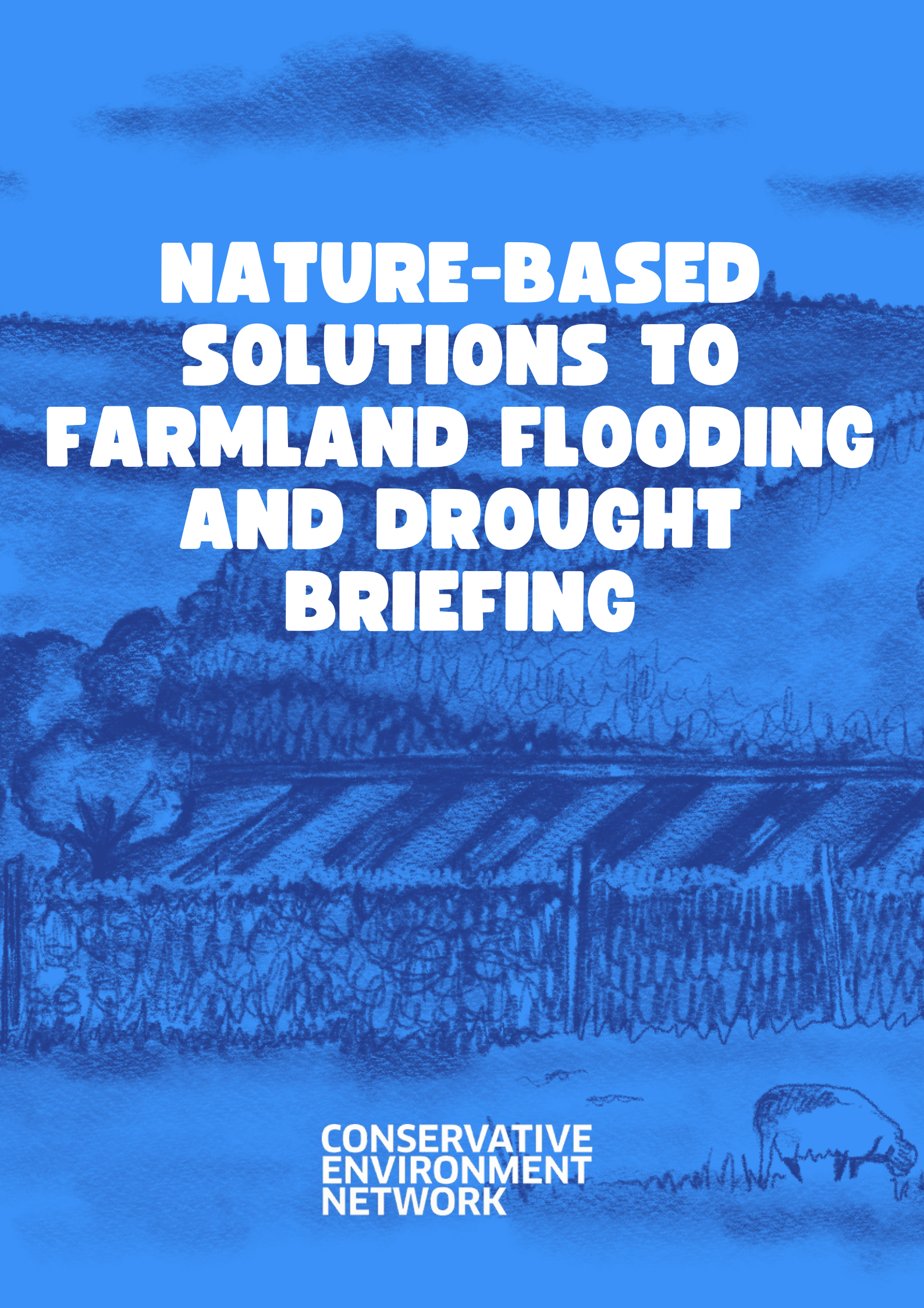
NATURE-BASED SOLUTIONS TO FARMLAND FLOODING AND DROUGHT BRIEFING



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Nature-based solutions to flooding and drought on agricultural land

Summary

- **Flooding and drought represent huge risks for English farmland.** We have just experienced the wettest 18 months since records began in 1836. Summers are becoming hotter and drier too. With flooding and drought likely to become more regular and severe, this pressure on agricultural land is expected to grow with it.
- **Nature-based solutions can increase the natural resilience of our farmland and improve our food security.** With biodiversity loss and climate change being among the biggest medium and long-term threats to UK food security, solutions that harness natural processes can protect farmland and food security in the long-term.
- **The previous government supported nature-based solutions on farmland, but more action is needed to deliver them at scale.** Through its post-Brexit farming subsidy reforms, the previous government began rewarding farmers for adopting more nature-friendly practices and for implementing nature-based solutions to flooding and drought on their land. But there is more that can be done, beginning with securing the farming budget. Other actions include creating opportunities for the private sector to invest in nature, and streamlining the regulation of wild beaver reintroductions.

Background

- **Agricultural land in England is increasingly at risk of severe flooding.** Currently, 74% of our total floodplain area is agricultural land, including 60% of our best and most versatile land. Last winter, the number of flood warnings on England's best farmland hit a record high of over 1000, exceeding the previous record by one fifth.
- **Agricultural land in England is also at an increasingly severe risk of drought.** Six of the hottest years on record in the UK have been within the last ten years. Prolonged heat dries soil, which when combined with low river flows, increases the agricultural demand for water. The south and east of England, where much of the water-intensive horticultural industry is located, are currently most under pressure from drought.
- **Conservative voters recognise the risk of flooding and drought to farmland**. Recent CEN polling found that 76% of 2024 Conservative voters agreed that climate change impacts, such as flooding and drought, damage our ability to produce food, whilst 72% agreed that damage to the natural environment threatens our ability to produce food.

Drivers of flooding and drought

- **Climate change is a significant driver of flooding and drought.** Climate change is expected to make UK summers drier and hotter, and winters wetter and warmer. The hottest decade on record concluded in 2023. As temperatures rise, the atmosphere also holds more moisture leading to heavier bouts of rain and greater risk of flooding.
- **Nature loss is another significant driver of flooding and drought.** Healthy ecosystems, abundant flora and fauna, and stronger soils all help make farmland more resilient to the effects of extreme weather. When non-crop plants are removed from agricultural land, the natural filtration provided by root systems is also removed.

- **Unsustainable farming practices drive nature's decline and climate change in the UK.** As incentivised by the EU Common Agricultural Policy, the application of chemical inputs and removal of farmland nature have contributed to biodiversity loss and rising greenhouse gas emissions. As a result, the agricultural industry is now a major cause of UK nature loss, river pollution, and 11% of our total emissions.

Consequences of flooding and drought

- **Lower yields and higher food prices.** Flooding can decimate entire crops by submerging them underwater, whilst the water shortages posed by drought can reduce yields. Last year, heavy rainfall and flooding prevented UK farmers from sowing their crops, causing significant crop yield reductions. This in turn led to higher food prices for consumers.
- **Reduced water quality.** Heavy rain can wash soil and excess chemicals from farmland into waterways, diminishing the quality of the water. Equally, these pollutants can become more concentrated in periods of drought as the volume of water recedes. Droughts also reduce the flow of the river and create hot, stagnant conditions which threaten wildlife by causing harmful algal blooms.
- **Putting rural communities at risk.** Flooding can cause the loss of homes and livelihoods overnight. This is deeply traumatic and can add to the mental health issues of farmers, an already at-risk group.

Nature-based solutions to flooding and drought on farmland

- By harnessing the functions of ecosystems and natural processes to slow the flow of water and enable the land itself to better absorb and retain water, nature-based solutions can alleviate the risk posed to farmland. As well as enabling farmland to become more resilient to the impacts of flooding and drought, they deliver other co-benefits, such as increasing the quality of the natural environment, providing habitats for wildlife, improving water quality, and storing carbon. Some examples of nature-based solutions include:

1. **Restoring rivers to a near-natural state.** To make farmland and waterways more efficient, man made modifications such as straightening, dredging, and weirs were introduced. Now, 97% of rivers in the UK are modified in some way. In reality, these modifications can actually impede the ability of a river to cope with heavy rainfall.
    - **Re-wiggling rivers.** By returning a river to its natural, meandering state, re-wiggling slows the flow of water and increases river length which, in turn, protects communities further downstream too.
    - **Reintroducing the native beaver.** Eurasian beavers have been functionally extinct in England since the 16th century. When present in the environment, their dams can help to slow the flow of water by up to 60%, and retain it in pools during periods of drought.
    - **Restoring wetlands.** As areas of land that are either permanently or seasonally inundated with water, wetland ecosystems naturally filter and retain water. To

enable agricultural expansion, many English wetlands were drained, meaning we have lost 90% of our wetlands over the past 100 years.

2. **Restoring peatland.** When functioning correctly, peatlands act as a powerful sponge. Unfortunately, due to burning, farming, tree planting, development, grazing, and extraction, 87% of our peatlands are dried out and degraded. By restoring peatlands currently used for agriculture to a near natural state, they will be better able to hold water. This can be achieved by halting and reversing human activities such as removing inappropriately planted trees. Raising the water table so that dried peatland is submerged can also help to restore it. This can be done by blocking drainage ditches, blocking underground channels, and no longer using drainage pumps. 'Paludiculture', farming on naturally wet peatlands, is possible.
3. **Increasing vegetation cover.** When trees and other vegetation are removed from a landscape, less water is absorbed and retained through the root system and so flooding is made more likely and the effects of drought are worsened. Increasing the amount of vegetation on farmland can therefore help to manage water supply, as well as boost biodiversity, improve water and soil quality.
    - **Riparian buffers.** Transforming the edges of watercourses into riparian buffers acts as a natural barrier for overflowing water during periods of heavy rain and the new root systems make the land more porous, meaning water better absorbs into the ground. The shade from the vegetation can also prevent water evaporating from the soil, helping to retain water in periods of drought.
    - **Agroforestry**. Trees can be integrated into productive farmland. As well as providing commodities of their own, such as fruit, nuts and timber, these trees offer shade and shelter to both crops and livestock, and improve soil health which, in turn, improves water quality and rates of absorption.
4. **Protecting soil.** Degraded soil is less able to retain water. Left exposed, soil is also more susceptible to drying out. Healthy and covered soil, on the other hand, absorbs and retains water. Regenerative agricultural practices improve soil quality by minimising disturbance to it. These practices enable the soil to absorb more water during heavy rain and retain it in times of drought, whilst continuing to produce food. Examples of regenerative farming techniques include:
    - **Cover cropping:** When the soil is left bare, it is more exposed to the elements which can dry the soil, blow it away, or cause it to run off into rivers. Planting crops, such as clover, on the land during the months it would otherwise be left exposed, prevents soil erosion and increases soil fertility.
    - **Reducing chemical inputs:** High concentrations of fertilisers and pesticides run into the waterways, polluting the water. They also degrade the soil and its ability to absorb and retain moisture. Healthy soil, on the other hand, is more resilient and able to retain more water.

Government action in the last parliament

- **The post-Brexit Environmental Land Management schemes (ELMs) financially support farmers to practise more regenerative farming techniques.** The farming

budget is currently £2.4 billion per year with over 40,000 agreements currently in place, covering about 34% of England's agricultural land. These schemes reward farmers for building resilience on their farmland and their efforts to restore nature that are not rewarded by the market. By improving natural assets like soil health and water quality, these schemes promote nature-based solutions to flooding and drought. Through the larger scale Landscape Recovery (LR) projects, farmers can also partner with their neighbours to restore entire habitats, such as the Somerset Levels project. These projects are both highly competitive and oversubscribed, with only three rounds having taken place so far.

- **Land managers can apply for grants to fund riparian tree planting and peatland restoration.** The England Woodland Creation Offer and Nature for Climate Fund are two examples of funding pots that have been made available to farmers. However, the long-awaited ban on the sale of horticultural peat compost has not been delivered, meaning a key driver of peatland extraction continues.
- **The last government committed to doubling the amount of nature-based solutions to flooding.** With a target for 260 natural flood management (NFM) projects between 2021 and 2027, in March 2020, the government announced its £5.2 billion flood budget for the following six years, including a £25 million NFM programme.
- **Farmers affected by severe flooding are eligible for the Farming Recovery Fund.** In response to Storm Henk, a £50 million fund was created in 2024 to support the thousands of farmers who have suffered significant damage to their land as a result of prolonged and extreme wet weather and flooding. Grants of up to £25,000 are available to farmers who have suffered uninsurable damage.

Labour's plans for farmland flooding and drought

- **Labour has committed to retaining ELMs and expanding nature-rich habitats.** With habitats specified including wetlands, peat bogs, and forests, if funded and delivered, these commitments will deliver nature-based solutions to flooding and drought.
- **'Protecting communities from the dangers of flooding' is one of Labour's top five priorities for the environment, but it has not yet made any spending commitments.** Without committing to increase the farming budget or the amount of nature-based solutions funded through the flood budget, the delivery of nature-based solutions to protect farmers and their land from the risk of flooding and drought is put at risk.

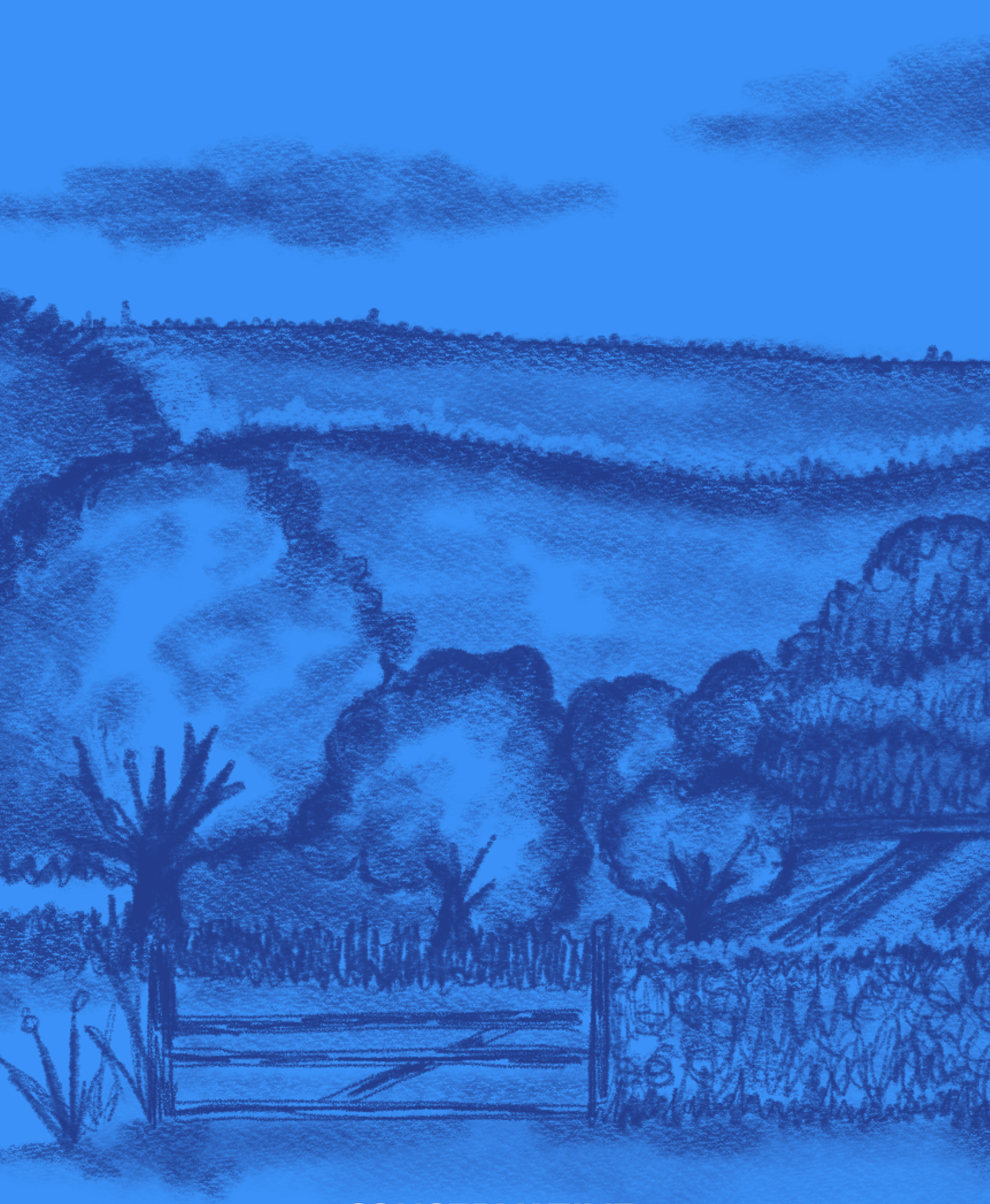
Further action

- **Restore the nature-friendly farming budget in real terms to £2.8 billion, and, at the very least, index the budget to increases in inflation in the next parliament.** To ensure farmers have the confidence to adopt regenerative practices, to help close some of the funding gaps to achieve our biodiversity goals, and to fund future rounds of LR, the government should secure the existing farming budget, at the very least.
- **Enable the private sector to invest in the natural environment via natural capital markets.** The new government should implement proposals from the draft market framework for trading privately funded nature credits, with standards for nature credits

from a range of habitat types and rules for the stacking of credits confirmed. This can deliver an additional £1 billion of private money for nature recovery. The proposal could be further strengthened by designating private sector bodies to accredit projects and award credits to speed up the process and reduce regulatory uncertainty.

- **Convene more Woodlands for Water projects to target riparian planting for farmland most at risk from flooding.** This programme should be reignited using the Water Restoration Fund. Priority should be given to the highest flood risk areas and those with the least trees along watercourses. Target areas should be determined by an assessment of the current prevalence of trees along watercourses.
- **Ban the sale of peat-containing products in the horticultural sector.** The government should deliver this long-standing commitment which the horticultural sector has had over ten years to prepare for, in order to protect peatlands and harness their ability to retain huge amounts of water on the land.
- **Allocate a larger percentage of the flooding budget to nature-based solutions.** Much of the flood budget goes towards hard engineered flood defences that do not deliver the same cost-efficiencies or co-benefits for nature and local people.
- **Establish the necessary licensing system for wild beaver releases.** There is currently no licensing system for wild beavers in the UK meaning they cannot be reintroduced. Reintroductions should be given funding from a renewal of the Species Recovery Fund. The risk assessment process should not be too bureaucratic, while post-Brexit red tape impeding animal transfers from the EU, which adds significant extra cost and complexity to reintroduction projects, should be simplified. In return for this support and streamlining of the paperwork, projects should be required to put in place management plans to mitigate any negative impacts of reintroductions.

We are grateful for the support of the Wildlife Trusts which funded this project.
CEN retained editorial independence throughout the drafting of this work. The sponsor of this publication does not necessarily endorse the views expressed in this briefing but provided important evidence and ideas during its development.



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