

Aboriginal Cultural Revival through the Reintroduction of Cultural Burning and Development of a Fire & Seasons Calendar, in south-eastern Australia.

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Introduction

Globally, Indigenous peoples have managed fire for millennia (Pyne 1997). European colonisation since the 16th century in fire prone areas has been associated with the implementation of fire suppression policies, markedly disrupting traditional fire management practices and transforming ecosystems (Moura et al. 2019). In recent decades, a paradigm shift has occurred to recognise the value of Indigenous knowledge and practice in fire management, leading to Community-Based Fire Management (CBFiM) and Integrated Fire Management (IFM) projects in southern Africa, Brazil and Australia (Moura et al. 2019), with calls for more countries, such as India (Thekaekara et al. 2017), Canada (Lewis et al. 2018), U.S.A. (Armatas et al. 2016; Lake et al. 2017; McBride et al. 2016), Venezuela (Eloy et al. 2019; Mistry et al. 2019; Rodríguez et al. 2018) and Guyana (Mistry et al. 2016) to institutionalise and implement similar policies and practices.

In northern Australia's savannas, Indigenous landscape-scale fire management initiatives have been established since the early 2000s, providing greenhouse gas emission abatements, as well as broader ecosystem health and community benefits (Moura et al. 2019). In south eastern Australia, there has been little documentation of Indigenous fire management, however a revival of 'cultural burning' is currently underway in many Aboriginal communities (Firesticks Project 2017). For example, Neale et al. (2019) described the initiation of cultural burns during 2017 in Victoria 'which are believed to be among the first Aboriginal-led traditional burns on public lands in southeast Australia since the settler invasion began more than 180 years ago' (page 4).

In her review of social science research on Indigenous wildfire management, Christianson (2014) found that 'community or participatory-based research with indigenous communities can be incredibly rewarding for the community, research and associated agencies' (page E) however there were few studies which successfully demonstrated this.

Our research aims to describe the reintroduction of cultural burning at Wattleridge Indigenous Protected Area (IPA) in New South Wales Australia (Figure 1), owned by the Banbai Aboriginal Nation, and considers the ecological and cultural changes that occur when fire is reintroduced to a long unburnt ecosystem. Through participatory action research, semi-structured interviews and the development of 'two-way' science, (using Indigenous and western scientific knowledge (Ens 2012)), we are in the process of monitoring the impact of cultural burning on an important plant and animal and developing a Fire and Seasons calendar for Wattleridge IPA.

Methods

Wattleridge IPA is managed primarily for the conservation of biodiversity and Indigenous cultural heritage and is home to 15 threatened fauna and 4 threatened flora species (Milledge 2017; Patterson and Hunt 2012). From 2009, the Banbai rangers started to re-learn cultural burning practices through engagement with Indigenous fire specialists (George 2013), other Indigenous ranger groups and the Firesticks project (Firesticks Project 2017). Assistance was also provided from government agencies such as the Rural Fire Service NSW (RFS).

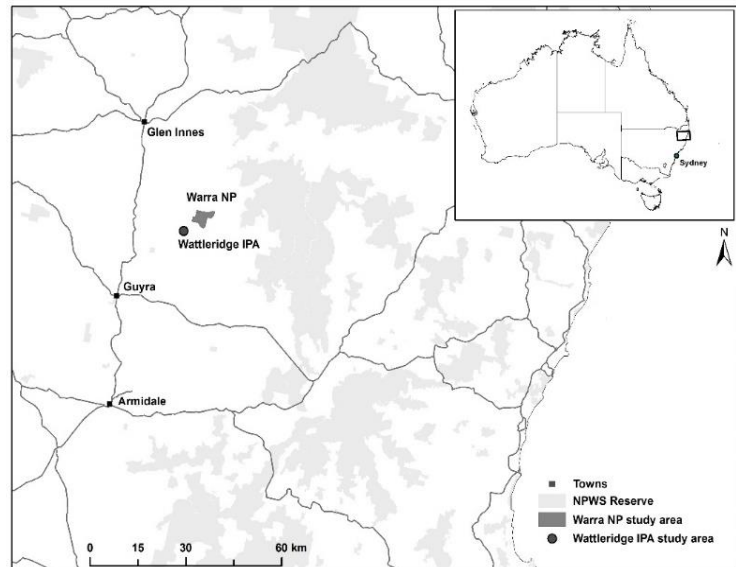


Figure 1: Location of Wattleridge IPA, NSW, Australia

Qualitative socio-cultural research was undertaken with an inductive approach using participatory action research and semi-structured interviews (Babbie 2013) (UNE Human Ethics approval HE14-182). For the participatory action research, a non-Indigenous scientist and Banbai Indigenous rangers participated in several activities: implementing a cultural burn, monitoring the ecological impacts of the burn (using a Before-After-Control-Impact experimental design) and developing a Fire and Seasons calendar. Furthermore, seasonal and pre- and post-fire observations were recorded to build knowledge of the landscape and the changes brought about by fire and changing seasons. Aboriginal and scientific knowledge, alongside the results of collaborative monitoring, were used to develop biocultural indicators, which we defined as predictable, obvious, seasonal events that may or may not be culturally significant. These biocultural indicators (e.g. flowering or fruiting plants, arriving or departing migratory birds, breeding animals) were then aligned with seasons and fire conditions to provide an indicator of whether it was an appropriate time to burn. This research, together with fauna data collected through the Firesticks project, literature review, Indigenous knowledge and direct observations (Figure 2), led to the development of *Winba = Fire*, a fire and seasons calendar for Wattleridge IPA, which enables land managers to:

- Determine appropriate timings and types of burn that may be applied in relation to vegetation type and fire history
- Identify and interpret biocultural indicators of ecosystem health and fire responses
- Use the information as an educational resource for fire practitioners, community and local schools.

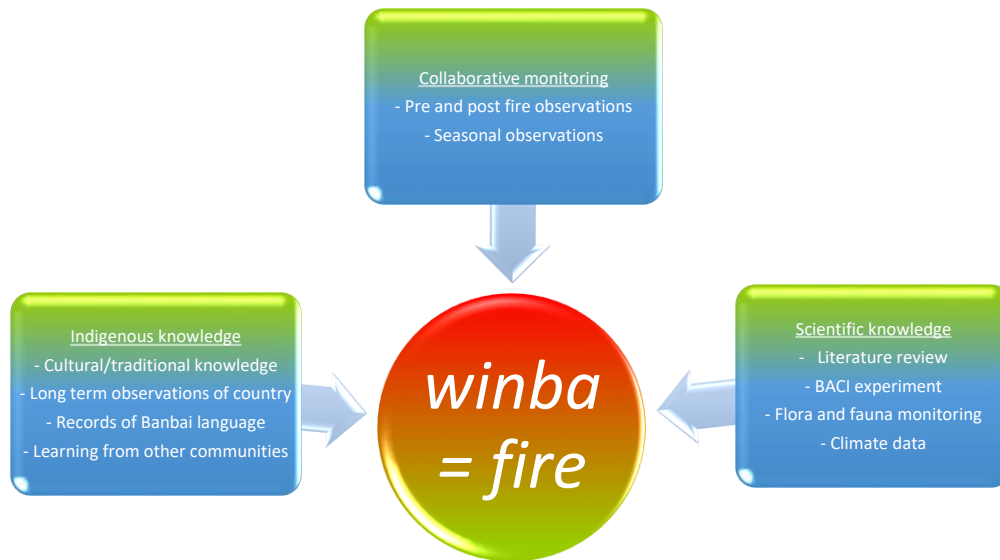


Figure 2: Sources of information for development of *Winba = Fire*

Results

Winba = Fire (Figure 3) presents the biocultural indicators, Banbai language names, fire management recommendations and results of two-way monitoring resulting from our research. The research project has collected detailed descriptions of the practice of reintroducing cultural burning in southern Australia, including these summaries from Banbai ranger, Elder and co-author Lesley Patterson:

Reintroduction of cultural burning

‘Until 2009, we didn’t do any cultural burning and then we started to reintroduce a few burns which made the land a bit healthier. After the burning we saw more animals, more native plants coming through and very few weeds. We have to be careful not to make the fire too hot, after a hot fire the grass is destroyed and more weeds come back. Cool burning leaves habitat behind for animals, birds and plants. The canopy is sacred and we try not to burn it. My Mother taught me how to put the fire out, and to have respect for it. She used to burn every year.’

Development of biocultural indicators for cultural burning and Winba = fire

‘We have been working together to develop *Winba*, going out on Country to look at the plants that are flowering and fruiting, the birds that are coming and going, what the wallabies are doing, the snakes becoming active in the warm weather and the lyrebirds and the echidnas breeding during the cold time. We burn in autumn and winter to make it safe for the Country and people, so it is not going into a wildfire- we can control the fire during the cooler months.’

Cultural revitalisation through cultural burning and development of Winba = Fire

‘We are using the calendar as a teaching tool- if we go anywhere we talk about the calendar and why it’s important to us- so we are not burning at the wrong time. It is showing the children what will be around in that month- whether it is summer, winter, autumn or spring, and to know which birds to look out for. Even my youngest grandchildren are starting to pick up what I’m saying. They know about bush medicine.’

‘We are passing on knowledge that was passed down to us. We are passing it on to the next generation so they know how to burn properly and have healthy Country to pass on to the generation after them. With *Winba*, because we know what is getting around in different seasons, we are not destroying habitats or wiping out native animals and plants where a wildfire might have damaged them in the past. Fire is a good tool but it can also be destructive, and knowing how to work with fire is a benefit for the people, the Country and the animals. Cultural burning has given us a chance to get out on Country and get to know it better.’

Discussion

In our experience, cultural burning is so much more than just lighting a fire. It encourages cultural revitalisation, use of threatened Aboriginal languages, ecological restoration, hazard reduction and asset protection (diversity of assets), responsible and appropriate fire management, community engagement and reconciliation. Cultural burning provides a mechanism whereby Aboriginal people ‘get out on Country’ and transfer knowledge of an ancient cultural practice. The practice of burning is exciting which encourages young people to be involved. We have found that cultural knowledge can be relearned and may not be lost forever, even in communities where the impacts of colonisation were particularly severe. Cultural burning is empowering for Aboriginal communities and can have benefits for all of Australia.

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