



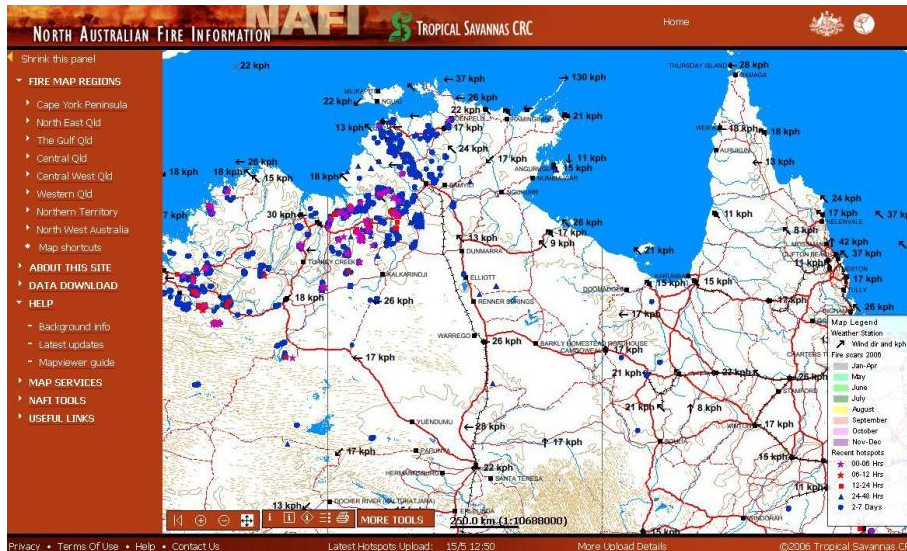
Australian Government
Geoscience Australia



Natural Heritage Trust



The North Australian Fire Information Website



Overview

The *North Australian Fire Information (NAFI)* website www.firenorth.org.au displays information about northern bushfires on a web-based map for north Australian fire managers. The bushfire information includes hotspots (locations of burning fires), fire scars (recently burnt country), fire weather, fire history, lightning strikes etc. and this data can be displayed against various backgrounds including topographic maps and satellite images.

The data is sourced largely from government agencies such as Landgate WA, Geoscience Australia and the Bureau of Meteorology. The fire scar mapping has been produced by the Tropical Savannas CRC, Bushfires NT and the Cape York Peninsula Development Association.

The site has received significant funding support from the Australian Federal Government's Natural Heritage Trust (NHT).

How does NAFI differ from the *Firewatch* and *Sentinel* sites?

The *Firewatch* and *Sentinel* fire-tracking sites are both excellent websites, however, unlike these sites, the *NAFI* website is tailored to meet the needs of north Australian fire managers who have to manage savanna grass or woodland fires over large areas often with limited resources. These fire managers are often pastoralists or Indigenous ranger groups rather than fire management agency staff. The *NAFI* website was developed with, and for, these end-users and consequently has a number of distinctive features:

- The hotspots are colour-coded to show 6hr, 12hr, 24hr, 48hr and weekly intervals to reflect the pace of these large but often slow-moving fires
- Fire scars, mapped from MODIS satellite images using recognition software, are updated weekly during the northern fire season. These are colour coded by month and are used as a guide to the likely path of fires and as a guide to the effectiveness of fuel-reduction burns.
- The viewing settings of the site (when hotspots and fire scars and other map features appear as you zoom in and zoom out) have been tailored to the needs of landscape-scale fire managers who want to see fire behaviour at the scale of 10-100s of km.
- The site has a number of pre-set map views, suggested by end-users to enable quick access to fire maps. The website has also been developed to allow quick access to maps for users with low connection speeds.

As well as displaying fire data in a way that suits northern users, the *NAFI* website continually incorporates feedback from users. For example the following features were requested by users and incorporated into the site in recent years:

- Tools for downloading fire spatial data into GIS software
- Layers that show lightning strikes, fire history, cloud-cover, weather data
- A hotspot email notification service, which can also be extended to SMS messages by the fire managers if needed.
- A personalization tool that allows users to set layers as default settings
- World Aeronautical Chart maps as an intermediate background layer
- Ability to view *NAFI* colour-coded fire data in *Google Earth*
- Ability to view multi-layer *NAFI* maps in hand held GPS units for use in aerial operations
- Area and distance measuring tools
- A simplified map tool bar
- Individual views that can be saved as web-favourites or as map shortcuts.

The effort put into ensuring ease of use and appropriate content means that the site has been taken up widely (see usage section below). Both government and non government networks have been used to spread the word about the site. By meeting their specific needs and by responding to their feedback in this way, there is now significant usage, support and ownership of *NAFI* site by northern fire managers.

In this way the *NAFI* site adds significant value to the data produced by agencies like Landgate who operate *Firewatch* and Geoscience Australia who operate *Sentinel* as these agencies cannot easily tailor their sites to the needs of the relatively small number of northern fire managers.

Not just a website

A key advantage of the *NAFI* process is not the website itself, but the networks, relationships, skills and knowledge that lie behind the site. The *NAFI* team now has good working relationships with a range of fire managers from pastoralists to agency staff and Indigenous managers as well as with a range of researchers – and they have built up a detailed knowledge of web and GIS technology and NRM. It is this

knowledge and networking that allows the site to respond quickly and effectively to user feedback and to evolve with changing technologies and user needs.

Usage and Impact

The fully developed *NAFI* site has been operating since 2004 after a pilot site was launched in 2003. The site is now a commonly used tool of north Australian fire managers from Broome to Townsville. In the words of Brent Williams, former CEO of the Bushfires Council of the NT

“The *North Australian Fire Information* web site has been the single most important improvement in fire management technology in the NT in the past 10 years. It has given land managers accurate daily information on location and extent of fires, and has proven an invaluable tool in both strategic fire management planning and monitoring, and in tactical fire fighting responses.”¹

Usage of the site has increased steadily since 2003² and the site now serves thousands of maps a day during the main fire season – the late dry season. Usage of the site varies predictably throughout the year – with low usage in the wet season, which then rises once preventative burning starts in the fire-prone regions of the northern NT and the Kimberley, usually in May. Queensland usage tends to increase later in the year in line with the later start to preventative burning and the usage peaks in the late dry season when wildfires are prevalent across northern Australia.

Evidence from usage statistics, user networks and surveys suggest that the *NAFI* site is mostly used by northern fire managers. Among these managers, the site is so well used by pastoralists, particularly in the fire-prone regions of the NT Top End and Cape York Peninsula and the Northern Gulf that is often one of the few regular sites they use along with the BOM site. It is also used by Indigenous Ranger groups – particularly those associated with the Western Arnhem Land Fire Abatement Project (see section on Carbon Offsets below). One reason the site is used by these groups appears to be because it not only has relevant information for the north, but is relatively easy and quick to use with an intuitive interface.

The site is now being used more extensively throughout remote Queensland as it is being promoted in the NHT funded Rangelands Fire Project. This project aims to improve fire management and understanding of fire in the Queensland rangelands. Across northern Australia the *NAFI* site is being used by Regional NRM groups and the site provides services that contribute to targets in the INRM plans of at least four of these groups.

The *NAFI* site is helping produce significant economic and financial benefits for north Australians. In 2006 the *Centre for International Economics* surveyed users of the site and estimated that it was producing saving in excess of \$2M per year just on quantifiable benefits to pastoralists – around six times the costs of maintaining the site and associated fire data. These saving include:

- Reduction in infrastructure losses. By increasing the use of fuel reduction burning techniques and reducing the risk of a fire going unnoticed through the use of

NAFI, the probability of a large fire is reduced, which in turn reduces destruction of property infrastructure, such as fences, houses, sheds and other equipment.

- Fewer resources are required for fire management as well to fight large fires. Using the *NAFI* website property managers are able to quickly and cheaply determine which areas have been burnt during the fire season, thus reducing the need to visually inspect the sites, as well as quickly determine the location of any fires on a property once alight.³

These savings do not include the difficult to quantify, but substantial, savings in terms of reduced damage to cultural and natural values.

Carbon Offsets

More recently the *NAFI* site has become a critical tool in the West Arnhem Land Fire Abatement Project where it is used by Indigenous ranger groups to put in fuel reduction burns and then to monitor wildfires in the Arnhem Land Plateau. This project now abates significant quantities of greenhouse gases, is reducing the incidence of wildfire with attendant cultural and biodiversity benefits and brings in around \$1M each year to the Indigenous communities of the region. The *NAFI* site promises to be a vital tool in future carbon offset/fire management agreements across north Australia.

References cited

1. Letter of support, 2005 NT Research and Innovation Awards
2. *Usage statistics for the NAFI website (www.firenorth.org.au) for Queensland 2005-2007*. Unpublished report, Tropical Savannas CRC. February 2008
3. Centre for International Economics (2006) *Evaluation of the CRC for Tropical Savannas: looking back*. Unpublished report for the Tropical Savannas CRC.

Related websites

Firewatch website <http://firewatch.landgate.wa.gov.au/>

Sentinel Website www.sentinel.csiro.au

Western Arnhem land Fire Abatement Project
www.savanna.cdu.edu.au/information/arnhem_fire_project.html