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Data Article

The wildland-urban interface raster dataset of Catalonia

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ABSTRACT

We provide the wildland urban interface (WUI) map of the autonomous community of Catalonia (Northeastern Spain). The map encompasses an area of some 3.21 million ha and is presented as a 150-m resolution raster dataset. Individual housing location, structure density and vegetation cover data were used to spatially assess in detail the interface, intermix and dispersed rural WUI communities with a geographical information system. Most WUI areas concentrate in the coastal belt where suburban sprawl has occurred nearby or within unmanaged forests. This geospatial information data provides an approximation of residential housing potential for loss given a wildfire, and represents a valuable contribution to assist landscape and urban planning in the region.

Specifications Table

Subject area	Environmental sciences, forestry, urban planning
More specific subject area	Natural hazards

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Type of data	Geospatial data
How data was acquired	*Does not apply*
Data format	Raster file (*.tif)
Experimental factors	*Does not apply*
Experimental features	We used a geographical information system (GIS) analysis to reclassify the residential housing at pixel level into different classes considering structure density and the surrounding vegetation.
Data source location	Autonomous community of Catalonia (Spain).
Data accessibility	The public repository of the University of Lleida: http://hdl.handle.net/10459.1/60480
Related research article	Martinuzzi, Sebastán; Stewart, Susan I.; Helmers, David P.; Mockrin, Miranda H.; Hammer, Roger B.; Radeloff, Volker C. 2015. The 2010 wildland-urban interface of the conterminous United States. Research Map NRS-8. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 124 p. [includes pull-out map]. https://doi.org/10.2737/NRS-RMAP-8.

Value of the Data

- Locations of valued assets within WUI can help prioritize risk mitigation activities at fine scales, including fuel treatments, ignition prevention programs, and evacuation or self-protection plans.
- These geospatial information data can be used to promote fire adapted communities when used in combination with fire modeling results and studies addressing social vulnerability.
- WUI maps can inform wildfire risk management in densely populated communities where large numbers of residential houses are exposed to recurrent wildfire risk.
- The WUI raster dataset can assist urban planning and policy making at a wide range of scales, from local to regional.

1. Data

The raster dataset of this article includes a detailed assessment (150-m resolution) of the wildland-urban interface for the 3.21 million ha autonomous community of Catalonia (Northeastern Spain) (Fig. 1). The WUI is the area where residential structures intermingle with hazardous vegetation and where most housing losses and human fatalities are concentrated in catastrophic wildfire events [1–4]. This WUI raster map contains non-vegetated low housing density, non-vegetated high housing density, vegetated (no housing), dispersed rural housing, intermix housing and interface housing classes [5].

Dispersed rural, intermix and interface community classes respectively occupy 0.61% (19,559 ha), 2.96% (94,955 ha) and 7.16% (229,952 ha) (Fig. 2A) of Catalonia. Interface WUI occupies the widest areas in the coastal belt, and intermix WUI is more typical in central Catalonia and the Pre-Pyrenees region to the north. In the southwestern plain of Lleida, both interface and intermix WUI areas are limited due to large areas of irrigated agricultural lands. Here, only residential houses constructed on the transition edges between irrigation and dryland or forest patches are classified as WUI. Although the majority of residential house structures ($>60\%$) are located in the interface WUI ($n=517{,}571$ structures), intermix ($n=93{,}113$ structures) and disperse rural classes ($n=8{,}693$ structures) still account for a substantial number of structures at risk to wildfire (Fig. 2B).