



Threatened
Species
Recovery
Hub

National Environmental Science Programme



Empowering Indigenous leadership and participation in bushfire recovery, cultural burning and land management

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Cover image: Wadjabul Wia-Bal Country, Dorrobbie Grass Reserve, Dunoan, NSW. Image: M. Lockwood, 2020

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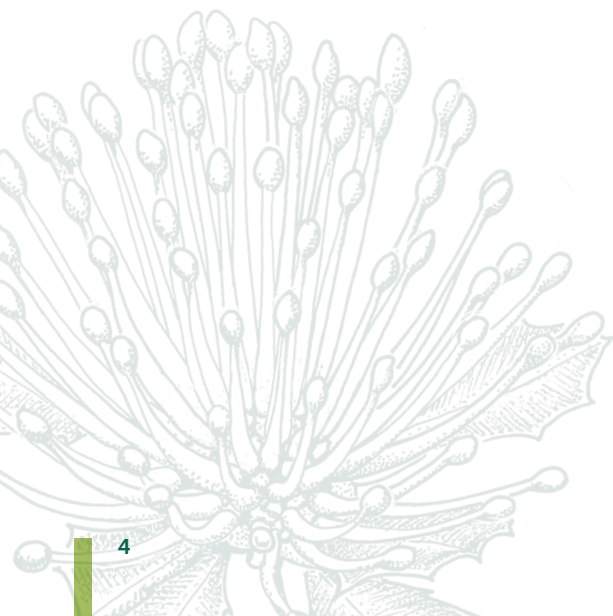
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Executive Summary

This report presents the findings from a six-month research project that aimed to articulate key Indigenous aspirations regarding cultural burning and bushfire management in south-east Australia; identify current impediments to realising these aspirations; and develop recommendations on how to empower Indigenous leadership in fire management decision-making and activities, both in the short and longer term.

This research draws on material collected from submissions, workshops, and interviews, along with publicly available information, to describe the ways in which Indigenous cultural fire management and cultural burning currently reflect fire practices, relationships, and knowledge that are integral parts of Indigenous identity and governance systems.

We highlight the significant impact of the 2019–20 bushfires on Indigenous communities, estates, cultural heritage, landscapes, and significant species. This natural disaster has spurred an increase in the already persistent calls from Indigenous people to undertake cultural fire management, highlight the growing need to support Indigenous leaders and fire practitioners to be involved in all aspects of landscape fire management, including planned burning and bushfire prevention, mitigation, response, recovery and resilience measures.

Broadly speaking, Indigenous communities aspire to lead cultural burning and elements of bushfire recovery and related management activities but continue to be hindered in their efforts. Reasons for this include inadequate decision-making and resourcing, current regulatory and legal frameworks, disconnection with and lack of access to Country, conflicting views around fire, fragmented partnerships and burning regimes, and a lack of information about Indigenous bushfire management. A key step in overcoming these constraints is to identify short term goals to increase Indigenous leadership and capacity in fire management, as well as longer term objectives that will establish a broader framework for empowering Indigenous decision-making and involvement in all aspects of landscape fire management, including planned burning and bushfire prevention, mitigation, response, recovery and resilience measures.

Recommendations are provided for short and long-term measures that can be undertaken to empower Indigenous rights and authority, support collaboration and reconciliation, empower and support Indigenous-led bushfire planning and recovery, and empower Indigenous rights and authority to care for Country through fire. These recommendations are summarised below.

Empower Indigenous rights and authority

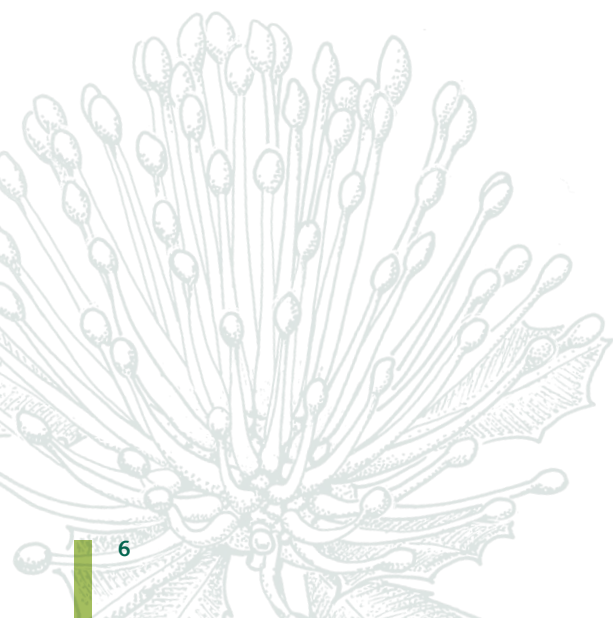
Short-term recommendations	Longer term recommendations
<ul style="list-style-type: none"> Support and resource local Elders and community members to practice, grow or revitalise their cultural fire knowledge, rights and authority, and on-ground practices on Country. Resource groups to apply or develop culturally appropriate frameworks for monitoring and evaluating the cultural, social, economic, and environmental benefits of cultural fire management, related activities, and partnerships. Provide the necessary legal protections and insurance for cultural fire management practices to address current liability concerns. Resource Indigenous attendance at formal fire training events and workshops to enable Indigenous groups to build networks with Indigenous and non-Indigenous fire managers and increase their confidence and knowledge to develop and implement cultural burning strategies. Simplify, incentivise, or create new planning, procurement, and regulatory requirements to enable cultural fire management through formal partnerships with land and fire management agencies and land holders. 	<ul style="list-style-type: none"> Formally recognise the rights and interests of Traditional Owners in land management processes and decision-making structures, regardless of current land tenure. Identify and remove existing legislative, institutional, insurance and policy barriers to cultural fire management. Create consistent and operational mechanisms that enable Traditional Owners to lead and conduct cultural fire management across land tenures and between government agencies and jurisdictions. Identify and resource programs to showcase and assess why and how different institutional arrangements empower Indigenous groups to develop, lead and grow cultural burning activities and sustainable fire management enterprises.

Support collaboration and reconciliation

Short-term recommendations	Longer term recommendations
<ul style="list-style-type: none"> • Resource agencies to develop Indigenous engagement and collaboration strategies and protocols, drawing on initiatives that are already in place in some organisations and jurisdictions and including cultural training by Indigenous fire practitioners. • Resource Indigenous and non-Indigenous partners to build the capacity to support cultural burning objectives and activities, and negotiate agreed pathways to protect, share, acknowledge and integrate knowledge and practice. • Target community/public education programs focused on increasing awareness about the purpose and benefits of Indigenous cultural fire management and enhancing appreciation of Indigenous peoples' role in contemporary land management. • Develop locally informed, nationally consistent communication strategies to ensure bushfire management goals and activities can be understood by both Indigenous and non-Indigenous communities. 	<ul style="list-style-type: none"> • Change fire management operating procedures so that a locally informed Indigenous engagement process is established and regularly reviewed to engage Traditional Owners in the preparation, response, and recovery phases of bushfire management. • Establish performance indicators to evaluate how well relevant agencies collaborate with Indigenous leaders, organisations and enterprises, and people in bushfire management.

Empower and support Indigenous-led bushfire planning and recovery

Short-term recommendations	Longer term recommendations
<ul style="list-style-type: none"> • Establish and resource decision-making roles for Indigenous leaders in local, regional, and national bushfire recovery planning and strategies to ensure Indigenous cultural values, intellectual property, knowledge, and priorities are protected, respected, and valued. • Ensure government emergency disaster plans and strategies are culturally appropriate and include a specific focus on Indigenous community leadership and resourcing requirements. • Empower and resource local Indigenous leaders and staff in bushfire recovery efforts to support the Indigenous community to access relevant information and develop culturally appropriate strategies to support Indigenous people to deal with bushfire impacts. • Support and resource bushfire recovery policies and strategies to care for culturally significant species and habitats and strengthen the approach for establishing the significance of cultural heritage sites and including those sites in bushfire management planning. 	<ul style="list-style-type: none"> • Integrate and embed cultural burning principles into fire-sector approaches, including planning, monitoring, management, and response activities required to drive and enable cultural fire management. • Recognise and protect Indigenous knowledge as an asset that can inform bushfire responses to ecosystem and community recovery after bushfires with informed consent from local Traditional Owners.



Empower Indigenous rights and authority to care for Country through fire

Short-term recommendations	Longer term recommendations
<ul style="list-style-type: none"> • Ensure that fire management partnerships recognise the complexity of cross-cultural engagement and interactions; respect Indigenous knowledge, know-how and protocols; and provide space and opportunities to support Indigenous and non-Indigenous people to develop new knowledge and skills and engage in two-way knowledge exchange. • Provide targeted leadership, employment, and training opportunities for Indigenous women, specifically recognising that Indigenous women and men may have different roles in caring for Country. • Assess the impact and effectiveness of cultural fire management under different governance arrangements and operational settings to identify what enables Traditional Owners to lead the practice of cultural burns, empowering their rights and authority. 	<ul style="list-style-type: none"> • Continuously support Indigenous leadership in all aspects of bushfire and land management to inform bushfire and broader land management decisions across Australia. • Continue to identify and enable economic opportunities for Indigenous leaders, organisations and enterprises that may arise from supporting fire and land management. • Resource programs focused on enabling and restoring Indigenous land management create a collaborative policy framework involving land and emergency services organisations and Indigenous communities to mitigate and manage incidents while following Indigenous cultural protocols. • Support and resource Indigenous community efforts to protect, retain and restore cultural knowledge and share this knowledge with future custodians.

These recommendations draw on research specifically undertaken for this study and include a review of submissions to recent inquiries into the 2019–20 bushfires. They also aim to build on the numerous existing recommendations provided in response to previous rounds of bushfire inquiries, as well as broader dialogues into Indigenous land management and caring for Country. These existing recommendations have been developed by Indigenous and non-Indigenous organisations and experts, submitted for consideration on multiple occasions, but yet to be resourced or implemented. The merit of these existing recommendations remains. The study team has incorporated them into the recommendations proposed here with the aim that the important work conducted in this space, over many years, will be beneficial to informing ongoing and future constructive action.

Chapter 1. Introduction

This report presents the outcomes of a six-month research project conducted in response to calls from Indigenous people to lead and become far more closely involved in fire management in areas of southern and eastern Australia affected by the 2019–20 bushfires, particularly to protect significant species and places from fire and to support recovery in the aftermath of fire.

Indigenous people across Australia recognise that fire is both a threat to and a healer of Country. The effects of wildfire and hazard reduction burning on flora, fauna and ecological communities depend on the attributes of the fire and the ecosystem affected. Fires that are too frequent, too intense or too extensive are recognised as posing a major threat to native species (Connell et al., 2019), including priority threatened species identified in the Australian Government's Threatened Species Strategy¹ (cf. (Connell et al., 2019; Wintle et al., 2020). This is why inappropriate fire regimes are formally listed as a major threatening process for flora and fauna across Australia. At the same time, Indigenous fire and land management practitioners and ecologists have emphasised that fires are critical to the health of Australia's ecosystems and biota across the country (Yibarbuk, 1988). However, there is still much to learn about how the frequency, extent, seasonality and intensity of fire should appropriately interact with local habitats and species in contemporary contexts (Cowley et al., 2014; Dickman et al., 2020; Prober et al., 2016).

The summer of 2019–20 was the hottest and driest year on record in Australia and reflected the stark reality of climate change projections that predict heightened fire risk driven by the impact of global warming (Bowman et al., 2009). Hot and dry conditions, combined with the existence of large areas that have not been managed through local fire and land management activities, led to almost 126,000km² or 12.6 million hectares of Australia being burnt between August 2019 and March 2020 (CSIRO, 2020). In addition to other impacts, these fires affected areas and species that are significant to Indigenous people and communities across Australia.

These devastating events have catalysed interest in supporting and learning from Australian Indigenous communities who are applying, adapting, and rejuvenating Indigenous fire knowledge and landscape burning regimes across the continent. As Robinson et al. (2016, pp. 7–8) note:

Fire has influenced the ways in which Australian Indigenous people live on, with and through their land for millennia. Indigenous Elders are aware of this significance, and this has underpinned their advocacy on behalf of Indigenous fire knowledge and associated fire management practices ... From the perspective of Indigenous people, knowledge about landscape burning is not only about where, when and how to burn; it is also about ensuring that those who light fires are acting under the appropriate authority of the people of that Country—that is, people who have the residential and kinship ties that underpin customary connections.

This project aims to increase our understanding of what needs to be done to overcome obstacles to Indigenous involvement in fire management in terms of policy, capacity, equipment and funds; and to use this understanding to identify a series of short and long term practical measures that can be implemented to enable Indigenous leadership in future fire management efforts. Drawing on interviews, workshops, submissions and publicly available information, these practical measures focus on aligning Indigenous aspirations with fire management needs, both before and after major fire events.

The report is structured as follows. Chapter 2 provides an overview of the **mixed methods** used to undertake this research project. Chapter 3 provides a snapshot of the **impact of the 2019–20 bushfires** on Indigenous land and threatened species, drawing on available data including tenure maps. Chapter 4 discusses factors that continue to **hinder Indigenous aspirations regarding cultural burning, bushfire recovery and related land management activities**, including disconnection with and lack of access to Country, conflicting views around fire, fragmented partnerships and burning regimes, inadequate decision-making and resourcing, existing regulatory and legal frameworks, and a lack of evidence on Indigenous bushfire management.

Chapter 5 identifies factors that **empower and support Indigenous cultural burning, bushfire recovery and related land management activities**, including existing Indigenous land and fire management partnerships and activities; appropriate recognition of local Indigenous rights, knowledge and cultural authority; the inclusion of Indigenous women in decision-making and on-ground operations; efforts to share, rejuvenate and build fire knowledge; the use of adaptive local burning to heal Country; collaboration and reconciliation; and the provision of training, funding, insurance and employment.

Chapter 6 synthesises insights from Chapters 3–5 to offer **short and long term recommendations** for delivering the necessary practical support to empower Indigenous leadership in cultural burning, bushfire recovery and related land management activities.

¹ <https://www.environment.gov.au/biodiversity/threatened/publications/strategy-home>

Chapter 2. Research methods and approach

This six-month research project was conducted at the request of the Wildlife and Threatened Species Bushfire Recovery Expert Panel. This panel was established to assist in prioritising recovery actions for native species, ecological communities and natural assets that hold cultural values for Indigenous Australians, and were affected by the extreme fire events 2019-20 (<https://www.environment.gov.au/biodiversity/bushfire-recovery/bushfire-impacts/expert-panel>).

The research was commissioned by the National Environmental Science Program (Threatened Species Hub) to summarise the aspirations of Indigenous people to care for culturally significant and threatened species in fire-affected regions; and to assist with on-ground post-fire surveys, the monitoring of species recovery and reviews of species and ecosystem responses to fire and management actions. Outcomes of this research will address the Wildlife and Threatened Species Bushfire Recovery Expert Panel's objective of "ensuring learning and continual improvement is at the core of the response".

As part of this effort, perspectives offered by Indigenous and non-Indigenous fire experts and partners in submissions to bushfire inquiries, interviews, small discussion groups and workshops were collected, collated, and analysed. The report concludes with recommendations that focus on what can be done in the short and long term to enable and empower Indigenous fire management partnerships and activities.

This research project has been reviewed and approved by CSIRO Human Research Ethics 97/20 and a draft proposal was reviewed, improved, and approved by the National Environmental Science Program Threatened Species Indigenous Reference Group. A draft of this report was shared to elicit feedback with those who were interviewed as part of this research; with state and federal agency staff who have responsibilities for Indigenous ranger programs, cultural burning initiatives, and bushfire and threatened species recovery plans; and members of the National Environmental Science Program Threatened Species Indigenous Reference Group.

The study region

This report focuses on the same study region as Ward et al. (2020) and comprises 43 temperate bioregions spread across 2.2 million km² (as defined in the Interim Biogeographic Regionalisation for Australia dataset) (Commonwealth of Australia, 2018). The study region includes the Australian Capital Territory (ACT), Tasmania and Victoria, as well as parts of New South Wales, Queensland, South Australia, and Western Australia (Figure 1).

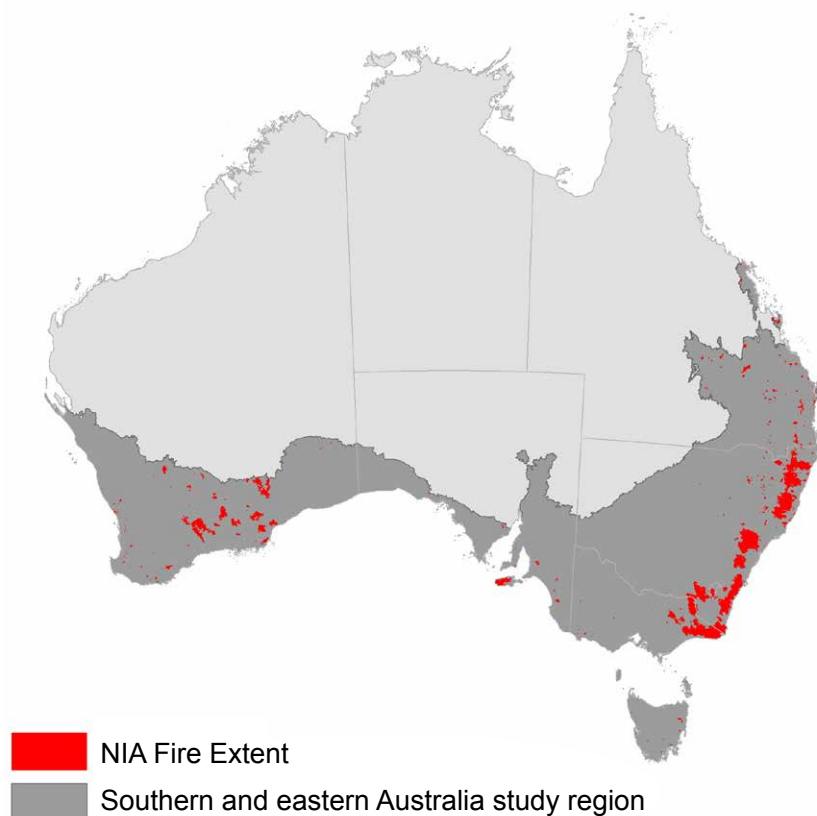


Figure 1: The study region, reflecting the impact of the 2019-20 bushfires on bioregions in Australia.

Source: (Commonwealth of Australia, 2018; Department of Agriculture, Water and the Environment, 2020a).

Note: While the study region has been defined by biophysical boundaries to facilitate comparison with other reports, we acknowledge that Indigenous geographies are also critical for understanding the connections between fire and Indigenous peoples in the region.

The Australian Government Department of Agriculture, Water, and the Environment (DAWE) National Indicative Aggregated (NIA) Fire Extent Dataset (Version 20200635) captures the national extent of the bushfires (burnt areas) across Australia from 1 July 2019 to 22 June 2020. This dataset also uses boundaries from the Interim Biogeographic Regionalisation of Australia (Version 7) to delineate an area of southern Australia that encompasses the emergency bushfire areas of the southern summer. The NIA Fire Extent Dataset was developed to help quantify the potential impacts of the 2019–20 bushfires on wildlife, plants, and ecological communities; and to identify appropriate response and recovery actions. This dataset combines information from multiple sources, including data from State and Territory agencies responsible for emergency and natural resource management, as well as information from the Northern Australian Fire Information website. The variety of mapping methods and attribution approaches means that, conceptually, the dataset lacks national coherence and, in some areas, may identify false positives. However, this remains the most comprehensive and reliable dataset currently available.

We acknowledge that this study region does not consider the geographical extent of Indigenous peoples' Country, or the cultural heritage or song lines that connect species, kin, and Country. There is a need to further consider an appropriate geographical scope for determining the "fire-affected" status of regions that accommodates these factors (cf. Robinson et al., 2021; Williamson et al., 2020). This has both policy implications (in terms of targeting government assistance) and bushfire recovery habitat implications (in terms of understanding the extent of fire impacts).

The effects of bushfire on flora and fauna

The 2019–20 bushfires in southern and eastern Australia had severe impacts on many animal species. The fires covered an unusually large area and, in many places, burnt with unusual intensity (Legge et al., 2021; Ward et al., 2020). Some species that were considered threatened before the fires are now at even greater risk of extinction. Many other fire-affected animal species that were not considered threatened before the fires have now lost much of their habitat and may be imperilled. To support the protection and recovery of these species, conservation action will be needed across many sites (Department of Agriculture, Water and the Environment, 2020b). Government agencies, non-government conservation organisations, university researchers, community groups and the public will need to support informed management of these species and habitats.

Some species are in need of more urgent help than others. Many species have had at least 30% of their range burnt, and some have lost substantially more. Priority animals have been identified based on the extent to which their range has potentially been burnt; how imperilled they were before the fires (e.g., whether they were already listed as Vulnerable, Endangered or Critically Endangered); and the physical, behavioural and ecological traits that influence their vulnerability to fire (Department of Agriculture, Water and the Environment, 2020b).

To understand the impact of the bushfires on flora and fauna, we obtained the finer scale 100m [Species of National Environmental Significance \(SNES\)](#) data from DAWE. This dataset contains data on the distribution of species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Spatial ecologists from DAWE produce these distributions by using modelling software and environmental data to map the known and predicted areas of occurrence of listed species under the EPBC Act, including areas of potential habitat. The data are indicative rather than definitive, providing a starting point for further investigation rather than a comprehensive scientific assessment. The study team merged the SNES dataset with the NIA Fire Extent Dataset to examine the impacts of bushfire on koala populations in the study region.

Other data

Other data used in this study include maps of Native Title determinations, Indigenous Land Use Agreement areas, Indigenous Protected Areas (IPAs), threatened species, bushfire impact areas, and landscape management projects (MERIT) and partnerships (often outside of Indigenous tenure) involving Indigenous people across Australia. Data used in this report and the technical methods used for spatial analysis are outlined in Appendix 1.

Selection of participants

Participants were chosen using the following process. First, the study team conducted an online search of Indigenous Traditional Owners, organisations and corporations that have the potential to be involved in fire management and/or cultural burning (e.g., National Indigenous Australians Agency rangers, and Indigenous Protected Area rangers) or had recently received funding (e.g., <https://www.environment.gov.au/biodiversity/bushfire-recovery/activities-and-outcomes#a10>). Next, for each state in the study region, the study team searched for fire authorities, government and non-government agencies and Indigenous corporations that have been involved in fire management and/or support cultural burning (e.g., Supply Nation, National Parks and Wildlife Service, Rural Fire Service, Country Fire Authority, Country Fire Service, government environmental departments, etc). The study team targeted participants primarily within the areas of southern Australia affected by the 2019–20 bushfires, including Western Australia, southern Queensland, South Australia, Victoria, New South Wales, Canberra, and Tasmania.

The study team contacted potential participants, provided them with an outline summary of the study (Appendix 2 – Factsheet) and enquired about their potential availability for an interview (up to an hour long) to discuss a set of proposed questions (Appendix 3). Once the initial interviews had been conducted, those participants recommended additional parties to the team to contact for further interviews. After completing an interview, a follow-up email was sent to the participant to thank them for their time and seek approval of the typed notes taken during the interview (attached to the email). These notes were returned to participants for review, and participants were given seven working days to provide input on those notes. Participants were made aware that if no reply was received, their consent would be assumed; and that if they chose to withdraw from the study, they could do so at any time prior to finalisation of the study report. Interviews were undertaken by Dr Cathy Robinson, Michele Lockwood, and Oliver Costello. We acknowledge the limited time available to undertake interviews and recognise that these interviews do not reflect a complete sample of all relevant parties located within the study region.

Qualitative interview questions

Interview questions were designed to collect information about participants' insights into the practical support needed to empower Indigenous leadership in cultural burning and bushfire mitigation, response, recovery, and resilience. Questions also provided opportunities for participants to expand on the following:

- Their involvement in bushfire management and/or cultural burning
- Their understanding of bushfire impacts, fire management and cultural burning
- Their leadership in bushfire response, recovery, and resilience in Australia
- Available resources for supporting Indigenous communities

The interview questions can be found in Appendix 3. These questions were tested and piloted with Indigenous fire practitioners to ensure that they were relevant, appropriate, and accessible. We also collected information on the partners and/or organisations with whom participants currently work. While individual participants' details remain confidential, organisations that participated in interviews are listed in the acknowledgements of this report. In some cases, interviews were conducted with an independent individual. Some organisations that participated in this effort chose to involve a few members in the interview.

Community workshops

Two workshops were facilitated by Oliver Costello and designed to provide opportunities for participants to discuss their cultural burning aspirations and share their knowledge and experiences. These included a workshop at Bawley Point (NSW North Coast 12/5/2021) and Minyumai Indigenous Protected Area (NSW South Coast 18/5/2021). Notes were taken during these discussions and then distributed to participants for their approval and consent for use in this study.

Review of submissions

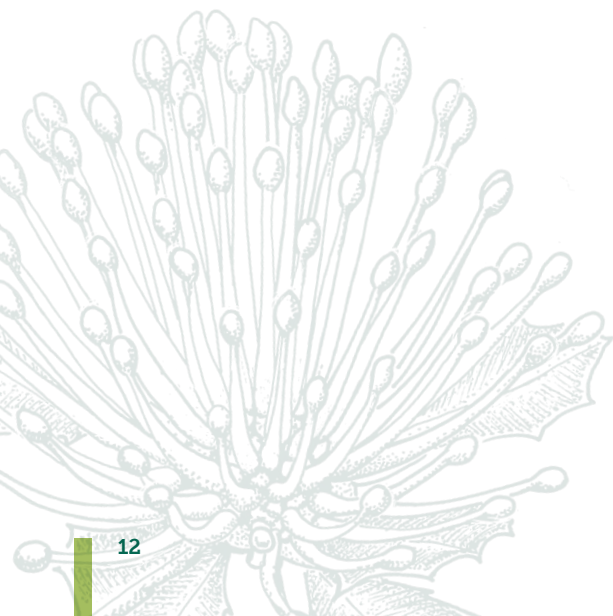
The study team reviewed submissions made primarily by Indigenous organisations to the Royal Commission into National Disaster Arrangements, the New South Wales Independent Bushfire Inquiry, the Inquiry into the 2019–2020 Victorian Bushfire Season, the Independent Review into South Australia’s 2019-2020 Bushfire Season, and the Inquiry into koala populations and habitat in New South Wales. These submissions provided opportunities for Indigenous groups and organisations to express their opinions and aspirations regarding cultural burning, share their knowledge of and expertise in traditional land and fire management practices, and discuss bushfire recovery responses. Submissions are cited throughout the report to provide insight into the lived experience of Indigenous people affected by natural disasters in Australia.

Key terms

This report uses the term “**Indigenous people(s)**” when referring to Aboriginal and/or Torres Strait Islander people(s). While we recognise that it is appropriate to use different terms in different situations, we use the term “Indigenous peoples” here to ensure consistency and clarity. We acknowledge that the word “Indigenous” can be contentious, and that some Aboriginal and Torres Strait Islander peoples prefer other terms. We broadly follow the Convention on Biological Diversity’s definition of “Indigenous peoples” and “local communities” as those who have long-term, traditional ties to land and sea. Our use of this definition does not imply that it has complete acceptance (see Garnett et al., 2018).

The term “**Country**” is used to describe an area of land and sea that is owned and cared for by a culturally distinct group of Indigenous people, a clan, or a nation. Importantly, “Country” refers to more than a physical place; it is a term that reflects Indigenous rights to and cultural relationships and responsibilities associated with caring for their traditional values and estates.

The term “**significance**” has specific meanings in conservation policy and legislation when used in relation to plants, animals, sites and ecosystems, and it offers a unique opportunity to build collaborative alliances between Indigenous land and sea managers, scientists and conservation agencies who are responsible for the sustainable management of Australia (Robinson et al., 2021). However, determining how and why plants and animals are deemed important—and therefore worthy of care and resources—remains a value judgement supported by an evidence base and reasoning that may or may not be shared. It is important that bushfire and cultural burning activities and partnerships acknowledge and address this.



Chapter 3. A snapshot showing the impact of the 2019–20 bushfires on Indigenous communities and Country

The 2019–20 Australian bushfires were unusually intense in many parts of southern and eastern Australia and occurred during a period of record-breaking temperatures and extremely low rainfall. By March 2020, Black Summer fires had burnt almost 19 million hectares, destroyed over 3,000 houses and killed 33 people (Filkov et al., 2020). More than three billion animals—more than one billion of them in NSW—were estimated to have been killed or displaced in the fires, including some Threatened and/or Endangered animal, plant, and insect species. Some species are believed to have become extinct as a result of the fires (van Eeden et al., 2020).

Indigenous leaders highlighted the devastating impacts of these bushfires on Indigenous communities, lands, and heritage. As a fire practitioner working with the Gnowangerup Aboriginal Corporation in south-west Western Australia reflected:

It is important to understand how deep the connection Indigenous people have with Country. It's hard for non-Indigenous people to register the impact of landscape when devastated by fire ... They know that in some cases some animals and plants ... won't come back. [The impact] almost replicates another process of colonisation—an impact and process done that has a devastating impact on people's Country without the consent of local Traditional Owners (interview, February 2021).

Impacts of the 2019–20 bushfires on Indigenous tenure

Uncovering and recording on-the-ground details of bushfire impacts on Indigenous communities and estates was beyond the scope of this six-month study. However, our analysis of fire impacts on Indigenous tenure and significant species—including culturally significant species—provides some insight into the disruption caused by the 2019–20 bushfires. The fires affected a relatively large proportion of formal Indigenous tenure in the southern regions of Australia (11%; Table 1), including 625,582 hectares of Indigenous Protected Areas (Figure 2).

Table 1: Indigenous tenure in the study area, including areas affected by the 2019–20 bushfires.

	Millions (ha)	As a % of total area
Total area of the study region	214.9	100%
Total fire-affected area in the study region in 2019–20	10.3	5%
Indigenous tenure in the study region	17.8	8%
Indigenous tenure in fire-affected areas of the study region in 2019–20	1.1	11%

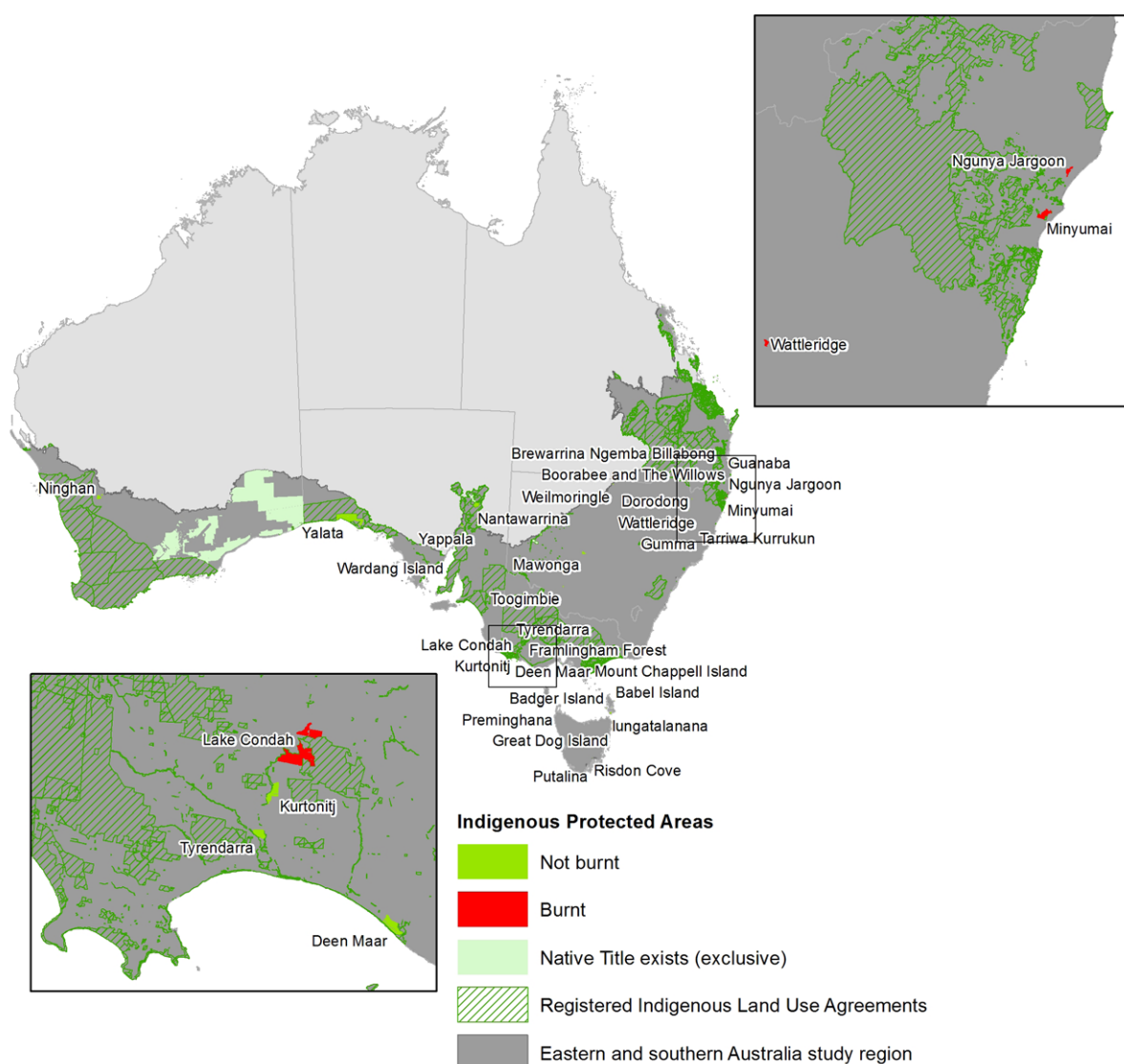


Figure 2: Maps showing the total area of IPAs in the study region, and a table showing four IPAs that were directly burnt in the 2019–20 bushfires.

Maps released by DAWE in February 2020 showed that the 2019–20 bushfires affected approximately 54% of the Greater Blue Mountains World Heritage Area in NSW, and approximately 81% of the Gondwana Rainforests World Heritage Site in NSW and Queensland. Fire also travelled across 99% of the Old Great North Road in NSW (part of the Australian Convict Sites World Heritage Area). Other affected World Heritage Areas included Budj Bim Cultural Landscape in Victoria, Fraser Island (K'gari) in Queensland, the Wet Tropics in Queensland and the Tasmanian Wilderness (Department of Agriculture Water and the Environment, 2021a).

Indigenous perspectives on the impact of the 2019–20 bushfires

Although there have been repeated calls to consider the particular circumstances and standing of Indigenous peoples, contemporary fire management activities and bushfire recovery efforts have only recently incorporated Indigenous landscape perspectives (e.g. Aboriginal Affairs NSW, 2017; Aboriginal Victoria, 2019). As the Indigenous Reference Group to the Ministerial Forum on Northern Development (2020, p. 10) noted, there are “compelling reasons why this must change.”

Recent investigations and inquiries highlight that emergency events such as wildfires disproportionately affect Indigenous communities. This has been attributed to their relative remoteness, isolation in fire-prone areas and limited access to emergency services; as well as the deep trauma that many face due to the legacies of colonisation and historic and continual discrimination that expose Indigenous people to ongoing vulnerabilities (Fogarty et al., 2018; Inspector-General for Emergency Management, 2020; Robinson et al., 2020; Williamson et al., 2020). The Indigenous Reference Group to the Ministerial Forum on Northern Development (2020, p. 10) also observed that Indigenous people “are more likely to suffer from the effects of bushfires including trauma, health, and access to education and housing on top of their existing poor state of health and socio-economic circumstances,” and that “in some bushfire-affected towns ... Indigenous people form a substantial part of the population, sometimes 100% of the residents.” These issues are not confined to the southern regions of Australia.

A representative from the Federation of Victorian Traditional Owner Corporations shared important insights into why bushfires and the process of bushfire recovery are traumatic for Indigenous people and their connections to Country:

This is a complex trauma because of our connection and association with Country ... After a large natural disaster, the Country is silent—the whispering you hear from the wind reminds you of obligations and responsibilities to Country, and there is trauma ... because we are not always sure if Country can respond and heal. This goes to people’s heart—it is hard to stay in tune with severely burnt landscapes. We need to reframe knowledge and practices to help Country heal ... this takes time and compounds the trauma. This is very different to the trauma of losing material possessions. It can take a lifetime to heal (interview, March 2021).

This trauma is compounded by the social and well-being impacts that affect local communities (Robinson et al., 2020). Indigenous representatives from government agencies and Indigenous corporations shared the social upheaval that followed the 2019–20 bushfires, with reported increases in domestic violence, alcohol abuse, and mental health and well-being issues overwhelming many communities and support agencies. An Indigenous policy officer reflected:

When large fire events wipe out the vegetation, it’s not just the impact to the environment; it’s the mental health and well-being that is impacted ... It’s the mental impact when thinking about the losses of wildlife and places of high cultural significance that were directly impacted (Heritage NSW, interview, May 2021).

Gamilaraay and Yawalaraay journalist, Lorena Allam (2020) has also reflected on the impacts of the 2019–20 bushfires:

Like you, I’ve watched in anguish and horror as fire lays waste to precious Yuin land, taking everything with it—lives, homes, animals, trees—but for First Nations people it is also burning up our memories, our sacred places, all the things which make us who we are. It’s a particular grief, to lose forever what connects you to a place in the landscape.

Indigenous perspectives on the effects of bushfire on significant species

The impact of bushfires on significant species and cultural heritage has been challenging for many Indigenous groups in the study region. Cathy Thomas, Women's Cultural Education Officer from the Gunaikurnai Land and Waters Aboriginal Corporation (2020, p. 7) described the effects of bushfires on species and the environment:

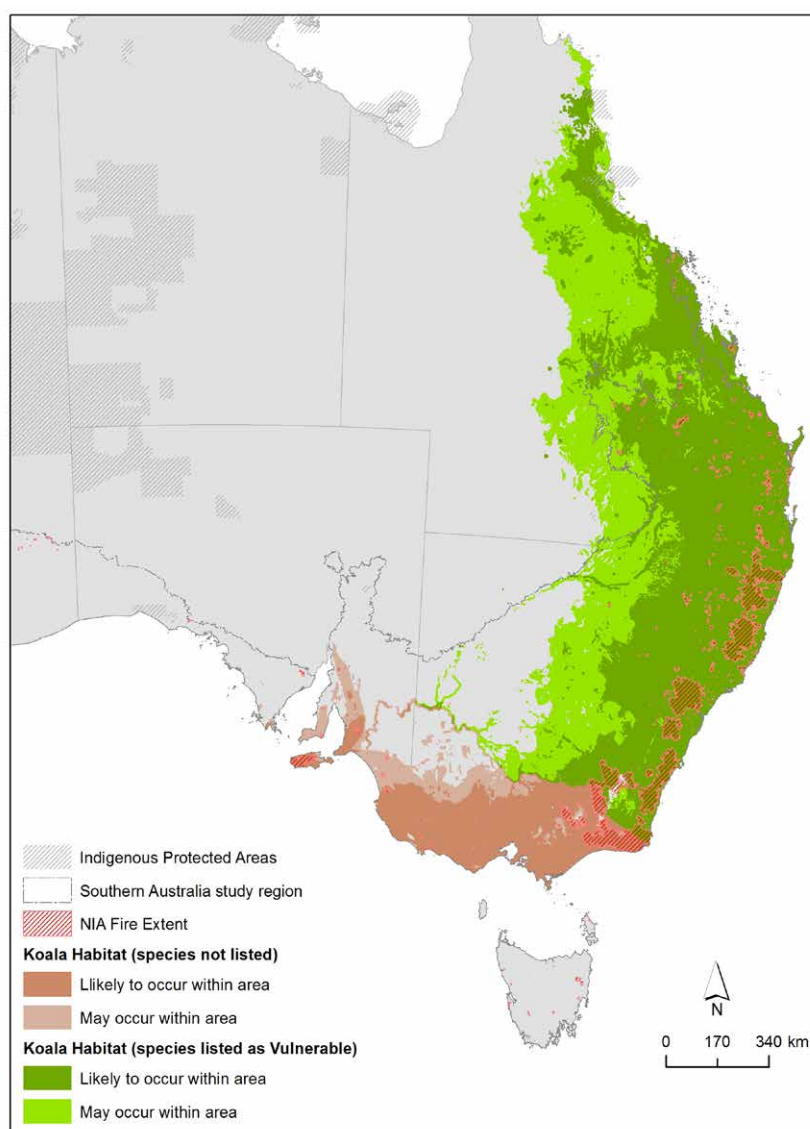
Impacts on flora and fauna, it's part of our environment and our ecosystems and it's quite significant to Aboriginal people and not to mention our totems. Also, our waterways include our water species and food source in lakes, rivers and the ocean, our food source is almost scarce from fires upstream, our beaches covered in debris from fires and affecting our fish and other species in the waters.

An Indigenous policy officer representing the NSW NPWS, who was interviewed as part of this study, agreed:

There are other values which are less tangible, like the plant and animal side of things— particular plants that are valued by the community, and the impact that will have on the immediate availability and longer-term availability of that resource. That's a value that concerns that community (interview, March 2021).

The effects of bushfires on Australia's koala populations provide a useful example of these impacts. In 2019–20, the bushfires affected koala populations and their habitats, including areas where koala populations have been introduced (Figure 3). Legge et al. (2021) estimate that koala populations suffered a mortality rate of 7% immediately after the 2019–20 bushfires, and they predict a 26% mortality rate in 10 years in these burnt areas. This issue requires urgent attention (Department of Agriculture Water and the Environment, 2020). Figure 3 shows the extent of this impact in each state, highlighting the significant impact in NSW (11%) and the ACT (36%) where koalas occur.

As Costello (2019, p. 23) notes, "Budabe belong to waybar jagun. Koalas belong to fire Country." In addition to being recognised as a national icon (Environment and Communications References Committee, 2011) and listed as a species of national environmental significance under the EPBC Act (Department of Agriculture, Water and the Environment, 2020b), the cultural and historical importance of koalas for many Indigenous people is well documented (Cahir et al., 2020; Schlagloth et al., 2018). In submissions relating to various bushfire disasters, it has been noted that koalas form an important part of spiritual and cultural life and are central to many Dreamtime stories and cultural landscape features of importance to Indigenous people (e.g. see Costello, 2019).



	Total area of koala habitat (ha)	Total area of koala habitat in fire-affected areas (ha)	Koala habitat in fire-affected areas (%)
All states	144,990,860	8,138,467	5.6
New South Wales	49,967,043	5,537,755	11.1
ACT	228,666	82,918	36.2
Queensland	69,517,921	641,752	0.9
Victoria	19,047,716	1,585,194	8.3
South Australia	6,126,439	290,033	4.7

Figure 3: Koala habitat and the extent of the 2019–20 bushfires and total area (hectares) and percentage of koala habitat affected in the 2019–20 bushfires, by state. Source: Department of Agriculture, Water and the Environment (2021b).

Note: The same mapping methods have been used to record the distribution of koala throughout their entire range despite differences in their EPBC listing. The modelled distribution is a combination of Maxent-predicted mapping using observation data with recorded collection dates from 2000-2021 and Harmonised Koala Habitat Mapping (NESP 4.4.12, Dec 2020).

Report co-author Oliver Costello notes that while bushfires are devastating to koala populations and habitats, these animals are also part of the Indigenous biocultural landscape in coastal regions of NSW that needs appropriate cultural burning and land management practices in order to flourish:

[K]oalas—we call them budabe or burbi in our language—are a really important dreaming story for our Country. A koala is an important totem for our Country. We have many different values. Some communities will not eat koala because it is a totem, while others will eat it. In different parts of the landscape koalas have different values and relationships ... Koalas are just one of many culturally significant species that we burn for. We need to make sure the canopy is healthy and safe. The pathways are also important. At home there are stories about the koalas and their songline pathways. They are pathways that we share as well. We burn to keep the pathways open (Costello, 2019, p. 22).

The draft National Recovery Plan for the Koala recognises the importance of supporting Indigenous land managers and respecting Indigenous knowledge as part of koala habitat recovery efforts (https://haveyoursay.awe.gov.au/koala-recovery-plan/survey_tools/koala-recovery-plan). This will require locally specific approaches. On Kangaroo Island, for example, cross-cultural and collaborative approaches to koala recovery efforts are challenging in a region where there is no active Indigenous ranger group and koala populations are introduced (Local Council of Kangaroo Island, interview, May 2021). In some parts of Tasmania, Indigenous groups are still recovering from the trauma of recent bushfires and require long-term funding and partnerships that provide a “culturally safe working environment” to empower Indigenous fire practitioners to engage in cultural burning and land management activities (interview, March 2021).

Indigenous perspectives on the effects of bushfire on cultural heritage

Bushfires can also cause considerable damage to Indigenous cultural heritage, which holds significant value for Indigenous communities. A report on the Victorian Post Wildfire Indigenous Heritage Survey explains that:

All Aboriginal sites are of high cultural significance to Aboriginal people as they are a tangible link to their past. The archaeological record is the primary record of the pre-contact period of the Aboriginal occupation of Australia, so that all manifestations of this record are significant to Aboriginal people (Freslov, 2004, p. 185).

The report also notes that consultation with Indigenous representatives revealed important nuance about cultural landscapes:

[Indigenous representatives] stressed the importance of considering the cultural heritage values ... not just in terms of a series of archaeological sites, but in a more holistic way as a cultural landscape that is spatially and temporally connected both materially (sites) and non-materially (associations). It is important ... to be aware that an impact in one area has an impact on the whole cultural landscape (p. 189).

Whether or not sites have archaeological remains, they are still considered “important because of their cultural significance to Aboriginal people and because they usually demonstrate ongoing connection and association with the landscape and with Aboriginal pre- and post-contact history” (Freslov, 2004, p. 190). Indigenous leaders, land managers and fire practitioners note that, while it is important to protect sites that reflect cultural heritage, Indigenous heritage values exist across the landscape, connecting places, species and kin to other places, species, and kin. As an Indigenous representative from the Victorian Department of Primary Industries, Parks and Environment explained:

Heritage is the whole landscape; this is not just about fire. Fire practice is also about caring for heritage—not just about places and species. It’s about why we do fire and how we do fire and this needs to be cared for (interview, March 2021).

In addition to the effects of bushfires, submissions from Indigenous organisations reported that bushfire suppression efforts have resulted in damage to cultural heritage. In Victoria, for example, the Gunaikurnai Land and Waters Aboriginal Corporation (2020, pp. 2-3) explained that:

Some areas of activity of emergency services under the Emergency Management Act 2013 (Victoria) resulted in rushed actions that caused damage to Aboriginal cultural heritage sites. GLaWAC is of the view that this was because recommendations previously made for improving management of Aboriginal cultural heritage during emergency bushfire response have not been implemented.

The Federation of Victorian Traditional Owner Corporations (2020, p. 1) similarly noted that:

Traditional Owner Bushfire Forums heard reports from Traditional Owner Corporations that there were some instances of emergency management that caused damage to Aboriginal Cultural Heritage sites. There were also reports of some Incident Control Centres not adequately engaging with the Registered Aboriginal Party that has responsibility of managing Cultural Heritage over areas of Country that experienced a bushfire emergency response.

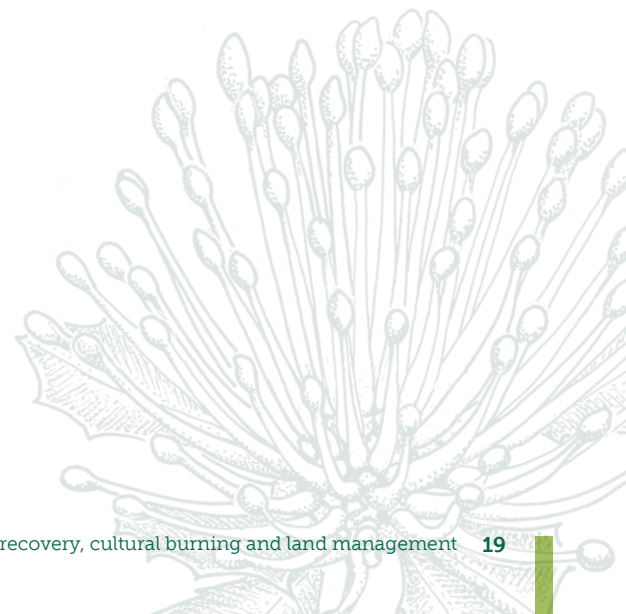
Recognising that “mechanical suppression activities generally have the most devastating impacts on sites,” the Victorian Post Wildfire Indigenous Heritage Survey report cautions that “it should never be assumed that because a place or landscape is a known Aboriginal spiritual or named place that it is not associated with material remains which could be damaged.” The report adds that even “if a place has no remains, damage to the ‘sense of place’ may occur anyway when disturbed by fire or suppression activities. Only Aboriginal people, particularly those with knowledge about a particular place can assess whether damage has occurred,” regardless of whether that damage is “physical or less tangible” (Freslov, 2004, pp. 11-12).

Managing the impacts of bushfire and bushfire suppression activities can be particularly complex in places that contain sites that may be unknown to local Indigenous communities (Tasmania Fire Service, interview, February 2021; NSW NPWS, interview, March 2021; National Bushfire Recovery Agency, interview, February 2021) or where cultural protocols and/or lack of trust make it difficult for Indigenous communities to share the locations of sites with non-Indigenous people. As a bushfire recovery officer from NSW reflected:

Aboriginal people don't share the locations of these places, because a lot of these places are sacred. They are known within the community, but they are not in a database, so it becomes difficult to avoid or prevent damage to them ... It takes a long time to acquire trust ... The Rural Fire Service is not always good at using information that is given to them. We need to recognise and overcome the history of breaching this trust (interview, March 2021).

Some sites have not been mapped due to vandalism that occurred after local Indigenous communities shared information about them (National Indigenous Australians Agency, interview, March 2021; Victorian Country Fire Authority, interview, March 2021). Ensuring that bushfire suppression and firefighting activities provide a culturally safe space in which local Indigenous Elders can share the location of heritage sites has been raised as a key issue.

The holistic and long-term impacts of bushfires on Indigenous communities and Country provide important context for recommendations to empower Indigenous leadership in fire management decision-making and activities, both in the short and longer term. Providing a culturally safe space for Indigenous leaders and fire practitioners to engage in cultural burning and bushfire recovery efforts requires recognition of: (a) the significant trauma caused by the loss of culturally significant sites and species; and (b) the value judgements, knowledge bases and landscape stewardship ethics involved in determining which plants and animals have been affected by bushfires and/or are worthy of bushfire recovery attention, which may or may not be shared (Robinson et al., 2021). From Indigenous people's perspectives, significant species such as the koala have a unique and important place in culture and Country. Similarly, cultural heritage incorporates a web of places, as well as individual sites. When describing and determining the impacts of bushfires, it is clear that definitions of significance and the ways in which plants, animals, sites, and ecosystems are identified and classified as significant varies among Indigenous people and between Indigenous and non-Indigenous experts and conservation practitioners.



Chapter 4. Factors that hinder Indigenous cultural burning, bushfire recovery and related land management activities

Indigenous landscape burning has continued to be practised in some parts of Australia since colonisation. Numerous reports and submissions to various state and federal inquiries have outlined Indigenous aspirations to lead partnerships that enable Indigenous groups to direct and practise cultural burning and land management activities in order to protect, heal and nurture Country. However, a number of factors continue to frustrate efforts to translate these aspirations into reality. These include Indigenous disconnection with and lack of access to their traditional Country, non-Indigenous assumptions about fire and Indigenous landscape burning, fragmented partnerships and burning regimes, inadequate decision-making structures and resourcing, existing regulatory and legal frameworks, and a lack of evidence on Indigenous bushfire management.

Inadequate decision-making and resourcing

Various reports and inquiries have repeatedly noted the need for appropriate governance arrangements to support Indigenous engagement in national, state, regional and local fire management decision-making. To date, however, this has been given limited material support. Long-term fire practitioner and cultural burning trainer Victor Steffensen reflected on the frustration of not translating local support into mainstream policy reform:

With the [cultural burning] workshops that we implement on Country and around the Country ... we have the Rural Fire Service, National Parks, pastoralists ... everyone coming to the workshops. And everyone on that ground level can see the value in this and everyone is on board. But the only thing that is not happening is at the top level— they are not on board. I can say that there would be representatives from every walk of life in this nation that would have to agree that they want to see action in looking after the landscape. But it is so hard to do when we have everyone so fragmented in their views ... And the people with knowledge of that Country are just standing back and not even getting involved. That has been the way ever since colonisation hit Australia's shores—the people with the knowledge of Country have not been included (Steffensen, 2019, p. 3).

It should be noted that federal and state agencies and Non-Governmental Organisations have increasingly resourced and supported cultural burning workshops, cultural burning activities and networking opportunities to enable peer-to-peer learning (e.g., Maclean et al., 2018). However, while interviewees welcomed this growing support, they also pointed to an ongoing challenge that was succinctly summarised in an interview with a representative from the Taungurung Land and Waters Council Aboriginal Corporation (Victoria):

No one is employed to apply cultural burning. We need this. We need them [government] to give us time, space, and empowerment. We need Aboriginal communities to come together to answer these questions. Give us the time to flesh it out (interview, May 2021).

Instead, many of the cultural burning workshops and gatherings that have taken place across Australia rely on Indigenous volunteer or day-labour funding models. While there are some notable examples of the efficacy of this approach, particularly during the early stages of re-establishing cultural authority, knowledge and support for cultural burning activities, partnerships and training is needed (see Maclean et al., 2018). Indigenous group interviewees noted that it is difficult to sustain community interest in cultural burning, and to grow capacity to undertake and lead landscape burning activities, without employment and training. Victor Steffensen has reflected on important next steps that are needed to achieve these goals of increased community interest in and capacity for landscape burning:

We run programs and workshops across six states now and thousands of people are influenced and coming to these workshops. There is a network across this country now that is quite huge and ready and, on the go, to start looking for change ... We are ready for the next step here and that is a large scope—that is putting the training programs right across the state. That is getting thousands of jobs happening. That is getting people out there looking after that Country and starting to show the results (Steffensen, 2019, p. 6).

Many interviewees also raised issues around inclusion and equity, noting the need to support groups who are taking their first steps towards practising cultural burning, as well as established groups who have already received substantial support (e.g., Federation of Victorian Traditional Owner Corporations, interview, March 2021). At present, mainstream community committees and stakeholder engagement groups provide limited opportunity for Indigenous Elders, rangers, and community members to provide appropriate and locally relevant input. An Indigenous Country Fire Service officer from South Australia explained:

Small communities are a bit more vulnerable and can be overlooked in [fire management] engagement and education efforts ... Engagement can be a bit more sporadic and this can have a serious impact in terms of preparing for bushfires and also to help respond and recover from bushfire events (interview, February 2021).

Other interviewees expressed concern about ensuring that Indigenous groups are appropriately resourced and trained to take on responsibilities for cultural burning and other fire management activities, which can carry huge risk (e.g., Albany Country Fire Service volunteer, interview, March 2021; Gugiyn Balun Aboriginal Corporation, interview, April 2021; Grafton Ngerrie Local Aboriginal Land Council, interview, April 2021, NSW NPWS, interview, April 2021). Agency staff supported the potential of cultural burning but acknowledged that it needs dedicated funding and policy-level support (10 Deserts Project, interview, March 2021). Many noted that one-off investments to undertake a cultural burning workshop were rarely followed by long-term resourcing (e.g., Victoria Country Fire Authority, interview, March 2021). While some jurisdictions have now implemented cultural burning policies (e.g., the Victorian Government Cultural Burning Strategy), this is not the case across the study region. A South Australian NPWS officer echoed the sentiments of other agency representatives from states that have yet to implement a specific cultural burning policy:

We haven't developed a specific cultural burning policy for our department. We want it to be led by First Nations groups but we're not specifically resourced for that. If a First Nations group has aspirations around fire management, we want them to talk with us, and where we can, we will work on a burn together ... It's not an extensive part of our program. We're not actively excluding it; we're just not really resourced for the level of engagement that it requires. So, we deal with it on an ad hoc basis, based on the needs of First Nations groups (interview, April 2021).

Current regulatory and legal frameworks

A number of submissions noted the plethora of regulatory and legal barriers to Indigenous participation in fire management (Dja Dja Wurrung Clans Aboriginal Corporation, 2020; The Institute of Foresters of Australia and Australian Forest Growers, 2020c; University of Melbourne Cultural Burning Research Group, 2020). Bushfire codes of practice require a high level of bushfire management training and qualification, and the need for accredited training and insurance imposes even greater barriers to Indigenous cultural burning (10 Deserts Project, interview, February 2021). The Victorian Traditional Owner Cultural Fire Knowledge Group (2019) reflected on these barriers, noting that “despite the existence of supporting statements and mutual objectives in current government policies, there are numerous policy and regulatory constraints.” This means that Traditional Owners have limited authority, resources and capacity to develop and apply cultural practices on Country (Dja Dja Wurrung Clans Aboriginal Corporation, 2020).

Regulatory and legal barriers to practising cultural burning on private land were also noted. The IFAAFG (p. 13) observed that governments are “typically limited to enforcing building codes and emergency bushfire response on privately managed lands (i.e., privately owned and leasehold public lands)” and that there is “very limited support for conducting active fire management on such lands”. The IFAAFG noted a need to “expand government roles into educating and supporting private land managers in fuel management, including providing support for cultural burning on Traditional Owner-managed lands ... to mitigate the wildfire threat and improve the ecological health of their native vegetation.” The University of Melbourne Cultural Burning Research Group drew particular attention to this issue in southeast Australia:

Aboriginal peoples have limited access to land on which they can practice their fire knowledge. Even on lands where governments recognise their Native Title interests or rights to exercise traditional rights and customs, whether through Native Title or other legislative instruments, Aboriginal peoples do not have free access to land or the permission to care for it with fire as they see fit. Where cultural burning initiatives are occurring in southeast Australia, for example, these tend to rely on access to private conservation lands provided at the discretion of the private landholder. Where Aboriginal peoples have been able to treat public lands with cultural burning in recent years, in these contexts, it has typically been where there are Native Title settlements (or similar) and robust relationships between Aboriginal land trustees and government (2020, p. 4).

Indigenous groups who practise cultural burning also lack necessary legal protections, including insurance, particularly where structures and processes rely on the volunteer model (NSW Banbai Rangers, interview, May 2021). Commenting on prescribed burning (rather than cultural burning specifically), the IFAAFG (p. 8) noted the need for “States and Territories [to] develop legal and operational processes to enable planned burning practitioners (paid and volunteer) to operate without undue fear of prosecution or other disciplinary actions.”

Disconnection with and lack of access to Country

Many Indigenous groups in the study region do not have access to their Country and have limited mechanisms available to them to engage in and lead cultural burning and land management. As a Banbai Ranger reflected:

Not everyone can burn Country, or they might not have Country to look after. They are missing that. Get rangers and IPAs [Indigenous Protected Areas] up and running to get those people back looking after Country, to hear stories from the old people to the young people—language, dance, this all needs to be done to avoid disconnection (interview, May 2021).

Native Title rights, land rights, settlement acts and other government interventions that seek to establish or dissolve Indigenous entities to act as cultural authorities have both created benefits and tensions about who speaks for the Country for many Traditional Owners and Indigenous people. Fragmentation in cultural authority also makes it difficult to find the appropriate mechanisms for Indigenous community engagement, and for securing ongoing informed prior consent to initiate and direct cultural burning activities (Tasmania Fire Services, interview, February 2021; Country Fire Authority Victoria, interview, March 2021). In some regions, current Indigenous land practitioners have not had first-hand experience of burning. In others, Indigenous practitioners do not have the necessary access to land to undertake burning. A joint manager from the NSW NPWS explained:

There is now a deeply colonised and fractured Aboriginal community that has a very, very fractured landscape and modified lands. Many Aboriginal people generally are not living on Country, so they're not actively burning every day as part of a routine. They're living in houses, just like everybody else (interview, May 2021).

Conflicting views around fire

There are significant differences between Indigenous, historical, academic, and non-Indigenous fire practitioner understandings of fire knowledge and landscape burning practices (see review in Robinson et al., 2016). The University of Melbourne Cultural Burning Research Group notes that fire emblemises “the deep cultural schism between the Indigenous world view and the settler world view.” While “Indigenous culture and language [reveal] a deeply embedded, complex and multifaceted relationship between people and fire across all Indigenous peoples ... the settler experience with fire is rooted in a combative mindset that employs paramilitary concepts and structures to guide its relationship with fire” (University of Melbourne Cultural Burning Research Group, 2020, p. 5). In practice, this can create complex tensions for local fire practitioners. Interviewees described the challenges of observing on-ground bushfire suppression activities that are conducted with a mindset of “aggression and ego” and “with speed,” where “the goal is to get the fire done as quickly as possible” (Heritage NSW, interview, May 2021).

Fire officers noted that the public is often threatened by fire, which imposes enormous political pressure on local burns (The Institute of Foresters of Australia and Australian Forest Growers, 2020a). The IFAAFG argues that there is often a “protectionist philosophy towards natural area management” that informs prevailing fire and land management policies regarding human activity and regular planned fire in forested landscapes. As its submission to the National Disaster Royal Commission states:

[A] prevailing community belief that all fires are environmentally damaging has disproportionately influenced land management policies and practices. In particular, it is constraining the use of fuel reduction burning as a rational and cost-effective means of mitigating wildfire intensity and threat (p. 14).

Local Indigenous and non-Indigenous fire practitioners who were interviewed as part of this study also discussed the cross-cultural challenges of working with fire officers who have limited appreciation or knowledge of Indigenous cultural burning protocols and practices, including those who are brought in from other areas and are not knowledgeable about local species or weather patterns. A Ngadju ranger in Western Australia described the consequences of these challenges:

Back burning is done in an efficient manner that does not consider local values and details of the local areas. This issue was amplified last year when back burning was being done quickly, with fire crews who didn't know much about the area and which resulted in some important areas and species being damaged through fire (interview, February 2021).

Other Indigenous fire practitioners agreed, noting that landscape burning or fire suppression efforts that are conducted without local knowledge and appropriate Indigenous engagement can lead to poor decisions. Fire crews work in conditions that require activities to be completed “in narrow windows between the working day of 9–5,” which means that there is little or no time to “read the Country” or “engage with local Indigenous communities to guide the purpose and practice of landscape burning (Gnowangerup Aboriginal Corporation, interview, February 2021). This is challenging for Indigenous fire crew members, who compare this approach with Indigenous ethics and practice of cultural burning. As one Indigenous fire practitioner explained:

We do things calmly and slowly during our cultural burning and we undertake our burning activities at night ... to take advantage of cooler temperatures and the ambience of fire that also calms people when doing cultural burning on Country. It's a practice of feeling Country, not pushing Country (Heritage NSW, interview, May 2021).

Indigenous fire practitioners who were interviewed for this study also reported that non-Indigenous fire crew assumptions about Indigenous people and their relationships with fire also create tensions in on-ground efforts (Gugyyn Balun Aboriginal Corporation and Grafton Ngerrie Local Aboriginal Land Council, interview, April 2012). Interviewees described some of the challenges facing local Indigenous rangers, including tremendous pressure to perform cultural burning activities when they may not have sufficient knowledge or capacity to undertake cultural burning in a safe or appropriate way (Department of Social Services, interview, February 2021, NSW NPWS, interview, April 2021). In other cases, Indigenous rangers and fire practitioners described not feeling “culturally safe” to participate in mainstream fire crews or fire management activities with long-established fire management decision-making protocols and practices. A long-term, non-Indigenous Country Fire Service officer from South Australia reflected on the need to reform fire crew workplace culture to negotiate the pathway ahead:

Historical experience that creates the attitudes that we have for fire today is important. This is for Indigenous and non-Indigenous partners. Indigenous people keep telling us about how they feel excluded and denied access. Non-Indigenous people need to build trust and cultural understanding about how this history affects attitudes to each other and the trust you need to collaborate to burn hard to negotiate this for sacred sites. We have to be very sensitive and careful around this so we respect cultural protocols. This is not just for burning, this is for all the fire prevention activities ... There is a need to consider cultural burning for hazard reduction burning, landscape burning (interview, February 2021).

Fragmented partnerships and burning regimes

Input from representatives of Indigenous organisations to recent fire reports and commission inquiries has reflected on the barriers and obstacles imposed by fragmented partnerships and burning regimes that now exist across tenures and government agencies (Firesticks, 2020b; Robinson et al., 2020). In stark contrast to the holistic landscape approach supported by Indigenous cultural burning, there is an enduring frustration that agencies “deal with complex systems by breaking them into silos and treating them separately, whilst Indigenous people continue to articulate the completeness, or wholeness, and the need to include all aspects into dealing with the special relationship between people, Country and the spiritual world” (Indigenous Reference Group to the Ministerial Forum on Northern Development, 2020, p. 11). The submission from the Aboriginal Carbon Foundation goes further, noting the lack of an extensive, collaborative network of agencies and groups implementing cultural burns across different tenures. The submission argues that the existence of such a network would have meant that “the impacts of bushfires would have been ... mitigated substantially and potentially the loss of life avoided” (Aboriginal Carbon Foundation, 2020, p. 1).

Fragmented fire management regimes, resourcing opportunities and partnership arrangements mean that Indigenous fire crews in the study region have been confined to working in patches where they are allowed to burn; during times deemed appropriate by prescribed burning regulations and protocols; and with agency, non-governmental organisation or private landholder partners, who may have different (conservation or hazard reduction) fire management capabilities and agendas (see: The Wilderness Society Victoria, 2020, p. 5). As a Tasmanian Fire Service officer explained, “The landscape is fragmented - it has high-value assets and multiple tenures. This creates several issues for fire management practicality, and for our efforts to build collaborative partnerships” (interview, February 2021). In Victoria, the Dja Dja Wurrung Clans Aboriginal Corporation representative reported that, although procedures and guidelines have been developed to involve Traditional Owners in “field work and incident management structures,” these have not been properly resourced and the involvement of Traditional Owners has been “fragmented and ad hoc” (interview, 2020).

A representative from the Victorian Eurora Arboretum Landcare group explained that this has required local partners to establish working fire management activities and partnerships that suit the local tenure and biophysical context, with the longer term goal “to share and learn to shift the culture and practice of burning” across tenures in the region (interview, February 2021). An Indigenous Country Fire Service officer from South Australia observed that working to suit the local context and finding ways to reconcile protocols around landscape burning is key:

We have initiated partnerships for burning on private land and this offers an important pathway for cultural burning. We work with communities to identify issues of concern, areas that need protection or burning ... Key to this is to respect Indigenous knowledge developed over thousands of years, but to recognise fire is on a landscape that has changed and we need to accommodate this. New knowledge needs to be added ... We also need to be mindful of the range of rules and protocols around cultural burning. We have to respect this but also understand that some of these rules and protocols might have been forgotten or not practised for some time ... We also need to reconcile this with rules [around fire] set by regulation ... to ensure fire management activities are safe (interview, February 2021).

The need for coordination is amplified in bushfire recovery efforts. A representative from the Minyurnai Land Holding Aboriginal Corporation noted the severe impact of fire on Indigenous Protected Areas and adjoining private and public land, as well as the need for a “coordinated plan to assess and monitor the impact of those fires” on the flora and fauna biodiversity values in the region (interview, February 2021). The current fragmented approach was noted by several interviewees, including a Tasmanian Fire Service officer:

[This fragmented approach means that] we miss the more subtle cultural values and features—e.g., a rock overhang—that are not listed, but that doesn’t mean they’re not important ... or that engagement efforts are just focused on a single species which becomes the focus of the burning or recovery efforts, rather than taking a holistic approach (interview, February 2021).



Indigenous people and cultural burning are key to bushfire management in Australia. Image: Oliver Costello

Chapter 5. Factors that empower and support Indigenous cultural burning, bushfire recovery and related land management activities

The purpose of the Cultural Fire Strategy is twofold: to reinvigorate cultural fire through Traditional Owner led practices across all types of land tenure and Country, and to allow Traditional Owners to heal Country and accordingly achieve their rights and obligations to care for Country.

(Federation of Victorian Traditional Owner Corporations, 2020, p. 1)

Local groups and regional alliances have articulated various strategies to empower Traditional Owners and Indigenous fire practitioners to rejuvenate or expand cultural burning as part of Indigenous people's land management activities and responsibilities. Numerous submissions, reports and interviews that were collected as part of this study described cultural burning, highlighting the intimate connections that exist between cultural burning and Indigenous landscape management. Three key features that characterise the purpose, practice and governance of cultural burning were illuminated. Firstly, cultural burning is a means of expressing Indigenous governance and Indigenous rights to and responsibilities for Country. As a Victorian cultural heritage advisor explained, cultural burning is a "key act of sovereignty and also a collective obligation to heal Country together" (interview, March 2021).

Second, cultural burning represents a holistic approach to managing the Australian landscape that draws on the cultural authority, knowledge, and customs of local Indigenous communities, including their knowledge and understanding of the nuances and needs of local landscapes. An Indigenous representative from Heritage NSW, explained that this holistic approach results in "cool" fires in targeted areas during the cooler season, allowing fires to burn slowly and in patches:

I have been doing burning on Country since I can remember—from a small kid in the river banks with our old people, burning leaf litter and overgrown vegetation to open up the river bends to make access easy for animals to travel through. Also, to create new growth of native grasses for the possums to eat, not to mention giving them open spaces to come to the ground and feed or travel in safety from predators ... Our corporation also undertakes cultural burning on Country ... to stimulate growth of the seed bank to bring up the wattles and other scrubs ... making sure we leave clumps of vegetation for native animals and critters to use as cover and protection (interview, May 2021).

Interviewees explained that some habitats do not need fire to heal but require other cultural and land management practices instead. As Costello (2019, p. 23) notes, "When we talk about cultural fire, cultural fire is the right fire for the culture of that land. As you walk through different landscapes, the culture changes because the plants and animals and the kinship of the land shifts." Others highlighted the value of cultural burning at the urban interface, not only to help with hazard reduction burning but also to influence other activities and relationships that are key to ensuring Indigenous communities have the necessary skills and resources to prevent and stay safe during a bushfire (South Australia Country Fire Service, interview, February 2021). As noted in the submission from Wylaa Buuranliyn in NSW, cultural burning is part of cultural land management systems and needs to be implemented in a variety of places:

Cultural burning is needed in rural areas, along the urban interface, National Parks, State Forests, and anywhere bush land adjoins populated areas ... It will take a few short years before conditions will be right again and history will be repeated unless a traditional land management ideology is implemented (2020, p. 2).

Third, cultural burning is an evidence-based approach to land management. Indigenous people manage fire using techniques that have been developed over long periods of time, based on observations, experience and an understanding of whether, when and how fire can benefit and heal different landscapes. This evidence-based approach continues in contemporary fire management. Indigenous fire practitioners who were interviewed as part of this study explained that cultural burning is now being adapted to suit contemporary landscapes, seasons, and community capacity and aspirations. Indigenous ranger groups and fire crews have been established across the country and are learning or applying fire management practices throughout the year, adapting their knowledge and cultural burning techniques to integrate new technologies, and to suit changing seasons and climates, as well as the different flora and fauna that inhabit different landscapes.

Cultural burning in contemporary landscapes

After the recent bushfires, Indigenous leaders across Australia reiterated that fire has always influenced the ways in which Australian Indigenous people live on, with and through their land. This has underpinned their advocacy to be empowered to learn or draw on Indigenous knowledge and connections with Country to adapt fire management practices to suit contemporary partnerships and settings. As the Gunaikurnai Land and Waters Aboriginal Corporation noted in its submission:

Cultural fire is not a panacea but is part of the long-term transformational change to the management of Country. We exist in a changed environment and must draw on the 65,000 plus years of Traditional Owner experience managing Country combined with the modern tools and systems available today (2020, p. 2)

Empowering Elders and recognising their right to fire for Country is critical to realising this aspiration (Federation of Victorian Traditional Owner Corporations, 2020). This respects the agency of Country to respond appropriately when the right people have the authority to direct when, where and why to burn. A representative from the Dja Dja Wurrung Clans Aboriginal Corporation explained:

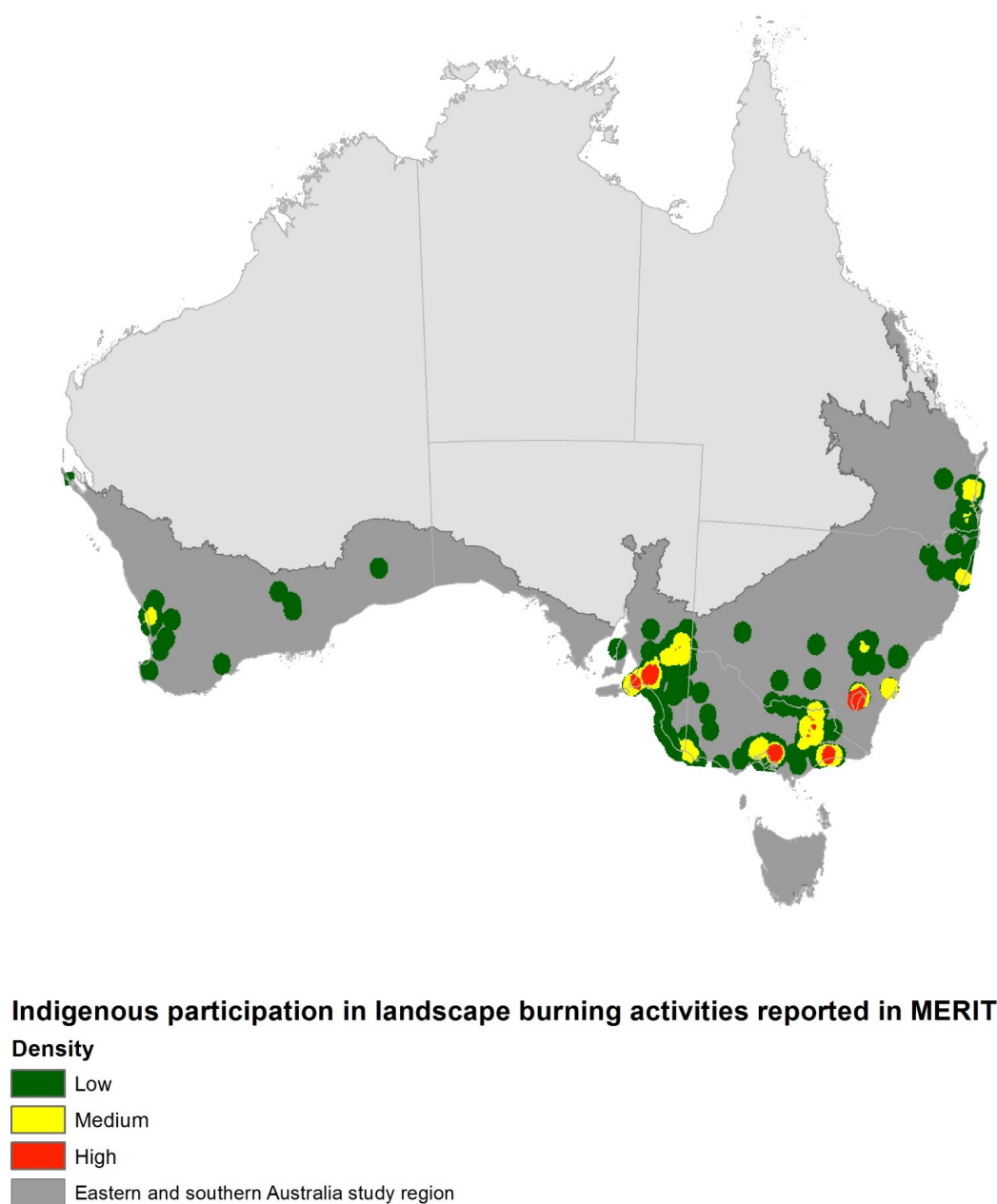
Think of fire not as a tool or practice but as a spiritual aspect and one that has a place—if you treat it well, it will treat you well. This is not about focusing on species and systems but focusing on the right people making the right decisions and having the right ceremonies and cultural authorities to do this. Looking after fire from a spiritual point of view recognises that fire has the right to be there, just as an emu does and a person does. It's not separate to us or the landscape (interview, April 2021).

Concerted efforts are taking place to address the lack of first-hand experience in landscape burning by building and sharing Indigenous cultural burning knowledge through on-ground activities (Firesticks, 2020a; Maclean et al., 2018; Robinson et al., 2016). Cultural burning workshops have been held in many parts of the country, and participants have reported that these provide vital forums to enable them to reconnect to Country (Worimi Local Aboriginal Land Council, interview, April 2021). These workshops have also provided safe spaces for cultural empowerment and the revitalisation of Indigenous knowledge through interactions that enable Indigenous people to feel valued and respected (Indigi Lab, interview, March 2021).

Traditional Owners have demonstrated a persistent and growing interest in training and work opportunities to oversee and perform cultural burning on their lands, and as a service for other landowners and local councils (Gugiyin Balun Aboriginal Corporation and Grafton Ngerrie Local Aboriginal Land Council, interview, April 2021, NSW Banbai rangers, interview, May 2021). A range of national and regional networks and community-based approaches have emerged to support the reinvigoration of Indigenous fire knowledge and practice, recognising the role that fire plays in the context of climate change, as well as the importance of understanding why and how fire and life are interconnected (Heritage NSW, interview, May 2021). The provision of a culturally safe learning environment has been identified as key to such efforts (Firesticks, 2020b).

Opportunities to build on existing Indigenous land and fire management partnerships and activities

A review of federally funded landscape burning projects that have been reported in the federal monitoring and evaluation reporting tool (MERIT, which records the activities, outputs and outcomes of program-funded activities with Indigenous communities) highlights that there is significant capacity to build on in the study region (Figure 4). Levels of Indigenous participation in other land management activities reported in MERIT are also significant in the study region, including weed and feral animal management and habitat restoration for threatened species (Figure 5). These maps only show federally funded projects since 2011; they do not include significant projects funded by non-governmental organisations and state agencies, nor do they show the land management activities that Indigenous communities conduct as part of their cultural responsibilities on their estates. As a result, they provide only a partial representation of Indigenous community capacity and activity. Despite this, they highlight significant opportunities to build on existing partnerships and activities in order to expand and extend Indigenous cultural burning as part of bushfire prevention and recovery efforts, and as part of broader landscape management and healing efforts.



	Number of sites (projects)	As a % of total sites (projects)
Total number of fire activities in study region	640 (65)	100%
Landscape burning activities in fire affected areas of study region	14 (5 projects)	8% (2%)

Figure 4: Indigenous participation in landscape burning activities.

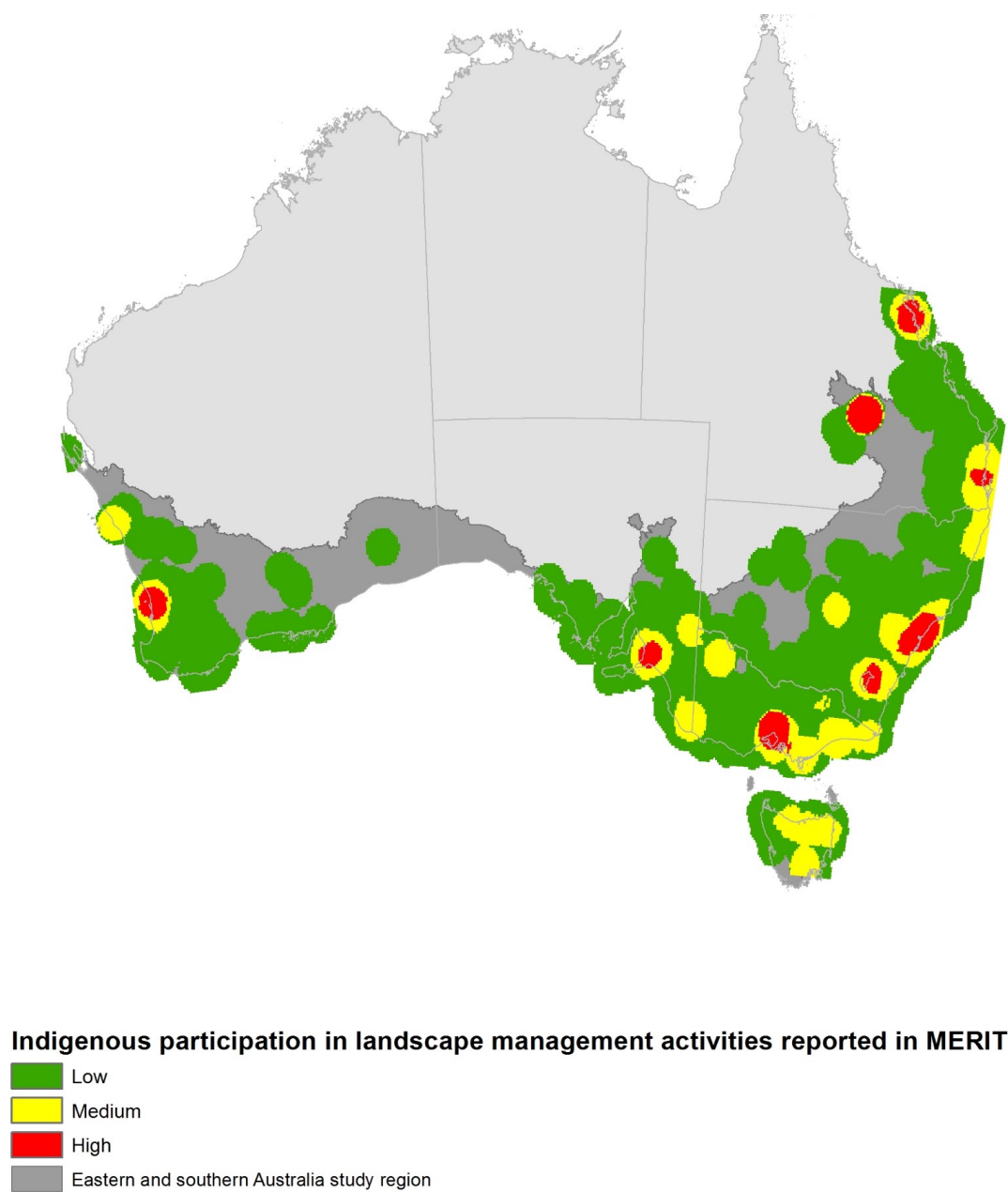
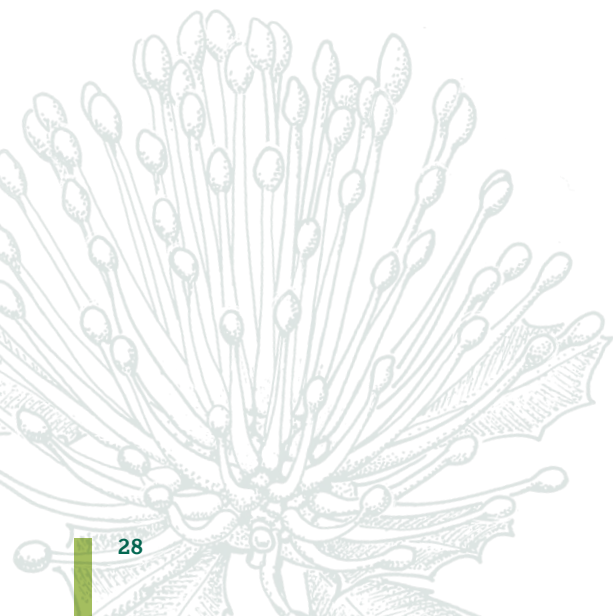


Figure 5: Participation in landscape management activities.



Interviews conducted for this study demonstrate that Indigenous groups have a high level of interest in and capacity for participating in fire management decision-making, on-ground activities, and bushfire recovery efforts. Support from Indigenous ranger groups, fire crews and local Elders was reported across the study region. In Victoria, Traditional Owner groups have already established crews that contribute to the emergency response and the ongoing management of Country, including through cultural burning. This contribution is expected to grow as the Victorian Cultural Fire Strategy continues to be implemented (Federation of Victorian Traditional Owner Corporations, 2020, pp. 1-2 of the final attachment in the submission).

The Australasian Fire and Emergency Services Council (AFAC) has developed a national position on prescribed burning that recognises the significance of fire for Indigenous Australians:

Where Traditional Owners have not been able to continue these practices, the depth of spiritual and cultural knowledge and connection to the land is maintained through stories and memories. Integration of this retained knowledge into current agency practices should be actively supported and promoted. Where knowledge gaps exist, agencies should work with Traditional Owners to build that knowledge, and, where appropriate, revive practices (AFAC, 2016).

Various fire authorities in the study region have established Indigenous inclusion plans (ACT Government et al., 2015; CFA, 2014; Office of Environment and Heritage, 2016; Queensland Fire and Emergency Services, 2017; The Victorian Traditional Owner Cultural Fire Knowledge Group, 2019; Victorian Association of Forest Industries Inc., 2020) and government agencies across the country have developed a range of fire management programs and partnerships with Traditional Owners (see review in Maclean et al., 2018; Robinson et al., 2016). These strategies all have a strong focus on agency and community partnerships, as well as stronger relationships with Traditional Owners and increased cultural burning where possible. Indigenous groups have been invited into incident control centres and shown maps of fire spread, and local agency staff have actively engaged with local Elders to check significance values for registered Aboriginal Places and seek management recommendations for these sites (Gunaikurnai Land and Waters Aboriginal Corporation, 2020, p.2).

These efforts were acknowledged in interviews with Indigenous fire practitioners, who reported positive involvement with several incident control centres and fire crews, as well as positive progress towards ensuring that Traditional Owners are empowered to participate in early recovery planning (NSW NPWS, interviews, April, May 2021; NSW Banbai rangers, interview, May 2021). Some Indigenous corporations have also established natural resource management crews and fire crews that contribute to a range of burning activities, including efforts to build preparedness through cultural burning and other fire and land management activities. Indigenous organisations, ranger groups and fire crews have been supporting these partnerships by actively exploring ways to rejuvenate and activate their cultural obligations, securing informed consent from Indigenous Elders, and ensuring that they embed burning regimes into caring for Country by undertaking a more active role in management and decision-making.

Cultural burning workshops and forums have also been supported, creating important opportunities for peer-to-peer learning between Indigenous leaders and fire practitioners. These forums also provide critical opportunities for non-Indigenous fire practitioners and relevant organisational representatives to observe and understand what cultural burning looks like in action, in terms of both purpose and practice. As a representative from the NSW NPWS noted:

Workshops are good to gain an understanding, but seeing the burns done on Country really gives it context and you see how important it is for the community and you gain a greater appreciation for it and for them. Seeing it on the ground is important; seeing results on ground is beneficial (interview, March 2021).

In the study region, these forums could be further supported by northern, national, and international networks focused on Indigenous rights and support for Indigenous rangers and land stewardship (WWF, interview, March 2021). In interviews conducted for this study, government policy representatives and non-governmental organisation representatives explained that it would be helpful to have a “one-stop shop” engagement model to navigate the introduction of cultural burning in a given region. Indigenous groups and funding agencies agreed that it would then be important to move to targeted, local-level engagement to ensure that cultural burning operations could grow and develop under the authority and with the consent of local Traditional Owners.

Submissions from Indigenous organisations encourage such efforts to go further and empower Indigenous leaders to lead hazard reduction and fire management activities in their local areas. The Dja Dja Wurrung Aboriginal Corporation explained that “on preparedness and landscape treatment of hazard reduction, we believe that Traditional Owner involvement in fire management has [a] significant role to play for holistic fire management” (Dja Dja Wurrung Clans Aboriginal Corporation, 2020). Those who have Native Title or have established land-use agreements reflected on the unique pathways these offer, providing the necessary foundation for jointly managed parks where cultural burning is recognised as a fundamental feature and practice of park management (e.g., Victorian National Parks Association, interview, March 2021). Having decision-making authority at the policy level is also key:

We want a cultural burning scheme that is nationally recognised and can get Indigenous leaders involved in the decision team in the bushfire fighting regime, who can provide advice that is legislated. We need to work out appropriate Indigenous Elders with the right level of knowledge and experience, and who are capable enough to participate in a high-pressure fire scenario (National Indigenous Australians Agency, interview, March 2021).

Indigenous-led science partnerships are welcomed as part of this effort, noting the value of “getting Traditional Owners up in the air ... and seeing the results of science that shows the bigger landscape picture” to add to knowledge and perspective that is gained from “walking the land or driving through it (10 Deserts Project, interview, February 2021). The benefits of fire as part of caring for Country have been reported in MERIT, both as part of cultural burning workshops and activities and as core components of Indigenous carbon offset projects and environmental services (cf. Aboriginal Carbon Fund, 2017; Firesticks, 2020b; Maclean et al., 2018; Robinson et al., 2016) (Table 2).

Table 2: Categories of benefits from Indigenous landscape burning.

Benefit category	Benefit attributes
Cultural	Meaningful work, protection of heritage, Indigenous knowledge transmission, retention of language and identity
Economic	Employment, career development, secure income, reduced reliance on welfare, strengthening of the local economy
Social	Social capital, self-esteem, pride, community harmony, opportunities for women
Ecological/environmental	Decrease in the incidence of wildfires; fire hazard reduction; biodiversity recovery; Indigenous knowledge contributions to cultural natural resource management, threatened species activities, restoration of waterways, bush regeneration
Health and wellbeing	Spiritual and physical health from completion of cultural responsibilities (e.g., through exercise, improved nutrition, decrease in drug/alcohol use)
Political (self-determination)	Economic independence, leadership skills, confidence to work with non-Indigenous partners, knowledge–science exchange

Source: (Maclean et al., 2018). Draws on benefit frameworks developed by the Aboriginal Carbon Fund 2017; Firesticks 2020; Robinson et al., 2016.

A number of groups have already reported reduced fire impacts in areas where cultural burning has been undertaken (Koori Country Firesticks Aboriginal Corporation, 2020; NSW Aboriginal Land Council, 2020). Landholders in areas that experienced intense fires have also reported that their properties and surrounding habitats were saved by active Indigenous cultural burning (e.g. Archibald-Binge & Wyman, 2020). The Batemans Bay Local Aboriginal Land Council has been actively practising cultural burns for the past six years, in partnership with the South Coast Aboriginal Elders Association, and found that forest canopy had been saved in areas that had been managed through local Indigenous fire management efforts (Milton, 2020).

Recognising local Indigenous rights, knowledge, and cultural authority

Local Elders have a critical role to play in directing both the purpose and practice of cultural burning, shaped by Indigenous knowledge and rights. A representative from the Gnowangerup Aboriginal Corporation in south-west Western Australia identified Elders as central to the success of its local ranger efforts to conduct “barefoot burning”, which involves quiet, on-ground burning activities based on observation of the landscape:

At the early phase, get groups together to share and learn with others who are engaged in landscape burning [in order] to build confidence, to find out what you need to get an operation going, how to sustain Indigenous burning programs and partnerships ... Elders are a critical resource in this process. Younger people (30s and 40s) respect Indigenous leaders who can work on the ground and carry the work; and under them, family members who they can give direction (interview, February 2021).

Recognising local rights and cultural authority is critical for groups with established, self-funded fire crews and operations (Dja Dja Wurrung Clans Aboriginal Corporation, interview, April 2021; NSW Banbai rangers, interview, May 2021). It is also important for groups that are exploring the possibility of engaging with cultural burning with their communities. Early cultural burning efforts undertaken with the Gnowangerup Aboriginal Corporation confirmed this:

Plugging into cultural authority structures is key - building on issues and activities that the community wish to drive, noting all the other issues and challenges occurring in Indigenous communities and lives. We have to start small and be flexible to accommodate multiple goals and pathways. Ensuring support from collaborators is important; face-to-face informed discussion is key. Fire is a fantastic opportunity to engage in the landscape and get resources to build community support (interview, February 2021).

A number of Indigenous organisations’ submissions to bushfire inquiries also referenced the importance of recognising Indigenous rights and authority in bushfire preparation, response and recovery efforts at the state, territory and Commonwealth level (Dja Dja Wurrung Clans Aboriginal Corporation, 2020; Gunaikurnai Land and Waters Aboriginal Corporation, 2020; Indigenous Reference Group to the Ministerial Forum on Northern Development, 2020). In its submission, the Indigenous Reference Group to the Ministerial Forum on Northern Development (2020) suggested the following:

- Establish a “National Indigenous Commissioner for National Natural Resources to consider the unique needs and requirements of Indigenous people and ensure adequate coordination, reporting and alignment alongside other Commonwealth and State and Territory leaders” (p. 19).
- Engage “immediately with Indigenous Australians to develop local, regional and national natural disaster arrangements” (p. 23).
- Pay “specific attention to Indigenous people’s unique needs, role and legal rights and interests” when strengthening natural disaster preparation, response, and recovery (p. 14).
- Review “National Disaster Frameworks and international instruments to ensure consistency with Indigenous people’s rights, aspirations and to ensure they are engaged and resourced to contribute to future national strategies and actions” (Indigenous Reference Group to the Ministerial Forum on Northern Development, 2020, p. 15).

Other groups offered specific recommendations to empower Indigenous authority and decision-making in bushfire planning, recovery, and preparation activities within their region. The Gunaikurnai Land and Waters Aboriginal Corporation in Victoria offered recommendations regarding fire management and protection. They suggested that “Fire Management Operating Procedures are changed to ensure Traditional Owners have greater and earlier involvement in fire planning, response and recovery operations,” and that “township protection plans, by relevant shires, include early conversations and agreed actions with the appropriate registered Aboriginal Party, if in place, rather than waiting until under the Emergency Management Act to implement works” (2020, p. 6).

Regarding cultural burning, the Victorian Traditional Owner Cultural Fire Strategy (which was provided in numerous submissions) recommends the following:

- Develop “operational pathways that enable Traditional Owners to lead the planning and to undertake cultural burns across all land tenures and Country types according to their cultural obligations” (p. 14).
- Identify “regulatory barriers to practicing cultural burning and workshop and trial methods of removing these barriers in partnership with relevant agencies and stakeholders” (p. 17).
- Build “Traditional Owner governance and capacity in cultural fire knowledge and practice” (p. 18).
- Work “with Traditional Owners to ensure institutional frameworks enable and facilitate cultural fire practice across tenures” (p. 19).
- Ensure that “institutional objectives and settings capture the contribution of cultural burning to Aboriginal health and well-being outcomes through Caring for Country” (The Victorian Traditional Owner Cultural Fire Knowledge Group, 2019, p. 21).

Empowering women

Including women in decision-making and on-ground operations was also identified as critical to the success of cultural burning. A cultural heritage advisor for the Victorian Country Fire Authority explained that current approaches were “very male centric with fire methodology. We need to have it as a collective. Without women, we don’t have real cultural burning practices with the whole community involved” (interview, March 2021). Interviewed World Wildlife Fund representatives noted that as a result of peer-to-peer support and targeted resourcing, Indigenous women now account for approximately ~26% of Indigenous people working on Country. However, there is still a long way to go (interview, March 2021).

In Queensland, women fire ranger teams are already supported to undertake a range of fire management activities (Queensland Indigenous Land and Sea Ranger Program, interview, March 2021). In other areas, there is strong interest in supporting women rangers to lead and implement cultural burns to ensure that women’s cultural heritage sites can be appropriately assessed and managed (NSW NPWS, interview, March 2021; Grafton Ngerrie Local Aboriginal Land Council, interview, April 2021). As a representative from the Gugiyn Balun Aboriginal Corporation and Grafton Ngerrie Local Aboriginal Land Council argued, “Let women represent their women’s sites. Let them participate to look after their sites” (interview, April 2021).

In order for this to occur, some of the ways in which burning is conducted will need to change to enable women Elders to engage in decision-making, and to ensure that young Indigenous women are supported and feel culturally safe when engaging in training and cultural burning workshops. As a South Australian Department for Environment and Water representative explained:

This is similar to improving gender diversity, where you get more women in, and things just change [and ensures] cultural safety - agencies having diversity and inclusion strategies that recognise that volunteer-based organizations in emergency services are very non-diverse, very male, very Anglo, very alpha in their approach. There have to be explicit strategies around diversity and inclusion in volunteer organisations (interview, April 2021).

Sharing, rejuvenating, and building fire knowledge

Effective and appropriate cultural burning needs to be based on high-quality information. As Oliver Costello notes, reviving knowledge is central to enabling adaptive Indigenous caring for Country systems:

It is about understanding the values and practices of Country and supporting people to understand their own identity, share that and build their knowledge systems. All our knowledge systems were built from Country, from the culture of the land and from our observation of that. It is much easier to learn from an Uncle, a mentor or an Auntie and they can tell you the story and then you can practice it (2019, p.3).

It is important to find culturally safe ways to rejuvenate, share and build new knowledge to guide cultural burning in contemporary landscapes. In some regions, groups have worked together to share lessons learned and find ways to help each other. The Banbai Enterprise Development Aboriginal Corporation represents the interests of the Banbai Nation from the northern New England Tablelands in NSW. It was established to oversee daily management of the Wattleridge property, which was purchased by the Indigenous Land Corporation on behalf of the Banbai Traditional Owners in November 1998 (Elone et al., 2018).

Banbai Rangers from NSW shared how they learn from each other through the Aboriginal Reference Advisory Group:

All the land councils in our region all get together regularly and we have a segment in there called, “Let’s talk about what is happening on your patch”. We get around to different communities and offer our help, on all levels, to help them reach a higher level in whatever they want to do, we are here if you ever want any help, let’s start utilising what we have, so we can start moving around different communities and start sharing that knowledge as well ... This is a good model that could be adapted by other groups where you can have regular connection to surrounding mobs, to have a yarn and share knowledge and stay connected (interview, April 2021).

Non-Indigenous partners can facilitate collaborative knowledge sharing with local communities that recognises the value of Indigenous knowledge and the practices that sustain this knowledge. For example, partners can adopt landscape burning decision and evaluation approaches that value and respect Indigenous knowledge and recognise the bio-cultural features of Australia’s local landscapes. Knowledge sensitivity and privacy practices should be maintained as part of this effort, as different perspectives regarding the significance of a species or habitat, and the role of fire in damaging or healing Country, can be challenging to negotiate in cross-cultural settings. Non-Indigenous partners and on-ground managers need to be mindful of ethical issues when navigating how to heal Country, so that culturally significant species are able to survive and thrive with fire. It is vital to negotiate with Indigenous communities regarding any new knowledge that is needed, as well as the practices that are deemed helpful or harmful for significant species, sites and habitats (Robinson et al., 2021).

The Gunaikurnai Land and Waters Aboriginal Corporation described how it worked through legislative barriers to enable the use of local Indigenous knowledge to assess and protect cultural heritage sites:

In East Gippsland, collaboration between DELWP and the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) ensured protection of cultural heritage sites this summer fire season. The Registered Aboriginal Party were able to do on the ground assessments that saw over 100 cultural heritage sites protected as contractors were creating firebreaks. The decision to allow the on the ground cultural assessment is a first, as normally in bushfire situations the Emergency Management Act 2013 overrides the Aboriginal Heritage Act 2006, the Act that provides protection for First Nations cultural heritage in Victoria (Environment Victoria, 2020).

In other instances, local Indigenous ranger groups have teamed up with scientists to use multiple types of evidence to guide and evaluate local cultural burning regimes (Ngadju Rangers, Western Australia, interview, February 2021). For example, the Ngadju Rangers explained that they had teamed up with scientists to undertake a “very small precise burn to maintain and restore the health of the woodland” (interview, February 2021).

Healing Country through adaptive local burning

In many areas of the study region, cultural burning regimes have had to be reintroduced in a collaborative and adaptive way to account for changing climate, changing habitats and constraints caused by legislation regarding different tenures. Indigenous fire practitioners and partners who were interviewed for this study reported fires that were hotter than planned due to heavy fuel loads, particularly in areas facing drought. In some cases, climate change has also affected the seasonally safe time to burn. Both of these factors necessitate an adaptive approach to burning and have required fire crews to shift operations to burn earlier or later in the day and/or in the season, or to undertake multi-stage burning. As a representative from the Darkinjung Local Aboriginal Land Council in NSW outlined in their submission:

[T]he bush is very different today to what our Ancestors may have managed previously. The whole ecology and ecosystems have changed over two hundred years of colonisation, also the environment itself has become drier and weather patterns such as moisture and rainfall [have] decreased over time ... these changes in the landscape [have] influenced the conditions we see today we as Aboriginal people need to adjust to this new system in the land but still I believe the traditional Aboriginal practice that our Ancestors have used for thousands of generations needs to be respect[ed] and implemented across the board in all fire agencies in Australia (interview, 2020).

The Victorian Traditional Owner Cultural Fire Strategy notes that “Victorian Traditional Owners have strong aspirations to ensure cultural use of fire is re-introduced, adapted and applied wherever possible to allow for healing and caring for Country” (2019, p.4). It discusses the importance of developing “scenarios or examples of different conditions for undertaking cultural burning, so procedural pathways and practice can be developed” (p.24); and of improving collaborative management of State Forest reserves and private land “to heal Country and build resilience in people and landscapes” (Dja Dja Wurrung Clans Aboriginal Corporation, 2020, p. 20).

For some groups, small, locally driven partnerships have been critical to such efforts. The Euroa Arboretum sits on 27 hectares of former farmland that is now a public reserve just outside the township of Euroa. Fire is used at the Euroa Arboretum as an experimental tool to manage specific weeds and promote the growth of native ground-cover species, with volunteer bushfire practitioners focusing on local grassy woodlands. A supportive, safe, and collaborative environment has been identified as critical to the success of this work. As a representative from the Euroa Arboretum Landcare group explained:

Sharing knowledge to do this together and build confidence for Traditional Owners to do this activity ... relies on local relationships and voluntary arrangements. The freedom to do this in the right conditions is key ... This is a collaborative effort. We all share the knowledge to build the right fire regime through a small group who are all looking and learning from burning Country together and sharing knowledge to care for this landscape through fire (interview, February 2021).

Similar locally driven and adaptive strategies are needed to test landscape burning regimes elsewhere, along with partnerships that can build the necessary relationships and share the necessary knowledge to determine the best strategy for that region (Queensland Indigenous Land and Sea Ranger Program, interview, March 2021). Achieving this will require sustained, on-ground relationships with people who are able to broker and nurture fit-for-purpose partnerships. These partnerships will also need to recognise and resolve the core issues that hinder Indigenous leadership and authority if long-term success is to be achieved. As a Heritage NSW officer noted:

Long-term and sustained success can only be achieved through positive relationships between Aboriginal people, government agencies and landholders. A treaty within this space is what's needed, and people in power need to have core values to work with, as the ignorance of these people towards Traditional Aboriginal Cultural Knowledge (TACK) needs to be addressed if we are to succeed in this space long term. So far, the last 200 years of introduced burning practices have not worked! We need to co-design, co-develop, co-manage, and co-deliver cultural burning (interview, May 2021).

Collaboration and reconciliation

As the Federation of Victorian Traditional Owner Corporations (2020) noted in its submission, "Key to the success of a Traditional Owner led Cultural Fire Program will be partnerships with Government Land and Fire management agencies" (2020, p. 2). The Gunaikurnai Elders Group explained:

We're looking at 180 years of change. There are trees where there used to be grasses and the other way round. Now we're trying to adapt the old ways to a new landscape—but we have to work together. We want to bring back the old knowledge—but do we want to walk alone? No, we don't want to walk alone, we want to walk with other professionals in this field and learn from each other (2020, pp. 7-8).

Many Indigenous groups have discussed the need to build two-way capacity by developing more effective ways of linking modern fire management with traditional burning practices (The Victorian Traditional Owner Cultural Fire Knowledge Group, 2019, p. 24). The Victorian Traditional Owner Cultural Fire Knowledge Group has developed a detailed strategy to improve the "management of state forest reserves and private land through the application of collaborative management" (2019, p. 20). This strategy specifies several possible actions for developing collaborative partnerships, including the following:

- Identifying pilots "to showcase and test different institutional arrangements that enable Traditional Owners to lead practices and develop proof of concept on different Countries" (p. 17)
- Identifying and trialling ways of removing regulatory barriers to cultural burning "in partnership with relevant agencies and stakeholders" (p. 17)
- Piloting "a more collaborative, true partnership approach to both planning, resourcing and management" (p. 21)
- Conducting "joint walkovers of planned burn sites and develop[ing] more sensitive measures for fire protection (e.g., creating breaks to protect heritage sites)" (p. 21)
- Developing partnerships "through existing relevant projects (e.g., Safer Together)" (p. 23)
- Embedding "cultural burning principles into fire sector processes (including planning, monitoring, management/response)" (p. 23)
- Establishing "agreed roles and responsibilities for all partners and a system for review" (p. 23)
- Providing opportunities for Traditional Owners to serve as advisors in all aspects of fire management" (The Victorian Traditional Owner Cultural Fire Knowledge Group, 2019, p. 23).

Building a better understanding of Indigenous fire knowledge and practices, as well as Indigenous cultural attitudes towards fire, is a key enabler of collaborative partnerships. In its submission, the Indigenous Reference Group to the Ministerial Forum on Northern Development, recommended that the Commonwealth, states and territories develop a "curriculum for primary and secondary education to improve understanding of Indigenous fire management and appreciation of fire in general," along with "national education standards improving knowledge and understanding about Indigenous land and sea management practices" (2020, p. 19).

It is critical that any such partnerships are legitimate and not exploitative. As the Dja Dja Wurrung Clans Aboriginal Corporation notes, “Empowering and resourcing Traditional Owner knowledge systems ... must not perpetuate well-established systems of exploitation. It must happen in true partnership” (2020, p. 79). Regarding the incorporation of Indigenous knowledge and practices into existing management approaches, the Gunaikurnai Land and Waters Aboriginal Corporation recommended in its submission that the “Victorian Model of direct involvement in Joint Management is a model worth exploring further” (2020, pp. 5-6). This model involves “the establishment of a legal partnership between the State and Traditional Owners in the management of public land. Joint management enables the knowledge and culture of a Traditional Owner group to be recognised and embedded in the management of that land” (DELWP, 2021).

Non-Indigenous fire practitioners reflected on their role in building collaboration and reconciliation, including recognising what a National Indigenous Australians Agency officer described as the “impact of deep colonising processes” (interview, March 2021). Practical, short-term suggestions offered in Indigenous submissions included developing communication strategies that reflect cultural and linguistic diversity (Indigenous Reference Group to the Ministerial Forum on Northern Development, 2020, p. 19) and working with Indigenous partners during the bushfire preparation period to agree on how best to communicate with various Aboriginal communities during bushfire season (Gunaikurnai Land and Waters Aboriginal Corporation, 2020, p. 6). A Tasmania Fire Service officer acknowledged that this requires deep reflection on cultural practice:

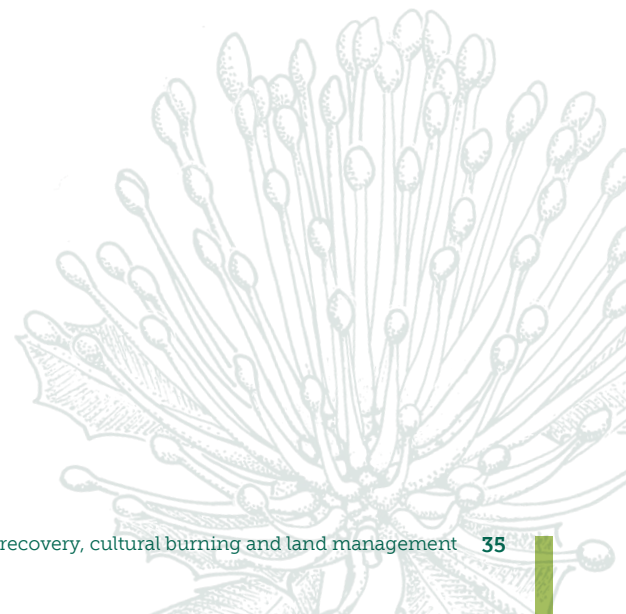
Our history matters in how we can negotiate this. There is deep, unspoken shame about our history. This underpins some of our early steps and discussions. Reconciliation through fire is a real possibility, but we need to be realistic about the timelines. We first need to get to the table and discuss this. In some places where we help with the burning, we find they want to get involved in fire for risk reduction ... In other contexts, we need to build trust. This prevents burning on their lands and also raises risks for wildfire ... This takes a holistic approach to build resilience—not just for our landscapes but also for our Aboriginal people. This means we should see this journey as one that builds mental well-being, social and economic wellbeing, and confidence and capability to engage in this (interview, February 2021).

Many partners described the need for proactive, targeted and culturally sensitive approaches to supporting cultural burning efforts. A South Australia Country Fire Service officer noted that this would require some self-reflection on fire crew culture and practice:

We welcome anyone but we need to think about why Indigenous communities don't feel welcome. We can work together to break down this barrier and build the trust to support Indigenous involvement and positive outcomes (interview, February 2021).

Non-Indigenous people who have engaged with and supported Indigenous fire crews reported positive experiences:

Traditional Owners have been very generous in sharing their knowledge and have been very keen for fire services to learn and observe their traditional practices. There is a deep respect and willingness that embraces knowledge sharing (Volunteer Fire Brigades Victoria, 2020, pp. 71-72).



Training, funding, insurance, and employment

Submissions from Indigenous organisations referenced aspirations to access training and employment opportunities related to cultural fire practices. They also offered various suggestions for realising these aspirations, with a focus on developing capabilities in natural and cultural resource management (Dja Dja Wurrung Clans Aboriginal Corporation, 2020; Gunaikurnai Land and Waters Aboriginal Corporation, 2020; Indigenous Reference Group to the Ministerial Forum on Northern Development, 2020; NSW Aboriginal Land Council, 2020).

The Gunaikurnai Land and Waters Aboriginal Corporation discussed its support for an initiative investigating “the feasibility of setting up a training centre for burning, including First Nation heritage based burning practices” (2020, p. 4). This would function as a “centre of excellence ... to drive future improvements and research” (Gunaikurnai Land and Waters Aboriginal Corporation, 2020, p. 6). The Indigenous Reference Group to the Ministerial Forum on Northern Development, meanwhile, discussed the establishment of “ongoing resources for the employment of Indigenous Australians” in local, regional and national natural disaster arrangements, as well as support for “Indigenous led innovation and economic development” aligned with those arrangements (2020, p. 23).

The Aboriginal Carbon Foundation discussed using “Forest Fire Credits” to turn “fire management into an agribusiness,” enabling “investment by individuals, companies and institutions into groups who are implementing cultural burns to reduce bushfires and achieve a range of environmental, social and cultural outcomes” (2020, p. 1). The NSW Aboriginal Land Council identified the need for resources to “develop and share knowledge of fire management practices and also identify opportunities for collaboration between western and Indigenous knowledge systems. An approach that draws on the strength of both western and Indigenous Knowledge systems will be key to delivering appropriate and beneficial outcomes” (NSW Aboriginal Land Council, 2020, p. 6). The Victorian Traditional Owner Cultural Fire Strategy also offers a number of suggestions, including the development of “formal training programs ... for upskilling people on topics including Indigenous Land, Fire and Water” (The Victorian Traditional Owner Cultural Fire Knowledge Group, 2019, p. 19), as well as the provision of “employment, equipment, accredited training and career development for Traditional Owners” (2019, p. 23).

Flexible employment options have also been recommended. In its submission, The Howitt Society discussed a more flexible approach to the timing of burns in response to changing temperature and climate conditions. Specific suggestions included the following:

Retain summer fire crews into the autumn and winter to provide the necessary labour. Burn into the evenings instead of during “normal” working hours when weather conditions are too hot. Burn later into the season. Burn through the winter in some location[s]—particularly ridge tops and road edges. Incorporate a multistage burning approach for large burn units i.e. burn ridges and North and West slopes late autumn and South and East slopes early season (2020, p. 8).

Training would need to encompass conventional burning skills in order to ensure that landscape burning complies with regulations (NSW NPWS, interview, March 2021). Agency staff involved in fire management efforts are eager to support Indigenous training through the Rural Fire Service system to empower Indigenous people to develop the necessary skills and take on leadership roles. However, they recognise that this will depend on the creation of culturally appropriate pathways and inclusive workforce practices and culture (NSW NPWS, interview, March 2021). Elders would need to play a critical role in this process:

So many youths ... want to train with the fire brigade, but in order for them to stay on in those positions, it would be helpful to have Aboriginal Elders or Uncles in the brigade so the young people can feel comfortable to ask questions to them, to relate to them, otherwise they won't stay on because they will withdraw from fear of needing to ask questions or because they are scared that they don't know how to do certain things. They won't have the confidence to ask a white manager and may just drop out (Gugiyin Balun Aboriginal Corporation, interview, April 2021).

It was also highlighted that cultural training is required to enable local communities to negotiate the necessary knowledge, consent, capacity, and leadership to support cultural burning:

Training black fellas to be fires is a good start. We have to be given the chance. We want the opportunities, because there are only so many opportunities we can get out this way. Young fellas are trying to make amends from when they've been locked up. This would be a good way to keep them out of trouble. Stop sending them to jail and send them into the bush. They need the reconnection and to learn respect for what they are and who they are and where they come from (Gugiyin Balun Aboriginal Corporation, interview, April 2021).

Firesticks outlined the approach it uses to facilitate and support Indigenous leadership, advocacy, and action in order to protect, conserve and enhance the cultural and natural values of people and Country through cultural fire and land management practices. This approach uses community mentoring and draws on concepts around air, heat, and fuel (Box 1) to empower Elders and Indigenous fire practitioners to communicate and build learning pathways and on-ground land management and cultural practices to create resilient social and ecological landscapes.

Firesticks has developed an approach to enable Indigenous leadership through community mentorship to protect, conserve and enhance the cultural and natural values of people and Country through cultural fire and land management practices.

AIR – Making Space: Building understanding and recognition; sharing stories and information; connecting communities with each other and with land management/fire practitioners; driving change

HEAT – Facilitating Action: Delivering on-ground mentoring; planning; training; managing Country by burning and integrating weed management; revitalising Country and knowledge by building community networks and recording cultural knowledge

FUEL – Reading Country: Supporting future work by providing evidence that cultural fire is having a positive impact; using appropriate monitoring methods to support learning by observation and practice, and to highlight the importance of sharing knowledge (mentoring)

Source: Firesticks (2020b)

As part of its submission, Firesticks argues that a culturally accredited and nationally recognised Indigenous training and mentoring program is “an essential part of the solution to keeping our community, wildlife and environment safe.” Importantly, such training would not focus solely on prescribed burning rules and regulations; trainees would also learn about following “cultural protocols in relation to how they engage with communities and facilitate the returning, sharing and practicing of this knowledge [to build] the capability and capacity of Traditional Owners to hold and restore this knowledge through leadership and practice on their own Country ... [and] to help build structure and support around the mentoring and training of this knowledge system (Firesticks, 2020b, p. 23).

Fire crews who have had formal and cultural training will need ongoing resources to ensure they can operate. Indigenous rangers and fire crew members reflected on the need for both funding and insurance in order to be able to conduct cultural burning. As a Banbai Ranger noted:

Right now, you cannot get insurance to cover “cultural burns.” No insurance will touch it, so we have to go under RFS. We want to have our own authority to burn with insurance. Lots of people want to burn and are coming to us to ask if we can burn. Being able to follow through with that without insurance through RFS would help us to move forward (interview, May 2021).

Indigenous organisations’ submissions to recent bushfire inquiries also highlighted a need for short- and long-term funding to support their participation in bushfire preparation, response, and recovery activities. The Dja Dja Wurrung Clans Aboriginal Corporation noted an “immediate need for resourcing of Traditional Owner groups to participate [in fire management] at whatever level that they are currently capable of, and to begin support to create and improve capacity across all groups ” (2020, p. 1). The Federation of Victorian Traditional Owner Corporations also noted a need for resources to “enable each group to engage and support the planning of future pathways forward” (Dja Dja Wurrung Clans Aboriginal Corporation, 2020, p. 2 of the final attachment in the submission), as well as a need for “long-term support and resourcing for further development of knowledge, practice and capacity in Traditional Owner groups to undertake cultural fire practice and to ensure operational feasibility of cultural burning in a changed environment” (Dja Dja Wurrung Clans Aboriginal Corporation, 2020, pp. 1-2 of final attachment in submission).

Chapter 6. Short- and long-term recommendations to empower Indigenous leadership in cultural burning, land management and bushfire recovery

This report reflects on the experiences and perspectives of Indigenous groups and partners in southern regions of Australia, where a plethora of diverse cultural burning activities are now taking place. In some areas, Indigenous groups are autonomous in operating fire management crews and enterprises. In other areas, Indigenous leaders and land managers have partnered with fire crews that engage in a range of conservation, hazard reduction and fire training programs. In some instances, Indigenous communities are taking their first steps towards rejuvenating cultural burning practices that have long been interrupted in parts of Country.

These efforts have primarily been driven by Traditional Owners across Australia who assert that cultural burning is part of Indigenous people's rights and responsibilities to care for Country. With this comes the requirement to be informed about and involved in cultural burning and bushfire recovery protocols, as well as the mainstream decision-making process. It is important to recognise that Australian Indigenous culture is not homogeneous and there may not be cultural consensus regarding what cultural burning entails, even within the same community group. Each region across Australia is unique, and non-Indigenous fire partners need to recognise local diversity in Indigenous fire management knowledge, capacity, priorities, and techniques. This requires careful cross-cultural collaboration based on trust, as well as recognition that the journey for Indigenous-led cultural burning across the country is far from complete. It is common for tensions to arise when Indigenous groups have independent priorities for burning outcomes—within different timeframes and for different places in the landscape—that differ from non-Indigenous fire practitioners' priorities and rules for prescribed burning. Mechanisms, authority, knowledge, and pathways to develop cultural burning regimes in the contemporary Australian landscape are understandably complex. Navigating this complexity will take time and a willingness to negotiate with the community and between Indigenous and non-Indigenous partners.

Local cultural burning regimes now practised across the nation are dynamic, adaptive, and subject to change over time, reflecting the needs of Country and its local Indigenous culture. In some cases, cultural burning may persist, become dormant or be displaced, or it may develop into new landscape burning regimes that replace former practices that are no longer present or relevant. The active processes of fire and Indigenous people caring for the landscape have shaped the characteristics of many habitats, and locally appropriate landscape burning regimes are critical to ensuring that ecosystems continue to flourish and remain diverse. Over the past few hundred years, Indigenous landscape burning has been suppressed in many parts of the study region, which is now the site of the most catastrophic fires in Australia's recent history. The history and contexts of local communities, and the nature of Indigenous legal rights and interests, mean that these recent bushfires had different impacts and consequences for Indigenous rights-holders, non-Indigenous landowners, and Indigenous community members. As a result, there are now different levels of interest, capacity, and cultural authority to support and reintroduce cultural burning within these areas.

Across Australia, there is a diversity of skill, expertise and capacity amongst Indigenous people who wish to conduct cultural burning and meet their land management responsibilities in local regions. Efforts to support and sustain this interest and capacity can build on existing land and ranger activities and partnerships led by and involving Indigenous managers and communities. To ensure long-term success, collaborative partnerships must be based on trust and must recognise Indigenous-led pathways to build and assert cultural authority and the capacity to direct and implement cultural burning regimes.

This report draws on insights, statements, interviews, and publicly available material in which Indigenous leaders and fire practitioners have outlined key focus areas to guide next steps and secure long-term success in empowering Indigenous leadership in cultural burning, land management and bushfire recovery. Time and resource constraints have meant that this six-month project was unable to draw on detailed face-to-face and local community insights to guide suggested recommendations. Despite these limiting factors, some short- and longer term recommendations have been identified and organised into four key themes: empowering Indigenous rights and authority, supporting collaboration and reconciliation, empowering and supporting Indigenous-led bushfire planning and recovery, and empowering Indigenous rights and authority to care for Country through fire.

Empower Indigenous rights and authority

Short term recommendations

Empowering Indigenous rights and authority begins with acknowledging, respecting, and investing in individuals and communities. By supporting local Traditional Owner groups to develop, re-learn or resurrect their cultural fire knowledge, the process of reinstating on-ground practices can occur. Exhibiting this support for Elder knowledge establishes respect within the community as the initial physical benefit to Country delivered by their application of fire knowledge becomes apparent. Culturally appropriate frameworks must be resourced and developed to accurately monitor and evaluate the social, economic, and environmental benefits that are delivered prior to and following cultural burning activities.

Without the ability to establish independence, Indigenous cultural fire authority cannot be fully realised. For this reason, insurance, and legal protections specific to cultural burning must be made available to allow operators within cultural burning groups to burn confidently without fear of prosecution and/or loss of autonomy. Indigenous attendance at mainstream fire training events and workshops must also be supported so that Indigenous groups can gain exposure to and build networks with other Indigenous and non-Indigenous fire managers, thereby increasing their confidence and knowledge to broaden, develop and implement cultural burning strategies. Formal fire management training that acknowledges cultural sensitivities and provides peer support to young Indigenous rangers, both female and male, is essential for the sustained success of these programs. By simplifying, incentivising, and creating new planning and regulatory requirements, cultural burning can be more readily enabled in partnership with local land management agencies and mainstream fire crews. Streamlining the relationship between these groups will benefit everyone, demonstrated by on-ground results.

Longer term recommendations

Indigenous rights and authority can be empowered in the longer term by addressing inherent, overarching obstacles that hinder appropriate recognition of Traditional Owners; and by working to restore a balance of power. Formal recognition of the rights and interests of Traditional Owners in land management processes and decision-making structures, regardless of current land tenure, is a necessary step in acknowledging that cultural burning is part of Indigenous people's rights and responsibilities. The identification and removal of existing legislative, institutional, policy and insurance barriers that obstruct cultural burning practices is essential, as is the creation of consistent and operational mechanisms that enable Traditional Owners to lead and conduct cultural burning across land tenures and between government agencies and jurisdictions. Resourcing pilot programs that showcase and test how and why different institutional arrangements enable Indigenous groups to develop, lead and grow cultural burning activities will also progress long-term, sustainable fire management enterprises into the future.

Supporting collaboration and reconciliation

Short term recommendations

The critical work of collaboration and reconciliation must be shared and supported between Indigenous and non-Indigenous groups. With additional resourcing, Indigenous engagement and collaboration strategies and protocols can be further developed based on initiatives that are already in place in some agencies and jurisdictions. Programs where non-Indigenous fire managers participate in Indigenous-led fire management training programs provide a valuable example of how discussing cultural awareness issues and sharing knowledge can pave the way for genuine partnerships. Indigenous and non-Indigenous partners can build the capacity to support cultural burning objectives and activities and negotiate agreed pathways to further share, acknowledge and integrate fire knowledge between all parties. Public education and community programs that create conversations around fire and the role of Indigenous cultural burning techniques are also essential in building understanding and recognition of Indigenous leadership within communities and contemporary land management. The development of locally informed and nationally consistent communication strategies will ensure that bushfire planning and recovery goals and activities can be understood by both Indigenous and non-Indigenous communities.

Longer term recommendations

Supporting collaboration and reconciliation between Indigenous and non-Indigenous groups in the longer term requires changes to conventional methods. Existing fire management operating procedures need to incorporate locally informed Indigenous engagement processes to employ Traditional Owners in the preparation, response, and recovery phases of bushfire management. These processes should be routinely reviewed to ensure communication remains appropriate and effective. Further, by establishing performance indicators, relevant agencies can be evaluated on their collaboration efforts with Indigenous leaders, organisations, enterprises, and people in bushfire management roles to guarantee accountability on all parts.

Empower and support Indigenous-led bushfire planning and recovery

Short term recommendations

In order to empower and support Indigenous-led bushfire planning and recovery, decision-making roles for Indigenous leaders need to be established and resourced. Through this involvement in local, regional, and national bushfire recovery strategies, Indigenous culture, intellectual property, knowledge, and priorities will be respected and valued. This includes involvement in all emergency disaster planning and strategy development, habitat and species restoration activities, rehabilitation activities, and efforts to identify and protect cultural heritage sites.

Government emergency disaster plans and strategies must include a specific focus on Indigenous people and their needs and requirements. This should involve strategies to understand Indigenous perspectives on risk; mechanisms to identify, enable and engage with Indigenous institutions to work with communities to support bushfire preparedness and response; and efforts to enhance community-led processes to build emergency management plans. Bushfire recovery efforts must also support Indigenous communities by communicating and ensuring access to relevant information, and by developing culturally appropriate strategies when dealing with health and well-being issues that arise from bushfire impacts in built and natural environments. Indigenous connections to Country and kin also need to be recognised when determining the geographical scope for fire-affected status in certain regions.

Bushfire recovery policies and strategies to care for culturally significant species and habitats must be supported through both adequate funding and respectful cultural protocols. At the policy level, this could include listing culturally significant species as matters of national environmental significance; at the local level, this requires ensuring that bushfire recovery practices and priorities recognise and respond to culturally significant sites, species and landscapes affected by bushfires. Indigenous representative bodies and ranger groups must be actively engaged with local Traditional Owners to develop recovery strategies for culturally significant species and habitats, and to determine the cultural significance of heritage sites. Cultural heritage site and asset information should be included in bushfire management plans and, where possible, treatments should be identified to mitigate against bushfires. For sites where information is confidential, protocols should be in place for responsive consultation during fire planning and response.

Longer term recommendations

Longer term support and empowerment of Indigenous-led bushfire planning and recovery requires cultural burning principles to be integrated and embedded into fire sector processes, including planning, monitoring, management, and response processes that are required to drive and enable cultural fire. Indigenous knowledge must be recognised as a valuable asset and used to inform government and corporate responses to ecosystem and community recovery after bushfires.

Empower Indigenous rights and authority to care for Country through fire

Short term recommendations

With increased investment and support, the incorporation of cultural burning into Australia's disaster risk reduction and conservation regimes has the potential to improve fire management. Fire management partnerships recognise the complexity of cross-cultural engagement and interactions, and respect Indigenous knowledge, know-how and protocols. They provide space and opportunities to support Indigenous and non-Indigenous people to develop new knowledge and skills in their own timeframes, and they facilitate two-way knowledge exchange. It is also important to provide targeted leadership, employment, and training opportunities for Indigenous women, specifically recognising that within a cultural and operational context, Indigenous women and men hold different roles in fire management. Finally, testing the impact and effectiveness of cultural burning under different governance arrangements and fire management settings can help to identify what best enables Traditional Owners to lead the practice and timing of cultural burns in different contemporary landscapes, further empowering their rights and authority.

Longer term recommendations

Indigenous rights and authority to care for Country in the longer term must be continuously supported in all aspects of bushfire and broader land management decision-making throughout Australia. Ways to incorporate Indigenous leadership include ensuring that Indigenous peoples are represented on relevant government committees and included in the terms of reference and membership of future post-bushfire inquiries, and establishing forums focused on continuously improving bushfire management and recovery responses to better support Indigenous groups.

Supporting cultural burning may create new economic opportunities for Indigenous leaders, organisations, and enterprises. For example, resources could be provided for cultural burn traineeships, environmental services to manage ecosystem restoration for biodiversity conservation, and cultural burning activities designed to reduce the potential impact of future fires on infrastructure. Further allocation of resources could support programs focused on rebuilding and disaster-proofing Indigenous land management and cultural burning enterprises, as well as the creation of a collaborative policy framework involving emergency services organisations and Indigenous communities to mitigate and manage incidents while following Indigenous cultural protocols. Such support will help Indigenous communities to retain and restore cultural knowledge and transfer this knowledge to future generations.

Conclusion

This report has reflected on the impacts of recent bushfires on Indigenous communities, lands and significant sites and species in order to propose a number of recommendations to empower Indigenous leadership for contemporary Indigenous fire and land management. These recommendations focus on recognising Indigenous rights and interests; recognising and supporting Indigenous knowledge rights and governance; supporting Indigenous-preferred approaches to learning, sharing and passing on relevant fire knowledge; establishing place-based partnerships that enable holistic landscape burning regimes across tenures and between institutions; ensuring that Indigenous fire knowledge and management activities can safely and legally work within contemporary institutional land governance arrangements; and delivering environmental, social, cultural and economic benefits for local Indigenous people. Translating these recommendations into practice will require the resolution of institutional and cross-cultural challenges that hinder Indigenous-led efforts to re-build or expand cultural landscape regimes that reflect the contemporary cultural and biophysical landscape of Australia. However, insights shared by Indigenous and non-Indigenous partners demonstrate that these recommendations can be achieved by investing in the significant capacity of Indigenous land and fire management knowledge, groups and partnerships that now exist across the study region; building reconciliation between Indigenous and non-Indigenous people; and reframing Australians' relationship with fire across the nation.



List of Acronyms

ACT	Australian Capital Territory
AFAC	Australasian Fire and Emergency Service Authorities Council
BRV	Bushfire Recovery Victoria
COAG	Council of Australian Governments
CDU	Charles Darwin University
CFA	Country Fire Authority
CSIRO	Commonwealth Scientific Industrial Research Organisation
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions [WA]
DELWP	Department of Environment, Land, Water and Planning (Victoria)
DPIE	Department of Planning, Industry and Environment (NSW)
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EPBC	Environment Protection and Biodiversity Conservation (Act)
FRNSW	Fire and Rescue NSW
GLaWAC	Gunaikurnai Land and Waters Aboriginal Corporation
IBA	Indigenous Business Australia
IFAAFG	Institute of Foresters of Australia and Australian Forest Growers
IPA	Indigenous Protected Area
IRG	Indigenous Reference Group
MERIT	Monitoring, Evaluation, Reporting and Improvement Tool
MLHAC	Minyumai Land Holding Aboriginal Corporation
NAILSMA	North Australian Indigenous Land and Sea Management Alliance
NESP	National Environmental Science Program
NIAA	National Indigenous Australians Agency
NRM	Natural Resource Management
NSW	New South Wales
NSW NPWS	New South Wales National Parks and Wildlife Service
ORIC	Office of the Registrar of Indigenous Corporations
SACFS	South Australia Country Fire Service
SEMC	State Emergency Management Committee (NSW)
SNES	Species of National Environmental Significance
RFS	Rural Fire Service (NSW)
TACK	Traditional Aboriginal Cultural Knowledge
VFBV	Victorian Fire Brigade Volunteers
VNPA	Victorian National Parks Association
WWF	World Wildlife Fund

Appendix 1: Details on datasets

Data sets accessed

Dataset name	Custodian	Source
Indigenous Protected Areas (IPAs)	Department of Environment and Energy	https://data.gov.au/data/dataset/indigenous-protected-areas-ipa-dedicated1
Indigenous Land Use Agreements (ILUAs)	National Native Title Tribunal (NNTT)	http://www.nntt.gov.au/assistance/Geospatial/Pages/DataDownload.aspx
Monitoring, Evaluation, Reporting and Improvement Tool (MERIT)	Australian Government, National Landcare Program	http://www.nrm.gov.au/my-project/monitoring-and-reporting-plan/merit
Office of the Registrar of Indigenous Corporations (ORIC)	ORIC	https://www.oric.gov.au/
Supply Nation	Supply Nation	https://supplynation.org.au/
Native Title Determinations	National Native Title Tribunal (NNTT)	http://www.nntt.gov.au/assistance/Geospatial/Pages/DataDownload.aspx
Species of National Environmental Significance (SNES)	Department of Agriculture, Water and the Environment	https://www.environment.gov.au/science/erin/databases-maps/snes
National Indicative Aggregated Fire Extent Datasets	Department of Agriculture, Water and the Environment	https://data.gov.au/dataset/ds-environment-9ACDCB09-0364-4FE8-9459-2A56C792C743/details?q=
Phascolarctos cinereus (combined populations of Qld, NSW, and the ACT) – Koala (combined populations of Queensland, South Wales, and the Australian Capital Territory)	Department of Agriculture, Water and the Environment	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104

Federal program data

Data from federal government sources were accessed including information on environmental grants and [Indigenous Protected Areas \(IPAs\)](#). The main source of data used for the analysis was the Monitoring, Evaluation, Reporting and Improvement tool (MERIT) collected by the Department of the Environment and Energy (DoEE). MERIT records detailed information on project activities, project locations and in some instances grant information for all Australian Government natural resource management (NRM) projects. It also includes project documentation, such as annual reports and project scoping documents.

Any organisations or individuals who receive funding from Australian Government Natural Resource Management (NRM) programs have a requirement to report to the Department on the progress of their projects. Reports are submitted using the Monitoring, Evaluation, Reporting and Improvement Tool (MERIT). MERIT is an online reporting system that simplifies and streamlines reporting across Australian Government NRM programs. MERIT was developed to provide consistent reporting across all NRM projects. MERIT allows users to access the project information in an efficient manner, creating greater transparency for both the government and the public, aligning with the Australian Government's Open Data Policy and creating a consolidated source allowing officials to easily access information for government strategies, including the State of the Environment Report. MERIT contains project data dating back to 2011 and is still used to capture information about ongoing projects.

MERIT contains a wide range of self-reported project data. Some of the most useful features of the MERIT data include:

- Project descriptions, detailing project activities and expected outputs
- Location details of all project activities
- Metrics against output targets (e.g. number of trees planted)
- Project documentation including project plans and relevant background materials
- Project timeframes
- In some instances, funding information

The project also obtained information from the National Indigenous Australians Agency's IPA data, whereby we used the publicly available IPA spatial boundaries to clip other data layers to, such as the NIA fire extent, and species data.

The Australian Government Department of Agriculture, Water and the Environment (DAWE) [National Indicative Aggregated \(NIA\) Fire Extent Dataset \(Version 20200635\)](#) captures the national extent of the bushfires (burnt areas) across Australia from 1 July 2019 to 22 June 2020. This dataset also uses boundaries from the [Interim Biogeographic Regionalisation of Australia \(Version 7\)](#) to delineate an area of southern Australia that encompasses the emergency bushfire areas of the summer. The NIA Fire Extent Dataset was developed to help quantify the potential impacts of the 2019–20 bushfires on wildlife, plants, and ecological communities; and to identify appropriate response and recovery actions. This dataset combines information from multiple sources, including data from State and Territory agencies responsible for emergency and natural resource management, as well as information from the Northern Australian Fire Information (NAFI) website. The variety of mapping methods and attribution approaches means that, conceptually, the dataset lacks national coherence and, in some areas, may identify false positives. However, this remains the most comprehensive and reliable dataset currently available.

Analysis of MERI data

The Australian Government has collected data on the management of natural resource assets using a monitoring, evaluation, reporting and improvement (MERI) framework since 2011. Service providers and funding recipients have been required to report on projects in Australian Government natural resource management programs using the Department of the Environment and Energy's online reporting tool, MERIT. The MERIT data consists of a set of multi-tab spreadsheets covering about 3,500 projects in nine programs from 2011 onwards. In the analysis below, 3,341 projects were considered, after excluding the most recent projects where project activities and reporting were not yet complete.

Although there are thousands of data items that MERIT can collect, the data available differ depending on the program under which the project was evaluated, the types of activities and objectives the project covered, the data 'schema' (the data structure determining how data was to be entered in MERIT) that applied to the project, and how well the original project team compiled in collecting and entering the data. This meant that MERIT data was not immediately suitable for analysis and steps first had to be taken to collate the data into a single database, fix mismatches in data structure, identify variables that were of both sufficient quality and informative value for analysis, and recode selected variables in a standardised way that would allow comparison between projects on an equivalent basis.

The initial aim in analysing the MERIT data was to identify 'hotspots', natural aggregations of projects covering similar topics and/or geographic locations, to help identify where subsequent case studies would be focussed. Initial inspection and analysis of the data showed several variables that would be useful for this purpose:

- The spatial location of the projects was specified by electorate and by grid co-ordinates. Each project could be conducted over multiple sites, so could occur in multiple electorates, and have multiple sets of grid co-ordinates. The grid co-ordinates have the advantage over electorates in being able to specify site locations more precisely. However, grid coordinates also have a downside in that they are more technically demanding for project leaders to fill in (so data quality could be variable) and each site is represented by a single point but could vary substantially in area over which project activities were conducted.
- Identifying the natural resource management (NRM) topic areas that projects covered was a bit more challenging. After initial analysis of a wider group of variables, the two variables that were found to be the most informative and highest quality (least number of issues with obviously missing or inaccurate data) were the activity "type" (in the "activity summary" tab of spreadsheets) and the "output target measure" (in the "output target" tab of spreadsheets). Both these values had to be completed in MERIT from a pre-set selection of categories, but the data 'schemas' determining the range of options available to fill in differed between projects (depending on when and where the project was being administered and evaluated). In the original MERIT database, there were 58 different activity type categories and 60 different categories for output target measures. These were remapped into a standardised set of nine categories of environmental management topics that projects addressed (plus an extra three categories of generic types of activities, such as submitting reports, that were a routine part of running most projects). Note that most projects delivered on more than one environmental management objective and, on average, addressed 2.4 topics (for the reduced, standardised set of nine topic categories).
- Some other types of information that were extracted for analysis were the program and sub-program that projects were funded and administered under, and the start and end dates of projects.

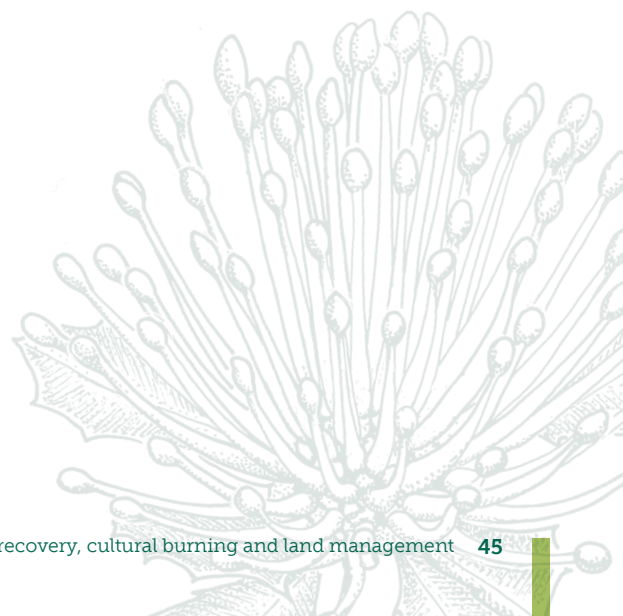
There are some caveats for the MERIT data that should be considered when interpreting the results below. Data on project funding (or other measure of project effort) was too sparse in the database to be able to weight projects, so only count data were used. Furthermore, each topic covered was treated as a separate count and each study site as a separate location. Aggregates of counts and points in the data presented therefore do not capture differences in funding/effort between projects and NRM topics. There is also an effective weighting towards projects that covered multiple topics and/or provided multiple grid co-ordinates for study areas.

The first analysis summarised associations between natural resource management topics as the proportion of projects that covered one topic that also covered another topic. Threatened species was the most specialised project category covering only 1.2 other topics on average and having the weakest association with other topics. Heritage projects tended to cover the greatest number of other topics, 3.2 on average, and had the strongest association with projects that also covered Indigenous knowledge.

Heat maps of project concentrations

There is a total of about 22,000 locations in the MERIT database or about seven study site grid coordinates per project. The locations of projects for each of the nine standardised NRM topics was plotted on heat maps, where the strongest concentrations of study sites show up as dark blue fading through to red and then white as the concentrations of sites decreases (See Figures 4 and 5 in this report). Note that these maps are affected by the caveats listed above, including the fact that projects for which the most locations were entered into MERIT will be over-represented in their contributions to hotspots, and that hotspots reflect the number of study sites, not necessarily the amount of funding or effort expended at those locations. Also, topics are categorised in MERIT at a project (not a site) level with multiple topics per project, so the work done at some hotspots may have been on topics other than those by which the projects were filtered.

Data processing, maps and analysis was conducted using ArcGIS Desktop (ESRI, 2021).



Appendix 2: Factsheet

Indigenous aspirations and capacity for bushfire response

Project Summary
Project 8.2.1



National Environmental Science Programme



Indigenous people and cultural burning are key to bushfire management in Australia. Image: Oliver Costello

Research in Brief

Many Indigenous leaders and land managers have expressed a desire to lead and participate in cultural burning that is authorised by the Traditional Owners of that Country, for protection of cultural and natural assets, fuel reduction, regeneration and management of significant flora and fauna habitat. This project will help to identify some practical measures that can enable Indigenous leadership in future cultural burning and land management in southern regions of Australia. Indigenous cultural burning leaders and practitioners will be asked what resources, capability and institutional pathways are needed to empower Traditional Owners and fire practitioners to be involved in fire management decisions and activities. The result will be recommendations on how to match Indigenous aspirations with fire management needs, both before and after major fire events.

Why is the research needed?

Indigenous people and cultural burning are key to delivering practical measures in relation to Indigenous land management and bushfires in Australia. A plethora of diverse cross-cultural fire management partnerships now exist across different tenures and across the nation. This includes landscape burning partnerships with Indigenous people in the forest country of southern Australia who have retained a connection to Country and have a desire to look after it and the culturally significant species that occur there. Yet recent wildfires during 2019–20 highlight the urgency of identifying and resourcing practical ways to increase support for Indigenous burning activities. More needs to be done to empower local Indigenous leaders to design

pathways to apply Indigenous cultural burning and bushfire recovery activities to prepare, respond, recover, rebuild and prosper in the face of increasingly frequent and severe bushfires. The project team will work with local Indigenous leaders and fire practitioners to identify current opportunities and impediments to Indigenous involvement in bushfire response in southern states of Australia and suggest practical measures to resolve them. These measures will focus on Indigenous-led cultural burning approaches that enable Indigenous groups to apply Indigenous knowledge and land management practices to care for significant species and areas as part of bushfire management and recovery efforts, and deliver environmental, cultural and commercial gains for both landowners and the Indigenous people employed.



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How will the research help?

Many Indigenous people have expressed a desire to become far more closely involved in fire management within the area burnt in south-eastern Australia during 2019–20, particularly to protect significant species from fire and help recovery afterwards. As the Indigenous Reference Group of the NESP Threatened Species Recovery Hub emphasised in their submission to the EPBC Act Review, for Indigenous Australians, Country owns people and every aspect of life is connected to it; it is much more than just a place. Indigenous Australians attributed tremendous spiritual, cultural or symbolic value to many animals, plants and ecological communities (and landscape/seascapes), a value that is critical in their relationship with and adaptation to Country. The protection of these cultural and spiritual assets is fundamentally important to maintaining Indigenous culture and knowledge.

This project will develop a set of short-term goals for immediate support that will increase Indigenous capacity and empower Traditional Owners to undertake cultural burning. Longer-term objectives will also be identified to establish a broader framework for cultural burning partnerships in southern regions of Australia. The result will be recommendations on how to match Indigenous aspirations with fire management needs, both before and after major fire events.

What research activities are being undertaken?

The project team will undertake a phone survey and/or online workshops with interested Indigenous ranger and fire management groups in southern Australia that are actively engaged in responding to the 2019–20 wildfires. Extensive notes will be taken, and transcripts will be checked by interviewees. We will then analyse transcripts to identify major themes for each of the following issues:

- aspirations for cultural burning activities in active Indigenous fire management groups
- experience with cultural burning and other fire management activities up to the time of the last fires
- what happened during and immediately after the fires, in terms of engagement with fire response activities and partners
- practical short- and long-term measures that might support Indigenous cultural burning and other fire management activities and partnerships in the future.

Recommendations will be made on short- and long-term measures that can empower Indigenous leadership and engagement in forest fire management in southern regions of Australia, including, where possible, both general and specific recommendations for different groups with different aspirations and capacity.

Who is involved?

Oliver Costello is a Bundjalung man and NESP Threatened Species Recovery Hub Indigenous Steering Committee member, and will work

with researchers from CSIRO, Charles Darwin University and The University of Queensland. The team will partner with representatives on the Bushfire Recovery Expert Panel from state and territory agencies, as well as state/territory fire services, parks agencies and natural resource managers. Indigenous fire practitioners who are engaged in cultural burning and other fire management activities will also be involved in the project and will be asked to share their perspectives and insights on measures that can empower Indigenous leadership and engagement in forest fire management in southern regions of Australia.

Where is the research happening?

Research will largely be carried out by phone interview and online workshops, given current constraints on travel due to COVID-19. Interviewees will be Indigenous Ranger and Traditional Owner groups who are actively participating in cultural burning, as well as other related fire and land management activities in forested areas in southern regions of Australia.

When is the research happening?

The project will run from January to June in 2021.

Further Information

For more information please contact:

Cathy Robinson
catherine.robinson@csiro.au

Appendix 3: Interview questions

Indigenous aspirations and capacity for bushfire recovery and fire management in Australia

Thank you for agreeing to respond to questions around understanding the impact of bushfires on significant species and habitats for Indigenous Australians; and the practical support needed to empower Indigenous leadership in cultural burning, bushfire mitigation, response, recovery, and resilience activities.

Your insights will be combined with a review of available reports and data to identify some short-term and long-term practical measures that can be taken to enable Indigenous leadership in bushfire mitigation, response, recovery, and resilience activities.

If you have any questions or concerns, please contact Cathy Robinson (CSIRO m: 0437 170 024), Oliver Costello (0422223478) or Stephen Garnett (08 8946 7115).

Details about your involvement in bushfire management and/or cultural burning

Please provide details of yourself and (if relevant) the organisation you work for.

We would appreciate knowing if you identify as being a person of Aboriginal and/or Torres Strait Islander descent.

Please provide an overview of how you and/or your organisation is involved in bushfire mitigation, response, recovery and resilience, land management and/or cultural burning activities.

Do you work with other partners or organisations? If so please tick relevant responses and provide any relevant details of the partnership(s).

- ☐ State agencies _____
- ☐ Federal agencies _____
- ☐ Rural country fire service _____
- ☐ NGOs _____
- ☐ Local government _____
- ☐ Private land holders _____
- ☐ Other _____

Understanding bushfire impacts, fire management and cultural burning

Can you identify any relevant personal, community or cultural values that are important to you that have been impacted or threatened by recent bushfires?

Are there any places, plants, animals, values, and practices that are important to you that are or should be considered in relation to bushfire mitigation, planning, response, recovery, and land management activities?

How would you describe the purpose and practice of cultural burning as part of fire and land management in Australia?
Tick all relevant responses

- ☐ Caring for Country_____
- ☐ Sharing and learning cultural knowledge and practice_____
- ☐ Invasive species and weed management_____
- ☐ Prevent or mitigate bushfires_____
- ☐ Gain better access to Country_____
- ☐ Fuel reduction and asset protection_____
- ☐ Maintain cultural responsibilities_____
- ☐ Threatened species management_____
- ☐ Clean up important pathways, corridors_____
- ☐ Ceremonial_____
- ☐ Maintain health of particular plants and animals_____
- ☐ Protect property/infrastructure_____
- ☐ Keep waterways healthy_____
- ☐ Support plant regeneration or germination of seeds_____
- ☐ Other_____

Is your burning different to the purpose and practice of other fire managers? If so, describe how and why.

Supporting Indigenous communities and leadership in bushfire response, recovery, and resilience in Australia

What resources do you currently have to support and undertake cultural burning, fire management and/or bushfire recovery activities?

- ☐ Cultural?_____
- ☐ Financial (e.g. funding)_____
- ☐ Rangers?_____
- ☐ Training?_____
- ☐ Partnerships?_____
- ☐ Equipment?_____
- ☐ Administrative (for getting permits etc.)_____
- ☐ Other?_____

What are some of the factors that have prohibited or restricted you from learning or practicing cultural burning, fire management and/or bushfire recovery activities?

What are some factors that have assisted you with learning or practicing cultural burning, fire management and/or bushfire recovery activities?

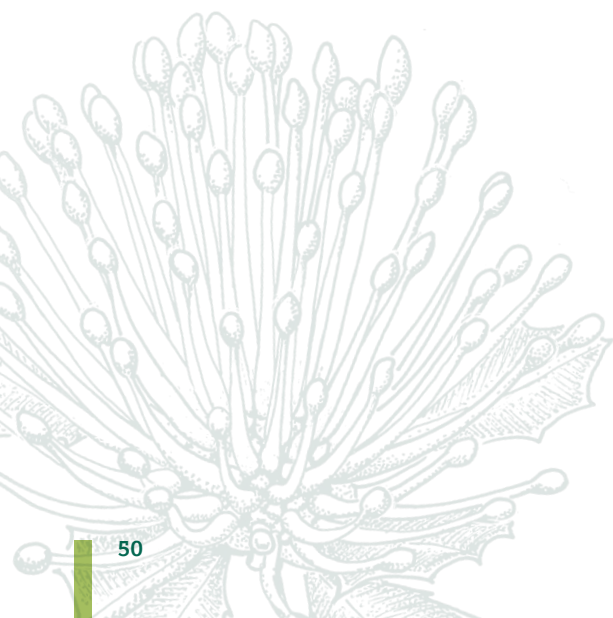
How would you describe short term (1-3 years) success for Indigenous leadership in bushfire mitigation, response, recovery, and resilience activities?

How would you describe long-term and sustained success for Indigenous leadership in bushfire mitigation, response, recovery, and resilience activities?

Are there any specific suggestions where further targeted support, resources and approaches could empower Indigenous leadership in bushfire mitigation, response, recovery and resilience and land management, including efforts to target significant places, habitats, and species?

- ☐ Cultural? _____
- ☐ Financial (e.g. funding) _____
- ☐ Rangers? _____
- ☐ Training? _____
- ☐ Partnerships? _____
- ☐ Other? _____

Thank-you for your insights. A draft report will be prepared by late May. This will be shared with you for feedback before the final report is submitted at the end of June 2021.



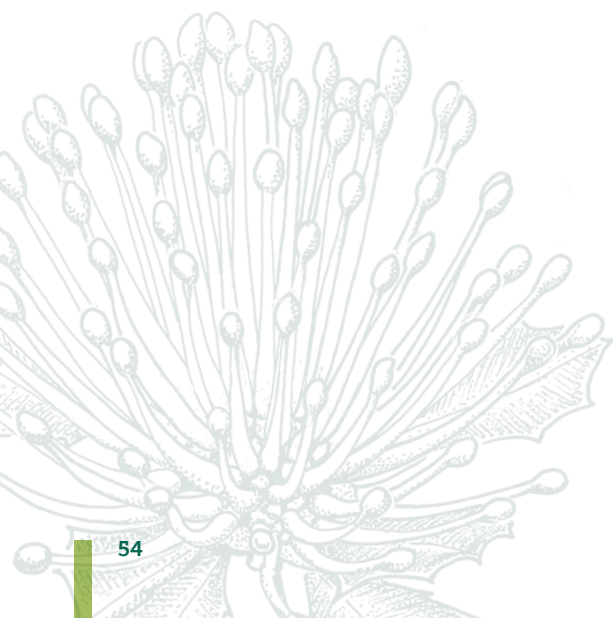
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Further information:

<http://www.nespthreatenedspecies.edu.au>

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