



Environmental Research &
Information Consortium Pty Ltd
(ABN) ACN (81) 055 194 771
Ph 02 4842 8182
Ph 02 6161 3716
Fax 02 4842 8183
info@eric.com.au
www.eric.com.au

Fire Mapping and Management

Introduction

ERIC provides a comprehensive suite of products and services to address fire management. ERIC personnel have experience in implementing burns and conducting fire research as well as developing information and plans.

Approach

The approach is based on reducing risk through the development of a reliable information base. The information is used:

- for fire management and hazard reduction planning
- as core information when fighting wildfires.

The information is provided as digital maps in GIS to ensure effective and efficient access and to facilitate application. This presentation also allows rapid production of purpose specific maps as desired.

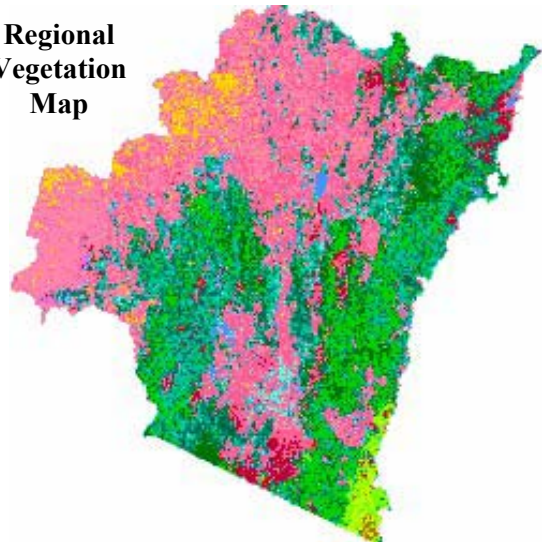
Remotely sensed imagery can also be used to provide real time information on fires. The current options are diverse and include a range of airborne and satellite sensors but all will be superseded by purpose specific satellites. Results from an existing research satellite illustrate that the technical requirements can readily be met.

The following identifies applicable ERIC products that address fire and fuel mapping, risk assessment and management planning. These represent subsets of other ERIC products and methods used to develop client capacity in planning and management.

Vegetation & Fire Hazard

Vegetation provides the fuel for fires as fuel accumulation depends on the type of vegetation, seasonal conditions and the history of burning and grazing.

**Regional
Vegetation
Map**



The VegMap product provides maps of vegetation using satellite imagery. Field observations are used to determine the vegetation attributes associated with the mapped land use and vegetation patterns. Use of satellite imagery reduces costs and improves reliability. The imagery also allows monitoring of changes over time, as with mapping the patterns and severity of burns and recovery.

The vegetation mapping can be linked with models of the potential for plant growth to improve the cost-effectiveness of monitoring fuel loads. This is applicable to grasslands where results need to be corrected for losses of fuel arising through land uses such as

grazing. The detailed information is used for planning and management of fire hazard reduction.

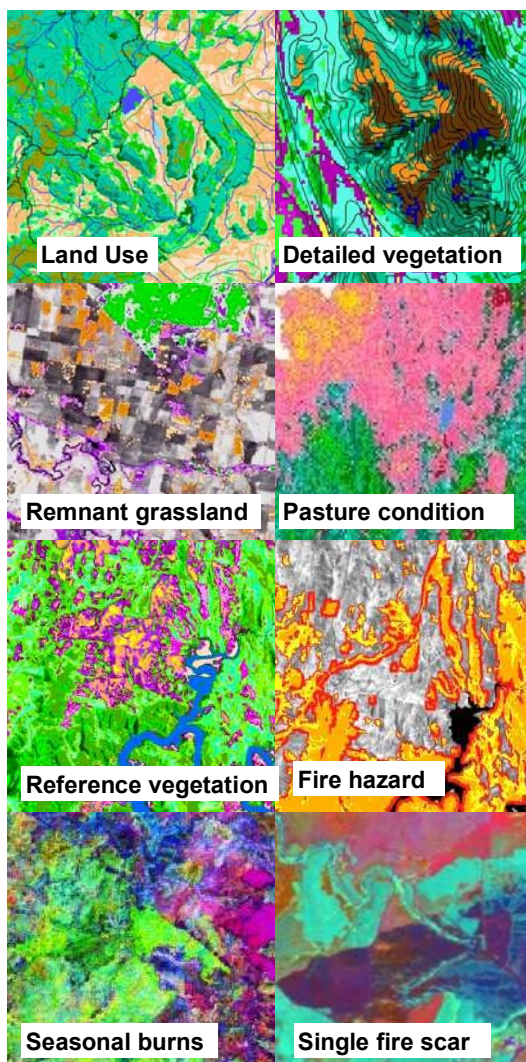
The reference vegetation map can also be used to map fire hazard, as with producing a fire hazard map to the specifications of the NSW Rural Fire Service.

Fire Scar and Impact Mapping

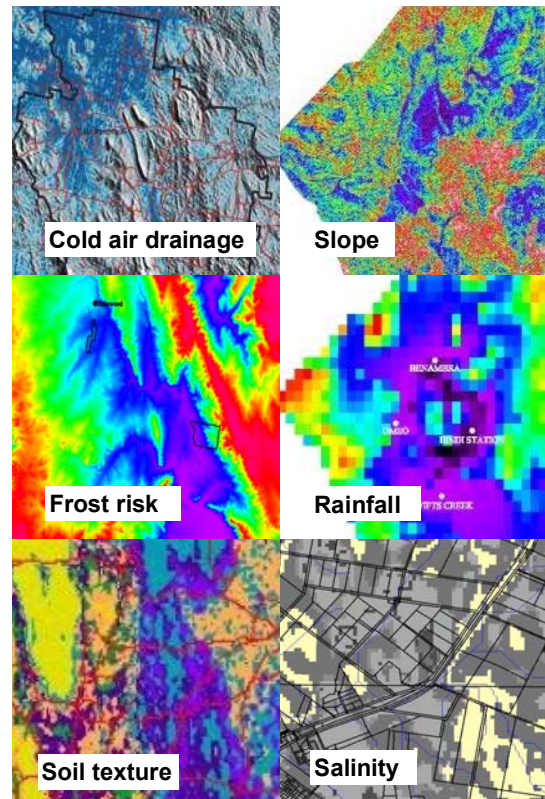
Fire scars can readily be mapped by the spectral characteristics of burnt areas or by direct comparison of pre and post fire images. The latter provides highest resolution but the pre-fire condition has often to be synthesised from multiple images. Alternate forms of image analysis can provide information on the severity of burn as well as mapping the extent of fires.

Recovery from Fire

satellite imagery provides a cost effective means of monitoring the recovery of



vegetation from impacts such as fire. The analysis identifies recovery of vegetation in areas that visually appear to have remained the same. The analysis is highly sensitive and cost effective, particularly when applied across regions.



CliMap

Climate products address the general constraints on fire risk by climate and terrain that determine the fire environment. Terrain also determines aspects such as access, fire behaviour and the vegetation/ environmental impact and recovery.

Climate surfaces map the general climatic constraints and can be used to map regional spatial variations in fuel accumulation due to factors such as temperature and rainfall. Elevation data can be analysed to identify slopes, catchments and patterns of water / sediment / cold air accumulation. Such information is used to interpret the fire response and to manage the recovery.

SoilSelect

Post fire impact and management depend on the soil due to effects on erosion and rates of

vegetation regrowth. SoilSelect maps regional patterns of soil properties that determine land management at paddock level detail. The information can be used in site selection to determine appropriate species selection and management practices. The regional coverage makes the information applicable to planning as well as management.

Risk Assessment

The generic risk assessment methodology provides a rapid and comprehensive means of ensuring that all planning and management issues are addressed. The method allows deficiencies to be pinpointed as well as providing a statistical evaluation of overall performance. Such assessment provides the basis for the development of plans and actions essential to demonstrate environmental and management compliance.

The risk assessment framework can accommodate the requirement for self assessment. The method can therefore be used as a rapid and cost-efficient screening tool to identify priority areas requiring development.

PRESENTATION OF RESULTS

The resource information is developed as discrete data layers and presented as digital files for application using GIS. The information can readily be integrated with existing information and be reliably used in modelling and the analysis of relationships.

Information systems are developed for clients to address their specific needs. Delivery mechanisms range from the presentation of files to the provision of a comprehensive service that includes acquisition of software and hardware, development, installation and maintenance of the information, training of personnel, and provision of online support.

Risk Management Assessment

