowly increasing share" of total emissions, as Scotland's Rural College noted in a 2025 report for the Climate Change Committee[91].

Most of these emissions are gases other than carbon dioxide, such as methane and nitrous oxide. Agriculture accounted for 70% and 49% of the UK's nitrous oxide and methane emissions, respectively, in 2022. Nitrous oxide is a long-lived and potent GHG, 270 times more powerful than CO2 in terms of its warming potential, as highlighted by Carbon Brief[92]. Within agriculture, these emissions are predominantly produced through fertiliser use and management of manure. Methane is potent too – 28 times more powerful than CO2, according to Our World in Data[93]. Farmed animal operations, particularly those involving ruminants like cows and sheep, are the main drivers of methane emissions in the industry.

Put simply, agriculture is a significant driver of the climate crisis, which in turn affects humans, wildlife, and the agricultural sector itself.

Rising temperatures are forcing species to migrate or adapt rapidly, disrupting ecosystems and life cycles shaped over millennia. The Royal Society for the Protection of Birds has highlighted, for instance, that Blue Tits are having to adjust their breeding habits to ensure food availability for their chicks because spring is arriving earlier[94]. Meanwhile, extreme weather linked to global warming, such as droughts, floods, and wildfires, is destroying habitats and limiting food sources, threatening species from butterflies and hedgehogs to toads, salmon, and birds, as reported by the Guardian[95][96].

Agriculture's wider nitrogen footprint also exerts significant pressure on ecosystems. The sector's ammonia emissions, a major component of this footprint, is released through manure, urine, and inorganic fertilisers. In 2023, agriculture accounted for 87% of the UK's ammonia emissions[97]. While organisms require nitrogen, when it is deposited or applied in excess amounts in ecosystems, it can be damaging to wildlife and habitats. In soils, it promotes the growth of nitrogen-tolerant plants, crowding out other species like wildflowers[98]. This risks knock-on effects for other organisms who may rely on lost plants for food and shelter.

The same pattern occurs in woodlands and peatlands, where ammonia reduces the diversity of sensitive organisms such as mosses and lichens, triggering ripple effects for other lifeforms[99]. Ultimately, the imbalances created by nitrogen pollution degrade ecosystems. This undermines the UK's efforts to combat the climate crisis, as peatlands and woodlands are integral habitats for meeting the country's climate targets[100].

Likewise, nitrogen can pollute water bodies[101]. As with phosphorus, excess nitrogen causes eutrophication – a nutrient overload that can trigger algal blooms. These blooms “are known to cause the widespread death of aquatic animals and insects, which in turn threatens the structure and stability of the food chain. It can take several decades for eutrophic ponds and lakes to recover,” the government warned in evidence to the Environment and Climate Change Committee[102].

A 2018 report by Rand Europe and the Royal Society further noted that ammonia can be directly toxic to aquatic animals, who often have “thin and permeable skin surfaces.” Ammonia can be toxic to terrestrial plants too, causing damage to their leaves, as well as limiting plants’ tolerance to certain weather conditions, pathogens, and other stressors[103]. In addition, ammonia pollution can alter the composition of species in waters and soil through the acidification it causes.

Damaging Diversity

The impacts of pollution are sometimes visible, such as fish kills following contamination events. But more often impacts unfold quietly and out of sight. The Woodland Trust’s 2025 report on the state of the UK’s woods and trees identified pollution as “an often-overlooked threat to woodland health,” that is “a significant driver of changes in species composition, soil chemical and profiles,” warning that it “will likely play a major role in shaping how UK woodlands respond to the impacts of climate change.”[104]

The report said that despite a marginal increase in overall tree cover, wildlife has significantly declined in UK woodlands. Between 1990 and 2021, woodland butterflies declined by 47%, while woodland bird numbers dropped by 37% over the last 50 years. 15% of these bird declines occurred in just the last five years.

All woodlands in England exceed the critical load for nitrogen deposition, meaning the safe threshold for ecological health, according to the Woodland Trust[105]. The situation is similar in Wales and Northern Ireland, with 99% and 96% of woods, respectively, exceeding the critical load. In Scotland, 60-70% of its woods exceed the threshold. The Sustainable Nitrogen Alliance warns that 99% of sensitive habitats in England are “overloaded” with nitrogen, driving declines in the ecological health of places that are often “the last home for species at risk of extinction.”[106]

Pesticide use further compounds the agricultural sector’s ecological impact. Pesticides are “intrinsically harmful to living organisms,” the European Environment Agency has noted, and where levels exceed critical thresholds, they “affect ecological processes and make ecosystems less diverse and resistant to disturbances.”[107]

Beyond pollution and climate change, agriculture remains a leading global driver of biodiversity loss through associated land-use change, in which natural habitats are converted in farmland. These losses predominantly occur in tropical regions, where production of beef, soy, and palm oil is among the top causes of land conversion[108].

Biodiversity losses in tropical regions are closely tied to agricultural production and consumption elsewhere, such as through the supply of oilseeds like soy to feed farmed animals in other nations. A 2024 study analysed shifts in global supply chains between 1995 and 2022, finding that nearly 80% of the biodiversity impacts from land-use change globally were linked to increased agri-food exports from Latin America, Africa, Southeast Asia and the Pacific, not including China[109].

This global dynamic is highly relevant to the UK, where DEFRA's oversight of domestic farming intersects with the country's reliance on imported feed and agricultural commodities. Though the Agricultural Industries Confederation reports progress toward eliminating deforestation from UK supply chains for commodities like soy[110], which is mostly imported for use in farmed animal feed, analysis by Global Witness reveals the UK's "ongoing contribution to global deforestation," with imports of goods, including cattle products, oil palm, soy, and others, linked to over 6,000 hectares of destruction in the first six months of the Labour government alone[111].

In short, the UK remains implicated in biodiversity loss overseas, underscoring the need for policy approaches that address the full ecological footprint of agriculture, both at home and abroad.

Conclusion

The evidence presented in this report makes clear that the system of farming governance in England is failing to meet the needs of wildlife and protect ecosystems. The consequences are everywhere: farmland birds in freefall, rivers polluted by manure and fertiliser runoff, woodlands overloaded with nitrogen, and protected species sacrificed under policies such as the badger cull.

These outcomes are not inevitable. Solutions exist to curb future harm and begin restoring damaged ecosystems. Authorities have already introduced reforms that aim to link subsidies with environmental improvements, although they do not appear to be sufficiently targeted or firmly enforced.

Some positive steps are emerging, such as the legal requirement for local planning authorities to "have regard" to Local Nature Recovery Strategies (LNRSs)[112]. Mandated under the Environment Act, LNRSs are nature recovery plans across 48 areas that cover the whole of England[113]. Progress on developing them is slow[114], but if properly embedded in decision-making, these strategies could help direct development away from fragile ecosystems and compel councils to demand genuine gains for nature[115].

The forthcoming Land Use Framework also holds potential[116]. By mapping how land should best be used – for farming, housing, nature recovery, or other purposes – it could drive ecological restoration. Estimates suggest that around 9% of farmland should be returned to wildlife for the UK to meet its climate and nature goals, as EcoWatch reported[117].

Yet the government is not going far enough – and is moving backwards in key areas. The Planning and Infrastructure Bill, which would enable developers to destroy precious habitats in exchange for paying a 'Nature Restoration Levy', epitomises this backward step. George Monbiot has described it as a "full-spectrum assault on nature protection."[118]

Moreover, the most widely recommended solution to agriculture's environmental toll remains largely unspoken: a decisive reduction in animal farming. The EAT-Lancet Commission's 2025 report indicated that a "food systems transformation", which includes a shift to healthy diets involving only limited meat and dairy products, cutting food waste, and improving agricultural productivity, would significantly reduce pressures on biodiversity, water, pollution, and the climate[119]. Likewise, a 2023 study found that vegan diets result in substantially less eutrophication risk and potential biodiversity loss than meat-heavy ones. The researchers concluded that "the relationship between environmental impact and animal-based food consumption is clear and should prompt the reduction of the latter."[120] Yet, though the government's published outline of its new food strategy nods towards healthier, more plant-based diets, it stops short of advocating the change that science demands[121].

In short, solutions exist – but they require political determination, integrity and courage. Policymakers must act resolutely in the public and planetary interest, taking a no-holds-barred approach to tackling the nature emergency. That is what this crisis demands.

[1]IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio E.S., H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages.

[2] Hochkirch A, Bilz M, Ferreira CC, Danielczak A, Allen D, et al. (2023) A multi-taxon analysis of European Red Lists reveals major threats to biodiversity. PLOS ONE 18(11): e0293083. https://doi.org/10.1371/journal.pone.0293083

[3] Summary, Page 4, State of Nature 2023: https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf

[4] Henrique M. Pereira et al. ,Global trends and scenarios for terrestrial biodiversity and ecosystem services from 1900 to 2050.Science384,458-465(2024).DOI:10.1126/science.adn3441

[5] IPBES Media Release: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating', 2019: https://www.ipbes.net/news/Media-Release-Global-Assessment

[6] Chatham House research paper, Food system impacts on biodiversity loss: Three levers for food system transformation in support of nature, February 2021: https://www.chathamhouse.org/sites/default/files/2021-02/2021-02-03-food-system-biodiversity-loss-benton-et-al_0.pdf

[7] Chatham House research paper, Aligning food systems with climate and biodiversity targets: Assessing the suitability of policy action over the next decade, October 2022: https://www.chathamhouse.org/sites/default/files/2022-10/2022-10-14-food-systems-climate-biodiversity-harwatt-et-al.pdf

[8] Our World in Data, People in richer countries tend to eat more meat, 2024: https://ourworldindata.org/data-insights/people-in-richer-countries-tend-to-eat-more-meat

[9] Global Witness, Forest destruction rivalling the size of Liverpool caused by UK imports last year, 2025: https://globalwitness.org/en/campaigns/forests/forest-destruction-the-size-of-liverpool-tied-to-uk-imports/

[10] DEFRA, Wild bird populations in the UK and England, 1970 to 2024, 2025: https://www.gov.uk/government/statistics/wild-bird-populations-in-the-uk/wild-bird-populations-in-the-uk-and-england-1970-to-2024#breeding-farmland-bird-populations-in-the-uk-and-england

[11] Biodiversity: The UK Action Plan, January 1994: https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf

[12] Compassion in World Farming, Rewilding Revisited with George Monbiot, 2015: https://www.ciwf.org.uk/philip-lymbery/blog/rewilding-revisited-with-george-monbiot/

[13] FarmingUK, NFU opens new hub in Westminster to make farmers better heard, 2018: https://www.farminguk.com/news/nfu-opens-new-hub-in-westminster-to-make-farmers-better-heard_50504.html

[14] McGrath, C. (2013). Charles Weller Kent: The UK's First 'Parliamentary Lobbyist' (1913-1916)? Journal of Legislative Studies, 19(1), 98-117. https://doi.org/10.1080/13572334.2013.737159

[15] Transparency International UK, meetings listed in UK Government disclosures under 'National Farmers Union', accessed on 7/10/2025: https://openaccess.transparency.org.uk

[16] openDemocracy, Lovebombed by lobbyists: How Labour became the party of Big Business, 2024: https://www.opendemocracy.net/en/dark-money-investigations/lovebombed-by-lobbyists-how-starmer-labour-became-the-party-of-big-business/

[17] NFU, NFU has first meeting with new Defra Secretary, 2024: https://www.nfuonline.com/updates-and-information/nfu-meets-with-steve-reed/

[18] Protect the Wild, REVEALED: Government discusses badger cull with farming lobbyists in off-the-record meetings: https://protectthewild.substack.com/p/revealed-government-discusses-badger

[19] ENDS Report, 'Regulatory capture': How the NFU lobbied DEFRA to lower its global air quality ambitions, 2023: https://www.endsreport.com/article/1846831/regulatory-capture-nfu-lobbied-defra-lower-its-global-air-quality-ambitions

[20] George Monbiot, social media post, 2020: https://x.com/GeorgeMonbiot/status/1337347533081894918

[21] The Canary, The Tory government just made a mockery of a second Brexit-related promise, 2021: https://www.thecanary.co/uk/analysis/2021/01/14/the-tory-government-just-made-a-mockery-of-a-second-brexit-related-promise/

[22] Wildlife and Countryside Link, Bee killing pesticides polluting the vast majority of English rivers, 2 December 2024: https://www.wcl.org.uk/bee-killing-pesticides-polluting-majority-english-rivers.asp

[23] Woodland Trust, Why are bees important? And how can you help them?, 2023: https://www.woodlandtrust.org.uk/blog/2023/04/why-are-bees-important/

[24] University of Reading, The Decline of England's Bees: https://centaur.reading.ac.uk/28362/1/beesreport.pdf

[25] Warwickshire Wildlife Trust, Big Win for Bees, 2025: https://www.warwickshirewildlifetrust.org.uk/takepart/campaigns/say-no-neonics

[26] ENDS Report, 'Unacceptable': Government failed to do nature impact assessment ahead of banned pesticide approval, 2024: https://www.endsreport.com/article/1881892/unacceptable-government-failed-nature-impact-assessment-ahead-banned-pesticide-approval

[27] Farmer's Weekly, Exclusive: Spencer reveals all about his time as farm minister, 2024: https://www.fwi.co.uk/news/exclusive-spencer-reveals-all-about-his-time-as-farm-minister

[28] University of Hertfordshire, Pesticide Properties DataBase: https://sitem.herts.ac.uk/aeru/ppdb/en/Reports/1551.htm

[29] The Register of Members' Financial Interests, as at 28 May 2024: https://publications.parliament.uk/pa/cm/cmregmem/240528/spencer_mark.htm

[30] A Short History of Agricultural Education and Research, Carrie de Silva, 2015: https://cdn.harper-adams.ac.uk/document/profile/150818-A-Short-History-of-Agricultural-Education-and-Rese125679.pdf

[31] PATERNALISM IN CRISIS: ARISTOCRATIC RESPONSES TO THE AGRICULTURAL DEPRESSION IN ENGLAND, 1870-1900, Alexander Guy Dale, 2012: https://etheses.whiterose.ac.uk/id/eprint/3339/2/Alexander_Guy_Dale_-_Paternalism_in_Crisis_-_MA_in_History_%28by_Research%29.pdf

[32] Shoot Room Sessions, George Eustice: The Political Environment: https://www.oxygenconservation.com/podcast/e88-george-eustice/

[33] National Audit Office, An Overview of the Department for Environment, Food & Rural Affairs for the new Parliament 2023-24, December 2024: https://www.nao.org.uk/wp-content/uploads/2024/12/defra-overview-2023-24.pdf

[34] DEFRA, Defra register of board members' interests 2024: https://www.gov.uk/government/publications/defra-register-of-board-members-interests/defra-register-of-board-members-interests-2024

[35] Wicked Leeks, WL Meets: Anna Taylor – fixing our food, one plate at a time, 2025: https://wickedleeks.riverford.co.uk/features/wl-meets/wl-meets-anna-taylor-fixing-our-food-one-plate-at-a-time/

[36] openDemocracy, Lovebombed by lobbyists: How Labour became the party of Big Business, 2024: https://www.opendemocracy.net/en/dark-money-investigations/lovebombed-by-lobbyists-how-starmer-labour-became-the-party-of-big-business/

[37] DEFRA, Bovine TB Strategy Review, October 2018: https://assets.publishing.service.gov.uk/media/5beed433e5274a2af111f622/tb-review-final-report-corrected.pdf

[38] Donnelly, C., Woodroffe, R., Cox, D. *et al.* Positive and negative effects of widespread badger culling on tuberculosis in cattle. *Nature* **439**, 843–846 (2006). https://doi.org/10.1038/nature04454

[39] EFRA, Badgers and cattle TB: the final report of the Independent Scientific Group on Cattle TB, 2007-8: https://publications.parliament.uk/pa/cm200708/cmselect/cmenvfru/130/130i.pdf

[40] Bovine Tuberculosis in cattle and badgers, David King, 2007: https://www.bovinetb.info/docs/RBCT_david_%20king_report.pdf

[41] Torgerson, P.R., Hartnack, S., Rasmussen, P. et al. Absence of effects of widespread badger culling on tuberculosis in cattle. Sci Rep 14, 16326 (2024). https://doi.org/10.1038/s41598-024-67160-0

[42] Langton TES, Jones MW, McGill I. Analysis of the impact of badger culling on bovine tuberculosis in cattle in the high-risk area of England, 2009-2020. Vet Rec. 2022 Mar;190(6):e1384. doi: 10.1002/vetr.1384. PMID: 35303326.

[43] EFRA Committee, Badgers and cattle TB: the final report of the Independent Scientific Group on Cattle TB, 2007/8: https://publications.parliament.uk/pa/cm200708/cmselect/cmenvfru/130/130i.pdf

[44] Pilot Badger Culls in Somerset and Gloucestershire, Report by the Independent Expert Panel: https://assets.publishing.service.gov.uk/media/5a7ebd49ed915d74e33f21d5/independent-expert-panel-report.pdf

[45] BBC News, Badger culls were 'ineffective and failed humaneness test', 2014: https://www.bbc.co.uk/news/science-environment-26369306

[46] Ethical Consumer Research Association, Understanding the NFU - an English Agribusiness Lobby Group, 2016: https://www.ethicalconsumer.org/sites/default/files/inline-files/nfu%20an%20english%20agribusiness%20lobby%20group.pdf

[47] Bovine TB strategy review (2018): summary and conclusions: https://www.gov.uk/government/publications/a-strategy-for-achieving-bovine-tuberculosis-free-status-for-england-2018-review/bovine-tb-strategy-review-summary-and-conclusions

[48] DEFRA, Farming evidence – key statistics, 2025: https://www.gov.uk/government/publications/farming-evidence-pack-a-high-level-overview-of-the-uk-agricultural-industry/farming-evidence-key-statistics-accessible-version

[49] Henry Dimbleby, oral evidence: Environmental change and food security, 2023: https://committees.parliament.uk/oralevidence/13028/html/

[50] Wyn Grant, Agricultural sector lobbying, Chapter 32, Handbook on Lobbying and Public Policy, 2024, DOI https://doi.org/10.4337/9781800884717.00042

[51] Moving away from Direct Payments, Agriculture Bill: Analysis of the impacts of removing Direct Payments, 2018: https://assets.publishing.service.gov.uk/media/5b9a89a3ed915d6669f6c2af/agri-bill-evidence-slide-pack-direct-payments.pdf

[52] Hermann Kam, Heather Smith, Clive Potter, Public money for public goods: The role of ideas in driving agriculture policy in the EU and post-Brexit UK, Land Use Policy, Volume 129, 2023, 106618, ISSN 0264-8377, https://doi.org/10.1016/j.landusepol.2023.106618

[53] Environment Agency, How to Prepare for an Inspection from the Environment Agency (EA): A Farmer's Guide, 2025: https://environmentagency.blog.gov.uk/2025/05/13/how-to-prepare-for-an-inspection-from-the-environment-agency-ea-a-farmers-guide/

[54] Defra, Environment Agency, Statutory guidance, Enforcing the Farming Rules for Water, 2025: https://www.gov.uk/government/publications/applying-the-farming-rules-for-water/applying-the-farming-rules-for-water

[55] Rural Payments Agency annual report and accounts 2024-25, 2025: https://www.gov.uk/government/publications/rural-payments-agency-annual-report-and-accounts-2024-to-2025/rural-payments-agency-annual-report-and-accounts-2024-25

[56] Rural Payments Agency, RPA's new supportive, partnership-based approach to visits, 2022: https://ruralpayments.blog.gov.uk/2022/11/03/rpas-new-supportive-partnership-based-approach-to-visits/

[57] Wildlife and Countryside Link, Permitting Reform: Reducing Environmental Damage from Intensive Livestock Farms, 2024: https://wcl.org.uk/docs/Link_Briefing_Permitting_June_2024.pdf

[58] DEFRA, New common-sense approach to environmental regulation to support new homes drive, 2025: https://www.gov.uk/government/news/new-common-sense-approach-to-environmental-regulation-to-support-new-homes-drive

[59] Herefordshire Council, The Impact of the Intensive Poultry Industry on Human Health and Wellbeing, 2022: https://councillors.herefordshire.gov.uk/documents/s50106149/Appendix%201%20-%20Impact%20of%20Poultry%20Farming%20Scrutiny%20Report%20November%202022.pdf

[60] Environment Agency response to FOI request, received 10/09/2025

[61] River Action, Megafarms, Meet the Rule of Law: Why Methwold Matters, 2025: https://riveractionuk.com/news/megafarms-meet-the-rule-of-law-why-methwold-matters/

[62] Animal Equality secures landmark legal victory for animal welfare in planning law, 2025: https://animalequality.org.uk/news/2025/06/16/animal-equality-secures-landmark-legal-victory-for-animal-welfare-in-planning-law/

[63] Environmental Audit Committee, Water quality in rivers, January 2022: https://committees.parliament.uk/committee/62/environmental-audit-committee/news/160246/chemical-cocktail-of-sewage-slurry-and-plastic-polluting-english-rivers-puts-public-health-and-nature-at-risk/

[64] Written evidence submitted by WWF (FR0054), 2020: https://committees.parliament.uk/writtenevidence/41562/html/#_edn16

[65] Agricultural Industries Confederation, 27 June 2025: https://www.agindustries.org.uk/resource/environment-agency-shares-2024-25-inspection-outcomes.html

[66] Environment Agency response to FOI request, received 10/09/2025

[67] Ibid

[68] The Guardian, Most UK dairy farms ignoring pollution rules as manure spews into rivers, 2024: https://www.theguardian.com/environment/2024/apr/19/most-uk-dairy-farms-ignoring-pollution-rules-as-manure-spews-into-rivers

[69] Environment Agency response to FOI request, received 01/09/2025, Contains public sector information licensed under the Open Government Licence v3.0

[70] Environment and Climate Change Committee, Nitrogen: time to reduce, recycle, reuse, 2025: https://publications.parliament.uk/pa/ld5901/ldselect/ldenvcl/161/16102.htm

[71] Environment Agency, Evidence annex: Environment Agency Chief Regulator's report 2023-24, 2025: https://www.gov.uk/government/publications/environment-agency-chief-regulators-report-2023-24/evidence-annex-environment-agency-chief-regulators-report-2023-24

[72] Terry Jermy, Intensive Livestock Farms Breach Environment Regulations 7,000 In Ten Years, 2025: https://terryjermy.com/news/intensive-livestock-farms-breach-environment-regulations-7000-in-ten-years/

[73] Cumulus and The Wildlife Trusts, Quantifying the Environmental Risks from Pig & Poultry Production in the UK, 2025: https://www.wildlifetrusts.org/sites/default/files/2025-08/Pig_and_Poultry_Report.pdf

[74] DEFRA, official statistics, 2025: https://www.gov.uk/government/statistics/agriculture-in-the-united-kingdom-2024/chapter-2-structure-of-industry

[75] Soil Association, Runaway Maize: Subsidised Soil Destruction, 2015: https://www.soilassociation.org/media/4671/runaway-maize-june-2015.pdf

[76] Palmer, R., & Smith, R. (2013). Soil structural degradation in SW England and its impact on surface-water runoff generation. Soil Use and Management, 29, 567–575. https://doi.org/10.1111/sum.12068

[77] Stuart L. Norris, Rod P. Blackshaw, Robert M. Dunn, Nigel R. Critchley, Kate E. Smith, John R. Williams, Nicola P. Randall, Philip J. Murray,

Improving above and below-ground arthropod biodiversity in maize cultivation systems, Applied Soil Ecology, Volume 108, 2016, Pages 25-46, ISSN 0929-1393, https://doi.org/10.1016/j.apsoil.2016.07.015 (https://www.sciencedirect.com/science/article/pii/S0929139316302098)

[78] Martin Mayer, Peter Sunde, The role of maize cultivation on European hare abundance, Agriculture, Ecosystems & Environment, Volume 295, 2020, 106909, ISSN 0167-8809, https://doi.org/10.1016/j.agee.2020.106909.

[79] Jana Sabrina Jerrentrup, Jens Dauber, Michael W. Strohbach, Stefan Mecke, Alexander Mitschke, Jürgen Ludwig, Sebastian Klimek, Impact of recent changes in agricultural land use on farmland bird trends, Agriculture, Ecosystems & Environment, Volume 239, 2017, Pages 334-341, ISSN 0167-8809, https://doi.org/10.1016/j.agee.2017.01.041.

[80] Westbury, D. B., Mortimer, S. R. , Brook, A. J., Harris, S. J., Kessock-Philip, R., Edwards, A. R., Chaney, K., Lewis, P., Dodd, S., Buckingham, D. L. and Peach, W. J. (2011) Plant and invertebrate resources for farmland birds in pastoral landscapes. Agriculture, Ecosystems and Environment, 142 (3-4). pp. 266-274. ISSN 0167-8809

[81] Soil Association, Runaway Maize: Subsidised Soil Destruction, 2015: https://www.soilassociation.org/media/4671/runaway-maize-june-2015.pdf

[82] The Guardian, 'Citizen scientists make a vital difference': the locals who proved the River Wye was polluted, 2023: https://www.theguardian.com/global/2023/aug/12/citizen-scientists-make-a-vital-difference-the-locals-who-proved-the-river-wye-was-polluted

[83] DEFRA, Farming in Protected Landscapes programme extended until 2026, 2025: https://defrafarming.blog.gov.uk/2025/02/26/farming-in-protected-landscapes-programme-extended-until-2026/

[84] Wildlife and Countryside Link, 30by30: 2025 UK Progress Report, 2025: https://www.wcl.org.uk/assets/uploads/0/WCL_04_30x30Report2025_DIGITAL.pdf

[85] Unearthed, Three quarters of England's most precious nature sites in poor state, recent data shows, 2024: https://unearthed.greenpeace.org/2024/06/26/englands-protected-nature-sites-poor-condition-sssi/

[86] Risser, H.A.1, Jarvis, S.G.1, Rowe, E.1 & Stevens, C.2 (2025). Air Pollution Recovery Indicators (APRI): Development of a Butterfly/Moth Indicator. JNCC Report 775 (Project Report). JNCC, Peterborough, ISSN 0963-8091. https://hub.jncc.gov.uk/assets/f1bef108-faaf-4759-9133-55a1336fc781

[87] Natural England, NERR138 Agri-Env Evidence Annual Report 2023, 2024: https://defrafarming.blog.gov.uk/2024/08/20/agri-environment-schemes-work-natural-englands-latest-findings/

[88] APIENS website: https://www.apis.ac.uk/APIENs

[89] DEFRA Policy Paper, Policy paper, Natural Capital and Ecosystem Assessment Programme, 2025: https://www.gov.uk/government/publications/natural-capital-and-ecosystem-assessment-ncea-programme/natural-capital-and-ecosystem-assessment-ncea-programme

[90] DEFRA, official statistics, Agri-climate report 2024, 2025: https://www.gov.uk/government/statistics/agri-climate-report-2024/agri-climate-report-2024

[91] Scottish Rural College, Greenhouse gas abatement in UK agriculture, 2024-2050, 2025: https://www.theccc.org.uk/wp-content/uploads/2025/02/Greenhouse-gas-abatement-in-UK-agriculture-2024-2050-Scotlands-Rural-College-2.pdf

[92] Carbon Brief, Agriculture 'major driver' of rise in nitrous oxide emissions over past 40 years, 2024: https://www.carbonbrief.org/agriculture-major-driver-of-rise-in-nitrous-oxide-emissions-over-past-40-years/

[93] Our World in Data, Greenhouse gas emissions, 2024: https://ourworldindata.org/greenhouse-gas-emissions

[94] RSPB, The truth of it – combating climate change is critical to stop wildlife extinctions: https://www.rspb.org.uk/whats-happening/news/climate-change-news-piece

[95] The Guardian, UK wildlife 'devastated by litany of weather extremes' in 2022, 2022: https://www.theguardian.com/environment/2022/dec/28/uk-wildlife-devastated-by-litany-of-weather-extremes-in-2022

[96] The Guardian, Hedgehogs, salmon and birds at risk after dry summer, says Natural England, 2025: https://www.theguardian.com/environment/2025/sep/15/hedgehogs-salmon-and-birds-at-risk-after-dry-summer-says-natural-england

[97] DEFRA, official statistics, Emissions of air pollutants in the UK – Ammonia (NH3), 2025: https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-ammonia-nh3

[98] HM Government, written evidence to Environment and Climate Change Committee, 2025: https://committees.parliament.uk/writtenevidence/139338/html/

[99] Guthrie, Susan, Sarah Giles, Fay Dunkerley, Hadeel Tabaqchali, Amelia Harshfield, Becky Ioppolo, and Catriona Manville, Impact of ammonia emissions from agriculture on biodiversity: An evidence synthesis. Santa Monica, CA: RAND Corporation, 2018. https://www.rand.org/pubs/research_reports/RR2695.html.

[100] HM Government, written evidence to Environment and Climate Change Committee, 2025: https://committees.parliament.uk/writtenevidence/139338/html/

[101] UK Centre for Ecology & Hydrology, Ammonia factsheet, 2023: https://www.ceh.ac.uk/sites/default/files/2023-12/UKCEH_Ammonia_factsheet_Dec2023.pdf#

[102] HM Government, written evidence to Environment and Climate Change Committee, 2025: https://committees.parliament.uk/writtenevidence/139338/html/

[103] Guthrie, Susan, Sarah Giles, Fay Dunkerley, Hadeel Tabaqchali, Amelia Harshfield, Becky Ioppolo, and Catriona Manville, Impact of ammonia emissions from agriculture on biodiversity: An evidence synthesis. Santa Monica, CA: RAND Corporation, 2018. https://www.rand.org/pubs/research_reports/RR2695.html.

[104] Downey, H., Aizlewood, S., Ash, A., Bavin, S., Burton, V., Chemais, M., Crawford, J., Gosling, R., Hewitt, D., Hugi, M., McHenry, E., Jackson, H., Nichols, C., Pyne, E., Reed-Beale, N., Underwood, F., Walsh, T. (2025) State of the UK's Woods and Trees 2025, Woodland Trust.

[105] Woodland Trust, written evidence to Environment and Climate Change Committee, 2025: https://committees.parliament.uk/writtenevidence/138772/pdf/

[106] The Sustainable Nitrogen Alliance, homepage: https://www.nitrogen.org.uk

[107] European Environment Agency briefing, How pesticides impact human health and ecosystems in Europe, 2023: https://www.eea.europa.eu/en/analysis/publications/how-pesticides-impact-human-health

[108] Chatham House research paper, Food system impacts on biodiversity loss, 2021: https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss/02-how-todays-food-system-drives-biodiversity-loss

[109] Cabernard, L., Pfister, S. & Hellweg, S. Biodiversity impacts of recent land-use change driven by increases in agri-food imports. Nat Sustain 7, 1512–1524 (2024). https://doi.org/10.1038/s41893-024-01433-4

[110] Agricultural Industries Confederation, Sustainable Soya Progress Report, 2025: https://www.agindustries.org.uk/resource/aic-sustainable-soya-report---may-2025-pdf.html

[111] Global Witness, UK imports destroying Liverpool-sized forest each year: New analysis, 2025: https://globalwitness.org/en/press-releases/uk-imports-destroying-liverpool-sized-forest-each-year-new-analysis/

[112] Development Control Practice, PPG updated - Natural environment, 2025: https://www.dcp-online.co.uk/article/1907608/ppg-updated-natural-environment

[113] DEFRA, policy paper, Local nature recovery strategies, 2023: https://www.gov.uk/government/publications/local-nature-recovery-strategies/local-nature-recovery-strategies

[114] Map of LNRS areas and responsible authorities, accessed 20/10/2025: https://assets.publishing.service.gov.uk/media/68e8c752cf65bd04bad76735/map-of-local-nature-recovery-strategy__LNRS_-areas-and-responsible-authorities.pdf

[115] Wildlife and Countryside Link, Planning for Nature, 2021: https://wcl.org.uk/docs/assets/uploads/Planning_for_Nature_What_now_28.10.21_1.pdf

[116] Royal Society, A Land Use Framework for England, 2025: https://royalsociety.org/blog/2025/01/land-use-framework/

[117] EcoWatch, 9% of England's Farmland Needs to Be Converted Into Wildlife Habitats and Forests: UK Government Land Use Blueprint, 2025: https://www.ecowatch.com/england-farmland-conversion-habitats-forests.html

[118] The Guardian, Wage war on nature to build new homes: that's Labour's offer, but it's a con trick, 2025: https://www.theguardian.com/commentisfree/2025/oct/16/labour-england-nature-housing-planning-bill

[119] The EAT–Lancet Commission on healthy, sustainable, and just food systems, Rockström, Johan et al., The Lancet, Volume 406, Issue 10512, 1625 – 1700, DOI: 10.1016/S0140-6736(25)01201-2

[120] Scarborough, P., Clark, M., Cobiac, L. et al. Vegans, vegetarians, fish-eaters and meat-eaters in the UK show discrepant environmental impacts. Nat Food 4, 565–574 (2023). https://doi.org/10.1038/s43016-023-00795-w

[121] DEFRA, policy paper, A UK government food strategy for England, considering the wider UK food system, 2025: https://www.gov.uk/government/publications/a-uk-government-food-strategy-for-england/a-uk-government-food-strategy-for-england-considering-the-wider-uk-food-system