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Structural fire risk of Portugal

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Portugal is on the top of the European countries most affected by vegetation fires which underlines the importance of the existence of an updated and coherent fire risk map. This map represent a valuable supporting tool for forest and fire management decisions, focus prevention activities, improve the efficiency of fire detection systems, manage resources and actions of fire fighting with greater effectiveness. Therefore this study proposed a structural fire risk map of the vegetated area of Portugal using a deterministic approach based on the concept of fire risk currently accepted by the scientific community which consists in the combination of the fire hazard and the potential economic damage. The existing fire susceptibility map for Portugal based on the slope, land cover and fire probability, was adopted and updated by the use of a higher resolution digital terrain model, longer burnt area perimeter dataset (1975 – 2013) and the entire set of Corine land cover inventories. Five susceptibility classes were mapped to be in accordance with the Portuguese law and the results confirms the good performance of this model not only in terms of the favourability scores but also in the predictive values. Considering three different scenarios of (maximum, mean, and minimum annual) burnt area, fire hazard were estimate. The vulnerability scores and monetary values of species defined in the literature and by law were used to calculate the potential economic damage. The result was a fire risk map that identifies the areas more prone to be affected by fires in the future and provides an estimate of the economic damage of the fire which will be a valuable tool for forest and fire managers and to minimize the economic and environmental consequences of vegetation fires in Portugal.

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