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Assessment of the vulnerability of the wildland-urban interface (WUI) in the Valencian Region as a basis for the calculation of the fire severity index.

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Abstract

With the aim of improving the environmental and social management of emergencies, several newly-defined layers of cartographic information have been integrated to identify the areas with the highest concentration of population and properties. Using fuel models, digital terrain models, the national topographic base and cadastral data, the variables of "fuel danger rating", "combustible and non-combustible items", "slope hazard" and "type of infrastructure" have been obtained. By using weighted valued for each layer, a complete cartography of vulnerability for the Valencian Region has been defined, to be used as a basis for the the calculation of the fire severity index, in accordance with current forest fire legislation. The resulting map indicates the current state of the interface and its vulnerability, which can be used at a real time for extinction purposes by including dynamic biophysical factors. As an advantage for prevention purposes, this cartography has been used to calculate, by means of simulations, the propagation nodes that could affect the interface in order to propose the necessary actions to minimise the effect of the forest fires on the WUI.

Keywords: WUI, vulnerability, severity

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