

SOUTH EAST TIMBER ASSOCIATION SUBMISSION TO THE NSW BUSHFIRE INQUIRY

1. Introduction

South East Timber Association (SETA) members advocate for policies that allow for active and adaptive management of native forests on both private and public land. SETA expects government policies and practices will maintain environmental values in the long term.

A number of SETA members have extensive fire mitigation and fire fighting experience. This submission draws on that experience and observations of the positive and negative outcomes following the establishment of the Rural Fire Service (RFS) under the *Rural Fires Act 1997 (The Act)*.

Recommendations

Recommendation 1

It is recommended that a review be undertaken, to identify the underlying cause(s) as to why fuel reduction and in particular, FRB targets for public land managers, were reduced around 2004. Reasons as to why FRB levels have not been increased in the light of experience from earlier decades in NSW and recommendations from earlier reports including the Commonwealth House of Representatives 2003 *A Nation Charred* report and the 2009 *Victorian Bush Fires Royal Commission* report also need to be known.

Recommendation 2

It is recommended that a minimum annual target of FRB and mechanical fuel reduction target of 5 percent of the NSW native forest estate, be implemented. This recommendation is based on previous Royal Commission recommendations, experience in Western Australia, as well as recommendations from Royal Commissions and Inquiries since the 1939 Victorian Bush Fires Royal Commission Report. SETA members observed a number of instances in the past 40 years, where FRB has made a material difference in slowing wildfire spread, reducing fire intensity and aiding in the control of wildfires, in south east NSW and East Gippsland, Victoria.

Recommendation 3

It is recommended that a review of the membership of the Bush Fire Co-ordinating Committee be undertaken to ensure the appropriate scientific skills lie within the Committee to ensure bush fire mitigation actions are not overwhelmed by emergency response financial, political and media demands.

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It is recommended that funding to the Centre for Environmental Risk Management of Bushfires be terminated and the Centre wound up.

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It is recommended that a bush fire research scientist who has a strong grounding in the science of fire behaviour be engaged to review the outputs of the CERMB and discard all material that lacks a sound science basis. This expert should also provide advice on



whether there is sufficient existing science that can be used to address the CERMB objectives.

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It is recommended the Wilderness Act be amended to recognise the evolution of the Australian biota under Aboriginal fire management regimes, so that at least part of the NSW reserve system can, over time, be returned to pre-European conditions.

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It is recommended Sections 100B through 100S be reviewed to ensure fuel reduction works are properly facilitated and not slowed by excessive red tape.

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It is recommended the Bush Fire Environmental Assessment Code be reviewed to ensure conditions applying to public land do not result in unnecessary obstruction of initial attack on unplanned fires. The Code should also be amended to ensure provisions align with the Local Land Services Act and Section 100R of the Rural Fires Act. Part 4.4, first dot point of the BFEAC does not appear to comply with the Rural Fires Act.

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It is recommended the Bush Fire Environmental Assessment Code Appendix Interval Table for SFAZs and LMZs be reviewed to reduce current minimum interval between fuel reduction burns.

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In concert with Recommendation 9, it is recommended that current line of fire fuel ignition on lower slopes be changed to spot ignition, working along ridgetops and progressing down slope to minimise canopy scorch. Heavy scorch is commonly associated with current fuel reduction practice and germination of shrubs diminishes fuel reduction benefits more rapidly, than is the case with lower intensity burns.

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It is recommended that Section 100F(8) of the Rural Fires Act, be amended to allow applicants for bush fire hazard reduction certificates to appeal any failure or refusal to approve an application.

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It is recommended that Section 100G(2)(c) of the Rural Fires Act and the Bush Fire Environmental Assessment Code Part 1.10, be amended to allow bush fire hazard reduction certificates to be issued for 10 years and existing certificates to be extended (rolled over), rather than a new certificate application being required each time a certificate expires.

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It is recommended that Section 100H of the Rural Fires Act be repealed.



Recommendation 14

It is recommended that senior management co-ordination between the Rural Fire Service and Government Land Management Agencies be reviewed to determine if there needs to be restructuring of current arrangements to improve overall response and efficiency in use of resources.

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It is recommended that emergency management centre intelligence gathering, resource coordination and delegation of decision be independently reviewed. The reviewer should then recommend changes that need to be made to address the issues, from the 2003 Parliamentary Inquiry, that have not been addressed in the past 17 years, as well as additional issues raised above.

Recommendation 16

It is recommended that a review of current shift management processes be undertaken across RFS and land management agencies to identify why there has been a steady degradation of fire fighting efficiency over the past 20 years.

Recommendation 17

It is recommended that several fires, including the Border and Postmans Trail fires be audited to determine what decision making processes were in place, particularly in relation to backburning approvals.

Recommendation 18

It is recommended that a skills audit be undertaken of incident controllers and any gaps identified be addressed by appropriate skills development.

Recommendation 19

It is recommended that during future emergency situations, experienced fire personnel be appointed to oversee and mentor emergency centre staff, to ensure there are appropriate levels of delegation of decisions in relation to backburning operations.

Recommendation 20

It is recommended that an audit of aircraft usage be undertaken, to determine what percentage of aircraft time/expenditure is used on direct asset protection, initial attack in remote areas, general bombing of active fire fronts more than 1 kilometer from designated control lines, intelligence gathering and other activities. This information to be used to determine whether aircraft resources are being used efficiently and to modify deployment tasking as needed.



Recommendation 21

In line with recommendations on fuel management above, it is recommended the RFS refocus time and money on fire mitigation works. With potentially warmer drier weather, the needs for mitigation is critical to future wildfire management.

Recommendation 22

It is recommended that the Koala SEPP and environmental zoning laws be amended to allow fuel management operations to be facilitated, not over regulated under the Koala SEPP 2019 and environmental zoning laws.

2. Terms of Reference Item 1

The causes of, and factors contributing to, the frequency, intensity, timing and location of, bushfires in NSW in the 2019-20 bushfire season, including consideration of any role of weather, drought, climate change, fuel loads and human activity.

Of the five matters listed for consideration, only fuel loads and human activity are matters that can be influenced by the RFS, public land managers and private property owners. The human misuse of fires is regulated under Section 100 of the Act and causing a bushfire, arson & other fire related offences are covered under the *Crimes Act 1900*. Penalties for arson offences were increased in 2018.

2(a). The Objects of the Rural Fires Act 1997

The objects of this Act are to provide:

- (a) for the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and*
- (b) for the co-ordination of bush fire fighting and bush fire prevention throughout the State, and*
- (c) for the protection of persons from injury or death, and property from damage, arising from fires, and*
- (c1) for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and*
- (d) for the protection of the environment by requiring certain activities referred to in paragraphs (a)-(c1) to be carried out having regard to the principles of ecologically sustainable development described in [section 6](#) (2) of the Protection of the Environment Administration Act 1991.*

2(b). Bush Fire Prevention and Mitigation

The tools available to aid in bush fire mitigation, are forest fuel reduction by fire and mechanical means. Low intensity fuel reduction burning (FRB) is the most environmentally compatible option, as it melds with the fire adapted Australian biota. The Australian forest ecology has been shaped by up to 60 thousand years of Aboriginal fire management.



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Figures taken from the past 20 years of RFS annual reports show the average annual area subjected to fuel reduction (fire and mechanical) operations in the last 16 years is only 30 percent of the average area treated in the first four years of the 21st century. Fuel reduction burning (FRB), in the same period declined by at least 67 percent. See Appendix 1.

The total area of fuel reduction in NSW for the past 16 years has averaged 168,628 hectares per annum. The average area treated in the first four years of the 21st century averaged 555,498 hectares per annum.

The total area of fuel reduction burning in NSW, declined by at least 34 percent from the first to the second decade of the 21st century. See Appendix 1.

The Australian Government Department of Agriculture reports NSW has 20.4 million hectares of native forest. Based on the average area of fuel reduction for the past 16 years, fuel management in NSW, has covered about 0.82 percent of the total public and private native forest estate annually. This compares to an average of 2.72 percent annually, in the first four years of the 21st century. See Appendix 1 for fuel reduction targets set for the two major NSW public land managers and further discussion.

The 2009 Victorian Bush Fires Royal Commission Report, recommended:

*"The State fund and commit to implementing a long-term program of prescribed burning based on an annual rolling target of **5 per cent minimum of public land.**"*

Data from Western Australia also shows that annual fuel reduction rates of 5 percent or more, significantly reduces the area burnt by wildfires.

2(c.) The RFS Commissioner's Public Comments

It is of concern to SETA members that in a newspaper report in the Age newspaper on 19 October 2015, the RFS Commissioner Shane Fitzsimmons was reported to have said:

Shane Fitzsimmons, Commissioner of the NSW Rural Fire Service, said controlled burning was just one tool available to reduce bushfire risk.

Prescribed burning "is no panacea when it comes to fire safety", Mr Fitzsimmons said. "It's no good chasing hectares", with broadscale burn-offs in remote areas.

The Gospers Mountain fire now holds the record as the largest Australian bushfire, started from a single ignition source, in recorded history. The fire started in a remote area of the Wollemi National Park, in forests with heavy fuel loads and ultimately burnt 512,626 hectares, of predominantly national park. There are a number example across eastern NSW, from the Queensland to the Victorian borders, where fires started in remote areas have also heavily impacted farms, rural communities and the fringes of regional centres and cities and had a massive impact on biodiversity across more than 5 million hectares of NSW native forests.

During the 2019-20 fire emergency, Mr Fitzsimmons has regularly restated that prescribed burning (also FRB) is no panacea. SETA members would like to know, given the past fire season whether Mr Fitzsimmons or his successor will support more extensive FRB, including, low intensity burning in remote areas.



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2(d). The Bush Fire Co-ordinating Committee

Section 48 of the Rural Fires Act sets out the functions of the Bush Fire Co-ordinating Committee (the Committee). Among other things, the Committee:

(a) is responsible for planning in relation to bush fire prevention and co-ordinated bush fire fighting; and

(b) is responsible for advising the Commissioner on bush fire prevention, mitigation and co-ordinated bush fire suppression,

Given the responsibility of the Committee to plan and advise the Commissioner on prevention and mitigation, who on the Committee has the scientific expertise to fully understand the full range of benefits to ensure an appropriate balance between bush fire mitigation and emergency response.

Given the decline in fuel reduction burning across the public and private native forest in NSW, from 2003-04, until the current time, what advice did the Committee, provide to Commissioner Fitzsimmons and his predecessor to support a reduction in the average annual amount of FRB undertaken in NSW by about 70 percent since 2003-04?

Has the Bush Fire Co-ordinating Committee taken into account, the recommendation of the 2009 Victorian Bushfires Royal Commission in relation to an appropriate level of FRB?

As the level of fuel in forest environments, is the only major element of the fire triangle that can be influenced prior to each fire season, failure to ensure higher levels of FRB over the past 16 years, has led to the failure of the RFS, including the Committee and other public land management agencies to meet Objects (a), (c1) and (d) of the Act.

Largely through the valiant efforts of on-ground RFS volunteers, forestry contractors, individual property owners and other members of the public, Fire & Rescue NSW crews and public land management on-ground crews, Object (c) has been delivered to a higher level than could be reasonably be expected, given the failure to deliver on Object (a).



Recommendation 3

It is recommended that a review of the membership of the Bush Fire Co-ordinating Committee be undertaken to ensure the appropriate scientific skills lie within the Committee to ensure bush fire mitigation actions are not overwhelmed by emergency response financial, political and media demands.

2(e). University of Wollongong - Centre for Environmental Risk Management of Bushfires

In February 2018, the NSW Environment Minister and Minister for Emergency Services, announced a five year research partnership between the University of Wollongong (UoW) and the Office of Environment and Heritage (OEH). Four million dollars was granted to fund the newly established Centre for Environmental Risk Management of Bushfires (CERMB) at the UoW.

The media release stated: *"Led by Professor Ross Bradstock, experts from the UoW, Western Sydney University, the University of NSW and the University of Tasmania will work together with OEH, the NSW Rural Fire Service and NSW Environment Protection Authority to deliver research to reduce bushfire risk to urban, rural and indigenous communities."*

"The Hub will host a team of world-class experts who will work with the communities most vulnerable to bushfires."

This Hub appears to be a key part of an academic clique, across Australia, who have been downplaying the value of FRB for a decade or more. It is of great concern to SETA members, that the NSW government has committed a significant sum of money to academics, who do not appear to understand some of the basic science of fire behaviour. The following example relates to one of the CERMB members, who has been quite vocal during the bush fire emergency. Additional commentary on the work of some of the Hub members and partner universities can be found in Appendix 2.

On 26 August 2016, the Illawarra Mercury published an article on the work of Dr Philip Zylstra under the heading *"UOW bush fire research is ground-breaking."* The article stated in part: *"The way emergency services deal with Australian bushfires could be tipped on its head after new research potentially discredits hazard reduction burns."*

A University of Wollongong study published last week found the main drivers of how severe a fire could come from the species of plants rather than surface fuel load.

In many instances the research showed getting rid of leaves and scrub could make forests more flammable."

On 4 November 2016, CSIRO Land and Water scientists published a critique of the model. Some key findings regarding the model included:

"The FFM is described by its author (Zylstra et al. 2016) as a 'biophysical mechanistic model' that incorporates heat transfer processes to describe fire behaviour through complex interactions between fuels, weather and the fire itself. Although the heuristics underlying the FFM in regard to the importance of fuel structure in determining fire behaviour are essentially valid (and described by others previously, see for example Kessell et al. (1978),



Kessell (1979) and Malanson and Butler (1985), the physical basis of the FFM and its sub-models is flawed and incorrect.

In part, this is because much of the sub-modelling is based on small-scale table-top experiments that fundamentally do not incorporate key mechanisms of fire dynamics but also because many of the assumptions in the geometric construct linking a flame vector with a fuel location totally disregard fundamental concepts of heat transfer and fluid dynamics. As a result, these flaws invalidate the model and thus its results will be erroneous."

This is just one example of the research findings that have been produced by members of the CERMB and partners, including the University of Tasmania, which appear to not reflect real world fire behaviour. See Appendix 2 for further examples.

The CERMB has failed to deliver scientific advice to the RFS and public land management that would allow the delivery of ecologically sustainable forest fire management.

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It is recommended that funding to the Centre for Environmental Risk Management of Bushfires be terminated and the Centre wound up.

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It is recommended that a bush fire research scientist who has a strong grounding in the science of fire behaviour be engaged to review the outputs of the CERMB and discard all material that lacks a sound science basis. This expert should also provide advice on whether there is sufficient existing science that can be used to address the CERMB objectives.

3. Terms of Reference Item 2

The preparation and planning by agencies, government, other entities and the community for bushfires in NSW, including current laws, practices and strategies, and building standards and their application and effect.

Comments in this section, will focus on current laws.

3(a). The NSW Environmental and Bush Fire Regulatory Framework

The NSW environmental and fire management law, particularly in relation to native forests is written from a terra nullius ecological view. The terra nullius ecological view assumes that Aboriginal management had no real impact on the evolution of the Australian biota.

Therefore, it is assumed the cessation of Aboriginal land management by fire, has had no impact on the ecology, health and habitat of all the species that evolved in a regime of regular disturbance by fire. In the more remote parts of Australia, The Australian Wildlife Conservancy (AWC) is using managed fire, to protect and enhance the food resources of a range of threatened species. The scientists working for the AWC apparently see managed fire as an ecological protection tool, used for habitat and wildfire risk management

In the taller forested landscape, the regulators along with fire and ecology researchers continue to ignore the role that Aboriginal fire played in the evolution of forested landscapes.



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The terra nullius ecological view is exhibited in the constant claim of 'permanent protection' made, whenever land tenure is changed from private, leasehold or state forest, to national park or other reserve status. The concept of permanent protection has been shown time and again to be a falsehood, as passive management ensures megafires and feral predators and other threats push more and more species in the "permanently protected" reserve system to extinction.

An example provided by the Threatened Species Scientific Committee, in 2016, documented the declining populations of the threatened Southern Brown Bandicoot (SBB), in five reserves, across three states.

Available quantitative data are summarised in the table below.

Population	State	Decline
Ben Boyd National Park	NSW	44% (1999 to 2008)
Nadgee Nature Reserve	NSW	47% (1999 to 2008)
Port Campbell	Vic	>70% (past 10 years)
Pines Flora and Fauna Reserve	Vic	100% (extirpated around 2006)
Mt Lofly Ranges – northern metapopulation	SA	100% (extirpated around 2009)

A significant area of SBB and Long-footed Potoroo, along with many other threatened species habitat, has been decimated in the December and January wildfires in SE NSW and East Gippsland.

The terra nullius ecological view was confirmed in 1987, with the gazettal of the NSW Wilderness Act. Wilderness is defined in part as:

(1) An area of land shall not be identified as wilderness by the [Director-General](#) unless the [Director-General](#) is of the opinion that:

(a) the area is, together with its plant and animal communities, in a **state that has not been substantially modified by humans** and their works or is capable of being restored to such a state,

(2) In forming an opinion under subsection (1) the [Director-General](#) may consider any relevant circumstance, including:

(a) the period of time within which the area of land could reasonably be **restored to a substantially unmodified state**.

If the influence of Aboriginal fire management was accepted, the Wilderness Act would either need to be redrafted or else repealed, to allow Aboriginal fire regimes to be restored to designated Wilderness areas. These changes would advance the Rural Fires Act object in relation to bushfire mitigation and the .

9 Management principles for [wilderness areas](#)

A [wilderness area](#) shall be managed so as:

(a) to restore (if applicable) and to protect the unmodified state of the area and its plant and animal communities,

(b) to preserve the capacity of the area to evolve in the absence of significant human interference,



Consequently, the habitat of fire disturbance dependent species, is degraded by neglect and it would appear managed fire could be discouraged in designated wilderness areas.

Section 100J of the Act, requires the RFS Commissioner to take into account, the principles of ecological sustainable development, when preparing a draft bush fire environmental assessment code. *The Bush Fire Environmental Assessment Code for NSW February 2006*, does not permit the issue of bush fire hazard certificates in wilderness areas.

"A certificate cannot be issued for the following land categories, except where works involve only the manual removal of noxious or environmental weeds (as defined within clause 4.9) in accordance with Part 4:

(c) a wilderness area within the meaning of the Wilderness Act 1987."

Recommendation 6

It is recommended the Wilderness Act be amended to recognise the evolution of the Australian biota under Aboriginal fire management regimes, so that at least part of the NSW reserve system can, over time, be returned to pre-European conditions.

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It is recommended Sections 100B through 100S be reviewed to ensure fuel reduction works are properly facilitated and not slowed by excessive red tape.

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Section 100F(8) of the Rural Fires Act states: *"There is no right of appeal against the determination of, or a failure or refusal to determine, an application for a bush fire hazard reduction certificate."* Being able to protect people's lives, homes and other assets, by FRB and mechanical means is a key issue for anyone living in a fire prone area.



The alternate remedy offered under Section 100F(8) of the Rural Fires Act would likely be cost prohibitive for most applicants. The BFEAC Part 1.10 only allows a certificate to operate for 1 year. Therefore, the following recommendations are made.

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It is recommended that Section 100F(8) of the Rural Fires Act, be amended to allow applicants for bush fire hazard reduction certificates to appeal any failure or refusal to approve an application.

Given the time and cost in preparing a bush fire hazard reduction certificate, initial certificates should be issued for 10 years and certificates should be extended, rather than a new application having to be submitted.

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It is recommended that Section 100G(2)(c) of the Rural Fires Act and the Bush Fire Environmental Assessment Code Part 1.10, be amended to allow bush fire hazard reduction certificates to be issued for 10 years and existing certificates to be extended (rolled over), rather than a new certificate application being required each time a certificate expires.

Fire mitigation and the environmental impact of FRB, compared to wildfire is a complex issue and one that is potentially very emotional and divisive. Property owners have rights and responsibilities to manage fire hazards to protect their properties. Section 100H of the Rural Fires Act, has the potential for individuals or organisations, who have nothing to lose, to take legal action to frustrate the rights of those who have everything to lose.

If there are any actual breaches of Sections 100F or 100G, then the regulator should be responsible for taking action, not delegate the decision to take legal action for real, ideological or other reasons.

Recommendation 13

It is recommended that Section 100H of the Rural Fires Act be repealed.

4. Terms of Reference Item 3

Responses to bushfires, particularly measures to control the spread of the fires and to protect life, property and the environment, including:

- **immediate management, including the issuing of public warnings;**
- **resourcing, coordination and deployment; and**
- **equipment and communication systems.**

4(a). Measures to Control Bush Fires

Over the past decade or more, SETA members involved in firefighting operations have observed a general decline in coordination, deployment, tactical decision making and efficient utilisation of firefighting resources.

The broad observations on page 3 of the House of Representatives 2003, "A Nation Charred" report, accurately summarise some the key concerns SETA of members. The observations were:



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The fire suppression effort was hampered by lack of prior fuel reduction burning, closure and lack of maintenance of tracks, historical loss of resources from land management agencies (particularly the forest industry), and a reliance on suppression rather than prevention.

More fuel management is possible – a coordinated and planned scientifically based regional approach across all tenures could be achieved.

In some cases, there was a lack of effective early rapid response, and opportunities to contain some of the fires were available but not taken.

Ground attack and aerial units were, in some cases, held back and not properly utilised – for a variety of reasons, including liability and occupational health and safety issues.

Local knowledge and experience was ignored or not sought. Volunteers are feeling marginalised (and in some cases taking direct action).

Some landholders and residents felt abandoned and the concept of asset protection is not sufficiently relevant to locals. The emphasis on asset protection probably contributed to the spread of fires.

Incident control systems did not effectively utilise local knowledge or respond to local conditions.

Additional comments made by SETA members include:

Tactical and strategic back burning were heavily restricted by incident control centres or else totally banned. See specific examples below.

Lack of direction from sector commanders left fire crew, tankers and heavy equipment idle for extended periods, when they should have been used for back burning and mopping up.

Many crews did not seem to understand the basics of mopping up and placed too much reliance on pouring water on heavy debris, which often reignited hours or days later because the seat of the fire had not been exposed and extinguished.

Standards for selecting trees to be removed from the edge of control lines varied between national parks and other land tenures, creating confusion for machine operators and risks for ground crews, where dead spars were not felled. In at least one case standing dead trees became a risk fire the nightshift mop-up crew.

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It is recommended that senior management co-ordination between the Rural Fire Service and Government Land Management Agencies be reviewed to determine if there needs to be restructuring of current arrangements to improve overall response and efficiency in use of resources.

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It is recommended that emergency management centre intelligence gathering, resource coordination and delegation of decision be independently reviewed. The reviewer should then recommend changes that need to be made to address the issues, from the 2003 Parliamentary Inquiry, that have not been addressed in the past 17 years, as well as additional issues raised above.

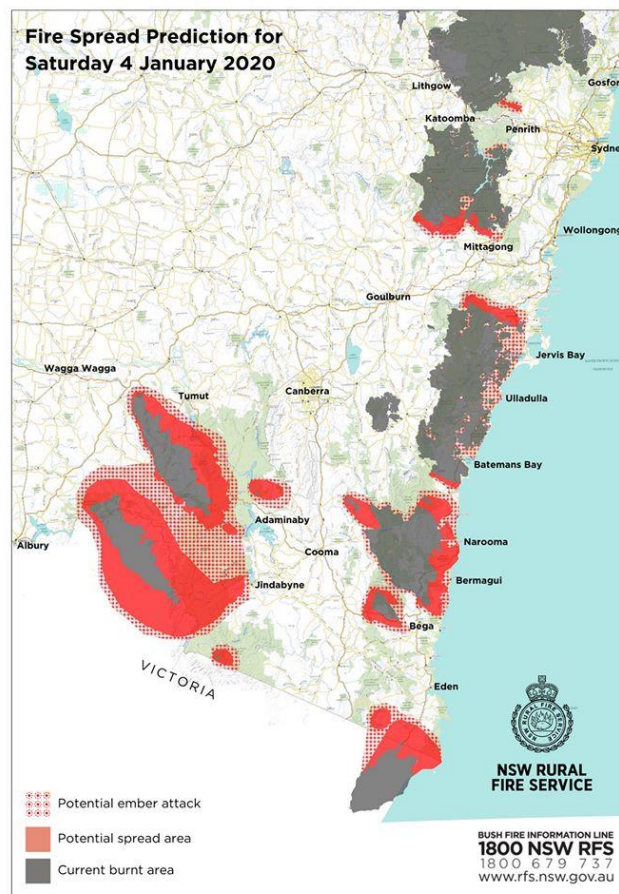


4(b). Approval to Backburn Withheld

4(b)(i). The Border Fire

Numerous examples of refusal by incident control centres in both northern and southern NSW have been experienced by SETA members and others involved in the fire suppression effort during the 2019-20 fire season. There seems to be a lack of understanding of the difference between tactical (where fire is close to the control line) and strategic backburning. In some instances, the decision to withhold approval for backburning has potentially lead to worse outcomes on the next blow-up day, than might otherwise have been.

On Tuesday 31st December 2019, one tongue of the East Gippsland Mallacoota fire complex ran to the NSW border adjacent to the Princes Highway. A second tongue of the fire ran to the east of the Princes highway and stopped further south of the border. See the Fire Spread Prediction for Saturday 4 January 2020 below, for more details.



After the run of the fire, NSW crews and equipment that had evacuated to Narrabarba, on Tuesday morning, returned to the strategic fire breaks, that had been established along the Victorian border, after a February 1983 wildfire had come out of Victoria into NSW.

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This run of the fire was stopped by a change in weather conditions, with the temperature falling to less than 20 degrees, 80 percent relative humidity and 0.2mm of rainfall. The eastern flank of the fire ran back into Victoria to the coast. The western flank of the fire ran to the south, south west into Victoria. There were other fire complexes to the west of the Mallacoota Complex and an isolated fire close to the border in the Victorian Coopracambra National Park, east of the Monaro Highway.

On the morning of Wednesday 1 January 2020, the RFS recorded the fire area in NSW to be 240 hectares and initial requests to commence backburning along the strategic and other forest roads were lodged. Permission was refused. Requests for approval to burn were made on Thursday 2 January and again refused.

Reasons given did not mention a lack of resources. Despite generally favourable wind conditions predicted for the period Wednesday to mid-day Saturday, one reason for refusal was conditions were too dangerous and the change in weather conditions too close. Other reasons included a directive not to "put any more fire in the landscape" and there had been a backburn escape elsewhere.

It is assumed that the backburn that had escaped, was associated with the Gospers Mountain fire, which was reported in the Land newspaper on 18 December 2019 and read in part: *"A backburn as part of the 409,000ha Gospers Mountain fire went badly wrong on Sunday, destroying up to 20 buildings including 12 homes."*

A learning response would have been to ensure all necessary precautions were in place in future backburns and promptly approve, or delegate decisions to operationally experienced controllers or sector bosses. Blanket bans on any backburning will just ensure that fires fronts that could have been fully contained and blacked out, will run out of control on the next windy day.

Given the long-established strategic fire break and network of forest roads, experienced fire fighters involved in the operation, were extremely frustrated at the apparent lack of understanding of on-ground conditions that seemed to be held by the incident controllers.

On ground fire fighters with decades of firefighting experience still hold the strongest views, that up to three days was sufficient time to undertake the burn from the Marshmead College campus in Victoria, north to Mines Road, then west along Royds Creek Road and then Handfords or Maxwells Road, to the Princes Highway.





Royds Creek Road Strategic Fire Break 14 April 2020

The burn would then have extended from the Princes Highway, west along the Broadaxe Road strategic break, at least as far as the Border fire trail in Yambulla State Forest, or further west, depending on movements of the Mallacoota complex.



Broadaxe Road Strategic Fire Break 14 April 2020

The burn could have potentially contained more than 20 kilometers of the Victorian fire front and greatly reduced the wind storms generated by the fire. The worst outcome may have been an occasional spot over, starting from scratch, rather than the continuous wall of fire that was in place, when the south west wind change arrived on Saturday 4 January 2020.

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The location of the Mallacoota fire front presented the first opportunity in 37 years for this break to be used. SETA members, who aided in the control of the February 1983 wildfire want to know why the necessary action was not taken to use this break. How many days of favourable weather do incident controllers need, before they deem the use of assets like the border strategic fire break, is worth the decision risk, rather than leaving it to weather conditions to determine wildfire outcomes?

Questions also need to be asked of the Victorian response, or lack thereof, to the Coopracambra (became the Rockton fire on entering NSW) fire, that blew up with the south westerly change and joined with the Mallacoota Complex on the night of 4 January. These two fires destroyed homes and more than 215,000 hectares of NSW forests, plantations and farms.

Throughout January, incident controllers maintained a ban on any backburning on the northern front of the Border fire. Backburning would have ensured the northern front was contained and could be blacked out. The fire front stretched from the Pacific Ocean to west of Rocky Hall. Relatively favourable (for this fire) weather, and an unknown expenditure on water bombing of the fire front by a fleet of helicopters, rather than active on-ground management, contained this fire until heavy rain covered all the fire grounds in south east NSW in the second week of February.



Night Time Backburn, 9 February 1983. Backburn in Heavy Fuels, to Contain a Fire Front Over 20 Kilometers North of the Victorian Border, Less than 10 Hours After a 100+ km SW Wind Change Pushed the Fire Over the Border



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At a public meeting at Pambula Beach in mid January, a senior RFS officer advised concerned residents that no back burning was being done on the Border fire, as the RFS didn't think backburns could be held. Day after day, helicopters left the Merimbula airport to the various fire fronts. Why could these aircraft be tasked to support backburning operations, instead of bombing hotspots across the fire ground?

The standoff management approach is best summarised by one line in the RFS – Border Fire Advice of 25 January 2020:

"There is still active fire burning behind identified containment lines." This advice was issued 21 days after the major run of the fire. In the end, good luck, rather than good management would seem to have been the major factor in the extinguishment of this and other fires.



One of Several Helicopters Stationed at Merimbula in January 2020

The "containment line" was, like so many other containment lines across the state, just lines on a map, readily overrun by fire on the next bad weather day, due to a lack of commitment to burn out to mineral earth control lines and black out the whole of the fire edge.

On 60 Minutes, on 9 February 2020, Craig Lapsley, former Victorian Fire Commissioner, stated: "We are getting to the point now, where the traditional tactics being deployed are not effective." Mr Lapsley is wrong. What he calls "traditional tactics" are a 21st century indecisive version of traditional tactics.

Traditional tactics consisted of:

- Direct attack when safe;
- Track close to the flank and fire front when safe;
- Undertake tactical burnout (delegated to sector managers) along the edge to remove all fuel between the break, track or road as the control line advances;



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- If conditions don't allow direct attack, prepare containment lines and undertake strategic backburning as soon as there is a reasonable outlook of favourable weather;
- Everyone knows the plan and sector bosses update control centre regularly and vice versa;
- If situation changes, sector bosses redeploy crews and equipment in consultation with the control centre;
- Tactical and strategic backburning of difficult areas to be done mostly at night, to minimise the risk of losing the backburn;
- Black out the edge, as the control line and burning advances;
- Operate on a 24 hour 7 day a week basis, until the fire is actually contained and controlled;
- If blow-up days occur, divert crews and machines to asset protection;
- Undertake minimum crew, day shift patrol until the fire is confirmed as out;
- Make efficient use of resources and ensure blacking out extinguishes all woody debris and
- Shift changes occurred on the line.

Current tactics in the main involve:

- Indirect attack – keep well clear of the fire front preparing "containment lines;"
- Allow the fire front to approach the containment line at a speed dictated by prevailing weather conditions;
- Use any available aerial water bombing capacity to slow the fire front, in the hope that the fire can be stopped as it reaches the containment line;
- Overall plan for the shift not always well communicated. Top down directives in the event of changing conditions and key field managers not always consulted on changes to control centre directives;
- In the event of deteriorating weather conditions, pull out all crews and equipment, for deployment to asset protection or to sit and wait for the emergency to pass;
- Identify a new containment line and repeat the process;
- While there are generally sufficient resources, casual observations note much time is wasted on day shifts and many night shifts run short-handed or whole sectors are abandoned;
- Breakdowns occur along the communication chain and between sectors, under different land management authorities. This results in misallocation and waste of key resource time;
- Tanker operator off road skills and a partial understanding of mop-up processes, including crews mopping up through bush, with no adjacent firebreaks, increase the risk of future breakouts; and
- Shift changes often occur through depots and day or night shift may not actually handover on the line.

Recommendation 16

It is recommended that a review of current shift management processes be undertaken across RFS and land management agencies to identify why there has been a steady degradation of fire fighting efficiency over the past 20 years.

4(b)(ii). The Postmans Trail Fire

The Postmans Trail fire started in late January 2020. On 29 January, the RFS recorded the fire area to be 291 hectares. The fire was surrounded by existing roads and trails and the



critical eastern front had been tracked by bulldozers. Permission to backburn was denied, as strong north east winds were expected on Saturday 1 February.

When the change arrived on Saturday 1 February, the uncontrolled fire readily spotted over new and existing control lines and burnt towards Wyndham. By 2 February, the fire area was over 11,000 hectares.

In the end, regular rain from 6 February was the most likely reason this and the Big Jack Mountain fire did not burn to the Great Eastern Firebreak.

There are multiple examples across NSW where refusal to backburn likely lead to major breakouts of "contained" fires on blow-up days. While the various incident controllers may have been trained in the management of an incident, managing potentially everchanging incidents, needs a practical, as well as theoretical understanding of wildfire management and good communication with sector bosses.

4(b)(iii) NSW North Coast

The Myall Creek Bora Ridge is an example of a North Coast fire, where failure to backburn is said to have contributed to the ultimate size of the fire. SETA members have been advised that during the earlier days of the fire, there were four days of favourable backburning weather on the major fire front. The reason for refusal to burn was said to be that the fire was too far from the containment line. Subsequently, west to north westerly winds quickly pushed the fire over the "containment line," to an ultimate burn area of 121,324 hectares.

The command and control model, where incident controllers constantly overruled advice and requests from experienced field managers, remains a deep frustration for many volunteer and paid fire fighters. The 2019-20 fire season, might be best described as a series of opportunities not taken, which led to bigger and bigger fires and effectively handed control of the fire to the weather. Available resources were spread ever more thinly and the management complexities were magnified as a consequence. Incident management is then forced to focus on the ever-growing emergency response burden, as fires impact farms, livestock, homes, towns and lives.

Recommendation 17

It is recommended that several fires, including the Border and Postmans Trail fires be audited to determine what decision making processes were in place, particularly in relation to backburning approvals.

Recommendation 18

It is recommended that a skills audit be undertaken of incident controllers and any gaps identified be addressed by appropriate skills development.



Recommendation 19

It is recommended that during future emergency situations, experienced fire personnel be appointed to oversee and mentor emergency centre staff, to ensure there are appropriate levels of delegation of decisions in relation to backburning operations.

Recommendation 20

It is recommended that an audit of aircraft usage be undertaken, to determine what percentage of aircraft time/expenditure is used on direct asset protection, initial attack in remote areas, general bombing of active fire fronts more than 1 kilometer from designated control lines, intelligence gathering and other activities. This information to be used to determine whether aircraft resources are being used efficiently and to modify deployment tasking as needed.

5. Terms of Reference Item 4

Any other matters that the inquiry deems appropriate in relation to bushfires.

No further comments

6. Terms of Reference Item 5

Preparation and planning for future bushfire threats and risks.

6(a). Wildfire Emergency Response vs Fire mitigation

Over the past 16 years, the Rural Fire Service has followed the United States model and become primarily focussed on emergency response, with an agenda to secure more and larger aircraft.

Between 2012-13 the RFS budget increased from \$374.11 million to \$552.37 million, a 32.27 percent increase. In the same period, expenditure on fire mitigation works decreased from \$10.226 million, (2.95 percent of total expenditure) to \$8.793 million (1.59 percent of total expenditure), a 14 percent decrease in dollar spend.

Recommendation 21

In line with recommendations on fuel management above, it is recommended the RFS refocus time and money on fire mitigation works. With potentially warmer drier weather, the needs for mitigation is critical to future wildfire management.

7. Terms of Reference Item 6

Land use planning and management and building standards, including appropriate clearing and other hazard reduction, zoning, and any appropriate use of indigenous practices.



7(a) Koala State Environmental Planning Policy 2019 and Environmental Zoning

As discussed in 3(a) above, much of the NSW environmental regulatory framework is written from a terra nullius perspective, where the role of regular low intensity burning from conservation and fire risk perspective is generally minimised or dismissed by arrange of academics, environmental NGOs and regulators.

Consequently, regulatory frameworks including the Koala SEPP 2019 and environmental zoning regulations and codes make regular fuel management a prohibited activity or excessively expensive from an approval perspective. Without radical reform, wildfire disasters will become increasingly common, to the ongoing detriment of human lives and property and biodiversity.

Recommendation 22

It is recommended that the Koala SEPP and environmental zoning laws be amended to allow fuel management operations to be facilitated, not over regulated under the Koala SEPP 2019 and environmental zoning laws.

SETA has no further comments on the remaining terms of reference.

Submitted on behalf of the South East Timber Association by:

Peter Rutherford

SETA Secretary



APPENDIX 1

20 Years of Forest Fuel Management Under the Rural Fire Service and Public Land Management Agencies in NSW

Fuel Reduction (FR) data in the table below has been extracted from the NSW Rural Fire Service Annual Reports 1999-2000 to 2018-19. Fuel Reduction Burn (FRB) data was not reported separately until 2004-05. To interpret the table, refer to the foot notes.

SOURCE: RFS ANNUAL REPORTS			AREA OF FUEL REDUCTION BY BURNING & MECHANICAL MEANS (Ha)								
Year	Cost of RFS (\$'000)	Fire Mitigation (\$'000)	RFS*	BFMC/PP	NP&WS	FCNSW	Crown Land	Councils	Other Govt Agencies	Total FR	Total FRB Only #
1998-99	\$78,505										
1999-2000	\$84,129			474,009						474,009	358,684
2000-01	\$93,200			589,319						589,319	445,939
2001-02	\$179,218			581,825						581,825	440,268
2002-03	\$240,989			457,947	42,827	54,504	20,624	938		576,840	436,496
2003-04	\$141,074			178,776	65,451	75,540	2,801			322,568	244,088
2004-05	\$152,269		24,390	12,627	36,377	36,403	943	22,652	883	109,885	79,378
2005-06	\$177,519		15,759	3,647	32,026	38,008	1,286	31,387	1,388	107,742	71,861
2006-07	\$253,294		13,003	8,892	23,840	43,716	911	25,495	1,385	104,238	78,012
2007-08	\$223,312		19,517	21,656	49,514	30,719	2,503	10,464	9,701	124,556	98,198
2008-09	\$247,234		26,443	8,897	60,117	30,652	2,456	12,304	8,908	123,335	103,686
2009-10	\$316,080		44,531	16,758	95,673	36,216	5,786	16,091	4,181	174,706	154,504
2010-11	\$307,470		14,717	7,398	58,092	10,884	4,195	31,573	5,491	117,633	74,858
2011-12	\$286,771		28,748	9,702	49,791	19,703	8,677	34,757	15,583	138,211	89,884
2012-13	\$374,110	\$10,226	26,408	13,220	209,594	21,468	4,955	20,310	11,945	281,492	252,734
2013-14	\$412,051	\$6,877	40,319	10,819	114,154	7,259	4,222	16,066	4,702	157,222	136,102
2014-15	\$311,185	\$4,253	25,957	8,936	116,251	2,165	3,770	15,707	5,329	152,157	130,911
2015-16	\$326,590	\$5,724	34,282	11,348	205,889	34,022	8,188	14,864	11,089	285,401	264,927
2016-17	\$357,679	\$8,432	7,929	7,906	86,942	17,332	5,391	19,030	4,045	140,646	115,223
2017-18	\$371,370	\$8,077	18,531	10,047	102,121	9,054	7,216	14,887	4,302	147,626	129,472
2018-19	\$552,750	\$8,793	-	6,187	137,764	34,079	3,794	9,144	8,281	199,248	184,294
NOTES		Average FR 2000 - 2009 (Hectares)			311,432		Average FRB 2000 - 2009 (Hectares)				235,661
		Average FR 2010 - 2019 (Hectares)			179,434		Average FRB 2010 - 2019 (Hectares)				153,291
	FR Percentage Reduction 1st to 2nd Decade				42%	FRB Percentage Reduction 1st to 2nd Decade					35%
		Average FR 2000 - 2003 (Hectares)			555,498	Average FRB 2000 - 2003 (Hectares)				420,347	
		Average FR 2004 - 2019 (Hectares)			167,917	Average FRB 2004 - 2019 (Hectares)				138,008	
FR Percentage Reduction 2000-04 to 2005-2019					70%	FRB Percentage Reduction 2000-04 to 2005-19					67%
*RFS fuel reduction areas are part of the land management agency totals.											
# Mechanical FR is not reported separately for 2000-04. Mechanical & other means averaged 25 percent of the total area fuel reduced from 2005-09. Total fuel reduced areas for 2000-04 have been discounted by 25 percent to provide a conservative FRB only estimate.											

The fuel reduction targets reported in the RFS annual reports for two major land management agencies are:

- NSW National Parks and Wildlife Service target is 135,000 for the past four years, which is approximately **1.9** percent of the national park & other reserves estate; and
- Forestry Corporation of NSW target is 21,142 hectares for the past four years, which is approximately **1.12** percent of the corporation native forest estate.

The 2009 Victorian Bushfires Royal Commission Report Recommendation 56 states:

*"The State fund and commit to implementing a long-term program of prescribed burning based on an annual rolling target of **5 per cent minimum of public land.**"*

The 2018-19 RFS annual report states: *"This hazard reduction program provides the means by which the NSW RFS and other land managers seek to meet the NSW Government four-*



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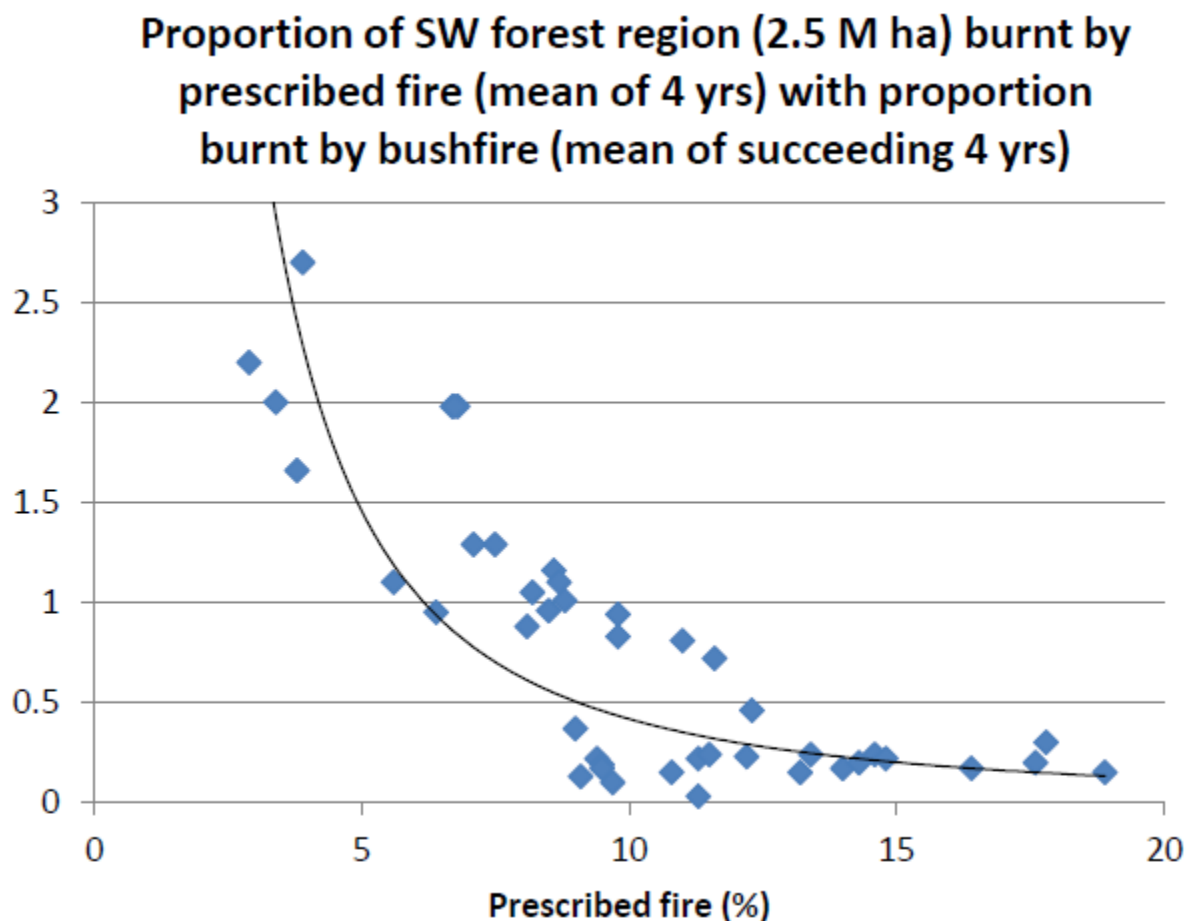
year target of 750,000 hectares treated and 600,000 properties protected for the period 1 April 2015 to 31 March 2019."

Why has the NSW Government set a target of only 187,500 hectares per annum, which equates to 0.91 percent of the total native forest estate in NSW?

Why is biodiversity listed as one of the values the NSW Government would want to protect from devastating wildfires?

Research in Western Australia by Burrows and others has shown fuel reduction rates of **5 percent or more** significantly reduce the area burnt by wildfire.

It is understood that FRB area reporting is done on a gross area basis, so the actual area reported to have been burnt in the table above, would be less than 100 percent of the reported figures. Burning less than 100 percent of FRB blocks is important in minimising the impacts of burning on biodiversity values.



(Source: Sneeuwjagt 2008 + updates)



APPENDIX 2

Common Flaws in 21st Century Fire Research

The pre-European fire management history of the Australian continent has been documented in detail by Bill Gammage in *"The Biggest Estate on Earth – How Aborigines Made Australia"* and Vic Jurskis in *'Firestick Ecology – Faidinkum Science in Plain English.'*

A number of fire researchers and ecologists appear to bring an ideological element into their research and interpretation of results.

The author of *"Fire History of the Australian Alps – Pre History to 2003"* Dr Philip Zylstra¹ provides one example of this approach, in a move which supports a fire research outcome that use of fire by Aboriginal people prior to European arrival, is overstated in the historical record.

There are several elements to a strategy aimed at minimising the use of planned fires to manage wildfire risk, which perversely, exposes ecological values in the remaining native vegetated landscapes of Australia to an increased frequency of high intensity wildfires.

1. Playdown or Otherwise Discredit Information that Conflicts with the Research Objective.

On page 11, of Dr Zylstra's *Fire History of the Australian Alps*, all historical sources relating to Aboriginal burning and its effects are grouped under the heading *NON-ABORIGINAL PERCEPTIONS*. In three words, the author effectively dismisses all the core sources that underpin the writing of Gammage, Jurskis and many other works, as perceptions, not real time observations.

2. Downplay any Information that Might Show the Weakness of Research Methodology or Conclusions.

Dr Zylstra's paper is peppered with expressions such as:

"Folklore has developed....."

Considering these factors it is reasonable to deduce....."

Contrary to perceptions....."

There is a perception in some areas gained from comments made by explorers that the Australian bush was at first encounter entirely composed of open woodland with no large patches of forest

Although the description is not here explicit, it is clear that Lhotsky sees the 'large timber' to be in stark contrast to the scattered trees of the grassland ridgelines.

It is most likely that....."

However, as for the rest of the Alps, there are no direct observational records....."

Clearly, some other factor introduced before the rabbits was the main factor in stripping the herbaceous stratum and accelerating the loss of topsoil.

Following the same argument as for the Snowy River corridor....."

It is not certain how this knowledge of aboriginal burning was attained....."

It is likely that the beliefs regarding burning practices were also assumptions based upon the beliefs of the time."



In the end, the perceptions and reinterpretations of the author become fact. The reinterpretations assume among other things, the early settlers could not distinguish between camp fires and broader area fires. The observations of Alfred Howitt, who widely travelled the Gippsland and alpine areas (Note: the author does not define "alps" in the paper) from 1860 saw changes in burning and flow-on changes to forest species and structure first hand. Dr Zylstra effectively dismisses his real time observations as perceptions.

3. Quote from Secondary Sources, so the Detail of the Original Source is Missing

On page 22 of the paper, Dr Zylstra references two quotes from Howitt 1890, from Ryan, Ryan & Starr and additional short extracts from other historical sources describing changes in forest composition and structure post European settlement.

He then states: *"Whilst these statements confirm that the cover of thick forest has occurred since European settlement, the question to be addressed is whether this colonisation has occurred as a result of changing fire regime, and if so, what indications are there as to what the pre-European fire regime was."*

Observations and reinterpretations 150 years after the fact, carry more weight than observations made by Howitt, who had a degree of Doctor of Science conferred on him in 1904 by Cambridge University.

Had Dr Zylstra read the source document referenced by Ryan, Ryan & Starr, he would have found important context in relation to altered fire regimes post European arrival:

The influence of settlement upon the Eucalyptus forests has not been confined to the settlements upon lands devoted now to agriculture or pasturage, or by the earlier occupation by a mining population.

It dates from the very day when the first hardy pioneers drove their flocks and herds down the mountains from New South Wales into the rich pastures of Gippsland.

Before this time the gramminivorous marsupials had been so few in comparative number, that they could not materially affect the annual crop of grass which covered the country, and which was more or less burnt off by the aborigines, either accidentally or intentionally, when travelling, or for the purpose of hunting game.

These annual bush fires tended to keep the forests open, and to prevent the open country from being overgrown, for they not only consumed much of the standing or fallen timber, but in a great measure destroyed the seedlings which had sprung up since former conflagrations.

The influence of these bush fires acted, however, in another direction, namely, as a check upon insect life, destroying, among others, those insects which prey upon the Eucalypts.

Granted these premises, it is easy to conclude that any cause which would lessen the force of the annual bush fires, would very materially alter the balance of nature, and thus produce new and unexpected results.



He would also have found other detail, which would undermine the following conclusion to his paper.

"The mountains recover slowly from the changes of the past 6 generations. The vast expanses of wildflowers slowly return to the glory they had when the early mountain men first saw them; but the minds of men change more slowly if they ignore the lessons of the past. We are no longer limited to the vision of 1 lifetime, we have a far longer period to tell us that although fire will always be with us, it will hold less terror as we learn the places it belongs, and respect the places that should be free of it."



The photo above shows alpine grassland subject to regular low intensity burning on the RHS. The LHS is a fire exclusion area. It would seem that if Dr Zylstra's desire for vast expanses of wildflowers is to be realised, burning will need to be returned to the alps, not excluded, as he argues it should be.

Significant areas of the Alps have been consumed by high intensity wildfire twice in the past 17 years, including significant areas of the permanently protected Kosciuszko National Park. How does respect for places that should be free of fire work in a practical, scientific frame, rather than a wilderness ideology frame?

4. Construct Models That Don't Reflect the Real Value of Fuel Reduction Burning

In December 2017, fire researchers from the University of Tasmania, one of the partners of the NSW Centre for Environmental Risk Management of Bushfires, published the outputs of their fire modelling in Tasmania. The authors of the paper are James Furlaud² a PhD student, Grant Williamson³ and Professor David Bowman. The Abstract commenced by stating:

"Prescribed burning is a widely accepted wildfire hazard reduction technique; however, knowledge of its effectiveness remains limited. To address this, we employ simulations of a widely used fire behaviour model across the ecologically diverse Australian island state of Tasmania."

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On the day the paper was published, a promotional opinion piece by Post Graduate student Furlaud and Professor Bowman appeared on the Conversation. The article was titled "*To fight the catastrophic fires of the future, we need to look beyond prescribed burning.*"

As the management of forest fuel levels is the only thing that humans can do to make a material difference to fire intensity and the amount of embers released by a wildfire under prevailing weather conditions, it appears these research scientists want to use Tasmania as the guinea pig to trial what experienced fire fighters know are fire management strategies doomed to fail.

They state: "*Yet our research, published today in the International Journal of Wildland Fire, modelled thousands of fires in Tasmania and found that nearly a third of the state would have to be burned to effectively lower the risk of bushfires.*"

In all simulations, we standardised fire-weather inputs to represent regionally typical dangerous fire-weather conditions.

"However, leverage analysis of the 12 more-realistic implementable plans indicated that such prescribed burning would have only a minimal effect, if any, on fire extent and that none of these prescribed-burning plans substantially reduced fire intensity."

The authors do not define where their "typical dangerous fire-weather" sits on the current Fire Danger Rating chart. Whether it is severe, extreme or catastrophic, this type of weather does not occur all day every of the bush fire season. Consequently, there is a very significant period of the declared fire danger period, when a reasonable area of FRB, say 5 percent per annum, will aid fire containment and suppression.

Despite the generally declining area of FRB in most states, there are a number of examples that have been available from the past fire season, that have shown a rapid transition from crown fire or full crown scorch, to a ground fire, with little or no crown scorch once the wildfire has entered a fuel reduced area.

This would suggest there are fundamental issues with the model used by these researchers, if their model shows "*that none of these prescribed-burning plans substantially reduced fire intensity.*"

In the Conversation they state: "*We need to start thinking bigger: how can we mitigate the effect of multiple large fires in a region like Tasmania or South eastern Australia?*"

They say: "*To combat fire risk we must take a multi-pronged approach that includes innovative strategies, such as designing new spatial patterns for prescribed burning, manually removing fuels from areas in which prescribed burning is not possible, improving the standards for buildings and defensible spaces, and most importantly, engaging the community in all of this.*"

Unfortunately, no real-world detailed solutions are offered. The experience in NSW and eastern Victoria this past season has again shown that failure to address the forest fuel loads in the broader landscape, leads to disaster for rural property owners and communities situated in fire prone areas and biodiversity across the fire devastated areas.



It is a common feature among many 21st century fire research scientists, that they and hence their models appear to have a significant disconnect from real wildfire situations, in relation to the value of FRB.

5. Concentrate Modelling on Protecting Human Assets.

On 9 July 2019, Associate Professor Owen Price⁵ and Mr Michael Bedward⁶ from the Centre for Environmental Risk Management of Bushfires at the University of Wollongong published a research paper titled: *"Using a statistical model of past wildfire spread to quantify and map the likelihood of fire reaching assets and prioritise fuel treatments."*

Most field fire practitioners would likely argue that you don't need to spend hundreds of thousands of dollars on computer modelling and writing a research paper to work out that: *"The probability of a fire reaching the vicinity of an asset was highest in the heavily forested parts of each case study, but when weighted for ignition probability, the high probability shifted to the wildland–urban interface. Further, when weighted by asset location, high-priority areas for treatment were in blocks next to the wildland–urban interface."*

The other key factor in this research, the research outcomes discussed above and much of the 21st century FRB minimalist fire research, is the lack of focus on the forest values. Time and again, the impacts of megafires in heavily fuelled forests are ignored, as all attention is focused on purporting to protect human lives and assets.

The damage to flora, fauna, soil and water in NSW and in Victoria during the past fire season, was underpinned by a continuum of flammable and heavy fuel levels across millions of hectares of native forest, due to the diminished focus on broad scale fuel reduction burning by all relevant agencies.



The outcome of the increasing damage to forest values is that there is an inevitable carryover over of damage to human lives and property. While the environmental damage is soon forgotten, fire management agencies use each disaster as an opportunity to ramp up their emergency response capability, with the 21st fire chiefs century seeking to establish state owned large air tanker force.

It is ironic that there is not tens of millions of dollars available for FRB, yet hundreds of million of dollars can be found to buy and hire bigger and more expensive aircraft and bring in overseas fire fighters, when the inevitable disasters occur in dry seasons or in times of drought.

It is outrageous that millions of dollars of tax payer funds are being spent on a Centre for Environmental Risk Management of Bushfires, which appears to be increasing the risk of megafire impact on all non-human forest values. With a fauna death toll potentially in the order of 1 billion birds, mammals and reptiles during the last fire season in NSW, when will governments, regulators and public land managers accept that annual FRB rates must be increased across all land tenures?

Under weather conditions prevailing on the day, fire intensity is driven by forest fuel loads, yet much of the research over the past ten or more years has been seeking to minimise the use of the most effective and environmentally compatible fire mitigation tool available to NSW land managers.

6. Ecologists, Who Appear to Have Little Understanding of the Value of Fuel Reduction Burning or the Impacts of Repeated Wildfires, Make Comments That Have no Scientific Basis.

On 23 January, Emeritus Professor Byron Lamont had an opinion piece published in the Age and the Sydney Morning Herald. Among other things, he claimed:

"Controlled fires are only meant to stop the odd cigarette thrown out of a car window from starting a fire, or lightning strikes igniting the ground flora."

"So, on grounds that they do not stop the progress of wildfires and indeed may lead to weed encroachment, increasing the rate of prescribed burning is no answer to the current wildfire problem."

"It may seem counter-intuitive but the longer old-growth forests remain fire-free, the less combustible they become. The thicker canopy creates more shade, the undergrowth becomes thinner and less vigorous - and hence there is less fuel for fires."

"Ironically, the Australian flora has experienced wildfires of the current type for many millions of years. It is adapted to wildfires, not prescribed burns."

Decades of firefighting experience shows how little understanding, Professor Lamont has of the fire mitigation value, let alone the ecological value that FRB has. Decades of forest management also shows that much of the flora will eventually recover from severe wildfires, the impact on fauna, particularly threatened species is much more devastating and some species will not survive repeated wildfires on the scale seen in NSW in 2019-20.

The comments on the article show how readily misleading comments made by scientists are accepted by members of the public. For example: Diane commented, *"At last the science to*



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say hazard reduction burns are not the answer - and I'll add they are cruel to small, ground level wildlife. The best article I've read on the topic."

Why does the NSW Government pay some of the research scientists noted above to provide advice to the Government and government agencies on how best to manage wildfire risk? Much of the research to date shows a lack of real understanding of fire science and potentially contributes to an increasing risk of wildfires.



Low Intensity Fuel Reductions Leave a High Percentage of Woody Debris and Habitat Trees in Place, Compared to Wildfires.



References

1. Dr Philip Zylstra, member of the Centre for Environmental Risk Management of Bushfires, at the University of Wollongong.
2. James Furlaud, Postgraduate, Plant Science, University of Tasmania.
3. Dr Grant Williamson, University of Tasmania, then University of Wollongong. No current listing.
4. Professor David Bowman Professor of Environmental Change Biology, School of Natural Sciences, University of Tasmania.
5. Associate Professor Owen Price, Centre for Environmental Risk Management of Bushfires, at the University of Wollongong.
6. Mr Michael Bedward, Centre for Environmental Risk Management of Bushfires, at the University of Wollongong.

