

**Submission Number: NND.001.00700**

**Submission Of:** [REDACTED]

### Your Details

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Preferred means of contact: Email

What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation

What is your area of professional expertise? Agriculture

If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation? Northern Territory Cattlemen's Association

### Your Submission

In your experience, what areas of the bushfire emergency response worked well?

In your experience, what areas of the bushfire emergency response didn't work well?

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

Is there anything else you would like to tell the Royal Commission?

Do you agree to your submission being published? Yes I agree to my submission being published in my name

Supporting material provided:

NTCA\_RoyalCommissionSubmission.pdf



## NORTHERN TERRITORY CATTLEMEN'S ASSOCIATION



## Royal Commission into National Natural Disaster Arrangements (RCNDA)

Date: 24<sup>th</sup> April, 2020

## EXECUTIVE SUMMARY

The Northern Territory is 1.5 million square kilometres.

In 2019, more than 133,000 sqkm was burnt. Of this 86,288 sqkm was classed, but not specifically identified as controlled or cool burned.

The remaining 46,733 was estimated to be wildfire. Roughly 35 per cent of these are savanna wildfires. They are the leading contributor to carbon emissions in the Territory.

The Territory has a proactive approach through prescribed and controlled burns and has done so for decades. The Northern Territory pastoral sector, as part of its land management practises, uses cool burning as a land management tool.

In this submission we will cover the importance of the practise but also the tool which can assist in the management, monitoring and recording of bushfires.

The North Australia Fire Indicator is a federally government funded tool which offers a potential bushfire management solution for the rest of Australia.

At this point it is available to Northern Australia but with a financial investment it could be extended to include the whole of Australia.

This will remove the different state applications which are used providing a better, more stable platform, more accurate.

## 1. NORTHERN TERRITORY CATTLEMEN'S ASSOCIATION OVERVIEW

The Northern Territory Cattlemen's Association commonly referred to as the NTCA, is the peak primary industry body in the Northern Territory, providing leadership at a State, Federal and International level on industry, trade, resource management, and economic and social policies. Representing over 90% of the Territory's pastoral industry, from small family pastoral holdings and Indigenous enterprises to large corporate entities. The NTCA maintains a unique position as Australia's most representative producer body and single conduit for engagement. The NTCA's mission is to 'Advance and protect the interests of cattle producers in the Northern Territory'.

The NTCA is a leader in driving positive change, defending the position and integrity of the pastoral sector, whilst building effective, long term and strategic domestic and international relationships along the supply chain and assisting in providing an effective engagement platform for industry and government in our crucial markets.

As the predominant primary industry sector, the cattle industry underpins the economic, social and environmental foundations of the Northern Territory and Northern Australia. The NTCA has taken a proactive approach on environmental policy around renewable energy, sustainable development and social responsibilities associated to the reengagement of Indigenous land and people in the modern cattle industry.

In representing the interests of our members, the NTCA is greatly interested in the policy position of the government, opposition and independents on a range of important issues across the primary industry sector including pastoral land conservation, market development and trade, regional development, Indigenous employment and international engagement.

The NTCA membership base supports herd size of 2.2 million head, our members are the environmental stewards of the Northern Territory, responsible for a landmass in excess of 680,000 square kilometres (45% of the NT landmass), producing 600,000 head of high-quality pasture-fed cattle per annum.

The pastoral industry is the Northern Territory's third largest GDP earner, equating to more than 80 per cent of primary production. The Territory cattle industry is a \$1.2 Billion industry.

The industry directly and indirectly employs around 10,000 people and has contributed to the growth of the Territory for over 150 years. It continues to increase in size, productivity and efficiency. Northern Territory producers supply cattle to all mainland states and produce quality cattle suited for the live export trade to South East Asia, including, up to 400,000 head exported to Indonesia and Vietnam annually. Twenty six million (26) Indonesians eat Northern Territory beef annually.

## 2. Prescribed Burns

NT pastoral lands are open landscapes that can carry destructive wildfires in the late dry season (August – December). In these sparsely populated areas, such fires do not stop until they are pulled up by a lack of fuel – which can be major roads or rivers, but which can also be fire breaks/hazard reduction burns lit by the landholder or by government agencies.

Implementing such breaks are one of the most useful tools the pastoralist has in preventing the spread of wildfires that would otherwise destroy valuable fodder and infrastructure.

These prescribed burns often need to be many kilometres long to be effective given the scale of fires and the size of properties – and in these areas such burns are most efficiently and accurately mapped by satellite.

As pastoralists use these maps of their prescribed burns in helping manage their response to wildfires, these satellite maps need to be frequently and regularly updated so that maps of latest prescribed burns are available to help manage wildfires.

When a wildfire approaches it is important to have the latest maps of your fire breaks so that you know where the areas of more fuel are that the wildfire could spread through – and monitor these areas as a priority – or back burn to protect them.

The only provider of frequently updated maps of prescribed burns across the NT pastoral estate is the NAFI Service – which uses satellite imagery for the mapping.

As the grass and scrub can take a few years to recover from being burnt, the time since an area was last burnt is often a good guide to how much fuel there is in an area. This is particularly the case in the northern NT where rainfall is reliable and so variation in rainfall does not affect fuel levels as much as fire history does.

This means that satellite-based fire history maps of your property and surrounding properties can be very useful to the pastoralist in predicting how a wildfire might spread – and to help with their fire planning and where to best place a fire break or hazard reduction burn. Again, the only provider of reliably accurate fire histories of the whole of the NT pastoral estate is the NAFI Service.

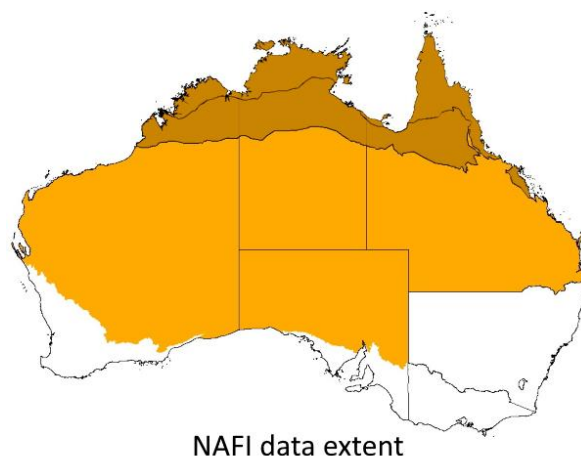
## NAFI Service ([www.firenorth.org.au](http://www.firenorth.org.au)) Funding 2020

The North Australia and Rangelands Fire Information (NAFI) service, [www.firenorth.org.au](http://www.firenorth.org.au) based at Charles Darwin University, has become an important free, publicly available, service that provides critical support to government and industry such that it cannot be terminated without significant negative consequences - and its funding ends on June 30, 2020.

**Longer term funding and governance arrangements are required and it is proposed these be determined in a three year collaborative project with other fire data providers and end-users.** Help in securing this funding is needed from industry and government groups who have a stake in the service.

**What does the NAFI service provide that other services do not?**

**1. Broadscale, accurate fire histories.** The service is the sole producer of satellite-based maps of burnt areas (fire scars) that are uniformly accurate across most of the Australian rangelands (below) making them the only fire scar maps that can be used to produce reliable fire histories useful for fire management that extend across this region - particularly in the north (shaded area) where annual aerial and image-based validation has shown that the NAFI fire scar mapping is accurate across this area ([more details](#)). As outlined below, these frequently updated fire histories are important for rangelands fire management.



**2. A widely-used, free, publicly available web-portal focused on the land and fire managers of the rangelands.** The extensive fires across the rangelands are largely managed by pastoralists, Indigenous land managers and park rangers who often use fire as a tool for managing their land. These



are distinctive groups who operate outside of fire agencies. NAFI is the only major fire data provider with a web-portal that displays the fire scar data, a cleaned-up dataset of active fire locations, and a range of digital tools, all focused on the needs of this group. The tools include a report function that uses NAFI's reliable fire histories to quantify fire patterns in a given area.

The interface and tools of the NAFI web portal [firenorth.org.au](http://firenorth.org.au) (below) are developed using feedback from end-users. The reliable fire scar data are a guide to fuel levels in the path of the fires and these are frequently updated along with the hotspots enabling better management of active fires in the rangelands. The widespread use of this portal by different groups produces better cooperation on fire management.

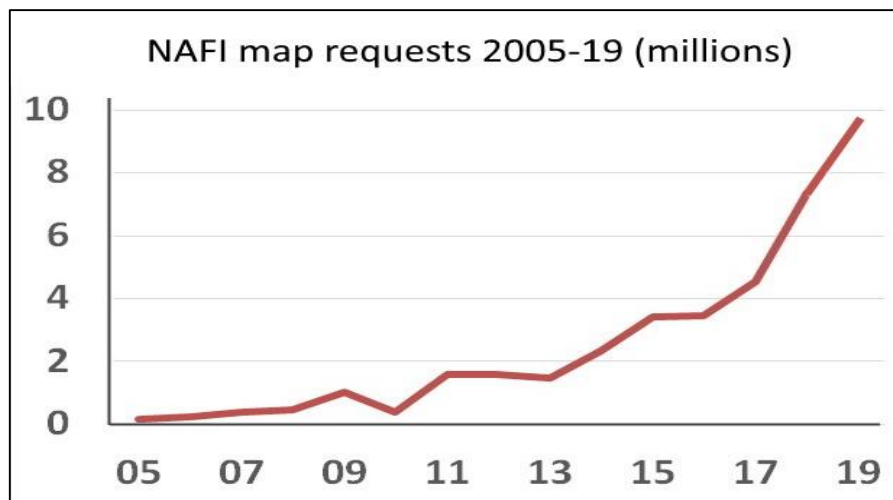


The reliability of the fire scar mapping stems from the frequent overpasses of the satellites used, combined with the skill and knowledge of fire scar mappers who edit automated mapping to produce uniformly accurate fire scars despite continual changes in landscapes and cloud cover. The mappers are based in the regions they map, so they have a good knowledge of those landscapes.

Charles Darwin University also provides links to a national and international network of research and technical expertise that allows innovation to continually improve the fire scar mapping processes.

### How widely used is the NAFI service?

The combination of a uniquely useful fire history and website has seen the NAFI service become the main fire data service used by fire managers across the vast but sparsely populated rangelands. With widespread severe fire conditions across Australia in recent years, NAFI usage has dramatically increased and will see almost 10 million map requests in 2019.



### **How is the NAFI service useful for on-ground fire managers?**

NAFI's fire scar maps are frequently updated throughout the fire season and the hotspots are automatically updated every few hours dependent on satellite passes. Combined with the longer fire histories and other tools this allows rangelands fire managers to effectively plan for and manage active fires across most of the rangelands - which explains the widespread usage. This widespread usage of a shared web-portal then helps the different fire managers battling fires in a region to cooperate on monitoring and responding to wildfires as they are all looking at the same set of maps.

NAFI's longer term fire histories are also used to help plan prescribed burning and, along with reporting tools, are used to assess progress made in fire management.

The end result of this usage is improved fire management, better protection of infrastructure and fodder, income for the Savanna Burning projects, reduced greenhouse gas emissions and better protection of natural and cultural values (see costs and benefits below).

### **How is the NAFI service useful for Government agencies?**

Managers of government lands in northern Australia (National Parks, Defence lands) use the NAFI fire scar data for fire planning and fire management, Fire Agencies that need to operate in the rangelands use the NAFI fire scar data for planning and because they need to cooperate with the community on rangelands fire management, benefit from NAFI which aids this cooperation. The income generated by the Savanna Burning projects, which is underpinned by NAFI, saves Government expenditure on Indigenous health.



## How is the NAFI service useful for emissions reduction?

The NAFI service has been used to provide fire scar data for measuring emissions under the Federal Government's Savanna Burning emission reduction methodologies since their inception, and there are good reasons for this:

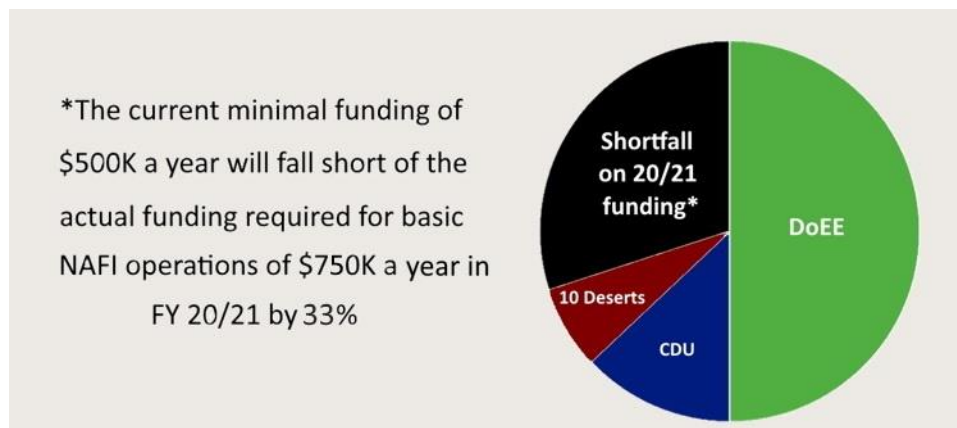
**Uniformly accurate fire histories across the methodology area is important.** If any current or potential project areas have significantly inaccurate fire histories this will produce a level of unfairness between methodology participants and is likely to expose the methodologies to reputational damage.

**Regular display via the NAFI website and the manual editing process produce a trusted product.** Being able to test the fire scars, against their own observations and the hotpots, as the fire scars accumulate in their local areas, and being able to suggest corrections to the mapping, produces a high level of trust in the fire data among the fire managers and industry involved in the Savanna Burning projects. This is important as low levels of trust can be corrosive and lead to reputational damage for the methodologies.

## What are the costs and benefits of the NAFI service?

The benefits significantly exceed the costs and most benefits are associated with the public good.

**Costs.** The NAFI Service will require around \$750K a year, plus annual increments to track rising costs, to run sustainably for the three year period FY 2020/21 - FY 2022/23. This covers a number of increased costs: upgrades needed for the servers and databases; implementing new processes to cover for the retirement of a key satellite; increased website managements costs due to increased usage; and added mapping costs for the southern Qld rangelands. Currently NAFI receives around \$500K a year as minimal interim funding to keep the service operating while a longer-term plan is put in place which is 33% under funding required from 20/21 onwards. 69% of the \$500K costs are in cash from the DoEE methodology unit and 19% are in-kind CDU contributions. Around 80% of the costs are for the production and management of the fire scar data.



**Public good benefits.** (a) The GHG emission reductions produced by the Savanna Burning projects (that depend on NAFI) total between 1-2 M tonnes CO<sub>2</sub>e per year. (b) The projects are producing social and economic benefits for remote Indigenous and grazing communities (estimated to be > \$100M per year). (c) Various state and federal agencies (fire agencies, Defence Department) are able to save public funds on fire management related costs by using NAFI. (d) There is robust evidence of reduced wildfire frequency due to ERF projects and therefore the likelihood of improved protection of natural and cultural values across very large areas.

**Private benefits.** (a) The ERF projects are earning around \$20M a year in carbon credits. (b) Pastoral enterprises are saving significant costs on fire monitoring and in improved protection of fodder and infrastructure.

### **What are the consequences of the NAFI service shutting down?**

There would be significant negative consequences as there is no easy way of replacing NAFI's current services.

The uniformly accurate fire scar mapping needs to be delivered across large parts of the rangelands often on a weekly basis during the fire season to help land managers manage fires. The accurate fire scar mapping requires significant skill and knowledge specific to the landscapes being mapped, that NAFI has built up over many years. This mapping would be difficult for a new provider to provide and would be required immediately after the NAFI service ends.

The NAFI portal is also difficult to replace as it incorporates many features based on feedback from land managers and is continually being modified in response to this feedback, using networks that have taken years to build.

The regularly updated fire scars and hotspots, together with the background maps and tools of the NAFI portal are now a vital tool used in managing fires across large parts of the rangelands - and have become part of fire management culture in these areas. Shutting down the service mid-year would not see an adequate replacement emerge quickly. This would produce serious disruption to fire management during the northern wildfire fire season in the latter half of the year - fire seasons which are becoming increasingly serious. It would likely produce economic losses, widespread frustration and disappointment for people who are already facing significant challenges.

It would be challenging for new providers to produce the uniformly accurate, validated and trusted fire scars used for the emissions measurement required by the Savanna Burning projects. The disruption to fire management combined with these challenges would increase the risk of disruption of the Savanna Burning industry, reputational damage and consequent future economic losses.

## Can the NAFI service be improved?

The NAFI service is looking to improve both the data it provides and the way it is delivered. Higher resolution fire scar mapping provided by satellites such as Sentinel 2 can provide more detailed maps of burnt areas and CDU is testing a product with one of the leading groups in Australia in this area: the Remote Sensing Centre in the Qld Dept of Environment and Science. This higher resolution fire scar mapping is already proving very useful for supporting on-ground fire operations in particular regions.

However, such products cannot yet produce uniformly accurate mapping across the savannas at a reasonable cost - mapping that could be used for cross-continental fire histories and emissions measurement. A recent meeting of the world's leading fire scar mappers, the 4th Global Wildfire Information System (GWIS) and GOFC-GOLD Fire IT meeting in Rome, Italy, highlighted the NAFI mapping and confirmed there are no new international products available that can be used in the short term to provide similar uniformly accurate fire histories. Improvement of the current NAFI mapping used to produce these fire histories is being planned but any replacement mapping will need to be thoroughly tested as any significant deviation from uniform accuracy and the frequent updating involves significant risk to the industries that rely on it.

The website and delivery methods can also be substantially improved given they have had very limited development funding for several years.

## Summary: What are we asking for?

While significant public good benefits are generated for low cost, and while a broad range of fire managers across the Australian rangelands including government and significant industries, depend on the continued operation of the NAFI service there is currently no Federal funding available that the service can draw on. The DoEE methodology unit's support for NAFI, which has covered most of its costs for the last seven years, will end on June 30, 2020. The unit can no longer guarantee support for a service which it is not specifically tasked to fund and which provides such broad benefits beyond the Savanna Burning GHG reduction projects.

For the last two years we have been working with the DoEE and other NAFI stakeholders to secure more broad-based ongoing funding. To effectively implement longer term funding, the role that the NAFI service can best play alongside the other fire data providers for the rangelands, and the institutional and governance arrangements around the provision of these data need to be sorted out. We cannot do this on the current minimal funding.

**We are proposing a three-year, \$4.5M collaborative project, involving the main fire data providers (e.g. CDU, Landgate WA, Qld Dept of Environment and Science and Geoscience Australia) and end-users, to do this.** This \$1.5M a year project will investigate options for future fire scar

mapping for the rangelands and the tropical north, chart a path forward for fire data provision to these areas and maintain and improve the NAFI service pending longer-term arrangements.

With the support of the northern pastoral sector we are currently trying to secure funding for this project from the Federal Government.

Webpage: <https://www.firenorth.org.au/nafi3/views/about/Funding.htm>