

Inspector-General Emergency Management K'gari (Fraser Island) Bushfire Review

Submission by
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Swamp habitat on K'Gari maintained in healthy condition, 12 month recovery following a staged prescribed burn, 2008

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January 2021

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Institute of Foresters of Australia and Australian Forest Growers Submission to the Inspector-General Emergency Management K'gari (Fraser Island) Bushfire Review

This submission has been prepared by the **Institute of Foresters of Australia / Australian Forest Growers (IFA/AFG)**. The Institute of Foresters of Australia (IFA) has been the professional association for forest scientists and field forestry practitioners since 1935, and is a long-time advocate for good forest management based on sound scientific principles. A significant component of this is the continual improvement in forest fire management.

Accordingly, the K'gari (Fraser Island) Bushfire Review by Queensland's Inspector-General Emergency Management (IGEM) to assess the effectiveness of preparedness activities and the response to the October to December 2020 bushfire event, and the implications nationally, is of direct relevance to the IFA/AFG and its members.

This submission to the K'gari (Fraser Island) Bushfire Review will focus on a few key elements relating to what worked differently to what would have been expected or preferred, and suggestions for improvement¹. This submission is based on:

- the knowledge of members on fire management, best practice nationally and internationally, and importantly local knowledge of past fire management on K'gari;
- media reports and conversations with operational fire personnel;
- verifiable fire information.

As further background, the IFA has released a policy statement on the role of fire and its management in Australian forests and woodlands in 2018. The content of this policy statement directly targets the issues experienced in the K'gari Bushfire and raised in this submission². (See Appendix 2)

This submission avoids opinions based on speculation. The IFA/AFG would welcome an invitation to assist the Review with objective and independent technical forest fire management knowledge and experience.

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¹ IGEM Terms of Reference.

²https://www.forestry.org.au/Forestry/documents/policy/Policy3_1TheRoleofFireinAustralianForestsandWoodlandsJune2018.pdf

Fire management and preparedness

Most past Inquiries into disastrous Australian wildfire events have concluded that a key solution lies in a more comprehensive prescribed burning program, fireline maintenance, and other wildfire mitigation measures, rather than investing more into emergency wildfire response. Also, in 2011, the Council of Australian Governments (COAG) endorsed the **National Bushfire Management Policy Statement for Forests and Rangelands³** which was prepared by the Forest Fire Management Group under the auspices of two Ministerial Councils, in consultation with land management and rural fire agencies. By setting the high-level strategic direction for all agency fire plans across Australia and New Zealand, it provides an inspiring vision where fire regimes are effectively managed to maintain and enhance the protection of human life and property, and the health, biodiversity, tourism, recreation and production benefits derived from Australia's forests and rangelands⁴.

To understand prescribed burning on K'gari, some awareness of its history is needed.

Historical fire management

Past fire history is relatively well known for K'gari, including pre-European fire from carbon particle analysis of soil cores and the recorded memory of indigenous Butchulla Elders. Fires during the Forestry period from 1929 to 1992, and QPWS management, particularly from 2004, is also well recorded. Like elsewhere in Australia prior to European arrival, the Traditional Owners managed the landscape with extensive mosaic burning. The results were healthy open grassy woodlands and forests with a relatively sparse understorey, lower and fragmented fuel hazard, and a lower propensity to burn in large and damaging wildfires.

During the early Forestry management period prior to 1959, burning was restricted to relatively small regeneration burns following logging. Elsewhere on the Island, a policy of fire exclusion and reliance on double breaks and early containment proved unsuccessful, and forest thickening, excessive fuel loads, and many large wildfires occurred⁵⁶. For example, in 1952 the Maryborough Chronicle reported 'Fraser afire from stem to stern again'⁷, and the period 1965 to 1971 saw an average of close to 20,000 hectares of wildfire annually on the Island (see Figure 1).

From the early 1960s the Queensland Department of Forestry changed from the fire exclusion policy and reintroduced a pattern of prescribed burning with extensive mosaic burning over large blocks, which somewhat mimicked the traditional burning patterns in frequency and patchiness⁸. Between 1972 and the end of Forestry management on the Island in 1992, burning conservatively averaged about 12,000 ha per annum, and wildfires significantly reduced to an average of about 5000 ha per annum (see Figure 1).

³ <https://www.afac.com.au/docs/default-source/assets/national-bushfire-management-policy.pdf>

⁴ From IFA submission to the Parliament of Victoria Inquiry into Fire Season Preparedness, 2016
<https://tinyurl.com/y48co2d5>

⁵ Fraser Island Management Plan Dec 1978 Vol 2 Appendix 4.

⁶ Forest Resource Enhancement Opportunities for South East Queensland – A review of silviculture studies. S 3.2.5. Qld CRA/RFA Steering Committee, 1997.

⁷ <https://trove.nla.gov.au/newspaper/page/17916597>

⁸ Landsat scar mapping illustrates mosaic. S. J. Srivastava *et al* 2012 illustrates the patchiness resulting from such "block burning".

Current fire management

Following the transfer of management in 1992, Queensland Parks and Wildlife Service (QPWS) have continued the practice of active prescribed burning. Initially there was a marked reduction in the level of prescribed burning, and again this change aligned to an increase in wildfires (see Figure 1). The average annual prescribed burn area has trended up in recent years, and it will be interesting to see if this continues, if the wildfire trend again moderates in response to this increase, and if the 2020 wildfire event is an aberration to the long-term trend.

While there is a priority for protection burning around communities, resorts and other assets, more extensive burning is conducted specifically for ecological outcomes, which has the secondary benefit of wildfire mitigation and property protection. Recently there has also been an inclusion of the Butchulla Aboriginal Corporation in fire management, and a growing awareness in the benefits of traditional burning practices. Like elsewhere across Australia, resource limitations, lack of suitable burning opportunities, smoke impacts, visitor management, and other conflicting management imperatives can reduce the amount of prescribed burning achieved. More often than not, this amount is less than what is considered desirable for conservation and risk management outcomes. It is estimated that to just achieve the recommended fire regimes for the fire adapted vegetation types on the Island, the average total fire area, if well targeted, needs to be in the order of 15,000 hectares per annum⁹.

The ultimate objective is to replace random, unplanned and uncontrolled, hot and damaging wildfire with planned, controlled, and minimal impact cool burns as illustrated in Figure 2. It should be noted that the burn target based on recommended ecological regimes aligns well with the historic burning pattern during Forestry management, and when wildfire incidence was low.

⁹ Approximate figure based on applying the recommended fire intervals for each of the fire adapted vegetation types, combined and averaged. Ignores small areas of asset protection or mitigation zone requiring higher frequency burning.

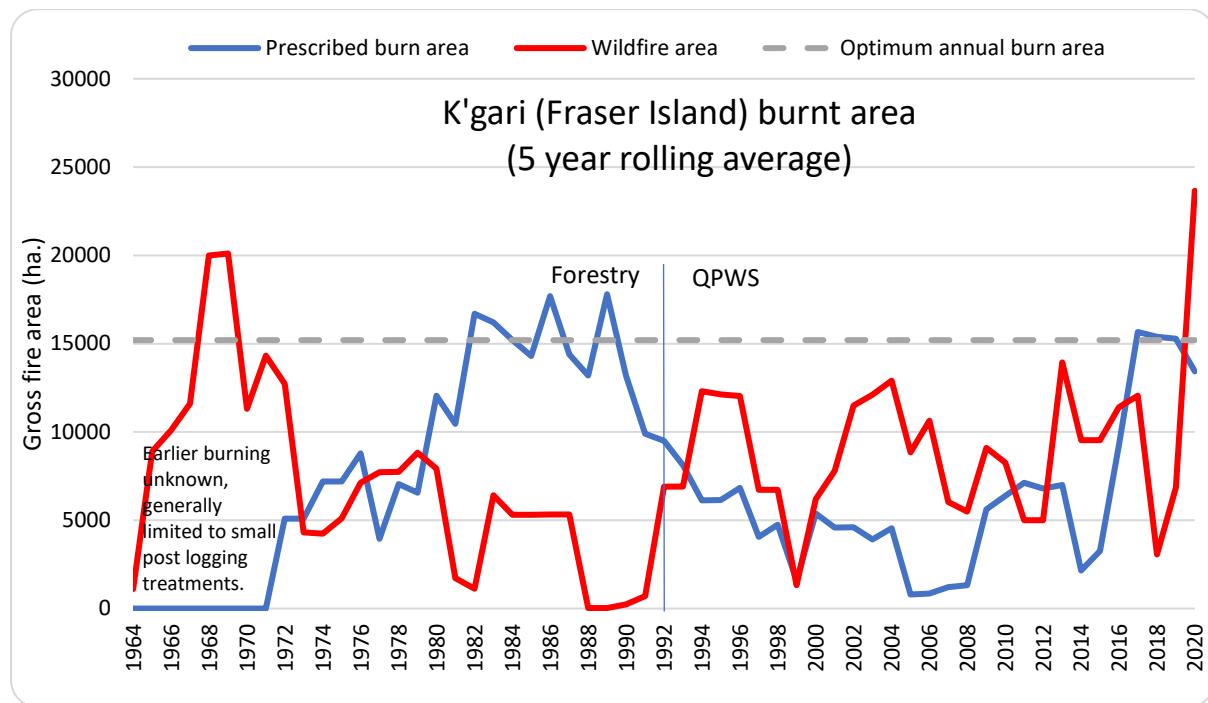


Figure 1 Annual prescribed burn and wildfire areas on K'gari, 5 year rolling average estimates based on QPWS fire records, old management plan data and Landsat fire scar mapping.



Figure 2 Comparison of recent prescribed burning (L) and wildfire (R), both taken during 2011 after the severe wildfire in the vicinity of Kingfisher Bay Resort, K'gari. Previous prescribed burning significantly influenced the behaviour of parts of this wildfire.

Future fire management

It is not sufficient to rely on a small area of annual strategic burning in public/private land interface areas to achieve some risk reduction to property, while leaving the broader area of the Island to the ravages of random wildfire or to degrade from fire exclusion. Wildfire mitigation includes considering the impacts on cultural, environmental, and world heritage values, which are the basis for the important local commercial and tourism industries. Therefore, the fire management must be based on maintaining the traditional burning patterns and Cultural Burn practices in a sufficient area across all fire adapted vegetation types.

While fire management on K'gari can definitely be improved, it is in fact already a relatively good example of effective fire management, 2020 notwithstanding. The same cannot be said for most other forested areas of South East Queensland.

Another large wildfire 'Jabiru Swamp' occurred on the southern end of the Island in November 2019 to January 2020, covering about 20,000 ha. Following these two large fires in the past 12 months on K'gari, there is now low fire risk, and time is required for recovery of vegetation structure and species. Of course, the continuation of interface burning for life and property protection must continue, particularly as a collaboration between the Department of Resources (Fire Management) and Qld Fire and Emergency Services who primarily manage the immediate property defence perimeters. But in addition, the immediate future priority for the Queensland Government and QPWS should be to prevent the next wildfire crisis, not just react locally to the perceived shortcomings on K'gari. In 2018 Queensland had major fires at Deepwater and Eungella. In 2019, Beechmont, Sunshine Coast, Stanthorpe, Yeppoon. In 2020, K'gari. Where the next crisis will be is of course not predictable, and fire cannot be totally prevented, but the hazard and risk has been mapped¹⁰. This can be relied upon to best prioritise fire management, and lessen what might be the next, and maybe worse fire disaster. In a longer timeframe, the priority can return to K'gari and the implementation of prescribed burning and fireline maintenance.

Recommendation 1a:

In accord with the Council of Australian Governments (COAG) Bushfire Management Policy Statement for Forests and Rangelands, broadly across all public land, appropriate local or Regional prescribed burn targets must be established, and fire adapted vegetation burnt in line with recommended fire regimes.

Recommendation 1b:

Relating to K'gari, an annual prescribed burn target should be established, based on recommended fire regimes, Cultural Burning requirements, and property protection, likely to be in the vicinity of 15,000 ha annually.

Recommendation 1c:

An adequate network of fire access tracks and strategic fuel breaks should be maintained to support safe burning operations and wildfire response.

2020 Wildfire Response

Fire ignition and spread

The ignition and spread of the 2020 wildfire can be viewed using satellite hotspots¹¹. The ignition on 14 October 2020 in the remote Ngkala Rocks area north of Orchid Beach spread quickly west into inaccessible swamp, lake and dune country. Assuming no personnel were present at the time,

¹⁰ QFES Catalyst, Operation Cool Burn, and the Area Fire Management Group process.

¹¹ See NAFI Fire History <https://firenorth.org.au/nafi3/>

containment to a small area or direct attack would not have been practical. The fire progressively spread north and south with wind changes. Conventional attack would have been to contain the southern flank to prevent the spread south, and allowing the northern flank to burn out naturally, with some additional work for the protection to Sandy Cape Lighthouse. Containment is achieved by burning under favourable winds from established roads which cross the Island, then diligent patrolling and blackout to hold the contained edge. Actual early containment strategies are not publicly available; however, a likely sequence of events can be based on the fire spread pattern (see Appendix 1).

Initial burnout along Platypus Bay Road about 18 October (Day 4) appeared to hold the southern flank until 19 October when the fire crossed this road and Wathumba Road in a strong run southeast. The next opportunity was at Awinya Road about 16 kms south. After a period of little fire activity during wet weather, the fire reactivated. A burn about 7 November (Day 22) along Awinya Road appeared to hold, but escaped this line about 12 November. From here the fire spread progressively south, pausing again during wet weather on 17-18 November, then crossing Moon Point Road on 22 November, and Bogimbah Road on about 25 November. Several other roads were crossed in the next 5 days, and on 27 November (Day 45) Queensland Fire and Emergency Services (QFES) assumed control of the fire and commenced an extensive aerial waterbombing campaign over the next 2 weeks, which checked the fire spread. Focus then shifted to the protection of Happy Valley, defended on 6 December, before rain commencing the next day extinguished the southern spread of the fire. The northern extremity of the fire at Sandy Cape continued to relight and burn until about 27 December (Day 75), illustrating the difficulty of fire suppression by water alone.

Early containment actions

While details cannot be confirmed, it appears from this spread that QPWS did undertake early containment action. It is often unfair with hindsight bias to criticise tactical decisions which were based on limited knowledge and forecasts available at the time, however the reasons for the failure of the earlier containments should be the subject of analysis and lessons learned.

In many areas over the central part of the Island, direct attack by cutting breaks along an active fire flank would be feasible, or the local practice of backburning under favourable conditions from an established road should have also been possible. Some air support and an adequate ground force of machinery and light attack vehicles may have contained the fire when opportunities arose, at relatively little cost or impact to the Island community and its natural values.

In some QPWS management areas, it has not been uncommon for wildfire response (including machinery and aircraft if necessary) to be under-resourced to an absolute minimum. This has typically been based on a historical perception of limited local operational budget to fund the required machinery, extra crews, and travel costs. There is also the likelihood, from past history, that the potential for fire spread, an effective options analysis, the time frames available, and therefore realistic and SMART¹² objectives, with appropriate trigger points were not determined or well defined. These significantly assist in guiding appropriate resourcing and tactics, and therefore containment success.

¹² SMART – Acronym for strategic, measurable, achievable, relevant and time-framed. Intended to ensure Objectives are defined to best guide the response effort.

An analysis of early containment failure should explore:

- whether resourcing was adequate for what was proposed (referencing objectives and trigger points);
- whether there was early complacency resulting from favourable conditions and rainfall (referencing fire behaviour analysis);
- burnout and blackout effectiveness (relates to fireground skills and supervision);
- if fireline upgrade, containment burning, and night operations were contemplated, were these not done and why?

The IFA/AFG is aware of recent additional funding allocations to QPWS for enhanced fire management, and the addition of some new fire crews and vehicles, particularly in South East Queensland. It is not aware if this has translated to increased capability for K'gari fire management. The IFA is also aware that, subject to suitable oversight and prudent management, funding is not a real limitation to any justifiable fire response, particularly the engagement of ground machinery or the engagement of aircraft. The latter receives greater scrutiny given the potential of very high costs for little real gain. There are greater resourcing pressures limiting routine fireline maintenance.

Recommendation 2:

A post-fire analysis by a competent, independent fire specialist of early containment should identify any real underlying causes for containment failure, and ensure continual improvement of any identified weaknesses.

Remote backburn approval

A concern of the IFA/AFG is the recent practice of requiring a remote, high level approval for backburning to proceed, and the propensity for senior management to over-ride or dictate operational decisions of the locally-based Incident Controller. This is likely a response to occasional backburn failures in recent years, seen afterwards as poorly considered or executed. It is understood that such remote backburn approval arrangements were in place for the 2020 K'gari wildfire, as well as the 2019 jabiru Swamp wildfire.

While there should certainly be oversight, advice, prioritisation, or if necessary, an escalation of the seniority or experience of the Incident Controller, any final decision on objectives, strategies, and tactics, including backburning, must rest with the Incident Controller. Previous inquiries in other jurisdictions have found that the IC is in the best position within the fireground management (AIIMS)¹³ structure to rapidly balance conflicting demands, priorities, and operational practicalities.

On the other hand, remote and high-level approval of backburn tactics places decisions in the hands of a person usually not familiar with local conditions, local resources, or other relevant facts. Interference by well-meaning but remote agency management, possibly influenced by political or vested interests, has the effect of confusing the incident chain of command. This can result in delayed decisions, or a backburn not being proposed due to the approval complexities. The

¹³ Australasian Inter-service Incident Management System (AIIMS) <https://www.afac.com.au/initiative/aiims>

confusion created by the rules governing this policy is sufficient to stifle good and timely tactical actions.

Recommendation 3:

Sufficient management control should be in place to manage backburn risks providing good communication and reporting exists, and the policy of remote approval should be abandoned in favour of authority for backburn approval remaining with the local, competent, and qualified Incident Controller. Clear chain of command and delegation should ensure there is no confusion of responsibilities.

Indiscriminate waterbombing

Another issue of concern to the IFA/AFG is the apparent diluting or abandonment of conventional and proven wildfire response tactics. While fire commentary often spoke of the fact that aircraft only support ground personnel and do not put out fires, the fire strategy in late November did not match this reality. The change to a reliance on aircraft as the primary attack tool for containment has a very limited likelihood of success. It should be remembered that approximately 30 mm of rain that fell during the third week of November, the week before the escalation of waterbombing, did not stop this fire. Furthermore, the waterbombing appeared to be undertaken in an indiscriminate broad-scale manner, often remote from assets under immediate threat, and remote from a containment boundary or ground forces. The strategy was described as “to bomb the fire out.”

The number of aircraft involved over many days, including many drops from Large Aerial Tankers (LATs) make this the most expensive single wildfire response in Queensland history, and the cost should be made public. A greater cost may yet be realised in the long-term impact of the waterbombing. The fact that no retardants appear to have been used on these low nutrient vegetation types is commendable. However, the long-term impact of such a high volume of salt water and water enhancing gels on forest and swamp vegetation is not known.

Was this strategy more for public consumption and expediency? Days of fire boundary blacking-out makes for boring media. There were many press releases and positive public sentiment lauding the number of aircraft, litres dropped, and especially the introduction of possibly “underutilised” LATs. QFES with its significant investment in air operations, and aircraft contractors with vested interests, may believe their work has been necessary and effective. Fire crews on the ground like to see a plane overhead dropping a load. It boosts morale but may not be effective if not properly directed to assist ground crews that put out the fire. An independent analysis of the effectiveness and efficiency of such an expensive operation should be conducted.

In contrast, there was no focus or media mention on the length of contained fire boundary (an output of fire suppression), which is surely a much better measure of success than numbers of aircraft used or litres of water dropped (an input measure only).

Aircraft certainly do perform important functions. Aerial observation, internal burnout, and supporting ground crews on a containment line can be valuable. However, the cost of this approximately 10 days of high intensity, widespread, and largely indiscriminate waterbombing might

well have been used to fund improved prescribed burning and associated road, track and firebreak maintenance for the next 20 years.

Would these aircraft have been better employed on small scale early-stage fires in other remote areas? It is understood that due to cost, QPWS do not routinely use waterbombing aircraft on remote fires until they become so large that suppression cost is no longer a limiting factor¹⁴. If the ‘bomb the fire out’ expensive and ineffective strategy undertaken during the K’gari fire suppression is endorsed as having been successful, it shall become a pattern for future operations. There is then a call for more and larger water bombers that will often not improve fire outcomes to a degree that justifies the huge investment.

Recommendation 4:

Funding and scale of air operations, including Large Aerial Tankers (LATs), should be reviewed based on an objective independent analysis of operational efficiency and effectiveness, and a comparative analysis should be made with fireline maintenance and wildfire mitigation activities.

Climate change

A feature of coastal heath fire is that it can burn with some intensity under high humidity conditions and across swamps with high soil moisture or even surface water. This has been noted on K’gari, where many of its past large fires have burned under what would be regarded as only mild climatic and weather conditions.

While low humidity and severe drought will exacerbate fire behaviour, the wind on K’gari has a bigger influence on fire behaviour and containment difficulty. With the relatively mild weather conditions under which this fire burned compared to severe conditions usually associated with catastrophic wildfires elsewhere in Australia, drought and climate change were not significant factors in this incident.

Too often nowadays, bad fire outcomes are purported to be the inevitable result of climate change, where in fact fire management practices are generally having a much more significant influence. Climate change certainly increases the frequency of severe weather conditions, but as illustrated by this fire, the outcome was not the result of climate change.

¹⁴ David Littleproud interview with Sheridan Stewart 4/12/20 replayed on Wide Bay ABC Radio:

DL “We want to give the State Agencies every support we can ...”

ABC “How much funding will be available at this stage?”

DL “Whatever it takes ...” [08:45]

Summary

The time to attack a fire is before it starts, with prevention and hazard treatment, and soon after while the fire is small in area, with aggressive attack. This requires a commitment from all levels of Government to better funding and resourcing of fire management programs.

It is ineffective to attempt to ‘bomb a large fire out’. When the fire escapes initial suppression, consideration should then be given to employing indirect suppression strategies and tactics, including backburning from mineral earth fire breaks under favourable weather conditions, including night-time operations.

An independent review of operational effectiveness and efficiency (see Recommendation 4) should be conducted to guide future budgeting of firefighting machinery and air fleet.

The immediate priority for future management should be on other extreme risk localities around the State, where the next fire disaster is more likely. This includes adequate fireline network design and maintenance, widespread burning involving Traditional Owners where possible, and adopting traditional burning design methods. This approach is already outlined in the COAG National Bushfire Management Policy Statement for Forests and Rangelands, and the IGEM Review could analyse the QPWS and QFES actions towards meeting the Vision and Goals of this Policy.

Recommendations

- Recommendation 1a:** In accord with COAG’s Bushfire Management Policy Statement for Forests and Rangelands, broadly across all public land, appropriate local or Regional prescribed burn targets must be established, and fire adapted vegetation burnt in line with recommended fire regimes.
- Recommendation 1b:** Relating to K’gari, an annual prescribed burn target should be established, based on recommended fire regimes, Cultural Burning requirements, and property protection, likely to be in the vicinity of 15,000 ha annually.
- Recommendation 1c:** An adequate network of fire access tracks and strategic fuel breaks should be maintained to support safe burning operations and wildfire response.
- Recommendation 2:** A post-fire analysis by a competent, independent fire specialist of early containment should identify any real underlying causes for containment failure, and ensure continual improvement of any identified weaknesses.
- Recommendation 3:** Sufficient management control should be in place to manage backburn risks providing good communication and reporting exists, and the policy of remote approval should be abandoned in favour of authority for backburn approval remaining with the local, competent and qualified Incident Controller. Clear chain of command and delegation should ensure there is no confusion of responsibilities.
- Recommendation 4:** Funding and scale of air operations, including Large Aerial Tankers (LATs), should be reviewed based on an objective independent analysis of

operational efficiency and effectiveness, and a comparative analysis should be made with fireline maintenance and wildfire mitigation activities.

Acknowledgements

This submission was prepared by members of the Forest Fire Management Committee, part of the IFA/AFG. The Authors wish to thank:

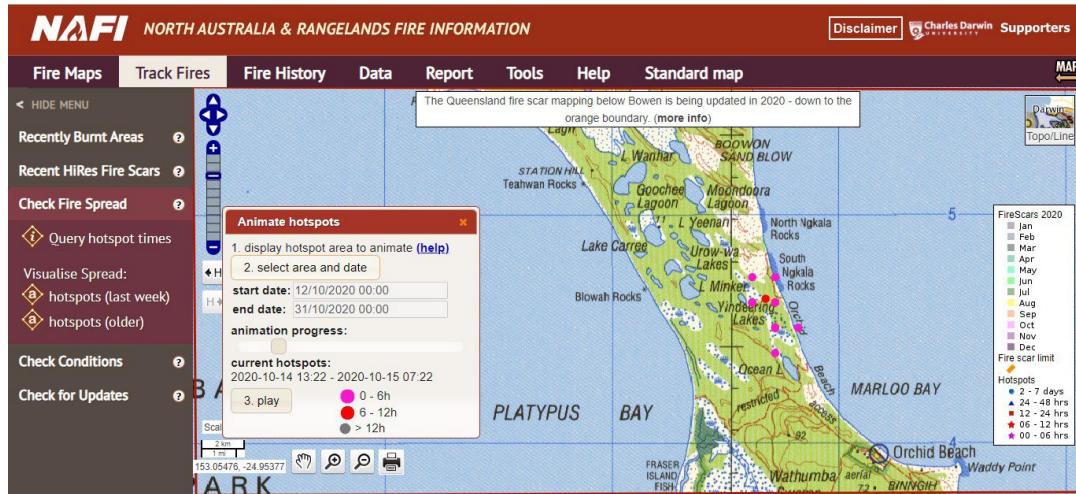
- Northern Australia Fire Information (NAFI) for fire scar history and hotspot fire tracking;
- Department of Environment and Science for Landsat and Sentinel 2 fire scars of Queensland (2016);
- Department of Environment and Science, Qld Parks and Wildlife Service for recent fire history data;
- QGlobe, Planet Explorer, and Sentinel-hub websites for satellite imagery.

Disclosure

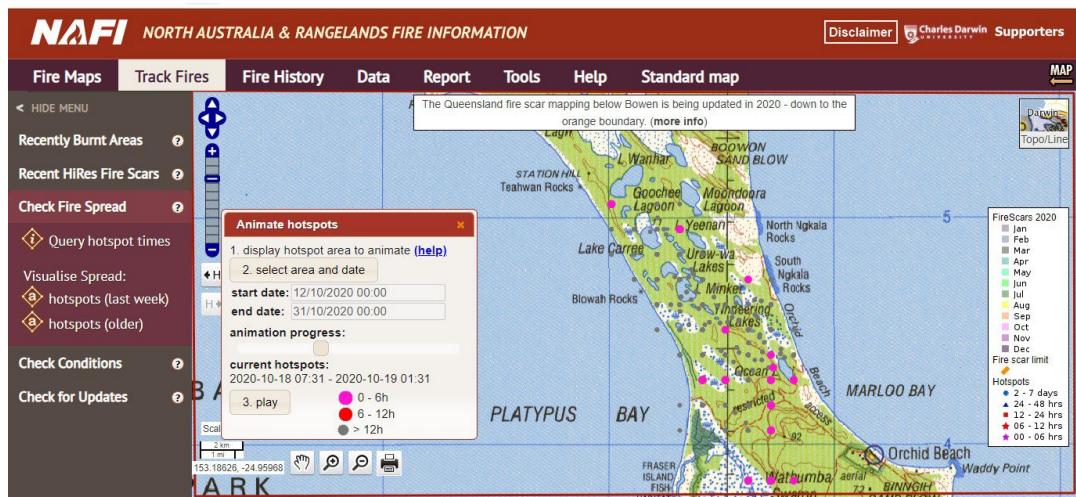
This submission may be made publicly available or content quoted, with acknowledgement to the Institute of Foresters of Australia / Australia Forest Growers.

Appendix 1: Selected Hotspot analysis

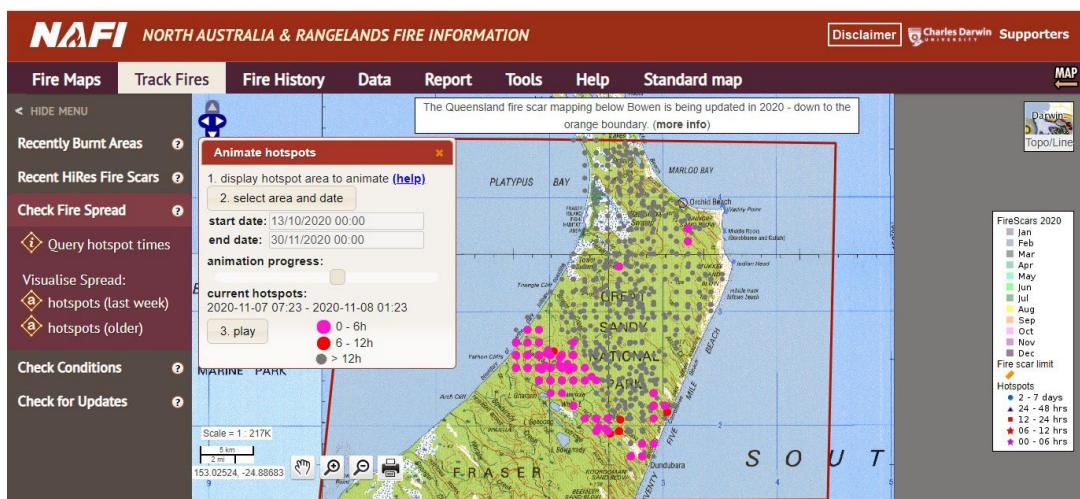
Selected Hotspot analysis using Northern Australian Fire Information (NAFI) fire tracking, see Fire History in <https://firenorth.org.au/nafi3/> Illustrates significant stages of fire spread.



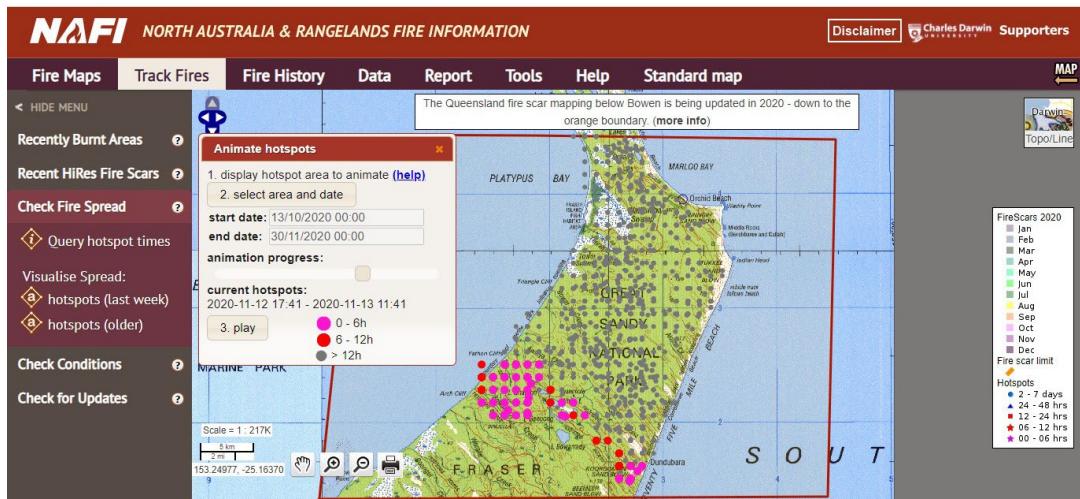
14 October 2020 ignition



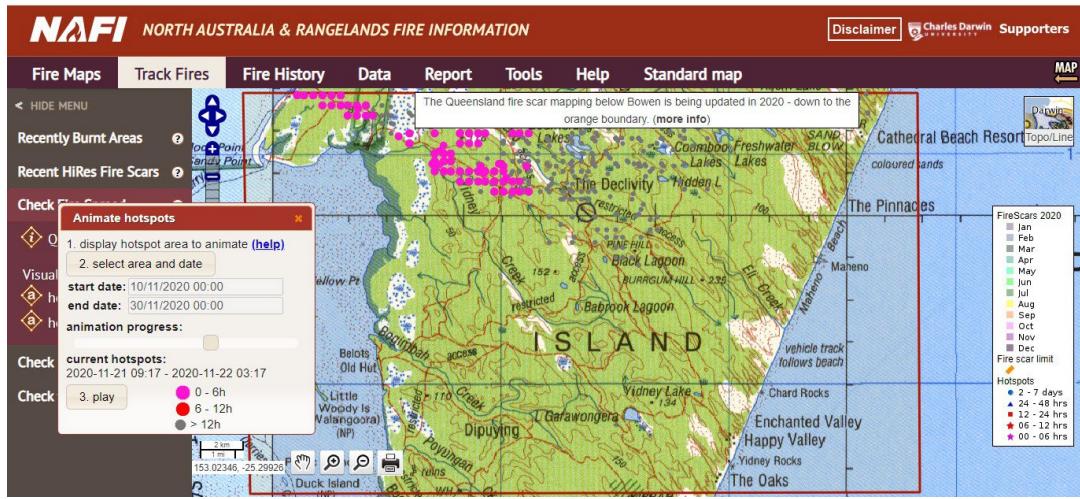
19 October 2020, Platypus Road escape



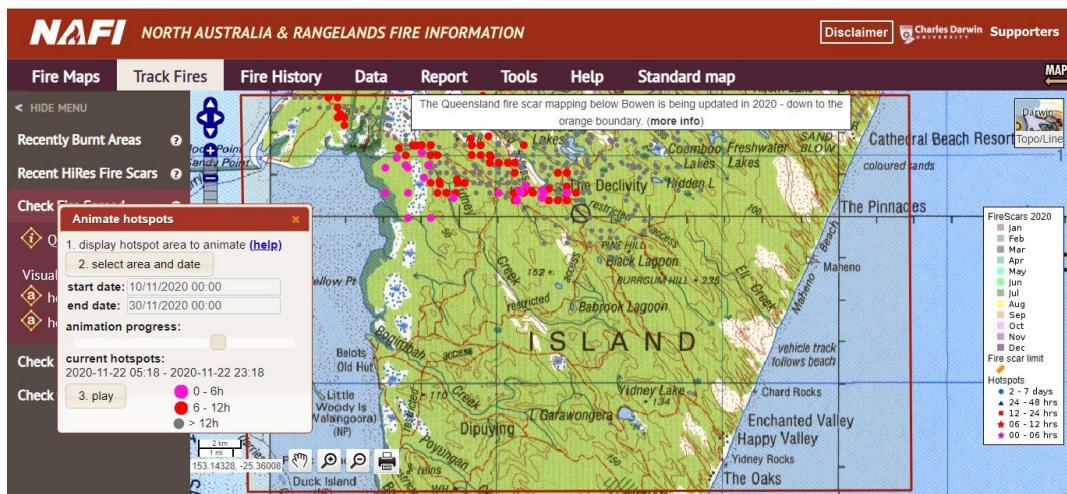
7 November 2020, Awinya Road burn



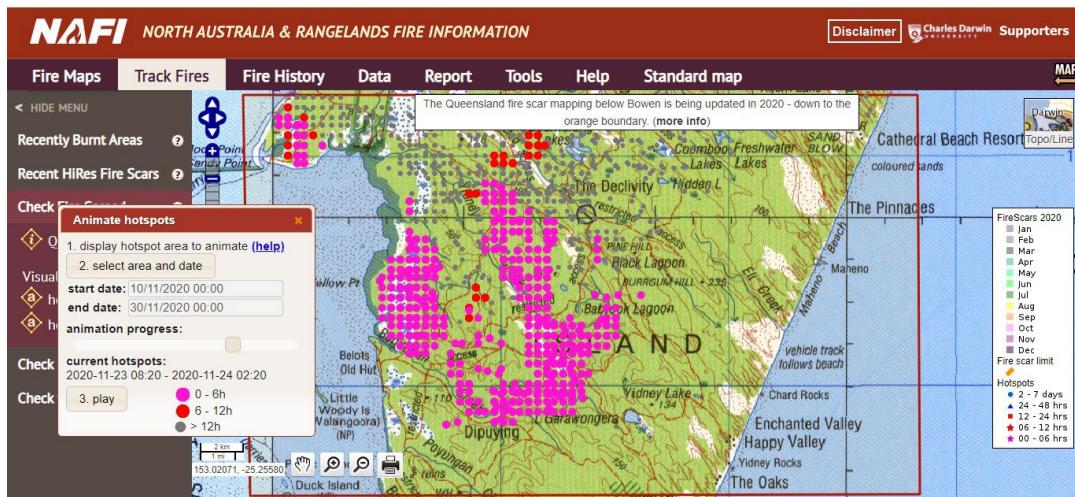
12 November 2020, Awinya Road escape



21 November 2020, Moon Point burn



22 November 2020, Moon Point Road escape.



23 November 2020, escalation of threat, Bogimbah Road.

Appendix 2: IFA Policy 3.1 – Fire and its Management

The Role of Fire and its Management in Australian Forests and Woodlands

IFA Forestry Policy Statement 3.1

The Institute of Foresters of Australia (IFA) advocates a better appreciation of the important and complex role that fire plays in the evolution and maintenance of Australian ecosystems and its potential to significantly impact on social, economic and cultural values. The IFA also advocates for better management of bushfires and prescribed fires, including the need for further scientific research and the systematic monitoring and review of fire management with the results being made available to policy makers, land managers, fire services and the community.

Fire is one of the most important factors in the ecology of Australian forests and woodlands. Hence, the managers of both public and private forests must understand the role of fire both in meeting land management objectives and in minimising the potential for adverse impacts on human life and property.

The Issues

Fire is an essential element of the Australian natural environment that cannot be removed. It is integral to maintaining environmental processes such as nutrient cycling, adaptation and evolution via gene expression and redistribution, faunal and floral composition and structure, hydrological processes and habitat formation and maintenance.

However, uncontrolled fire can also be destructive, potentially leading to human death, loss of houses, infrastructure and services, loss of amenity, impact on water flows and water quality, loss of habitat, loss of soil and soil nutrients and loss or degradation of other forest values such as timber. The impact of fire can also extend beyond the burnt area with smoke from bushfires or planned burns having potential to cause visibility problems, adversely affect human health, and damage crops such as wine grapes.

To manage for the protection of human life and biodiversity, fire must be viewed and managed at a landscape scale and over long timeframes even though its impact, at any one time, may be local and immediate. To this end, fire in the natural environment must be managed by professionally trained, experienced and accredited forest managers, not just emergency service agencies.

There has been an increasing reliance on the use of tools and technology, such as aircraft, firefighting vehicles, fire suppression chemicals, computer models and voluntary evacuation (“leave early”) to control fires and reduce the loss of human life. This has been at the expense of rapid and aggressive early fire control using experienced and well-trained ground crews in direct attack strategies early in the fire’s development which, in most cases, is more likely to be effective than indirect attack strategies.

Position Statement

The IFA recognizes that:

- Fire is an essential ecological factor, which has an important and ongoing role in maintaining biodiversity and ecological processes in Australian forests and woodlands.
- The ecological effects of fire vary according to the season, frequency, intensity, patchiness and scale of burning within a landscape.
- Bushfires can have effects that are significant at local, regional and global spatial scales and operate on timescales from the immediate to impacting over decades or centuries.

- Bushfires can be a very real threat to human life, property, economic and cultural values, social function and environmental values.

The IFA considers that:

- Every fire management program should be objectives-based and outcome-focused. The objectives should be set out in management plans based on legislative requirements, government policy and public consultation. Objectives must cover the protection of human life, property, economic and cultural values, social function and environmental values.
- Short-term fire management objectives should be consistent with long-term, landscape-scale fire and land management objectives.
- A decision to deliberately exclude fire from naturally fire-prone forests and woodlands will have adverse consequences for ecosystem productivity and function in the long-term.
- Because of the complex interaction of factors affecting fire and land management, there can be some uncertainty about the outcomes of different strategies and operations, therefore a risk-based assessment is a good way to approach fire management. Given the uncertainty in all the contributing factors and their interactions, the application of sound risk management principles gives the best likelihood of achieving specific management objectives. Having an outcome focus, with well-defined performance measures, will lead to a system whereby the results of fire management strategies can be identified and measured over a long timeframe.
- The Australian, State and Territory governments have a responsibility to provide adequate resources for coordinated research and systematic monitoring of the behaviour, environmental effects and social impacts of bushfires and use of fire for managing forests and woodlands, and to provide inter-generational continuity of skills, capability and resources.
- The focus in all fire management programs should be around Prevention, Preparedness, and Fire Regime management and there needs to be a move away from relying primarily on Response and Recovery.
- The use of fire in the landscape by many Traditional Owners is acknowledged. Traditional knowledge and burning practices have great potential to contribute to positive social and environmental outcomes. Fire management can be used to reintroduce traditional knowledge to communities where it has been lost.
- All fire management operations should put a high priority on fire-fighter safety. However, the level of risks taken should be commensurate with the potential benefits to be gained, cognisant of the fact that fire-fighting is inherently risky and that trying to avoid all risk may inhibit the capacity to control fire in a timely manner and result in greater impacts and losses.
- Fire-fighting aircraft, tools and technology are not a substitute for effective on-ground firefighting. The primary focus of fire control should always be around on-ground efforts with aircraft, tools and technology being used to make on-ground efforts safer and more effective.

- Planned burning must be undertaken to enable forests and woodlands to be managed sustainably in the long-term, including the ability to evolve and adapt to climate change, physical disturbances, pests and diseases.
- Communication and consultation between forest managers, emergency response agencies and other stakeholders is vital to establish management objectives, including levels of “acceptable bushfire risk” for successful planning and fire management activities.
- Adaptive fire management (“learning by doing”, monitoring and recording with scientific analysis) should always be used.
- Many aspects of forest fire management are common globally. It is important to exchange knowledge and expertise nationally and internationally to extend the range and depth of knowledge and experience in bushfire policy, research and management.

Supporting Documents

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