Mapping changes in the Environmentally Sensitive Areas to Desertification in Mainland Portugal (2000-2020)

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Abstract

Susceptibility to desertification increases as climate change leads to warmer and drier conditions, increasing fire risk and restricting plant growth. In Mainland Portugal, the regions with increasing aridity have also been subject to major changes in the socio-economic tissue, with population loss, larger farm areas and the overreach of irrigated agriculture to marginal lands leading to an increase in land use intensity. However, the last effort to map environmentally sensitive areas to desertification in mainland Portugal was in 2004. This study aims to apply an adapted Medalus method for mapping environmentally sensitive areas to desertification at the national level in mainland Portugal over twenty years (2000-2020). Results show both an increase in areas susceptible to desertification (58% to 74% of the country) and in intensity (50% to 59% of the area classified as 'very highly' or 'critically' susceptible). Desertification is a growing threat, especially for rural areas in inner and southern Portugal. This is mainly due to increasing aridity and land use intensity. Future studies should focus on understanding the controlling factors at the landscape and property scale, as well as including other variables such as soil carbon content and land management practices.

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