

Wider-reaching solutions urgently needed to reach realistic 'net zero', warn researchers

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Landscape view of Whinlatter, Cumbria. Credit: Beth Cole, University of Leicester

There should be greater investment in using a wider group of experts to make decisions about how the landscape is managed if the UK is to reach climate targets such as net zero, a new report warns.

Tackling the climate emergency should involve those knowledgeable in the arts, business owners, farmers, landowners, developers and investors, the study says.

The interdisciplinary team of UK researchers have highlighted 'multiple contradictions' in the pathways to net zero climate targets and called for wider-reaching solutions to create a more sustainable future.

The Landscape Decisions Programme, led by the University of Leicester, has published a new research report with input from environmental scientists, ecosystem modellers, human geographers, humanities scholars, and other experts from Leicester, Reading, Exeter, Bangor, Leeds, Nottingham, Wales Trinity Saint David, and Robert Gordon universities, plus expertise from Rothamsted Research and the UK Centre for Ecology and Hydrology.

The UKRI-funded report stresses the potential negative impact of existing pathways to net zero [climate targets](#), which include losses in the benefits of biodiversity, human wellbeing and cultural knowledge of the landscape.

The UK government has previously set a net zero target of 2050, through a proposed reduction in [greenhouse gas emissions](#) and better management of so-called 'carbon sinks' such as peatlands and forests, and with new carbon capture technologies.

Recommendations made by the interdisciplinary group include a greater focus on locally-devolved decisions in land-use solutions, as a one-size-fits all approach to net zero landscape management could be damaging in

certain environments.

As well as studying the physical impact of landscape decisions, these should be taken within the full context of the social consequences of these changes; for example, in the case of sudden large-scale changes to farming.

The group do, however, recognise that "swift action is essential, otherwise we head deeper towards an inability to reach net zero carbon targets, contribute to biodiversity collapse and, promote societal disengagement with landscapes".

Dr. Beth Cole is Senior Research Fellow for the Landscape Decisions Programme, based at the University of Leicester, and lead author for the report. She said:

"To reach the net zero goals we need to make some challenging decisions about the way we use, manage, and interact with landscapes in the UK. These landscape decisions are dependent upon many factors including the environmental characteristics, and the geographic location of the land, but in this report, we also consider the wider social framing of these decisions and call for inclusive, place-specific net zero practices within landscapes that support both biodiversity and people.

"Collaborating across disciplines this group of researchers together make a team that is greater than the sum of its parts and who have broken down some of the silos this urgent issue is normally approached from."

Dr. Katharine Earnshaw, a co-author based in the University of Exeter's Department of Classics and Ancient History, said:

"We have an urgent need to think about the culture of change—not just what could be possible on paper. This means a better consideration of

the whole picture: social and ethical ideas—the habits of thinking—alongside empirical evidence, taking account of past, present and future.

"This novel report demonstrates the genuine benefits of working across different subjects and with communities and businesses so that we do not reproduce the inequalities that have led us to this crisis."

Co-author and natural scientist Professor Simon Willcock, of Rothamsted Research and Bangor University, added:

"Obviously, there is an urgent need to move towards net zero landscape decisions to limit the impacts of climate change. However, [landscape](#) changes impact a great variety of things—from the carbon and water cycles to biodiversity and local peoples.

"Only by making interdisciplinary decisions that take these many things into account can we move towards achieving sustainability more broadly—benefiting people and nature. Our report highlights this and provides key recommendations as to how net-zero can be achieved more inclusively."

Professor Heiko Balzter is a Professor of Physical Geography at the University of Leicester and Director of the Centre for Landscape and Climate Research, and is Chair of the Programme Coordination Team for the UKRI Landscape Decisions Programme. He added:

"Our landscapes in the UK are about to change faster than they have done in a long time. These changes are driven by the urgent need to prevent catastrophic climate change by achieving net zero emissions no later than 2050, reversing the loss of many endangered animal and plant species, as well as improving food security and livelihoods of our farmers. This report highlights some key recommendations for decision-

makers on ethical consideration, participatory approaches and the trade-offs and synergies between different goals and interventions."

More information: Landscape Decisions to Meet Net Zero Carbon: Pathways that consider ethics, socio-ecological diversity, and landscape functions, landscapedecisions.org. DOI: [10.25392/leicester.data.19011629](https://doi.org/10.25392/leicester.data.19011629)

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