Report prepared for the
Murray Region Forestry Hub

Review of Regulatory Barriers (MURR-2025-023)

Review of Regulatory Barriers to Effective Fire Management in the Murray Region Post 2019-2020 inquiry review

Final report

Photo credit: Andrew Bussau (HVP)

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PREFACE

Indufor Asia Pacific (Australia) Pty Ltd ('Indufor') has prepared this report for the Murray Region Forestry Hub ('the Hub'), which is among 11 Regional Forestry Hubs established by the Australian Government under the *National Forestry Industry Plan 2018*.

The Regional Forestry Hubs ('the Hubs') work with industry, state and local governments, and other key stakeholders to prepare and provide the Australian Government with strategic planning, technical assessments and analyses that aim to support growth in the forest industries in their region.

The report provides the Hub with information to advise government, and industry, on regulatory amendments that will assist in meaningful change and achieve positive long-term outcomes in fire management.

This report was prepared between July and October 2025, and the observations and findings reflect the information available at that time. Ruth Ryan, Principal Consultant from Waroo assisted with this review, and provided an invaluable contribution in terms of practical fire management experience and expert advice on fire sector management arrangements.

Indufor also thanks other contributors who provided valuable viewpoints and, in some cases, relevant data. These contributions were provided through interviews and other forms of engagement, and collectively, they provided substantial input to this regulatory review. The findings, interpretations, and conclusions presented in this report do not necessarily reflect all the views of these key stakeholders; however, their support for the project and inputs to the review are gratefully appreciated.

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EXECUTIVE SUMMARY

Background and 'Effective Fire Management'

A key strategic objective of the Regional Forestry Hubs is to enhance resource security for the industry. The Murray Region, encompassing numerous large wood processing facilities that underpin the regional economy spanning southwest New South Wales (NSW) and northeast Victoria, has been seriously impacted by bushfires over the last 20 years, and there remains an ongoing threat of bushfire to the local industry and communities. Concerns have been raised that regulatory barriers exist which hinder the effective management of fire and the ability to implement sectoral protection regimes.

This review was commissioned to identify and define what is 'effective fire management' in the context of the region through a literature review, stakeholder engagement and a review of recent bushfire inquiries. The review further explores the regulatory framework for bushfire management and identifies specific areas of that framework that could be addressed to improve fire management outcomes.

Characteristics of 'effective fire management' have been defined using contemporary literature from published research, policies and strategic frameworks, codes and operational guidance and previous bushfire inquiries. It has been considered across five phases: **Community preparedness; Fire management sector preparedness; Prevention and mitigation; Response; and Recovery.** In addition, the following overarching themes have been addressed in this review: **Sectoral leadership, Technology and science, and Collaboration.**

The review has illustrated that barriers to effective fire management may be related to regulatory matters, while other constraints include social and political influence, community and sector leadership, policy implementation and adequacy of funding, or other practical impediments.

Table ES1 provides a snapshot of the characteristics of effective fire management as defined through the literature review and stakeholder consultation.

Table ES1: Characteristics of effective fire management within the context of the Murray Region

Phase / Aspect	General characteristics	Industry specific characteristics
Emergency management phases		
Preparedness - community	Educated community members, access to good information systems, risks managed, appropriate land use planning, responsibility shared	Community industry support, social licence to reduce risks, plantations and adjacent dwellings / infrastructure are appropriately located
Preparedness – Bushfire sector	People trained, appropriate resources available, fire leadership in the community and emergency management sector	Forest / plantation firefighting capability
Prevention – Hazard and ignition management	Risk-based, programs resourced, effective, integration of risk reduction into strategy and planning	Plantation afforded high priority, economic value recognised, sustained risk reduction effort, cross-tenure approach
Detection and response	Quick response, resources shared and effectively allocated	24-hour detection, multi-modal response capability (air, ground, direct, parallel), cross-tenure approach
Recovery	Planned, resourced, strong collaboration	Rapid assessment, cross-industry collaboration and coordination. Access to immediate and longer term funding through grants and/or insurance
Cross Cutting issues		
Leadership	Effective fire leadership, shared responsibility. Leadership in local committees and deep community engagement	
Technology and science	Effective use of technology, science-based decisions, adaptive management, continuous improvement	
Coordination	Strong interstate, interagency coordination, resource sharing (tenure blind)	

Review of bushfire inquiries

Reviews of previous bushfire inquiries consistently highlight the importance of effective hazard management, strong firefighting capability, and coordinated multi-agency responses. Strategic risk management is noted to encompass prescribed burning, maintained fire trails, and non-burn measures, supported by effective monitoring.

The inquiries also emphasise sustained investment in specialist training, mitigation crews, aerial firefighting, heavy plant, and advanced technologies to manage extreme fire conditions. Seamless coordination across agencies and jurisdictions, including shared systems and industry brigades, is critical. Although most recommendations are stated in the various progress reports as formally “completed”, stakeholders report that policy-level implementation often fails to translate into consistent on-ground outcomes.

Regulatory barriers and other impediments

Regional bushfire risk plans in both states provide the basis for identifying key risks to economic, cultural and environmental values, identifying appropriate mitigation options, and prioritising activities. Zoning schemes directly reflect the relative importance placed on economic and environmental values by the risk planning teams, through stakeholder engagement and government policy direction. The industry must be able to exert influence in decision making through strategic planning processes, emergency planning and incident management teams, to prioritise the protection of industry assets.

While priorities such as the protection of communities and critical infrastructure are well defined, economic assets, including plantations, are more exposed to subjective prioritisation. Where environmental values are elevated, fuel management zoning and threatened species prescriptions may restrict the scale and frequency of mitigation works required to maintain fire risk to plantations at acceptable levels.

In both states, there are policy settings and institutionalised processes (strategic risk management plans, local management committees) to facilitate a 'tenure blind' approach to managing bushfire risks. However, achieving effective risk reduction is often constrained by funding and a lack of collaboration between land managers, individual landholders and agencies.

Collaboration between agencies, within each state is generally supported by regulatory and policy frameworks.

Cross-border arrangements are mostly subject to non-binding agreements that provide some support for mutual aid commitments and to improve inter-operability.

In Victoria, Forest Industry Brigades (FIBs) have offered a means of readily incorporating (and mandating via regulation) the resources of the forest industry into broader bushfire response, through common command and control, training and equipment standards. There is no such equivalent in NSW to ensure plantation owners have sufficient firefighting capacity, can deploy that capacity across tenure, have consistent training standards, and have legal liability coverage for undertaking fire management activities.

Key findings and recommendations

The following notes the key findings and recommendations of this review, in alignment with the key characteristics of effective fire management.

Sector leadership

Land-use planning, policy settings, and operational practices must better recognise the socio-economic importance of plantations and the broader timber industry. This recognition is critical for prioritising mitigation investment, guiding response efforts during fire events, and supporting effective post-fire recovery. In the absence of statutory mechanisms that explicitly protect these interests, strong industry leadership and sustained community engagement are essential to communicate the sector's long investment horizons and the enduring impacts that major fire events can have on industry viability.

Recommendation 1 - The plantation industry must continue to actively reinforce its role in shaping fire management decision-making across land use planning, sector resourcing, bushfire risk planning, suppression activities, and recovery operations. This influence should be exercised through strong leadership and meaningful community engagement. The industry must prioritise the retention and development of these capabilities as both a policy imperative and a business necessity to ensure sector resilience and effective fire management outcomes.

Recommendation 2 – NSW plantation owners / managers are recognised as members (rather than observers) of the Bushfire Management Committees and the industry is specifically represented on the Bushfire Coordination Committee.

Recommendation 3 – That the Victorian *Strategic Bushfire Management Planning* process identifies plantation industry representatives as primary stakeholders, and that consideration be given to classifying long rotation plantations as critical infrastructure. The NSW Bushfire Risk Management Plans must ensure 'Focus Areas' incorporate all major plantation assets.

Community preparedness

There is inconsistency in the application of land use planning and timber plantation development requirements that has the potential to increase the risk to the community and / or reduce the productive footprint of plantations over time.

Recommendation 4 - That the NSW *Planning for Bushfire Protection* development standards mandate setbacks for buildings that are consistent with the *Plantations and Reafforestation Code.*

Recommendation 5 - That the *Victorian Planning Provisions* mandate setbacks for buildings and subdivisions that are consistent with the provisions for *Code of Practice for Timber Production* in the applicable zone.

Coordination

Greater collaboration between agencies, across state borders and between plantation growers is essential in ensuring limited fire mitigation and suppression resources are fully utilised. There are limited regulatory provisions to facilitate this to the extent required.

Recommendation 6 – That options for enshrining cross border collaboration and coordination in binding agreements be explored at state and federal levels of government.

Recommendation 7 – Training standards, including minimum competencies, be further harmonised to improve cross-border interoperability, and plantation firefighting modules be extended across agencies to expand the capacity for sustained in-forest suppression.

Forest Industry Brigades (FIBs) improve the capability of the sector to respond across tenure, operate under consistent command and control systems, and maintain minimum equipment and training standards. Given that plantation companies now operate across State borders, having similar legislation in NSW to that existing in Victoria and South Australia will minimise associated bureaucracy and enhance inter-operability.

Recommendation 8 – The roll-out of industry brigades in NSW be supported by a legislative change to the *RFS Act*.

Prevention / Mitigation

At a state level, there are general regulatory mechanisms in place to ensure the protection of plantation assets are given appropriate priority. However, there is an increasing emphasis on threatened species management. A pro-active approach and strong industry leadership is required to ensure fuel management zoning, burning prescriptions and prioritisation of mitigation works can continue to reduce the risk to the plantation estate.

Recommendation 9 – That the governments ensure that any changes to the management of threatened species under the NSW *Bushfire Environmental Assessment Code* and the Victorian *Code of Practice for Bushfire Management on Public Land* do not further constrain fuel management activities for high economic value assets nor significantly add to the administrative burden and compliance risk of preparing and implementing plantation risk reduction strategies.

The state-based fire management codes offer exemptions or assistance with compliance with state legislation, however at the federal level, there remains a litigation or compliance risk under the EPBC Act, particularly via third party referrals.

Recommendation 10 – Options to improve the certainty of compliance under the EPBC Act for fire management and high-value asset protection, including via bilateral agreements between the states and the Commonwealth, be considered as a priority to ensure appropriate hazard reduction activities can continue to be conducted.

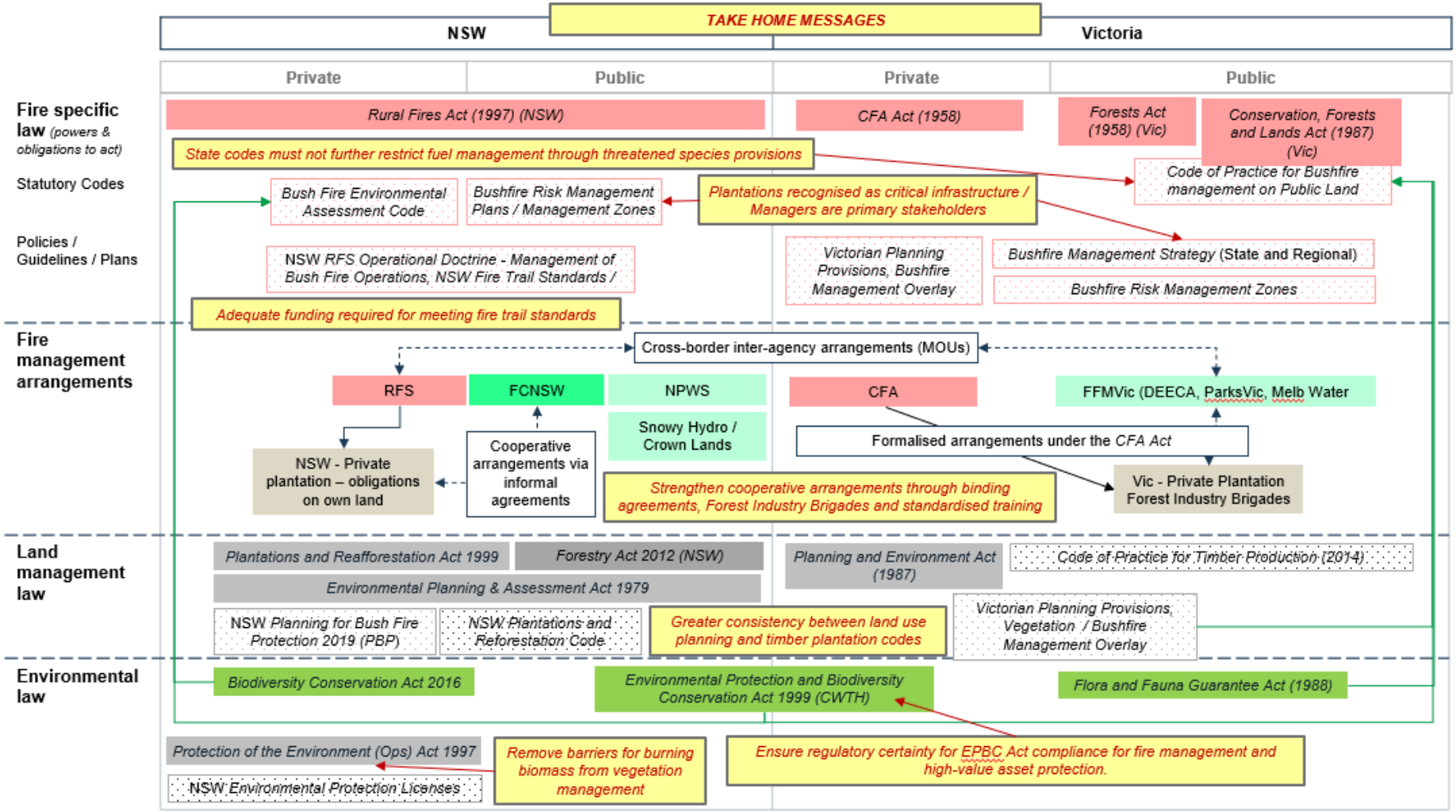
Bushfire risk reduction works must be considered strategically, on a cross-tenure basis, with measurable outcomes. Policy settings in both NSW and Victoria strongly reflect this as a desired outcome but there are practical constraints in achieving it.

Recommendation 11 – The *NSW Fire Trails Policy* be supported by sufficient funding to expedite the coordination, planning and implementation of the strategic fire trail network, across all tenures. Furthermore, the Plantations and Reafforestation Code is amended to be consistent with the *NSW Fire Trails Policy*.

Recommendation 12 – Remove explicit regulatory barriers to the beneficial use of biomass waste arising from fire mitigation works, including restrictions under the *NSW Protection of the Environment Operations Act 1997*.

The overarching bushfire management regulatory framework is set out in Figure ES1 below. This provides on overview of the operating arrangements that underpin the primary fire related legislation across private and public land in NSW and Victoria. It furthermore provides the context that land management and environmental legislation may have on land use decision, and risk mitigation works. The core messages highlighted on Figure ES1 relate to the findings and recommendations described above.

Figure ES1: Regulatory framework, fire management arrangements and



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ABBREVIATIONS

AIIMS	Australasian Inter-service Incident Management System
AFAC	Australian and New Zealand Council for fire and emergency services
APZ	Asset Protection Zones
BMZ	Bushfire Moderation Zone
CFA	Country Fire Authority (Vic)
DEECA	Department of Environment, Energy and Climate Action (Vic)
DCCEEW (Cth)	Department of Climate Change, Energy, the Environment and Water (Commonwealth Government)
DCCEEW (NSW)	Department of Climate Change, Energy, the Environment and Water (NSW)
EMV	Emergency Management Victoria
FFMVic	Forest Fire Management Victoria (the combined firefighting resources of DEECA, Parks Victoria and Melbourne Water)
EPBC	*Environmental Protection and Biodiversity Conservation Act (Cth)*
FIB	Forest Industry Brigades
FCNSW	Forestry Corporation of NSW
HVP	Hancock Victorian Plantations
LMZ	Land / Landscape Management Zone
MRFH	Murray Region Forestry Hub
NPWS	National Park and Wildlife Service (NSW)
RFS	Rural Fire Service (NSW)
SFAZ	Strategic Fire Advantage Zone

1. INTRODUCTION

This report presents a review of regulatory barriers to effective fire management in the Murray Region. Based on a desktop review of legislation, engagement with stakeholders in the timber industry, government and fire agencies, and a review of historic inquiries, the report aims to provide information to the Murray Region Forestry Hub ('the 'Hub') to advise government on options that will assist in meaningful change and positive outcomes in fire management.

1.1 Background to Regional Forestry Hubs

The Regional Forestry Hubs were established as part of the Australian Government policy *Growing a Better Australia, A billion trees for jobs and growth*[1]. One of the key roles of the Hubs is to provide advice to the Commonwealth Government that will assist in addressing regional issues in the forestry sector and to stimulate growth.

The Murray Region Forestry Hub (MRFH), (formerly the South West Slopes Forestry Hub), was established in 2020. It covers the region east of the Hume Highway, west of the Great Dividing Range in NSW, south of Gundagai, and northeast Victoria down to Lake Eildon. Contained within the Hub are the NSW forestry towns of Tumut, Batlow, Tumbarumba and Adelong, while the Victorian Hub area, contains the towns of Corryong, Tallangatta, Myrtleford, Wangaratta and Benalla. The Hub region contains approximately 170,000 hectares (ha) of softwood timber plantations (both public and private), featuring predominantly radiata pine (*Pinus radiata*), and is home to one of the largest softwood plantation wood processing industries in Australia.

A key strategic objective of the Hubs is to enhance resource security for the industry, that encompasses large wood processing facilities including Visy Pulp and Paper, Alpine MDF, Hyne Timber, AKD and ForestOne sawmills, and the Porta (ex-CHH) plywood mill. Following the Black Summer bushfires of 2019-20, which destroyed over a quarter of the regional plantation resource and caused significant disruption to forestry supply chains, there remains an ongoing threat of bushfire to the local industry and communities. Concerns have been raised that regulatory barriers exist which hinder the effective management of fire and the ability to implement sectoral protection regimes.

1.2 Study scope and approach

To further consider these barriers, this review encompassed:

1. A desktop study of contemporary literature on achieving 'effective fire management' with consideration given to the region's biodiversity, geography and topography. The study considers preparedness, prevention, response and recovery phases and more broadly, land management
2. A review of legislative barriers, including consideration of existing legislation, regulations, engagement with stakeholders and experts within, and outside the region
3. A review of historic government inquiries that have been conducted post catastrophic fire events in Australia with particular attention to NSW and Victoria, and consideration of the status of previous recommendations and actions

This review identified numerous 'barriers' to fire management that were not explicitly regulatory related. On advice from the Murray Region Forestry Hub Project Steering Committee, these have been incorporated into the findings and recommendations as a reference for further consideration by the sector.

[1] Department of Agriculture and Water Resources (2018) *Growing a better Australia – A billion trees for jobs and growth*, Canberra. CC BY 4.0. ISBN 978-1-76003-174-9 (printed)

2. EFFECTIVE FIRE MANAGEMENT – A REVIEW OF CONTEMPORARY LITERATURE

This section draws on a desktop review of contemporary literature on effective fire management, with particular attention to the region's biodiversity, geography, and topography. The findings have been strengthened through discussions with a range of stakeholders to ensure that practical, strategic, and operational considerations are fully incorporated.

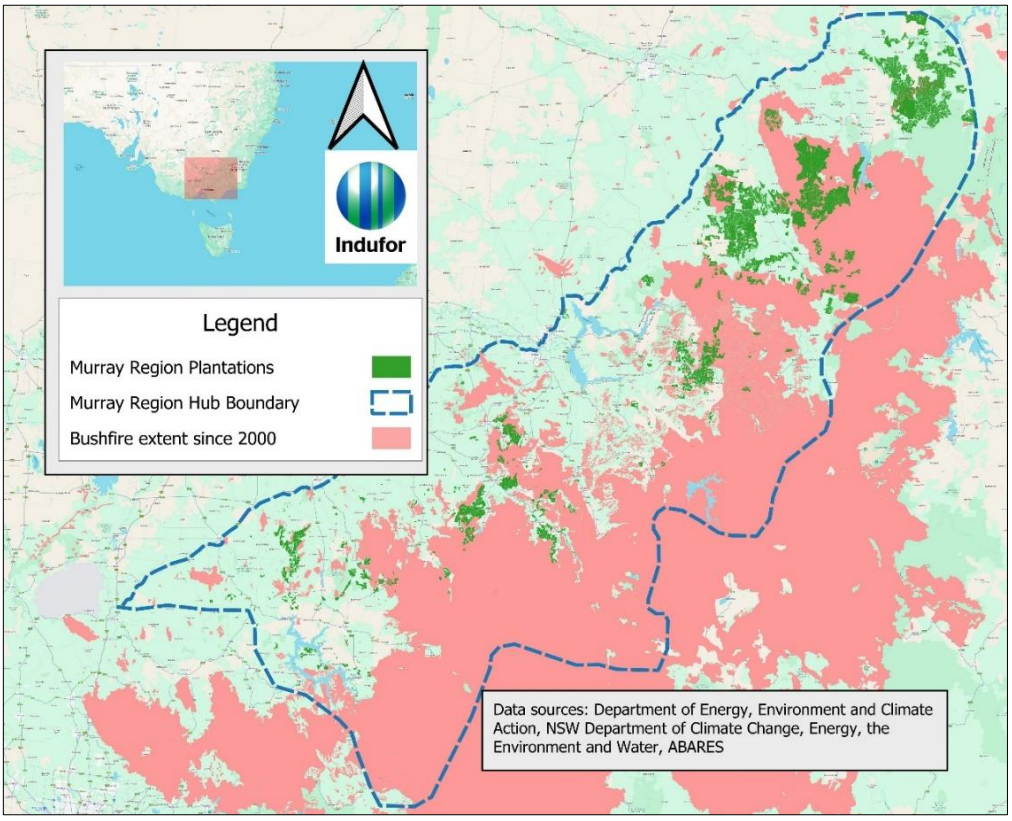
2.1 'Effective fire management' in the Murray Region

Fire management involves managing the threat and occurrence of bushfires, and the use of planned fire to achieve specific land and resource management objectives[2]. 'Effective fire management' can therefore be extended to the strategic and coordinated application of policies, practices, and resources which minimise the risks bushfires pose to life, property, other economic and environmental values.

The Murray Region, spanning the western slopes of the Great Dividing Range from Seymour in Victoria to Gundagai in NSW has a unique set of characteristics that further shape effective fire management within that context, including the risks to the economic and downstream socio-economic values derived from the timber plantations.

The area has had an extensive bushfire history, with an increasing number of noteworthy fires impacting the region since 2000, as illustrated in Figure 2-1. This has significantly disrupted timber supply and further increased the importance of protecting the unburnt portions of the estate that are sustaining the industry post the Black Summer fires of 2019/20.

Figure 2-1: The Murray Region fire history since 2000



[2] Department of Energy, Environment and Climate Action. (2025). 'Code of practice for bushfire management on public land'. Melbourne, VIC: DEECA.

In respect to bushfire fire risk aspects, the region is characterised by the following perspectives.

Table 2-1: Murray Region characteristics

Plantation resources
Extensive softwood (*Pinus radiata*) plantations that support significant regional economic activity, and major industry investment in downstream processing including pulp and paper, sawmilling and panel board facilities. Softwood forests are very sensitive to the impacts of fire.
Landform and tenure
Plantations generally occupy landforms comprising the western slopes and uplands of the Great Dividing Range, between open grazing country and more dissected, higher elevation native forest. Extensive conservation reserves located predominantly to the east of the major plantation estates in NSW, but more commonly embedded in and around plantation estates in Victoria. A state border that dissects the region, with only a few entities operating in both states, but with a history of large fires moving particularly from NSW into Victoria.
A wide cross-section of land managers Two major growers - HVP (private) in Victoria and Forestry Corporation NSW (state-owned) with a number of medium and smaller growers including Southern Cross Forests, AKD, Borg, Agriwealth, and PF Olsen/Manulife. A range of other public land managers include the Victorian Dept. Environment, Energy and Climate Action (DEECA), NSW National Parks and Wildlife Service (NPWS) and NSW Crown Lands, along with extensive cleared and uncleared freehold land.
History of effective fire management but an increasing risk profile
A long history of effective fire management but significant plantation losses since 2006. Major losses have generally been associated with multiple ignition events and resultant complex fires. Whilst generally plantation losses have been from major fire runs under the influence of northwest, westerly and south westerly winds; recent severe droughts have seen conditions rendering all directions of the plantation estate vulnerable to a range of weather conditions. Furthermore, it is evident that local, state and federal firefighting resources can be quickly stretched to capacity under multiple significant events, and in that context the protection of timber plantations is at risk given the scale of a fire threat to the highest priority assets. Moreover, the region has a declining native forest industry which has traditionally been an important source of fire management resources that can be readily deployed. There is an escalation of energy infrastructure development, potentially increasing the complexity of suppression activities.

This review has considered available literature predominantly within the Australian context, to develop an understanding of what 'effective fire management' may mean, then drawn in documentation that is relevant specifically to the Murray Region. The review further contemplates what emphasis the forest industry may place on elements of fire management to ensure the ongoing protection of the regional resource and sustainability of the forest industry.

2.2 The principles of effective fire management from contemporary literature

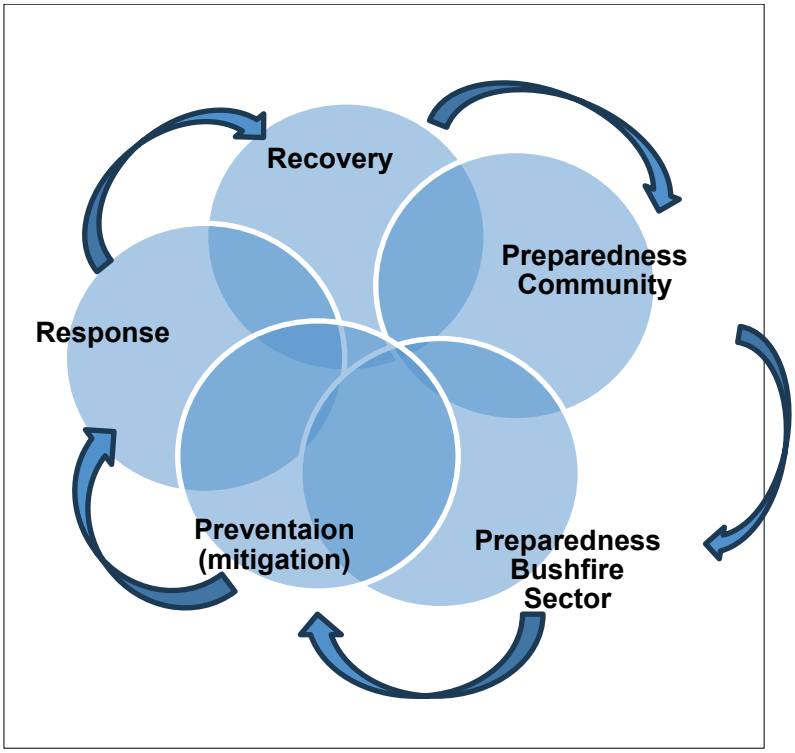
A literature review of local, national and international sources was conducted to inform this review. Annexure 1 provides a detailed list of the review and provides a summary for each of the references included in the assessment.

The findings can be broadly aligned to the 'Prevent, Prepare, Respond, Recover' (PPRR) framework. This framework for the emergency management cycle is well recognised in both

published literature[3] and within the fire management sector[4]. This review has further broken out the Preparedness phase into 'Community' and 'Bushfire Sectors' due to the focus being on the capability of the forest industry and fire management agencies.

This can be presented as a diagram to represent the overlapping and inter-related phases as per Figure 2-2.

Figure 2-2: Inter-related phases of the emergency management cycle



Source: Adapted from Simonović (2011), as cited in Holley et al (2022).

The intersections highlight that the success of implementation of any phase is reliant on the effective management within the other phases. The phases have been used as a basis for the following descriptions of effective fire management.

2.2.1 Preparedness - Community

Community preparedness depends on communities being informed, engaged, and active participants in identifying and managing local hazards. AFAC[5] promotes risk-based land-use planning, effective communication, and community education as the keys to improving safety outcomes. It also recognises the increasing complexity of bushfire risk due to climate change, urban expansion, and challenges associated with vegetation management. The key insight is that communities can't just rely on others for protection, they need to be actively involved in fire management.

[3] Holley, A., & McArthur, T. (2022, July). PPRR and AIIMS: a whole-of-government strategy in NSW. Australian Journal of Emergency Management, 37(3), 65-74.
[4] Australian Institute for Disaster Resilience. (2023). 'Australian emergency management handbook series'. AIDR.
[5] Australasian Fire and Emergency Service Authorities Council. (2019). Bushfires and community safety position. AFAC.

Research highlights the broader social factors that build resilience. The Australian Disaster Resilience Index Project[6] links preparedness to resilience indicators, highlighting that strong social networks, awareness, and adaptive capacity improve a community's ability to withstand and recover from bushfire impacts. The *Hume Bushfire Management Strategy*[7] identifies education programs targeting vulnerable communities, recovery planning and relationship building, local and municipal emergency plans, engagement about smoke impacts and cross-tenure planning and consultation as key components to building community resilience.

National research synthesises the complexity of community preparedness. The Bushfire and Natural Hazards CRC[8] (2021) synthesises insights from 30 projects, that include four major themes: fire predictive services, cultural land management, community-centred disaster risk reduction, and bushfire data & reconstruction. The results of the paper underscore the complexity of how communities prepare for and respond to bushfire, highlighting the need for coordinated, holistic risk-reduction efforts involving governments, emergency services, businesses, and vulnerable communities.

Regional forestry hubs reinforce the need for stronger community and industry relationships. The Central West Forestry Hub[9] identified opportunities for targeted engagement within the Rural Fire Service (RFS) to increase awareness of the plantation industry and its regional economic importance, while the Murray Region Forestry Hub[10] discussed opportunities to support a positive perception of the industry including media campaigns, community engagement and social licence building. The alternative view, where the industry is perceived negatively, adds to the difficulties in establishing a social licence to undertake mitigation works, or ensure forest assets are afforded priority of protection in suppression activities. From a forestry industry perspective, the community networks promote the awareness of the benefits the industry offers in terms of firefighting skills and resources, which is strengthened by recognition of the industry's socio-economic contribution.

Land-use planning plays a critical role in ensuring safe and sustainable development. The development of plantations and communities can be undertaken strategically to avoid both increasing bushfire risk to community assets, whilst providing security for timberland investors in undertaking any land use change. AIDR[11] point to the opportunity for land use planning to 'manage the growth in risk resulting from new development by limiting or modifying the location of new development and influencing its layout'. These impacts may be on natural ecosystems from new development, as well as from natural hazards on development and its users. Planning controls in both Victoria[12] and NSW[13] provide further guidance on managing land uses but need to be considered in the context of regulatory instruments governing the development of plantations.

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[6] Parsons, M., & Morley, P. (2017). The Australian natural disaster resilience index. Australian Journal of Emergency Management, 32(2), 2-22.

[7] Department of Environment, Land, Water & Planning. (2020). 'Bushfire management strategies: Hume (v5)'. DELWP.

[8] Bushfire and Natural Hazards CRC. (2021). 'Understanding the Black Summer bushfires through research'. BNHCRC.

[9] Central West Forestry Hub. (2023). Fire capability review (Report No. CWFH-007)

[10] Murray Region Forestry Hub. (2024, June). Softwood forestry industry future business needs report: Socio-economic study [PDF].

[11] Australian Institute for Disaster Resilience. (2023). *'Australian emergency management handbook series'*. AIDR.

[12] Department of Environment, Land, Water and Planning. (2015, September). *Planning Practice Note 64: Local planning for bushfire protection.*

[13] New South Wales Rural Fire Service. (2019, November). *Planning for Bush Fire Protection 2019: A guide for councils, planners, fire authorities and developers.*

Together, these sources highlight that community preparedness requires not just effective education and communication systems but also encompasses supportive regulatory frameworks and a strong social licence. In the absence of community support and legal clarity, broader fire management strategies may lose strategic effectiveness and become constrained by the need to manage stakeholder expectations. The plantation industry, through positive engagement with the community, can benefit via an improved social licence, and support to undertake fire management activities.

A summary of these characteristics, with some of the key enablers and impediments are set out in Table 2-2 below.

Table 2-2: Effective fire management and community preparedness characteristics

Effective Fire Management Characteristics	Enablers	Potential impediments
Informed community with access to good information systems, risks managed, appropriate land use planning, responsibility shared Forest industry specific characteristics - Community industry support, social licence to reduce risks, plantations and adjacent dwellings / infrastructure are appropriately located	• Well-connected rural communities with history of fire awareness • Bushfire overlays and planning controls reduce exposure of new developments and protect existing plantations • Community awareness of economic importance of plantations • Existing networks of brigades, landholders, and plantation managers • Shared responsibility frameworks embedded in national/state policy.	• Encroachment of housing / infrastructure into plantation interfaces • Community resistance to smoke and prescribed burning • Negative view of plantations generally, including expansion of plantations (if poorly managed)

2.2.2 Preparedness - Sector capability

Sector capability in fire management depends on coherent policy, adequate operational capacity, and sufficient resources. DEECA[14] distinguishes between *capability*—the collective ability to reduce the likelihood and impact of emergencies—and *capacity*—the extent to which that capability can be sustained before, during, and after an event. In this review, *capability* refers to the sector's overall ability to deliver fire management outcomes, including having the capacity to maintain mitigation and suppression efforts for as long as needed to reduce risk.

Industry and professional bodies highlight several gaps and opportunities. Forestry Australia[15] identified seven priority actions for improving fire management, centred on ensuring that fire personnel are properly trained, recognised, and resourced. This includes strengthening specialist firefighting roles, aligning national training frameworks, building the next generation of firefighters, improving portability of skills, ensuring AIIMS alignment, supporting future land managers, and growing volunteer capacity. Ryan (2025)[16] similarly argues for stronger integration of Forest Industry Brigades (FIBs) within state control agencies, noting the

[14] Department of Energy, Environment and Climate Action. (2025). 'Code of practice for bushfire management on public land'. DEECA.
[15] Forestry Australia. (2025). 'Effective fire management (Version 3)'.
[16] Ryan, B. R. (2025). Forest industry brigades – protecting forestry assets and our communities. Australian Forestry, 1–13

successful models operating in Victoria and South Australia and advocating for consistent national standards.

Regional assessments reinforce the importance of coordinated industry–agency arrangements. In a region comparable to the Murray, a report prepared for the Central West Forestry Hub[9] identified risks driven by geography, topography, and access constraints. It recommends multi-mode initial attack strategies - using both aerial and ground resources - with direct and parallel attack methods, along with stronger collaboration between industry and fire agencies. The report also highlights the need for better plantation design and road networks to support rapid response and limit plantation losses. It further recommends formalised information-sharing processes between industry and fire authorities to improve preparedness. While NSW lacks FIBs, the report notes that their role could be partially filled by developing targeted plantation-fire training for RFS brigades.

Local industry feedback echoes these themes. A study by the Murray Region Forestry Hub[10], reflecting on the 2019–20 fires, found consistent views across the sector calling for more effective collaboration. Industry stakeholders stressed the need for greater government investment in prevention, clearer legislative frameworks that enable cross-jurisdictional firefighting arrangements, and a more coordinated, whole-of-landscape approach to cooperative fire management.

A working example of industry and cross-agency collaboration is provided below in relation to the Shelley Burn Camp periodically run in northeast Victoria.

Box 1: The Shelley Burn Camp

A working example of building plantation sector and volunteer collaboration

Operating since 2014, the Shelley Burn Camp has been hosted by HVP Plantations as an opportunity for volunteer and forest industry brigade personnel to build skills and collaboration whilst conducting planned burns[17]. The camp has also recently included members of the NSW Rural Fire Service. As an established industry brigade, HVP staff and equipment are positioned to readily integrate with the CFA fire mitigation and suppression teams. The Burn Camp provides the basis for periodic testing of communication and command and control systems, as well as strengthening relationships and trust within and across the participating organisations.

Collectively, these sources highlight that effective sector preparedness requires specialist skills and equipment, support from the broader fire management sector and, strong institutional integration. Sector preparedness must ensure strong emergency management networks are established and supported through effective leadership. The presence of multiple growers (HVP, FCNSW, and smaller private operators), and a number of land management agencies (FCNSW, FFMVic (Victoria), NSW National Parks and Wildlife Service, NSW Crown Lands) underscores the need for coordinated operational standards, shared training, and interagency collaboration to manage complex fires that can span tenure and state borders. Industry brigades and structured inter-agency agreements are therefore highly relevant to sustaining rapid response capability and optimising available resources.

These characteristics, with some of the key enablers and impediments are summarised in Table 2-3 below.

[17] https://news.cfa.vic.gov.au/news/the-evolution-of-cfa-s-burn-camps

Table 2-3: Effective fire management and sector preparedness characteristics

Characteristics	Enablers	Potential impediments
People trained, appropriate resources available, fire leadership in the community and emergency management sector Forest industry specific characteristics - forest / plantation firefighting capability	• Strong industry firefighting capacity (plantation tankers, dozers), including FIBs (in Vic) • Access to aerial firefighting hubs in regional centres • Access to specialised heavy plant and equipment. • Experienced forest firefighting workforce (HVP, FCNSW) and forest contractor base • Established cross-tenure arrangements (mutual aid with RFS, CFA, DEECA). • Local brigades with local knowledge, skilled in forest firefighting. • Sector leadership with long history of coordinated fire management. • National interoperability and training standards aligned nationally • Cross-border resource sharing protocols	• Competing priorities during concurrent large fires. • Loss of experienced forest firefighting leadership • Loss of native forest logging firefighting resources • No FIBs in NSW • Volunteer decline and resistance to travel • Inability to resource prolonged campaigns - limited surge capacity – heavy reliance on out-of-region resources. • Inconsistent training/capability across sector • High costs of maintaining specialist capability. • Different doctrines/systems between agencies (e.g., NSW RFS vs CFA vs FFMVic).

2.2.3 Prevention and Mitigation

National reviews consistently emphasise the need to shift from a predominantly reactive approach to a stronger focus on mitigation. The need to focus on mitigation strategies for natural disasters was articulated by the Productivity Commission[18] in 2015, who critiqued funding arrangements as being skewed toward reconstruction over mitigation. The Commission has also advocated for investment in risk understanding and insurance to support longer term resilience.

Prevention and mitigation measures aim to reduce risk through fuel treatments, access and trail networks, and actions that limit ignition. AFAC[19] positions prescribed burning as essential within a broader values-driven program, while FCNSW[20] provides an operational example through its zoned fuel management plan, combining prescribed, mechanical, and chemical treatments within a relatively complex regulatory framework.

Major inquiries have reinforced that fuel management alone is not sufficient, but it remains a critical enabler of broader strategies. The Royal Commission into National Natural Disaster Arrangements[21] found that fuel management is not considered to be a sole effective means of fire control, but it does strengthen and complement the effectiveness of other

[18] Productivity Commission. (2015). 'Natural disaster funding arrangements: Volume 1'. Australian Government.
[19] Australasian Fire and Emergency Service Authorities Council. (2016.). 'National position on prescribed burning'. AFAC.
[20] Forestry Corporation of New South Wales. (2020). 'Softwoods Plantations Division Fuel management plan'.
[21] Royal Commission into National Natural Disaster Arrangements. (2020). 'Report of the Royal Commission into National Natural Disaster Arrangements'. Commonwealth of Australia.

prevention, preparedness, and response strategies, combined with urban planning, and community preparedness.

Following the Black Saturday bushfires and the subsequent 2009 Bushfires Royal Commission[22], the Victorian government committed to burning at least 5% of the public land estate on an annual basis *w*hile the subsequent *Safer Together Program*[23] shifted the focus from hectare-based targets to residual risk, embedding measurable reduction outcomes. The key compliance instrument to achieve this is the Victorian *Bushfire Code of Practice*[24] that integrates cultural burning, cross-tenure planning, and climate adaptation into prevention strategies. The Victorian performance of fuel management is strengthened by independent auditing, as evidenced from the Victorian Auditor-General's Office[25] that stresses the need for measurable integration of risk reduction into strategic planning. The CSIRO and the Bureau of Meteorology[26] highlight the increased prevalence of drought in southern Australia, as well as more extreme heat events associated with climate change. This increases the emphasis on adaptation and the expansion of prevention tools including fuel reduction.

The Royal Commission into National Natural Disaster Arrangements reinforced the need for nationally consistent, risk-based strategies. The Victorian Bushfire Management Strategy[27] also highlights opportunities for preventing human-caused ignition through engaging with the public through education and awareness campaigns on campfire safety, burning, and the fire danger period, conducting regular patrols to promote compliance, removing or modifying fuels to prevent ignition and implementing forest closures during high-risk weather conditions.

At the regional and operational level, mitigation extends beyond fuel treatment. The *Hume Bushfire Management Strategy*[28] identifies regional zones (refer to Table A 7 in Annex 4) and strategic priorities, adds non-fuel management approaches including deterrence and monitoring of arsonists, reducing ignitions from power lines, maintaining road and trail infrastructure and water access, access and egress. The AFAC Forest Fire Management Group[29] found that effective fire management should be integrated into plantation establishment, with silvicultural practices such as fuel reduction burning, pruning, thinning, and slash treatment linked to hazard reduction.

Liability settings also influence landholder behaviour. The Law Society Journal[30] notes how NSW compares to California in terms of bushfire policy and regulation, with permits, liability frameworks, and vegetation management codes shaping community behaviour. While regulatory reforms in NSW have attempted to increase the accountability for land managers and private landholders to manage risks, there is perceived to be a continued liability exposure that may discourages fuel reduction burning, even though the risk of escaped burns materially causing economic damage is relatively small. In California, liability reforms, including a trial

[22] Royal Commission into Victoria's Bushfires. (2010). Final report summary: 2009 Victorian Bushfires Royal Commission [PDF]. Government Printer for the State of Victoria.
[23] Department of Environment, Land, Water & Planning. (2015, November 17). 'Safer Together: Victoria's bushfire strategy'. DELWP.
[24] Department of Energy, Environment and Climate Action. (2025). 'Code of practice for bushfire management on public land'. DEECA.
[25] Victorian Auditor-Generals Office. (2020). 'Reducing bushfire risks October 2020'. Victorian Government Printer.
[26] Bureau of Meteorology & CSIRO. (2024). 'State of the climate 2024'. Commonwealth of Australia.
[27] Department of Energy, Environment and Climate Action. (2024). Victoria's Bushfire Management Strategy. Victorian Government Library Service
[28] Department of Environment, Land, Water & Planning. (2020). 'Hume Bushfire Management Strategy 2020'.
[29] Australasian Fire and Emergency Service Authorities Council. (2007). 'Softwood plantation fire synopsis'. AFAC.
[30] Woods, C. (2024, December 10). Danger season: Why NSW leads Australia in bushfire laws and policies. Law Society Journal.

prescribed fire claims fund, may encourage community participation in hazard reduction, effectively protecting against any losses arising from introduced fire and cultural burning.

In summary, these sources emphasise the importance of targeted and measurable prevention strategies. Effective mitigation depends on risk-based, adaptive strategies; integrated planning across tenures and incorporating strategies beyond fuel management. Prevention must be evidence-based and supported by a clear mandate to protect high-value economic assets to enable appropriate treatments to be implemented efficiently. Within the Murray Region, the industry must advocate for strategies that prioritise the protection of plantation assets and be able to influence at an operational level the prioritisation and effectiveness of mitigation activities.

Recognition of the socio-economic value of plantation assets is essential in ensuring strategic plans prioritise mitigation efforts and zoning systems support fuel management strategies. The sector must be able to influence risk prioritisation via the regional risk management planning processes in both states, to ensure assets are adequately protected via Ignition Management (IMZ) and Strategic Fire advantage (SFAZ) zones in NSW, and Bushfire Moderation Zones (BMZ) in Victoria. Influencing operational and tactical planning processes is also critical to ensure on-ground works are completed in appropriate timeframes.

These characteristics are summarised below.

Table 2-4: Effective fire management and prevention characteristics

Characteristics	Enablers	Potential impediments
Risk-based, programs resourced, effective, integration of risk reductions into strategic planning Forest industry specific characteristics - plantations afforded high priority for mitigation works, economic value recognised, sustained effort required over multiple years and cross-tenure	• Strong economic incentives to protect plantations. • Plantation zoning frameworks (APZ, BMZ/SFAZ, LMZ). • Safer Together and risk-based frameworks in Vic • Bush Fire Risk Regional Management Plans and Fire Access and Fire Trail Plans (FAFTs) in NSW. • Increasing adoption of spatial modelling and tools • Cross-tenure planning groups • Alignment with national frameworks (including ISO 31000). • Existing planned burning capability in sector reduction (and ability of hazard reduction work to provide training opportunities for firefighting)	• Risks to plantations deprioritised in favour of other property, critical assets, ecological and other objectives • Ability for industry to 'get a voice' (e.g. HVP as a secondary stakeholder) • Shrinking prescribed burning windows due to climate, public resistance to smoke and ecological trade-offs. • Access to skills / experience and resources to undertake hazard • Ability to sustain efforts across all tenures over multiple years • Resourcing and liability concerns of burning by smaller land owners • Increased energy infrastructure complicates hazard planning. • Limited and costly non-fire treatments where burning is impractical. • Some fuels very difficult to control (e.g. blackberry) constraining access • Constraints on utilising waste material for biomass

2.2.4 Response

Rapid detection and a coordinated response are critical for minimising fire impacts. Response actions are guided by long-established emergency-management principles, expressed in Victoria through Emergency Management Victoria's *State Emergency Management Priorities*[31] and in NSW through the *RFS Commissioner's Intent*[32]. The following compares the State approaches to emergency management priorities.

Table 2-5: Comparison of Victorian and NSW emergency management priorities

Victoria State Emergency Management Priorities	NSW RFS Commissioners Intent
Protection and preservation of life and relief of suffering	Personal safety
Issuing of community information and community warnings	Informing communities
Protection of critical infrastructure and community assets	Protecting critical infrastructure and property, including assets of environmental, economic, cultural, agricultural or community value
Protection of residential property	Supporting relief and recovery

This highlights important differences in how each jurisdiction signal operational focus. In Victoria, the explicit ranking of priorities makes clear that economic assets are positioned ahead of environmental values during *suppression* operations. However, this hierarchy becomes less definitive in the context of *prevention*, where the objectives in the Victorian Bushfire Management Strategy can place stronger emphasis on environmental outcomes depending on the landscape and land-use context.

In NSW, the *Commissioner's Intent* groups a broad range of asset types, including environmental values - under the third priority. The extent to which the internal order of these assets influences operational decision-making remains unclear, but a literal reading may suggest that environmental assets could receive a higher level of protection than other values in certain circumstances.

These variations matter, as the prioritisation of asset classes directly influences operational decisions and resource allocation during a fire event. If the plantation sector is to safeguard high-value assets, it must understand how each state interprets and applies these priority systems and be positioned to advocate for equitable consideration within them.

Rapid detection and multi-model responses underpin effective suppression particularly in plantations. The Central West Forest Hub[9] highlighted that to minimise plantation fire impacts, bushfire response must involve early fire detection and resources coordinated by experienced personnel with a high degree of local knowledge. The report specifically identified rapid-response bulldozers and locally stationed waterbombing aircraft as high value assets to be maintained, supported by the ability to sustain multiple shifts and night firefighting. It emphasised that additional back-up resources must be called for as soon as it is likely the initial attack maybe unsuccessful, highlighting the risks of placing too much reliance on aircraft to contain fires of any significant size. The *Hume Bushfire Management Strategy*[33] identifies the

[31] Emergency Management Victoria. (2022). Victorian Emergency Operations Handbook (Edition 4.1).
[32] Kelwyn White pers.com
[33] Department of Environment, Land, Water & Planning. (2020). 'Hume Bushfire Management Strategy 2020'

need to maintain rostered crews and pre-formed Incident Management Teams, and appropriate aircraft fleet management including pre-determined dispatch.

These sources show that a successful response relies on rapid detection and response, supported by cross-jurisdictional cooperation, and clear operating mandates or doctrine. Effectiveness depends not just on technology or resources but also on clear objectives (as per emergency management stated priorities), collaboration, and shared responsibility across communities, sector members and land management agencies.

The recent history of large, fast-moving fires in the Murray Region emphasises the importance of early detection, predictive modelling capability, and aerial and ground-based pre-positioned suppression resources. Cross-border, and cross-agency fires require integrated incident command structures to ensure timely deployment of resources, with capacity to sustain suppression operations over multiple shifts.

These characteristics are summarised below.

Table 2-6: Effective fire management – response characteristics

Characteristics	Enablers	Potential impediments
Quick response, resources shared and effectively allocated, Forest industry specific characteristics - 24-hour detection, aggressive multi-modal response capability (air, ground, direct, parallel), cross-tenure	• Existing infrastructure - towers, patrols and community reporting. • Access to satellite fire detection / lightning detection systems • Comprehensive shared, mobile information systems • Plantation roads and breaks provide good access. • Established aircraft bases (fixed-wing and rotary). • Industry assets (tankers, machinery) integrated into response. • Cross-border mutual aid agreements. • Common communication channels • Interoperability provides common incident management language. • Surge capacity from out-of-region	• Limited 24/7 detection, capacity • Inability to use aircraft at night or in poor visibility • Resources limited under multi-event conditions. • Misaligned command and communication systems across borders. • Plantation protection deprioritised • Complex terrain • High costs of aviation reliance. • Energy infrastructure may complicate suppression efforts.

2.2.5 Recovery

Recovery addresses the capacity to rebuild, adapt, and reduce future risks. DEECA[34] has identified recovery capabilities that encompass impact assessment, relief and assistance delivery, environmental restoration, economic recovery, rehabilitation of natural and cultural heritage, rebuilding of infrastructure, health emergency response, and social recovery.

[34] Department of Energy, Environment and Climate Action. (2024). Victoria's Bushfire Management Strategy. Victorian Government Library Service

Operational examples show how coordinated, well-planned recovery can maintain industry viability. FCNSW[35] demonstrated effective post-fire recovery in Tumut after the 2019 - 20 fires. The salvage program prioritised remote sensing, estate modelling, and early, coordinated industry engagement to quickly move to a recovery phase and to maintain timber supply despite logistical challenges. Internationally, the United Nations Office for Disaster Risk Reduction[36] noted that experience has shown that the recovery, rehabilitation, and reconstruction phase— which should be planned for before a disaster occurs, presents a crucial opportunity to "*Build Back Better*" by integrating disaster risk reduction into development initiatives and strengthening the resilience of nations and communities, and through increasing public education and awareness of disaster risk.

For the plantation industry, recovery is heavily dependent on access to funding. Rebuilding forest infrastructure and re-establishing plantations depends on capital from internal reserves, government grants, or private insurance. Self-insurance is feasible only for large growers, while commercial insurance has become increasingly expensive and difficult to obtain, with few insurers covering fire, hail or wind[37]. Parametric fire-insurance products based on pre-agreed values and satellite-derived impact assessments have partially addressed the challenge of balancing cost and coverage.

Long-term funding is essential, particularly after large, high-impact fires. Experience in the Murray Valley following the 2019–20 fires has illustrated the extended timelines required for full recovery. FCNSW are still in the process of replanting burnt stands nearly 6 years post-fire due to a combination of access to seedlings, site establishment resources and funding[38]. The drawn-out nature of the program increases costs, as unplanted areas must undergo repeated weed-control treatments, further compounded by the post-fire proliferation of pine wildlings and wattle. Whilst immediate funds are required to stabilise plantation operations post-fire, support for extended periods must be anticipated to reduce the long term impacts of both the fire and the prolonged reduction in the productive outputs of the estate.

These cases highlight that effective recovery requires integrating planning, dedicated funding, and incorporating operational lessons. Funding reforms that strengthen coordinated industry strategies and cross-sector collaboration will ensure recovery supports long-term community, industry, and sector outcomes.

Given the economic significance of plantations, recovery planning must account for post-fire timber salvage and supply continuity, and incorporate lessons learned from previous programs. The region's experience with high-consequence fires underscores the need for adaptive management, investment in mitigation, and coordinated recovery protocols between state and private entities. Access to funding for immediate recovery works, as well as sustained investment in rebuilding plantation assets is fundamental. This points to access to grants, internal cash reserves as well as adequate insurance coverage.

Relevant characteristics are set out below, along with some of the key enablers and impediments of effective fire management and recovery operations.

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[35] Forestry Corporation of NSW. (2023). Tumut Management Area fire salvage 2019–20: Final report (for public release).

[36] United Nations Office for Disaster Risk Reduction. (2015). 'Sendai Framework for Disaster Risk Reduction 2015 - 2030'. UNDRR.

[37] https://www.ajg.com/au/industries/agricultural-insurance/crop-and-plantation-insurance/

[38] https://www.forestrycorporation.com.au/__data/assets/pdf_file/0009/1596465/forest-management-plans-to-2027.pdf and Roger Davies pers.com.

Table 2-7: Effective fire management - recovery characteristics

Recovery		
Effective FM Characteristics	**Enablers**	**Potential impediments**
Planned, resourced, strong collaboration Forest industry specific characteristics - rapid assessment, cross-industry collaboration and coordination Early industry and community engagement	• Existing disaster recovery funding frameworks. • Government and NGO support for community recovery. • Salvage logging capability and flexible processing sector • History of cross-industry recovery collaboration. • Industry drive and funds to rapidly replant plantations. • Access to insurance and reinsurance markets. • Public recognition of economic and social importance of forest sector.	• Typical funding arrangements are short term – long-term funding is required • Long recovery cycles (plantations take decades to mature). • Salvage value rapidly diminishes post-fire. • Insurance gaps particularly for smaller growers. • Environmental damage (erosion, water quality) complicates recovery. • High replanting costs discourage small/medium growers, but also may result in loss of high-cost plantable area on larger estates • Climate change raises uncertainty about long-term viability. • Recovery prioritisation conflicts (timber vs community vs environment)

2.2.6 Characteristics cross-cutting Prevention, Preparedness, Response and Recovery

Sector leadership

As expressed above, effective fire management depends on strong sector leadership that provides clear direction, sets shared priorities, ensures the protection of high-value assets is recognised in strategic planning, and champions investment in mitigation, capability and recovery. This is highlighted by Forestry Australia[15], and Ryan[16]. It also requires fostering a culture of collaboration between government, industry, emergency services, and communities to ensure decisions reflect both operational realities and balance competing priorities. Strong leadership promotes consistency in training, doctrine and operational standards, supports the development of specialist firefighting capacity, and advocates for reforms that remove barriers to mitigation and preparedness. Ultimately, leadership is the basis for policy alignment, and management of resources and actions to deliver coordinated and effective fire management.

Technology and science

Contemporary fire management relies on integrating science, data and technology into planning, decision-making and operations. Advances in remote sensing, fire behaviour modelling, weather forecasting and fuel-load mapping allow earlier detection, more accurate risk assessments and better-targeted mitigation. Emerging tools such as predictive services, unmanned aerial systems, and real-time fireground intelligence strengthen operational effectiveness and improve firefighter safety. These issues are further discussed in Section 3.6 with reference to the NSW Bushfire Inquiry[41]. Embedding technology and science across the

sector enhances situational awareness, strengthens preparedness and supports timely, risk-informed decisions.

Coordination

Coordination is the cornerstone of effective fire management. It is discussed at length in the various bushfire inquiries expanded on in Section 3.5. It requires aligned planning, shared priorities, and interoperable systems across agencies, land managers and jurisdictions. Cross-tenure fuel management, common operating procedures, integrated training frameworks and joint incident-management arrangements reduce fragmentation and enable faster, more effective responses. Coordination also ensures communities, industry, and emergency services understand each other's roles and constraints, improving cooperation during mitigation, suppression and recovery. At the regional scale, coordinated risk management processes help prioritise resources, target shared vulnerabilities and protect critical economic and environmental assets. Without strong coordination, even well-designed strategies risk being inconsistent or ineffective; with it, the sector can deliver faster, safer and more efficient fire-management outcomes.

2.3 Summary in the context of the Murray Region

The following table summarises the key characteristics of effective fire management in the context of the Murray Region, with a focus on industry specific attributes.

Table 2-8: Summary of effective fire management within the context of the Murray Region

Phase / Aspect	General characteristics	Industry specific characteristics
Emergency management phases		
Preparedness - community	Educated, access to good information systems, risks managed, appropriate land use planning, responsibility shared	Community industry support, social licence to reduce risks, plantations and adjacent dwellings / infrastructure are appropriately located
Preparedness – Bushfire Sector	People trained, appropriate resources available, fire leadership in the community and emergency management sector	Forest / plantation firefighting capability,
Prevention – Hazard and ignition management	Risk-based, programs resourced, effective, integration of risk reductions into strategy and planning	Plantation afforded high priority (focus), economic value recognised, sustained HR effort, cross-tenure
Detection and response	Quick response, resources shared and effectively allocated	24-hour detection, multi-modal response capability (air, ground, direct, parallel), cross-tenure
Recovery	Planned, resourced, strong collaboration	Rapid assessment, cross-industry collaboration and coordination. Access to immediate and longer term funding through grants and/or insurance.

Phase / Aspect	General characteristics	Industry specific characteristics
Cross Cutting issues		
Leadership	Effective fire leadership, shared responsibility Leadership in local committees and communities	
Technology and science	Effective use of technology, science-based decisions, adaptive management, continuous improvement	Improved real time data on fire extent and resourcing
Coordination	Strong interstate, interagency coordination, resource sharing (tenure blind)	Ability to operate across tenure and fully utilise industry resources

These characteristics are further informed by reference to the findings from previous bushfire enquiries (refer to Section 33) and provides the context for reviewing regulatory barriers to effective fire management within the Murray Region which is addressed in Section 44.

3. REVIEW OF HISTORIC GOVERNMENT INQUIRIES

This section presents a high level review of historic government inquiries that have been conducted post catastrophic fire events in Australia with particular attention to NSW and Victoria. This offers further insights into what various agencies and sector experts have considered to be failings in past events, and through the development of formal observations and recommendations what further could be considered to be effective fire management.

3.1 Approach

The Bushfire and Natural Hazards CRC maintain a database[39] of natural hazards inquiries in Australia. Of the 325 listed inquiries from 1886 through to 2023, 120 relate to bushfires. The full list of bushfire-related inquiries is provided in Annex 3, Table A 4. These have been reviewed and prioritised for this study. Table A 5 outlines the most relevant inquiries, recommendations and current status.

The most relevant inquiries identified for this review are:

- Royal Commission into National Natural Disaster Arrangements (RCNNDA, 2020)[40]
- Final Report of the NSW Bushfire Inquiry into the 2019/20 fires (NSWBI, 2020)[41]
- Inquiry into the 2019-20 Victorian Fire Season: Summary Report Phase 1 (VicFSI, 2020)[42]
- Victorian 2009 Bushfires Royal Commission - Final Report (VBRC, 2010).[43]

During consultation with Hub stakeholders, further inquiries were highlighted as being relevant for the prevention and response phases and incorporated into the review for specific alignment with key aspects of fire management. These were:

- NSW Coroners Inquest into fire at Wambelong Camp Ground, Warrumbungles (NSWCI, 2014)[44] - focus on fire trail networks and maintenance.
- NSW Coroners Inquiry into the fire at Yankees Gap Road, Bemboka. (NSWCI, 2024)[45] - considered the implications of controlling hazard reduction burns on private property.
- Reducing Bushfire Risks - Victorian Auditor General (VAGO, 2020)[46] - focus being on planned burning and hazard reduction targets
- Report of the Special Inquiry into the January 2016 Waroona Fire (WASI, 2016)[47] - included a specific recommendation regarding the establishment of forest industry brigades.

The recommendations from all these inquiries are a further source of guidance as to what might constitute 'effective fire management', and the status of various actions that stem from those

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[39] Natural Hazards Research Australia. Inquiries and Reviews Database [Online database]. Retrieved September 18, 2025, from https://tools.naturalhazards.com.au/ddr/dataspace-home Natural Hazards Research Australia

[40] https://www.royalcommission.gov.au/natural-disasters

[41] https://www.nsw.gov.au/departments-and-agencies/premiers-department/access-to-information/nsw-bushfire-inquiry/nsw-bushfire-inquiry-report

[42] https://www.igem.vic.gov.au/publications/publications/inquiry-into-the-2019-20-victorian-fire-season-phase-1-report

[43] http://royalcommission.vic.gov.au/Commission-Reports/Final-Report.html

[44] https://coroners.nsw.gov.au/documents/findings/2015/Warrumbungles%20findings%20Final%2028%2008%2015.pdf

[45] https://coroners.nsw.gov.au/documents/findings/2024/Inquiry_into_the_fire_at_Yankees_Gap_Road_Bemboka.pdf

[46] https://www.audit.vic.gov.au/report/reducing-bushfire-risks/?section=

[47] https://www.wa.gov.au/government/document-collections/waroona-bushfire-special-inquiry

recommendations particularly since 2019/20 have been considered as part of the findings of this review. They highlight recurring lessons and priorities for strengthening preparedness, response, and resilience. Recommendations span governance reform, fuel and hazard management, community engagement, cross-border coordination, and capability building. By comparing findings from the inquiries, the following common themes emerge that point to a need for integrated, risk-based, and well-coordinated approaches.

3.2 Legislative and Governance Reform

The NSWBI (2020) called for stronger cross-agency governance through elevating representatives on the Bush Fire Coordinating Committee (BFCC) and requiring rigorous oversight of Bush Fire Risk Management Plans and Operations Coordination Plans (Recommendation 8). At a broader scale, the NSWBI also highlighted the impact of shifting fire seasons on resourcing, recommending analysis of interjurisdictional sharing agreements (Recommendation 9) and advocating for long-term funding certainty for AFAC (Australian and New Zealand Council for fire and emergency services), the National Aerial Firefighting Centre (NAFC), and the National Resource Sharing Centre (NRSC) - Recommendation 12.

In Victoria, the VicFSI (2020) recommended structural reforms such as establishing an Office of Bushfire Risk Management (OBRM) and embedding Regional and Municipal Emergency Management Planning Committees to better integrate fuel management, cross-agency coordination, and community engagement. The Victorian report also stressed ongoing transparency through updated regional Bushfire Management Strategies and more accessible public reporting on fuel management outcomes.

3.3 Fuel and Hazard Management

Fuel management remains a central theme across all inquiries, but the NSWBI (2020) focused on both scale and quality of delivery. It recommended recommitment to regionally based hazard reduction across all tenures through Bush Fire Management Committees (Recommendation 19) while ensuring that plans are implemented consistently. Recognising the importance of protecting assets, NSW also called for comprehensive hazard reduction around towns, communities, and infrastructure (Recommendation 20) and supported expansion of mitigation crews to undertake burns under optimal conditions, including nights and weekends (Recommendation 21).

Incorporating technological solutions, the NSWBI (2020) pushed for integration of remote sensing technologies to monitor and audit Asset Protection Zones (Recommendation 22), a recommendation linked to its broader spatial technology acceleration program (Recommendation 4). It addressed access and suppression needs by urging the development of a statewide strategic fire trail network (Recommendation 33) and requiring local governments to integrate roadside vegetation management and fire risk assessments into planning processes (Recommendations 31–32).

The VicFSI (2020) considered similar issues, emphasised the use of data, modelling, and increased transparency. It proposed improvements in risk modelling for house loss and called for development of a spatial dataset to underpin fuel risk modelling. It also urged review of residual risk targets in consultation with stakeholders. Community engagement was central to the report, with calls to simplify public information about residual risk, to support Traditional Owners in leading the Cultural Fire Strategy, and to expand the Safer Together program. The RCNNDA (2020) also called for more transparency regarding fuel management strategies including reporting on implementation and outcomes.

Earlier inquiries reinforced these themes. The Warrumbungles Inquiry (NSWCI, 2014) emphasised hazard reduction around assets, maintenance of fire trails, and construction of

additional trails where gaps increased risk. These practical recommendations align with NSW's more recent call for a completed strategic fire trail network (NSWBI Recommendation 33).

3.4 Community Engagement and Preparedness

Both NSW and Victoria place strong emphasis on community engagement, though with slightly different priorities. The NSWBI (2020) sought to standardise and improve the clarity of warnings and public information, urging prioritisation of the Australian Warning System and harmonisation of warnings across borders (Recommendation 14). It also called for comprehensive evaluation and rollout of preparedness programs to ensure measurable outcomes (Recommendation 15). Importantly, recognising community reliance on timely digital information, it recommended expansion of the Fires Near Me NSW app to include cross-border fire information (Recommendation 67).

The VicFSI (2020) focused on community understanding of residual risk and fuel management, recommending updated communication materials, simplified reporting, and development of engagement processes that acknowledge program limitations. It also highlighted the need for shared guidance for agencies working with communities, drawing on behavioural science to improve risk communication.

Both inquiries recognise that protection is only effective if communities understand risks, can access accurate warnings, and trust the information provided.

3.5 Cross-Border and Inter-Agency Coordination

The 2019–20 fire season highlighted that effective coordination must operate seamlessly both across borders and between agencies within states. Both the NSWBI (2020) and the Victorian Inspector-General for Emergency Management Inquiry (2019/20) placed strong emphasis on reforms in this area.

The RCNNDA (2020) observed that *There are opportunities to strengthen national resource sharing arrangements….They should facilitate timely resource sharing in times of crisis, enabling sufficient and appropriate resources to be directed when and where they are needed most.*

In New South Wales, recommendations targeted both structural and operational dimensions of coordination. The Inquiry called for development of formal multi-agency Memoranda of Understanding (MoUs) with Victoria to strengthen interoperability and resourcing arrangements (Recommendation 13). It also urged the creation of protocols for resource reallocation when simultaneous emergency events place pressure on Section 44 declarations (Recommendation 7). At the communications level, the Inquiry recommended ensuring all NSW fire authority personnel and vehicles can access the Public Safety Network (Recommendation 55), while also pushing for a national allocation of spectrum for Public Safety Mobile Broadband (PSMB) to enable cross-border interoperability (Recommendation 57). These measures were coupled with a requirement that MoUs explicitly define cross-border communication protocols, which must be reflected in Incident Action Plans (Recommendation 58). The Inquiry further called for the review of Fire Control Centres in heavily affected regions to ensure they can act as hubs of multi-agency coordination during large events (Recommendation 61).

The VicFSI (2020) added a more strategic element. Observation 3.7 noted that:

Cross-border emergency management between New South Wales and Victoria is not underpinned by any formal arrangement between the two states. It currently relies on formal arrangements between individual organisations, personal relationships and dispersed governance in local and regional management committees and working groups.

It recommended appointment of a dedicated Cross-Border and Preparedness Operations Manager to assess mutual aid agreements, represent Victoria in national forums, and clarify the role of the Victorian Cross-Border Commissioner in emergency contexts (Recommendation 16). The report also highlighted the need for consistent warnings and messaging across jurisdictions, collaborative scenario exercises, and enhanced interoperability of systems and tools.

These recommendations highlight that cross-border and inter-agency coordination cannot be achieved solely through informal arrangements or goodwill. They require institutionalised structures, interoperable technology platforms, clear communication protocols, and high-level liaison roles to sustain cooperation under crisis conditions. Both inquiries recognised that coordination challenges extend beyond borders, encompassing the alignment of state fire authorities with local councils and other emergency services.

3.6 Technology and Operational Capability

Enhancing operational capacity and situational awareness has been a recurring focus. Recommendations included implementing spatial technology programs to monitor fire intensity, edge progression, and the condition of asset protection zones in real time, as well as expanding aerial surveillance and remotely piloted aerial systems (NSWBI, 2020). Improved interoperable communications, both within and across jurisdictions, were essential to coordinate firefighting efforts efficiently. Operational capability recommendations also addressed backburning protocols, deployment of heavy plant equipment, night-time aerial firefighting trials, and targeted training programs for senior incident managers to ensure preparedness for extreme fire conditions (NSWBI, 2020; VBRC, 2010).

The RCNNDA (2020) found that '*Fire and emergency services should ensure they utilise private emergency responders effectively and safely to respond to natural disasters. For example, in SA, Victoria and Queensland, private plantation firefighters may form 'industry brigades', which are identified as Country Fire Service (CFS), CFA or rural fire brigades respectively, and operate under that structure with the associated liability protections. NSW does not have 'industry brigades', but Forestry Corporation NSW contracts private firefighters to supplement resources during the fire season. We heard that the approach in NSW leaves private firefighters without the necessary liability protections to effectively and safely assist in a response.'*

A specific recommendation from Western Australia (WASI, 2016) also highlighted the opportunity for facilitating *the safe, efficient and effective recognition, organisation, deployment, management and coordination of….. forestry firefighter resources* through establishing systems for forestry industry brigades.

3.7 Summary

The review of previous bushfire inquiries highlights that they consistently emphasise the importance of risk management, maintenance of firefighting capability, and coordination across agencies.

Effective hazard reduction requires a sustained focus on strategic burning and fire trail networks and other non-burn measures, supported by monitoring tools and data to evaluate effectiveness. Ongoing maintenance of trails and access routes is vital to ensure that firefighters can respond quickly and safely during emergencies.

Maintaining strong firefighting capability is also central, with calls for investment in specialised training, the use of advanced technologies such as remote sensing, and expansion of mitigation crews and equipment. This includes maintaining aerial firefighting capacity, appropriate management of heavy plant, and building capacity to manage extreme fire conditions.

Finally, the inquiries highlight the need for seamless coordination across jurisdictions and agencies. Shared communication systems, interoperable protocols, and joint planning arrangements are essential to ensure the resources and information flow effectively during major bushfire events. This includes the facilitation of industry brigades.

A review of implementation reports suggests that the vast bulk of the recommendations stemming from the various inquiries have been 'completed', with relatively few still 'in progress'. However, through the stakeholder consultation undertaken for this review, it was observed that many critical elements may have been implemented at a policy level, but operational and practical constraints often inhibit any tangible outcomes on the ground. An example below (Box 2) relates to fire trails in NSW.

Box 2: NSW Fire Trails Policy

Following the 2013 Wambelong fire and subsequent inquiries, amendments to the *Rural Fires Act* in 2017 empowered the RFS Commissioner to prescribe fire trail standards, certify and designate trails, direct public land managers to construct and maintain trails, and enter agreements with private landowners where Bush Fire Management Committees (BFMCs) identify a need. BFMCs are also required to prepare Fire Access and Fire Trail (FAFT) Plans to establish a strategic network and undertake condition reporting.

The NSW Bushfire Inquiry (NSWBI, 2020) examined fire trails in detail, finding the legislative and policy framework to be sound but poorly implemented. Recommendation 33 called for finalisation of the strategic network, identification of high-priority trails, enforcement of condition assessments, adoption of single asset management systems, and consideration of easements on private land.

Stakeholders consulted for this review reported that many of these issues remain unresolved as at September 2025, largely due to funding constraints. One RFS District identified more than 2,000 km of fire trails across multiple tenures, including 600 private landowners. Initial cost estimates to meet current standards were approximately $8,000 per km ($16 million), with other land managers suggesting costs of up to $50,000 per km for new trails. Limited district-level resources furth er constrain planning, delivery, and negotiation with landowners. Forestry Corporation of NSW has identified around 1,200 individual trails covering more than 5,500 km, yet only 16 have been certified to date.

While the policy framework represents a strong aspiration, significant practical constraints continue to limit its implementation.

4. REVIEW OF EXISTING REGULATORY BARRIERS TO EFFECTIVE FIRE MANAGEMENT

This stage focused on the existing regulatory barriers to effective fire management, and was informed by a review of legislation, stakeholder engagement within the region, as well as experts outside the region. The issues explored include barriers that might relate to:

- differences in the primary objectives of existing legislation and regulatory instruments applying to forest and fire management,
- limitations on the alignment of policy directives, regulatory requirements and planning provisions across state and local government jurisdictional responsibilities
- limitations on funding allocations to implement policy directives and regulatory requirements.

4.1 Context

In considering barriers to effective fire management, it is prudent to consider the legal environment in which fire management functions.

The legal framework for fire management in Australia is complex and involves an inter-related web of specific fire laws and other statutes that impact directly and indirectly on land managers', property owners' and governments' ability to effectively prepare for and respond to bushfire events. A study prepared by McCormack et al (2022) broke down the relevant legal instruments and associated regulation and institutional arrangements into four groups:

Fire specific law - This inner ring includes legislation directly governing bushfires - statutes establishing fire agencies, emergency powers, arson offences, and hazard-reduction burning rules. These laws provide the institutional backbone for bushfire suppression, response, and prevention.

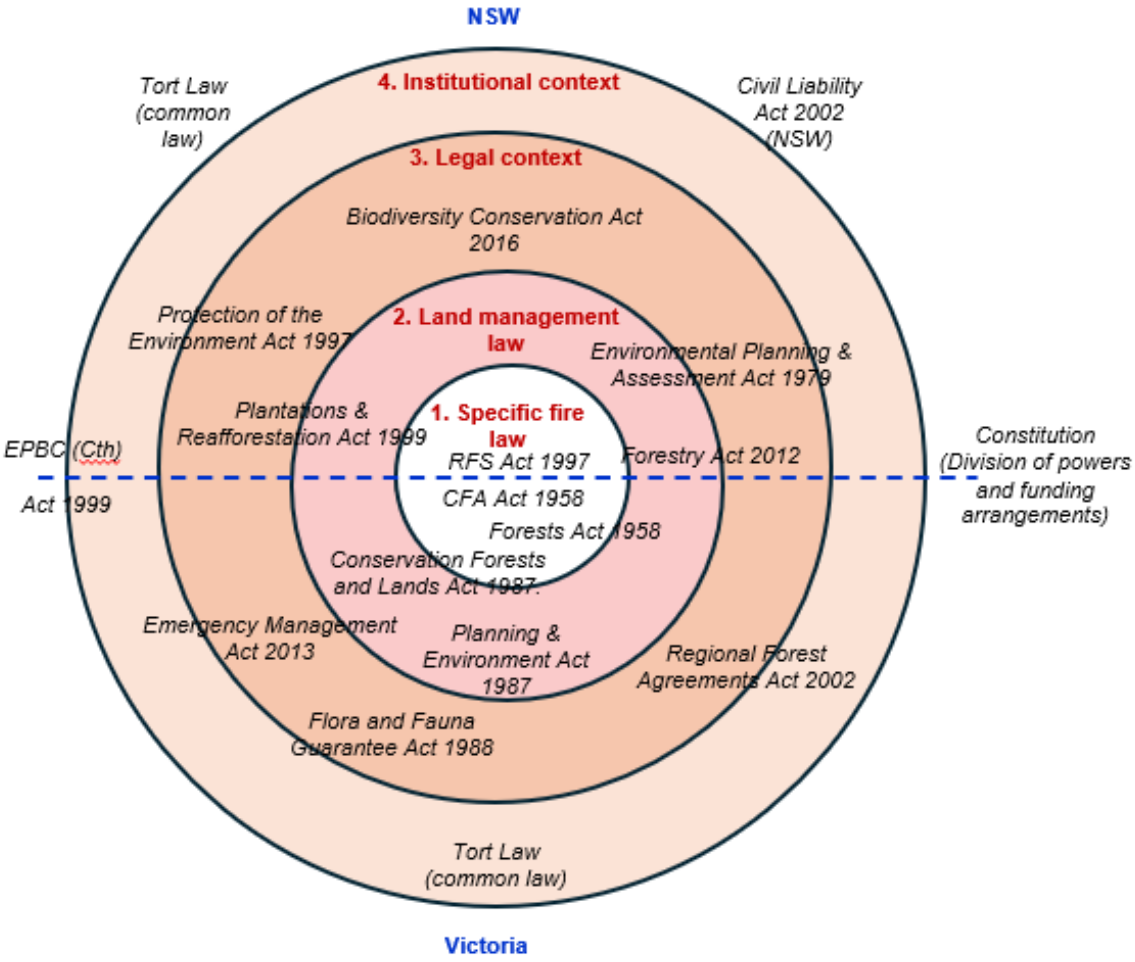
Land management law - This ring includes legislation that determines how land is used, developed, and modified but encompass explicit application to bushfire management - including planning and zoning instruments, forestry, native vegetation protection and clearing laws.

Legal context - Includes legal instruments that have an indirect but influential impact on bushfire management including broader environmental law, emergency management, common law liability and insurance, disaster support, public health and workplace health and safety

Institutional context – these captures three areas that have a broad impact on bushfire management – litigation (via common or tort law), constitutional arrangements and emergency management coordination (such as inter-jurisdictional arrangements).

This conceptual organisation of the legal framework provides a useful basis for assessing the legislative and regulatory settings within the Murray Forestry Hub Region, and thereby the potential barriers to effective fire management that stem from those settings. The model (refer to Figure 4-1 below) has been adapted to reflect the specific context of the Murray Region encompassing the key Commonwealth, Victorian and NSW regulatory instruments.

Figure 4-1: Conceptual model of the bushfire legal framework



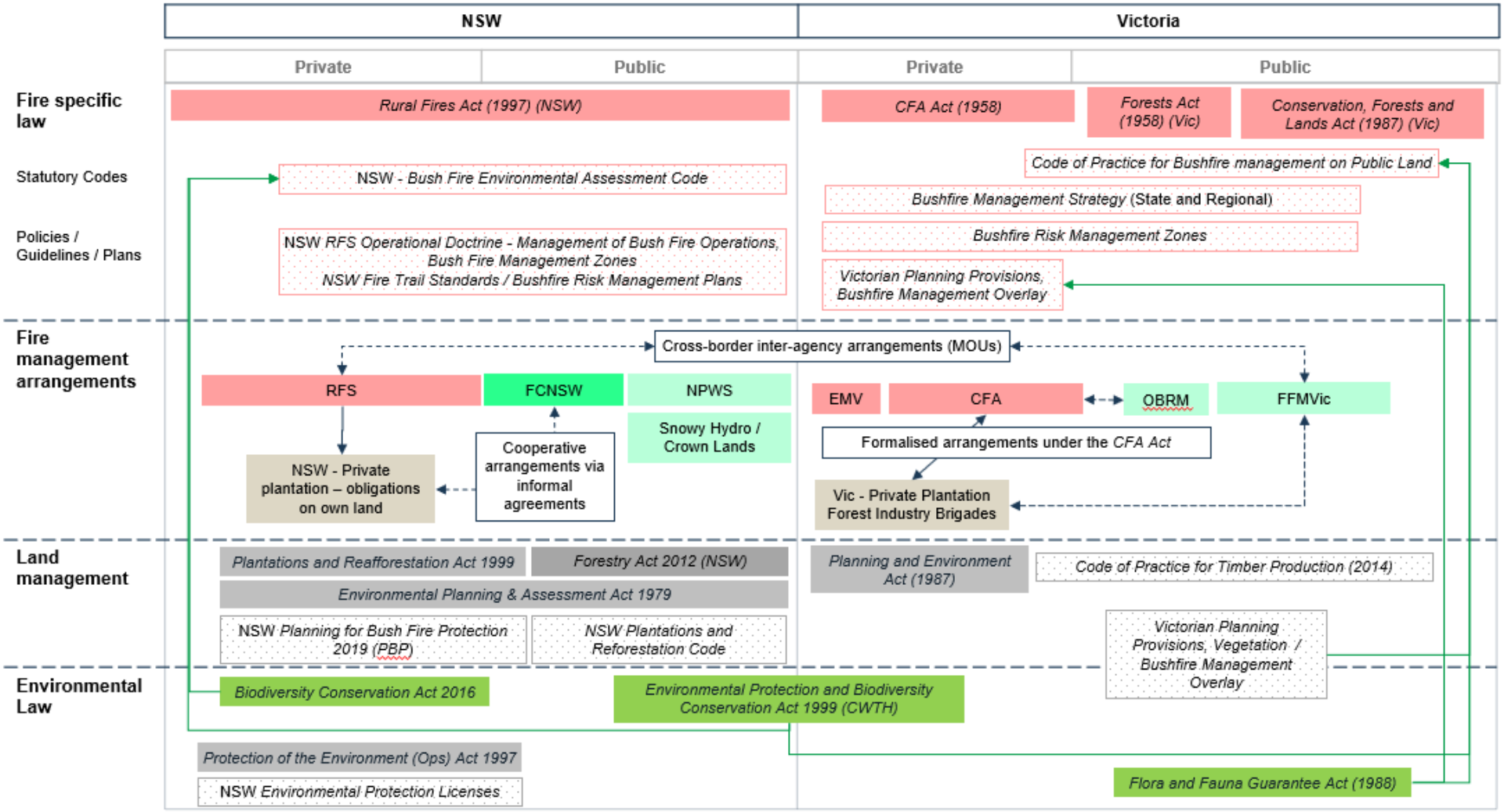
Adapted from McCormack et al, 2022[48]

It is the interaction of fire specific law and associated regulatory instruments with land management and environmental law that both facilitate and create potential impediments to effective fire management. However, the functional relationships between fire management agencies, regulatory authorities, landholders and the community are also integral.

The overarching bushfire management regulatory framework is set out in Figure 4-2 below. This includes on overview of the operating arrangements that underpin the primary fire related legislation across private and public land in NSW and Victoria. It furthermore describes the relevant land management and environmental legislation that may influence land use decisions, and risk mitigation works. Of note are the instruments relevant to each state, the cooperative arrangements enacted through non-binding and legislated agreements, and the potential impact of state and federal environmental legislation on bushfire operations.

[48] McCormack, P. C., McDonald, J., Eburn, M., Little, S., Bowman, D. M. J. S., & Harris, R. M. B. (2022). An anatomy of Australia's legal framework for bushfire. *Environmental and Planning Law Journal, 39*(2), 156–183.

Figure 4-2: Regulatory framework and fire management arrangements



Brief functions of the key regulatory instruments are summarised below in Table 4-1 . A full list of the legislative and associated instruments is presented in Annexure 2.

Table 4-1: Key Regulatory and associated instruments

Jurisdiction - Instrument	Scope / Function
Fire specific law	
NSW - *Rural Fires Act 1997* / NSW - *Rural Fires Regulation 2022*	Establishes NSW Rural Fire Service (RFS) powers and obligations, and FCNSW as one of four Fire Authorities / Operationalises the Act; defines permits, notifications, firebreaks
Vic - *Country Fire Authority Act 1958, Regulations 2025*	Establishes CFA powers, prescribes formation and operational standards for Forestry Industry Brigades (FIBs)
Vic - *Forests Act 1958*	Authorises fire prevention and suppression on public land
Vic - *Code of Practice for Bushfire Management on Public Land 2025*	Sets standards for DEECA / FFMVic bushfire work
Land management law	
NSW - *Environmental Planning & Assessment Act 1979*	Governs planning approvals, including bushfire overlays
NSW - *Planning for Bush Fire Protection 2019 (PBP)* + 2022 Addendum	Regulates development on bushfire-prone private land
NSW - *Bush Fire Environmental Assessment Code*	Approvals for hazard reduction, facilitates compliance with related environmental controls across private and public land
NSW - *Forestry Act 2012*	Establishes FCNSW and regulates management of state forests (fire regulation is not as explicit within the Act as the Victorian *Forests Act,* and therefore sits within 'Ring 2' rather than 'Ring 1').
NSW - *Plantations & Reafforestation Act 1999* and *Plantations and Reafforestation (Code) Regulation 2001*	Specifies operational standards for plantation management, including fire prevention and hazard reduction measures, and location of plantations relative to dwellings and built up areas.
Vic - *Code of Practice for Timber Production 2014*	Made under the *Conservation Forests and Lands Act 1987* - road design and layout (in guidelines), location, relationship to local government planning instruments
Vic - *Planning and Environment Act 1987* + Bushfire Management Overlay	Governs development controls in bushfire-prone areas, and the management of vegetation
Legal context	
Federal - *Environment Protection and Biodiversity Conservation Act 1999*	Regulates actions likely to have significant impact on matters of national environmental significance (MNES)
Federal - *Regional Forest Agreements Act 2002*	Certain forestry and management activities, including some fire hazard reduction works, are permitted under some state and federal environmental approvals if they are consistent with the RFA.

Jurisdiction - Instrument	Scope / Function
Vic - *Emergency Management Act 2013*	Defines emergency coordination and planning systems
NSW *State Emergency and Rescue Management Act 1989*	Defines emergency coordination and planning systems
NSW - *Work Health and Safety Act 2011 Regulation 2017*	Mandates minimum training and competency standards.
Vic - *Occupational Health and Safety Act 2004 (Vic) / Occupational Health and Safety Regulations 2017 (Vic)*	Mandates minimum training and competency standards.
Institutional context	
Tort Law (common law) + Civil Liability Statutes (*Wrongs Act 1958 (Vic); Civil Liability Act 2002 (NSW)*)	Establishes liability for negligence, nuisance, trespass, and other torts. State statutes modify common law by defining duty, causation, proportionate liability, damages, and defences.
Constitution (Division of powers and funding arrangements) incl. *National Emergency Declaration Act 2020*	Governs the allocation of powers between governments, Commonwealth has power to declare a national emergency
Emergency management coordination - *Australian Disaster Resilience Framework (2022*)	Defined by coordination and planning systems including cross-state and national cooperative emergency management arrangements. NEMA aims to provide a unified, end-to-end approach to disaster management.

Whilst Figure 4-1, Figure 4-2 and Table 4-1 provide context and detail on the relevant legal instruments that impact fire management, the insights of this review garnered from discussions with stakeholders and the literature review have highlighted that barriers to effective fire management from a regulatory perspective must be considered in relation to other impediments such as policy, funding and social licence settings. On that basis, this section considers the characteristics of effective fire management described in Section 2, the various enablers and impediments to achieving it, and then discusses the regulatory issues that may influence those impacts. The discussion is presented under the **five phases** described earlier.

4.2 Community preparedness – related regulatory issues

As noted in Section 2.2, community preparedness supports the protection of those communities but also may relate to the social licence for the industry to operate and conduct mitigation activities to protect forest assets in their own right. This includes the relative proximity of timber plantations and communities, and the associated risks this may create. Specific regulatory issues are:

- Victorian *Planning and Environment Act* (1987) and the NSW *Environmental Planning and Assessment Act (1979)* - require risk assessments for new developments, embed bushfire overlays, and mandate consideration of fire in land-use planning, whilst State planning instruments (Vic *Bushfire Management Overlay*, *NSW Bushfire-Prone Land* mapping and *Planning for Bush Fire Protection 2019*) guide development away from high-risk zones and facilitate mitigation measures.
- NSW *Plantations and Reafforestation (Code) Regulation 2001* - plantations may not be established closer than 70m to inhabited dwellings. The *Victorian Code of Practice for Timber Production 2014* applies a 100m limit for dwelling and land zones residential, business or industrial. Existing Use rights apply to enable second rotations to be established on the same footprint.

Despite these controls on new plantation development, it is understood that new dwellings may be approved within these limits to existing plantations subject to compliance with a council's *Planning Scheme* (Victoria) or *Local Environmental Plan* and/or *Development Control Plan* (NSW) that govern land use and development. These may not be prescriptive in terms of specific setbacks from plantations. For example, the NSW *Planning for Bushfire Protection* only prescribes a distance for Asset Protection Zones for 'Forest' that includes plantations of 24 metres on uphill, or flat terrain.

Recommended regulatory barriers to be addressed – community preparedness

The NSW *Planning for Bushfire Protection* development standards mandate setbacks for buildings that are consistent with the *Plantations and Reafforestation Code*.

The *Victorian Planning Provisions* mandate setbacks for buildings and subdivisions that are consistent with the provisions for *Code of Practice for Timber Production* in the applicable zone.

4.3 Sector preparedness and coordination - related regulatory issues

The capacity for emergency management leadership to ensure strong collaboration with the community and other agencies and influence decision making during mitigation and response phases are supported to a degree by existing regulatory provisions. The specific issues are:

- *Rural Fires Act 1997 – there is* no statutory formation of private plantation firefighting resourcing (FIBs) in NSW. This constrains the ability for private firefighting resources to respond across tenure and operate under a common command and control system. It may also lead to concerns about potential liability in terms of managing fire and insurance implications for private growers. The *Rural Fires Regulation (2022)* – specifies Bushfire Management Committee (BFMC) membership. Private landholders participate by invitation only, which may limit the capacity for the industry to influence priorities.
- *Emergency Management Acts* embed sector leadership and command structures, however there are potential differences in doctrine, communication and information systems (NSW RFS, CFA / DEECA), which can create interoperability issues.
- *Work Health and Safety Acts (NSW 2011, Vic OHS Act 2004):* Mandate minimum training and competency standards. However fragmented training accreditation persists, with inconsistencies between the CFA, RFS, and DEECA that add complexity to operating across state borders and transitioning between agencies.

A comparison of operating arrangements for private industry resources is outlined in Box 3 below.

Box 3: Deploying private forest resources in Victoria and NSW

Private forest companies who manage land in NSW

Private forestry companies working in NSW currently have no legal status to respond to fires off the land they manage. As a work-around, many employees or contractors are members of local RFS Brigades and there is a protocol / understanding where the local Brigade requests forestry workers to respond to fires in their private unit.

Some companies have Memoranda of Understanding (MOU) with Forestry Corporation NSW which brings them under FCNSW control when a co-ordinated bushfire fighting operation (Section 44) is declared by the RFS Commissioner. The companies make an annual payment to FCNSW, based on the area of their estate surveyed by FCNSW fire towers and camera system. FCNSW alerts them to

any fires within the vicinity of their estate. They may be contracted at a peppercorn rate by FCNSW when a Section 44 is declared. Through this arrangement, they are incorporated within the incident management system for firefighting and as FCNSW contractors, can legally act outside their land holdings under the direction of the Incident Management System.

Private forest companies in Victoria

The *CFA Act (1957*) and *Regulations 2025* support the formation of Industry Brigades. Once a plantation owner is deemed to have over 500 hectares of plantation within a 25 kilometre radius, the CFA may request the forest owner or manager to form a forest industry fire brigade (FIB). The relevant owner / manager is to supply the equipment and personnel to operate the Brigade.

One or several FIBs may be formed to cover the owner's areas of responsibility. HVP Plantations has seven FIBs, however most forestry companies have just one registered Brigade which covers all their estate in Victoria. The CFA prescribes minimum standards for vehicles, equipment and training. They provide access to fire alert systems, radio communications equipment (on lease) and emergency management platforms such as EM-COP.

Firefighter training is done by CFA instructors and as a minimum all FIB operational members must have the following competencies: General Firefighter, Plantation firefighting, Class A foam. FIB members may also undertake further training with the CFA such as Crew Leader, Strike Team Leader and Sector Commander.

FIBs are expected to respond to fires on their designated area but may also respond to fires outside their designated area. The FIB members have the same powers to act, and indemnities as all the other firefighters they work alongside. FIBs work under the command and control of the CFA and are fully integrated into incident management systems as fires evolve.

Despite various attempts to harmonise training standards across all fire management agencies in Australia, Box 4 highlights some of the issues still impeding seamless skills development and recognition.

Box 4: Specific training inconsistencies

PUA units are nationally recognised vocational training from the PUA Public Safety Training Package. The NSW RFS is ASQA-registered and can deliver nationally recognised PUA units, which the CFA generally recognises (as with SA CFS and other states). The CFA is VRQA-registered only, so it cannot issue PUA qualifications outside Victoria. This leads to issues such as the interstate recognition of Victorian competencies, and different unit structures across fire services.

Cross-border arrangements are subject to non-binding agreements that provide some support for mutual aid commitments and to improve inter-operability. Successful collaboration still largely relies on individuals, their professional relationships and local leadership within the agencies to give life to these arrangements. Box 5 illustrates some of the specific arrangements currently in place.

Box 5: Example of current interstate arrangements

Cross-border agreements

The Upper Murray Cross Border Fire Committee have developed an agreement for agencies on either side of the border to take effective action to control fires in the region. This allows CFA Brigades / Forest Fire Management Victoria (FFMV) firefighters and resources (eg aircraft) to respond into NSW and the RFS into Victoria. Response may be automatic on smoke sighting / fire alert for up to 15 km either side of the State border. Responses to incidents further away require an invitation from the host agency to ensure the use of interstate brigades is legal. This may be facilitated through regional arrangements.

Interstate Deployments

The Australasian Arrangement for Interstate Assistance (AIA) provides a framework for mutual assistance between Australasian fire services, emergency services and land management agencies. It is intended for use within Australia and between Australia and New Zealand.

The AIA is managed by the AFAC National Resource Sharing Centre and is enacted during significant fire campaigns, particularly where one or more State's resources are nearing capacity. It requires formal requests for assistance between States. Personnel that come into a State to assist with emergency response are deemed competent to act in the positions certified by the responding Agency.

In 2019/20 the AIA was used to procure specialist plantation firefighters, coming into Victoria from Queensland and New Zealand. HVP Plantations established the availability of suitable plantation firefighters from HQ Plantations (HQP) and Manulife Forest Management (MFM). A request for resources from the Ovens Incident Control Centre (ICC) was sent to the State Control Centre (SCC) where it was endorsed to the NRSC. The CFA greatly assisted with the processing of the request through the SCC.

The responding resources from HQP and MFM were endorsed by the Queensland Fire & Rescue Service (QFES) and Fire and Emergency New Zealand (FENZ), respectively. The ability to efficiently process these arrangements relied on the strong ties and pre-arrangements between the forestry companies and strong relationships between each of the forestry companies and their fire agency.

Recommended regulatory barriers to be addressed – sector preparedness

In NSW amend the *RFS Act* to facilitate FIBs to enable the optimal use of available resources, improve safety and mitigate liability risk for private growers' contractors and staff.

There are limited statutory requirements to ensure cross-border interoperability and should be addressed through intergovernmental agreements. In NSW, plantation growers could be afforded voting status on BFMCs to assist with priority setting.

Training requirements are inconsistent cross-border that has a limited impact on resources transferring interstate. This needs to be addressed through AFAC and intergovernmental agreements.

4.4 Prevention and mitigation - related regulatory issues

As set out in Section 2, prevention and mitigation strategies focus on reducing risk through fuel management, fire access and trail networks and reducing the likelihood of ignition. This section considers specific regulatory issues impacting on the ability to implement these strategies.

For a given fuel management zone, maintaining bushfire fuel hazard levels may be constrained by (i) fire return intervals, and (ii) management of threatened species. State based processes provide a pathway for implementing programs, however cumulative constraints increase the planning and compliance burden and, in some cases, will materially reduce the ability for land managers and plantation growers to manage risks.

- *Bush Fire Environmental Assessment Code* (NSW) - Compliance generally provides exemption from planning approval under the Environmental Planning and Assessment Framework, subject to appropriate zoning. One stakeholder highlighted that chemical treatments currently excluded from the Code.
- In NSW, the *Bushfires Legislation Amendment Act 2020* improved capacity to undertake vegetation clearing, gave the Commissioner authority to issue hazard reduction notices to public authorities (as well as private landholders), increased the accountability of public land managers and corporations, including stiffer penalties for non-compliance in

hazard reduction. The extent to which these changes have been effective is yet to be tested.

- *Code of Practice for Bushfire Management on Public Land 2025 (Vic)* - Establishes bushfire management zoning and treatment types via regional strategic plans and requires consideration of state and Commonwealth environmental legislation.
- The *NSW Fire Trail Standards* (under *RFS Act*) are not practical in many situations, and significant funding gaps are likely. Fire Road provisions of the *NSW Plantations and Reafforestation Code* are also not practical. The NSW plantations 'Fire Reference Group' is currently assessing inconsistencies with a new approach that will recognise the requirements of the *RFS Fire Trails Policy* including the ability to establish, category 1, category 7 and category 9 trails
- *NSW Protection of the Environment Act (PoE)* imposes restrictions on the burning of native forest bio-materials, including within the Murray Region, where Visy are constrained on utilising biomass via conditions of the facility's *Environment Protection Licence*.

Potentially less significant but important issues relate to:

- *Rural Fires Act 1997 (NSW)* - Provides mechanisms to manage ignition risk; successful prosecution for deliberate or accidental ignitions can be difficult in practice.
- The *Roads Act 1993 (NSW*) limits removal of dumped vehicles unless an immediate safety risk is demonstrated.
- *Public Spaces (Unattended Property) Act 2021 (NSW)* requires extended notice periods for removal of abandoned vehicles, creating ignition and access risks during fire danger periods.
- *Victorian Code of Practice for Timber Production 2014* – Plantation health provisions include the requirement to remove damaged or diseased trees near powerlines. This may create some doubt as to the liability for fires caused by trees contacting powerlines, whereas it is clear that power authorities must manage vegetation other than for private service lines, as specified under Sections 84 and 84A to 84D of the Electricity Safety Act 1998
- NSW *Water Management Act (2000)* - May constrain establishment of new water access points for firefighting.

Compliance with an increasing level of environmental legislation is potentially the most profound risk to managing bushfire risks.

- The *Environment Protection and Biodiversity Conservation Act* 1999 (Cth) (EPBC Act) can constrain fuel reduction and access works.

Fire suppression operations are generally exempt from compliance with the Act. The Commonwealth have developed a guidance note[49] for fire management activities, encompassing firefighting and fire suppression. This includes the following:

'…. instances where emergency bushfire activities have a significant impact on nationally protected matters (for example, back burning, clearing of fire breaks, or emergency vehicle access or camps in habitat where threatened species are known to occur)…if part of a genuine

[49] Department of Climate Change, Energy, the Environment and Water. (2022, August 10). Bushfire management and national environment law. https://www.dcceew.gov.au/environment/epbc/publications/factsheet-bushfire-management-and-national-environment-law DCCEEW

emergency response, they are unlikely to be subject to compliance actions or other penalty under the national environment law. However …wherever possible, nationally protected matters are identified in bushfire risk management plans and local and regional operational mapping' and '*In the case of an emergency, and where legal certainty is required, the federal environment minister has power to issue an urgent exemption'.*

Other exemptions include where:

- there is continued lawful use (e.g. maintaining tracks, roadside weed control, routine controlled burns (that have been conducted historically at the same scale and intensity as that intended), and
- forestry operations operate under a Regional Forestry Agreement that have a certified regulatory framework already in place.

Fire risk mitigation works that could be subject to compliance actions, include the creation of substantial new fire breaks and Asset Protection Zones and one-off burns in high habitat, non-fire tolerant communities. A summary of two recent Federal Court proceedings in relation to bushfire mitigation works and the *EPBC Act* is presented below (Box 6). This underscores the likelihood of increased legal exposure and the compounding risks of additional compliance burden and operational limitations on burning and vegetation management for risk mitigation.

Box 6: Recent legal action regarding hazard reduction in Victoria

Warburton Environment Inc v Secretary to Dept of Energy, Environment and Climate Action – Federal Court VID448/2024 Warburton Inc are arguing that DEECA should be restrained from removing hollow-bearing trees during maintenance of Strategic Fire Breaks. Their argument is that the areas contain habitat of listed threatened species (*EPBC Act)* including the Southern Greater Glider and Leadbeaters Possum (sections 18(2) and 18(3). This case is current.
Save our Strathbogie Forest Inc v Secretary to Dept of Energy, Environment and Climate Action – Federal Court VID 432 of 2023 It was contended that planned burns were not a lawful continuation of a use of land, or are an enlargement, expansion or change in location resulting in a substantial increase in the impact on the land. The court found no evidence of significant impacts on listed threatened species and dismissed the case; however, it held that planned burns are not automatically exempt from the application of the Act. (University of Melbourne, 2024). Paragraph 12 … *I have found that the four planned burns cannot be characterised as a lawful continuation of a use of land that was occurring immediately before the commencement of the EPBC Act, and accordingly the exception in s 43B of the EPBC Act is not attracted….. I do not accept that the application of s 18(3) of the EPBC Act to the conduct by the Secretary of works for the planned prevention of fire in State forests, or to the conduct of these four planned burns, curtails or impairs either the capacity of the State to function as a government or the exercise by the State of its constitutional powers.*

Source: Jade (https://jade.io/article/1068795)

Recommended regulatory barriers to be addressed – prevention and mitigation

Improve the certainty of compliance under the EPBC Act for fire management and high-value asset protection, including via bilateral agreements between the states and the Commonwealth.

Ensure any amendments to the *NSW Bushfire Environmental Assessment* Code do not further constrain fuel management options and can include non-burning treatments such as chemical application.

Address any gaps in the NSW *RFS Act* to facilitate prosecution for deliberate lighting of fires.

Victorian *Code of Practice for Timber Production* – remove ambiguity to ensure liability for maintaining powerline easements remains with the transmission authority

Facilitate FIBs in NSW via the *RFS Act*

Ensure funding matches the aspiration of the *NSW Fire Trails Policy,* ensure *P&R Code* provisions are consistent with the Policy

Remove constrains within the NSW *PoE Act* to allow for the burning for energy of native forest biomass where it is removed for the protection of high value economic assets.

4.5 Detection and response - related regulatory issues

The plantation industry has a long history of effective fire management that is founded on early detection of fires and the ability to respond rapidly with appropriate resources. This section outlines the links to any regulatory barriers that might constrain this core capability.

- The various emergency management and fire management acts (*Vic EM Act 2013*; NSW *SERM Act 1989*, *CFA Act (1958*) and *RFS Act (1997*)) provide the basis for inter-agency coordination and shared resource allocations.

As for other fire management phases, a key limitation for an optimal use of plantation industry resources is the lack of Forest Industry Brigades in NSW. The *RFS Act* does not provide for FIBs or ability for private assets to respond across tenure. The *Bushfires Legislation Amendment Act 2020* intended to insert a new Division 3AA into the Rural Fires Act 1997, allowing the Commissioner of NSW RFS to designate a group of people as an industry brigade. It is understood this was removed prior to enaction of the Act.

Cross Border arrangements sit within policy frameworks rather than embedded within existing legislation. Cross-border MOUs (Vic–NSW, ACT-NSW) formalise mutual aid arrangements but are not statutory obligations. This raises the risk that effective collaboration relies on semi-formal engagement and personal relationships rather than mandated actions.

Recommended regulatory barriers to be addressed – prevention and mitigation

Improve the ability to coordinate and deploy resources through the formalisation of Forest Industry Brigades in NSW.

4.6 Recovery - related regulatory issues

Effective recovery includes ensuring strategic and operational plans incorporate actions that can be taken to return economic, social and environmental systems to a functioning capacity as soon as possible. A focus on collaboration and access to sustained support are also highly relevant. State recovery agencies (e.g. *Emergency Recovery Victoria, Resilience NSW*) have been established under statute to coordinate multi-agency recovery. Funding is often driven by socio-political demands, particularly in the early period post-fire. Funding beyond the immediate recovery phase is required where damage to infrastructure or forest assets is significant and

beyond the capacity of local agencies or growers. The experience post Black Summer has demonstrated that restoring the productive capacity of the forest may take up to 10 years after a significant event. This has long term implications for overall supply and sustainability of the processing sector. The *Disaster Ready Fund Act (2019)* has been established by the federal government. Effectiveness is not yet tested, while funding is only provided to 2028.

Recommended regulatory barriers to be addressed – response and recovery

There were limited issues identified to address regulatory barriers within recovery phases. Potential improvements to government funding predicated on influencing prioritisation through stressing socio-economic, multi-decadal impacts is likely to be the most important aspect.

4.7 Regulatory barriers - summary

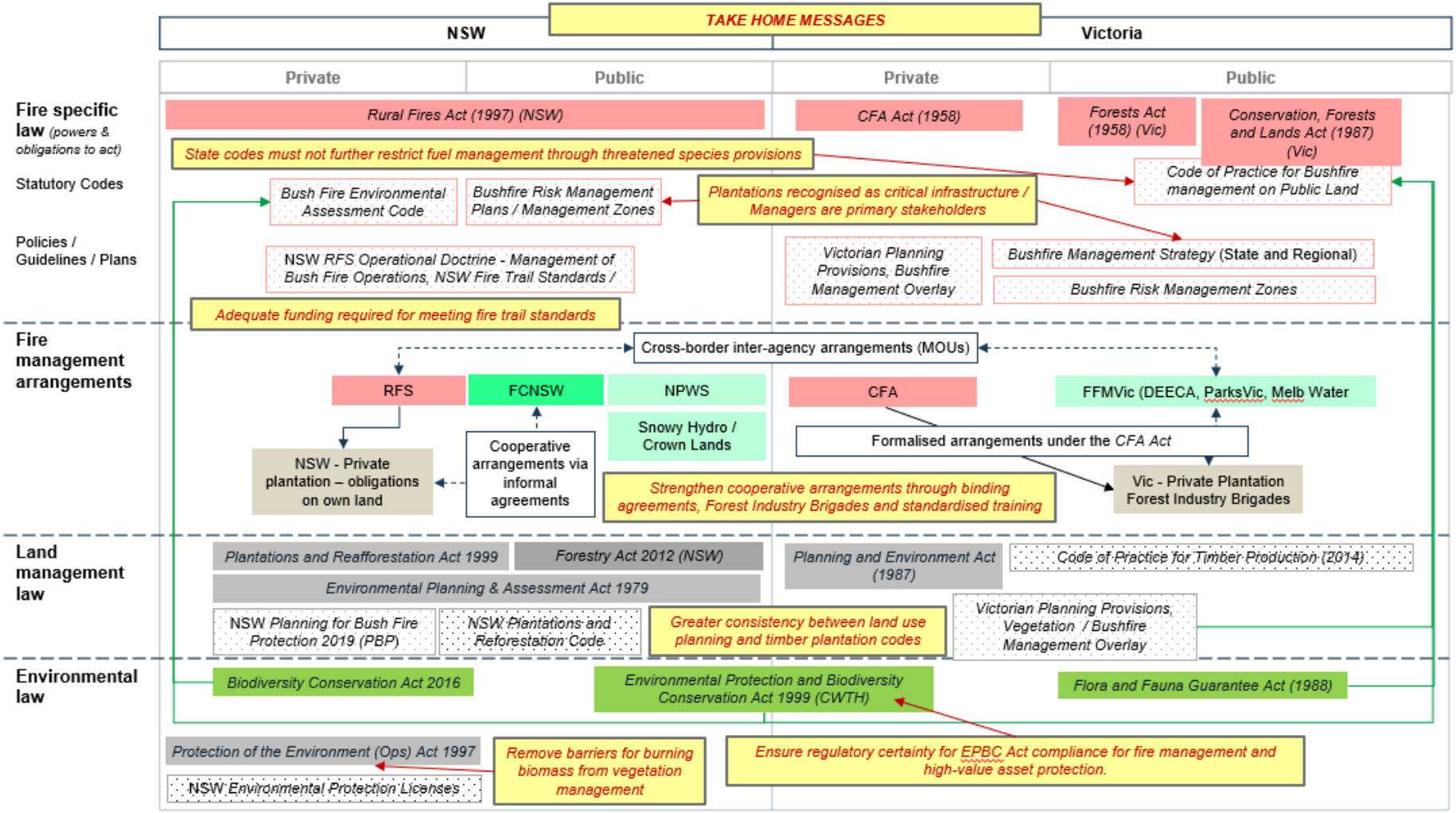
The review of bushfire management regulation, combined with broad consultation within the industry and bushfire sector, has identified that there are clearly areas within the state and federal legislative frameworks that do not facilitate effective fire management. However, it is apparent that leadership within the sector and the ability to shape strategic and operational decisions remains a key factor in protecting the industry assets.

In summary, the industry must be able to lead strategic and operational decision-making to ensure appropriate fuel zoning, prioritisation of mitigation and suppression resources and practical barriers are addressed. In terms of regulatory barriers to effective fire management, they can be refined to the following key issues:

- Inconsistent regulatory approaches between plantation development and other land uses in statutory codes may increase bushfire risk to plantations and communities.
- In NSW the lack of forest industry brigades impacts coordination, training and equipment availability - leading to sub-optimal use of available resources for both mitigation and suppression activities, exacerbated by a lack of liability coverage offered to private growers and contractors.
- For a given fuel management zone, maintaining bushfire fuel hazard levels may be constrained by (i) fire return intervals, and (ii) management of threatened species. State based processes provide a pathway for implementing programs, however increasing constraints stem from third party referrals or litigation particularly under the *EPBC Act*. This increases the planning and compliance burden and, in some cases, will materially reduce the ability for land managers and plantation growers to manage risks.
- Coordination and collaboration across state borders relies on non-binding agreements, goodwill and personal relationships. Enshrining cross-border arrangements in statutory or intergovernmental agreements would provide the basis for ongoing and strengthening of interstate partnerships.
- A number of less significant, but important matters include reducing the liability for powerlines in plantation in Victoria, ensuring a higher likelihood of successful compliance actions for deliberate and accidental fire ignition in NSW, enabling the use of native woody biomass extracted for fuel management purposes in energy production, and the powers to remove dumped vehicles from forest areas.

To summarise, the overarching bushfire management regulatory framework presented in Figure 4-2 has been expanded to include take home messages from this review in Figure 4-3 below. These form the basis of the findings and recommendations set out in Section 5.

Figure 4-3: Model of the legal framework and identified regulatory barriers



5. KEY FINDINGS AND RECOMMENDATIONS

While this study focused on the Murray Region of southern NSW and northeastern Victoria, this report presents a review of regulatory barriers to implementing effective fire management in both the regional and broader context. Key findings are set out below.

Effective fire management has been considered across five phases: **community preparedness; fire management sector preparedness; prevention and mitigation; response; and recovery**. Furthermore, cross-cutting elements include **sector leadership, technology and coordination**. There are recurring themes across these phases that have been highlighted from the literature review, stakeholder engagement, and a comprehensive review of previous inquiries into major fire events

Sector leadership

Finding 1. Land-use planning, policy settings, and operational practices must better recognise the socio-economic importance of plantations and the broader timber industry. This recognition is critical for prioritising mitigation investment, guiding response efforts during fire events, and supporting effective post-fire recovery. In the absence of statutory mechanisms that explicitly protect these interests, strong industry leadership and sustained community engagement are essential to communicate the sector's long investment horizons and the enduring impacts that major fire events can have on industry viability.

In both states, priorities for suppression and mitigation are protecting life, critical infrastructure and residential property. Plantations are generally considered as holding significant economic importance, and this status is generally aligned with other industries. However, this can mean decision making or priority setting may not recognise the multidecadal impacts of fire on the softwood plantation sector. The industry must be able to exert influence in decision making through strategic planning processes, emergency planning and incident management teams, to prioritise the protection of industry assets.

Recommendation 1 - The plantation industry must continue to actively reinforce its role in shaping fire management decision-making across land use planning, sector resourcing, bushfire risk planning, suppression activities, and recovery operations. This influence should be exercised through strong leadership and meaningful community engagement. The industry prioritise the retention and development of these capabilities as both a policy imperative and a business necessity to ensure sector resilience and effective fire management outcomes.

Recommendation 2 – NSW plantation owners / managers are recognised as members (rather than observers) of the Bushfire Management Committees and the industry is specifically represented on the Bushfire Coordination Committee.

Recommendation 3 – That the Victorian *Strategic Bushfire Management Planning* process identifies plantation industry representatives as primary stakeholders, and that consideration be given to classifying long rotation plantations as critical infrastructure. The NSW Bushfire Risk Management Plans must ensure 'Focus Areas' incorporate all major plantation assets.

Community preparedness

Finding 2. There is inconsistency in the application of land use planning and timber plantation development requirements that has the potential to increase the risk to the community and / or reduce the productive footprint of plantations over time.

Whilst the plantation codes in both states constrain the location of new plantations adjacent to dwellings and other land uses, there are examples where new developments (homes, industrial uses) are approved through local planning processes without the same restrictions being

applied. This has the potential to diminish the plantation footprint or expose both plantations and residents to elevated fire risks.

> Recommendation 4 - That the NSW *Planning for Bushfire Protection* development standards mandate setbacks for buildings that are consistent with the *Plantations and Reafforestation Code.*
>
> Recommendation 5 - That the *Victorian Planning Provisions* mandate setbacks for buildings and subdivisions that are consistent with the provisions for *Code of Practice for Timber Production* in the applicable zone.

Coordination

Finding 6. Greater collaboration between agencies, across state borders and between plantation growers is essential in ensuring limited fire mitigation and suppression resources are fully utilised. There are limited regulatory provisions to facilitate this to the extent required.

Collaboration between agencies, within each state is generally supported by regulatory and policy frameworks. Cross-border arrangements are subject to non-binding agreements that provide some support for mutual aid commitments and to improve inter-operability. Successful collaboration still largely relies on individuals, their professional relationships and local leadership within the agencies to give life to these arrangements. Enshrining cross border coordination is not straightforward given the jurisdictional complexities, however further options could be explored at an intergovernmental (e.g. COAG) level for formalising existing arrangements.

> Recommendation 6 – That options for enshrining cross border collaboration and coordination in binding agreements be explored at state and federal levels of government.

Firefighter training is a key issue in cross-border operations. Developing a consistent set of competencies and ASQA-standard training would greatly enhance the ability of rural firefighters to work across State borders and reduce duplication of training requirements.

> Recommendation 7 – Training standards, including minimum competencies, be further harmonised to improve cross-border interoperability, and plantation firefighting modules be extended across agencies to expand the capacity for sustained in-forest suppression.

Finding 7. Forest Industry Brigades (FIBs) improve the capability of the sector to respond across tenure, operate under consistent command and control systems, and maintain minimum equipment and training standards. Given that plantation companies now operate across State borders, having similar legislation in NSW to that existing in Victoria and South Australia will minimise associated bureaucracy and enhance inter-operability.

Plantation investors require certainty that they have the best available means to protect their assets from fire risk. Owners need the ability to respond to fires outside their estate whilst fully integrated into the RFS or CFA command and control systems to minimise risks to the whole community. FIBs can also make significant contributions to fuel management activities, if protected by legislation of the emergency services.

In Victoria, FIBs have offered a means of readily incorporating (and mandating via regulation) the resources of the forest industry into broader bushfire response, through common systems, training and equipment standards. There is no such equivalent in NSW to ensure plantation owners have sufficient firefighting capacity, can deploy that capacity across tenure, have consistent training standards, and have legal liability coverage for undertaking fire management activities. It is acknowledged that progress has been made to develop industry 'volunteer

brigades', however legislative backing would provide a stronger basis for successful implementation.

Note: The NSW Bushfires Legislation Amendment Bill 2020 initially included a provision (S33AA) for the RFS Commissioner to designate groups of persons as industry brigades and, through provisions of the Rural Fires Regulation 2013, incorporate those brigades into the RFS[50]. This particular amendment was excluded from the final version of the Bill.

Recommendation 8 – The roll-out of industry brigades in NSW be supported by a legislative change to the *RFS Act*.

Prevention / Mitigation

Finding 3. At a state level, there are general regulatory mechanisms in place to ensure the protection of plantation assets are given appropriate priority. However, there is an increasing emphasis on threatened species management. A pro-active approach and strong industry leadership is required to ensure fuel management zoning, burning prescriptions and prioritisation of mitigation works can continue to reduce the risk to the plantation estate.

Regional bushfire risk plans in both states provide the basis for identifying key risks to economic, cultural and environmental values, identifying appropriate mitigation options, and prioritising activities. Zoning schemes directly reflect the relative importance placed on economic and environmental values by the risk planning teams, through stakeholder engagement and government policy direction.

Whilst some priorities are clear (protecting communities, critical infrastructure), economic assets including plantations will be subject to potentially more subjective decision making. Where environmental values are promoted as high priority, fuel management zoning, or threatened species prescriptions may limit the capacity to undertake mitigation works to the extent and frequency desired to keep fire risk to plantations at an acceptable level.

Recommendation 9 – That the government ensures that any changes to the management of threatened species under the NSW *Bushfire Environmental Assessment Code* and the Victorian *Code of Practice for Bushfire Management on Public Land* do not further constrain fuel management activities for high economic value assets nor significantly add to the administrative burden and compliance risk of preparing and implementing plantation risk reduction strategies.

Finding 4. The state-based fire management codes offer exemptions or assistance with compliance with state legislation, however at the federal level, there remains a litigation or compliance risk under the EPBC Act, particularly via third party referrals.

There is evidence of third party legal action already creating barriers to fuel management in Victoria. Whilst there is no evidence yet of this type of resistance to undertaking fuel management in key plantation areas within the Murray Region, it is foreseeable that strategically important areas might be subject to further scrutiny, or legal action elsewhere that will influence management options within the region.

Recommendation 10 – Options to ensure regulatory compliance under the *EPBC Act* for fire management and high-value asset protection, including via bilateral agreements between

[50] Parliament of New South Wales. (10/11/2020). Bushfires Legislation Amendment Bill [Hansard] - https://www.parliament.nsw.gov.au/Hansard/Pages/HansardResult.aspx#/docid/'HANSARD-1323879322-113993'

the states and the Commonwealth, be considered as a priority to ensure appropriate hazard reduction activities can continue to be conducted.

Finding 5. Bushfire risk reduction works must be considered strategically, on a cross-tenure basis, with measurable outcomes. Policy settings in both NSW and Victoria strongly reflect this as a desired outcome but there are practical constraints in achieving it.

In both states, there are policy settings and institutionalised processes (strategic risk management plans, local management committees) to facilitate a 'tenure blind' approach to managing bushfire risks. However, achieving effective risk reduction is often constrained by funding and a lack of collaboration between land managers, individual landholders and agencies. For example, there is policy intent to create and maintain a network of high standard cross-tenure fire trails in NSW. However, this requires an ongoing commitment for funding and may not be achievable where there are extensive areas, and significant numbers of private landholders involved.

Similarly, commercial utilisation of biomass generated from risk-reduction works in native forests is constrained in both states. This can create perverse outcomes, requiring material to be burned in situ, increasing risk and potentially inflating the cost of mitigation works.

Recommendation 11 – The *NSW Fire Trails Policy* be supported by sufficient funding to expedite the coordination, planning and implementation of the strategic fire trail network, across all tenures. Furthermore, the Plantations and Reafforestation Code is amended to be consistent with the *NSW Fire Trails Policy*.

Recommendation 12 – Remove explicit regulatory barriers to the beneficial use of biomass waste arising from fire mitigation works, including restrictions under the *NSW Protection of the Environment Operations Act 1997*.

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6. SUMMARY

The review has illustrated that barriers to effective fire management may be related to regulatory matters, but other impediments include social and political influence, a lack of community and sector leadership, poor policy implementation and a lack of adequate funding, or other practical impediments.

Characteristics of 'effective fire management' have been defined using contemporary literature from published research, policies and strategic frameworks, codes and operational guidance and previous bushfire inquiries It has been considered across five phases: community preparedness; fire management sector preparedness; prevention and mitigation; response; and recovery.

Regional bushfire risk plans in both states provide the basis for identifying key risks to economic, cultural and environmental values, identifying appropriate mitigation options, and prioritising activities. Zoning schemes directly reflect the relative importance placed on economic and environmental values by the risk planning teams, through stakeholder engagement and government policy direction. The industry must be able to exert influence in decision making through strategic planning processes, emergency planning and incident management teams, to prioritise the protection of industry assets.

While priorities such as the protection of communities and critical infrastructure are well defined, economic assets, including plantations, are more exposed to subjective prioritisation. Where environmental values are elevated, fuel management zoning and threatened species prescriptions may restrict the scale and frequency of mitigation works required to maintain fire risk to plantations at acceptable levels.

In both states, there are policy settings and institutionalised processes (strategic risk management plans, local management committees) to facilitate a 'tenure blind' approach to managing bushfire risks. However, achieving effective risk reduction is often constrained by funding and a lack of collaboration between land managers, individual landholders and agencies.

Collaboration between agencies, within each state is generally supported by regulatory and policy frameworks. Cross-border arrangements are subject to non-binding agreements that provide some support for mutual aid commitments and to improve inter-operability.

In Victoria, Forest Industry Brigades (FIBs) have offered a means of readily incorporating (and mandating via regulation) the resources of the forest industry into broader bushfire response, through common command and control, training and equipment standards. There is no such equivalent in NSW to ensure plantation owners have sufficient firefighting capacity, can deploy that capacity across tenure, have consistent training standards, and have legal liability coverage for undertaking fire management activities.

Key findings and associated recommendations have been developed for consideration.

ANNEX 1

Literature Review Summary

ANNEX 1 - LITERATURE REVIEW SUMMARY

Theme 1. Community Fire Preparedness

Note: Numbering for each source reflects this review's referencing database identifier

15. Australasian Fire and Emergency Service Authorities Council. (2019). *Bushfires and community safety position.* AFAC.
Key points/summary: Sets out AFAC's principles and approach for protecting life, property, and the environment from bushfires. It emphasises that safeguarding human life is the highest priority and that communities share responsibility with emergency services for preparedness and response. It notes that firefighting resources are unlikely to be allocated to property infrastructure and community assets that cannot be defended safely. The document promotes risk-based land-use planning, effective communication, and community education as key to improving safety outcomes. It also recognises the increasing complexity of bushfire risk due to climate change, urban expansion, and vegetation management challenges. AFAC advocates for evidence-based decision-making, consistent national policy, and collaboration among agencies to reduce bushfire impacts. The position provides a framework guiding member agencies' doctrine, planning, and operational priorities to build resilient communities capable of surviving and recovering from bushfire events.
Relevance to Effective Fire Management: Stresses the role of informed, engaged communities in effective bushfire risk management.

20. Parsons, M., & Morley, P. (2017). *The Australian natural disaster resilience index*. Australian Journal of Emergency Management, 32(2), 2-22.
Key points/summary: Links effective bushfire management to community resilience indicators and identifies coping and adaptive capacity. Provides operational and strategic context, with specific examples and frameworks. Aligns with broader bushfire risk management principles while addressing jurisdictional challenges and coordination requirements. Includes relevant policy instruments and measurable outcomes.
Relevance to Effective Fire Management: Links effective bushfire management to community resilience

21. United Nations Office for Disaster Risk Reduction. (2015). '*Sendai Framework for Disaster Risk Reduction 2015 - 2030*'. UNDRR.

Key points/summary: A global blueprint for reducing disaster risk and enhancing resilience. It emphasizes a shift from reactive disaster management to proactive risk reduction, focusing on understanding disaster risk, strengthening governance, investing in resilience, and enhancing preparedness. The framework identifies four priorities: (1) understanding disaster risk; (2) strengthening disaster risk governance; (3) investing in disaster risk reduction for resilience; and (4) enhancing disaster preparedness and "Build Back Better" in recovery, rehabilitation, and reconstruction. It recognizes that disaster risk is influenced by social, economic, environmental, and technological factors and stresses the need for inclusive, all-of-society engagement, including governments, private sector, civil society, and communities. The framework also establishes seven global targets, including reducing disaster mortality, economic losses, and damage to critical infrastructure, fostering international cooperation and monitoring progress through data-driven approaches to inform policy and planning.

Relevance to Effective Fire Management: Highlights shift in focus from response to mitigation and preparedness

27. Woods, C. (2024, December 10). Danger season: *Why NSW leads Australia in bushfire laws and policies*. Law-Society Journal. https://lsj.com.au/articles/danger-season-why-nsw-leads-australia-in-bushfire-laws-and-policies/
Key points/summary: Notes that NSW is not keeping up with development and ensuring standards anticipate increasing bushfire risks. Permits required - civil liability if fires cause damage. NSW Bushfire Environmental Assessment Code guides whether vegetation clearing is appropriate. California addressed liability fears via a $20 million Prescribed Fire Claims Fund, covering up to $2

million per incident. Encourages beneficial burning; contrasts with Australia's stricter liability environment and limited private insurance.
Relevance to Effective Fire Management: Considers risk and liability in prescribed burning; highlights importance of regulatory frameworks and public confidence in community preparedness actions.

50. New South Wales Rural Fire Service. (2019, November). *Planning for Bush Fire Protection 2019: A guide for councils, planners, fire authorities and developers*.

Key points/summary: Identifies a series of objectives – building that can provide protection, provide defendable spaces, ensuring access and egress, ongoing maintenance of protection measures and ensuring utility services are appropriate. Principles include controlling development, minimise direct impacts of fire, vulnerability of buildings t ignition and spread, and a focus on preparedness – property and fire trail maintenance. Statewide provisions apply in the absence of any amended Schedules. Illustrates the steps – risk identification, evaluation and mitigation
Relevance to Effective Fire Management: Prescribes minimum distances for buildings within Asset Protection Zones across various BAL (Bushfire Attack Level) ratings

Theme 2. Sector Fire Preparedness

1. **Australian Institute for Disaster Resilience. (2023). '*Australian emergency management handbook series'*. AIDR.**

Key points/summary: Global losses from natural and human-caused hazards are rising - Australia faces similar risks, increasing its vulnerability to emergencies and disasters. The Australian Emergency Management Arrangements Handbook (AIDR, 2023) provides a national framework to guide governments, agencies, NGOs, businesses, communities, and individuals in emergency management. It establishes principles for prevention, preparedness, response, and recovery (PPRR) and promotes a collaborative, "all hazards" and shared responsibility approach. The handbook outlines roles and responsibilities at all levels, supports interoperability, and aligns national disaster resilience strategies with practical arrangements. It offers guidance based on nationally agreed principles and good practice. The 2023 edition incorporates updates reflecting the National Strategy for Disaster Resilience, the Sendai Framework, and recommendations from the 2020 Royal Commission into National Natural Disaster Arrangements.

2. Council of Australian Governments. (2014). *National bushfire management policy statement for forests and rangelands*. Canberra, ACT: COAG.
Key points/summary: Outlines shared goals for protecting lives, property, and the environment from bushfires. Positions life preservation as paramount and promotes integrated decision-making across jurisdictions. Endorses planned burning, mechanical treatments, and land use planning combined with community engagement and adaptive management informed by research. Recognises cultural burning and ecological health, balancing human safety with biodiversity and sustainable land use.
Relevance to Effective Fire Management: Provides a coordinated national policy framework integrating risk reduction across all levels of sector operations and planning.

38. Parkins, K., Cirulis, B., Bennett, L., & Penman, T. (2022). *Characterising and managing fire risks to plantations under changing climates* (Project No. VNC518-1920). Forest & Wood Products Australia. https://www.fwpa.com.au/resources/characterising-and-managing-fire-risks-to-plantations-under-changing-climates
Key points/summary: Examined plantation fire risks across five regions including Tumut, NSW. Developed plantation-specific fuel curves, fire risk profiles, and management strategy modelling using PHOENIX RapidFire and FROST simulators. Found traditional fuel curves underestimated fuel loads, especially in softwoods. Tumut had highest surface/near-surface fuel loads (~21 t/ha immediately post-harvest) linked to blackberry encroachment in young Pinus radiata plantations, increasing early-rotation fire risk. Elevated fuels peaked earlier than previously modelled. Simulations predicted Tumut & Green Triangle would have largest increases in annual area burnt under hotter climates. Management modelling highlighted improved suppression response times and maintaining prescribed

burning outside plantations as most effective risk reduction strategies.
Relevance to Effective Fire Management: Highlights critical importance of rapid detection, improved suppression response, and external hazard reduction to protect both community assets and plantations under climate change.

26. Forestry Australia, Forest Fire Management Committee. (2025). *Effective fire management – a fire comms tool.*
Key points/summary: A working document proposing 7 actions to improve forest fire management in Australia, focused on media and community messaging around forest fire management:

1. Prepared and Resilient Community: Promote life safety, raise awareness, foster shared responsibility, educate on fire prevention, promote fire-resilient building design, "build back better," engage land managers, establish community fire warning systems.
2. More “Good Fire”; Less “Bad Fire”: Increase prescribed burning, embed fire in land management, mosaic burning plans, mechanical fuel management, cultural burning, train land managers, tailored prevention actions, trained fire cause investigators.
3. Keeping Unwanted Fires Small: Fast initial attack, risk-driven prescribed burning, improved detection, minimise travel times, equip first responders, AIIMS & unity of command, interagency training, National Resource Sharing Centre, contractor participation.
4. Trained, Competent, Resourced Fire Personnel: Recognise specialist firefighting, national training frameworks, train next-gen firefighters, portable skills, AIIMS alignment, future land manager education, volunteer capacity.
5. Fire Management Based in Science: Data-driven, adaptive landscape management, continuous national training, promote enquiry & learning, emerging tech, research-informed policy, prioritise research questions, monitoring & reporting.
6. Forest Fire Community Leadership: Promote safety/adaptation culture, agency cooperation, build trust in leaders, effective communication, subsidiarity in decisions, support fire practitioners, engage leaders across governance.
7. Effective Fire Talk: Respectful communication, Indigenous knowledge & storytelling, simplify messaging, trusted expert voices, inclusion & relationship-building, two-way engagement, establish Forestry Australia as leader, share positive prescribed/cultural burning stories.
   Relevance to Effective Fire Management: Promotes the primacy of community preparedness, informed engagement, and communication as central to effective bushfire management.

36. Ryan, B. R. (2025). *Forest industry brigades – protecting forestry assets and our communities*. Australian Forestry, 1–13. https://doi.org/10.1080/00049158.2025.2548111
Key points/summary: Safeguarding plantations from bushfire is essential to industry and local economies. Privatisation of Victorian plantations led to Industry Brigade legislation. Brigades are integrated into State fire control agencies, providing legal certainty and operational integration. Differences in legislation across jurisdictions create challenges; a consistent national approach is recommended.
Relevance to Effective Fire Management: Highlights effective use of resources, capacity for tenure-blind response, consistent training, equipment, and operating standards.

34. Central West Forest Hub. (2023). *Review of fire management capacity, risk, and opportunities (CWFH-007 Fire Capability Review)*. https://cwfh.com.au/wp-content/uploads/2023/02/CWFH-007-Fire-Capability-Review.pdf
Key points/summary: Assesses bushfire management and plantation protection to identify risks and improvement opportunities. Plantation fire-loss risk is highly variable, influenced by forest continuity, topography, accessibility, and fire weather. Response capability led by FCNSW, supported by private growers, contractors, and NSW RFS. Multi-mode initial attack combines aerial waterbombing, machinery, and tankers; RFS focuses on life/community protection. Recommendations: plantation design, early detection, multi-mode initial attack, night operations, industry collaboration, engagement with RFS.
Relevance to Effective Fire Management: Provides geographic, economic, and social context for defining effective fire management; identifies opportunities to strengthen sector preparedness.

Theme 3. Prevention and Mitigation

3. Australasian Fire and Emergency Service Authorities Council. (2015). *National position on prescribed burning*. Melbourne, VIC: AFAC.
Key points/summary: Positions prescribed burning as essential but part of a broader, risk-based, values-driven program. Provides operational and strategic context, examples, frameworks, case studies, policy instruments, and measurable outcomes. Supports adaptive management and continuous improvement.
Relevance to Effective Fire Management: Promotes prescribed burning as a prevention tool within an integrated suite of mitigation strategies.

18. Parks & Wildlife Service Tasmania. (n.d.). *Bushfire risk planning.* Department of Natural Resources and Environment Tasmania
Key points/summary: Uses modelling to guide risk-based planning, targeting high-risk areas for treatment. Provides operational and strategic context, includes case studies, policy instruments, and measurable outcomes, supporting adaptive management. Values include human life, man-made, cultural, natural and other economic values including production forests.
Relevance to Effective Fire Management: Applies spatial modelling to inform prioritisation of treatments in sector fire preparedness.

28. Forestry Corporation of New South Wales. (2020, May). *Softwoods Fuel Management Plan*. https://www.forestrycorporation.com.au/__data/assets/pdf_file/0008/1241639/SPD-Fuel-Management-Plan.PDF
Key points/summary: Risk-based approach protecting social, economic, and environmental values. Fuel reduction through prescribed burning (HR, silvicultural, cultural) in native forest and grazing. Supplemented by mechanical and chemical treatments. Mapped zones: APZ, SFAZ, LMZ. Burn targets set by zone, vegetation type, return interval (SFAZ 10 years, LMZ 15 years), time since last burn; 3% burnable area target. Compliance framework includes EPBC Act, Forestry Act, Plantations and Reafforestation Act, and EP&A Act.
Relevance to Effective Fire Management: Demonstrates sector-led risk reduction and operational planning aligned with regulations and evidence-based management.

8. Department of Energy, Environment and Climate Action. (2025). *Code of practice for bushfire management on public land*. Melbourne, VIC: DEECA.
Key points/summary: Efficient, integrated, consistent management across PPRR to reduce impacts on people, property, and environment. Principles include integrated land & fire management, cultural fire, cross-tenure management, risk-based prioritisation, future-focused climate adaptation, evidence-based adaptive management, community priorities, and transparency/accountability.
Relevance to Effective Fire Management: Specifies operational prevention measures through integrated fuel management, cross-tenure coordination, and multi-objective planning.

9. Victorian Government. (2015–). *Safer Together: Risk-based bushfire management*. Melbourne, VIC.
Key points/summary: Shifts from hectare targets to risk-reduction targets, measuring residual risk as primary effectiveness metric. Provides operational and strategic context, case studies, and policy instruments, supporting adaptive management.
Relevance to Effective Fire Management: Uses residual risk measurement as a core metric in a statewide risk-based strategy, and promotes community led decision making with stronger agency collaboration.

16. Victoria. Department of Energy, Environment and Climate Action. (2024). *Victoria's Bushfire Management Strategy*. Victorian Government Library Service
Key points/summary: Integrates fuel management, community partnerships, and rapid suppression to reduce bushfire impact. Provides operational context, frameworks, and measurable outcomes.
Relevance to Effective Fire Management: Combines fuel management, community partnerships, and suppression readiness for effective mitigation.

30. Department of Environment, Land, Water and Planning. (2020). *Hume Bushfire Management Strategy 2020*. Safer Together.

Key points/summary: Describes Fuel management zoning - APZ, BMZ, LMZ, and PBEZ; planning process across strategic, operational, tactical levels. Strategies beyond fuel management: reduce ignitions, increase suppression effectiveness, reduce bushfire impacts socially and physically, improve ecosystem resilience, shared understanding of risk over 40-year horizon. Draws on Victorian Fire Risk Register and Victorian Biodiversity Atlas. Local context includes Alpine and Towong Shires with history of severe fires.
Relevance to Effective Fire Management: Identifies regional issues, focus on risk reduction, shared responsibility, and multi-objective planning.

13. Victorian Auditor-General's Office. (2020). *Reducing bushfire risk*. Melbourne, VIC: VAGO.
Key points/summary: Effective management requires measurable risk reduction and integration of planning, fuel management, and community engagement. Includes case studies, policy instruments, and measurable outcomes supporting adaptive management.
Relevance to Effective Fire Management: Audits and recommends integration of measurable risk reduction into strategy and planning.

14. CSIRO & Bureau of Meteorology. (2024). *State of the climate 2024*. Canberra, ACT.
Key points/summary: Highlights climate change impacts on bushfire risk – more extreme days, decrease in cool-season rainfall, more frequent and intense heatwaves, Likely increases in the average duration of drought and aridity in regions within the south and east**.**
Relevance to Effective Fire Management: Emphasises potential changes and increased fire risk requiring investment in mitigation and suppression capability.

41. Forest Fire Management Group. (2007, November). *Softwood Plantation Fire Synopsis*. Forest Fire Management Group. Endorsed by Australasian Fire Authorities Council. ISBN 0-643-06533-4.

Key points/summary: Reviews wildfire behaviour in softwood plantations and outlines protective measures for both forests and surrounding communities. Fire behaviour varies with stand age and silvicultural history, with spotting risks generally lower than in eucalypt forests but with similar forward spread rates. Crown fires pose the greatest danger, as they can dramatically accelerate fire spread and intensity, complicating suppression efforts and endangering firefighters. Effective fire management should be integrated from plantation establishment, with silvicultural practices such as fuel reduction burning, pruning, thinning, and slash treatment linked to hazard reduction. Firebreaks should be designed with both suppression and economic considerations in mind. The review concludes that well-managed plantations are not inherently more dangerous than other forest types, but effective partnerships between agencies and communities are essential for wildfire protection. **Fuel management, silvicultural treatments, firebreak design, early planning, and community–agency partnerships** are the cornerstone protective measures.

Relevance to Effective Fire Management: Emphasises planning prior to establishment and building partnerships.

5. NSW Rural Fire Service. (2023). *Guidelines for Bush Fire Risk Management Plans (Annexure B)*. Sydney, NSW: NSW RFS.
Key points/summary: Adopts ISO 31000 across PPRR. BFMCs validate spatial and asset data, use PHOENIX RapidFire for risk analysis, develop Focus Areas and treatment strategies, evaluate predicted risk reduction, and conduct public exhibition & review stages.
Relevance to Effective Fire Management: Applies ISO 31000 methodology for risk identification and treatment, underpinning strategic bushfire planning.

7. Department of Fire and Emergency Services. (2023). *Guidelines for preparing a bushfire risk management plan*. Perth, WA: DFES.
Key points/summary: Defines bushfire risk management as systematic ISO 31000-aligned process. Includes case studies, policy instruments, and measurable outcomes.
Relevance to Effective Fire Management: Provides foundation for strategic detection and operational response planning.

23. Canadian Interagency Forest Fire Centre. (2019). *Canadian wildland fire strategy*. Winnipeg, Canada: CIFFC.
Key points/summary: Promotes risk-based, science-informed approaches, interagency collaboration, and community engagement. Provides examples, frameworks, case studies, policy instruments, and measurable outcomes.
Relevance to Effective Fire Management: Supports coordinated interagency detection and response frameworks

19. Northern Territory Fire and Rescue Service. (2019). *Bushfire management plan*. Darwin, NT.
Key points/summary: Strategic fuel reduction, Indigenous fire knowledge, multi-agency coordination. Includes operational frameworks, case studies, policy instruments, and measurable outcomes.
Relevance to Effective Fire Management: Identifies highest risks and associated strategies

43. Emergency Management Victoria. (2021, November). *Victorian Emergency Operations Handbook (Edition 4.1*). State of Victoria:

Key points/summary: provides clear guidance through the State Emergency Management Priorities for decision making in fire response, but potentially less so for preparedness and prevention activities. These are:

1. Protection and preservation of life and relief of suffering including the safety of emergency response personnel, and the community members
2. Issuing of community information and community warnings
3. Protection of critical infrastructure and community assets that support community resilience
4. Protection of residential property as a place of primary residence
5. Protection of assets supporting individual livelihoods and economic production that supports individual and community financial sustainability
6. Protection of environmental and conservation assets

44. North East NSW Forestry Hub. (2024*). Identifying and overcoming legal barriers to cultural burning (Final report).* North East NSW Forestry Hub.:

Key points/summary: Examines the legal and policy obstacles restricting Aboriginal fire management practices in New South Wales. The study aims to chart pathways for removing these barriers and enabling the reinstatement of cultural burning.

Part A highlights that Indigenous Australians used fire as a sophisticated land management tool for millennia, shaping ecosystems and maintaining biodiversity. Colonisation disrupted these practices through direct prohibitions, displacement, and laws assuming Aboriginal peoples lacked governance or ownership over fire. Despite the legal rejection of terra nullius, its legacy persists in current environmental and fire management laws that treat fire as a threat rather than a cultural tool.

Part B analyses the fragmented and restrictive legal framework that governs when, where, and how fire can be used. The system's complexity, overlapping jurisdictions, and lack of cultural mandates impede cultural burning. Although inquiries, such as the 2020 Royal Commission and NSW Bushfire Inquiry, recognise the benefits of revitalising Indigenous fire practices, no comprehensive legal analysis existed until this report, which identifies eight key legal barriers and proposes reform to empower Traditional Owners in fire stewardship.
Relevance to Effective Fire Management: Highlights the complexity of the regulatory environment and overlapping jurisdictions associated with fire management

45a. Price, O. (2023). *Prescribed burning in Australian forests: Characteristics, impacts and effects*. In L. Rumpff, S. M. Legge, S. van Leeuwen, B. A. Wintle, & J. C. Z. Woinarski (Eds.), Australia's megafires: Biodiversity impacts and lessons from 2019–2020 (pp. 283–283). CSIRO.

Key points/summary: Claims that wildfires area burnt is reduced for every 3 ha prescribed burnt, current area not having negative impacts on biodiversity except for area burnt very frequently, climate change will require increased burning rates.

Theme 4. Detection and Response

37. Natural Hazards Research Australia. (2023). *Understanding the Black Summer bushfires through research*. Report No. 10.2022. https://www.naturalhazards.com.au/black-summer
Key points/summary: (2023) by Natural Hazards Research Australia / Bushfire and Natural Hazards CRC: The report synthesises findings from 23 research projects—undertaken after the 2019–20 Black Summer bushfires, to understand why that fire season proved so devastating and how Australia can better prepare for future extremes. The investigations are grouped under four major themes: fire predictive services, cultural land management, community-centred disaster risk reduction, and bushfire data & reconstruction.

Across these themes, researchers explored: how fire behaviour and spread can be better modelled; how traditional Indigenous land and fire management practices might reduce risk; how communities can be supported to prepare, respond and recover; and how loss, damage and burning patterns can be mapped and reconstructed accurately. Key findings highlight that Black Summer's severity was driven by a "perfect storm" with record-breaking heat and drought combined with vegetation and fuel conditions primed over years, resulting in rapid and widespread fire spread. beyond historical norms. The research underscores the limitations of past practices and models, showing the need for updated science, tools and collaboration.

Beyond documenting lessons, the report also sets out future priorities: enhancing national-level coordination of hazard research, embedding First Nations-led land-management approaches, improving predictive fire and risk modelling, and bolstering community centred disaster resilience strategies nationwide. Ultimately, the report provides an integrated evidence-base to guide government agencies, emergency services, land-managers and communities in reducing bushfire risk and improving resilience.
Relevance to Effective Fire Management: Identifies priorities in improved models, communication, cultural land management and community-led recovery

25. European Commission Joint Research Centre. (2018). *Forest fires in Europe, Middle East and North Africa 2017*. Luxembourg: Publications Office of the EU.
Key points/summary: provides a comprehensive overview of forest fires in Europe, the Middle East, and North Africa. It details fire danger evolution, damages, and specific conditions during the 2018 fire season across EFFIS member countries. The report highlights national and regional fire management efforts, offering guidance for countries at risk. EFFIS, established in 1998 as a pilot collaboration between European countries and the European Commission, now operates under the EU Copernicus Program, supporting DG ECHO, DG GROW, and DG REGIO in civil protection, emergency management, and recovery funding. It enables harmonized information sharing, fire prevention, climate adaptation, and restoration practice exchange. Since 2000, the network has grown to 42 countries.

Relevance to Effective Fire Management: Advocates cross-border cooperation and strategic planning for enhanced detection and response.

Theme 5. Recovery

31. Australia. Productivity Commission. (2015). *Natural disaster funding arrangements: Inquiry report* (Volumes 1 & 2). Canberra: Author. https://www.pc.gov.au/inquiries/completed/disaster-funding/report/disaster-funding-volume1.pdf
Key points/summary: Effective planning and mitigation is essential for governments, businesses, and households. Current funding arrangements over-invest in reconstruction and under-invest in mitigation. Supports need for improved risk understanding and insurance.
Relevance to Effective Fire Management: Highlights the importance of funding for recovery, post-event planning, and mitigation to reduce future risk.

40. Forestry Corporation of NSW. (2023). *Tumut Management Area fire salvage 2019–20: Final report (for public release)*. https://www.forestrycorporation.com.au

Key points/summary: Salvage program post-2019–20 fires minimised industry impacts, used remote sensing and estate modelling, coordinated contractors, growers, and processors, maintained timber supply, adapted operations under COVID constraints.
Relevance to Effective Fire Management: Demonstrates recovery planning, operational coordination, and lessons for managing post-fire impacts

General

42. Holley, A., & McArthur, T. (2022, July). *PPRR and AIIMS: a whole-of-government strategy in NSW*. Australian Journal of Emergency Management, 37(3), 65-74.
https://doi.org/10.47389/37.3.65

Key points/summary: Examines how New South Wales applies the Prevention, Preparedness, Response and Recovery (PPRR) framework in conjunction with the Australasian Inter-Service Incident Management System (AIIMS) to deliver a whole-of-government approach to emergency management. It highlights that PPRR provides a strategic cycle for risk reduction, capability development, coordinated response, and community recovery, while AIIMS offers a consistent operational structure that supports interoperability across agencies. The integration of these models ensures clarity in roles, responsibilities, and decision-making during both routine incidents and large-scale emergencies. The authors emphasise that effective implementation depends on leadership, cross-agency training, communication, and a shared culture of collaboration. Case examples illustrate how NSW government agencies have applied these principles to improve disaster readiness and resilience. Overall, the paper demonstrates that aligning PPRR and AIIMS enhances coordination, efficiency, and community outcomes in emergency and disaster management

Bushfire inquiries

45c. Woinarski, J. C. Z., & Rumpff, L. (2023). *Government inquiries following the 2019–20 wildfires*. In L. Rumpff, S. M. Legge, S. van Leeuwen, B. A. Wintle, & J. C. Z. Woinarski (Eds.), Australia's megafires: *Biodiversity impacts and lessons from 2019–2020* (pp. 389-403). CSIRO Publishing.

Following wildfires in Australia, governments have historically commissioned inquiries primarily to investigate causes, identify failings, and recommend improvements to mitigate future fire risks and impacts. These inquiries are largely reactive, conducted shortly after events, and generally pay limited attention to long-term post-fire recovery or the effectiveness of measures supporting it. The 2019–20 wildfires prompted two national inquiries and multiple state-level reviews.

Common themes emerge across most of these inquiries, including the organisational structure of fire agencies; the effectiveness of response efforts—such as coordination, communication, and safety; the adequacy of equipment and infrastructure; the level of preparedness, particularly in relation to fuel reduction burning; and the role of research, encompassing the development and application of new technologies, spatial mapping, and predictive modelling.

The report recognises the repetitive nature of bushfire inquiries over time, but considers that unlike earlier reviews of Australian wildfires, these inquiries acknowledged that the 2019–20 fires were not an isolated or exceptional event, but part of an emerging pattern—signalling the growing and compounding impacts of global climate change.

4. Commonwealth of Australia. (2020). *Royal Commission into National Natural Disaster Arrangements report*. Canberra, ACT

Key points/summary: established in the wake of the 2019-20 bushfire season to examine how Australia handles natural disasters (mitigation, preparedness, response, recovery) at all levels — Commonwealth, states and territories, communities and individuals. It resulted in 80 recommendations, some for the Commonwealth alone, some for States/Territories, many shared.

Key observations: Disasters are likely to become more frequent, intense, and compound in effect (e.g. overlapping hazards or sequential events). National coordination and accountability are currently insufficient; roles and legal frameworks are fragmented. Information systems, warnings, and decision-support tools need standardisation and improvement to be effective across jurisdictions. Fuel-reduction measures (including prescribed burning etc.) have value, but their effectiveness diminishes under extreme fire weather.

Royal Commission into Victoria's Bushfires. (2010). *Final report summary: 2009 Victorian Bushfires Royal Commission* [PDF]. Government Printer for the State of Victoria.

The report analyses the causes, preparedness, response, and recovery efforts associated with the fires and identifies systemic issues across government, emergency services, and community preparedness. It highlights the need for improved planning, coordination, and communication between fire agencies and communities, as well as clearer warnings and evacuation procedures. The Commission places strong emphasis on reducing bushfire risk through fuel management, including prescribed burning and vegetation control, supported by robust land use planning and environmental considerations. It also calls for a more integrated approach to emergency management, improved infrastructure resilience, and better support for affected individuals and communities. Importantly, the report underscores the role of leadership, accountability, and public trust in managing bushfire risk. Its 67 recommendations aim to strengthen Victoria's capacity to prevent and respond to future bushfires, balancing safety, environmental protection, and community wellbeing. The Commission's findings continue to influence bushfire policy and practice across Australia.

New South Wales Government. (2020, June). *Final report of the NSW Bushfire Inquiry.* NSW Government.

It examines the causes, preparedness, response, and recovery efforts across government, emergency services, and communities. The Inquiry identifies that extreme weather conditions, climate change, and accumulated fuel loads contributed significantly to the fires' unprecedented scale and intensity. It highlights the need for stronger risk reduction through strategic hazard reduction burning, improved land management, and integration of traditional Indigenous fire practices. The report calls for enhanced coordination between agencies, better communication with the public, and expanded use of technology for early detection and forecasting. Recommendations also address firefighter safety, resource allocation, and the resilience of critical infrastructure. The Inquiry emphasises shared responsibility—across government, industry, and communities—to adapt to a changing climate and strengthen preparedness. Overall, it outlines a framework for reform to ensure New South Wales is better equipped to prevent, respond to, and recover from future bushfire emergencies.

NSW Government. (2020). *NSW Bushfire Inquiry 2020 progress report: Implementation of the NSW Government's response to the NSW Bushfire Inquiry, reporting period*. NSW Government.

The report tracks actions across prevention, preparedness, response, and recovery, detailing reforms to strengthen bushfire resilience and community safety. Key achievements include enhanced coordination between agencies, improved hazard reduction planning and monitoring, expanded use of technology for fire detection and predictive modelling, and strengthened support for local brigades and volunteers. It highlights investment in critical infrastructure such as firefighting aircraft, communication systems, and evacuation facilities. The report also documents initiatives to improve land management practices, including risk-based planning, ecological considerations, and partnerships with Aboriginal communities in cultural burning. Progress is measured through a structured implementation framework, ensuring accountability and transparency. While noting substantial advances, the report recognises ongoing challenges in balancing environmental, social, and economic factors in fire management.

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ANNEX 2

Detailed Regulatory Review

ANNEX 2 – DETAILED REGULATORY REVIEW

All jurisdictions

Table A 1: Bushfire related legislation and policy - all jurisdictions

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
4	All	1. Tort Law (common law) + Civil Liability Statutes *(Wrongs Act 1958 (Vic); Civil Liability Act 2002 (NSW))*	Civil liability framework (common law + statute)	Establishes liability for negligence, nuisance, trespass, and other torts. State statutes modify common law by defining duty, causation, proportionate liability, damages, and defences.	Relevant to bushfire management where negligent prevention, planning, or suppression causes foreseeable harm. Applies to councils, utilities, landholders, and agencies. Provides statutory limits and protections that influence risk allocation and standards of care.	Common law: Negligence (duty, breach, causation, damage); nuisance; strict liability for fire escape Victoria (Wrongs Act): s.48 – General negligence principles; Part VBA – Proportionate liability. NSW (Civil Liability Act): Pt 1A – Negligence (s.5B duty, s.5C causation); Pt 8 Good Samaritans
Potential barriers		Response Good Samaritan Protections offers personal liability for acts or omissions done in good faith. Deliberate lighting of fire (e.g. back burning might test this provision), will only protect where personal injury is sustained, not property loss.				
2/3	C'wealth	2. *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Primary legislation	Regulates actions likely to have significant impact on matters of national environmental significance (MNES), including fire management on nationally protected areas	Triggers federal assessment of large-scale hazard reduction or bushfire recovery actions affecting listed species, ecological communities, or World Heritage sites	Part 3: Protection of MNES (s18 - Part 4, s.43A: s38 RFA exemptions; Prior authorisation exemptions; EPBC Regulations Part 2: MNES
Potential barriers:		**Prevention** DCCEEW - https://www.dcceew.gov.au/environment/epbc/publications/factsheet-bushfire-management-and-national-environment-law National environment law generally does not restrict responses required to manage bushfire emergencies, nor regulates measures taken to fight fires. MNES should be identified in bushfire risk management plans and local and regional operational mapping. Fire prevention measures may be subject if they have an impact on MNES, unless exemptions apply including routine maintenance and actions that comply with a RFA. Note that in 2019/20 the Federal Government specifically granted an exemption to 'agencies of the State' for firefighting, prevention and recovery activities.				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
		Activities that might be subject to referral include constructing substantial new fire breaks, creating asset protection zones, access roads or tracks on a significant scale, one-off fuel reduction burns in remnant forest, trial or experimental ecological burns, on a significant scale, and those burns that may impact MNES downstream. Strathbogie case (2023) – Court found that planned burning was subject to the EPBC Act, but that there was no evidence impacts to listed threatened species Current Federal Court Hearing VID448/2024 being brought by Warburton Environment Inc against DEECA arguing that DEECA should be restrained from removing hollow-bearing trees during maintenance of Strategic Fire Breaks. Their argument is that the areas contain habitat of listed threatened species (EPBC Act) including the Southern Greater Glider and Leadbeaters Possum (sections 18(2) and 18(3)				
2/3	C'wealth	3. *Regional Forest Agreements Act 2002*	Primary legislation	Establishes the framework for Regional Forest Agreements (RFAs) between the Commonwealth and states/territories	Certain forestry and management activities, including some fire hazard reduction works, can be exempt from state environmental approvals if they are consistent with the RFA.	s.4 Defs – Forestry Ops – see below
Potential barriers		**Prevention** The RFA's offered regulatory certainty for approved forestry activities to the application of some environmental law including the EPBC Act. This could have included post-harvest burning and road / track construction in native forest. *Forestry Operations* NSW Southern RFA – includes logging, forestry product operations, transport and ongoing forest management operations – thinning, HR and other silviculture Vic NE RFA - planting; or managing of trees; or the harvesting including any related land clearing, land preparation and regeneration (including burning), and transport				
3/4	C'wealth	4. *Disaster Ready Fund Act 2019 / The Emergency Response Fund Amendment (Disaster Ready Fund) Act 2022* (DRF Amendment Act)	Funding legislation	Created Disaster Ready Fund (DRF) to shift its focus from post-disaster recovery to pre-disaster mitigation and risk reduction, allows up to $200 million annually to be drawn from the fund for these new resilience-focused projects, transferring expenditure responsibility to NEMA.	Provides co-funding for state and local bushfire risk reduction, resilience, and recovery initiatives	Part 3 – Arrangements and grants
Potential barriers		**Prevention, Recovery**				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
		There is no guarantee the DRF will continue after 2028. Risk of projects being chosen based on political priorities, evaluation mechanisms are not strongly detailed in the legislation. Summary - funding adequacy, equity of access, bureaucratic hurdles, coordination across governments, and ensuring genuine resilience outcomes are delivered rather than symbolic projects.				
3/4	C'wealth	5. National Emergency Declaration Act 2020 (Cth)	Primary legislation	Provides the Governor-General with power to declare a national emergency. Enables streamlining, modification, or suspension of certain legislative and regulatory requirements to facilitate disaster response and recovery.	Creates a mechanism for coordinated Commonwealth intervention during catastrophic bushfire events. Allows rapid mobilisation of resources and temporary modification of laws that might otherwise hinder urgent bushfire response or recovery efforts.	s.11 – Power to make a national emergency declaration. • s.14 – Effects of declaration (suspending/modifying Acts).
Potential barriers		**Response** na				
3/4	C'wealth	6. Australian Disaster Resilience Framework (2022)	National policy framework	Outlines national principles and priorities for disaster risk reduction and resilience (across all hazards, including bushfire)	Guides coordinated federal/state/local approach to bushfire preparedness, planning, and response	Pillars: Shared responsibility, risk reduction, capability development; referenced by National Strategy for Disaster Resilience
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Even with good frameworks, recovery and resilience require consistent, well-targeted funding, sufficient resources, technical capabilities. If financial commitments are ad hoc or insufficient, or if budgets are absorbed for responses rather than prevention/recovery, impact will be limited.				

New South Wales

Table A 2: Bushfire related legislation and policy in NSW

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
1	NSW	7. *Rural Fires Act 1997*	Primary legislation	Establishes NSW Rural Fire Service (RFS) powers and obligations	Core legal authority for hazard reduction, fire bans, and emergency response	S 15 RFS Brigades are formed by the local authority (LGA) s 33D Commissioner can delegate functions to firefighting authorities s 44 Commissioner can take control if fire fighting authority not capable of control Sections 52 and 53 - BFMCs are required to prepare and submit to the BFCC a Plan of Operations S52 – Fire Access and Fire Trail Plans (see below) s.65–74: hazard reduction powers; s.100: obligations on landowners; s.66: notices to reduce fuel s 128 people acting under the authority of the Forestry Corporation in executing provisions of the Act have protection from liability Dictionary: ***fire fighting authority*** means…the Forestry Corporation
Potential barriers		**Prevention** The Bush Fire Environmental Assessment Code (made under s.100J of the Rural Fires Act 1997) – sets fire interval constraints. Includes rules for the implementation of threatened species hazard reduction list. **Preparedness (Sector)** Brigades – could include the formation of "industrial fire brigades" (which could include forest industry staff), but they are less formally structured than in Victoria.				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
		If a private landholder, not in a brigade and not acting under RFS authority, fights a fire on Crown land and something goes wrong (e.g., fire escapes, damage, injury), they can be held liable - especially if their actions are negligent or unauthorised. Courts have reinforced that statutory protection is not automatic for private actors. **Preparedness (Sector), Response** Statutory immunity in the Rural Fires Act exists but is limited (civil immunity for good-faith acts)				
1	NSW	8. *Rural Fires Regulation 2022*	Regulation	Operationalises the Act; defines permits, notifications, firebreaks, function of the BFMC and Brigades	Directly affects local fire management practices	Pt 2: Brigades, Pt 3: BFMC functions, Pt 4: Fire Prevention
Potential barriers		**Preparedness (Sector), Response** Still silent on FIBs, BFMC membership includes government, agency and conservation representation and others by invitation. Private growers can be invited to participate.				
1	NSW	9. *Bushfires Legislation Amendment Act 2020*	Amending Act	Implements post-Black Summer reforms	Strengthens audit, planning, and governance provisions	Amends RFA 1997 to expand s.62 fire prevention plans and increase audit/reporting obligations
Potential barriers		**Preparedness (Sector), Response** The *Bushfires Legislation Amendment Act 2020* intended to insert a new Division 3AA into the *Rural Fires Act 1997* allowing the Commissioner **to** designate a group of people as an **industry brigade**. The amendment expressly allowed for regulations to prescribe requirements for designation and operation.				
1	NSW	10. NSW Fire Trail Standards	Standard	Made by the Commissioner pursuant to section 62K. Establishes minimum design, construction, maintenance, width, grades, drainage, signage and access requirements	Define the criteria for development and certification of Strategic and Tactical Fire Trails and Tracks	Design standards — minimum cleared width, formation width, surface materials, numbering, identification, hazard signs, directional signs. Vegetation clearance / fuel zones around trail edges to reduce radiant heat, compliance / audit / approval
Potential barriers		**Prevention** Potential sets unrealistic compliance thresholds and incentivises sub-optimal outcomes, Standards set requirements but don't guarantee funding, resourcing, or clarity on who is responsible (landholder vs government vs agency), auditing and compliance on private or remote lands can be inconsistent / difficult.				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
		Fire Roads required in the NSW Plantations and Reafforestation Code Regulations, Division 2, Subdivision 2A, Fire Roads, equate to the Cat 1 Roads described in these Standards. (advice received that inconsistencies in these Standards and the P&R Code are being addressed through a DPIE 'Fire Reference Group'.				
1	NSW	11. NSW RFS operational Doctrine – Fundamental Protocol 2	Standard	Fundamental Protocol outlines the 'self-check' and safe work principles for undertaking operations for the NSW	Guides priorities	Priorities of Operations Overriding Priority - Firefighter safety, First Priority - Protect people, Second Priority - Protect property, Third Priority – Protect the Environment, Fourth Priority - Help restore normality
Potential barriers		**Response** Does not provide sufficient clarity regarding property – e.g. residential v critical infrastructure v economic assets				
1	NSW	12. Planning for Bush Fire Protection 2019 (PBP) + 2022 Addendum	Statutory planning guideline	Regulates development on bushfire-prone land	Ensures buildings and subdivisions reduce bushfire risk	Ch 3: Asset Protection Zones; Ch 4. Strategic Planning.
Potential barriers		**Preparedness (Community)** Some exemptions may result in approval for new dwellings closer than mandated setbacks. Needs to be consistent with the P&R Code that mandates a 70m setback for habitable dwellings.				
2	NSW	*13. State Emergency and Rescue Management Act 1989 (SERM Act) & State Emergency Management Plan (EMPLAN*	Act & Statutory Plan	Provides the overarching legal framework for emergency management in NSW. Establishes responsibilities for prevention, preparedness, response, and recovery, and sets out coordination structures across State, regional, and local levels. EMPLAN is the operational plan made under the Act that details how these responsibilities are implemented.	Defines recovery as a core function of emergency management. Provides authority for coordination of bushfire recovery operations across government agencies, local councils, NGOs, and communities. Ensures alignment of bushfire recovery with other hazard recovery efforts.	SERM Act: Part 2 (Emergency management organisation)

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
Potential barriers		EMPLAN refers to Cross Border Commissioner (works within DPC, all issues including EM)				
2	NSW	14. *Environmental Planning & Assessment Act 1979*	Planning legislation	Governs planning approvals, including bushfire overlays	Triggers consultation with RFS and application of PBP	s.4.14: requirements for development on bushfire-prone land
Potential barriers		**Prevention** The EP&A Act governs land use and environmental approvals in NSW - environmental assessment processes can limit the frequency of burns to avoid cumulative ecological impacts. Note that compliance with the *Bush Fire Environmental Assessment Code* allows eligible landholders and fire agencies to conduct hazard reduction activities without full development consent, provided conditions are met. Otherwise plans must include a Review of Environmental Factors (REF) - a mandatory environmental assessment to determine if activities will have a significant effect on the environment and to develop conditions of approval if granted. Can add significant cost and time to operational planning.				
3	NSW	15. *Local Land Services Act 2013 (No 51)*	Primary legislation	Establishes Local Land Services - to manage agricultural production, and natural resources for the social, economic, and environmental benefit	Guides vegetation management on private land	Part 5A Land management (native vegetation)
Potential barriers		**Prevention** Section 60C defines clearing native vegetation to include cutting, felling, thinning AND burning. Exemptions granted for activities conducted under the RFS Act including burns that comply with a *hazard reduction certificate*.				
2	NSW	16. Bush Fire Environmental Assessment Code (incl. Fire Intervals for SFAZs and LMZs)	Code of practice	Simplifies environmental approvals for hazard reduction	Balances fuel management with environmental protections	Supporting document - Fire Interval Table for SFAZs and LMZs
Potential barriers		**Prevention** Main regulatory instrument for "routine" hazard reduction burning in NSW. The Code allows for the conduct of hazard reduction activities without full development consent, provided conditions are met. Sets out "environmental safeguards"—including *minimum fire interval requirements*—to protect ecological values. APZ – no minimum interval, SFAZ – 5 to 10 years depending upon veg type (grasses 2 years), 8 to 30 years (grasses 3 years) **The Code restricts how often an area can be burned by specifying a *minimum interval* between prescribed burns** in certain vegetation types (e.g., forests, heath, wetlands), based on ecological fire thresholds recommended by NSW biodiversity experts. It further includes controls for the construction of fire breaks and trails.				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
2	NSW	17. *Forestry Act 2012*	Primary legislation	Establishes FCNSW and regulates management of state forests and timber plantations	Assigns Forestry Corporation responsibility for protection and fire suppression on state forests and plantations; enables agreements with RFS and other agencies	s. 11: Functions of Forestry Corporation (includes fire management duties)
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** TBC - FCNSW				
2	NSW	18. Local Government Notices (under RFA s.66)	Administrative tool	Allows councils or RFS to compel hazard reduction	Enforces private land fuel risk obligations	s.66: authorises RFS or council to issue notices requiring vegetation clearing
Potential barriers		**Prevention** TBD				
2	NSW	19. *Plantations and Reafforestation Act 1999 / Regulation 2001 (Code 2022)*	Primary legislation, Regulation + statutory code	Regulates establishment, management, and harvesting of plantations in NSW, specifies operational standards for plantation management, including fire prevention and hazard reduction measures	Requires plantation managers to address bushfire prevention, preparedness, and response as part of plantation operations, mandates firebreaks, access, water supply, and other bushfire mitigation requirements for plantations	Part 2: Plantation authorisation conditions; Part 3: Code of Practice;
Potential barriers		**Preparedness (Community), Prevention** Mandates road access requirements for firefighting vehicles, Option to provide 'no fire road access' has been removed – potential standards were too high / costly. Proposed amendments (following recommendation from the Fire Reference Group) will include new road / trail classes. Will also provide environmental exemptions for maintenance of water points and roadside vegetation, fire breaks (where not practical or excessive where there are multiple owners within a contiguous estate).				
3	NSW	20. *Water Management Act 2000*	Primary legislation	Regulates water access, allocation, and use across NSW, including on public and private land	Ensures bushfire mitigation works do not unlawfully impact watercourses, riparian zones, or water supply catchments	Part 3: Water management plans;

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
Potential barriers		**Prevention, Response** There were inconsistencies in the powers of firefighting authorities to take water. It is understood these are being rectified following submissions from FCNSW.				
3	NSW	21. *Public Spaces (Unattended Property) Act 2021 No 38 / Roads Act 2013*	Primary legislation	Governs the management of unattended property in public spaces to mitigate risks to access, safety, and amenity	Provides a scheme for dealing with unattended property to ensure public spaces can continue to be used, shared, and enjoyed by the community	Part 3 (Public Spaces): Dealing with unattended property; Part 3 (Roads) - Safety and traffic management
Potential barriers		**Prevention** • State forest can attract stolen and abandoned cars and there can be hesitancy to remove vehicles – Public Space Act often used • Public Space (Unattended Property) Act 2021 requires up to 28 observation days before notice period and then up to 15 days after notice period • During this time, it is very likely a dumped car will be set on fire and risk plantation or other assets • Road Transport Act 2013 allows immediate removal where there is a safety risk. During the BFDP, the risk of a car being set alight represents this safety risk and a regulatory amendment could be made to move dumped cars. A defined timeframe could be within 72 hours during the BFDP in bush fire prone areas (potentially linked to designated bush fire prone land).				
3	NSW	22. *Work Health and Safety Act 2011 (NSW) / Work Health and Safety Regulation 2017 (NSW)*	Primary legislation / Regulation	Sets out duties of PCBUs, officers, workers to ensure workplace health and safety	Requires bushfire management personnel to work safely, including training, supervision, and risk management. Specifies training, instruction, emergency procedures.	s.19 (Act) – PCBU duties; s.28 – Worker duties; s.31 – Officer duties Part 3.2 (Regs) – Training, information, instruction;
Potential barriers		**Preparedness (Sector)** If someone is engaged by, authorised by, or under the direction of the RFS (a statutory/organised entity that operates as a PCBU/Crown employer) — WHS Act duties apply to that activity and the volunteer is considered a worker under the WHS Act. If a small purely voluntary community group with no employees and no business or undertaking performs activities outside any formal authorisation, the organisation may meet the "volunteer association" definition and the statutory PCBU WHS duties may not apply to the association itself — but other duties, insurance and common law duties still matter. Statutory immunity in the Rural Fires Act exists but is limited (civil immunity for good-faith acts) and does not automatically negate WHS obligations or workers' compensation entitlements.				

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
2/3	NSW	23. *Biodiversity Conservation Act 2016 (NSW)*	Environmental protection legislation	Establishes framework for biodiversity conservation, threatened species and ecological communities' listings, offsetting, and biodiversity assessment.	Bushfire mitigation must consider threatened species and ecological communities. Inappropriate fire regimes recognised as a key threatening process. Can require assessment of hazard reduction impacts.	Part 4: Threatened species and threatened ecological communities Schedule 1, 2 and 4 Threatened species, communities and key threatening processes
Potential barriers		**Prevention** TBD				
3	NSW	24. *Protection of the Environment Operations Act 1997 (PoEO Act)* / Eligible Waste Fuels Guidelines / Protection of the Environment Operations (General) Regulation 2022	Primary legislation / Guideline	Establishes framework for environment protection in NSW, including air, water, noise, and waste pollution; creates EPA's regulatory powers; licensing of scheduled activities (e.g., waste, burning, energy generation) Defines what constitutes "eligible waste fuels" for energy generation.	Controls pollution from bushfire-related activities (planned burns, smoke management, biomass burning). EPA can regulate or prosecute for breaches; burn operators must comply with pollution controls. Specifies which biomass materials can be legally used as fuel, especially in energy-from-waste projects.	Pt 5.3 (water pollution prohibition), Pt 5.4 (air pollution), Cl. 1.22 exemptions for forestry ops Regs. Clauses 139-140: ban on burning native forest biomaterial, exemptions (other consent, roads, storms, no other higher use) Defines "eligible waste fuels"; outlines criteria for waste-derived materials used as fuel; specifies conditions for their use.
Potential barriers		**Prevention, Recovery** Prohibits the use of native forest biomaterials in electricity generation - exempt materials include materials from various types of plantation forests, sawdust or other sawmill / wood processing or manufacturing activities – exemptions exclude logs that meet sawlog grades or from dead trees. Exemptions granted to co-gen. facilities at Harwood, Broadwater and Condong for clearing under DA, from roads authority, or as part of recovery in natural disaster area Visy Env. Prot. Licence – Permissible waste – *'Biomaterial from forestry operations and sawmill residue….and natural wood waste. This does not include native forest biomaterial as defined by the Protection of the Environment Operations (General) Regulation'*				
3	NSW	25. *Crown Land Management Act 2016 No 58*	Statute (Act)	Provides for ownership, use, management, dedication/reservation,	Crown land often includes bushland, state forests, reserves and public land. The Act's provisions over "care, control and management" may allow for	Part 3 (Management of Crown land): sect 3.1 responsibility for management

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
				dealings and oversight of Crown land in NSW	fire mitigation, hazard reduction, restricting access under fire risk, and planning / land-use decisions on Crown lands. The Act also allows regulation, rules and delegated powers relevant to managing crown lands in fire-prone areas.	sect 3.13 functions of Crown land managers (must act in accordance with appointment, rules, plans) sect 3.15 Crown land management rules (including environmental standards, use restrictions) sect 3.16 application of proceeds, reinvestment into land improvements sect 3.17 delegations & limitations
Potential barriers		**Preparedness / Prevention** • Related road/road-access provisions are handled in other legislation, especially the Roads Act 1993 (NSW) (e.g. section 152A) and in policies around Crown roads, however combined may prevent crown land managers closing fire trails to prevent damage • Other barriers relate to efficient allocation of responsibility for trails where tenure changes frequently such as crown roads with State Forest and NP				

Victoria

Table A 3: Bushfire-related legislation and policy in Victoria

Ring	Jurisdiction	Instrument	Type	Scope / Function	Relevance to Bushfire Management	Key Sections / Provisions
1	Victoria	26. *Country Fire Authority Act 1958*	Primary legislation	Establishes CFA powers in rural and regional Victoria	Central to non-metropolitan fire suppression and prevention	s 23AA Establishment of FIBs s.20: general duties and fire prevention notices; s.29A: municipal fire prevention planning Div 3 – Fire prevention
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Under section 23A of the Country Fire Authority Act 1958, forest plantation companies of a significant size are required to establish Forestry Industry Brigades (FIBs).				

1	Victoria	27. *Country Fire Authority Regulations 2025*	Regulation	Prescribes formation, registration, and operational standards for Forestry Industry Brigades (FIBs)	Mandates plantation companies to establish and maintain FIBs, setting equipment, training, and reporting requirements; enables FIBs to assist CFA in wildfire response	Part 5 Forestry Industry Brigades: Reg 85 Responsibilities Reg 86-91: Formation/registration / apparatus; Reg 92: Operation of the FIB including responding outside plantations; Reg 93 Training Reg 94 cancellation FIBs Part 6 Compensation for FIB members when working off designated area. Reg 137-141 fire permits Reg 142-146 fire prevention – engines and equipment.
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Still some inconsistencies between requirements Part 3 Forests Regs and Reg 142-146 CFA Regs				
1	Victoria	28. Victoria's Bushfire Management Strategy	Strategic policy	State-wide vision for fire risk reduction	Aligns public/private land management, community planning	7 outcomes – safety, critical infrastructure and eco resilience, Aboriginal self-determination, Ecosystem resilience, Informed decision-making, shared responsibility, Enhanced capability and capacity
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Plantations are not automatically listed as high-value economic assets, but can qualify if they meet criteria such as – a significant contribution to regional or national economy, large-scale employment or supply-chain dependency, high-value timber or carbon assets, strategic role in landscape-level fire management (e.g., buffer zones, fuel breaks).				
1	Victoria	29. *Forests Act 1958*	Primary legislation	Authorises fire prevention and suppression on public land	Legal foundation for FFMVic operations	S62A to 62C (Secretary's power to use fire), 63 to 68 (general fire restrictions and offenses), and 70 to 72A (offenses, liability, and immunity).

Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Regulates fire management on public land – the intersection of public-private land may be inadequately covered, requires collaboration between agencies, landholders (basis of 'Safer Together' approach)				
	Victoria	30. *Forests (Fire Protection) Regulations 2025*	Regulation			Regulation 14 (authorities to light fires), regulation 15 and 16 (penalties for contraventions)
Potential barriers		**Prevention, Response** • Changes intended to modernize the rules, improve risk reduction, and reduce compliance barriers for communities and industry, included requirement for permissions to maintain open fires and requirements to have fire extinguishment equipment, obligations to extinguish fires lit under permission. • Still some inconsistencies between requirements Part 3 Forests Regs and Reg 142-146 CFA Regs				
2	Victoria	31. *Conservation, Forests and Lands Act*	Primary legislation	Provides a legal framework for land-management systems	Aligns bushfire risk reduction with ecological principles	S31 provides powers to make Codes of Practice
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** TBD				
1	Victoria	32. *Code of Practice for Bushfire Management on Public Land 2025*	Statutory code under CFL Act (1987)	Sets out standards for DEECA/FFMVic bushfire work	Aligns bushfire risk reduction with ecological principles	Ch 3: Risk-based planning; Ch 4: Mitigation
Potential barriers		**Preparedness (Community and Sector), Prevention, Response, Recovery** Strategic planning, and in developing fuel management strategies and associated FMZs, will consider potential impacts and benefits for threatened species and ecosystems listed under the FFG Act 1988 and EPBC Act 1999 (Cth), and cultural heritage values under the Aboriginal Heritage Act 2006				
2	Victoria	33. *Code of Practice for Timber Production 2014* (as amended 2022) / Management Guidelines for Private Native Forests and Plantations	Regulatory Code / Policy instrument	Governs timber harvesting operations in State forests, private native forests, and plantations; sets environmental, operational, procedural, and planning standards for sustainable forest management / Provides detailed guidance	Operational restrictions, road planning, regeneration and silvicultural prescriptions / Road design, spacing, access and layout (in guidelines) affect access for fire suppression, escape routes, control lines.	Part 4 (Plantations) – establishment, management, operational restrictions, 4.1.1.1 Plantation design - environmental values and be relevant fire protection requirements. 4.3.3.3 Trees in the vicinity of power lines
Potential barriers		**Preparedness (Sector), Prevention** TBD				

		4.3.3.3 Trees in the vicinity of power lines that are suffering from damage or disease must be removed where they are at risk of falling and making contact with power lines. There has been some Legal opinion that this clause changes the responsibility from managing the powerline risk from the power company to the forest grower. HVP has lobbied to have the clause deleted, however it has remained in the Code.				
2	Victoria	34. *Planning and Environment Act 1987* + Bushfire Management Overlay	Planning statute + overlay	Governs development controls in bushfire-prone areas	Ensures building resilience and evacuation capability	Part 1A establishes the Victorian Planning Provisions (VPP) - FZ (Farming Zone) 35.07-1 / Rural Activity Zone 35.08-1
	Potential barriers	**Preparedness (Community)** Table of uses - The plantation must not be within 100 metres of any dwelling in separate ownership, any land zoned for residential, commercial or industrial use, any site specified on a permit which is in force which permits a dwelling to be constructed, must not be within 20 metres of a powerline. FZ 35.07-4 / RAZ 35.08-4 Buildings within the FZ . RAZ - no setback equivalents for plantations **Impacts on plantation - potential increased setbacks in future resulting on loss of productive area**				
3	Victoria	35. *Emergency Management Act 2013*	Governance legislation	Defines emergency coordination and planning systems	Enables integrated multi-agency fire response	s.60–70: emergency management plans; s.50: responsibilities of control agencies
Potential barriers		**Response** State Emergency Management Priorities (Vic) – Note: Not embedded in legislation - 1. Protection and preservation of life and relief of suffering, 2. Issuing of community information and community warnings, 3. Protection of critical infrastructure and community assets, 4. Protection of residential property, 5. Protection of assets supporting individual livelihoods and economic production, 6. Protection of environmental and conservation assets				
3	Victoria	36. *Building Act 1993*	Building legislation	Sets construction standards in bushfire areas	Enforces fire-resistant design standards	Regs – Part 11 Bushfire Safety
Potential barriers		**Preparedness (Community)** Not applicable to this review				
3	Victoria	37. *Occupational Health and Safety Act 2004 (Vic) / Occupational Health and Safety Regulations 2017 (Vic)*	Primary legislation / Regulation	Establishes employer and employee duties to maintain safe workplaces / Provides detailed requirements to support OH&S Act	Ensures fire management personnel receive appropriate training, instruction, and supervision	Part 3 General Duties
Potential barriers		**Preparedness (Sector)** TBD				

3	Victoria	38. *Flora and Fauna Guarantee Act 1988*	Environmental protection legislation	Framework for conservation of native plants, animals, ecological communities, and identification of threatening processes.	Fire prevention and hazard reduction must account for biodiversity conservation. Inappropriate fire regimes listed as a threatening process. May restrict or condition burning/clearing.	Part 3 listing of threatening processes, Part 4 management Processes
Potential barriers		**Prevention** For species listed under the FFG Act, action statements are developed to guide conservation efforts may include recommendations for fire management practices. In some cases, planned burning is restricted or modified to align with the recovery objectives outlined in these statements. Allows for the identification of critical habitats for threatened species. Once designated, these areas receive enhanced protection, which may include restrictions on planned burning.				
3	Victoria	*39. Catchment and Land Protection Act 1994*	Act (primary legislation)	Framework for integrated catchment & land management; establishes Catchment Management Authorities (CMAs); requires regional catchment strategies; sets duties for land owners; provides powers to make land-use/management conditions, land-management notices and priority area notices; classifies and controls noxious weeds & pest animals; enforcement and emergency powers.	Indirectly though Vegetation/weed control, roadside plans and landowner duties affect fuel loads and fire behaviour. Regional catchment strategies and CMA functions provide a vehicle to coordinate cross-tenure fuel-management and post-fire rehabilitation. Land management notices / priority area notices and enforcement powers permit compulsion of works (e.g. weed removal, erosion control) where necessary.	Part 4, Div 1 — s.23–26 — Regional catchment strategies: what a strategy is, contents, status and s.26 (land managers to take strategy into account). Part 3 — s.20 — General duties of land owners; s.21, Roadside weed & pest animal management plans (municipal responsibilities / implementation). Part 8 — s.58–76 — Classification and control of noxious weeds & pest animals (including s.70 — controlling noxious weeds; s.70B — directions notices; s.71 — offences re spread).
Potential barriers		**Prevention, Recovery** TBC				
3	Victoria	*40. Victorian Plantations Corporation Act 1993 (VPC Act)*	Act (establishing legislation, now	Established the Victorian Plantations Corporation (VPC) to manage state-owned	Licensees (such as HVP) responsible for the management, maintenance, and	29 Land management co-operative agreements

			largely a licensing framework)	plantations and provided for the grant of licences to private entities (e.g., HVP Plantations) for their operation, management, and protection. Sets out rights, obligations, and conditions under which plantations are licensed	protection of licensed plantation land. This includes bushfire prevention and suppression obligations, undertaken in line with broader Victorian fire laws (CFA Act 1958, Forest Act 1958).	
Potential barriers		Unclear jurisdiction on areas outside the plantation footprint? TBC. (Licence Conditions not available for review).				

ANNEX 3

Previous Bushfire Inquiries

ANNEX 3 - PREVIOUS BUSHFIRE INQUIRIES

Relevant inquiries recommendations and status

Table A 4 Relevant inquiries recommendations and status

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
1927	**NSW**	INQ013	Royal Commission of Inquiry on Bush Fires in the State of New South Wales			X
1939	**VIC**	INQ015	Royal commission to inquire into the causes of and measures taken to prevent the bush fires of January 1939 and to protect life and property and the measures to be taken to prevent bush fires in Victoria and to protect life and property in the event of fu			X
1944	**VIC**	INQ016	Royal commission to inquire into the place of origin and the causes of the fires which commenced at Yallourn on the 14th day of February 1944; the adequacy of the measures which had been taken to prevent damage; and the measures to be taken to protect the			X
1961	**WA**	INQ019	Royal Commission appointed to enquire into and report upon the bush fires of December, 1960 and January, February and March, 1961 in Western Australia. The measures necessary or desirable to prevent and control such fires and to protect life and property			X
1967	**TAS**	INQ021	Fire Prevention and Suppression Report of Committee appointed by His Excellency the Administrator-in-Council to make recommendations with respect to future measures in consequences of the Bush Fire Disaster of 7th February, 1967			X
1974	**NT**	INQ026	A report arising from an enquiry into the Northern Territory fire service			X
1977	**VIC**	INQ028	Report of the Board of Inquiry into the occurrence of bush and grass fires in Victoria Inquiries following 2002 -2003 bushfires			X
1983	**NSW**	INQ032	Inquiry into a fire at Royal National Park, Grays Point			X
	SA	INQ034	Report of the Review Team on the South Australian bushfires			X
	VIC	INQ035	Fire protection and fuel-reduction burning in Victoria			X
		INQ036	A Study of Civilian Deaths in the 1983 Ash Wednesday Bushfires Victoria, Australia.			X
1984	**Federal**	INQ037	The 1982/83 Bushfires: Implications for national cooperation and coordination based on direct State and Territory forest service experience of major conflagrations report			X
		INQ038	Bushfires and the Australian Environment			X
	VIC	INQ039	Report of the Bushfire Review Committee on bushfire preparedness in Victoria, Australia, following the Ash Wednesday fires 16 February 1983 Inquiries following 2002 - 2003 bushfires			X

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
1985	**SA**	INQ040	Review of electricity distribution policies in bushfire prone and environmentally sensitive areas			X
1993	**TAS**	INQ055	Bushfire management in Tasmanian forests : an audit of the fire management activities of the Forestry Commission			X
1994	**ACT**	INQ056	McBeth review of bushfire hazard reduction practices			X
	NSW	INQ058	the report of the Select Committee on Bushfires COAG Bushfire Inquiry			X
	QLD	INQ059	Audit of bushfire strategies :Queensland Emergency Services			X
	TAS	INQ060	Review of Vegetation-Based Fire in Tasmania of major conflagrations report			X
	WA	INQ062	Report of the Fire Review Panel Conducting a Review of the Department of Conservation and Land Management (CALM) prescribed burning policy and practices and of Wildfire Threat Analysis of major conflagrations report			X
1995	**ACT**	INQ063	Glenn Bushfire Taskforce			X
1996	**NSW**	INQ064	Inquiry into the cause and origin of the bushfires occurring in New South Wales between 31 Dec, 1993 and 14 Jan, 1994 and Inquests into the manner and cause of death of Norman John Anthes, Robert Eglinton Page, William John Roach and Pauline Mary O'Neil			X
1998	**NSW**	INQ069	The Coordination of Bushfire Fighting Activities			X
1999	**VIC**	INQ071	Reducing the Risk of Entrapment in Wildfires: A Case Study of the Linton Fire			X
2000	**NSW**	INQ076	NSW Rural Fire Service			X
	QLD	INQ079	Fire Safety and Budget Accommodation: The Building and Other Legislation Amendment Bill 2001			X
2001	**NSW**	INQ082	Inquiry into the Fire at Mt Ku-Ring-Gai Chase National Park			X
		INQ083	Follow up of Performance Audits: Police response to calls for assistance, The levying and collection of land tax, Coordination of bushfire fighting activities			X
2002	**NSW**	INQ089	Inquiry into the 2001/2002 Bushfires			X
	VIC	INQ090	Inquest into the Linton Wildfire			X
2003	**ACT**	INQ093	The Report of the Bushfire Recovery Taskforce			X
		INQ094	The Inquiry into the Operational Response to the January 2003 Bushfires			X
	Federal	INQ098	A Nation Charred: Inquiry into the Recent Australian Bushfires			X
	NSW	INQ101	Inquiry into the Circumstances of the Fire(s) in the Brindabella Range in January 2003		X	

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
	VIC	INQ104	Inquiry into the 2002-2003 Victorian Bushfires		X	
		INQ105	Fire Prevention and Preparedness			X
2004	**Federal**	INQ107	National Inquiry on Bushfire Mitigation and Management.			X
	NSW	INQ110	Fire Services Funding (Inquiry)			X
	WA	INQ113	Responding to Major Bushfires			X
		INQ114	Tenterden and Mt Barker Fires Coronial Inquiry			X
		INQ115	Ocean Farm Fires Coronial Inquiry			X
2005	**NSW**	INQ120	Statutory Review of the Rural Fires Act 1997			X
	SA	INQ122	Eyre Peninsula Bushfire and Native Vegetation			X
	VIC	INQ124	Examination of Prescribed Burning Practices			X
2006	**ACT**	INQ126	The Canberra Firestorm: Inquests and Inquiry into Four Deaths and Four Fires between 8 and 18 January 2003Â Volume 1Â &Â Volume 2			X
	VIC	INQ132	Fire Season Debrief Outcomes Report 2005/06			X
2007	**SA**	INQ138	Inquests into the deaths of [9 named people] (2005 Eyre Peninsula, Wangarry fires).			X
		INQ139	Ministerial Review of Bushfire Management in South Australia			X
	VIC	INQ141	Record of Investigation into Death (Ararat Road Block).			X
		INQ142	Operational Review of Major Fires in Victoria 2006/07 - Ross Smith Report			X
2008	**QLD**	INQ150	Management of Rural Fire Services in Queensland			X
	SA	INQ153	Wangary Fires Inquest			X
	VIC	INQ155	Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria			X
2009	**NSW**	INQ163	Review of Bushfire Arson Laws (NSW)			X
	VIC	INQ168	Operational debrief report 2008/09 fire season (VIC)			X
	WA	INQ171	Record of Investigation into Death (2007 Boorabin fires) (WA)			X
		INQ172	Bridgetown Complex Post Incident Analysis (WA)			X

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
		INQ173	Review of Western Australia Bushfire Preparedness (WA)			X
2010	**Federal**	INQ176	The incidence of bushfires across Australia. Senate Select Committee on Agriculture and Related Industries. (Federal)		X	
	VIC	INQ181	Victorian Bushfires Royal Commission - Final Report (VIC)	X		
	WA	INQ182	Major Incident Review of Toodyay Fire December 2009 (WA)			X
		INQ183	A Review of the Ability of the Department of Environment and Conservation Western Australia to Manage Major Fires (WA)			X
2011	**QLD**	INQ191	Management of Rural Fire Services in Queensland (QLD)			X
	SA	INQ192	Natural Resources Committee Bushfire Inquiry (SA)			X
	TAS	INQ193	Auditor-General Report on Bushfire Management (Tas)			X
	VIC	INQ195	Review of the February 2011 Tostaree Fire (VIC)			X
		INQ196	Fire Services Commissioner review of Community Bushfire Warnings (Vic)			X
	WA	INQ200	Shared Responsibility: The Report of the Perth Hills Bushfire February 2011 Review. (WA)			X
		INQ201	Major Incident Review: Lake Clifton, Red Hill and Roleystone Fires June 2011. (WA)			X
		INQ202	Western Australia's Readiness for the 2011-12 Bushfire Season (WA)			X
		INQ203	Post Incident Analysis For Blackwood Fire 11 (WA)			X
2012	**NT**	INQ209	Review of the Operations of Bushfires NT (NT)			X
	VIC	INQ212	2011/12 Post Bushfire Season Review Report (VIC)			X
		INQ213	Westmeadows Grassfire (VIC)			X
	WA	INQ223	Appreciating the Risk: Report of the Special Inquiry into the November 2011 Margaret River Bushfire (WA)			X
		INQ224	Inquiry into the State preparedness for this year fire season (WA)			X
		INQ225	Major Incidence Review Black Cat Creek Fire (WA)			X
		INQ226	Post Incident Analysis Blackwood Fire 8 (WA)			X
2013	**ACT**	INQ228	Bushfire Preparedness (ACT)			X
	QLD	INQ241	The Malone Review into the Rural Fire Service (QLD)			X
	TAS	INQ246	AFAC AUDIT-REVIEW The Tasmania Fires of January 2013 (TAS)			X

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
		INQ247	Tasmanian Bushfires Inquiry (Tas)			X
	VIC	INQ249	Report into the Harrietville Fire (VIC)			X
	WA	INQ253	Coroner's inquest into the fatal bushfire at Albany (WA) [for recommendations see INQ254]			X
		INQ254	Report into the fatal bushfire at Albany: Major Incident Review for the Black Cat Creek fire 12 October 2012 (inquiry into death of Wendy Bearfoot)			X
2014	**Federal**	INQ257	Commission of Inquiry appointed into the fire at Marrangaroo Training Area (Federal)			X
	NSW	INQ259	2013 Blue Mountains Bushfire (NSW)			X
		INQ260	Coronial Inquest into the Warrumbungle Bushfire (NSW)			X
		INQ261	Wambelong fire (Inquiry) (NSW)		X	
	NT	INQ304	Review of the Bushfire Act			X
	VIC	INQ264	Hazelwood Mine Fire Inquiry Repot (VIC)			X
	WA	INQ265	Parkerville Stoneville Mt Helena Bushfire Review (WA)			X
2015	**QLD**	INQ270	Bushfire prevention and preparedness (Report 10: 2014-15) (QLD)			X
	SA	INQ273	AFAC Independent Operational Audit - South Australian Fires of January 2015 (SA)			X
	VIC	INQ275	Review of the initial response to the 2015 Wye River - Jamieson Track fire (VIC)			X
	WA	INQ277	Major Incident Review of the Lower Hotham and O'Sullivan fires DFES (WA)			X
2016	**Federal**	INQ278	Responses to, and lessons learnt from, the January and February 2016 bushfires in remote Tasmanian wilderness (Federal)			X
	NSW	INQ280	Wambelong fire inquiry evidence (NSW)		X	
	SA	INQ283	South Australian Country Fire Service Project Pinery (SA)			X
	TAS	INQ287	AFAC Independent Operational Review of the Management of the Tasmanian fires of January 2016 (TAS)			X
		INQ288	Inquiry into the State Fire Commission (TAS)			X
	WA	INQ290	Major Incident Review of the Esperance District Fires DFES (WA)			X
		INQ291	Waroona Fire Special Inquiry (WA)		X	
2017	**VIC**	INQ299	Parliamentary Inquiry into Fire Season Preparedness (VIC)			X

				Relevance		
Year	**State**	**INQ-ID**	**Title**	**High**	**Mod**	**Low**
2018	**NSW**	INQ302	Bega Valley Fires Independent Review		X	
	QLD	INQ307	The 2018 Queensland Bushfires Review			X
2019	**QLD**	INQ320	Queensland Bushfires Review 2019-20			X
	TAS	INQ301	AFAC Independent Operational Review: A review of the management of the Tasmanian fires of December 2018 - March 2019			X
2020	**ACT**	INQ316	Report to the Minister for Police and Emergency Services on ACT Government coordination and response during the 2019-20 Bushfire Season		X	
	Federal	INQ317	Royal Commission into National Natural Disaster Arrangements	X		
	NSW	INQ315	Final Report of the NSW Bushfire Inquiry	X		
	SA	INQ314	Independent review into the 2019/2020 bushfire season		X	
	VIC	INQ321	Reducing Bushfire Risks (VAGO)		X	
2021	**Federal**	(blank)	Lessons to be learned in relation to the Australian bushfire season 2019-20			
	QLD	INQ322	K'gari (Fraser Island) Bushfire Review			X
	VIC	INQ318	Inquiry into the 2019-20 Victorian Fire Season: Summary Report Phase 1 - Community and sector	X		
		INQ319	Inquiry into the 2019-20 Victorian Fire Season: Summary Report Phase 2 - immediate relief and recovery arrangements		X	
2023	**NSW**	INQ326	Bushfire recovery grants			X
		INQ327	Planning and managing bushfire equipment			X

Source: [5]NHRA -Inquiries and Reviews Database (Natural Hazards Research Australia. Inquiries and Reviews Database [Online database]. Retrieved September 18, 2025, from https://tools.naturalhazards.com.au/ddr/dataspace-home Natural Hazards Research Australia)

Table A 5: Relevant inquiries recommendations and status

Inquiry into the 2019-20 Victorian Fire Season: Summary Report Phase 1 - Community and sector preparedness for and response to the 2019-20 fire season According to the IGEM 'Tracker' of the 133 Actions identified by the VG to meet the recommendations of the inquiry, 69 have been completed or closed as at 19/8/2025, with 44 Actions still in progress.		
Summary / recommendations	**Actions**	**Status**
Review preparedness arrangements (EMV & agencies)	Rec 1 - Improve cross-border cooperation, clarify responsibilities, strengthen control teams, exercise preparedness, and enhance multi-hazard planning to ensure Victoria is emergency-ready.	8 Actions Closed / Complete
Review/amend legislation (CFA Act, Forest Act, etc.)	Rec 2 - Reform planning frameworks by embedding regional and municipal committees, ensuring state, regional, and local arrangements are consistent and effective.	3 actions in-progress
Expand Safer Together program	Rec 3 - Expand Safer Together, update bushfire strategies, and broaden risk frameworks to include private land, roadsides, and cross-tenure planning.	3 Actions Complete, 3 in-progress
Assign entity for evidence-based fuel management	Rec 4 - Establish leadership and advisory structures for bushfire risk management, expand sector participation, and release updated regional strategies to improve coordination	4 Actions Complete
DELWP lead community engagement on fuel management	Rec 5 - Update fuel management information, develop shared community engagement approaches, and draw on behaviour-change work to improve bushfire awareness and transparency.	4 Actions Complete, 1 in-progress
Increase non-burning fuel management treatments	Rec 6 - Broaden non-burn fuel treatments, strengthen cultural burning, improve technical capability, and pilot innovative methods across public and private land.	7 Actions Complete, 3 in-progress
Develop/distribute land and fuel management tools	Rec 7 - Enhance bushfire risk modelling, data access, and science investment while funding Traditional Owners and coordinating state-wide risk-based management approaches.	7 Actions Complete
Develop objectives, metrics, reporting for fuel management	Rec 8 - Improve fuel management reporting by incorporating new data, expanding frameworks, and including private land, roadsides, and public assets.	2 Actions Complete, 1 in-progress
Review residual risk target	Rec 9 - Strengthen bushfire risk modelling, broaden values considered, improve environmental assessments, update targets, and deliver datasets to inform planning and response.	4 Actions Complete, 1 in-progress
. Ongoing communications strategy, clarify 'shared responsibility'	Rec 10 - Clarify responsibilities in state plans, foster shared responsibility through partnerships, test high-impact scenarios, and improve community understanding of emergency risks.	1 Actions Complete, 4 in-progress
. Review/enhance evacuation plans/processes (Vic Police)	Rec 11 - Strengthen evacuation frameworks through updated legislation, clearer plans, improved decision tools, training, and greater community involvement in risk planning.	5 Actions Complete, 7 in-progress
. Review, confirm and exercise all tiers of control arrangements	Rec 12 - Reinforce flexible command and control arrangements across tiers, revise state bushfire plan, train personnel, and improve community-facing communications	4 Actions Complete, 3 in-progress
. Review/update shift roster/handover, training, guidance	Rec 13 - Enhance incident management with improved handover, training, compliance auditing, and continuous improvement to strengthen workforce capability and consistency.	3 Actions Complete, 4 in-progress

Inquiry into the 2019-20 Victorian Fire Season: Summary Report Phase 1 - Community and sector preparedness for and response to the 2019-20 fire season According to the IGEM 'Tracker' of the 133 Actions identified by the VG to meet the recommendations of the inquiry, 69 have been completed or closed as at 19/8/2025, with 44 Actions still in progress.		
Summary / recommendations	**Actions**	**Status**
. Develop system for personnel and asset deployments, support wellbeing	Rec 14 - Develop strategic resource management, common principles, and safety systems while addressing fatigue, wellbeing, and learning from national and international models.	5 Actions Complete, 2 in-progress
. Develop a capacity model for current/future needs (EMV + sector)	Rec 15 - Build preparedness through workforce planning, capability assessments, updated training, asset planning, and integrating local government and climate risk considerations.	7 Actions Complete 3 in-progress
. Address cross-border operational/resource management issues	Rec 16 - Improve cross-border preparedness with shared roles, cohesive warnings, scenario exercises, interoperability, and Victoria's representation on national emergency cooperation committees.	4 Actions Complete 4 in-progress
. Dissemination & improved understanding of info for public	Rec 17 - Enhance public information systems, multilingual communication, VicEmergency and VicTraffic upgrades, and telecommunications resilience to better support diverse and isolated communities.	1 Actions Complete 5 in-progress

Source: https://www.igem.vic.gov.au/our-work/implementation-monitoring/implementation-tracker

2020 Royal Commission into National Natural Disaster Arrangements		
Summary / recommendations	**Actions / status**	**Status**
Key Findings: Australia is not disaster-ready: Despite past inquiries, the nation lacks coordinated disaster preparedness across governments and sectors. Climate change is increasing disaster risk: Natural disasters are becoming more frequent and intense due to climate change, and Australia must prepare for	The recommendations were grouped under several key themes: 1. Governance and Accountability Establish a national emergency management capability with legislated authority. Create an intergovernmental agreement on natural disaster arrangements to clearly define responsibilities. 2. Preparedness Develop a national disaster risk register. Improve public education and communication on disaster risks. Standardise warnings and alerts across Australia. 3. Disaster Response Create a national fleet of firefighting aircraft, including sovereign capabilities. Establish national standards for evacuation planning and shelter.	Completed

2020 Royal Commission into National Natural Disaster Arrangements		
Summary / recommendations	**Actions / status**	**Status**
compounding and concurrent events. Emergency management is fragmented: Responsibilities are spread across different levels of government, leading to gaps and duplication in disaster management. National leadership is needed: There is a need for stronger Commonwealth leadership and coordination, particularly in response and recovery efforts. Information sharing is inconsistent: Data and warnings are not always timely, consistent or accessible across jurisdictions or the public. Relief and recovery arrangements are inadequate: Support systems are slow, difficult to access, and not sufficiently people-focused. Aerial firefighting capacity is limited: There is over-reliance on shared international and interstate resources that may not be available during concurrent events.	Improve access to telecommunications and power during emergencies. 4. Relief and Recovery Streamline and make disaster support services more accessible and trauma-informed. Implement long-term, flexible funding arrangements for recovery. Include local governments and communities in recovery planning. 5. Climate Change and Resilience Strengthen integration of climate risk in all levels of planning and infrastructure investment. Better incorporate Aboriginal and Torres Strait Islander knowledge in land and fire management. 6. Data and Technology Improve national data sharing and access, including satellite imagery and fire spread modelling. Establish a national warning system with consistent language and thresholds Key measures that the Federal Government has implemented in response to the Royal Commission's recommendations include the: Establishment of the National Emergency Management Agency (NEMA) as a single, enduring agency; Creation of the flagship Disaster Ready Fund (DRF) that provides up to $1 billion over five years, from 1 July 2023, to improve Australia's disaster resilience and bolster Australia's ability to reduce disaster risk by investing in important disaster mitigation projects; Establishment of the Office of Supply Chain Resilience (OSCR) to identify and monitor critical supply chain vulnerabilities that could impact Australia's national interest; Establishment of the National Emergency Management Stockpile (NEMS) capability to assist in building greater supply chain resilience and ensuring the supply of essential emergency goods in times of disasters; Delivery of the National Joint Common Operating Picture (NJCOP) in November 2021, which provides a shared and common understanding both nationally, and across borders during crisis events; Significant upgrade of the Australian Government National Situation Room (NSR) to improve national coordination of disaster management; Establishment of the National Coordination Mechanism (NCM) to support national situational awareness and coordination of effective consequence management of complex crises; Establishment of the Australian Fire Danger Rating System (AFDRS) on 1 September 2022, to improve fire agencies' ability to consistently communicate the fire threat across Australia, and provide a national decision-making framework that supports operational planning, response and consistent community messaging;	

2020 Royal Commission into National Natural Disaster Arrangements		
Summary / recommendations	**Actions / status**	**Status**
	Establishment of the National Emergency Declaration (NED) Act 2020, which provides a legislative framework to enable the Governor-General to declare a national emergency on the Prime Minister's Advice; Establishment of the Independent Review into Commonwealth Disaster Funding, including building additional resilience into Commonwealth programs; Commissioning of the Independent Review of National Natural Disaster Governance Arrangements to better prepare governments for the demands of increasing future natural disasters; Review of Disaster Recovery Funding Arrangements, (DRFA) to streamline and build additional resilience into joint Commonwealth-State recovery programs. Establishment of a Not-for-profit and Philanthropic Roundtable consisting of charities, non-government organisations and volunteer groups with a role in disaster recovery; Establishment of the Australian Climate Service (ACS) on 1 July 2021 to support better decision-making through improved climate, disaster risk and impact information, services and tools; and Development of the Australian Warning System (AWS), to provide nationally consistent warnings for emergencies like bushfire, flood, storm, extreme heat and severe weather.	

Source: https://www.nema.gov.au/about-us/governance-and-reporting/reviews/royal-commission-into-natural-disaster

Final Report of the NSW Bushfire Inquiry 2020 (relevant recs only)		
Summary / recommendations	**Actions / status**	**Status**
Fire season advice	R2 - public statement with an evaluation of the likely fire season risk and the effectiveness of the planning and preparation for the upcoming season	This is now completed annually as a part of agency BAU.
Fire database	R3 - AFAC to establish a national bush fire database.	Recommendation completed in Q1 2023 (WIP?)
Detection and mapping	R4 – detection and fire edge mapping in real time	Trial completed Q2 2022
Research	R5 – establish NSW as major research centre	Unclear
Training	R6 - Training - increase the capacity of fire authorities to fight the kind of megafires seen in the 2019-20 season. The training initiatives should include: local weather effects for fire behaviour analysts increase in the number of trained fire behaviour analysts	Completed

Final Report of the NSW Bushfire Inquiry 2020 (relevant recs only)		
Summary / recommendations	**Actions / status**	**Status**
	training of more meteorologists in fire behaviour dedicated training for firefighters in extreme fire behaviour	
Resource allocation	R7 – Protocol re. allocation of resources	Completed
Cross agency accountability and management outcomes	R8 - strengthen cross-agency accountability and deliver improved bush fire risk management outcomes (BFCC) members from NSW government agencies are at the level of Coordinator General/Deputy Secretary/Agency Head/Deputy Commissioner BFRMPs), Operation Coordination Plans and Fire Access and Fire Trail (FAFT) Plans are compliant BFCC develops a risk-based performance auditing cycle RFS considers the best way of enhancing the transparency of BFCC decision-making BFCC endorses the annual statement to Parliament BFMC) membership and confirm to the NSW RFS that members have sufficient discretion and authority BFMC Policy to require BFMCs to refer unresolved issues to the BFCC for resolution.	Completed
Changing seasons – resource sharing	R9 - analyse the impact of changing fire seasons on inter-jurisdictional resource sharing agreements	Completed
Aviation	R10 - expand NSW's specialist aviation personnel safety and capacity, Government expand simulator capabilities at the NSW RFS Training Academy.	Completed
Local councils	R11 - strengthen the capability of local councils in future emergency events	Completed
AFAC funding	R12 - provide long-term funding certainty to AFAC,	Completed
State-based MOUs	R13 - NSW and Victorian Governments progress and finalise a multi-agency Memorandum of Understanding (MoU)	Completed
Public information	R14 - provide greater consistency in public information and warnings, especially in border areas:	Completed
Preparedness evaluation	R15 - commit to: a) evaluating existing bush fire preparedness programs to determine the most effective and efficient approach given increased frequency of extreme fire seasons, and develop outcomes-based measures to monitor programs' impact over time, b) post-evaluation roll out the most effective bush fire preparedness programs to all communities and at-risk cohorts	Completed
Tourism preparedness	R16 - develop bush fire preparedness support for tourism businesses,	Completed
Safer Places	R17 - RFS identifies remote bush fire prone areas that do not already have an indoor Neighbourhood Safer Place (NSP)	Completed

Source: https://www.nsw.gov.au/sites/default/files/noindex/2025-11/bushfire-inquiry-final-progress-report.pdf

Victorian Bushfires Royal Commission – Final Report (2016 progress report)		
Summary / recommendations	**Actions / status**	**Status**
Revise Safety Policy	R1 - Revise bushfire safety policy, enhance warnings, local planning, and response options including refuges and evacuation.	Complete
Update Safety Education	R2 - Update community bushfire safety education for flexibility, effectiveness, and regular evaluation.	Complete
Support Council Planning	R3 - Help councils plan local bushfire safety, especially for vulnerable residents and facilities.	Complete
Develop Shelter Options	R4 - Create comprehensive shelter options, with standards for refuges and support for personal shelters.	Complete
Plan Protective Evacuation	R5 - Plan and implement evacuation as a protective option, especially for vulnerable people.	Complete
Include Curriculum Education	R6 - Incorporate bushfire history and education in the national curriculum.	Complete
National Awareness Campaign	R7 - Develop a national bushfire awareness campaign.	Complete
Deploy Management Teams	R8 - Ensure accredited incident management teams are in place early on high-risk fire days.	Complete
Standardize Joint Training	R9 - Prescribe and audit joint training for incident management team staff.	Complete
Clarify Police Coordination	R10 - Clarify police coordination centre during major fires.	Complete
Amend Emergency Law	R11 - Amend emergency management law to clarify Minister's and Chief Commissioner's roles in emergencies.	Complete
Consult Premier Declaration	R12 - Require consultation with the Premier before declaring a state of disaster.	Complete
Create Graded Declarations	R13 - Create graded emergency declaration levels below a state of disaster.	Closed
Improve Information Flow	R14 - Revise incident management framework to improve information flow and local knowledge.	Complete
Require Action Plans	R15 - Require timely incident action plan summaries and staff training.	Complete
Enhance Mapping Support	R16 - Improve mapping support, access, and training for fire agencies.	Complete
Standardize Controller Accreditation	R17 - Standardize accreditation, review, and traineeships for level 3 Incident Controllers.	Complete
Mandate Qualified Controllers	R18 - Require experienced, qualified Incident Controllers for all fires, regardless of agency.	Complete
Provide Volunteer IDs	R19 - Provide CFA volunteers with ID cards for roadblock passage.	Complete
Improve Aerial Protocols	R20 - Improve aerial preparedness, standby, and dispatch protocols for high-risk fire days.	Complete
Enable Commonwealth Resources	R21 - Enable Commonwealth aerial resources in Victoria's firefighting plans.	Complete
Standardize Agency Systems	R22 - Standardize systems and technologies across fire agencies for efficiency.	Complete

Victorian Bushfires Royal Commission – Final Report (2016 progress report)		
Summary / recommendations	**Actions / status**	**Status**
Improve Radio Communications	R23 - Improve CFA communications and address radio black spots.	Complete
Investigate Dangerous Incidents	R24 - Fully investigate dangerous incidents and inform those involved.	Complete
Train Backburn Approval	R25 - Train all staff to require Incident Controller approval before lighting back-burns.	Complete
Appoint Safety Officers	R26 - Appoint a safety officer to every level 3 incident management team.	Complete
Replace Risky Powerlines	R27 - Replace SWER and 22kV powerlines in high-risk areas with safer alternatives.	Complete
Regular Line Inspections	R28 - Require regular inspection of high-risk powerlines at least every three years.	Complete
Improve Inspector Training	R29 - Improve asset inspector training and auditing for electricity infrastructure.	Complete
Mitigate Hazard Trees	R30 - Require measures to reduce risks from hazard trees near powerlines.	Complete
Councils Identify Hazards	R31 - Councils identify hazard trees and notify responsible entities in fire plans.	Complete
Modify Reclose Functions	R32 - Change reclose functions on powerlines to reduce fire risk during fire season.	Complete
Install Line Equipment	R33 - Fit spreaders and vibration dampers to powerlines as needed.	Complete
Strengthen Energy Regulation	R34 - Strengthen Energy Safe Victoria's mandate to prevent and mitigate powerline bushfires.	Complete
Coordinate Arson Prevention	R35 - Maintain coordinated, statewide approach to arson prevention and review strategies regularly.	Complete
Continue National Efforts	R36 - Continue national efforts to reduce bushfire arson, with consistent data and program evaluation.	Complete
Centralize Risk Mapping	R37 - Centralize bushfire risk mapping and align site assessment for planning/building controls.	Complete
Implement Settlement Policy	R38 - Implement settlement policy considering bushfire risk, especially for rural lots and new developments.	Complete
Amend Planning Rules	R39 - Amend planning rules to prioritize life, restrict development in high-risk areas, and guide decisions.	Complete
Revise Permit Guidelines	R40 - Revise CFA permit guidelines for developments in bushfire-prone overlays, emphasizing defendable space.	Complete
Allow Vegetation Removal	R41 - Allow more vegetation removal for fire protection, with guidelines and safeguards.	Complete
Develop Offset Solutions	R42 - Develop a collective offset solution for required native vegetation removal.	Complete
Map Statewide Biodiversity	R43 - Map and publish statewide biodiversity to support bushfire planning.	Complete
Guide Fire Landscaping	R44 - Provide guidance on fire-resistant landscaping and plant species.	Complete
Encourage Council Policies	R45 - Urge affected councils to adopt bushfire policies for rebuilding and recovery.	Complete
Develop Retreat Strategies	R46 - Develop retreat/resettlement strategies for communities in unacceptably high bushfire risk areas.	Complete

Victorian Bushfires Royal Commission – Final Report (2016 progress report)		
Summary / recommendations	**Actions / status**	**Status**
Strengthen Building Standards	R47 - Amend building standards to reduce ignition risk from embers and improve bushfire testing methods.	Complete
Update Building Code	R48 - Update the Building Code for ember attack, bushfire-prone construction, and access to standards.	Complete
Enforce Bushfire Standards	R49 - Strengthen adoption of bushfire standards for new and vulnerable buildings.	Complete
Standardize Sprinkler Systems	R50 - Develop a standard for bushfire sprinklers and sprayers.	Complete
Publish Modification Guidance	R51 - Publish information for modifying existing buildings for bushfire safety.	Complete
Ensure Council Compliance	R52 - Ensure councils sign off and check compliance on bushfire permit conditions.	Complete
Include Risk Information	R53 - Include bushfire risk information in property sales documentation.	Complete
Delegate Fire Notices	R54 - Allow CFA Chief Officer to delegate fire prevention notices.	Complete
Provide Industry Training	R55 - Provide bushfire training for planners, builders, and education institutions.	Complete
Commit Prescribed Burning	R56 - Commit to prescribed burning on at least 5% of public land annually.	Closed
Report Burning Outcomes	R57 - Publicly report prescribed burning outcomes, including area, funding, and biodiversity impacts.	Complete
Upgrade Data Collection	R58 - Upgrade long-term data collection on burning and bushfire effects on biodiversity.	Complete
Amend Fire Code	R59 - Amend Code of Practice for Fire Management to clarify objectives, zones, and risk analysis.	Closed
Expand Roadside Exemptions	R60 - Expand exemptions for roadside works to reduce bushfire risk.	Complete
Guide Roadside Clearing	R61 - Give councils guidance and amend laws for roadside clearing and bushfire prevention.	Complete
Assess Road Risks	R62 - VicRoads conduct statewide bushfire risk assessment of all roads.	Complete
Appoint Fire Commissioner	R63 - Appoint an independent Fire Commissioner and make the DSE Chief Fire Officer statutory.	Complete
Replace Funding Levy	R64 - Replace the Fire Services Levy with a property-based levy and concessions for low-income earners.	Complete
Establish Research Centre	R65 - Establish a national bushfire research centre for long-term and applied research.	Complete
Appoint Independent Monitor	R66 - Appoint an independent monitor to publicly report on implementing recommendations.	Complete

Source: https://www.igem.vic.gov.au/publications/igem-reports/bushfires-royal-commission-implementation-monitors-final-report-july-2012

ANNEX 4

OTHER SUPPORTING INFORMATION

ANNEX 4 – OTHER SUPPORTING INFORMATION

Bushfire / Fuel Management Zoning

Table A 6: NSW Bush Fire Management Zones

Zone	Purpose	Zone Characteristics	Suppression Objective(s)
APZ	To protect human life, property and highly valued public assets and values.	An intensively and frequently fuel reduced area surrounding an asset or value as described by:› NSW RFS Standards for Asset Protection Zones; and› Bush Fire Protection for Existing Development.	To enable the safe use of Direct Attack suppression strategies within the zone. To minimise bush fire impacts on undefended assets.
IMZ	To reduce fire escalation in areas where lightning ignitions are considered a high risk (such as ridgetops).To reduce fire propagation in areas subject to higher levels of human-caused ignitions, Including arson. To reduce fire escalation via ridge to ridge ignition and other extreme fire behaviour.	An area in the landscape that is maintained at a reduced fuel level in order to minimise the propagation of ignitions and limit the rapid escalation of fires and has an Overall Fuel Hazard (OFH) of less than high. IMZs should be considered in areas with the following characteristics:› A high frequency of human and / or natural ignitions;› High risk for ignitions to impact on assets;› Known fire paths;› Limited access or containment options for bush fires; and/or› Landscape features that have the potential to generate extreme fire behaviour. An IMZ should be treated more regularly and thoroughly than an SFAZ and/or maintained at a level which depending on fuel type, aims to limit the rapid escalation of fires.	To minimise fire propagation by providing increased opportunities for safe and effective suppression through ground and aerial operations and remote area fire fighting. To prevent ignitions from spreading particularly in parts of the environment that are difficult to access.
SFAZ	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bush fires, reduce the potential for spot fire development and aid in the containment of bushfires.	An area in the landscape that is managed to achieve mosaic fuel reduction patterns so that the majority of the area has an Overall Fuel Hazard (OFH) of less than high*.The SFAZ spatial extent should consider bush fire risk and suppression objectives and should be dependent upon:› Topography;› Aspect;› Spotting propensity;› Location of adjacent zones and firebreaks;› Mosaic pattern of treatment; and/or› Social, cultural and environmental values.	To improve the likelihood and safe use of:› Parallel attack suppression strategies within the zone; and/or› Indirect attack (backburning) in high to very high fire weather conditions within the zone. To reduce the likelihood of:› Crown fire development within the zone; and/or› Spot fire ignition potential within the zone.
LMZ	To meet relevant land management objectives in areas where APZs or SFAZs are not appropriate.	An area in the landscape where land management outcomes are also prioritised such as those related to social, cultural or environmental values, or those related to the management of agricultural and natural resource assets.	As per the land management and fire protection objectives of the responsible land manager To undertake mosaic burning to reduce the likelihood of spread of fires.
FEZ	To exclude bush fires.	An area in the landscape where land management outcomes require the exclusion of fire to manage fire sensitive cultural, environmental or other specific assets.	Prevention, preparation and suppression strategies should aim to exclude fire from these areas.

Source: Snowy Valleys Bush Fire Management Committee. (2024). Snowy Valleys Draft Bush Fire Risk Management Plan

Table A 7: Victorian Fuel Management Zones

Zone	Description	Typical planned fire interval[1]
Asset Protection Zone (APZ):	**Fundamental aim**: To provide the highest level of localised protection from bushfire to human life, residential property and other key community values (including critical infrastructure, industry and economic assets, agricultural assets, water catchments, environmental and cultural values). **Operational aim**: To apply intensive planned burning and/or non-burn fuel treatment to modify bushfire fuels to reduce radiant heat and ember generation near assets and values in the event of a bushfire.	5 to 10 years.
Bushfire Moderation Zone (BMZ):	**Fundamental aim**: To reduce the size, spread and intensity of bushfires as they move through the landscape. This zone complements the APZ in that the use of planned burning in the BMZ is designed to protect nearby assets, particularly from ember spotting during a bushfire. **Operational aim**: To apply planned burning and/or non-burn fuel treatment to modify bushfire fuels to reduce the size, spread and intensity of bushfires as they move through the landscape. Where practicable, planned burning in BMZ will seek to maintain an ecologically desirable fire regime, provided bushfire moderation objectives can still be met. This may include using non-burn fuel treatment methods.	8 to 15 years.
Landscape Management Zone (LMZ):	**Fundamental aim**: To prevent bushfires and support their safe and effective suppression and apply fire for other land and resource management outcomes. **Operational aim**: To apply planned burning and/or non-burn fuel treatment to support the following outcomes: • reduce the overall fuel hazard in the landscape to support bushfire ignition prevention, suppression effectiveness, community and firefighter safety, and minimise impacts of large, complex bushfires on human life, residential property and other community values • maintain or improve ecosystem resilience, through the deliberate application of fire for ecological purposes and protection of ecosystems from large, complex bushfires • management of the land for particular values and outcomes, including forest regeneration and protection of water catchments.	Varies depending on land management and fire management objectives.
Planned Burning Exclusion Zone (PBEZ):	**Fundamental aim**: To prevent direct impacts of planned burning in areas which are intolerant to fire and/or to prevent planned burning being applied in areas which are not considered suitable for safe and effective delivery. **Operational aim**: To exclude the application of all planned fire. Fuel management activities that do not include the application of fire (i.e. non-burn fuel treatments) may be applied in this zone.	Burn units wholly or largely covered by vegetation communities less tolerant of fire.

Source: Department of Energy, Environment and Climate Action. (2025). Code of practice for bushfire management on public land. Melbourne

Note 1: From the *Hume Bushire Management Strategy* - Actual planned fire intervals may be more or less frequent depending on previous fire severity and coverage, vegetation type, climatic and seasonal conditions and actual rate of fuel reaccumulation.

Bushfire Risk / Strategic Bushfire Management Plans – Victoria and NSW

Table A 8: Comparison of Victorian (Hume Region) and NSW (Snowy Valleys) bushfire management plan / strategies

Aspect	Victoria (Hume Region Bushfire Management Strategy)	NSW (Snowy Valleys Bush Fire Risk Management Plan)
Objectives	To minimise the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment. Human life will be afforded priority over all other considerations. To maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products. Human life, health and relationships • Minimise loss of human life from bushfires • Minimise smoke impacts from bushfires Critical infrastructure • Minimise disruption by bushfires on critical infrastructure • Minimise impacts of bushfires on water catchments Environmental Values • Minimise impacts of bushfires on threatened species and fire-sensitive flora, fauna and vegetation communities • Minimise declines in the persistence of ecosystems.	Objective 1: Reduce the number of human-induced bush fire ignitions and their potential to cause damage to life, property, infrastructure and environmental, economic, cultural, agricultural and community assets. Objective 2: Manage fuel to reduce the rate of spread, intensity and impact of bush fires on life and assets while minimising damage to environmental and cultural values. Objective 3: Increase the community's resilience to bush fires by improving its preparedness, response and recovery. Objective 4: Provide advice and strategies to plan, prepare and implement activities to effectively contain fires with the potential to cause damage to life, property, infrastructure and environmental, economic, cultural, agricultural and community assets.
Explicit reference to plantations	In the 'Regional economy' description and in the 'Local government profile' for Towong Shire Council.	Identified as an economic asset, along with other agriculture, commercial energy infrastructure, mining and water catchments. A focus area is described as 'Bondo Forestry Brindabella' due to the significance of the industry to the local economy and the status of these plantations being unaffected by the 2019-20 bushfires. Similarly, focus areas at 'Maragle' and 'Rosewood' have been included in part due to the plantations in the areas. The focus areas have a specific suite of measures identified within the BFMRP including prevention, mitigation and response activities.

Table A 9: Comparison of Victorian and NSW state emergency priorities

Victoria – Emergency Management Handbook	NSW – EMPLAN and other supporting documents
1. Protection and preservation of life and relief of suffering, 2. Issuing of community information and community warnings, 3. Protection of critical infrastructure and community assets, 4. Protection of residential property, 5. Protection of assets supporting individual livelihoods and economic production, 6. Protection of environmental and conservation assets	No similar priority ranking exists.

Source: https://www.emv.vic.gov.au/responsibilities/state-emergency-management-priorities

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ANNEX 5 – CONSULTATION CONDUCTED FOR THIS STUDY

To address the scope for this review, and collect relevant data and insights, the project team conducted interviews via online meetings with a broad range of stakeholder organisations involved directly in the land, plantation and fire management sectors within the Murray Forestry Hub region.

Stakeholder organisations consulted during this study included representatives of the following:

- Agriwealth Pty Ltd
- AKD
- Borg Group of Companies
- Visy Pulp and Paper
- Forestry Corporation of NSW
- HVP Plantations
- Murray River Forestry Hub
- NSW Government Department of Primary Industries and Regional Development (DPIRD) Plantations Regulations Unit
- PF Olsen
- Snowy Mountains Forests
- Victorian Government Department of Energy, Environment and Climate Action
- NSW Rural Fire Service
- NSW Crown Lands
- Snowy Hydro
- Victorian Country Fire Authority.

Notwithstanding the consultation with these and other stakeholder organisations, please note that the findings expressed in this report are entirely those of the report authors. *There is no attribution of any findings in this study to any of the stakeholder organisations listed above.*

Collectively, the interviews provided highly valuable guidance on contemporary and practical fire management experience, challenges associated with regulatory compliance, and significant insights into the broader enablers and barriers to achieving effective fire management.

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