KfWf has won NERC funding with the Forestry Commission for a new project on wildfire threat analysis

A pilot project on wildfire threat has been funded by NERC under their Probability, Uncertainty and Risk in the Environment (PURE) Knowledge Transfer Associate (KTA) scheme. It aims to aid strategic decision-making by forest managers and planners about forest fire risk in the rural-urban interface of southeast England.

Places like Australia or California grab the headlines, but Britain also faces an unrecognised wildfire problem too. This collaboration with the Forestry Commission (FC) shows that it is being taken seriously in the UK too.

Case study

The socio-economic impacts of wildfire are potentially high in southeast England with its extensive rural-urban interface, a population of over 8 million and the concentration of Critical National Infrastructure. The site-scale case study will draw on experience gained from Crowthorne Wood, part of Swinley Forest, Berkshire, which suffered a major fire in April-May 2011.

Collaborative, interdisciplinary project

The project is an inter-institutional collaboration between the University of Manchester and the Forestry Commission. It will be carried out by an interdisciplinary team: Julia McMorrow, Senior Lecturer and NERC KE Fellow on the Knowledge for Wildfire (KfWf) project, is from Geography in the School of Environment, Education and Development (SEED). She will co-ordinate the project for the University of Manchester, working alongside Jonathan Aylen from Manchester Business School and Dr. Aleksandra Kazmierczak, a SEED Research Fellow from Planning and Geography, who will be the main KTA.

Rob Gazzard, wildfire advisor for FC, will co-ordinate the Forestry Commission's input to the project, working with Professor Andy Moffat and Dr James Morison from Forest Research, the research agency of the Forestry Commission.

Combining two frameworks

The team will assess the applicability of a combining two risk assessment frameworks; Wildfire Threat Analysis (WTA) as implemented in New Zealand (Majorhazi and Hansford, 2011), and the Crichton risk triangle approach, which was developed for flood risk assessment in the UK (Crichton, 1999). WTA has three components: risk of ignition, hazard of fire spread and impact on values at risk (socio-economic as well as environmental). The risk triangle uses hazard, exposure and vulnerability.

GIS approach

Both frameworks lend themselves to a GIS approach. Data layers are mapped and weighted, in this case, using the expert judgement of stakeholders. The resulting spatial threat/risk model can be queried to simulate different scenarios, such as a worse case, actual case and best case scenario of minimal fire spread. If costs can be assigned to the values at risk, actual and avoided costs can then be calculated. The impact of different management measures to reduce wildfire risk can also be compared. The project will scope the feasibility of building such a model initially for a site-scale case study, and will demonstrate some of the uncertainties involved.

The project will run for a six-month period to the end of May 2014.

Further reading

Crichton, D. (1999). The risk triangle. In: Natural Disaster Management, ed. J. Ingleton. Tudor Rose, London, pp. 102-103.

Majorhazi, K and Hansford, A. (2011). New Zealand Wildfire Threat Analysis. http://www.nrfa.org.nz/Operational%20documents/WTA_Wookbook.pdf

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