

Science for Environment Policy

Wind erosion risk mapped in first ever pan-European assessment

Over 8% of land in Europe could be at moderate-to-high risk of wind-driven soil erosion, a new study has estimated. In the first assessment of its kind, the researchers produced maps which show wind erosion risk across 36 countries. This information could help guide actions to tackle land degradation.

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Source: Borrelli, P., Panagos, P., Ballabio, C., *et al.* (2014). Towards a pan-European assessment of land susceptibility to wind erosion. *Land Degradation & Development*. DOI:10.1002/ldr.2318. This study is free to view at:

<http://onlinelibrary.wiley.com/doi/10.1002/ldr.2318/abstract>

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Soil erosion by wind is, to a certain extent, a natural process that has always played a role in shaping the land. However, human activities which affect soil are accelerating wind erosion, particularly some agricultural practices, such as overgrazing of pasture or leaving cultivated land to lie fallow for extended periods. Erosion removes the [soil](#) richest in organic matter and nutrients and causes permanent damage to the [land](#), which makes it difficult to farm in future. It can also affect built infrastructure, for example, if soil blows onto railway tracks.

This study assessed the susceptibility of land to wind erosion across the EU-28, plus Albania, Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia, Kosovo, Montenegro, Norway, Serbia and Switzerland. Risk was assessed based on three important factors that lead to erosion:

- 1) **Climate** - particularly wind speed and factors which increase topsoil moisture content (as more moisture reduces erosion risk).
- 2) **Soil type** - the researchers calculated the proportion of soil that is erodible, based on factors including soil and clay content.
- 3) **Land use** - the researchers calculated the percentage of land covered by vegetation and the 'roughness' of the land, as plants and rough terrain reduce erosion risk.

These data were combined to create the Index of Land Susceptibility to Wind Erosion. This ranks susceptibility into five categories which range from 'no susceptibility' through to 'high susceptibility'.

Of the 36 countries, Denmark was calculated to have the highest percentage of susceptible land: 32.6% was rated moderately susceptible, and 16.2% was highly susceptible. This was followed by Cyprus with 29% and 6.4% of land rated moderately and highly susceptible, respectively. They also note alarmingly high susceptibility values in several locations throughout the Mediterranean region.

Soil erosion by wind was not shown to be a significant threat in Slovenia, Portugal, Luxembourg and the eastern Baltic States. One hundred per cent of land in Lithuania and Luxembourg, for instance, is at no risk at all, the Index suggests.

Across all the countries, 25.8 million hectares of land was rated moderately susceptible, which corresponds to 5.3% of the total land area. Thirteen million hectares were considered highly susceptible, which is 2.9% of the total area. A complete map of risk across Europe is available to view and download for free at the [European Soil Data Centre](#), as well as in the study itself (see source information below).

The researchers note that the maps' accuracy could be improved by considering other factors on wind erosion, such as specific agricultural practices and conditions, including tillage, field sizes and irrigation. However, they suggest that this preliminary assessment is an important step towards providing a solid foundation of data that policymakers can use to design effective soil conservation strategies. It is particularly relevant to the EU's [Thematic Strategy for Soil Protection](#), as well as [biodiversity](#) protection, they say.

