Queensland University of Technology

BVB311: Conservation Biology

Topical Essay

Burned Beyond Repair

Why We Must Reinvigorate Perceptions of Indigenous Fire Management to Save Australia From Rising Bushfire Intensity

Huon Morton - n10753826

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1 Introduction

The 2019-2020 Australian "Black Summer" bushfires devastated the coastal regions of New South Whales and Victoria. The three-month inferno led to large-scale ecological collapse with significant losses to biodiversity and habitat integrity, placed local economies under enormous pressure, and completely destroyed family homes. In addition to all the destruction, the fires produced approximately 1.6 times more emissions than generated by Australia's entire population in that year (van der Velde et al., 2021; Australian Government, 2025). From the mayhem caused by this unprecedented disaster, it would be reasonable to vilify their occurrence; however, fire's role in the Australian landscape is more ecologically complex than often perceived. Bushfires have developed an intimate and sometimes necessary relationship with much of the Australian flora and fauna. From this, diligent research efforts have been made since this discovery to protect Australia's dynamic equilibria (fire frequency, forest recruitment, soil nutrients, etc.). However, it has become abundantly clear that within Australia's ecological space, these relationships are deeply complex, only partially understood, and are becoming less predictable due to climate change. Fortunately, the complexities of the Australian landscape are very well understood through the ancient knowledge and deep cultural connections of its traditional land owners. The experience and ingenuity of Indigenous communities in Australia thus presents great potential for the restoration of Australian ecosystems and the protection of urban areas. Even so, while this knowledge may be the key to more sustainable management practices, the issue of integrating one of the most deadly natural disasters into a society that has come to fear it remains. Developing effective responses to increasingly volatile bushfires requires acknowledging the diverse environmental, economic, and cultural perspectives of key stakeholders. In this essay, I will examine these views to demonstrate that a change in our perceptions of fire and how we manage fire is not a suggestion, but a means of survival.

2 Recognising Fire as an Agent for Ecological Health

Fire acts as a dynamic regulatory force in many ecosystems, supporting essential ecological processes such as nutrient cycling, soil regeneration, and biodiversity maintenance. A tangible example can be found in the life cycle of a pyrophytic plant known as *Eucalyptus regnans*. This fire-sensitive plant is one of the few species that only disperses its seeds in obligatory circumstances, when a bushfire kills the tree and causes the woody structures containing its seeds to break apart and later germinate (Waters et al., 2010). For millennia, the recurrence of bushfires allowed mature obligate seeders to proliferate and compete with local species; however, following the effects of climate change, the frequency of fires has begun to overwhelm the trees, which was especially noticed in Victoria. In the decade between 2003 and 2014, 4.3 million ha of Victorian eucalypt forest was burned, approximately the same amount of area (4.4 million ha of Victorian eucalypt forest) burned over 50 years between 1952 and 2002 (Fairman et al., 2016). This substantial increase in fire frequency (<11 years), for now, won't severely threaten *E. regnans*, as the vulnerable juvenile period for this species is 2-3 years (Ashton, 1975). Unfortunately, however, other obligate seeders exhibit a wide range of juvenile vulnerability periods, from as little as one year to as many as twenty (McColl-Gausden et al., 2022), placing entire populations at risk of annihilation under increasingly frequent and destructive bushfires. The depth and complexity of relationships like these are apparent for countless species in Australia, and the growing volatility of wildfires affects all of them. When we scale out to all of Australia, the task of managing such an enormous landmass quickly becomes overwhelming, and we realise, with no small amount of grief, that developing this knowledge would take lifetimes to gather. This understanding lends itself to the appreciation and potential of the ancient knowledge that Indigenous Australians hold, and how that might come into play now that we live in a heavily westernised society.

3 A Change in Land Management: For Better and for Worse

Postcolonial times have seen a change in Australian land management from Indigenous stewardship, which now has a focus on the agricultural industry for the global market. The vast expanses of agriculturally viable land have given Australia an edge in global politics, efficiently feeding its own people, and becoming the backbone of importation for invested nations. Australia is one of the top 10 agricultural exporting companies in the world (National Farmers' Federation, 2019), which generates a strong national dependency that has far-reaching consequences, especially for something as critical as food security. The New South Whales and Victorian governments have already felt the impacts of agricultural set-backs, with the industry losing $5 billion in crops, livestock, and land value due to the Black Summer fires (Bell & Huang, 2021). Pervasive tragedies like this, commonly stir communities into action which gave Aboriginal people the perfect opportunity to present their deep cultural connection to fire on Country on the national stage (Nikolakis et al., 2024). Showcasing Indigenous knowledge on fire management strategies was very well received, as their fire regimes were proven to boost ecological health and reduce the risk of catastrophic fires (Steffensen, 2020). It was then realised that reactive and recovery-based firefighting methods devised by western ideals were not going to cut it, and a number of indigenous-led programs have been produced in alignment with government initiatives. By 2018, for example, the carbon and greenhouse gas market in northern Australia managed to produce 54 contracted early dry season burning projects that were projected to deliver 1.38 $MtCO_2$-e yr^{-1} in emissions offsets across almost 40 million hectares of savanna woodland (Lipsett-Moore et al., 2018). Despite these great efforts after major disturbances like the Black Summer fires, a pattern of societal resistance has emerged, creating fluctuations in funding and support for scientific and Indigenous communities in a climate that shows no signs of stabilising (Nikolakis et al., 2024).

4 Cultural Burning Practices: Assimilation or Recognition?

Indigenous fire stewardship (IFS) currently faces political obstacles that can lead to cultural burning practices being pushed to the fringes of society, and so efforts are being made to institutionalise IFS. Institutionalisation is thought to be necessary as the memory of wildfire slowly dissipates from public concern and loses traction (Nikolakis et al., 2024). Although this approach to IFS might appear to be a logical and feasible solution from a governance standpoint, doing so through conventional bureaucratic systems risks undermining their cultural autonomy. Assimilating cultural practices into such a rigid structure can also turn this spiritual act into performance indicators and compliance forms (Nikolakis et al., 2024). For traditional land owners, fire management is not simply a box to tick. Tribes across Australia have deep cultural connections with Country that date back tens of thousands of years (Roberts et al., 2017; Head, 1996; Thomas, 1956), and these connections are just as spatially complex as the ecosystems that cover the Australian landscape (Steffensen, 2020). This is why it is clear that a rigid bureaucratic system cannot be spread across Indigenous communities in a blanket attempt at governance. Rather than imposing structure from above, culturally safe fire management must come from within communities, guided by those who hold the knowledge, responsibilities, and rights to burn on Country. Recognising IFS practitioners as parallel entities from the state rather than bringing them into subordination would respect self-determination, protect the spiritual and ecological integrity of cultural burning, and allow for the collaboration of western science and Indigenous knowledge without the risk of domination. However, despite the strengths of a parallel system, concerns are raised with IFS practices conducted in separation of state supervision, especially when it comes to wildfire near urban areas (Hoffman et al., 2022; Cabrera, 2020; Smith et al., 2021).

5 Governance on Trial: Distrust in Indigenous Leadership

The fear of mismanagement in Indigenous-led organisations has been shaped by deep political anxieties found in a long history of alleged corruption and unlawful behaviour, which has been exacerbated by media outlets. For example, the Aboriginal and Torres Strait Islander Commission (ATSIC) was abolished in 2004/5 due to concepts described as "Indigenous failure" and "political ineptitude" as presented in Australian media (Holland, 2024). This political distrust was also highlighted as a national consensus, following the result of the 2023 Voice to Parliament referendum. The results of the referendum saw 60% of Australians vote no, despite a wealth of perceived benefits for traditional owners, and Attorney-General Mark Dreyfus explicitly stating: "The proposed constitutional amendment is legally sound. [...] It will not have a veto or grant special rights" (Prime Minister of Australia, 2023). As part of the following Australian Constitutional Referendum Study (ACRS) survey in 2023, more than 3000 nationally representative individuals showed that they feared the risks associated with the constitutional change and opted for a safer outcome (McAllister & Biddle, 2024). This climate of caution, paired with historical evidence of past failures in Indigenous-led systems, has defined a negative stereotype for Indigenous communities in governance. These perceptions are particularly amplified when it comes to the perceived risk that IFS may have on homes and livelihoods (Steffensen, 2020). However, all governance systems, whether Indigenous-led or state-run, carry inherent risks of mismanagement. What defines the resilience of a governance system is not the ancestry of its leadership, but the checks and balances that are culturally appropriate and translatable to the rest of society. For IFS, its establishment across all of Australia will depend on its ability to demonstrate accountability for both Indigenous and non-Indigenous communities. However, the margin for delay in making such a meaningful change is thinning and the global temperature continues to rise at an exponential rate.

6 Climate Change: Scaling IFS in a Narrowing Window

As climate change intensifies bushfire risks across Australia, the integration of IFS becomes an increasingly valuable method of land management; however, without the appropriate support from the Australian government, scaling IFS to meet national demands presents logistical challenges. IFS practices are culturally and ecologically complex and require training and community engagement to develop the role effectively. For example, The Fire Sticks Alliance is the most influential program in reinvigorating cultural burning practices for Australia with the recognition of 40 IFS practitioners (Firesticks Alliance Indigenous Corporation, 2024). Scaling the program to be effective nationally however, would require significantly more funding and continued structural support from pre-existing frameworks such as the fire emergency services already established in each state. In addition to local IFS programs, the success of the 54 savanna burning projects in northern Australia, which have reduced the potential for late-season wildfires and generated carbon credits, demonstrates the potential economic and environmental benefits of IFS on a global scale (Lipsett-Moore et al., 2018). These projects however, were limited to savanna woodlands and will require informed adaptation to move into temperate zones. While IFS is not without its challenges, it represents a system that is highly adaptive, increases long-term ecological resilience, and heals Aboriginal communities through active engagement. In a future that is governed by unpredictable climate variations, a standardised system will not be able to combat volatility in the environment. It will require IFS, which is malleable, proactive, and deeply connected.

7 Conclusion

Climate change is making its mark by placing ecosystems at risk of localised extinction and urban areas at risk of destruction. While our natural and manmade systems are under threat, a climate of suspicion surrounding Indigenous organisations still remains. It has led to a situational irony whereby opting for a path that might be perceived as safer, in actuality, will continue to stifle the development of IFS and cause an increase in fire risk. As unprecedented fire conditions that defy historical patterns continue to occur, the window to meaningfully integrate IFS into Australia's broader fire management framework is rapidly closing. IFS, grounded in tens of thousands of years of ecological wisdom and cultural understanding, provides a uniquely adaptive and resilient strategy for addressing Australia's fire challenges. Yet, persistent barriers, rooted in historical mistrust, institutional inertia, and misconceptions, continue to obstruct the effective scaling and acceptance of these essential programs. For Australia, navigating these roadblocks are not just a call for land rights, but an ecological and existential necessity. Embracing Indigenous knowledge and leadership in fire management will require not only systemic reforms but also a cultural shift towards trust and genuine collaboration. Although time is running out, the challenges fire management faces can be overcome, through prompt institutional changes that more heavily support organisations like the Fire Sticks Alliance. If programs like this can be acknowledged within legislation and given the appropriate funding, Australia stands a chance against wildfire. But, if we fail to overcome our dogmatism and institutional rigidities in spite of the realities of our changing environment, Australia risks burning beyond repair, leaving only the memory of a once rich Country.

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