




Conservation policies risk damaging global biodiversity, researchers argue

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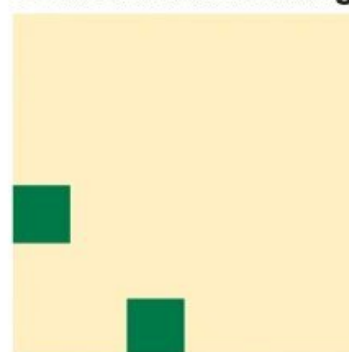
HELPING OR HARMING NATURE?

Land sharing is a popular way of altering land use to benefit nature, but it worsens the global biodiversity crisis by reducing the productivity, or yield, of farmland and driving up food imports. Another strategy, land sparing, could work.

Land use

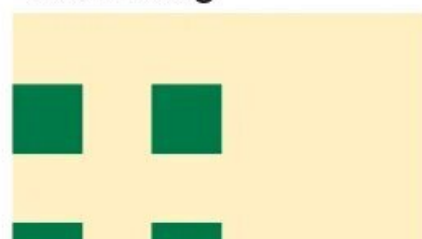
-  Conservation areas
-  Average-yield agriculture
-  High-yield agriculture

Conventional farming



Has reduced large areas of contiguous wild habitat required by many specialist species. Common non-specialists have also declined.

Land sharing



Land sparing



Credit: *Nature* (2023). DOI: 10.1038/d41586-023-01979-x

"Green" farming policies may accelerate global biodiversity loss, two leading academics have warned.

Rewilding, organic farming and the "nature friendly farming" measures included in some government conservation policies risk worsening the global [biodiversity](#) crisis by reducing how much food is produced in a region, driving up food imports and increasing [environmental damage](#) overseas.

In an article published today in the journal *Nature*, Professor Ian Bateman of the University of Exeter and Professor Andrew Balmford of the University of Cambridge urge policy-makers to consider a bolder approach known as "land sparing," which they argue is cheaper, more effective, and avoids the displacement of food production and loss of wildlife habitats overseas.

Land sparing involves finding lower-impact ways to boost yields in farmed areas in order to make space for larger, non-farmed areas of the landscape to be put aside for nature without increasing imports and damaging overseas wildlife.

The approach has been overlooked by policymakers, they say, because of a failure to consider the wider consequences of changes in [land management](#), arguing that changes that boost wildlife locally seem superficially attractive, but if food production is reduced there are unavoidable knock-on effects elsewhere, which must also be taken into account.

They also cite the influence of the "Big Farm" lobby in maintaining the status quo in agricultural policy, with land-sharing subsidies allocated using a flat rate per hectare, which disproportionately benefits the biggest farms—resulting in the largest 12 percent of farms taking 50 percent of all UK taxpayer subsidies.

Their article debunks some of the benefits to biodiversity of three widely-advocated green farming approaches.

They argue that while policy funded measures such as reducing the use of pesticides and fertilizers can sometimes increase populations of more common animals and plants on farms it does little for endangered birds, invertebrates, plants and fungi species that need larger stretches of non-farmed habitat—and by lowering yields can also make matters far worse for overseas biodiversity.

Rewilding initiatives, where large areas of land are taken out of farming, can indeed benefit locally endangered species. But unless other areas see compensating increases in food output then this reduces local production, increases demand for food imports, and so damages biodiversity overseas.

They also argue that [organic farming](#), where crops are produced without manufactured fertilizers and modern pesticides, is even more likely to be damaging. Relatively few species will benefit in the farmed area, and the substantially lower yields from this type of farming risk greatly increasing the need for food imports, and hence a country's impacts on biodiversity elsewhere.

Land sparing, in contrast, involves retaining or creating sizeable blocks of unfarmed land containing larger populations of the many species that depend on natural habitats, as well as boosting farm yields elsewhere in the region so that overall production is maintained or even increased.

Promising methods to boost crop and livestock yields more sustainably than current high-yield practices include genomic screening and gene editing to accelerate animal and crop breeding; using new advances in aquaculture to produce high value foods with much lower environmental impacts; and, in tropical countries, greater access to improved pasture and veterinary care.

The researchers point to field studies on five continents that consistently

show how land sparing delivers far greater biodiversity gains than conventional 'nature friendly farming' policies.

They say it is likely to cost a great deal less as well: [a survey of UK farmers last year](#) found that land sparing could deliver the same biodiversity outcomes for birds as conventional approaches but at 48 percent of the cost to taxpayers, and with a 21 percent lower impact on food production.

Ian Bateman, a Professor of Environmental Economics at the University of Exeter Business School who has advised seven UK secretaries of state for the environment in the past decade, said, "The stakes are too high for policymakers to continue to ignore the promise of land sparing when so much research demonstrates that it is a far more effective approach than many of the strategies being deployed.

"Unless researchers and policymakers assess the overall, global effects of interventions aimed at addressing biodiversity loss and [climate change](#), poor decisions that are unsupported by the data will at best under-deliver, and at worst exacerbate existential threats posed by the extinction and climate crises."

Andrew Balmford, a Professor of Conservation Science at the University of Cambridge who has led 20 years' work investigating how to reconcile food production with biodiversity conservation, added, "This issue has become even more urgent since last December when many countries agreed to help meet the Convention on Biological Diversity's goal of protecting 30 percent of the planet's land and oceans by 2030. Exactly how this 30 percent will be put aside—and how we meet humanity's growing needs on the rest of planet—will in large part determine the biodiversity consequences of this ambitious commitment."

More information: Ian Bateman et al, Current conservation policies

risk accelerating biodiversity loss, *Nature* (2023). [DOI: 10.1038/d41586-023-01979-x](https://doi.org/10.1038/d41586-023-01979-x)

Provided by University of Exeter

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