

# Using NAFI – for planning fire management

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# Using NAFI – for planning fire management



The NAFI site has a number of tools that are useful for planning fire management. These are found under the **Track Fires**, **Fire History**, **Data** and **Tools** tabs:

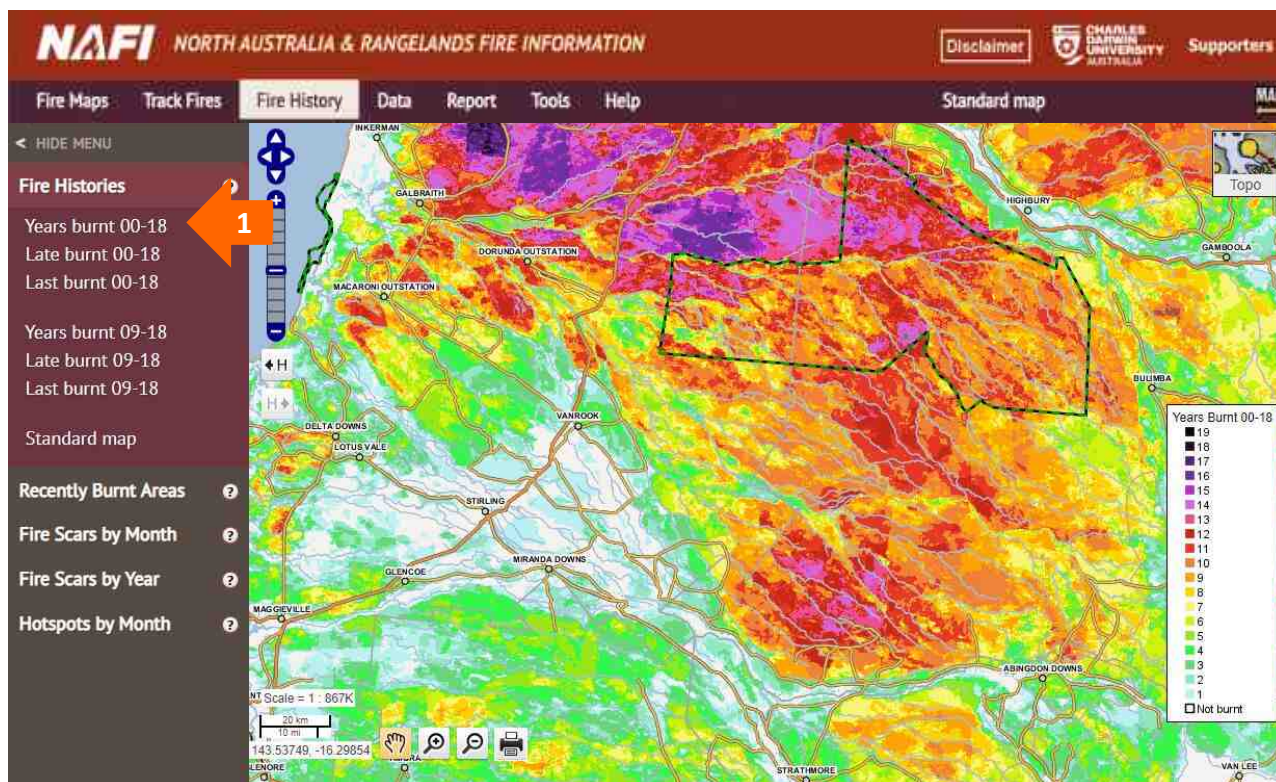
- **Examining the spread of past fires** You can animate hotspots to examine how past fires (back to 2000) have spread – to see where they started, how fire breaks and wind changes affected their spread etc.
- **Viewing Fire History** You can display maps of historic fire scars. These can be as fire frequencies, and time since last burnt (back to 2000), or as fire scars for individual years that can be overlaid to produce customised time since last burnt maps (back to 2006).
- **Viewing past Monthly Fire Scars and hotspots** You can also view the seasonal patterns of past fires, back to 2000, by viewing the fire scars colour-coded by months for these years – as well as the hotspot records colour-coded by month for years back to 2004.
- **Downloading Fire Data** You can download a range of NAFI fire data to your own mapping software which allows you to mix and match the NAFI data with other relevant maps for planning.

## Viewing Fire History

It can be useful to know the history of burning in an area. The tools for this are found in the **Fire History** menu – click the tab under the banner. You should then see the left hand menu with the tools for viewing fire history. The menu offers two ways of viewing patterns of past burning:

- **Fire History** allows you to view patterns of fire frequency or time since burnt across the period 2000-present year. Useful for identifying long-term fire patterns.
- **Recently Burnt Areas** allows you to see what country has been burnt in the last one to three years. Useful for estimating grassy fuels, particularly in the far north. Also available in the **Track Fires** menus.

## Fire History: Fire Histories

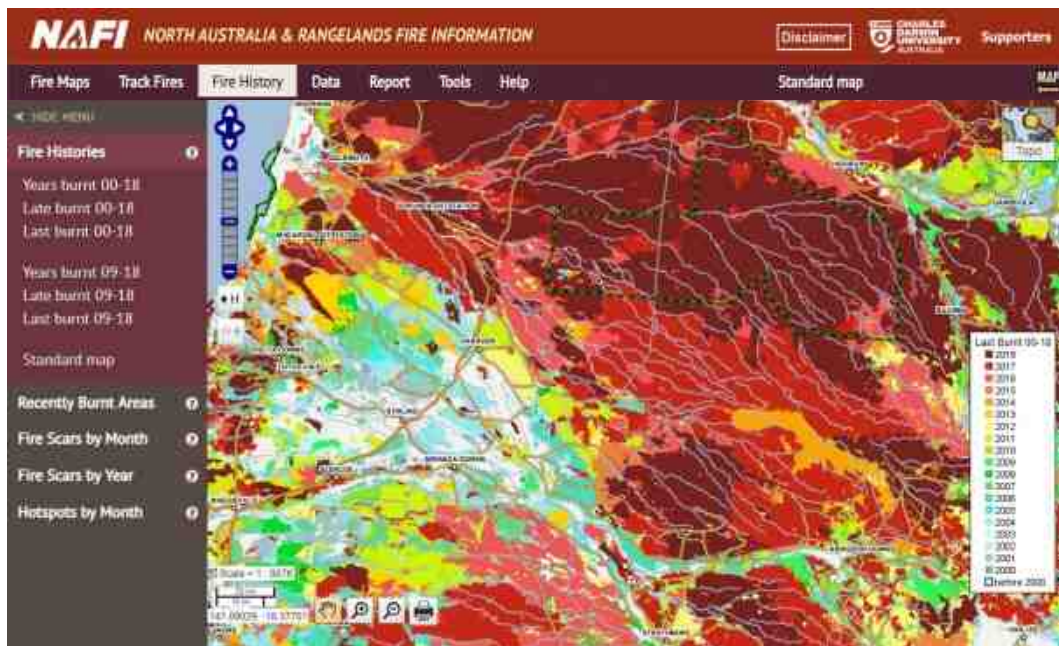


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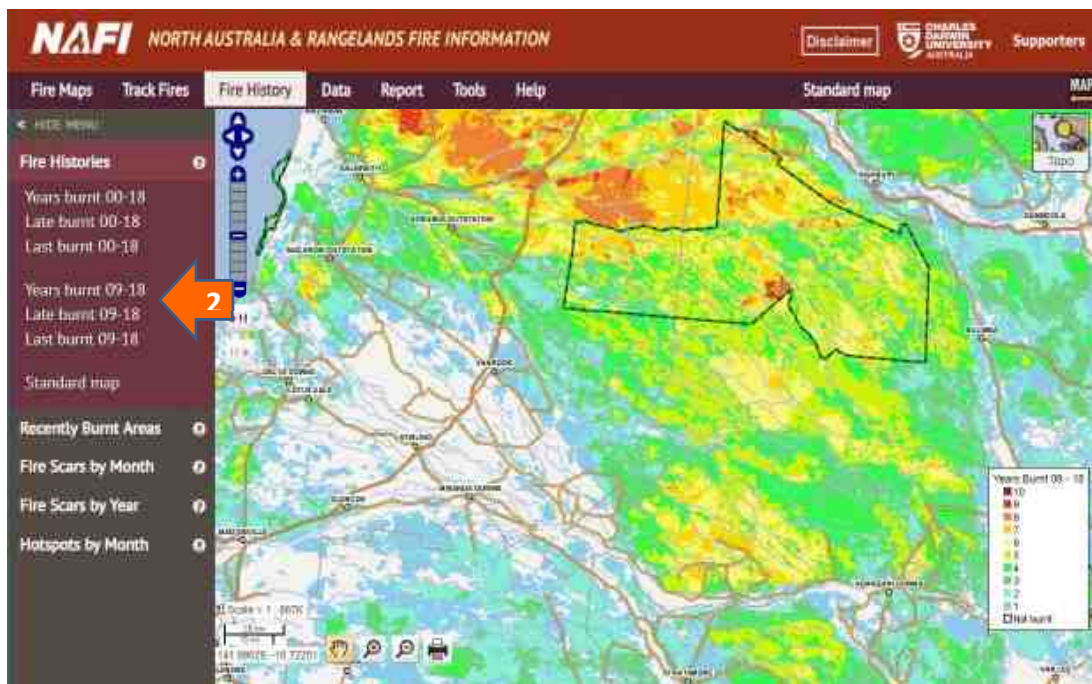
Click on the map layers at the top of the menu name to view the following Fire Histories:

[ These date ranges will be updated each year ]

- **Years Burnt (00-18)** (shown above) displays the number of years a given area of land was detected as being burnt between 2000 and the most recent completed year. The higher the number of years burnt, the warmer the colour. These maps can be useful for identifying areas susceptible to high fire frequencies – and areas protected from frequent fire.
- **Late Burnt (00-18)** displays the number of years a given area of land was detected as being burnt after July 31 between 2000 and the most recent completed year – and again the higher the number of years burnt, the warmer the colour. These maps can be useful for identifying areas frequently burnt by more intense fires, and that, for example, might be candidates for a Savanna Burning Methodology Project.
- **Last Burnt (00-18)** displays the last year in which a given area of land was detected as being burnt between 2000 and the most recent completed year. In this case the warmer colours indicate areas that were last burnt more recently (see below). These maps can be useful if you have areas of country that need a certain period free from fire.



## 10 Year Fire History



You can also view separate ten year fire histories from the same menu by selecting the fire history layers below the northern Australian layers

[ These date ranges are updated each year, 2009-2018 shown as example ]

- **Years Burnt 09-18** (shown above) displays the number of years a given area of land was detected as being burnt in the last 10 years. The higher number of years burnt, the warmer the colour. These maps can be useful for identifying areas susceptible to high fire frequencies – and areas protected from frequent fire.

- **Late Burnt 09-18** displays the number of years a given area of land was detected as being burnt after July 31 in the last 10 years. The higher number of years burnt, the warmer the colour.
- **Last Burnt 09-18** displays the last year in which a given area of land was detected as being burnt in the last 10 years. In this case the warmer colours indicate areas that were last burnt more recently. These maps can be useful if you have areas of country that need a certain period free from fire.



**HINT:** because the fire histories can cover much of the land areas in the far north, it can be hard to see any detailed background features. One way to see background features is to switch on the “Satellite” background layer and then use the slider bar to fade the fire history layers.

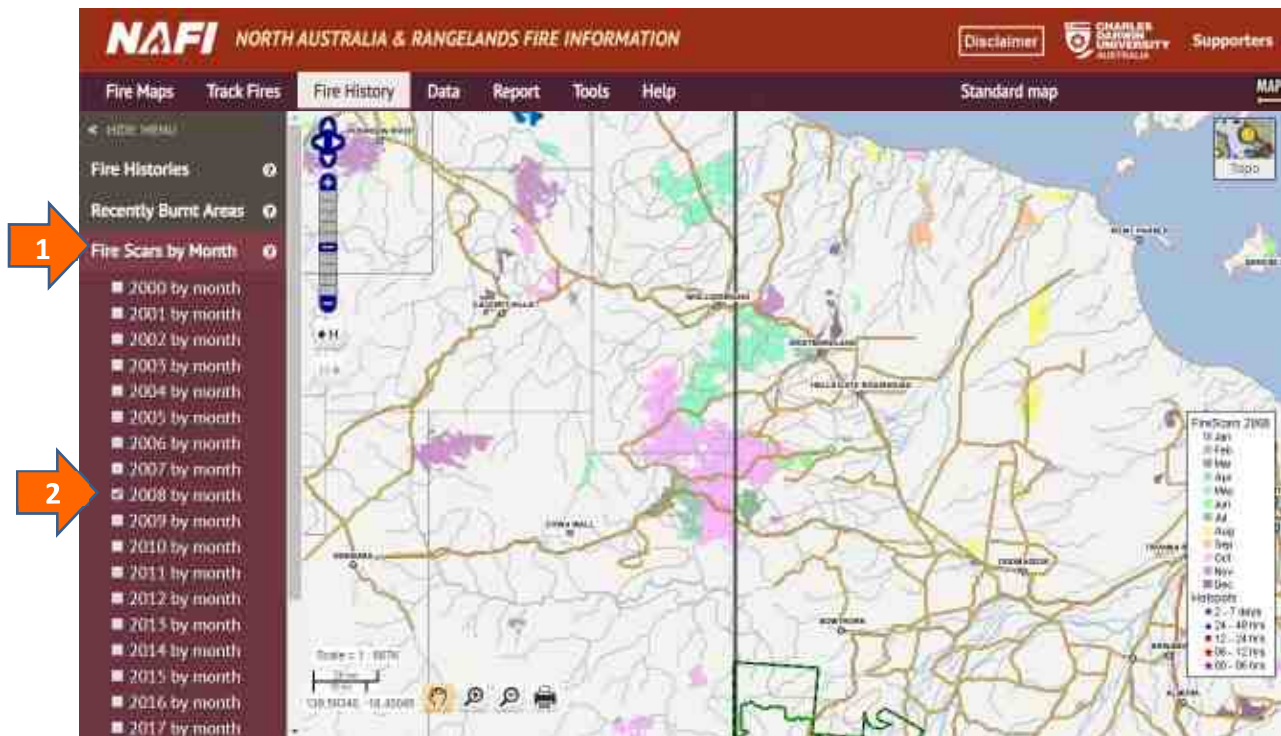
## **Fire History: Recently Burnt Areas**

These map layers are also available under the **Track Fires** menu – see the help pdf *Using Nafi for Viewing Fires* page 13 for more details. They are included in the Fire History menu because knowledge of recent fire history can be useful for fire planning – particularly if you are in the far north in areas where recent fire history is a good guide to grassy fuel levels.

# Viewing Past Monthly Fire Scars and Hotspots

## Fire History: Fire Scars by Month

Viewing past monthly fire scars



If you want to see the seasonality of fire in past years and how it may have changed, you can view the fire scars coloured by month for years back to 2000.

- 1 Go to the **Fire History** tab and the **Fire Scars by Month** menu. You should see all the past years' fire scar layers as menu options.
- 2 Then tick the box to the left of the Fire scar by month layer you want to display – it should appear on the map as shown above. (the hotspots will still display – to turn these off go to the More Tools > Map Layers > Hotspots menu and un-tick the most recent Hotspots

## Fire History: Hotspots by Month

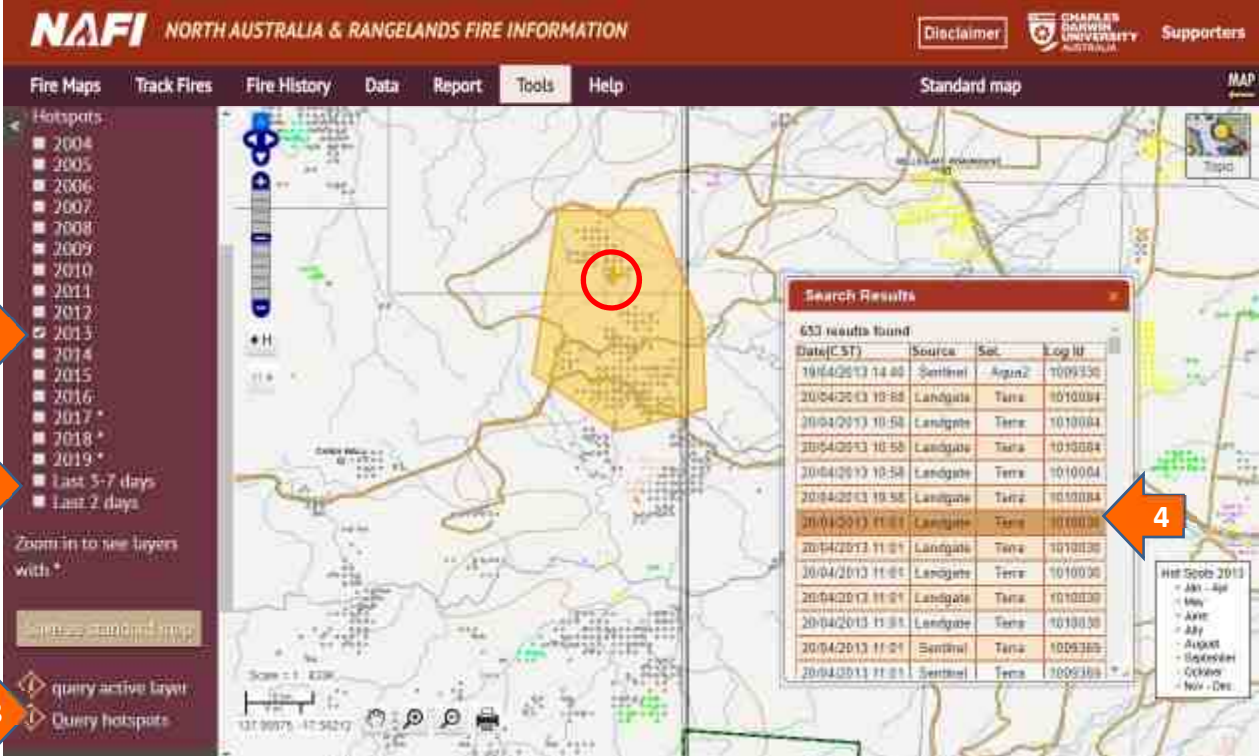
Viewing past monthly hotspots

You can view past hotspots colour-coded by month by using the **Hotspots by Month** menu under the **Fire History** tab.

## Tools: Map Layers

### Viewing and querying past monthly hotspots

To query past hotspots, go to the **Map Layers** menu under the **Tools** tab and select the “Hotspots” node as shown below.



The screenshot shows the NAFI web application interface. The 'Tools' menu is open, and the 'Hotspots' layer is selected. A red circle highlights a specific area on the map. A search results table is displayed, showing 633 results found. The table has columns for Date (CST), Source, Loc, and Log ID. The search results are as follows:

Date(CST)	Source	Loc	Log ID
10/04/2013 14:00	Sentinel	Agart2	1009350
20/04/2013 10:58	Landgate	Terra	1010004
20/04/2013 10:58	Landgate	Terra	1010004
20/04/2013 10:58	Landgate	Terra	1010004
20/04/2013 10:58	Landgate	Terra	1010004
20/04/2013 10:58	Landgate	Terra	1010004
20/04/2013 11:01	Landgate	Terra	1010000
20/04/2013 11:01	Landgate	Terra	1010000
20/04/2013 11:01	Landgate	Terra	1010000
20/04/2013 11:01	Landgate	Terra	1010000
20/04/2013 11:01	Sentinel	Terra	1009350
20/04/2013 11:01	Sentinel	Terra	1009350

If you want to see how individual fires have spread in the past:

- 1 Go to the **Tools** menu and open the **Hotspots** layers under **Map Layers**. Then tick the past hotspot layers you want to see, e.g. for 2007 as shown above. The past hotspots are colour coded by the month in which they were detected, using the same colours as the fire scars by month display.
- 2 Make sure that the current hotspot display is turned off by un-ticking the **Last 3-7 days** and **Last 2 days** layers.
- 3 To get an idea of how the fire has spread you can use the “get hotspot times” tool which will allow you to select an area of hotspots with the cursor. Double-click to select the area (shown in orange above).
- 4 A table of hotspot times will then appear, allowing you to check the times individual hotspots were detected (see *Using Nafi for Viewing Fires* page 15 for more details)

**! THE LOCATION OF THE EARLIEST DETECTED HOTSPOT MAY NOT BE WHERE THE FIRE STARTED.** The actual early stages of a fire may have been too cool to be detected by satellites or may have occurred on days where detection was hampered by cloud cover.

## Downloading Fire Data

It can be useful to display the NAFI fire maps alongside your own maps of tracks, fence-lines, significant areas etc. for planning your fire management. One way to do this is to download the NAFI maps into a map viewer like *Google Earth*, QGIS or ArcGIS. With these viewers you can then upload your own maps. The NAFI site offers a few different ways to download data under the **Data** tab.

### Data: Data as Geotiff or Shapefile

This menu allows you to download the NAFI fire scar by month or fire history maps for northern Australia and WA as either a Geotiff (a geo-referenced image that displays shapes as pixels) or as a shapefile (which displays shapes as lines or points).

**Fire History (2000-22) (updated each year)** brings up a table of download options for the full 250m fire history maps for North Australia and WA (the WA rangelands, the NT and far north Queensland) back to 2000.

There are three fire histories: Fire Frequency, Late Fire Frequency and Year last Burnt – either as a geo-image or as a shapefile (below right). Just click on the “Image file” or “Shape File” buttons to download the relevant file.



Long Term Fire Frequency	250m pixel 2000-2022	Image File	Shape File
Long Term Fire Frequency after July 31	250m pixel 2000-2022	Image File	Shape File
Long Term Time Since Burnt	250m pixel 2000-2022	Image File	Shape File

**! THE FIRE HISTORY SHAPEFILES CAN BE LARGE.** The Fire Frequency shapefiles since 2000 can approach 100Mb in size which can make them difficult to download and use on some mapping programs.



**Fire History (2013-22) (updated each year)** brings up a similar table of download options for the last 10 year 250m fire history maps for the same extent: North Australia and WA (the WA rangelands, the NT and far north Queensland).

**Fire History Archive** brings up a table of download options for the older fire histories since 2000 – e.g. the 2000-2016 fire histories. It also allows you to download some 10 year fire histories (2007-2016) for a larger area of the rangelands that includes southern Queensland.

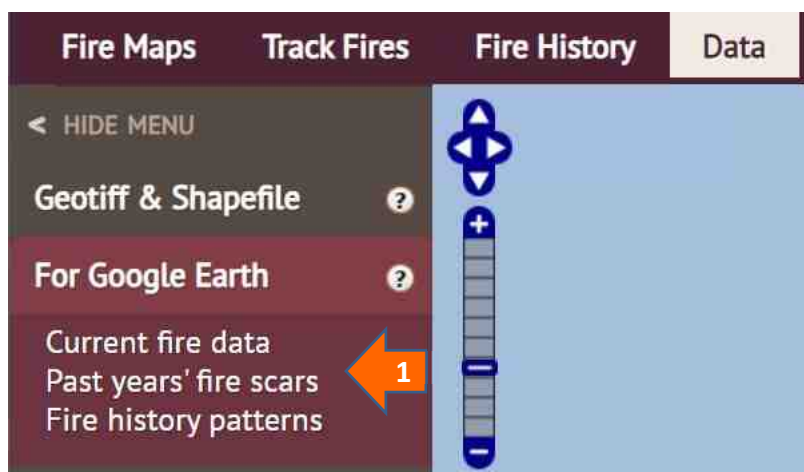
**Fire scars by year** brings up a table (below) of download options for the 250m fire scar by month maps for each year from 2000 including the current year to date. Just click on the “image file” or “Shape File” buttons to download the relevant file.

### Firescar Data Download

2000	<a href="#">Image File</a>	<a href="#">Shape File</a>	2001	<a href="#">Image File</a>	<a href="#">Shape File</a>
2002	<a href="#">Image File</a>	<a href="#">Shape File</a>	2003	<a href="#">Image File</a>	<a href="#">Shape File</a>
2004	<a href="#">Image File</a>	<a href="#">Shape File</a>	2005	<a href="#">Image File</a>	<a href="#">Shape File</a>
2006	<a href="#">Image File</a>	<a href="#">Shape File</a>	2007	<a href="#">Image File</a>	<a href="#">Shape File</a>
2008	<a href="#">Image File</a>	<a href="#">Shape File</a>	2009	<a href="#">Image File</a>	<a href="#">Shape File</a>
2010	<a href="#">Image File</a>	<a href="#">Shape File</a>	2011	<a href="#">Image File</a>	<a href="#">Shape File</a>
2012	<a href="#">Image File</a>	<a href="#">Shape File</a>	2013	<a href="#">Image File</a>	<a href="#">Shape File</a>
2014	<a href="#">Image File</a>	<a href="#">Shape File</a>	2015	<a href="#">Image File</a>	<a href="#">Shape File</a>
2016	<a href="#">Image File</a>	<a href="#">Shape File</a>	2017	<a href="#">Image File</a>	<a href="#">Shape File</a>
2018	<a href="#">Image File</a>	<a href="#">Shape File</a>	2019	<a href="#">Image File</a>	<a href="#">Shape File</a>
2020	<a href="#">Image File</a>	<a href="#">Shape File</a>	2021	<a href="#">Image File</a>	<a href="#">Shape File</a>
2022	<a href="#">Image File</a>	<a href="#">Shape File</a>	2023 Oct 30	<a href="#">Image File</a>	<a href="#">Shape File</a>

## Data: For Google Earth

This menu allows you to download the NAFI fire data as kml files which can then be displayed on Google Earth. You will need to have the free *Google Earth* viewer installed – go to <https://www.google.com/earth/> . For more details on viewing NAFI data on *Google Earth* see page 23 of the other help pdf *Using NAFI – viewing maps of current fires*



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There are three groups of kml files you can download:

- **Current fire data.** Clicking on this link will bring up a dialog box that allows you to download the kml file that displays the last 3 days of hotspots and the current year-to-date fire scars.

Clicking on the downloaded kml file should then display the recent hotspots and fire scars in Google Earth. As this is a network linked file, saving it to “My Places” on Google Earth means that the latest fire data will be sourced from NAFI each time you open Google Earth.

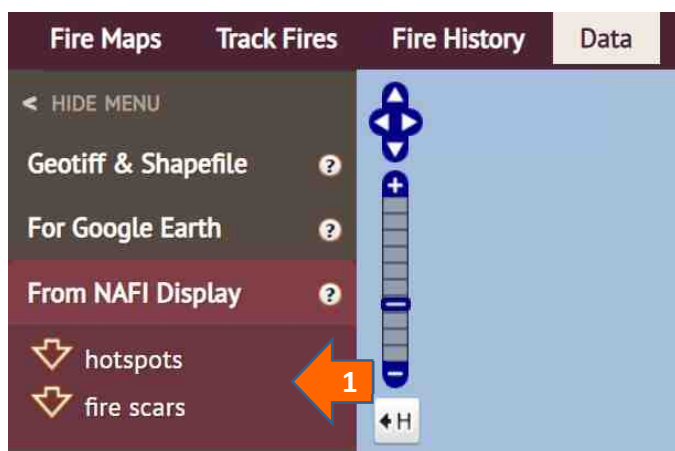
- **Past Year’s fire scars.** Clicking on this link will bring up a dialog box that allows you to download the following kml files:
  - *Fire scars by year (from 2006).* Clicking on this link will download the kml file that displays the fire scars colour-coded by year for each year from 2006 to the current year. This layer is useful for estimate fuel levels.
  - *Fire scars by month (from 2000).* Clicking on this link will download the kml file that displays the fire scars colour-coded by month (like the current fire scars) for each year from 2000 to the year before the current year. This layer is useful for showing the seasonal pattern of burning in earlier years.
- **Fire history patterns.** Clicking on this link will bring up a dialog box that allows you to download the following kml files:

- *Fire history (from 2000)* . Clicking on this link will download the kml file that displays the fire frequency, late fire frequency (after July 31) and time since last burnt fire patterns from 2000.
- *Fire history (2000-2009)* . Clicking on this link will download the kml file that displays the fire frequency, late fire frequency (after July 31) and time since last burnt fire patterns from 2000-2009.
- *Rangelands Fire history (last ten years)* . Clicking on this link will download the kml file that displays the fire frequency, late fire frequency (after July 31) and time since last burnt fire patterns from the last ten years (e.g. 2013-2022) across the WA, NT and Qld rangelands.

(The Google Earth download tools is also found under the **Tools** tab in the **Google Earth WMS** menu)

## Data: From NAFI Display

If you want to just download the fire data from your area of interest, rather than for the whole of north Australia, you can use this menu to download some types of NAFI fire data just from the displayed map area.



Two types of data can be downloaded from the NAFI displayed map:


- **hotspots**. The only way to download hotspots from NAFI is from the displayed map area as the whole of the north Australia hotspot dataset is usually too large to download.
- **fire scars**. If you don't want to download the whole of north Australia 250m fire scar data, you can just download those fire scars from a particular map area – useful for property planning.

## Downloading hotspots from the displayed map area


Selecting this option should bring up the display below:

### Download Hotspots (In Greenwich Mean Time)

Please select the year you wish to download data for:

selected year:  

Please select the date range within that year:

from:  

to:

- Hotspots are received from Landgate and Sentinel - see help documentation.
- Dates refer to the acquisition by the satellite in Greenwich Mean Time (9.5 hours behind NT Time).
- Hotspots are downloaded in shapefile format in a zip archive.
- A specified date includes all data from 00:00:00 to 23:59:59 on that day.

Data will be downloaded for the extent of the map at the time you click the download button:

A maximum of 150,000 hotspots will be supplied in any one download - This will limit the area and date ranges of your selection.

please acknowledge the NAFI website as the source of this data



**Select the year of hotspots you are interested in.** You can download hotspots from the map back to 2004.



**Select the date range you are interested in.** You must use the format dd/mm/yyyy.

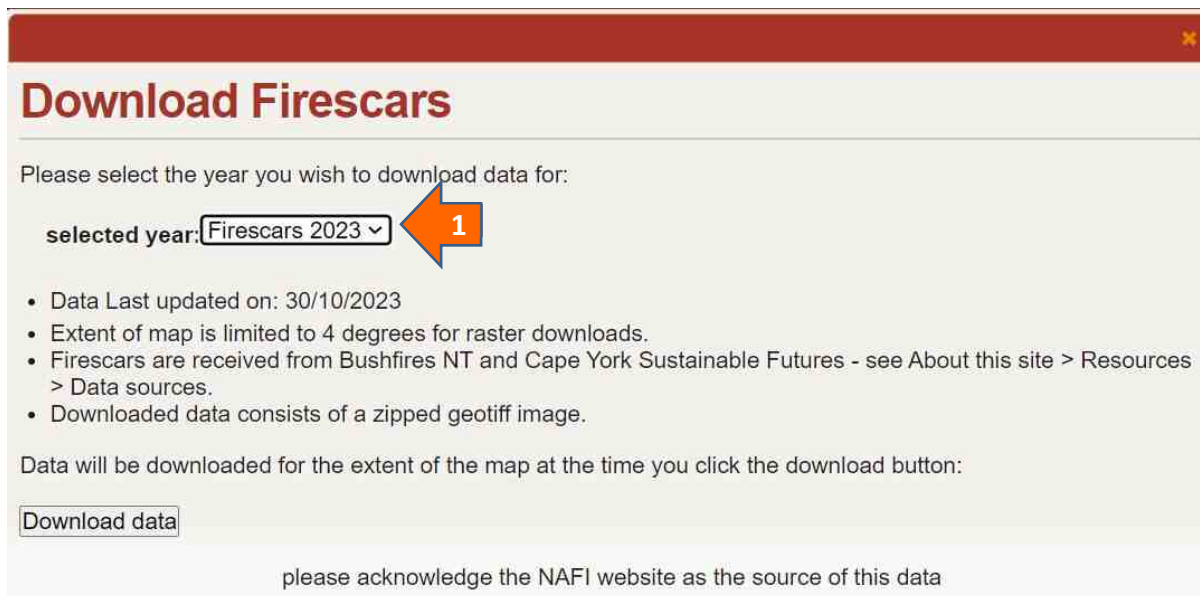
Then click the “Download” button and your selected hotspots, limited to the displayed map area will be downloaded as a shapefile.

**! THIS TOOL WILL ONLY DOWNLOAD A LIMITED NUMBER OF HOTSPOTS.** A maximum of 150,000 hotspots can be downloaded with this tool, so if you want to download from a large map area, you will have to use a narrow date range – particularly for areas and years with very extensive fires.

**! THE DOWNLOADED HOTSPOT TIMES ARE IN GREENWICH MEAN TIME.** These hotspot data come directly from the data feeds as received from the satellites and have not had their times of detection translated to Central Australian time as they are when queried on the NAFI site. Instead, they have time of detection in Universal Time - approximately the same as Greenwich Mean Time – so 8 hours behind WA Standard Time, 9.5 hours behind Central Standard Time and 10 hours behind Eastern Standard Time.

## Downloading fire scars from the displayed map area

Selecting this option should bring up the display below:



**Download Firescars**

Please select the year you wish to download data for:

selected year:  **1**

- Data Last updated on: 30/10/2023
- Extent of map is limited to 4 degrees for raster downloads.
- Firescars are received from Bushfires NT and Cape York Sustainable Futures - see About this site > Resources > Data sources.
- Downloaded data consists of a zipped geotiff image.

Data will be downloaded for the extent of the map at the time you click the download button:

please acknowledge the NAFI website as the source of this data



**Select the year of fire scars you are interested in.** You can download fire scars from the map back to 2000.

Then click the “Download data” button and your selected fire scars, limited to the displayed map area will be downloaded as a geotiff image. This is a regular tiff image with a small “world file” or tfw file which contains the geographic information mapping programs need to display the image as a map.