

Why nature matters: biodiversity in the UK

We are all part of nature. We depend on the diversity of nature for the food we eat, the clothes we wear, the water we drink and the air we breathe. Nature also plays a crucial role in mitigating the effects of climate change and providing spaces in which we can relax and play. Declining nature and biodiversity affects us all and has economic consequences. But there are steps we can take now to protect, restore and better manage our natural resources.

Definitions of nature and biodiversity

This briefing uses nature to mean the diversity of living organisms and their interactions among themselves and with their environment.

Biodiversity is the variety of all living things. This includes the range of ecosystems, the number of different species and the genetic diversity within species. This variety is important for the resilience of ecosystems, because having a range of species playing similar ecological roles helps maintain ecosystem functioning if the population of any one species declines, whilst genetic diversity enables organisms to evolve in response to environmental changes.

Natural systems have the capacity to evolve and regenerate. But if the rate at which we use natural systems exceeds the rate at which they can regenerate then we erode their future capacity to provide us with the goods and services upon which we depend. If the process of degradation continues then we run the risk of pushing nature past a tipping point beyond which system recovery will be much harder, or impossible.

Overuse of natural resources also reduces the ability of natural systems to withstand shocks. This is a particular problem in the context of the increased frequency and intensity of extreme weather events. Climate change and biodiversity loss are closely connected: both are the result of the human demand for natural resources and the associated emissions and pollution from our consumption.

We are currently in a vicious cycle in which the destruction of nature both accelerates and increases our vulnerability to climate change, which in turn further increases risks to nature. Instead, we should aim for a virtuous cycle in which reduced demand for natural resources reduces the drivers of both nature loss and climate change. This will make it easier to protect and restore the natural systems that can help with adapting to, and mitigating the severity of, the climate change that we already face.

In the context of climate change and biodiversity, some UK habitats are particularly important. For example, peatlands provide valuable carbon storage as well as reducing flood risk, increasing fresh-water availability, and providing a habitat for many unique and threatened species. Similarly, ancient woodlands and kelp forests are also important carbon stores and provide a home to some of the UK's most vulnerable species.

The state of nature and the drivers of nature loss in the UK

The vast majority of the UK's land and seas are managed in the interests of people. That is most obviously the case with the 70% of the country that is farmland¹ and the 7% that is urban². But even those areas that appear to provide more of a space for nature are still shaped by human activities such as burning heather and grazing animals on moorland, agricultural and sewage pollution in rivers, planting woodlands composed of a small range of non-native species, and disturbing the sea floor through bottom trawling and dredging.

¹ Department for Environment, Food and Rural Affairs, Agricultural Land Use in United Kingdom at 1 June 2023, December 2023. See <https://www.gov.uk/government/statistics/agricultural-land-use-in-the-united-kingdom/agricultural-land-use-in-united-kingdom-at-1-june-2023> (accessed 1 July 2024).

² Office for National Statistics, Habitat extent and condition, natural capital, UK: 2022, May 2022. See <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/habitatextentandconditionnaturalcapitaluk/2022> (accessed 1 July 2024).

Predicting the consequences of our exploitation of nature is hard because of the great complexity of natural systems and the many ways in which they might adapt to changes. We can be confident that one such consequence is the decline in the populations of many species. The abundance of species studied in the UK has declined by 19% on average since records began in 1970, and the pace of decline has accelerated since the last assessment in 2019. One in six of the UK species studied is now threatened with extinction, compared with one in seven in 2019³. These declines are largely attributable to habitat loss, reduced air quality, farming practices, and climate change on land, while unsustainable fishing, marine development and climate change again are major factors at sea.

Another likely consequence is a reduction in the benefits we receive from particular habitats, such as reduced flood risk from woodland in the upper reaches of river catchments and from intact peatlands. Current assessments suggest just 14% of the UK's 'priority habitats' are in a condition that enables nature to flourish whilst still providing benefits to people⁴.

Implications of trends in nature loss

The state of UK habitats and declines in many wild species leads to increased risks across many areas of our society and the economy. Building new homes is at risk due to limited water supplies in some parts of the country and flood risks in others. Our health is at risk from reduced access to green spaces and increased pollution as nature is less able to remove pollutants from our environment, and agriculture is at risk from increased incidence of pests and diseases. These risks are all exacerbated by climate change, as we remove the protections against extreme weather events that natural systems provide and reduce nature's capacity to respond to environmental change.

Principles for what we should do about it

The goals of nature protection and restoration should not be to prevent change – nature is dynamic and constantly evolving. Given the difficulty of predicting the consequences of further loss of nature and the risk of irreversible declines in nature's benefits to people, future decisions about the exploitation of nature should be proportionate to our understanding of the systems involved.

In practice this means a precautionary approach which preserves the conditions that enable nature to adapt successfully in the context of a changing climate and accelerated spread of pests and diseases. We know that creating bigger, better and more joined up spaces for nature is important for its resilience. This can be achieved using the principles of nature-based solutions of protect, restore, manage and create:

1. Protect – where we have high-quality habitats, such as ancient woodlands or seagrass meadows, we must protect these from damage
2. Restore – where habitats have been degraded, we should restore them to a higher quality state, for example by replanting native vegetation or rewetting peatlands
3. Manage – where we use land to meet our needs for food and materials, we should do so in a 'multi-functional'⁵ way that minimises the total amount of land we use
4. Create – the hardest thing to do is to create new, functioning ecosystems but there are opportunities, particularly in urban contexts, to make new spaces for nature, such as through creation of small urban parks, green roofs or sustainable urban drainage systems.

The damage we have done to nature has been driven by the ever-increasing demands we have made on it. If we do not bring the rate of exploitation back to within the limits that nature can sustain then we face ever greater risks. Incorporating the principles of protect, restore, manage and create into our collective decision making provides a possible route to living well within the planet's means.

3 State of Nature Partnership, State of Nature 2023, September 2023. See https://stateofnature.org.uk/wp-content/uploads/2023/09/TP25999-State-of-Nature-main-report_2023_FULL-DOC-v12.pdf (accessed 1 July 2024).

4 *Ibid.*

5 The Royal Society, Multifunctional landscapes – Informing a long-term vision for managing the UK's land. See https://royalsociety.org/-/media/policy/projects/living-landscapes/des7483_multifunctional-landscapes_policy-report-web.pdf (accessed 1 July 2024).

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Issued: July 2024 DES8923 © The Royal Society