



# Multifunctional landscapes

Informing a long-term vision  
for managing the UK's land

**Executive summary**

***Multifunctional landscapes: Informing a long-term vision for managing the UK's land***

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# Executive summary

Globally, there are increasing demands on land to feed and house a growing and increasingly wealthy population, sequester carbon to mitigate climate change, restore biodiversity, and improve resilience in the face of extreme weather and global shocks such as pandemics and war. Successfully navigating these intersecting challenges will require science and innovation to increase the sustainable productivity of land for the multiple outputs society wants and needs, including those that have market value (such as agricultural produce) and those with no or partial market value (such as biodiversity).

Now is a critical moment for land use policy globally, but especially in the UK. A confluence of environmental and geopolitical drivers necessitates a strategic rethink of the way decisions are made about how landscapes and the services they provide are managed, not least the need to design replacements for EU agriculture, environment and trade policies by which the UK has been bound for decades.

Science and innovation have several important roles in helping manage landscapes better. Land is a finite resource and we need to research new ways to use it more efficiently, as well as to apply existing knowledge more effectively. The demands we place on the land are many, complex and interacting and policymakers need the best scientific evidence and analytical tools to help them navigate the difficult decisions they face.

The following recommendations are aimed at both increasing, and enhancing access to, science and innovation relevant to land use and supporting decision-making processes to help meet the challenges of the 21st Century.

# Recommendations

## RECOMMENDATION 1

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Land use decision-making needs to embrace a multifunctional approach that considers multiple market and non-market land-based outputs.

A multifunctional approach considers simultaneously all the market (such as food, timber and energy crops) and largely non-market (such as biodiversity habitats, carbon sequestration, flood alleviation and recreation) products and services provided by the land. It considers trade-offs and synergies between different outputs and suggests how landscapes can be designed to increase benefits to multiple stakeholders, from individual landowners to society. It informs which outputs can best be produced in the same place, and which are best separated. It takes into account the spatial structure of the landscape so that benefits such as connected biodiversity habitats or upstream flood water retention can be realised. This, combined with evidence and analysis from the economic and social sciences, provides critical input into the political processes leading to landscape decisions.

## RECOMMENDATION 2

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Research and innovation is needed to improve the sustainable productivity of all land-based outputs.

In the past, land-based research has tended to concentrate on increasing the productivity and profitability of farming, forestry and other activities that produce goods with market value. This needs to continue but be expanded in three ways. The first is taking a multifunctional perspective, increasing the efficiency with which all landscape outputs are produced, not just those providing an immediate financial return. Second, much greater attention to sustainability is required – for example, reducing, eliminating or even reversing the negative environmental effects of farming, forestry and other activities. Third, more research on reducing negative trade-offs and maximising synergies between different landscape functions is needed. Land is finite and all land must be highly productive when production is interpreted to include all potential market and non-market outputs. Key areas of science that will contribute to meeting these aims are explored in this report, many of which span disciplinary boundaries.

### RECOMMENDATION 3

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New infrastructure will be needed to provide skills, training and advice for land managers to enable them to adapt their businesses and thrive on delivering multiple outputs from their land.

Managing multifunctional landscapes will require new skills and new sources of information and advice that are not currently available, or are in short supply. Skills shortages are already a limiting factor in the delivery of environmental projects and the transition to sustainable agricultural practices. Without training, land managers risk not being able to capitalise on the opportunities open to them, and the UK risks not having the right skills in its workforce to deliver important land-based policy commitments. Alongside skills development, innovation diffusion and technology transfer will be key to increasing productivity and will pave the way for enterprising land managers and new entrants to access new or enhanced income streams. Land managers will also require access to good quality, trusted advice as they make decisions about which management interventions to make where and when. Existing sources of advice are poorly designed to meet these needs. Innovative models of advice from private and public sources should be explored, especially with regard to increasing the provision of non-market outputs from land.

### RECOMMENDATION 4

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A novel data science-driven approach is needed to develop a high-quality common evidence base to underpin land use decisions.

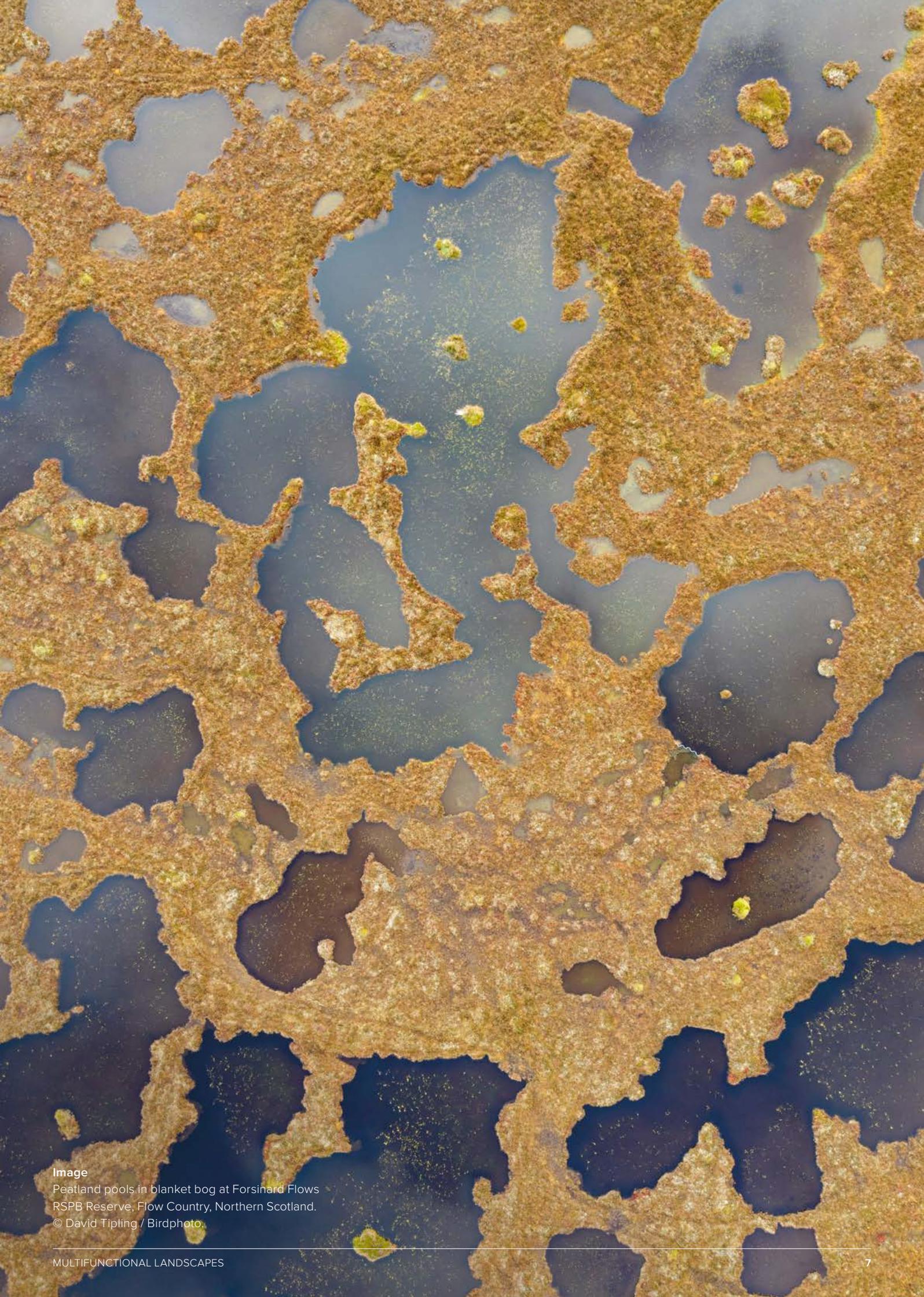
Decision-making in multifunctional landscapes will benefit from integration of information about all aspects of landscapes including farm and forestry outputs, biophysical data (such as topography, climate, soils and biodiversity) and ecosystem services, as well as socioeconomic data such as land values, land ownership and livelihoods dependent on land-based-activities. Some of this information is available but is of variable quality, relevance, timeliness and accessibility. A more strategic national approach to land-based information, with clear data standards and protocols and creation of a common evidence platform, would empower decision-makers with a consistent set of science-based inputs from which to negotiate land use decisions. It would also facilitate the incorporation of new data streams made available by technological advances. Consistent and scientifically robust baselines, metrics and systematic monitoring programmes are needed to better understand the state of landscapes and what they are being used for, and to track progress towards meeting policy objectives.

## RECOMMENDATION 5

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The UK countries should develop and coordinate spatially explicit national land use frameworks to ensure coherence across different areas of land use policy and between national and local scales.

It is important that decision-makers can judge whether different policy commitments involving land use (for example, on food production, tree-planting, housing and biodiversity conservation) are compatible. This requires an overarching decision-making framework within which potentially competing commitments can be reconciled against one another. This report suggests a series of principles to help guide the construction of such frameworks in the UK countries: well-designed national land use frameworks should be based on robust data and analytics and developed in a transparent way to build trust across multiple stakeholders. They should ensure policy coherence at the national level and avoid policy incompatibilities, for example committing the same land to multiple incompatible functions. They can help to maximise returns on public investment in land-based activities as well as direct private green finance to where it is most needed. Frameworks should be spatially structured to facilitate decision-making at multiple geographic scales and to reconcile rural and urban planning decisions. They need to be flexible enough to evolve and improve as the evidence or policy needs change, and be in place long enough that individual land managers can use them to inform their own management and investment decisions. Different countries within the UK would benefit from coordinating their frameworks and using compatible methodologies.



**Image**

Peatland pools in blanket bog at Forsinard Flows RSPB Reserve, Flow Country, Northern Scotland.

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