How Australia Can Prevent the Next Bushfire Disaster

State Failures – Global Lessons & Expert Solutions

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Foreword

Australia's worst bushfire disasters have long been etched into our national memory. Black Friday (1939), Ash Wednesday (1983), Black Saturday (2009), and Black Summer (2019–2020) each brought profound devastation and painful lessons. Despite the inquiries and recommendations that followed, many of the same failings continue to surface time and

again: poor coordination, delayed responses, underfunded mitigation, and communities left vulnerable when fire strikes.

This book is not about blame. It's about learning — and doing better.

Drawing on official reviews, scientific research, and international case studies, this work highlights the structural weaknesses that have undermined bushfire preparedness in Australia. It identifies where progress has been made, where it has stalled, and where innovation offers hope. From the rural volunteer brigades in New South Wales and Western Australia to the fire-adapted landscapes of Victoria and Tasmania, each state faces unique challenges but shares a common need for stronger leadership, clearer responsibilities, and smarter resourcing.

Bushfires will always be a part of life in Australia. But disasters on the scale of Black Summer don't have to be. With better planning, communication, coordination, and commitment, we can reduce the human and environmental cost of future fires.

This book aims to be a practical guide for policy makers, emergency service leaders, and everyday Australians — so that we not only remember the lessons of the past but act on them with urgency.

Coordination and Communication Breakdowns

Bushfires don't respect borders — and neither should our emergency response. Yet historically, Australia's firefighting efforts have been siloed by jurisdiction, leading to frequent coordination failures across agencies and state lines.

The 2020 Royal Commission heard numerous accounts of frustrated firefighters who, while standing on the ground at state borders, could see their counterparts on the other side — yet were unable to communicate with them due to incompatible radio systems. Different states use different communication platforms, and there has been no easy method for real-time coordination between forces such as the NSW Rural Fire Service and the Victorian CFA during merged fires.

The Commission recommended that states modernise their communications systems and establish a national register of firefighting resources — a central database of available crews, trucks, and aircraft that can be quickly deployed across state lines during emergencies. This would streamline the mutual aid that was often arranged ad hoc during the Black Summer fires.

Even within individual states, multi-agency coordination has been problematic. Large bushfires typically involve a range of responders: state fire services, national park rangers,

emergency services, police, and sometimes the military. When roles and hierarchies aren't clearly defined, confusion is inevitable.

In Western Australia, friction has long surrounded the management of volunteer bushfire brigades. After the devastating 2016 Yarloop fire, an inquiry recommended creating a standalone Rural Fire Service. Instead, the government created a division within the Department of Fire and Emergency Services (DFES), leaving local councils responsible for bushfire brigades.

This compromise has proved unpopular. A survey of 92 WA councils found that 93% were dissatisfied with the current system. Councils, which often lack firefighting expertise, are legally responsible for the brigades but rely on DFES for training and support — a split responsibility that creates confusion during emergencies and legal uncertainty. One shire CEO noted they could face manslaughter charges if a volunteer were killed, despite having no operational control. Volunteers, meanwhile, fear being absorbed into another layer of bureaucracy but also desire clearer command structures. WA's bushfire governance remains a work in progress, criticised by both local governments and volunteers.

South Australia's Kangaroo Island fire review similarly exposed internal coordination issues. Some crews failed to follow the incident command structure — or actively worked against it. These actions disrupted communication with the main command centre and contributed to lapses in strategic planning. The review noted a lack of trust between regional and state headquarters, unfilled key roles (such as a dedicated warnings officer), and conflicting directions during the crisis — all of which hampered the response.

Federal coordination has also been inconsistent. During Black Summer, thousands of Australian Defence Force (ADF) personnel eventually provided support — but only after the peak of the disaster. The Royal Commission recommended procedures for earlier federal involvement, so military assistance can be activated proactively rather than waiting for state requests.

We saw an example of this in September 2023, when a mega-fire in the Northern Territory's Barkly region triggered a federal emergency declaration. Local crews couldn't manage the 9,300 km² fire alone, so reinforcements were brought in from other states under national arrangements. This kind of cross-border response is now more common — but only works when coordination mechanisms are solid, roles are understood, and resources flow where needed, fast.

Strategic and Policy Failures

Beyond the immediate operational breakdowns, broader strategic and policy shortcomings have drawn increasing scrutiny.

A recurring criticism is that Australian governments tend to be reactive rather than proactive. Major bushfires trigger inquiries and reports, but too often, the resulting recommendations are watered down, ignored, or delayed once the political pressure fades.

Hazard reduction burning is a prime example. While experts agree that controlled burns and firebreak maintenance are essential to reduce bushfire intensity, these programs frequently fall behind schedule. In parts of New South Wales and Victoria, wet seasons have hampered burn targets, allowing vegetation to grow unchecked — only to dry out dangerously during summer. Meanwhile, Western Australia has managed a more consistent prescribed burning program.

The 2020 NSW parliamentary inquiry acknowledged that while hazard reduction is crucial, it has limits in extreme weather conditions. Fire services require more support for year-round mitigation — including funding, staffing, and tools to manage land proactively. Signs like "Are your firebreaks prepared?" in fire-ravaged towns now serve as sobering reminders that mitigation only works when it's enforced and resourced.

Another glaring strategic failure is the insufficient adaptation to climate change. Scientists have warned for years that Australia's fire seasons are getting longer, hotter, and more dangerous. The Royal Commission into National Natural Disaster Arrangements urged governments to formally incorporate climate risk into emergency planning.

Yet funding for fire services has not kept pace with the growing threat. In 2023, northern Australia experienced a largely unnoticed fire season that burned an estimated 84 million hectares — nine times the area lost during Black Summer. The fires were mainly in remote areas, but they revealed how unprepared we are for large-scale events in less populated regions. Experts have stressed the need for national attention, resources, and climate adaptation plans that extend beyond urban centres.

Finally, accountability remains a persistent issue. The Royal Commission issued 80 recommendations. While many were accepted in principle, progress has been patchy. Efforts to establish a national aerial firefighting fleet and implement unified communication systems have moved slowly. Fire-affected communities often express frustration that "lessons learned" are rarely implemented before the next crisis arrives.

Kangaroo Island residents, for example, were dismayed to see how slowly recommendations from the previous fire review were enacted. Some weren't in place before the next season began. This pattern — of reviews being shelved and reforms delayed — must end. Real change requires political will, consistent funding, and inter-agency cooperation that persists even when the headlines fade.

Conclusion

From Sydney's suburbs to Tasmania's wilderness and the Northern Territory's remote outback, the past few fire seasons have exposed critical weaknesses in Australia's bushfire preparedness and response. Firefighters — both career and volunteer — have acted with courage and resilience, often under extreme pressure. But too often, they've been let down by outdated systems, underinvestment, and fragmented leadership.

A few key lessons have become abundantly clear:

- **Money matters** — Underfunded agencies cannot maintain modern equipment, train sufficient personnel, or conduct necessary mitigation.
- **Minutes matter** — Delays in communication, deployment, or evacuation warnings can turn a manageable fire into a catastrophe.
- **Management matters** — Clear coordination, forward planning, and defined roles are essential in a country where fires routinely cross borders and overwhelm local capacity.

There are, however, signs of progress. Governments are beginning to invest more in mitigation and modern equipment. The establishment of a national disaster agency, as well as improved sharing of aerial and ground resources, suggests that the painful lessons of Black Summer are beginning to influence national policy.

Yet overall, progress remains slow and uneven. As climate change continues to amplify fire risk, experts warn that Australia must urgently overhaul its fire services, mitigation strategies, and emergency response frameworks. That includes:

- Acting on inquiry recommendations
- Investing in recruitment and training to rebuild the volunteer base
- Adopting modern communication technology for both public alerts and agency coordination
- Establishing a national aerial firefighting fleet
- Addressing governance gaps that hinder unified action

It also means engaging communities directly: supporting Indigenous fire management practices, promoting grassroots preparedness, and empowering volunteers who know their local landscapes best.

Bushfires are inevitable in Australia — but catastrophic losses are not. The failures of recent years offer a clear roadmap of what not to repeat. With proper funding, faster response times, streamlined coordination, and sound policy, lives and homes can be saved.

The challenge now is to ensure that Australia's fire services are never again caught short — and that future disasters are met not just with thoughts and prayers, but with genuine preparedness and decisive action before the flames arrive.

Mitigating Bushfire Risk in Australia:

Challenges, Reforms and Strategies

Australia faces an escalating bushfire threat as climate change drives longer, hotter, and more dangerous fire seasons. The catastrophic 2019–2020 “Black Summer” bushfires burned approximately 18.6 million hectares nationwide, destroyed more than 2,700 homes, and claimed 34 lives. The intensity and scale of those fires were unprecedented — even generating firestorms (pyrocumulonimbus events) at levels never previously recorded.

This section explores how bushfire risk can be systematically reduced across all states and territories. Drawing from official inquiries, academic research, and global case studies, it outlines best practices in prevention, community education, resourcing, technology, and governance.

From Portugal’s stringent land-clearing laws to Indigenous fire management in Canada, international examples provide powerful lessons for Australia. The goal is to equip policymakers, emergency leaders, and researchers with an evidence-based framework to reduce bushfire risk and better protect communities.

Bushfire Risk in a Changing Climate

Extreme fire weather is becoming more frequent and intense. Rising temperatures, prolonged droughts, and increased fuel dryness have extended the fire season and increased the likelihood of catastrophic fires.

Black Summer followed years of severe drought that left vast forest areas tinder-dry. These conditions overwhelmed traditional firefighting techniques and led to megafires. Climate projections suggest that fire seasons will continue to intensify and extend into regions not historically prone to bushfire. This reality demands urgent, proactive reforms nationwide.

Systemic Gaps Identified

Across numerous inquiries, common weaknesses in Australia’s bushfire systems have emerged:

- **Fuel Management:** Hazard reduction efforts have been inadequate in some regions due to limited weather windows, environmental restrictions, or insufficient funding.

- **Public Warnings:** Emergency warning systems and community preparedness remain inconsistent. Some residents received little or no warning before being impacted by fire.
- **Personnel & Equipment:** Firefighting resources were stretched to the limit, revealing a lack of surge capacity — particularly in aerial firefighting and remote-area response.
- **Cross-Border Coordination:** Fragmented communication and incompatible systems have hampered collaborative firefighting efforts across jurisdictions.

The Royal Commission concluded that while emergency services responded heroically, Australia's disaster management systems were not designed to handle fires of Black Summer's magnitude. Major improvements are needed in fuel management, land-use planning, national coordination, and technological innovation.

New South Wales: Strengthening Australia's Busiest Rural Fire Service

New South Wales experienced some of the most devastating impacts of the 2019–2020 bushfire season. Fires burned across vast forested regions, described as being "on a scale not seen in recorded history." In response, the 2020 NSW Bushfire Inquiry issued 76 recommendations — all accepted by the state government — aimed at strengthening its extensive, volunteer-based Rural Fire Service (RFS) and addressing systemic weaknesses exposed during Black Summer.

Prevention and Hazard Reduction

Hazard reduction in NSW is a major challenge due to the state's vast landscapes and frequent hot, dry conditions. The 2020 inquiry highlighted that extremely dry fuel loads significantly intensified fire severity. It recommended a more aggressive approach to fuel mitigation — including compulsory vegetation clearing in high-risk areas.

In response, NSW has introduced stronger land management laws. Private landowners in bushfire-prone zones are now required to manage fuel loads on their properties. If they fail to do so, the RFS is empowered to carry out hazard reduction measures directly. This shift ensures that shared responsibility becomes enforceable, mirroring Portugal's approach where fines and council action apply to neglected properties.

The RFS has also expanded its annual hazard reduction burns on public land. While the inquiry acknowledged that fuel treatments had limited effectiveness under extreme fire conditions, it also cited cases where previous burns slowed the spread of fire and protected communities.

To increase impact, NSW has moved toward **risk-based mitigation**. Rather than aiming for a broad percentage of land treated, the strategy now targets high-risk zones — such as areas surrounding towns, critical infrastructure, and evacuation routes. New **Bushfire Management Area Plans** are being developed to coordinate mitigation across public and private land, with local input to prioritise treatments based on local terrain and threat levels.

Community Education, Warnings, and Preparedness

NSW has invested heavily in community education through programs like **Get Ready Weekend** and the **Bush Fire Survival Plan**. However, the Black Summer fires revealed gaps in preparedness. Many residents lacked clear evacuation plans or delayed their departure — particularly in towns with limited road access, where late evacuation can be fatal.

The inquiry recommended earlier evacuation orders for high-risk communities when catastrophic fire conditions are forecast. NSW emergency protocols have since been updated to support proactive evacuations. Authorities are also exploring the use of **rivers and lakes as evacuation routes** in vulnerable coastal areas.

During the 2019–2020 fires, the **Fires Near Me** app and emergency text alerts were widely used, but coverage was inconsistent. Some residents received no warning. To address this, NSW is now part of the **Australian Warning System** — a national framework that provides clear, standardised alerts across states using consistent icons and language.

The RFS is also upgrading its communications systems to provide a **"single source of truth"** — one authoritative platform for live fire maps, evacuation routes, shelter locations, and other critical updates. This approach, also recommended in South Australia, helps reduce public confusion in fast-moving emergencies.

Local **Bush Fire Management Committees** are helping to strengthen engagement by involving community members in the development of local plans. NSW has also committed to reaching **culturally and linguistically diverse communities**, ensuring fire safety messages are accessible to all.

One of the most promising developments is the creation of a **Bushfire Risk Research Hub**. This centre will focus on improving fire behaviour modelling under extreme conditions, refining public warning systems, and supporting more effective community education strategies. The aim is to foster a culture of preparedness — where residents understand their risk, have practised survival plans, and take proactive steps to manage fuel and protect their properties.

Equipment, Resourcing and Personnel

The NSW Rural Fire Service (RFS) is the largest volunteer firefighting organisation in the world. But during Black Summer, it was stretched to its absolute limits. Fire crews and

equipment were deployed for months at a time, raising serious concerns about sustainability and fatigue.

To address these challenges, NSW has increased investment in both equipment and personnel. The 2020 Bushfire Inquiry recommended advanced training and specialist teams capable of responding to large-scale emergencies. Since then, NSW has expanded its training programs for:

- **Advanced incident management**
- **Remote area firefighting**
- **Night-time firefighting operations**

New rapid-response teams have been formed to respond quickly to ignitions on high-risk days, preventing small fires from escalating into catastrophic events.

On the equipment front, the RFS is rolling out new, modern firefighting vehicles with enhanced crew protection features. These vehicles improve safety for frontline responders working in volatile environments. Mobile communication units and satellite systems are also being deployed to boost radio coverage in remote or heavily forested areas — helping to avoid the communication breakdowns seen in previous disasters.

Mental health support has also become a priority. Many volunteers suffered trauma and exhaustion during the prolonged 2019–2020 season. In response, the RFS has:

- **Expanded peer support and counselling services**
- **Introduced mandatory crew rotation protocols for long-duration fires**
- **Established compensation payments for self-employed volunteers** who lose income during deployments

These measures aim to ensure that volunteers are supported not just with gear and training, but with the physical and emotional resources needed to remain resilient under pressure.

Technological Innovation

The 2020 inquiry urged NSW to embrace emerging technology to improve fire detection, suppression, and public safety. The state has responded by significantly investing in innovation — both operational and public-facing.

A **Bushfire Technology Hub** has been created in partnership with universities and research institutions. This hub trials and implements cutting-edge tools including:

- **Drones** for real-time aerial mapping and ignition of controlled burns in remote areas
- **Surveillance drones** to investigate smoke reports and monitor fire movement during high-risk days
- **Satellite detection systems**, integrated with RFS incident platforms, to provide near-instant alerts about new fire starts

One of the most important developments is the use of **AI-driven predictive fire modelling**. These models can analyse weather conditions, fuel loads, and terrain to forecast where a fire is likely to spread — giving incident controllers critical lead time to allocate resources and issue timely community warnings.

For example, AI was successfully used to forecast fire movement toward the town of Stanthorpe. The model enabled targeted warnings and strategic suppression, helping to protect lives and property.

Public-facing technology is also being improved. The **Fires Near Me NSW** app is being upgraded with:

- **Live evacuation routes and road closures**
- **Shelter and Safer Place locations**
- **Up-to-date power outage and hazard zone information**

The goal is to offer residents a **single integrated platform** — allowing them to access everything they need in one place, in real time. This directly addresses public feedback that fire information during Black Summer was fragmented and, at times, confusing.

By embracing innovation from frontline operations to community communication, NSW aims to stay ahead of a fire threat that is growing in both intensity and unpredictability.

Governance and Inter-Agency Coordination

The Black Summer fires tested NSW's emergency management systems like never before. While the state's strong volunteer ethos was evident, the crisis also revealed gaps in coordination between agencies and levels of government.

Both the state inquiry and the federal Royal Commission emphasised the need for clearer leadership and more structured collaboration across emergency services. In response, NSW introduced several reforms:

- **Creation of the State Bushfire Recovery Agency** to oversee post-fire recovery and monitor implementation of inquiry recommendations.
- **Embedded liaison officers** from key agencies — including Police, Ambulance, National Parks, and utilities — into incident control centres during major fire events to streamline coordination.
- **Updated incident management protocols**, ensuring that all services operate within a unified chain of command.

A key focus has also been improving coordination with the **Australian Defence Force (ADF)**. NSW has adopted the Royal Commission's recommendation to **pre-plan potential ADF roles**, so that military assistance can be deployed quickly during large-scale emergencies without waiting for formal state requests.

Cross-border collaboration has likewise been strengthened. New protocols between NSW and Victoria allow for the **rapid sharing of aerial resources and strike teams** during border fires — avoiding the bureaucratic delays experienced during the 2019–2020 season.

Within the RFS, governance reforms now emphasise continuous improvement. A **formal "lessons learned" program** has been introduced to track the implementation of inquiry findings and operational learnings. Oversight is maintained through dedicated bushfire recovery and emergency services ministers.

NSW has also established a **Bushfire Management Council** to guide long-term strategy — including the integration of **cultural burning practices** and the adaptation of **land-use planning** for fire-prone regions. The aim is to create a unified, "whole-of-government" approach that removes silos between agencies and engages all levels — from local councils to the Commonwealth — in bushfire mitigation and response.

Key Recommendations for New South Wales

1. Expand and Enforce Fuel Management

- Increase hazard reduction burns and mechanical clearing in high-risk areas.
- Use new powers to ensure private landowners maintain defensible space.
- Prioritise mitigation near towns, critical infrastructure, and evacuation routes through risk-based Bushfire Management Area Plans.

2. Enhance Early Warning and Evacuation Protocols

- Issue proactive evacuation orders for communities with limited escape routes on catastrophic fire days.
- Maintain a single authoritative public information platform for bushfire updates.
- Ensure emergency warnings are clear, timely, and multilingual.
- Conduct annual community education campaigns and preparedness drills.

3. Boost Firefighting Capacity

- Continue investment in aerial firefighting assets and modern firefighting vehicles.
- Recruit and train new RFS volunteers, especially in advanced and remote firefighting tactics.
- Provide volunteers with improved safety gear, mental health resources, and financial support where needed.

4. Leverage Technology and Research

- Support the Bushfire Technology Hub in developing predictive models, fire suppression strategies, and climate adaptation tools.

- Deploy drones, satellite detection, and AI tools for faster response and real-time intelligence.
- Upgrade communication systems for seamless interoperability across all emergency services.

5. Strengthen Multi-Agency Coordination and Governance

- Embed liaison officers from all major services into incident control centres.
- Conduct multi-agency training exercises before each fire season.
- Monitor inquiry implementation through formal oversight mechanisms.
- Engage communities, Traditional Owners, and local governments in shaping bushfire risk strategies.

By following through on these commitments, New South Wales aims to transform the hard lessons of Black Summer into lasting reforms — building a more resilient, better-coordinated bushfire management system that protects lives, property, and the environment.

Victoria: Refining Integrated Fire Management

Learning from the Past, Preparing for the Future

Few places in Australia understand the trauma of bushfires like Victoria. The 2009 Black Saturday fires claimed 173 lives — a national tragedy that triggered a wide-ranging Royal Commission. Then came Black Summer in 2019–2020, when fire once again tore through the state's forests, alpine regions, and rural communities.

These experiences have shaped Victoria's approach to bushfire risk. The state has developed a complex, integrated model of fire management — blending community engagement, modern science, Indigenous practices, and hard-earned lessons from past disasters. But while Victoria has made significant progress, the challenge remains: how to keep people safe as fire seasons grow longer, more intense, and less predictable.

Fuel Management and Land Use: A Smarter Strategy

After Black Saturday, Victoria adopted a bold approach — aiming to burn 5% of public land each year to reduce fuel. That target has since evolved into a more flexible, **risk-based model**, focused on reducing the likelihood of loss rather than hitting fixed burn numbers.

Under this system, fuel reduction isn't about how much land is treated, but where. Planned burns, mechanical thinning, and targeted grazing are now concentrated around:

- Townships and critical infrastructure
- High-risk forest corridors
- Important ecological areas where fire risk and biodiversity must be balanced

Victoria's **seven Bushfire Risk Landscapes** each develop their own local strategies, identifying priority zones for action. New fire simulation tools and satellite data help authorities decide where burns will have the greatest effect — not just ecologically, but in terms of protecting lives and property.

Land use is another crucial tool. Since 2009, strict planning laws have been introduced for new developments in bushfire-prone areas. Homes must meet **Bushfire Attack Level (BAL)** construction standards, and vegetation management rules are enforced more rigorously. At the local level, the state continues to expand and maintain **Neighbourhood Safer Places** — designated areas for last-resort shelter when evacuation isn't possible.

But perhaps one of the most important and quietly transformative steps Victoria has taken is the growing partnership with **Traditional Owners**. Indigenous-led cultural burning — using cool, controlled fires at the right times of year — is being reintroduced across public lands. These low-intensity burns not only reduce dangerous fuel loads but help heal Country and restore ecosystems. In regions like East Gippsland, cultural fire projects are now central to the prevention strategy.

Community Preparedness and Early Warnings

No one in Victoria forgets what happened on Black Saturday. The speed and scale of those fires shocked the world — and left many communities tragically underprepared.

Since then, the state has rebuilt its public warning systems from the ground up. During Black Summer in 2019–2020, mass evacuations were successfully carried out in places like East Gippsland and the Alpine regions — clear evidence that the new systems were working. But the season also revealed areas for improvement.

A key issue was **information overload**. Too many alerts were issued, too quickly, from multiple sources. Some communities were confused about which warnings to trust. As a result, Victoria has doubled down on simplifying its messaging. The **VicEmergency** app and website now serve as the single source of truth — all warnings go through one platform, using **nationally standardised templates** to make them easy to understand and act on.

Location-targeted alerts are also being refined, so people only receive the warnings most relevant to their area. And clearer guidance is being issued about when to leave and where to go — especially for communities with only one road in and out.

On the ground, the message of **shared responsibility** is at the heart of Victoria's community programs. Through annual **Fire Ready Victoria** meetings and local CFA brigades, residents are encouraged to:

- Create a Bushfire Survival Plan
- Prepare their homes and properties early
- Understand their personal risk — and act before danger strikes

Vulnerable groups — including older people, people with disabilities, and those in remote areas — are a focus too. Councils and local emergency planners are updating **Community Emergency Plans** to ensure that evacuation transport and support are available when needed.

Grassroots programs like **Neighbourhood Fireguard** have also proven their worth. These small community groups bring neighbours together to plan, prepare, and support one another during emergencies. Victoria is now working to revive and expand these initiatives — recognising that community resilience starts long before the smoke appears on the horizon.

Firefighting Resources, Personnel and Training

Victoria's firefighting model is unique — and complex. Three different agencies share responsibility:

- **Country Fire Authority (CFA):** A volunteer-based service covering rural and regional communities
- **Forest Fire Management Victoria (FFMVic):** A professional public land fire agency operating under the Department of Energy, Environment and Climate Action
- **Fire Rescue Victoria (FRV):** A career-based service handling metropolitan and urban areas

In July 2020, the CFA and Metropolitan Fire Brigade were restructured to create Fire Rescue Victoria. This reform aimed to reduce duplication, clarify roles, and improve surge capacity by streamlining the career firefighter system. The CFA remained a fully volunteer organisation.

While this change brought some controversy — particularly around community identity and legacy — it also helped Victoria respond more efficiently to the demands of longer, more intense fire seasons.

Interoperability remains key. During major fires, **Integrated Incident Management Teams** draw on personnel from all three services. The **Inspector-General for Emergency Management (IGEM)** has consistently stressed the importance of seamless teamwork across agencies — and Victoria continues to refine joint training, communication protocols, and leadership systems to make that happen.

In terms of equipment, Victoria has steadily modernised its fleet. The state co-funds a standing fleet of **Large Air Tankers (LATs)**, water-scooping aircraft, and night-capable helicopters. These aircraft were essential during the 2019–2020 season, especially in remote terrain.

Victoria has also pioneered **night-time aerial firefighting**, running successful trials in 2021 and 2022. With longer fire days and hotter nights, the ability to drop water after dark is fast becoming an essential tool in stopping bushfires from gaining momentum overnight.

On the ground, firefighter safety and communication have been a major focus. Victoria is rolling out a new **digital radio network** for all emergency services — improving clarity, range, and coverage, even in deep valleys or remote mountain areas.

A new mapping platform — **EM-COP** (Emergency Management Common Operating Picture) — gives crews a shared, real-time view of the fireground. Aircraft imagery, ground reports, weather data, and suppression progress are all integrated into one system so decisions can be made quickly and with better situational awareness.

Volunteer retention is also a high priority. CFA is actively recruiting younger members and making training more flexible to suit modern lifestyles. The recently opened **Bushfire Centre of Excellence** offers immersive, scenario-based training and shares insights from past fires — turning hard-won experience into practical readiness.

Technology and Innovation

Victoria has always leaned heavily on science in its fire management — and in recent years, that focus has only sharpened.

One of the state's standout tools is **Phoenix RapidFire**, a bushfire simulation system that forecasts how a fire will behave based on wind, terrain, vegetation, and fuel loads. These models were critical during Black Summer, helping incident controllers plan large-scale suppression efforts and anticipate fire movements before they happened.

The challenge now is predicting **extreme fire behaviour** — like pyrocumulonimbus storms, where fires generate their own lightning, wind, and weather systems. These events occurred multiple times in 2019–2020. Understanding and forecasting such conditions has become a new research frontier, led by Victorian-based fire scientists and meteorologists.

Victoria is also investing in **early detection systems**. Satellite alerts and infrared-equipped drones are being used to spot ignitions in remote forests — sometimes within minutes of a lightning strike. This was put to the test in the 2022–23 season, when a drone stationed in a high-risk area detected a smouldering tree strike and allowed firefighters to contain it before it spread.

Another area of innovation is **precision burning**. Using drones guided by GPS mapping, land managers can ignite planned burns in difficult or steep terrain, creating fine-scale firebreaks while minimising ecological damage. This technique is being trialled by Parks Victoria and DELWP and has already shown success in reducing risk around high-value assets and ecosystems.

Victoria is also embracing **data analytics** to guide decision-making. A new **Bushfire Data Repository** is being developed to track fire impacts, suppression actions, property losses, and recovery costs. Analysing this data helps authorities understand what works — for example, whether certain fuel treatments or building codes are truly making a difference — and directs funding to the most effective strategies.

In short, Victoria's strategy isn't just to fight fires harder — it's to **fight them smarter**, using every tool modern science, local knowledge, and innovation can offer.

Governance, Coordination and Lessons from Inquiries

Victoria's emergency management sector has undergone more reform in the last 15 years than at any other time in its history. The creation of **Emergency Management Victoria (EMV)** brought multiple agencies under one strategic umbrella, aiming for a unified, all-hazards approach to disaster planning and response.

In the wake of the Black Summer fires, the **Inspector-General for Emergency Management (IGEM)** conducted another independent inquiry. The 2020 report made 17 key recommendations — all of which were accepted by the Victorian Government.

One of the central themes was **clarifying roles** following the CFA-FRV restructure. The state has since worked to ensure that CFA volunteers and FRV career firefighters operate seamlessly together at incidents. In practice, this means **integrated incident teams**, shared training exercises, and clear chains of command — with an emphasis on collaboration, not competition.

Cross-border cooperation was another area of focus. Fires in 2019–20 crossed the border between Victoria and New South Wales, highlighting the need for more consistent systems. New joint agreements now govern the **sharing of aircraft, crews, and incident control** between the states, especially in border regions like the Snowy Mountains.

Victoria also places strong emphasis on **community-led planning**. Local governments are responsible for developing **Municipal Fire Management Plans**, which feed into regional and state strategies. This "bottom-up and top-down" approach ensures that local knowledge and priorities are reflected in broader bushfire mitigation policies.

The state has also embraced a culture of **continuous improvement**. IGEM is tasked with monitoring how inquiry recommendations are implemented — not just from the most recent

report, but from previous ones too. Every recommendation is tracked through a public-facing implementation plan, with updates and completion reports to keep both government and community accountable.

By staying committed to learning, adapting, and involving local communities in fire planning, Victoria is turning hard lessons into lasting improvements — and setting a standard other states can follow.

Key Recommendations for Victoria

1. Smarter Fuel Management with Risk-Based Analysis

- Continue to refine the state's risk-based fuel reduction program using the latest fire modelling and local insights.
- Prioritise burns in zones that protect lives and infrastructure, not just meeting area targets.
- Empower Traditional Owners to lead and expand cultural burning practices, blending Indigenous knowledge with modern risk planning.

2. Strengthen Community-Centred Preparedness

- Keep improving the VicEmergency platform to ensure alerts are timely, location-specific, and easy to understand.
- Expand and support local programs like Fireguard groups and emergency planning committees.
- Make sure vulnerable populations — the elderly, disabled, and isolated — are considered in evacuation and safety plans.
- Increase access to shelters and bushfire bunkers in high-risk areas.

3. Invest in Firefighting Capability and Volunteer Support

- Maintain a modern, well-equipped aircraft fleet available for longer fire seasons.
- Equip CFA volunteers with up-to-date appliances, personal protection, and mental health support.
- Continue recruiting younger, diverse volunteers with flexible training options to keep numbers strong.
- Foster strong interoperability through joint training and common operating procedures across all fire agencies.

4. Leverage Data, Science and Innovation

- Keep advancing predictive fire modelling, satellite detection, and real-time intel tools.
- Use drone technology for early detection, precision burning, and surveillance.
- Build a comprehensive bushfire impact database to assess what mitigation strategies offer the best return — and use that data to guide future funding.

5. Embed Accountability and Shared Governance

- Maintain transparent, public reporting on all inquiry recommendations and progress.
- Run annual cross-border fire exercises with NSW, SA, and the ACT to improve coordination.
- Ensure local governments, communities, and Traditional Owner groups are directly involved in shaping fire policy and response plans.

Victoria's approach to fire management is defined by one word: **integration**. Whether it's blending agencies, science, tradition, or community input — the goal is to build a system that learns, adapts, and responds as one.

Queensland: Adapting to an Emerging Bushfire Threat in the Tropics

Queensland isn't traditionally known as a bushfire hotspot — at least not in the same way as Victoria or New South Wales. But in the last decade, that's changed.

In 2018, searing heatwaves triggered wildfires through parts of Central and North Queensland where fire had rarely been seen before. In 2019, flames again hit areas like the Gold Coast hinterland and the Southern Downs. For many Queenslanders, it was the first time they'd faced bushfires on their doorstep.

These events forced a rapid shift in how Queensland approaches bushfire risk. With its vast and varied landscapes — from lush rainforests to dry savannas and sprawling farmland — Queensland's fire management needs are diverse and evolving. What's clear is that fire is no longer a rare visitor in the north; it's becoming part of the new normal.

Prevention and Hazard Reduction: Adapting to a Changing Landscape

Queensland's geography means its bushfire strategy must be flexible. Different areas require different approaches — from controlled burns in pine plantations to firebreaks around farming land, to early dry-season burning in tropical savannas.

One key lesson came from the 2018 fires in **Stanthorpe**, where hazard reduction burns done earlier in the year helped stop a fast-moving fire at the town's edge. It proved that targeted, well-timed burns could be the difference between containment and disaster.

Since then, Queensland has significantly scaled up its hazard reduction efforts. In 2019 alone, more than **one million hectares** were treated through prescribed burning. In national parks —

once seen as fire-free zones — more than **3.9 million hectares** have been burned since 2015 in planned operations managed by the **Queensland Parks and Wildlife Service**.

Another emerging issue is **invasive grasses**, particularly **gamba grass** in the north. This fast-growing species creates dangerously high fuel loads and burns with extreme intensity. Queensland has now classified gamba as a high-risk invasive weed. Landowners are required to control it, and the state is funding research into eradication and biocontrol solutions — a crucial step in stopping the spread before it fuels the next major fire.

Land-use planning has also evolved. After fires reached suburban areas like **Rockhampton** in 2018, Queensland updated its **State Planning Policy**. Councils are now required to map bushfire hazard zones and impose vegetation clearance requirements around new developments in fire-prone regions.

The message is clear: proactive, localised mitigation isn't optional anymore — it's essential.

Community Preparedness and Early Warning Systems

Traditionally, Queensland has placed more focus on **cyclone readiness** than bushfire preparedness. But as fires have crept into new areas, that's had to change.

The Queensland Fire and Emergency Services (QFES) has rolled out community education campaigns under the banner of **"Prepare. Act. Survive."**, adapted specifically for bushfire conditions. In places like the Sunshine Coast and hinterland towns — where fires hadn't threatened for decades — QFES ramped up its efforts, holding forums, distributing bushfire survival plans, and working directly with councils to tailor the message for local needs.

One strength that emerged during the 2019 fire season was Queensland's ability to **integrate its volunteer network**. The **State Emergency Service (SES)** worked alongside fire crews, refuelling aircraft and supporting logistics — allowing firefighters to stay on the frontlines. This "Team Queensland" approach helped boost operational capacity and community confidence alike.

Queensland's **Emergency Alert** system has also been improved, with pre-scripted warning messages ready for fast-moving grassfires and high-risk scenarios. Given how quickly some fires can erupt — with little warning — this rapid alerting system is essential.

Police and QFES now work closely on **evacuation protocols**, ensuring that people in areas with poor access are given "leave early" guidance on severe fire days. This approach proved its worth during the **Peregian Beach fire** in 2019, where hundreds were evacuated quickly and safely, with no loss of life.

Queensland's preparedness strategy is also deeply tied to **community culture**. In rural areas where people are more inclined to stay and defend, QFES stresses that **preparation is what**

makes defending possible. Volunteers often deliver the message, as trusted local voices who understand the terrain and community mindset.

Finally, Queensland is building **Community Fire Committees** — neighbourhood groups that work together to plan for the fire season. These groups draw on local knowledge and mirror successful models used in southern states, helping Queenslanders adapt to a fire risk that's no longer limited to the outback.

Firefighting Resources and Personnel

Queensland's firefighting force is a unique blend — made up of both professional firefighters and a large network of volunteers. The **Queensland Fire and Emergency Services (QFES)** oversees about **1,400 Rural Fire Brigades**, supported by thousands of volunteers spread across the state's vast and varied terrain.

The 2018 and 2019 fire seasons tested that system. Reviews found that while Queensland performed well overall, several areas could be improved to meet the demands of a changing fire climate.

One priority was improving **fireground communication**. In complex emergencies, reliable information flow between police, fire crews, and parks services is critical. Queensland responded by upgrading its radio systems and embedding liaison officers into the **State Operations Centre** — so that all agencies can communicate in real time, with fewer delays and fewer misunderstandings.

Queensland also boosted its **aerial firefighting fleet**. Previously, the state relied heavily on interstate resources like those from New South Wales. But with overlapping fire seasons becoming more common, Queensland has moved to secure its own aircraft, including large water bombers stationed during peak periods.

Remote-area firefighting has also become more sophisticated. QFES now deploys **specialist kits and teams** to hike into rugged or inaccessible terrain — a response to fires in places like national parks or mountainous regions where traditional trucks can't go.

Volunteer support is another ongoing focus. Many of Queensland's rural brigades have received **new bushfire trucks** with enhanced safety features, as well as updated personal protective equipment. The state has launched a **Volunteerism Strategy** to attract younger members and increase diversity — essential to keeping the force strong in the years ahead.

In the north, **Indigenous ranger groups** are playing a growing role. These teams combine traditional land knowledge with modern firefighting skills, protecting Country while also providing a culturally grounded approach to managing fire. Continued investment in these groups strengthens both firefighting capacity and Indigenous leadership in land care.

Importantly, Queensland continues to honour its **mutual aid agreements**, sending crews south when needed and accepting reinforcements when the north is under threat. That spirit of cooperation is part of what makes Australia's bushfire response network so resilient.

Technological Innovations

Queensland is embracing technology as a key part of its bushfire strategy — not just to fight fires, but to **prevent them** and **better understand risk** across its diverse landscapes.

One standout tool is the **Savannah Burning Abatement Tool**, used in northern regions. This program helps predict how **early dry-season burns** will reduce the risk and intensity of late-season fires. It also supports **carbon farming** initiatives by calculating the emissions avoided through controlled burning — providing both safety and environmental benefits.

QFES is using new **fire mapping dashboards** that integrate real-time satellite data, weather forecasts, and ground observations. These tools give incident managers a clearer picture of where fires are, how they're moving, and what resources are needed.

In 2018, during a severe heatwave, Queensland even trialled a **supercomputer-powered fire simulation**, predicting fire behaviour in extreme conditions. Those capabilities are now being refined for broader operational use — allowing crews to think ahead, not just react.

Drones are increasingly part of the firefighting toolkit too. A dedicated QFES drone unit now assists with:

- **Assessing fire fronts**
- **Spotting flare-ups at night using thermal cameras**
- **Surveying terrain after fires to identify hot spots or dangerous regrowth**

In 2019, drone teams helped locate and extinguish spot fires during the **Scenic Rim fires**, working safely in areas that were too hazardous for ground crews.

Queensland is also investing in **dispatch and data systems** to make emergency response faster. A new **Computer-Aided Dispatch platform** integrates triple-zero calls with mapping tools, recommending the nearest available brigade, water sources, and equipment. This reduces response times and improves coordination, especially in rural areas.

Modelling is evolving too. Fires in tropical rainforests and plantation zones behave differently from bushfires in the south. Queensland is working with researchers to develop **custom fire models** for its local fuel types — including those in areas like **Eungella**, where fire moved into rainforest unexpectedly in 2018.

Altogether, these innovations — from AI to drones to predictive analytics — are helping Queensland stay ahead of the fire threat. In a state where the landscape is constantly shifting, **the smart use of technology may be the most valuable firefighting tool of all**.

Governance and Inter-Agency Coordination

Queensland's emergency management framework is built on a strong foundation of **local leadership and layered coordination**. From local Disaster Management Groups (DMGs) to district and state-level command centres, the system was tested heavily during the 2018 and 2019 fire seasons — and generally stood up well.

Reviews conducted by the **Inspector-General Emergency Management (IGEM)** found that while Queensland didn't need a total structural overhaul, there was room to **fine-tune coordination and accelerate learning** between seasons.

One of Queensland's biggest strengths has been its ability to **move quickly on lessons learned**. The IGEM 2019 review was launched just three months after the 2018 report — showing a genuine commitment to reflection and improvement.

Coordination between **QFES, Queensland Parks and Wildlife Service (QPWS), and plantation companies** has also improved. Queensland formed the **Bushfire Prevention Stakeholder Alliance** to bring everyone to the table — including rural landowners, local governments, Indigenous ranger groups, and the private sector. These groups meet before each fire season to share plans, coordinate burns, and flag areas of concern.

A standout program is **Operation Cool Burn** — a statewide, pre-season collaboration focused on hazard reduction. IGEM praised the program's effectiveness and encouraged more structured performance tracking. Today, Cool Burn includes mapping, pre- and post-burn assessments, and feedback loops to help agencies improve each year.

Queensland also values **cross-border cooperation**, particularly with **New South Wales**. During the 2019 fires, crews crossed state lines quickly and effectively, thanks to clear protocols and mutual trust. Joint training exercises are now being run in border regions like the **Gold Coast–Tweed** and **Southern Downs–Northern NSW**, ensuring smooth coordination when fires don't stop at state borders.

At the national level, Queensland has fully embraced shared systems such as the **new Australian Fire Danger Rating System** introduced in 2022 — ensuring consistent messaging and colour-coding across states. The state also contributes to the **National Aerial Firefighting Centre (NAFC)**, ensuring access to aircraft during peak fire periods.

Importantly, Queensland keeps a strong emphasis on **local decision-making**. In most regions, the local mayor chairs the Disaster Management Group, helping ensure quick, community-driven responses. During the 2018 fires, this local leadership was critical in making early evacuation decisions and managing shelters effectively.

It's a model that blends local knowledge with state support — a balance that worked during the last major crisis and one Queensland is committed to strengthening.

Key Recommendations for Queensland

1. Expand Targeted Fuel Mitigation

- Continue increasing the area treated with prescribed burns, especially near communities and critical assets.
- Tailor mitigation methods to landscape types — from dry savannas to tropical forests.
- Control invasive, high-risk grasses like **gamba grass** through strict enforcement, local education, and eradication programs.

2. Boost Community Engagement and Early Warnings

- Strengthen bushfire education in newly affected communities, especially those unfamiliar with fire risk.
- Ensure emergency messages are fast, clear, and instructive — including evacuation triggers and safe locations.
- Support neighbourhood-level preparedness through **Community Fire Committees** and local SES/RFS outreach.
- Include diverse and at-risk populations in public information efforts.

3. Strengthen Firefighting Resources and Personnel Support

- Maintain investment in updated fire appliances, PPE, and safety systems for volunteers.
- Grow Queensland's aerial firefighting fleet to reduce dependence on last-minute leases.
- Expand night firefighting and remote access capability through technology and training.
- Continue developing and supporting Indigenous ranger crews for regional fire management.

4. Embrace Smart Technology and Innovation

- Expand drone use for fire surveillance, detection, and prescribed burning.
- Invest in tailored fire behaviour models for Queensland's unique landscapes.
- Use real-time dashboards and satellite data to improve fireground intelligence.
- Support projects that link fire mitigation to carbon reduction and environmental benefits.

5. Enhance Coordination and Shared Responsibility

- Keep forums like the **Bushfire Prevention Stakeholder Alliance** active and outcome-focused.
- Strengthen **Operation Cool Burn** with measurable targets and accountability.
- Run regular multi-agency simulations to prepare for worst-case scenarios.
- Promote the "Team Queensland" model — ensuring every level, from local councils to federal support, is connected and ready.

Queensland's bushfire risk is no longer theoretical — it's real, it's growing, and it's spreading. But the state's ability to learn, adapt, and act has already saved lives and homes. By continuing to invest in people, technology, and smart planning, Queensland is building a more resilient future, even in the face of a hotter, drier climate.

South Australia: Overhauling Bushfire Management After Devastation in 2019–20

South Australia has always been vulnerable to bushfires. Its dry summers, strong winds, and rugged terrain create ideal conditions for fast-moving blazes. But in the 2019–2020 fire season, things went from bad to devastating.

Fires tore through the **Adelaide Hills** and **Kangaroo Island**, destroying over **1,000 buildings** and claiming **lives, homes, and wildlife** in one of the worst fire disasters in the state's history. For many, it was a wake-up call. Kangaroo Island, long considered a natural fortress due to its isolation, saw over half its landmass scorched.

In the aftermath, South Australia recognised that business as usual wasn't going to cut it anymore. A state-level review followed, focused on **prevention, communication, leadership, and community trust** — and it set the tone for a stronger, more proactive fire strategy.

Prevention: Hazard Reduction and Land Management

Prior to 2019, many areas of Kangaroo Island hadn't been burned for over a decade. High fuel loads — combined with limited access for firefighting vehicles and extreme weather — created the perfect storm. Once the fires began, they quickly became uncontrollable.

The state government's review pointed to a **lack of regular hazard reduction**, especially on public lands. Since then, there's been a renewed push for **planned burning** in parks, forests, and around townships — prioritised through **risk-based mapping**, similar to what's used in Victoria and NSW.

Importantly, South Australia has expanded its **collaborative burning model**. This includes local councils, the **Country Fire Service (CFS)**, national parks, and private landowners. Each plays a role in reducing fuel loads — and they're now required to work together through **Bushfire Management Committees**, which oversee planning and implementation.

There’s also a stronger focus on **landscape-scale fire management**. Rather than treating isolated patches of land, the strategy now emphasises large, connected fuel breaks that protect entire regions and allow for better tactical firefighting when a blaze starts.

Another positive shift has been the **inclusion of Traditional Owners** in fire planning. The revival of cultural burning practices — particularly on conservation lands — is seen as a way to not only reduce fire risk but also restore the land's natural rhythms.

Community Preparedness, Education, and Warnings

During the 2019–20 fires, one of the most painful findings was that many residents didn’t receive timely warnings — and some who did, didn’t understand them. Conflicting messages, lack of clarity, and gaps in community education were all cited in the post-fire review.

South Australia has since joined the **Australian Warning System**, introducing **clearer, colour-coded alerts** that follow the same language used nationwide. This consistency is already helping reduce confusion, especially for travellers and interstate residents.

The **CFS website and Alert SA app** have also been improved. They now offer:

- Real-time fire maps
- Warning zones
- Evacuation advice
- Shelter locations

In high-risk areas like the Adelaide Hills and KI, community meetings and **bushfire survival workshops** have been ramped up. The CFS now works with schools, local businesses, and vulnerable communities to ensure people know:

- Whether their property is defendable
- When to leave — and **where to go**
- What to pack in a fire emergency kit
- How to protect pets and livestock

Fire safety messaging has been made more **inclusive**, with information translated into multiple languages and delivered through local community leaders. For regions with older populations, printed materials and door-to-door visits remain a key tool.

In some parts of Kangaroo Island, entire communities are now working together to create **shared fire plans**. These include group shelter strategies, property clearing rotations, and coordinated evacuations — taking the idea of “shared responsibility” from theory to practice.

Perhaps most critically, South Australia has embraced a shift in tone. Instead of only asking people to “be prepared,” the message now includes **clear expectations**: have a plan, know your risks, and act early. Lives depend on it.

Resourcing, Equipment and Personnel

South Australia's firefighting system is built largely on the dedication of volunteers. The **Country Fire Service (CFS)** has over **13,500 volunteers** across the state — and during the 2019–20 fires, they went above and beyond under extremely difficult conditions.

But those fires also revealed serious **resourcing shortfalls**.

Many frontline crews were stretched too thin for too long. In some regions, fatigue became a serious safety issue. There were also reports of **insufficient access to tankers**, communication gear, and protective equipment. While local crews did everything they could, it was clear that the system needed more support — and fast.

In response, the South Australian Government began investing in:

- **New firefighting vehicles** with improved safety features and four-wheel-drive capacity for rugged terrain
- **Modern personal protective clothing** to improve comfort and heat resistance
- **Upgraded radio and communication systems** to reduce black spots and streamline coordination

The **Metropolitan Fire Service (MFS)** and **SA State Emergency Service (SES)** also stepped up, supporting bushfire efforts in regional areas. These joint deployments are becoming more common, especially as longer, hotter fire seasons stretch resources.

South Australia has also joined the **National Aerial Firefighting Centre (NAFC)**, giving the state access to large water bombers, helicopters, and specialist aircraft. In the wake of the Kangaroo Island fires, having immediate access to **night-capable aerial support** has become a major priority — and recent fire seasons have shown the value of this investment.

A volunteer support package was also introduced, focusing on:

- **Mental health services**
- **Family assistance programs**
- **Financial protections for self-employed volunteers** who lose income while deployed

The message from both government and the CFS leadership is clear: volunteers are the backbone of the service, and they need the tools, training, and support to keep doing their critical work safely.

Technological and Innovative Measures

After the devastating 2019–20 fires, South Australia began taking a more forward-looking approach to fire detection, response, and recovery — with **technology now playing a central role**.

One of the key innovations has been the rollout of **automated fire detection cameras**, particularly across the Adelaide Hills and Mount Lofty Ranges. These systems use infrared and motion detection to monitor remote areas 24/7 and send real-time alerts to fire authorities. Early detection has already helped contain several fires before they grew out of control.

The **Alert SA platform** has also undergone a major upgrade. The app now features:

- Dynamic fire maps
- Evacuation alerts based on user location
- Direct integration with the Australian Warning System
- Customisable watch zones and push notifications

During a fast-moving fire, having all this in one place is a major advantage — especially in areas where mobile reception can be patchy.

Drones are increasingly used by the CFS to **assess firegrounds**, particularly after a blaze has passed. These drones:

- Map damage
- Detect lingering hot spots
- Help crews plan safe access routes in burned areas

South Australia is also partnering with research institutions on **fire behaviour modelling**, especially for Kangaroo Island and other ecologically sensitive areas. The aim is to build a deeper understanding of how fire moves through different vegetation types and to identify the most effective mitigation zones.

Finally, technology is being used in recovery too. Aerial imagery and satellite analysis help map **impacted farms, biodiversity losses, and infrastructure damage** — streamlining insurance claims, grant applications, and government relief programs.

This integrated, data-driven approach is helping South Australia move from reactive firefighting to **proactive bushfire risk management**, with smart tools guiding both prevention and response.

Governance, Coordination and Training

In the aftermath of the 2019–2020 fires, South Australia made it clear: governance reforms were not just about structure — they were about **trust**.

The state's official review highlighted not only operational challenges, but also community frustration about **conflicting messages, unclear roles, and inconsistent decision-making**. That experience led to a renewed focus on building a more **cohesive, collaborative emergency management system** — one that includes everyone, from senior officials to local volunteers.

Today, bushfire governance in South Australia is built around a tiered structure:

- **State Bushfire Coordination Committee** — sets strategic direction, chaired by a senior fire official
- **Bushfire Management Committees** — coordinate planning and hazard reduction at a regional level
- **Local councils and CFS brigades** — implement plans, monitor risk, and engage the community

This system supports what South Australia calls a **"shared ownership model"** — where communities are not just informed, but **actively involved** in reducing risk and improving readiness.

One major step has been improving **inter-agency communication**. During the Kangaroo Island fires, confusion over control lines and resource requests slowed the response. Since then, agencies like CFS, SES, National Parks, and Forestry SA have worked to streamline incident command systems, standardise terminology, and train together before the fire season begins.

Training has also evolved. The CFS now runs **joint scenario exercises** with local councils and emergency managers. These drills simulate real-world events, like fires threatening coastal communities or cutting off access roads. The goal is to build muscle memory — so when disaster strikes, there's no time wasted figuring out who's in charge or what the plan is.

Importantly, South Australia is also investing in **leadership development** within the volunteer ranks. Experienced firefighters are being mentored into regional leadership roles, helping to sustain skills and build confidence in decision-making under pressure.

Through these reforms, South Australia is laying the foundation for a more **resilient and better-connected fire service** — one that knows its landscape, listens to its communities, and acts with speed, clarity, and unity.

Key Recommendations for South Australia

1. Prioritise Risk-Based, Landscape-Scale Mitigation

- Expand planned burning programs in high-risk zones, including Kangaroo Island, the Adelaide Hills, and remote conservation areas.
- Encourage collaboration between CFS, councils, National Parks, and private landholders through formal Bushfire Management Committees.
- Include Traditional Owners in fire planning, and support cultural burning programs where appropriate.

2. Improve Public Warning Systems and Community Education

- Maintain and continue refining the **Alert SA platform** as the central source for bushfire information.
- Deliver tailored, multilingual education campaigns that reach both regional and urban communities.
- Promote neighbourhood-level fire planning — including evacuation routes, property preparation, and safe shelter options.
- Ensure vulnerable populations, such as the elderly or those in isolated locations, are supported during high-risk days.

3. Strengthen Firefighting Capacity and Volunteer Support

- Invest in modern firefighting vehicles and updated protective equipment.
- Expand aerial firefighting resources with rapid deployment capability.
- Provide mental health, financial, and family support services to volunteer crews before, during, and after active deployments.
- Build regional leadership capacity within CFS brigades to sustain local knowledge and strengthen confidence in command roles.

4. Leverage Technology and Data for Fire Management and Recovery

- Install more **automated fire detection cameras** and invest in **real-time fire intelligence systems**.
- Use drones and satellite imagery to assist with damage assessments and recovery coordination.
- Support research into fire behaviour in ecologically sensitive regions and use that knowledge to guide fuel management.

5. Maintain Clear, Coordinated Emergency Governance

- Continue improving cross-agency training, communication, and command structures.
- Hold annual scenario exercises at the state, regional, and local levels to test systems and build readiness.
- Ensure community representatives have a voice in fire planning and recovery processes.
- Build a culture of accountability, where inquiry recommendations are tracked, reported on, and transparently acted upon.

South Australia's fire services showed bravery and dedication during the Black Summer fires. But courage alone isn't enough — and the state has recognised that. Through better planning, stronger coordination, and real investment in people and tools, South Australia is now better prepared for the fire seasons ahead.

Western Australia: Building a Modern Rural Fire Service Across Vast Landscapes

Western Australia is no stranger to bushfires. With its vast stretches of forest, farmland, and outback, fire is a constant presence — sometimes sparked by lightning in remote areas, sometimes driven by ferocious summer winds near towns and cities.

But over the past decade, bushfire management in WA has become increasingly complex. The 2016 **Yarloop fire**, which destroyed 181 homes and claimed two lives, became a turning point. The tragedy exposed serious issues in how fire services were structured, funded, and coordinated — particularly in rural areas.

In the years since, Western Australia has been reshaping its approach. The focus has been on building a **more modern, better coordinated rural fire service** — while still relying on the strong community spirit that underpins the state's 26,000+ volunteer firefighters.

Prevention: Hazard Reduction and Land-Use Planning

WA has long been considered a leader in **prescribed burning**, especially through the work of the **Department of Biodiversity, Conservation and Attractions (DBCA)**. The state consistently treats more public land than most other jurisdictions — averaging **over 200,000 hectares per year**, particularly in the southwest.

These burns are carefully planned to reduce fuel loads in forests and around communities, using windows of suitable weather in autumn and spring. Controlled burning is also conducted in partnership with local Traditional Owners, who are increasingly involved in cultural fire programs on Country.

Still, the state faces challenges. Urban expansion has pushed housing deeper into bushland, particularly around Perth, Mandurah, and coastal towns. As a result, **planning rules have become more stringent**. New developments in bushfire-prone areas must now meet **Bushfire Attack Level (BAL)** building standards, and developers must include fire protection zones and safe road access.

Local councils are also expected to enforce **land clearing and firebreak maintenance** on private properties — although this varies in consistency. Following several reviews, WA is considering further reforms to ensure **landholders meet their fuel management responsibilities**, backed by enforcement if necessary.

Despite strong progress, hazard reduction alone won't prevent every fire. As WA's climate becomes hotter and drier, even well-prepared communities can be overwhelmed — and that's where better coordination becomes essential.

Community Preparedness and Warnings

One of WA's strengths is its deep culture of local volunteering. Many small communities are serviced by volunteer **bushfire brigades** — often the first and only line of defence when fires break out. But for preparedness to work, everyone needs to be on the same page — and that's where communication has been a problem.

A 2020 report by the **WA Auditor General** found that **bushfire risk communication was inconsistent**, with different messages coming from state agencies, local governments, and volunteer brigades. In an emergency, that confusion can cost lives.

To address this, WA has joined the **national Australian Warning System**, ensuring that all fire alerts now use the same **clear icons, colours, and action-based language** across the country. This helps people know exactly what to do when a warning is issued — whether they're at home or travelling interstate.

The **Emergency WA** website is the state's central information hub, showing real-time fire updates, road closures, alerts, and evacuation centres. The site has been upgraded to handle more traffic during emergencies and is also supported by SMS alerts and ABC emergency broadcasts.

On the ground, **local brigades play a big role in community education**. Many host open days, letterbox drops, and school visits — helping locals understand how to prepare their properties, when to evacuate, and what to expect during fire season.

But there's more to do. Some regional areas still lack clear evacuation plans, designated Neighbourhood Safer Places, or well-publicised community shelters. A key recommendation from WA's bushfire reviews has been to **standardise preparedness strategies across all councils**, ensuring that no town is left behind when the heat is on.

WA is also working to better include **culturally and linguistically diverse communities**, particularly in outer-metro and rural areas. Fire safety materials are being translated into key languages, and the Department of Fire and Emergency Services (DFES) is training **multilingual community leaders** to help spread critical safety messages before and during fire events.

Preparedness in WA is no longer just about having a plan — it's about making sure **everyone has the same information, the same tools, and the same chance to stay safe**.

Resourcing, Equipment and Personnel

Western Australia covers more ground than any other state — by far. That scale alone makes bushfire response a logistical challenge. Fires can ignite hundreds of kilometres from the nearest town, and even well-equipped brigades can struggle to reach them in time.

To meet this challenge, WA relies heavily on its **volunteer firefighting network**, supported by **career firefighters** in key population centres and through the **Department of Fire and Emergency Services (DFES)**. Volunteers are responsible for more than 90% of bushfire responses — particularly in regional and remote areas.

But the system hasn't been without issues. After the 2016 Yarloop disaster, the **Ferguson Review** recommended creating a standalone rural fire service — one that would streamline coordination, improve equipment access, and give rural brigades a stronger voice. In 2018, the WA Government responded by creating the **Rural Fire Division** within DFES, instead of a separate agency. This division is now responsible for strategic planning, mitigation, training, and support for local bushfire brigades.

While this move was welcomed in some quarters, it remains controversial. Many local governments still hold responsibility for the management of volunteer brigades, which has led to **confusion over roles, liabilities, and operational control**. Some councils have expressed concern about being held accountable for firefighting operations they don't actually direct.

To address this, WA is reviewing its **Emergency Services Act**, aiming to clarify responsibilities and improve coordination between DFES, local governments, and volunteers.

On the ground, however, progress has been made. WA has:

- **Upgraded volunteer brigade trucks** with modern safety features
- **Expanded training programs** for volunteers in remote and Indigenous communities
- **Built new fire stations** and upgraded facilities in high-risk areas
- **Invested in surge capacity**, so more appliances can be dispatched quickly to growing fires

WA also contributes to the **national aerial firefighting fleet**, but given its size, the state maintains its own **light fixed-wing aircraft** and helicopters for rapid response. Aircraft are pre-positioned in high-risk areas before severe fire weather days — particularly around the **southwest**, where catastrophic fire risk is most common.

Volunteers remain the state's greatest firefighting asset — and ensuring they have the **gear, training, and support they need** is essential as fires become more dangerous and more frequent.

Technology and Innovation

As the climate shifts and fire seasons lengthen, Western Australia is turning to technology to stay one step ahead.

One of WA's major initiatives is its investment in **automated fire detection systems**. Cameras are now installed on towers across fire-prone regions, using **artificial intelligence** to detect smoke and alert authorities within minutes. This is particularly useful in remote zones where human spotters aren't available and response time is critical.

WA's **Emergency WA platform** has been significantly upgraded as well. It now integrates:

- Real-time fire locations
- Road closures
- Evacuation centres
- Power outages
- Fire danger ratings

This single source of truth is accessible via web and mobile, helping communities make informed decisions during fast-moving incidents.

The **Bushfire Centre of Excellence**, opened in 2021 in **Nambeelup**, is another major investment in future readiness. It serves as a hub for:

- **Training bushfire volunteers and career staff**
- **Sharing knowledge on fire behaviour and mitigation**
- **Promoting best-practice community engagement**
- **Supporting Indigenous-led fire knowledge programs**

The Centre also works with universities and fire researchers to study **changing fire patterns**, particularly in WA's southwest forests and northern savanna landscapes. By combining traditional knowledge with cutting-edge science, WA is creating a more holistic understanding of fire — not just how to fight it, but how to live with it.

Drone technology is also on the rise. DFES uses drones for:

- Aerial mapping
- Hotspot detection
- Monitoring fire perimeters in inaccessible areas
- Post-fire assessments for damage and recovery planning

In early trials, drones helped monitor fire progression near the **Perth Hills**, enabling safer, more efficient deployment of ground crews and water bombers.

And behind the scenes, data is playing a growing role. WA is investing in **predictive modelling** and **fuel load databases** that can help emergency planners identify high-risk zones before fire season even begins. Combined with targeted mitigation and public education, these tools are reshaping how the state prepares for each summer.

In a landscape as vast and unpredictable as Western Australia's, embracing innovation isn't just smart — it's essential.

Governance, Coordination and Recent Reforms

Western Australia's bushfire governance has undergone significant scrutiny and change since the devastating **Yarloop fire in 2016**. That tragedy sparked the **Ferguson Review**, which found that WA's bushfire management was fragmented and that communication between state agencies, local governments, and volunteers was often **unclear or inconsistent**.

Since then, the state has taken steps to modernise how bushfire risk is managed — but not without some growing pains.

One of the most important reforms was the creation of the **Rural Fire Division** within the Department of Fire and Emergency Services (DFES). This division oversees prevention, planning, and volunteer support across the state's massive rural and remote zones. Its focus is to provide **strategic leadership** without interfering in day-to-day brigade operations — although that balance hasn't always been smooth.

The division works closely with:

- **Local governments**, which are still technically responsible for many bushfire brigades
- **Volunteer leaders**, who manage crews and maintain local readiness
- **DBCA**, which handles fire management on public lands and in national parks

To help coordinate these groups, WA has increased **pre-season planning meetings**, created **shared fuel load databases**, and run **multi-agency scenario exercises** before every fire season. These exercises test the ability of different groups to communicate, share equipment, and respond quickly to evolving incidents.

Importantly, the state is also reviewing its **Emergency Services Legislation**. The current system is governed by three overlapping Acts, which has led to confusion over authority during emergencies. A new, unified Act is being developed to clarify:

- Who is responsible for what
- How local governments and state agencies should work together

- What rights and protections exist for volunteers

This reform aims to reduce red tape and improve coordination, especially during large-scale emergencies that stretch across multiple regions or jurisdictions.

There's also a renewed focus on **training and leadership development**. The **Bushfire Centre of Excellence** is helping standardise training and promote consistent operational doctrine across volunteer and professional crews alike.

In the long term, WA's success will depend not just on trucks and helicopters — but on whether it can build a governance system that supports its **people, partnerships, and purpose**, no matter how big the fire or how remote the region.

Key Recommendations for Western Australia

1. Strengthen Rural Fire Governance and Coordination

- Finalise and implement the updated Emergency Services Act to clarify operational responsibilities.
- Define clear roles for DFES, local governments, and volunteer brigades.
- Maintain an independent voice for volunteers within strategic planning and bushfire response reviews.

2. Continue Expanding Risk-Based Hazard Reduction

- Maintain high levels of prescribed burning through DBCA, especially in the southwest and near growing urban areas.
- Encourage greater private landowner participation in fuel management, backed by council enforcement.
- Expand landscape-scale planning to connect fuel breaks across tenure boundaries.

3. Support and Equip Volunteer Brigades

- Continue investing in new fire appliances, protective clothing, and station upgrades.
- Expand mental health, peer support, and financial relief programs for volunteer firefighters.
- Provide leadership training pathways to build operational confidence in remote and regional crews.

4. Embrace Innovation and Technology

- Expand the use of AI-based fire detection systems and real-time monitoring tools.
- Use drones for rapid assessment and safer fireground intelligence.
- Leverage the Bushfire Centre of Excellence to pilot cutting-edge training and research collaborations.
- Invest in predictive fire modelling, integrating local fuel data and climate projections.

5. Improve Public Communication and Preparedness

- Maintain and promote **Emergency WA** as the go-to public alert system.
- Expand multilingual and region-specific preparedness campaigns.
- Ensure every community has a plan for evacuation, shelter, and recovery — especially in isolated towns.

Western Australia's fires are often vast, fast-moving, and remote — but they are not beyond our control. With strong planning, clear communication, and empowered local volunteers, the state can meet the fire challenge head-on — and lead the way in building a modern, community-driven rural fire service.

Tasmania: Protecting a Fire-Prone Island and Its World Heritage Forests

Tasmania may be Australia's smallest state, but when it comes to bushfires, it faces some of the country's most complex challenges.

It's a land of deep forests, ancient ecosystems, and iconic wilderness — including areas listed as **World Heritage sites**. Many of these regions contain plants and landscapes that have evolved **without fire** for thousands of years. Once burned, they may never fully recover.

That makes fire in Tasmania not just a threat to people and property, but to irreplaceable environments.

At the same time, the island is not immune to the growing risks faced by mainland states. Dry lightning strikes have become more frequent. Hotter summers, stronger winds, and longer fire seasons are pushing Tasmania into **uncharted territory**.

Major fires in **2016** and **2019** shocked many. In 2016, lightning ignited more than **80 fires**, burning over **120,000 hectares**, including fragile alpine vegetation that may never regenerate. In 2019, fires in the **Tasmanian Wilderness World Heritage Area** again raised alarms — not just about fire risk, but about how we prepare for, respond to, and recover from these events in ecologically sensitive places.

Prevention, Fuel Management and World Heritage Protection

One of Tasmania's great balancing acts is managing fire risk while protecting ecosystems that are **highly sensitive — or even allergic — to fire**.

The state's approach to hazard reduction is necessarily more cautious than in other parts of Australia. Broadscale burning isn't always appropriate in areas where fire could do more harm than good. Instead, Tasmania has developed a strategy based on **risk prioritisation** —

focusing fuel reduction where it protects life and property first, and applying **more tailored methods** in wilderness and conservation zones.

The **Fuel Reduction Program**, introduced in 2014, has made steady progress. Each year, crews from the **Tasmanian Fire Service (TFS)**, **Parks and Wildlife**, and **Sustainable Timber Tasmania** work together to carry out planned burns on public and private land — especially in high-risk zones near towns and critical infrastructure.

Since the program's launch, more than **100,000 hectares** have been treated, with an emphasis on:

- **Defensible space around communities**
- **Strategic fire breaks** that stop or slow fire spread
- **Access tracks** for crews to reach remote areas quickly
- **Asset protection zones** around facilities like water treatment plants, transmission lines, and roads

But Tasmania's fire problem isn't just about dry grass and forests. Climate change is drying out **peatlands and rainforests**, making them more flammable than ever before. Scientists warn that once these areas burn, they may not regenerate — or could be replaced by entirely different ecosystems.

To prevent this, Tasmania has:

- Created **"no-burn" zones** within sensitive wilderness areas
- Invested in **lightning detection systems** to spot ignitions early
- Expanded **remote-area firefighting teams** trained to suppress blazes with minimal ecological disturbance
- Begun using **portable water bladders and hand tools** in protected zones where heavy equipment can't go

There's also growing support for **cultural burning**, particularly in Tasmania's eastern regions. Though fire was used more sparingly in Tasmania's Indigenous history than on the mainland, there's renewed interest in how **Aboriginal knowledge** can support land care and ecosystem resilience.

Protecting Tasmania's unique landscapes from fire will never be easy. But with science, strategy, and respect for the land, the state is charting a careful path — one that recognises both the **ecological sensitivity** and the **human stakes** involved.

International Lessons:

What Can Australia Learn from Fire Disasters Abroad?

Australia isn't the only country facing a more intense and unpredictable fire future. Around the world, nations are battling wildfires that are faster, hotter, and harder to control than anything they've experienced before.

In recent years, fire has swept through the Mediterranean, the Americas, and parts of northern Europe — often in regions that were once considered low risk. In many cases, the conditions were eerily familiar: drought, high winds, dry forests, poor planning, and delayed responses.

By looking closely at what went wrong — and in some cases, what went right — Australia can strengthen its own systems and avoid the same tragic mistakes.

Here, we explore three key case studies: **Greece, Chile, and Canada**.

Greece: Deadly Delays and Poor Planning

In July 2018, a fire tore through the seaside town of **Mati**, east of Athens. Fueled by gale-force winds and tinder-dry scrub, it reached the coastline in under 90 minutes — giving residents little time to escape. Over **100 people lost their lives**, many trapped in homes or vehicles.

The official investigation uncovered a series of devastating failures:

- **No evacuation warning was issued** until it was far too late
- Emergency services were **poorly coordinated**, with multiple agencies working in isolation
- The town was built without proper planning controls, with **narrow roads**, **no firebreaks**, and **dense vegetation** close to homes
- Escape routes were blocked or unmarked, and there were **no designated shelters** for the community

The tragedy sparked national outrage. Greece had experienced deadly fires before — including in 2007, when 84 people were killed — but little had changed.

In the aftermath, Greece began to reform its fire management systems. It introduced a **national emergency alert system**, upgraded aerial firefighting fleets, and created **centralised coordination centres** for multi-agency responses. The government also imposed stricter building regulations in fire-prone areas.

Still, critics say progress has been slow. In 2023, large fires again threatened parts of the country, raising concerns that **lessons are being forgotten** as political priorities shift.

The key lesson for Australia?
Planning matters. Communities built without fire-smart design — and left without clear warning systems — are at far greater risk when disaster strikes. Fast fire behaviour demands fast decisions, and the cost of delay can be fatal.

Chile: Fire and Inequality

In 2017, Chile experienced one of the worst fire seasons in its history. Over **100 fires** raged across the country, burning more than **570,000 hectares** and destroying thousands of homes. Entire towns, like **Santa Olga**, were wiped off the map in a matter of hours.

The fires were fast and intense, but it wasn't just weather and dry fuel that made the disaster so deadly — it was the **underlying inequality**.

Many of the worst-hit areas were **low-income communities**, built informally and often without proper planning or services. These settlements lacked firebreaks, safe evacuation routes, and firefighting infrastructure. Residents were largely unprepared and had few options once the flames arrived.

Chile's economy had boomed in the years prior, but investment in public safety and rural infrastructure hadn't kept pace. Local firefighting forces were **understaffed and poorly equipped**, and some of the areas hit hardest had **no formal fire coverage** at all.

After the disaster, Chile restructured its approach. It boosted funding for rural fire services, created new early-warning systems, and began a national conversation about **urban planning, land rights, and environmental justice**.

Still, inequality remains a challenge. In 2023, wildfires once again ripped through the **Valparaíso region**, destroying hundreds of homes and exposing the same vulnerabilities seen years before.

The lesson for Australia?

Vulnerability isn't just about geography — it's also social. Communities with fewer resources, poor access to services, or unclear land tenure are often the hardest hit in disasters. A fair bushfire strategy must include **investment in people, places, and infrastructure**, especially where support is historically lacking.

Canada: Learning to Live with Fire

In 2023, Canada recorded its worst fire season on record. Blazes burned more than **18 million hectares** across the country — from British Columbia to Quebec — creating choking smoke that drifted into the United States and across the Atlantic Ocean.

But unlike some other nations, Canada has increasingly embraced the idea that fire is not just an enemy to fight — it's a **natural part of the landscape**, and it must be **managed**, not simply suppressed.

For centuries, Canada's fire policies were focused on **aggressive suppression**. Fires were seen as destructive and dangerous, and the goal was always to put them out quickly. But this approach left vast stretches of forest **overloaded with fuel**, setting the stage for megafires.

Over time, attitudes began to shift — particularly in regions working closely with **Indigenous communities**. First Nations people have used fire for land management for generations. Their knowledge, combined with modern science, has become central to **a new, more adaptive fire strategy**.

Key elements of Canada's evolving fire model include:

- **Prescribed burning** to reduce fuel in high-risk areas
- Support for **Indigenous-led fire stewardship programs**
- Investment in **community protection zones**, where fuel is removed near towns and critical infrastructure
- Public education campaigns encouraging residents to understand their role in fire safety

There's also recognition that some fires **need to be allowed to burn**, particularly in remote areas where they pose no threat to people or property. These **"managed wildfires"** help maintain ecosystem health and reduce future fire risk.

While the scale of Canada's 2023 fires was alarming, it also reinforced the need to **live with fire**, not just fear it. The country is still adapting, but its efforts to combine **traditional knowledge**, **modern science**, and **community preparedness** offer a valuable roadmap.

What can Australia learn?

That long-term resilience isn't built through fear or control — it's built through **understanding, cooperation, and adaptation**. Fire is a natural part of Australia's environment too, and living safely with it means changing how we think, plan, and act.

Thematic Summary: What the Evidence Really Tells Us

Across Australia — and around the world — fire is becoming more frequent, more intense, and more complex to manage. But while each state, territory, and country faces its own set of challenges, some clear themes keep emerging.

These are the foundations of a smarter, more effective bushfire strategy — one that can reduce risk, save lives, and prepare communities for a hotter, drier future.

Shared Responsibility Is More Than a Slogan

Governments can't do it alone — and neither can local councils or fire agencies. **Communities must be involved**, not just informed. That means:

- Giving residents the tools, knowledge, and support to prepare
- Making bushfire planning part of local culture
- Encouraging neighbours to work together — through Fireguard groups, community fire committees, and local emergency plans
- Involving Traditional Owners and respecting cultural knowledge in fire strategies

When responsibility is shared, **readiness becomes part of everyday life**, not just something that happens in the middle of a crisis.

Early Warning and Clear Communication Save Lives

One of the most consistent findings — from Greece to Queensland — is that **early, clear warnings make all the difference**.

Confusion, delay, or mixed messages can turn a dangerous situation into a deadly one. The shift toward **standardised warnings**, using **clear colours, icons, and action language**, is a step in the right direction — but there's more to do.

- Every household must receive timely alerts
- Warnings must be accessible — across languages, technologies, and levels of literacy
- Apps, radio, text, and door-knocking all play a role
- And the messaging must tell people **exactly what to do**, not just what's happening

In fast-moving fire conditions, minutes matter — and **words matter even more**.

Fuel Reduction Is Essential — But Not the Only Answer

From Victoria's targeted burn zones to Western Australia's large-scale prescribed burning programs, the evidence is clear: **managing fuel loads helps reduce fire severity and gives firefighters a better chance** to stop a blaze before it becomes a disaster.

But hazard reduction alone won't prevent catastrophic fires — especially when weather conditions are extreme. A modern strategy includes:

- Targeted fuel management near towns, infrastructure, and evacuation routes
- Mechanical clearing, grazing, and cultural burning alongside traditional burns
- Landscape-scale planning that connects fire breaks and mitigation zones
- Clear responsibilities for private landholders and consistent enforcement

And critically, it requires **sustained funding and political support** — not just after a big fire, but year after year.

Technology and Collaboration Are Game Changers

We now have more tools than ever to detect, model, and respond to bushfires:

- **Drones**, satellites, and AI-driven mapping
- **Fire behaviour models** that predict how blazes will spread
- **Automated detection systems** that spot fires in minutes
- **Real-time dashboards** that bring together weather, fuel, and ground intelligence

But tech is only as good as the systems and people behind it.

We need better **cross-border coordination**, smoother **multi-agency responses**, and faster access to **shared national assets**, like aerial bombers and surge crews.

When technology is paired with **collaboration, training, and trust**, it becomes a powerful tool — not just for fighting fires, but for planning and prevention too.

Final Conclusion: From Reaction to Resilience

Australia has always lived with fire. It has been a constant part of the continent's story — long before cities rose or sirens wailed. For tens of thousands of years, Traditional Owners used fire not as an enemy, but as a tool — for hunting, renewal, and maintaining balance on Country. Their fires were cool, controlled, and timed with the rhythm of the land. They understood that fire, used wisely, could nurture life as much as it could destroy it.

In contrast, modern Australia has struggled with its relationship to fire. We have drifted between extremes — neglect and panic, under-preparation and overreaction. And when the

worst happens, we look back with regret: at the warnings missed, the funding cut, the plans left on the shelf. The tragedies of **Ash Wednesday**, **Black Saturday**, and **Black Summer** are etched in our national memory — not just because of the scale of the loss, but because so many of those losses were preventable.

Climate change has now accelerated this risk. We are living through longer fire seasons, more extreme weather, and record-breaking heatwaves. Fires that once occurred every few decades now arrive every few years — or sooner. And they are more destructive than ever. This new era demands a new mindset.

Living with fire can no longer mean living in fear. It must mean **living with awareness, preparation, and resilience**. The risk is not going away — but how we respond to that risk can change everything.

What We've Learned

Throughout this book, we've examined the many ways that Australia — and countries around the world — are responding to the rising fire threat. The stories and case studies vary by location, but the themes are strikingly consistent.

We've seen how:

- **Poor coordination between agencies and jurisdictions has cost lives**, especially where communication systems fail or responsibilities are unclear.
- **Underfunding** — particularly in prevention, mitigation, and equipment — leaves communities vulnerable and firefighters overextended.
- **Outdated systems and slow decision-making** have delayed evacuations, hindered responses, and turned containable fires into catastrophes.

But we've also seen progress.

- **Community-led planning**, where neighbours come together to create fire plans and support each other, is growing in strength.
- **Predictive modelling and early detection systems** are helping incident controllers stay ahead of fast-moving blazes.
- **Aerial firefighting, drones, and satellite tools** are giving crews more eyes on the fireground than ever before.
- And most importantly, **a shift in culture** is starting to take hold — one that recognises that fire risk management is not just the job of fire services or governments. It's everyone's responsibility.

In other words, **we're learning to live with fire**, not just fight it.

The True Enemy: Complacency

If there is one thread that ties together every major fire disaster in Australian history, it's this: **we knew it could happen — but we didn't act in time.**

Whether it was a warning from a local brigade, a previous inquiry's report, or scientific modelling predicting fire risk under climate change, the signs were there. Too often, they were ignored.

After every major bushfire, there are reviews, recommendations, and headlines. Some changes follow. But all too often, the urgency fades. Political attention shifts. Funding dries up. Promises drift into the background. And when the next fire comes — as it inevitably will — we are once again caught off guard.

This cycle must end.

The greatest threat we face is no longer a lack of knowledge or capacity. It's a lack of consistency, coordination, and political will. **Complacency — not fire — is what continues to place lives, homes, and environments at risk.**

A National Call to Action

This book is not just a record of failures and lessons. It is a call to action — directed at every level of society.

For governments:

- Make bushfire risk reduction a **core policy**, not a seasonal talking point.
- Invest in year-round mitigation, aerial firefighting capacity, and modern communication tools.
- Act on the recommendations of previous inquiries — and track their implementation publicly.

For emergency services:

- Continue building a culture of **collaboration and coordination** across state lines and agency borders.
- Prioritise **volunteer recruitment and retention**, recognising the critical role of local knowledge and experience.
- Expand **community engagement and education**, especially in new or growing fire-prone areas.

For communities:

- Take ownership of local risk. Fire plans shouldn't be optional — they should be second nature.

- Support neighbours, especially the elderly and vulnerable, before and during fire season.
- Treat fire preparedness like any other form of civic duty — because it saves lives.

For individuals:

- Learn your risk. Know your plan. Prepare your property.
- Stay informed, act early, and encourage others to do the same.
- Understand that bushfire resilience is not just about protecting yourself — it's about looking out for others and safeguarding the environment we all depend on.

The Path Ahead

There is no single solution to bushfires — no magic fix that will eliminate the threat. But there is a clear path forward, built on **the knowledge we already have**, the **tools we already possess**, and the **lessons we can no longer afford to ignore**.

We must move from:

- **Reaction to prevention**
- **Blame to accountability**
- **Fear to confidence**
- **Disaster response to disaster readiness**

Let this be the decade where we finally break the pattern. Where bushfire reviews are followed by meaningful reform — not silence. Where fire-prone communities are supported — not left behind. Where resilience is built not after a tragedy, but before it ever has a chance to occur.

A Test of Leadership — and Care

Fire will always be part of Australia. It is woven into the DNA of this land. But whether it remains a **natural force** or becomes a **recurring disaster** is up to us.

This is not just a test of emergency management — it's a test of **leadership**, **vision**, and **care**.
Care for our neighbours.
Care for our forests and wildlife.
Care for our firefighters and volunteers.
Care for our future.

The tools exist.
The knowledge exists.
The urgency is real.

What remains is the will.

Let us not wait for the next fire to remind us of what we already know. Let us act — now, together, and with purpose — to build a safer, stronger, and more resilient Australia.

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- **Victorian Inspector-General for Emergency Management Reports:** Annual reports providing information on bushfire risk management delivery and outcomes across public and private land in Victoria. Emergency Management Victoria
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Research Organizations and Initiatives

- **Emergency Leaders for Climate Action (ELCA):** A coalition of former senior emergency service leaders advocating for action on climate change to reduce the risk of more frequent and intense natural disasters. Latest news & breaking headlines+2Emergency Leaders for Climate Action+2Reuters+2

- **Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC):** Coordinates national research efforts in hazards, including bushfires, floods, and cyclones, aiming to build a disaster-resilient Australia. AIDR Knowledge Hub
- **CSIRO Climate and Disaster Resilience Research:** Conducts research to understand the impact of climate change and disasters on communities, economies, and the environment in Australia and internationally. CSIRO Research

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International Reports and Journals

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Additional Resources

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- **Natural Hazards Research Australia – Black Summer Research:** Summarizes key findings from research conducted on the 2019–2020 Black Summer bushfires. Natural Hazards Research Australia

- **CSIRO Bushfire Research:** Collaborative efforts to understand bushfire behavior, prediction, management, suppression, impacts, and recovery. CSIRO+1Natural Hazards Research Australia+1

About the Author

Ken Ashford
With over 40 years of frontline and leadership experience in Victoria's fire services, Ken Ashford brings deep insight and unwavering passion to his work. As a former firefighter and long-time advocate for operational excellence and reform, he continues to document the challenges, transformations, and future of fire service leadership in Australia.

Acknowledgment of AI Assistance

In the creation of this book, I utilized artificial intelligence (AI) tools to assist with various aspects of the writing process. These tools were employed for tasks such as generating ideas, drafting content, and editing text. While AI provided valuable support, I ensured that all AI-generated material was carefully reviewed, edited, and integrated to align with my personal insights and the book's objectives.

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By acknowledging the role of AI in the development of this book, I aim to maintain transparency with readers and uphold the integrity of the work. The fusion of AI assistance with human creativity represents a modern approach to authorship, reflecting the evolving landscape of writing and publishing in the digital age.

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