

Considerable change needed to stop nature loss in Scotland, report says

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A great yellow bumblebee (*Bombus distinguendus*) feeding on clover, Benbecula machair. Credit: Lorne Gill/NatureScot

Considerable and rapid change across all aspects of society is needed to stop further nature loss in Scotland, a new report reveals.

Many of the direct causes of biodiversity loss are well-known such as pollution, climate change and land use change. Now a new report led by The James Hutton Institute, commissioned by NatureScot, says that tackling these direct causes is not enough.

It points to factors which are indirectly contributing to nature loss in Scotland including our culture, education, demography, economy, political systems and technology.

The report, also involving researchers at the University of Glasgow and Glasgow Caledonian University, identifies ways to reduce the impacts of some of these contributing factors to help us move towards a future where we are living more in harmony with nature. Government, public bodies, schools, businesses, individuals and communities are highlighted as having a lead role to play.

Recommendations include that [policy makers](#) and businesses move away from measuring performance based on levels of production and consumption and focus more on regenerative uses of the land and sea as part of a sustainable, circular economy.

While this will require substantial adjustments, the report comments that these will be easier and less costly to people and businesses than passively adjusting to a worsening biodiversity and climate crisis.

Professor Robin Pakeman, senior report author at the Hutton, said, "A key conclusion I draw from this report is that the consequences of all of our actions, even apparently positive ones, can have global repercussions. These can be very complex to navigate. For example, replacing a forestry plantation with a native woodland could be seen as a win for biodiversity. However, where will the timber now come from?"

"Effectively, 'offshoring' or pushing our impacts elsewhere where they

cause even more problems, is a serious concern. There are many difficult choices, which can be made easier, as the report outlines. For example, we can reduce our use of unsustainable materials and cut [energy consumption](#) that degrades the natural world."

NatureScot's Director of Nature and Climate Change, Nick Halfhide said, "With the forthcoming consultation on the Scottish Government's Biodiversity strategy to 2045: tackling the nature emergency, the importance of halting biodiversity loss by 2030 is laid bare.

"Tackling these underlying contributions to nature loss will be essential for a just transition to a net zero and nature-rich economy, both to reduce greenhouse gas emissions and to increase resilience to the impacts of a changing climate.

"This important report from the James Hutton Institute points to the wider challenges we face in reconciling the great range of policies and actions to achieve a thriving future for our natural environment, economy and well-being."

The report authors were Robin Pakeman, Antonia Eastwood (now at the RSPB), Dominic Duckett (now at Glasgow Caledonian University), Kerry Waylen and Jonathan Hopkins from The James Hutton Institute and David Bailey from the University of Glasgow.

The [full report](#) can be accessed on NatureScot's website: NatureScot Research Report 1309—Understanding the Indirect Drivers of Biodiversity Loss in Scotland.

Key findings and recommendations

- Top level—Conduct a national conversation on how we can

transition to a [sustainable future](#) in which decision making at all levels, from the individual to the state, is forward-looking and compatible with long-term sustainability. Increase effort to (re)connect the public, and especially children, to biodiversity and the benefits they derive from it, and support for nature volunteering and citizen science.

- **Governance**—Strengthen participatory and deliberative decision-making to encourage local democracy and greater incorporation of local and experiential knowledge, noting that Regional Land Use Partnerships and Marine Planning Partnerships offer this potential. The success of citizen panels in the Republic of Ireland and the recent Climate Assembly in Scotland show the potential for these to make useful policy recommendations. Working at the scale of Subnational Governments, Cities and Other Local Authorities may represent a useful approach to complement existing levers and approaches to achieving outcomes for biodiversity.
- **Economy**—Unsustainable material and energy consumption that degrades the [natural world](#) will need to be reduced across society. Economic decision-making based on metrics that focus more on broader sustainability, and highlights indicators such as the Index of Sustainable Economic Welfare and the Genuine Progress Indicator that aim to support a more balanced evaluation of national performance by including economic, human and natural capital. With around 30% of threatened species linked to the impacts of global trade, and the U.K. ranked 5th in the world in terms of exporting its biodiversity footprint to other countries, the [report](#) highlights the importance of taking into account the full environmental impacts of our consumption. Nature restoration may be hampered by a lack of skilled labor to meet the expanding nature-based jobs market in sectors such as coastal and marine habitat restoration, woodland planting and restoration, and peatland restoration.

- Agriculture—A shift in agricultural subsidies to results-based payments offers more agency to land managers and the potential to bring innovation into conservation management, while a focus on natural capital could provide a more rounded objective to landscape-scale nature restoration. Agricultural Knowledge and Advisory Services, also referred to as extension services, will be required to support the sector in adopting technologies such as precision farming and crop diversification, to reduce inputs and help land managers improve carbon management, protect biodiversity and restore ecosystem services.
- Developments—Greater provision of green and blue spaces and active travel routes, particularly in urban areas where people can become disconnected from nature and in areas experiencing disadvantage.
- Renewables—For Scotland, a transition to biomass energy is likely to come from [land use change](#) to biocrops, increasing reliance on imports of food with the potential to offshore biodiversity loss elsewhere; mechanisms are needed to prevent locally and imported biomass coming from systems that degrade biodiversity. The Fourth National Planning Framework (NPF4) has explicit policies that should mean that future developments take account of the global climate and biodiversity emergencies but there is still the potential for a local trade-off between renewable energy installations and [biodiversity](#).
- Learning—"Learning for Sustainability" and more broadly the Sustainable Development Goals in Scotland need stronger implementation, inspection and teacher development. Calls for activities that connect young people to nature and for embedding into the school curriculum an "understanding of natural processes" and the importance of nature to our well-being.

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