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Government inquiries following the 2019–20 wildfires

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Summary

- Governments have commissioned many inquiries following wildfires in Australia, mostly to assess causation, identify failings and make recommendations for improvements in order to reduce the risks and impacts of future fires.
- Such inquiries are reactive and undertaken soon after wildfire, so there has been far less scrutiny directed to longer-term post-fire recovery, and of the effectiveness of actions taken to support such recovery.
- The 2019–20 wildfires were the subject of two national inquiries and reviews in most states. Biodiversity impacts were considered most substantially in the national royal commission and inquiries in New South Wales and Victoria.
- These inquiries recognised that climate change was a fundamental driver of the severity and extent of the 2019–20 wildfires, that the future was likely to be exposed to an increasing frequency of such fires, and hence that there was a pressing need to adapt management, policy and legislation to reduce the risks associated with escalating climate change.
- Typically, biodiversity conservation has not been a primary focus of post-fire inquiries, but the 2020 royal commission collated a large evidence base that attested to the unprecedented scale of detrimental impacts on biodiversity. It identified shortcomings in policy and management practices, and exemplary practices and policy that helped reduce impacts. However, just one of its 80 recommendations focused on biodiversity conservation, and this related only to enhanced national collation of biodiversity data.
- Biodiversity was also a feature of the Victorian inquiry, which found that readily accessible spatial information on biodiversity assets was crucial for their likelihood of being protected in fire, for rapid assessment of impacts, and to help guide prioritisation of responses after fire. The Victorian inquiry also noted the importance of appropriate planning, monitoring and modelling to support preparedness for fire events, the importance of formally embedding wildlife expertise in the fire operations hierarchy, and the value of nature-led recovery for rural communities.

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Introduction

Large wildfires challenge human capability; many rage beyond control. They can kill people, destroy towns, impose large economic costs, erode our sense of security, and cause major losses of biodiversity. Following such disasters, governments typically undertake or commission systematic reviews to clarify the causal factors, identify failings and propose mechanisms that could be improved to render future comparable events (and losses) less likely.

There is a long history in Australia of holding inquiries in the wake of wildfires that have a catastrophic impact on humans. The 2020 royal commission tallied 240 formal reviews into natural disasters, mostly fire, in Australia since 1927 (Royal Commission into National Natural Disaster Arrangements 2020). There are recurrent themes across most of these many inquiries: the organisational structure of fire agencies, the responses made (including coordination, communications and safety), the adequacy of equipment and infrastructure, preparedness (notably including fuel reduction burning), and research (including development and application of new technologies, spatial mapping and predictive modelling) (Kanowski *et al*. 2005) (Fig. 30.1).

Have the inquiries worked? If it is assumed the objective of the hundreds of recommendations proposed by these many inquires inquiries is to also reduce the incidence of large-scale severe fire, then they have largely failed. Furthermore, it is a difficult question

Fig. 30.1. Much of the focus of the royal commissions and other inquiries relates to human lives lost and infrastructure destroyed. Here, a bus and houses burnt in the 2019–20 wildfires at Mallacoota. (Photo: 'Mallacoota fires' by Cazz is licensed under the public domain, via Wikimedia Commons)

to answer, as there is little ongoing accounting of the effectiveness of actions implemented in response to their recommendations:

> *The lack of any overarching implementation monitoring of recommendations from previous reviews and inquiries made it challenging to understand what had already been actioned and, if not, why not. (p. 14, Government of NSW 2020)*

> *… there have been many previous reviews and inquiries into bushfires in South Australia. However, not all the recommendations accepted by government have been audited for implementation, nor did it appear during this Review that governments act upon the experiences of other jurisdictions. (p. v, Government of South Australia 2020)*

As a consequence, many of the inquiries re-evaluate the same issues, and each fire event is treated as novel:

> *In 2020, Victorians ought not be surprised by bushfire. It is a constant in our landscape. Yet every time a major bushfire event occurs, it seems that many in the community are caught unawares as if by something new and unprecedented. A demand for answers, a search for what went wrong and who to blame inevitably seem to follow. (p. 22, Inspector-General for Emergency Management 2020)*

Yet this time was different. More so than previous reviews into Australian wildfires, these inquiries recognised that the 2019–20 wildfires were not a single aberrant event, but rather part of an evolving pattern, a warning of the escalating consequences of global climate change:

> *As the events of the 2019-2020 bushfire season show, what was unprecedented is now our future. (p. 6, Royal Commission into National Natural Disaster Arrangements 2020)*

> *Our task … required us to look to the future. A future where such events will, regrettably, be more frequent and more severe. (p. 5, Royal Commission into National Natural Disaster Arrangements 2020)*

> *… the 2019–20 fires were part of a continuum of wildfire in Victoria … in which the impact of climate change is increasingly evident … (p. 58, Inspector-General for Emergency Management 2020)*

The national royal commission recognised that far more proactive approaches were needed to deal with this likely future, and it called for 'a fundamental shift in strategic thinking about national natural disaster management' (p. 26, Royal Commission into National Natural Disaster Arrangements 2020).

One shortcoming of all of these inquiries is that, because of their temporal framing, they rarely, if ever, take on a longer-term and more deliberative assessment of recovery. The terms of reference frame these largely as post-disaster exercises, conducted in the immediate aftermath of wildfire, and hence focused mostly on factors leading up to and during the fire, rather than on assessment of longer-term recovery.

Our aim in this chapter is to distil the manner in which biodiversity protection was considered in the inquiries into the 2019–20 wildfires, to highlight their evaluations of

actions and policy settings that influenced the outcomes for biodiversity, and to consider the recommendations they made for changes that would reduce biodiversity losses in future comparable events.

Inquiries into the 2019–20 wildfires

Post-fire inquiries were commissioned by the governments of Australia, Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and Western Australia, with the reports of these inquiries tallying many thousands of pages. Here we consider only the most substantial of these: the Australian royal commission and the inquiries of New South Wales, Victoria and South Australia.

2020 Royal Commission into National Natural Disaster Arrangements

This royal commission had a broad scope, explicitly including the clarification and better coordination and accountability of Commonwealth and state/territory responsibilities for fire management. The intergovernmental component of the inquiry was particularly pertinent given the national scale of these fires, the uneasy partitioning imposed by federation on responsibilities for land management and emergencies, and because the 2019–20 wildfires starkly exposed some disharmony among states in control operations for fires that burnt across borders.

For the first time, a commission included a chapter on wildlife and heritage. The royal commission's framing document recognised the need to increase preparedness for the future; better protect 'wildlife management and species conservation'; and examine the extent to which 'traditional land and fire management practices of Indigenous Australians could improve Australia's resilience to natural disasters' (Commonwealth of Australia 2020).

The commission report had several key findings. The first was that biodiversity protection was more effectively considered in fire operations when relevant expertise was available in the control room, or integrated into fire control operations:

> *16.16 In some jurisdictions, emergency services are embedded in the same portfolio as agencies responsible for environmental protection, but often they are not … in many instances wildlife rescue or protection efforts were initiated outside emergency services, there was great value in leveraging emergency management incident management teams … in assisting rescue operations, for example in coordinating fire suppression and requesting air support.*

The commission report also recognised the value of relevant planning and information about biodiversity values and locations being available before wildfire, particularly where this provided a prioritised basis for rapid response:

> *16.18 States and territories had bushfire strategies and operational plans in place before the 2019–20 bushfires with a view to preventing and responding to bushfire impacts on wildlife, ecosystems and heritage values.*
>
> *16.19 These strategies and plans identify high-level arrangements, such as threatened species and heritage sites, their locations, and response and recovery strategies.*

However, this finding does not clarify whether these strategies and plans were comprehensive in their coverage of biodiversity assets, or effective in mitigating impacts (see

Chapter 29). Despite the presence of these plans, the commission reported that protection of biodiversity assets needed to be better integrated into planning and response structures. This, in turn, relies on readily available and appropriate knowledge, which is so often sub-optimal (refer to Chapter 29).

While recognising the importance of integrated emergency planning and response systems, the commission did not challenge the deeply rooted presumptive hierarchy that, in fire control operations, biodiversity protection was subordinate to other considerations:

> *16.15 In responding to disasters, … emergency services agencies have primary responsibility for protection of people, property and the environment – they provide protection in that order.*

A blanket ranking such as this fails to recognise that the context and degree of impact is critically important in decision making. The commission did not evaluate whether there may be circumstances where the risks of significant and irreparable biodiversity loss may justify prioritisation ahead of property. For example, is directing resources to a few sheds rather than a national park justifiable (Chapter 29)?

The commission report also recognised the need for more collaboration between government agencies and non-government animal welfare groups:

> *16.34 … governments should work together with relevant non-government organisations to establish best practice arrangements and responses relevant to emergency wildlife response and recovery.*
>
> *16.26 Including non-government wildlife organisations within emergency management arrangements can enable these groups to work in concert … to benefit from the situational awareness of first responders, and to access the fire ground safely. Raising awareness of animal welfare, species conservation, and the capabilities of wildlife first responders can also help ensure that these groups are deployed as swiftly and safely as practicable.*

The commission noted some shortcomings in policy and practice relating to fire impacts on biodiversity. For example, it identified that the listing of species and ecological communities as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) may not account for 'anticipated increasing natural hazard risks' (16.52). In light of increasing risks, the commission supported an existing nomination to list 'fire regimes' as a Key Threatening Process (KTP) under the Act (16.53). The commission did not assess if recovery plans and conservation advices adequately consider fire management and other specified actions to be taken during fires or for post-fire recovery.

Notwithstanding the substantial consideration of biodiversity conservation in this royal commission, only one of its 80 recommendations was explicitly related to its theme of 'Wildlife & Heritage':

> *Recommendation 16.1 Environmental data. Australian, state and territory governments should ensure greater consistency and collaboration in the collation, storage, access and provision of data on the distribution and conservation status of Australian flora and fauna.*

In this case, the Australian Government 'supported in principle' this recommendation, responding that:

> *The Commonwealth, with all states and territories, has agreed to establish a common method for the assessment and listing of threatened species. [This] will maintain the current high level of scientific rigour in the assessment and listing of threatened species across Australia, while promoting a more consistent, efficient and harmonised process … (Commonwealth of Australia Department of the Prime Minister and Cabinet 2020).*

However, this collaborative arrangement between Commonwealth and state/territory governments for the listing of threatened species was already largely in place before the 2019–20 wildfires (Department of the Environment 2015). Hence, it is likely that the royal commission, although recognising the extraordinary losses of biodiversity imposed by the 2019–20 wildfires, prompted no direct response by the Australian Government to transform relevant biodiversity conservation policy or legislation to enhance preparedness for future fires or protection during such fires.

Many of the royal commission's other recommendations were more broadly focused rather than explicitly directed towards biodiversity conservation, but would be likely to result in some improved outcomes for biodiversity. To help build resilience, preparedness and allow rapid response, the commission recommended the establishment of a set of permanent collaborative entities, including a national disaster advisory body (Recommendation 3.2), a 'resilience and recovery entity … focused on long-term disaster risk reduction' (Recommendation 3.5) and a 'national preparedness and response entity' to better develop, coordinate, test and implement planning and practice in response to natural disasters (Recommendation 3.6).

Critically, the commission also called for more engagement with Traditional Owners 'to explore the relationship between Indigenous land and fire management and natural disaster resilience' (Recommendations 18.1, 18.2). The recognition that more needs to be done to improve resilience to these events is an important step. A major focus of previous commissions, the issue of fuel load management was considered, but recommendations on this subject were largely about better reporting and accountability (Recommendation 17.1), and review of processes (Recommendation 17.2), rather than definitive and justified prescriptions. Given the varied impacts of commonly utilised fuel management practices (e.g. prescribed burning) on biodiversity (Chapter 21), the need for integrated planning (i.e. 16.20) goes beyond emergency response.

The commission also identified some improvements needed in budgeting for recovery, including better assessment of the effectiveness of post-disaster spending (Recommendation 22.1) and more emphasis on funding to build resilience (Recommendation 22.7).

State inquiries

New South Wales

The 2019–20 wildfires burnt more of New South Wales than any other state (~5.5 million ha). The New South Wales Bushfire Inquiry concluded that previously effective management responses were inadequate due to the unprecedented nature of the fires: the fires 'challenged conventional assumptions' (Government of NSW 2020). A key example is fuel reduction burning; the inquiry concluded that it 'appears to have reduced fire severity in

some instances, but in others it appears to have had no effect on the severity and spread of the fire' (p. iv). Nonetheless, it subsequently recommended 'that Government re-commit to the current, regionally based approach to planning and coordinating hazard reduction activities across all tenures' (Recommendation 19), along with the collaborative application of cultural burning (Recommendations 25 and 26).

In relation to biodiversity, the inquiry considered how assets, including places and species of significant conservation value, were considered in control operations during wildfires. It recognised that there was no system in place for determining or ranking priorities 'when multiple assets of value are threatened by fire and there are insufficient resources to protect them all' and concluded that 'to avoid uninformed decisions during a fire event on what to protect, a formal mechanism is needed for working out in advance the relative value of different assets' (p. 149). It recognised that input from the relevant conservation agency into the fire operations command structure was a critical factor in protecting some biodiversity assets, notably including Wollemi pine (*Wollemia nobilis*; see Chapters 9 and 27), whose protection was also aided by the existence of a recovery plan that provided details of suitable fire management actions. However, the report posited some fundamental questions:

> *But should the Wollemi Pine be saved at the expense of human life? And at the expense of houses, farms, towns and infrastructure? And why were the Wollemi Pines saved and not, for example, some other rare botanical species? (p. 150).*

The NSW inquiry raised the issue of prioritisation and trade-offs more directly than the national commission, and recognised that a more comprehensive and systematic approach was required to attribute value to assets of varying type, in order to prioritise those assets for protection during fire. It noted that:

> *What is considered critical for saving to some people may not be considered critical to others. Nevertheless, there are assets that the community generally accepts as critical and recognises as a priority for saving in a bush fire. These assets are typically those essential to the functioning of society (and the economy), particularly infrastructure … It is the other things of value – environmental and cultural assets and facilities such as community halls and sporting amenities – where prioritisation becomes more difficult. Therefore, trade-offs between the values must be made at the planning and preparation stage to protect these assets rather than rely on an arbitrary and ad hoc response when the bush fires are in progress.*
>
> *The Inquiry suggests that a formal mechanism is needed for working out the relative value of different assets and that the guidance provided needs to be satisfactory to the community as a whole. Further, common units of value are required across all asset classes … For example, under such a value structure, values could be assigned as follows:*
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> - *human life at Value Level 1;*
> - *critical infrastructure at Value Level 2;*
> - *individual properties, stock, top-level ecological and cultural assets at Value Level 3; or*
> - *general infrastructure and lower level ecological and cultural assets at Value Level 4.*
>
> *Obviously, this can be made more sophisticated, for example by applying both economic value and a value structure (and, possibly, likelihood of success if threatened by fire). (pp. 150–151)*

The report then recognised the need for better information on the location of such assets (an 'authoritative consolidated State register/repository of things of value/assets/services'), and for better information on how to protect them before and during fires.

The inquiry's terms of reference included a requirement to 'make recommendations … on appropriate action to adapt to future bush fire risks to communities and ecosystems', and the report noted that 'more species and ecosystems are now at increased risk of decline than before the fires'. It recommended:

> *That Government invest in long-term ecosystem and land management monitoring, modelling, forecasting, research and evaluation … This will include, among other things:*
>
> - *tracking and trying to forecast what is happening to ecosystems over decades under projected changes to climate extremes, including fire regime change*
> - *better understanding interaction of fire with other disturbances, e.g. drought, hydrological changes in the landscape*
> - *commissioning experiments and feasibility studies for ecosystem adaptation experiments – for example, facilitating shift of high conservation-value rainforest vegetation communities further south as climatic conditions change. (Recommendation 36)*

South Australia

The main considerations of the South Australian inquiry (Government of South Australia 2020) were about governance, training, resourcing and communications. The inquiry's report noted that some fires were beyond control: they 'exceeded the upper limit of direct attack with any means of firefighting, including machines, aircraft and fire tankers' (p. 32). As with other post-fire inquiries, it considered the effectiveness of fuel reduction burning, finding that: 'It is also almost certain, due to the weather and climatic conditions outlined, that the fire behaviour could not have been prevented by greater levels of hazard reduction' (p. 32).

In its reporting of impacts, the inquiry notably counterpointed tallies of human deaths and economic costs to agriculture with reporting of the extent of conservation reserves burnt, an estimate of the numbers of koalas (*Phascolarctos cinereus*) killed (claimed to be 40 000–50 000), and the numbers of threatened species affected, identifying six species as explicit priorities for urgent intervention. Noting 'the impact of bushfire on wildlife is not well understood' (p. 100), the inquiry also made one recommendation for further research on the impacts of fire on biodiversity (along with other matters):

> *Collate data and research the impact of bushfires upon communities, firefighters and animals (both native and domestic) to identify appropriate medium and long-term welfare and support requirements. (Recommendation 15)*

Victoria

The Victorian inquiry into the 2019–20 wildfires (which burnt 1.5 million ha of the state) was the most comprehensive in considering biodiversity. This reporting notably included one volume evaluating recovery to date (Inspector-General for Emergency Management 2021), including in relation to some actions taken post-fire to recover biodiversity – an assessment little considered in other inquiries. It also recognised a broader dynamic and

context: that not only was climate change resulting in notably different fire regimes, but also that:

> *The human context is changing too. Victoria's population is growing steadily … Some of the fastest growing parts … are pushing settlement deeper into this increasingly active fire environment. Many Victorians who have probably never considered the possibility of confronting a bushfire … must now adapt to living with that risk. (p. 23, Inspector-General for Emergency Management 2020)*

Such human demographic changes can be expected to further complicate choices about protecting human and natural assets that need to be made urgently in fire control operations, and may increase demands for fuel reduction burning across the expanding fringes of settlement.

The inquiry's reporting included a detailed assessment of biodiversity impacts (concluding that impacts on wildlife were 'devastating' (p. 276)), and of factors that helped or hindered biodiversity conservation efforts. It noted two main factors that helped preparedness for these fires, and the protection of biodiversity during them. The first of these factors was a robust and readily accessible evidence base about biodiversity values and their location. The second factor was the inclusion of relevant experts in the fire control hierarchy, although the report recognised that such integration was not yet well established.

With respect to biodiversity information, the inquiry report noted:

> *the considerable research, planning and coordination to map and identify high priority biodiversity areas ... enables improved decision-making to prioritise and coordinate conservation and welfare across public and private land during emergencies … There has been concerted work to better integrate the extensive expertise, information, decision support tools and partnerships … into emergency preparedness for bushfires'. (pp. 88, 89, Inspector-General for Emergency Management 2020)*

Detailed spatial knowledge not only helped ensure the protection of some biodiversity assets during the fires, it also allowed for a rapid assessment of the extent to which the fires burnt ecological communities and the habitat of threatened species (DELWP 2020). Complemented by decision-support tools, and informed by expert workshops, this then allowed for rapid prioritisation of emergency management responses for fire-affected biodiversity. Despite having 'no pre-existing plan for establishing an overarching program of work to protect biodiversity after a disaster' (p. 368, Inspector-General for Emergency Management 2021), the response made was mostly strategic and evidence-based. The inquiry found that, post-fire, the Department of Environment, Land, Water and Planning (DELWP) and Parks Victoria 'successfully established a biodiversity recovery program that was delivered rapidly and collaboratively' (Finding 17.5) and 'delivered actions to control pest animals and plants in a coordinated way with substantial outputs on public land' (Finding 17.3). However, the inquiry did note some failings in the biodiversity management response: 'The Department … was not prepared for reseeding ash forests at the scale required despite it being a known gap in preparedness for post-fire forest restoration' (Finding 17.1), and '… did not have sufficient preplanning to support a strategic approach to emergency extraction of threatened species, including prioritisation, coordination and approvals' (Finding 17.4).

The inquiry recognised the significance of funding for the success of its biodiversity recovery response: 'The Victorian Government invested a large amount of funding in protecting biodiversity following the 2019–20 fires. That enabled DELWP to deliver biodiversity response and recovery actions on a scale that exceeded past events' (p. 368, Inspector-General for Emergency Management 2021). However, there were challenges: '… recovery funding arrangements were a barrier to achieving desired outcomes. In some cases, funding was not available early enough to support critical immediate interventions, while in other cases the uncertainty about long-term funding was an issue' (p. 381, Inspector-General for Emergency Management 2021).

With respect to organisational structures, the inquiry noted that 'The appointment of the Class 2 Controller – Wildlife greatly assisted in prioritising and coordinating the wildlife welfare and biodiversity response …' (Finding 7.16), and:

> *the protection of … conservation assets received greater consideration and was better managed than during past events. The standing up of a Class 2 Controller – Wildlife for the first time was an effective approach to manage the significant threat occurring to biodiversity. (p. 280, Inspector-General for Emergency Management 2020)*

However, it also found that the legislative, regulatory and planning foundation for embedding expertise in the fire operational structure was better established for animal welfare than for biodiversity conservation. So, whereas there was a pre-existing Victorian Emergency Animal Welfare Plan (which set out a pathway for efficient and effective coordination services before, during and after emergencies), there was no comparable plan for biodiversity conservation. Accordingly, the inquiry recognised:

> *A range of improvements to preparedness arrangements are required … biodiversity conservation lacks formal structure within Victoria's emergency management arrangements. This includes the absence of a biodiversity response plan, specified biodiversity roles [in the fire operation structure] and clear triggers for activation. There is also further work required to improve integration of biodiversity response roles and decision making into state emergency management arrangements. (p. 92, Inspector-General for Emergency Management 2020)*

Looking to the future, the Victorian inquiry addressed the role of adaptive management and ongoing monitoring in long-term data needs, to both assess the efficacy of recovery actions and refine modelling tools to be capable of responding to future scenarios:

> *The 2019–20 Victorian fire season showed the new potential scale and impact of bushfires on biodiversity under climate change. Additional scenario planning is required to ensure that the partnerships can be leveraged to best effect under a broad range of emergency scenarios … [and] will also enable improved readiness arrangements and response plans for the conservation of threatened species and habitats in emergencies. (p. 92, Inspector-General for Emergency Management 2020)*

Unlike the other inquires reported here, there was also recognition of the increasing need and mutual benefits of linking post-fire biodiversity recovery efforts to community, through nature-led community recovery programs.

As with other inquiries, the Victorian inquiry recognised the need for an increased role for Traditional Owners in the implementation of fire management, and reported: 'Traditional Owners [caring] for Country through cultural burning and land practices … is producing positive results. There is significant interest shown by the sector, government and community to see more cultural burning occur across the landscape. Resourcing to support mechanisms for Traditional Owners to navigate the policy requirements for planned burning would support greater initiation, delivery of and sharing of cultural burning techniques'. (Observation 4.1)

The Victorian inquiry also included a detailed consideration of fuel reduction burning (as a 'central theme of this report'), including the extent to which it helped mitigate impacts and could be further enhanced. It noted that this was a 'deeply contested question … at the centre of public debate' (p. 23), with this discord in part due to fundamental differences in values and experiences within the community. As with other inquiries, it concluded that fuel reduction burning 'is not a simple panacea' (p. 23). The inquiry report also advocated 'increased use of 'non-burning' fuel management treatments, including mechanical means' (Recommendation 6), notwithstanding that the biodiversity impact of such procedures remains poorly resolved.

Conclusions

The inquiries established in response to the 2019–20 wildfires recognised a clear signal of climate change in the severity and extent of these fires, and hence the likelihood of many more comparable fires in the future. This recognition imposes an urgent need to improve legislation, policy, planning and practice that can more effectively mitigate and adapt to climate change, to reduce the likelihood of fire, mitigate fire impacts and support post-fire recovery. Government inquiries provide a mechanism to identify and realise such enhancements.

These inquiries focused mostly on factors that led to loss of human life or property. However, the profound impacts on biodiversity of the 2019–20 wildfires forced more consideration of risks to biodiversity, and of identifying the shortcomings of existing management, planning and policy for biodiversity conservation. Across the set of these inquiries, there were key factors identified that could improve outcomes for biodiversity in the context of wildfire (Table 30.1). However, with some notable exceptions (Kanowski *et al.* 2005), governments commissioning these inquiries have generally not appointed experts in the

Table 30.1. Summary table of recommendations or observations relating most directly to biodiversity from the 2020 royal commission (RC) and state inquiries into the 2019–20 wildfires.

Area of recommendation	Before fire (pre-emptive, building resilience)	During fire (operational)	After fire (recovery)
Legislation	Include fire regimes as a Key Threatening Process under the EPBC Act (RC)		
Policy	Establish a range of collaborative bodies to build resilience (RC); improve integration of biodiversity response roles and decision making into state emergency management arrangements (Victorian inquiry)		

continued

Table 30.1. Continued

Area of recommendation	Before fire (pre-emptive, building resilience)	During fire (operational)	After fire (recovery)
Practice	Implement risk-based approach to hazard reduction burning, and implement 'increased use of "non-burning" fuel management treatments' (Victorian inquiry)	Apply pre-established prioritisation to protect significant natural assets during fire control (NSW inquiry); embed biodiversity expertise in operational control (RC, Victorian inquiry)	Rapid assessment to prioritise post-fire recovery needs (Victorian inquiry); urgent provision of adequate funding for recovery (Victorian inquiry); implement nature-led community recovery programs (Victorian inquiry)
Planning	Implement hazard reduction burning, through bush fire risk management plans (NSW inquiry); prepare bushfire strategies and operational plans that aim to protect biodiversity during wildfires (RC); ascribe values to biodiversity assets to help prioritise their protection during fire operations (RC); develop and justify valuation for natural and other assets to help prioritise their protection during fire operations (NSW inquiry); develop and implement a biodiversity response plan to coordinate actions before, during and after emergencies (Victorian inquiry); undertake scenario planning to enhance practice during emergencies (Victorian inquiry); further develop and implement integrated bushfire management area plans (SA inquiry)		
Knowledge	Better integrate biodiversity data (RC); delineate important natural assets (NSW inquiry); monitor ecosystems and their responses to fire regimes and climate change (NSW inquiry); assess compounding impacts of fire and other threats (NSW inquiry); undertake research on adaptation (NSW inquiry); delineate important natural assets and include them in register of values (Victorian inquiry); undertake research on impacts of wildfires and fire regimes on biodiversity (SA inquiry)		Monitor ecosystems and their responses to fire regimes and climate change (NSW inquiry); assess compounding impacts of fire and other threats (NSW inquiry); monitor recovery (Victorian inquiry)

fields of ecology or conservation; and while those experts may be consulted throughout the process, the inquiries have mostly been conducted by experts in emergency services, governance and auditing. As such, there is little holistic consideration of how the package of recommendations in each of the inquiries will benefit or disadvantage biodiversity.

There are some key issues evident in this chapter that will need to be addressed. First, the post-fire inquiries predominantly focus on circumstances leading up to and during fires: there is no longer-term view of recovery (Fig. 30.2). As highlighted in Chapter 29, inquiries should have incorporated both an assessment and recommendations to support integrated planning and management of biodiversity before, during and after an event. Fires are not the stand-alone threat to biodiversity, and if we continue to focus investment on improving our response to emergencies and the aftermath, without addressing and funding the mitigation of multiple threats to improve the resilience of our ecosystems, then we are both wasting resources and risking continual declines in biodiversity.

In addition, we rarely understand the effectiveness of actions arising from inquiry recommendations, or the costs of not adopting recommendations. Both the Victorian and New South Wales inquiries recognised the need for more substantial monitoring of outcomes, before and after fires. However, monitoring needs to be tied back to the original objectives (of recommendations), in order to gauge success.

Last, the inquiries have not provided substantial recommendations to amend legislation to enhance protection for biodiversity. The inquiries have also generally been reluctant to address and better resolve the fundamental concern of valuing and prioritising biodiversity protection during wildfire relative to that of human life or property. Without such questioning and legislative protection, biodiversity conservation will continue to be marginalised during fire operations, and irreplaceable conservation assets are likely to be diminished and lost over the course of successive fires.

Fig. 30.2. The long road to recovery after fires has not been a major focus of royal commissions and inquiries. Here, an echidna (*Tachyglossus aculeatus*) moves in an extensively burnt landscape, Kangaroo Island. (Photo: WWF-Australia/Douglas Thron)

Recommendations

- Inquiries to date have been undertaken soon after wildfire and have focused on factors preceding, during and immediately after fire. More focus is warranted on the adequacy and effectiveness of longer-term post-fire responses.
- Reflecting their primary focus on wildfire, the inquiries have not provided a broad context for biodiversity impacts. There needs to be recognition that an integrated and well-resourced strategy that deals with managing multiple threats to biodiversity is required to improve resilience, rather than episodic consideration and funding that deals only with the aftermath of catastrophe.
- Most recent inquiries recognise that biodiversity assets need to be more effectively delineated and prioritised, and their protection better incorporated into fire management, planning and control operations alongside other values. To be effective, such a recommendation also requires the following suite of changes:
    - improvement in biodiversity databases, and their access and interpretability in emergency settings;
    - enhanced knowledge of the fire and other management needs of these biodiversity assets, with such management requirements embedded in appropriate planning;
    - a clear prioritisation of biodiversity assets, that can readily inform a hierarchy of protection during fire operations, and with the need for such protection formalised in policy and legislation;
    - an engagement with the community about the integrated prioritisation of natural assets with potentially competing needs for protection during fires – noting that biodiversity assets will continue to be lost if the long-established convention that protection during fire operations always prioritises infrastructure and property over biodiversity.
- Inquiries into the 2019–20 wildfires recognised climate change as a key causal factor, but largely avoided making recommendations about managing the fundamental driver of climate change. It is insufficient to simply recognise the trend of increased incidence of severe fires with climate change, and more attention needs to be directed at urgently curtailing greenhouse gas emissions to reduce the risks of future comparable catastrophes.

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