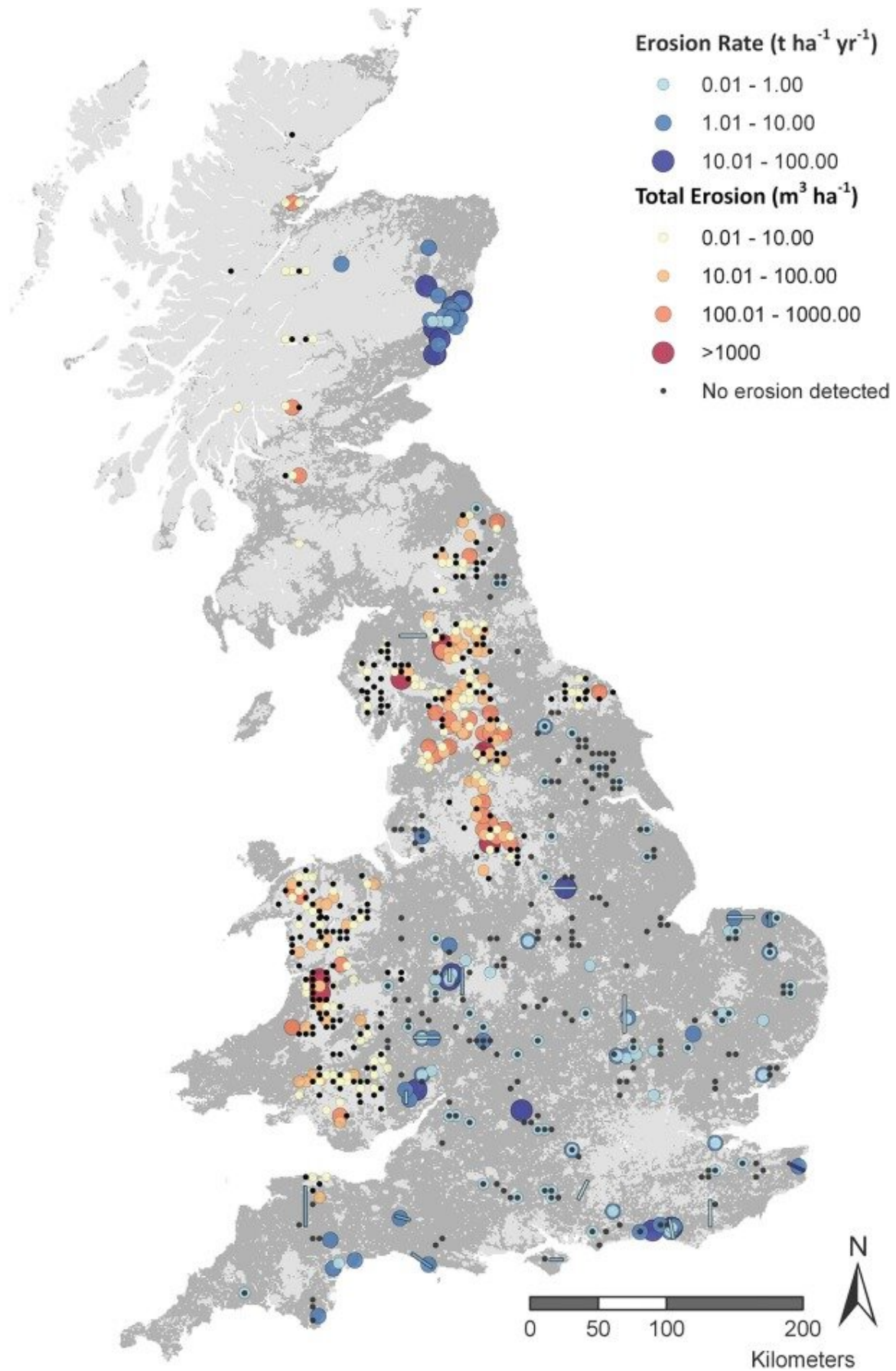


Unsustainable soil erosion in parts of U.K.

April 22 2020



Credit: *Geoderma* (2020). DOI: 10.1016/j.geoderma.2020.114378

New research demonstrates unsustainable levels of soil erosion in the U.K..

The study examined more than 1,500 existing records and found 16% relating to arable (crop-growing) land showed [erosion](#) above "tolerable" levels—meaning rates of [soil](#) loss are significantly greater than new soil formation.

This may not reflect the national picture, as the study has highlighted that existing studies are frequently biased towards places which have eroded in the past.

However, the findings still show that erosion can occur at problematic levels under a range of conditions, meaning soil resources are at risk in the medium to long term.

"Unsustainable rates of erosion reduce [soil fertility](#) and can have devastating environmental impacts downstream in waterways," said lead author Dr. Pia Benaud, of the University of Exeter.

"If we don't manage it properly in the U.K. and around the world, it will affect our ability to feed our growing population.

"Soil run-off also leads to significant extra sediment in waterways, increasing the damage to ecology and risk of flooding downstream."

Land management affects erosion rates. For example, leaving fields

bare, ploughing up and down a hill (instead of across it) or growing arable crops on [steep slopes](#) raise the risk of erosion during heavy rain.

Soil types and local geography also affect erosion rates, though erosion is shown to occur on any soil that is intensively farmed, especially when rainfall is extreme.

"Current U.K. legislation, particularly existing farm subsidies, pay for land to be managed in a way that leads to unsustainable erosion, with public funding," Dr. Benaud said.

"We argue that this should be addressed as a matter of urgency by policymakers, with soil protection at the heart of forthcoming environmental land management schemes."

Despite raising concerns about U.K. erosion above the "tolerable" rate of one metric tonne per hectare per year, the study says erosion rates in the U.K. are relatively low compared to the rest of Europe, demonstrating that erosion is a serious global problem.

The highest U.K. erosion rate found was more than 140 tonnes per hectare per year—recorded on a single field in West Sussex in the early 1990s.

"Analysing existing research, as we have done here, it is difficult to define what constitutes a soil erosion 'problem', and to know how serious an issue this is in the U.K.," said Professor Richard Brazier, a co-author on the paper and Director of Exeter Centre for Environmental Resilience, Water and Waste.

"What is clear, however, is that soil erosion rates of the order reported will lead to serious impacts on soil productivity if left unchecked.

"More information is needed to fill the gaps in understanding; the open access geodatabase and interactive web-map published alongside this paper offer a platform for the development and sharing of soil erosion research, which will hopefully allow for the formulation of effective policy and better protection of our soil, which is so critical to food production and genuine ecosystem services such as carbon storage."

The study, published in the journal *Geoderma*, is titled "National-scale geodata describe widespread accelerated soil erosion."

More information: To access the database, visit www.tinyurl.com/SoilErosionMap or github.com/piabenaud/SoilErosionMap

Pia Benaud et al. National-scale geodata describe widespread accelerated soil erosion, *Geoderma* (2020). [DOI: 10.1016/j.geoderma.2020.114378](https://doi.org/10.1016/j.geoderma.2020.114378)

Provided by University of Exeter

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