

New methodology for mapping wildfire risk in the wildland-urban interface

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Wildland Urban Interface

The Wildland Urban Interface (WUI) is the area where human built structures are in close contact with wildland vegetation. WUIs are considered to be hotspots during wildland fires due to the presence of both high value assets and high fuel loads. They are also potential areas of ignitions, due to the proximity to anthropogenic activities. WUIs are pivotal in modern wildland fire risk management.

The CROSSIT SAFER Project

Action 3.2.3 of the project CROSSIT SAFER funded by Cooperation Programme INTERREG V-A Italy-Slovenia 2014-2020 (www.ita-slo.eu/en/crossit-safer) is aimed at finding an innovative method to map and assess forest fire risk with a focus on WUI areas. This project uses advanced remote sensing technologies to capitalise on the outputs of previous EU projects (Fig. 1).

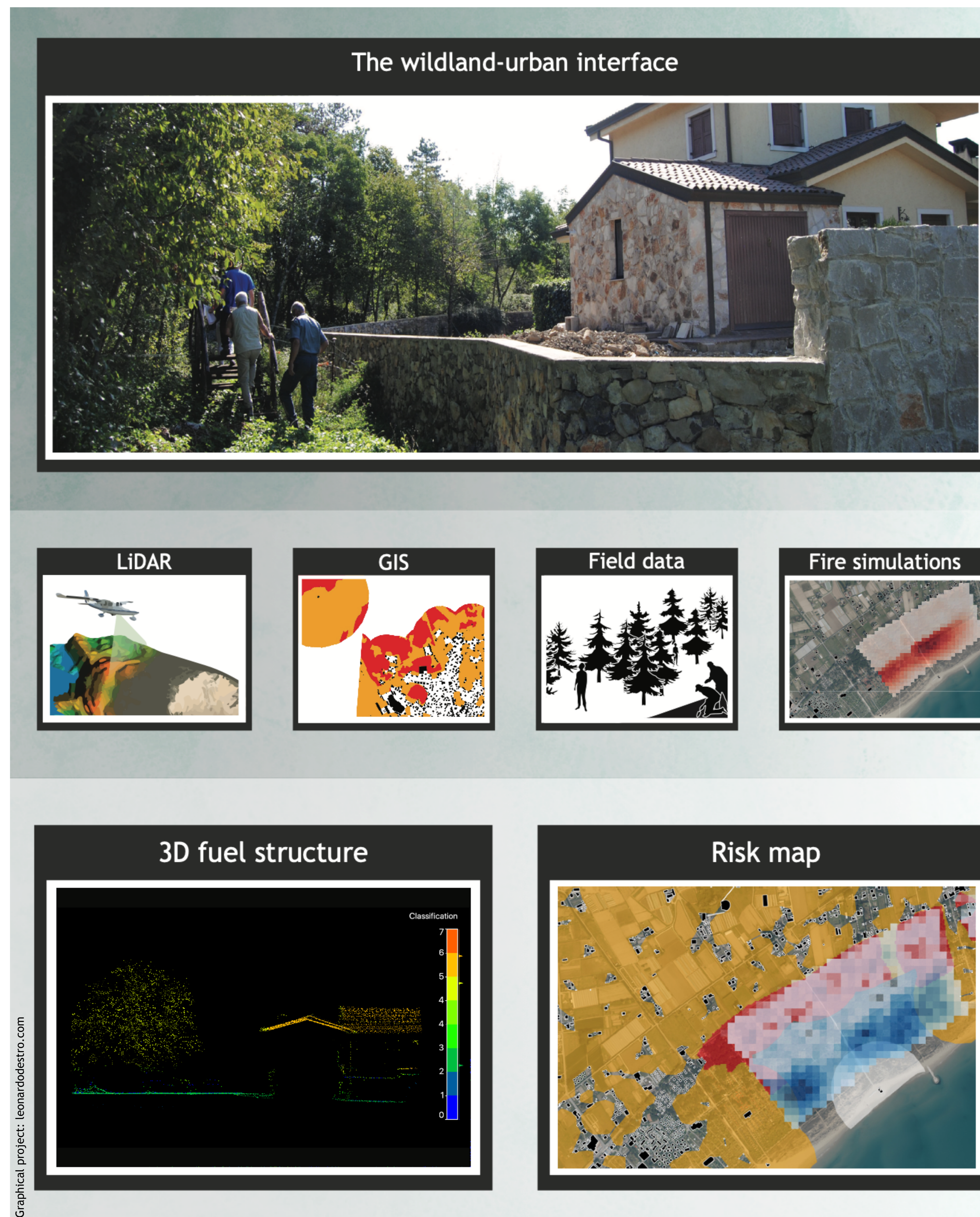


Fig. 1 Study areas for the Action 3.2.3 of CROSSIT SAFER

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Applying new technologies for mapping fire risk in the WUI

Characterising and mapping forest fire risk across the landscape is a fundamental step for prioritising mitigation actions. The availability of accurate and up-to-date information on fuel load and spatial arrangement is key to obtaining a proper and effective risk assessment. Fire spread and intensity are strongly related to fuel continuity both horizontally and vertically. High precision LiDAR data can provide a description of fuel vertical structure, greatly improving fuel type maps and reducing the need for collection of field data for calibration of the mapping tools and validation of the outputs. We are testing if LiDAR data can also be used to assess the extent of the WUI, fuel conditions and other features of interest (e.g. spatial distribution of anthropic assets, presence and characteristics of defensible spaces).

Implications and perspectives

Land managers will benefit greatly from resulting fire risk maps, including closer-to-reality fuel and asset arrangement, allowing them to better allocate resources for risk mitigation. In addition, based on fire risk mapping, silviculture interventions can be designed to reduce fuel load and continuity maximising their effectiveness to lower fire risk. Specific fuel management options can also be planned in the proximity of buildings to increase their safety (Fig 2).



Fig. 2 Wildland fire risk mitigation actions in the WUI