Toward a UK Fire Danger Rating System: Understanding fuels, fire behaviour and impacts

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OVERVIEW

Fire danger is the combination of both constant and variable factors that affect the initiation, spread, and ease of controlling a wildfire. **Fire Danger Rating Systems (FDRS)** have a primary objective of assessing fuel and weather conditions, and provide broad estimates about fuel flammability and the potential fire behaviour under those conditions.

The UK has a complex fire regime, including traditional management burning and episodic wildfires. In addition, a mix of land cover types and a diverse rural-urban interface means there are distinct fire challenges: human life and property as well as land assets and ecological disturbances.

At present the UK does not have a fit-for-purpose FDRS. This new 4-year NERC-funded project aims to address this challenge.

Overarching project aim: to establish and test the scientific underpinning and key components required to build an effective, tailored UK fire danger rating system for use in establishing the likelihood and impact of current and future fire regimes.

PROJECT OUTLINE

Duration: Jan 2020 – Dec 2023

WP1 - Fuel Mapping: Produce UK fuel maps at the national, landscape and site-level; develop a site-level understanding of fuel structure; proof-of-concept dynamic fuel mapping.

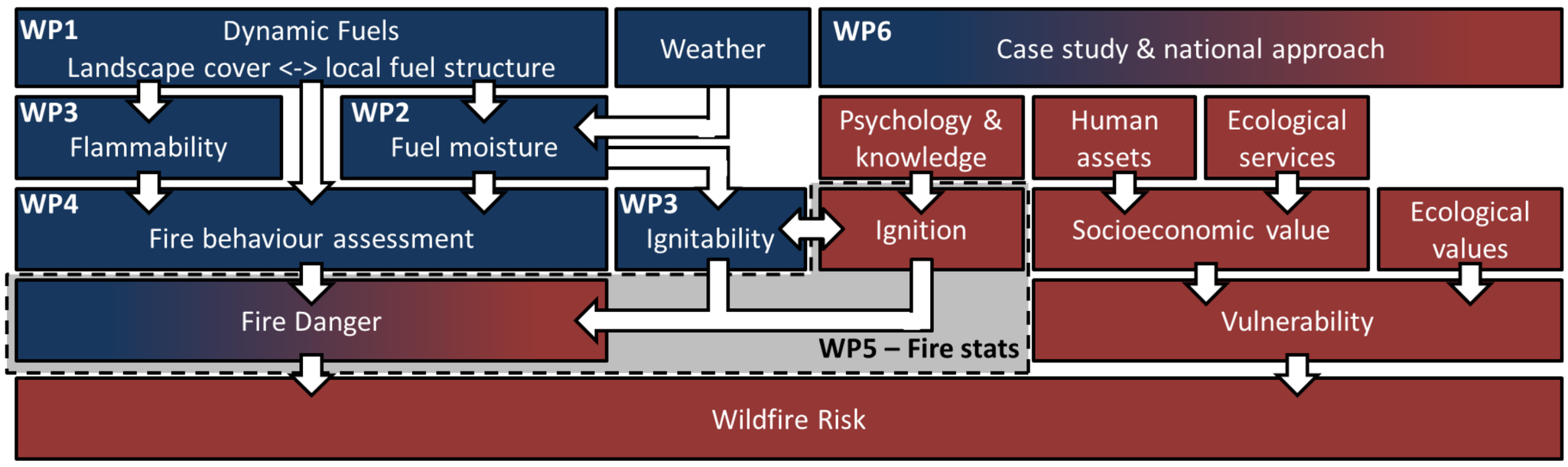
WP2 - Fuel Moisture: Assess the moisture regimes in key fuel types across UK landscapes.

WP3 - Flammability: Determine flammability, energy content and ignitability of UK fuels to establish UK fuel models.

WP4 - Fire Behaviour: Determine the ranges of UK fire behaviour for key fuel types.

WP5 - Assessing against fire occurrence data: Further spatial and temporal analysis of wildfire datasets (e.g. IRS); historical fire regime assessment looking at trends and 'hotspots'.

WP6 - UK Risk Assessment: Build on existing knowledge of Wildfire Threat Analysis through new case studies; proof of concept national level assets and population at risk maps.



Sections in blue map onto WPs; some sections in red are explored through use of IRS data to explore national ignition patterns (WP5) and a case study approach to wildfire threat analysis (WP6). Further development of the red sections is needed at a national scale for a fully operational FDRS, but are outside the scope of this project.

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