

Tomorrow's Country: Practice-oriented principles for Indigenous cultural fire research in south-east Australia

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Abstract

First Nations peoples are revitalising diverse cultural fire practices and knowledge. Institutional and societal recognition of these practices is growing. Yet there has been little academic research on these fire practices in south-east Australia, let alone research led by Aboriginal people. We are a group of Indigenous and settler academics, practitioners, and experts focused on cultural fire management in the Victorian Loddon Mallee region. Using interviews and workshops, we facilitated knowledge sharing and discussion. In this paper, we describe three practice-oriented principles to develop and maintain collaborations across Aboriginal groups, researchers, and government in the Indigenous-led revitalisation of fire on Country: relationships (creating reciprocity and trust), Country (working with place and people), and power (acknowledging structures and values). Collaborations based on these principles will be unique to each temporal, social, cultural, and geographic context. Considering our findings, we acknowledge the challenges that exist and the opportunities that emerge to constructively hold space to grow genuinely collaborative research that creates change. We suggest that the principles we identify can be applied by anyone wanting to form genuine collaborations around the world as the need for social-ecological justice grows.

KEYWORDS

collaboration, cultural fire, governance, Indigenous peoples, practice, south-east Australia

1 | INTRODUCTION

Many First Nations peoples throughout the world are revitalising fire knowledge and practices. Often described by others as cultural burning, Indigenous fire management, or traditional burning, cultural fire has come to refer to a diverse and nuanced suite of fire uses. These uses include both fine- and broad-scale burning to promote key species, eliminate weeds, observe cultural ceremony, reduce hazardous fuels, and for other purposes.¹ In Australia, social, legal, and political factors have disrupted such burning practices, but they are also playing a role in the revitalisation of cultural fire on Country—or ancestral territories. This revitalisation includes growing popular support for Aboriginal peoples' engagement in land management (or caring for Country) and is reinforced by the publication of bestselling books reassessing ancient environmental stewardship (Pascoe, 2014; Steffensen, 2020; Yunkaporta, 2019). Legally, the limited but expanding recognition of some Aboriginal peoples' land and resource rights has provided greater leverage for negotiation, including through increased engagement and partnership with settler land and fire management agencies, which continue to hold legal authority over the use of fire on public and private land (Neale et al., 2019; Smith et al., 2021). Furthermore, political initiatives to form treaties and agreements between state and federal governments and Aboriginal peoples have embedded values of partnership in policymaking.

Our paper is the product of an ongoing project in which we seek to build collaborative research pathways that improve upon the present context, which is dominated by legacies of inequality and dispossession. We are guided by the research question: What are the key features of future cultural fire research to support the growth of cultural fire management? An outcome of collaborative research with Traditional Owners, government decision-makers, and university researchers engaged in the Loddon Mallee region of Victoria, this paper sets out to establish the thematic focus for, and methods of future cultural fire research. Through a series of interviews and workshops, we explored how these principles have been generated. We argue that the most pressing matter for discussion in this and similar contexts is the *how* and not the *what* of future cultural fire research; that is, how to determine what types of questions to pursue and how to decide what types of data to collect. As we explain below, only a research process centred on transparency, reciprocity, trust, and willingness to change one's position (the *how* of research) will enable the appropriate formulation of useful and impactful research objectives and outputs (the *what* of research). If these findings can be generalised, they will have wide-ranging implications for future research

Key insights

Bringing together Indigenous and settler academics, practitioners, and experts focused on cultural fire management in the Victorian Loddon Mallee region, the study identifies practice-oriented principles for Indigenous cultural fire research in south-east Australia. Relationships, Country, and power are three principles by which to develop and maintain collaborations across Aboriginal groups, researchers, and governments. Relationships involve creating trust and reciprocity among partners and participants. Country involves working with place and people. Power involves acknowledging structures and values that shape cultural fire practices. Together, these principles can form the basis for collaboration to shape Indigenous cultural fire management.

projects focused on Indigenous peoples' land and fire management practices in different social, cultural, and environmental contexts.

2 | BACKGROUND

The revitalisation of Aboriginal peoples' fire practices in south-east Australian jurisdictions, such as Victoria, is illustrated by landmark events. Critically important events include the release of the *Victorian Traditional Owner Cultural Fire Strategy* (2019), founded in a joint partnership between Traditional Owners and government land management agencies (O'Kane et al., 2019), and the rising number of burns led by Aboriginal peoples occurring on public and private lands (McKemey et al., 2019).² Nonetheless, these events remain pervasively colonial. The actual application of fire to landscapes is dominated by practices, processes, and regulations administered by government authorities and non-Aboriginal people. As in many other settler colonial nations and regions globally (Lake & Christianson, 2019), Aboriginal peoples seeking to burn their ancestral territories in south-east Australia must typically do so according to terms and schedules set by others, often without the financial and operational resources available to government agencies. Similarly, the production of Western scientific knowledge about land and fire ecology is dominated by university and government researchers.

There is a growing body of work on Indigenous fire management globally and in northern Australia (see Bardsley et al., 2019; Fache & Moizo, 2015; Russell-Smith et al., 2013; Scherjon et al., 2015).

However, to date there has been little academic research about the social, economic, and ecological effects of cultural fire in south-east Australia—which has highly flammable ecosystems—let alone research led by Aboriginal peoples. Emerging research has examined species' responses to cultural fire (McKerny et al., 2019), the role of fire in caring for place or Country (Ngurra et al., 2019), and the challenges and opportunities cultural fire initiatives face (Smith et al., 2018). Recent proposals to reintroduce Aboriginal fire practices in south-east Australia have come partly as a response to Australia's catastrophic 2019–2020 fire season (Nolan et al., 2020) and compounding fire risk due to a changing climate. However, such proposals have exposed considerable knowledge gaps pertaining to the ecological, social, and economic dimensions of cultural fire initiatives and there is a clear need for research to better support these initiatives, wherever they occur. Of particular importance is research that empowers Aboriginal peoples as leaders in both research and policymaking. There are few institutional examples of such comprehensive equity characterising all stages of research projects from creation to completion. However, an increasing range of examples internationally and elsewhere in Australia emphasise deliberation, reciprocity, and work to trouble established or conventional definitions of researcher and participant (Bawaka Country et al., 2015; Bilbao et al., 2019; Ens et al., 2015; Hill et al., 2020; Leonard et al., 2020; Rayne et al., 2020) and that also consider the role of science in reconciliation (Liboiron et al., 2021). Across both governance and research in south-east Australia, the growing presence of Aboriginal peoples' fire practices in ecosystem and hazard management means there is now an urgent need to find new ways to work together and build on existing collaborations and engagements (Neale et al., 2019).

Despite domestic and international trends to more inclusive and participatory forms of environmental governance, there remain enduring tensions between governments and First Nations about the control of resources and authority. These tensions are acute in settler–colonial contexts, such as the CANZUS nations (Canada, Australia, Aotearoa/New Zealand, and the United States), where reclamation of land rights by Indigenous peoples is geographically variable and typically remains poorly supported by state institutions (Johnson, 2016). In these contexts, nominally collaborative forms of governance may be viewed as tokenistic insofar as the authority of Indigenous peoples is constrained by uneven power relations (see Archibald et al., 2019). Recent work that explores unequal collaboration has suggested that confronting, rather than evading, histories of colonial violence, capitalist extraction, and ongoing marginalisation can form a vital and productive element of

partnerships in settler–colonial contexts. Environmental management research has highlighted the importance of relationship characteristics, including trust (Hill et al., 2012; Lane & Williams, 2009; Nursey-Bray et al., 2017; Zander et al., 2013). Some emerging scholarship on how to achieve relationships and collaboration centres around disruption and reformulation (Rawluk et al., 2020) and relationality (West et al., 2020), but these remain highly theoretical and require on-the-ground implementation and experimentation (Braun, 2015).

3 | STUDY CONTEXT AND APPROACH

The Loddon Mallee region covers almost 59,000 km², or a quarter of Victoria, and extends across a range of environment types: Spinifex Mallee woodlands and Saltbush Mallee on dune fields in the drier northern third; grasslands and woodlands associated with the plains fringing the Murray, Avoca, and Loddon rivers; and Box Ironbark and Yellow Gum woodlands on the low ranges that characterise the south. The region includes the Country, or territory, of two Registered Aboriginal Parties—Dja Dja Wurrung and First People of the Millewa Mallee—as well as other Traditional Owner groups including Barapa Barapa, Ladji Ladji, Wadi Wadi, Tatitati, and Wamba Wamba peoples (Figure 1). In March 2013, Dja Dja Wurrung peoples became the first group to sign a Recognition and Settlement Agreement with the Victorian Government and subsequently developed a 20-year Country Plan outlining key cultural obligations in relation to land and fire management (DDWCAC, 2014). Several years later, in 2017, Dja Dja Wurrung peoples led the first recorded cultural burns (or *djandak wi*) on public land in Victoria in over 150 years, and more burns led by Dja Dja Wurrung and Barapa Barapa peoples have followed since. Over 30 cultural burns are now scheduled in the region's current fuel operations plan, and several cultural burns have also occurred on private land across the region.

Research that tackles complex challenges at the interface of colonisation and environmental change must carefully consider how it can help create more equitable power relations (Braun, 2015). The anthropologist Emily Yates-Doerr (2019, p. 298) has critiqued how research collaborations in health are often framed as aiming for unity and equality when, as she argues, “relationships are structured by power, and dialogue is unavoidably asymmetrical.” Focused on relationships, we must attend to “the labour of co-labouring” and allow for equivocations between how different people understand key terms. Such collaborations, Yates-Doerr (2019) has suggested, should be unsettling because they place pressure on researchers' established meanings and ways of working. Careful

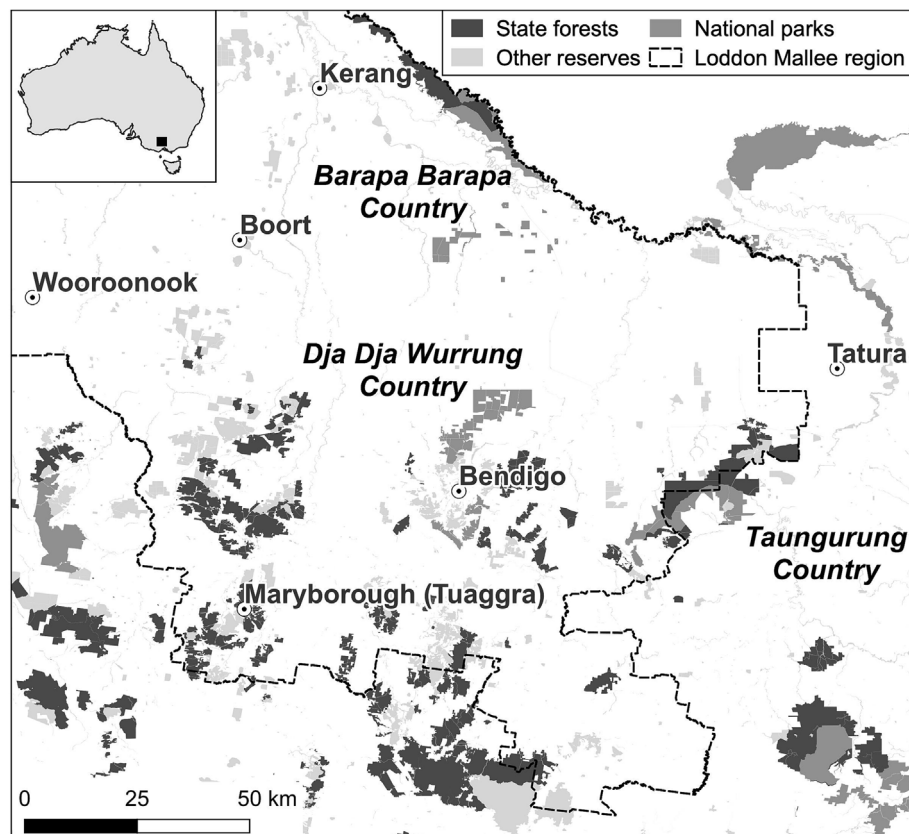


FIGURE 1 Map of Dja Dja Wurrung Country. Source: authors.

equivocation is posited to “help to articulate uncommon futures—futures where the awkwardness of our collaborations is more explicit” (p. 308). Likewise, in imagining transformative research practice, Kanngieser and Todd (2020, pp. 385, 393) have emphasised relationships, proposing a kin studies approach that counters the “separations that case studies insert between place, thought, and relations” and “acknowledges the importance of labouring with and in place through lasting reciprocal relationships.” Like others (Bilbao et al., 2019; Hill et al., 2020; Rayne et al., 2020), these scholars have highlighted the significance of how research is conducted, suggesting a departure from established academic habits.

In south-east Australia, these perspectives increasingly inform collaborations between Aboriginal peoples and researchers in decolonial experiments (Neale et al., 2019; Wright, 2018). Cultural fire management, as Neale et al. (2019, p. 347) have argued, “is a site of emerging experiments in the redistribution of legal and political authority over Country.” It is increasingly the focus of converging interests between Aboriginal and non-Indigenous actors, including settler government agencies, who have only an emerging momentum of effective dialogue or equitable partnerships (Goolmeier et al., 2022). Experiments in this sense enable or, in less abstract terms, generate novel situations whose effects and outcomes are uncertain and not guaranteed

(Fortun, 2012). Aligned with the experimental character of this research context, our project draws upon an adaptive doing approach that centres individuals willing to engage in conversations and collaborations that challenge the status quo (Rawluk et al., 2020). Adaptive doing assumes the irreducibility of practices and knowledge (Cook & Wagenaar, 2012) and is based on the idea that what we do shapes what we know. It proceeds by examining diverse perspectives to form shared understandings that enable different practices and knowledge to emerge. In seeking to explore principles for future research on cultural fire management in Victoria, we wanted to understand different perspectives on existing research collaborations and current priorities to form a sense of collective and individual interest.

Through their existing networks, authors Neale, Carter, Bourke, Falconer, Wong, Nelson, and Atkinson identified a group of 18 Aboriginal and non-Indigenous experts, researchers, government staff, and local community members with established interests in cultural fire management, including within the Loddon Mallee region. This pool of 18 potential participants was cross-referenced by the core research team to ensure it was comprehensive. Following full ethics clearances, all 18 were approached to participate in the research project and 13 chose to participate in qualitative semi-structured interviews with Rawluk.³ Subsequently, four

workshops addressed key themes and questions from the interviews including short-term (2–3 years) and long-term (20–25 years) aspirations for cultural fire research, research objectives and relevant evidence, and approaches to ensuring Aboriginal control and community engagement in research.

All 18 potential participants were invited to the workshops. Fifteen participants attended, 11 of whom had participated in the interviews and four who had not. Because of the COVID-19 pandemic, both interviews and workshops were carried out over Zoom and then recorded and transcribed for analysis. Transcripts were inductively analysed using thematic content analysis (Boeije, 2009; Fereday & Muir-Cochrane, 2006).

To ensure the rigour of the data analysis process, Rawluk and Neale first independently coded a sample of interview and workshop transcripts. They compared their individual coding results to generate shared thematic codes. Rawluk then coded the remaining transcripts with the agreed shared codes, and the findings were discussed among the authors. All participants in interviews and workshops are co-authors of the paper.

We present the results without participant names to ensure the anonymity of individual quotes. Nonetheless, we use acronyms relating to individuals' roles in order to position them within the dynamics of collaboration (Conservation [Con], Government [Gov], Traditional Owner [TO], University [Uni], Practitioner [P], and Researcher [R]) so that Con-P1 corresponds to Conservation Practitioner 1, Gov-R2 corresponds to Government Researcher 2, and so on. We have also noted where quotes are drawn from interviews (IV) or workshops (WS).

In the following section, we present an analysis of the three key themes—relationships, Country, and power—that emerged from our coding of interview and workshop transcripts, before discussing the implications for this project and others that similarly seek to develop and support collaborative research around Indigenous land or fire management. As we argue, experiments in adaptive doing are a robust method for investigating the how of such collaborations and should precede considerations of the what of research projects.

4 | RESULTS

4.1 | Relationships: Creating reciprocity and trust

Participants emphasised the importance of establishing and maintaining strong interpersonal relationships across cultural fire projects. Frequently, participants said that successful collaborations were underpinned by robust social connections between individuals. Less

successful collaborations were the result of an absence of such connections. Strong connections between institutions or organisations were attributed to existing connections between individuals, such as particular champions in government and organisations. However, staff turnover in government is typically high and although roles are stable, different individuals can move through them quickly. One author shared how:

Government operates very much on the functions of the role so you might have person A, B or C in the role. It doesn't really matter who's in the role, it's the role that is doing the job whereas with Aboriginal people they make a relationship with the person, not the role ... Quite often with government they communicate by email mostly, occasionally phone. You can't do that. You have to front up and spend time [with Aboriginal peoples]. (Con-P2 IV)

As might be expected, no simple formulae for developing effective interpersonal or institutional relationships were articulated; relationships take time to develop and require practices of listening, reciprocity, trust, and familiarity over months and years. In contrast to what happens in many academic and government processes, a single person cannot speak for a community to give permission and authority, and a single yes does not reflect ongoing agreement or consent. The long-term relationships needed for collaborations are shaped by connection to community and appropriate communication (Table 1).

Recent critical work in intercultural communication has stressed the importance of listening to foster trust across cultural difference (Dreher & Mondal, 2018). In our study, participants affirmed how attuned listening skills supported building and maintaining relationships between different project members. "I think if you're a good listener, and you really think deeply about what the other person is saying and wanting," Uni-R1 said in an interview, "then I think that's obviously the ideal outcome." During a discussion of project governance, a non-Indigenous fire manager (Gov-P1 WS) told us that "winning trust is so important, and listening is genuinely at the heart of it." Successful collaborative relationships that support trust through time (Quote 1, Table 1) hinge on the capacity to listen to different people, communities, interests, and perspectives with patience and on an awareness that not everything will be shared and not all at once. Alternatively, participants also noted how there are many sources of miscommunication across different organisations and individuals, some of which may include different understandings of the purpose and implementation of a project. A conservation practitioner explained (Con-P2 IV):

TABLE 1 Quotes to support the principle of “relationships—creating reciprocity and trust.”

Theme	Quotes
Listening	Quote 1. Gov-R1 IV: There can be “cross-cultural misunderstanding stuff about what is a working day ... all those sorts of somewhat petty things” or assumptions that can lead to larger consequences. “There’s lots of things that can go wrong,” they added, “that there’s not a shared understanding of what the project is about. Like ships passing in the night, the communication can be awry.”
Reciprocity	Quote 2. Con-P2 IV: “In a lot of situations researchers get data ... they’re very focused on getting that stuff into the literature or broadcast at conferences ... but if you don’t make the time to do the same thing back to the Aboriginal audience all they see is that you’ve come in, taken stuff and gone and they don’t know what the outcome was ... In some places, there’s definitely a view that researchers are just there for their own profit. They just want to come in, get what they need and then piss off again.” Quote 3. Ab-R1 IV: “Taking knowledge and then applying it to your own program—which I think is what makes the mob suspicious, and that breaks down the collaboration. And what the mob really want to do, they want to be supported to do their own thing and they want those barriers that are just simply bureaucratic, they want them broken down.” Quote 4. TO-P4 IV: “If you don’t have the right people coming from that [research] side, then it’s all just one-way traffic and it just doesn’t get done. I think people want the notoriety ... I’m just here for cultural obligation, care for Country and to manage Country. That’s the way I look at things.”
Trust	Quote 5. TO-P1 IV: “relationships are really important and there’s a level of trust there as well. When that trust is broken, it’s really hard to get back in what you do, especially with land management.” Quote 6. Con-P1 IV: “It’s actually you’ve got the process wrong to fix it, change it and there’s a reason that some of the conversations you have with traditional owners aren’t necessarily the most productive and that’s because the way that you are engaging in conversations is a little bit disrespectful.”
Cultural literacy	Quote 7. Uni-R2 IV: “So, the researchers need to keep in mind the way that information flows through Indigenous communities and the way that permission is granted, and consensus is reached, and they can’t always defer to a single leader or person or anything like that. So yeah, I guess one of the key insights I’ve had is that yeses are provisional and to not take answers in the same way that you would from say the leader of a National Park. You can’t just take the assumption that this person speaks for everyone.” Quote 8. Con-P1 IV: Speaking about bringing “everyone along” with a research project: “But the biggest challenge for that collaboration is how do we actually support others in the journey that we need to go on? How do we actually enable others to be a part of that?” Quote 9. Ab-R1 IV: “I’ve lived in this area for a long time and so I know quite a lot of the mob and I think that’s really helped us develop a bit of trust beforehand. I’m sure it would be harder coming in completely cold potentially.” Quote 10. Gov-R1 IV: “... how do they come together to tell a story and one that can convince government agencies and the community in general to give licence to cultural burning, because just in the same way that a good yarn in this space for rural communities is always better than a scientist’s pointy head coming and telling you how to suck an egg.”

There’s lots of examples where that relationship hasn’t gone very well because of differences I think in people’s understanding of what the purpose of the collaboration is and their expectations. You have to take time to engage with [Aboriginal peoples] during as well as after the work so they feel involved with what’s going on.

Therefore, we suggest that a shared understanding of a project’s purpose can be fostered by forms of listening that enable diverse interests and perspectives. However, willingness to understand and capacity to listen also need to be maintained through the project and after its ostensible end.

Participants also noted that non-Indigenous peoples can ignore or be oblivious to the impositions that contributing to research projects place on Aboriginal peoples’ time and attention. As a Traditional Owner said (TO-R1 WS), “there’s just so much going on in Aboriginal communities and they’re being asked to do this and

getting pulled from pillar to post.” When Aboriginal people engage in collaborative work, it generates a range of obligations to Traditional Owners of which researchers and others are often either unaware, underestimate, or simply ignore. If researchers do not meet or recognise their obligations to Traditional Owners, it can potentially undermine the possibility of future collaborations. One obligation is to engage throughout the project and in two-way knowledge exchange (Quote 2, Table 1), for example, in conversations and activities that may have little to do with research. Establishing and maintaining trust is crucial, and breaking trust can derail these relationships (Quotes 5 and 6, Table 1).

Making sure that people in an environment where they trust you and they believe that you can make a genuine contribution to their aspirations around land management, that you’re there for the long haul, you and your collaborators are in for the long haul. (Gov-R1 IV)

A conservation practitioner (Con-P1 IV) stated:

I think it's when people come in with the predefined concept of what they're going to do and saying, for example: 'we want to do this project that looks at A, B and C. Here's the Traditional Owner specific role in it. Here's where we want you to provide knowledge and input and other things. But we want you to just do something here' ... Although the intent to do it the right way might be there, or the intent to do something good might be there, the problem is that ... they've forgotten about that their research actually touches on people as well.

Researchers need to mitigate the disproportionate burden that collaborative research places on Aboriginal peoples. Our interviews and workshops, as well as other conversations, suggest that Traditional Owners may not have the time and resources (Bauman et al., 2014) to dedicate to project design or the routine but intensive interpersonal labour that is required by collaborative work such as practices of listening, developing cultural knowledge, and building trust. Integrating costs into a project to compensate collaborators financially will support both their contribution and the time required to learn new information and communicate it back to their communities.

Reciprocity moves away from extractive knowledge practices (Quote 3, Table 1) and includes the priorities of Aboriginal peoples (Quote 4, Table 1). Without a focus on reciprocity, the exploitative practices of research will continue. TO-P5 stated:

two hundred years of repression it's still happening ... You're either seen as the tokenistic blackfella, a blackfella that can be box ticked—or a blackfella that can go and do some work ... [Historically] it's not equal ... I've been pushing for a long time to be seen as knowledge holders ... and being an equal partner.⁴

Practices of reciprocity in the design and conduct of research requires a dramatic reorientation, in which Indigenous peoples are provided the necessary resources to participate equitably throughout the entire research process. Although significant gains have been made in recent years, the future of collaboration "comes back to trust" as one Aboriginal land manager explained (TO-P1 WS): "We're still trying to work in building that relationship to bring everyone along for the journey with us." Conversations in interviews and workshops repeatedly returned to the importance of building trust to sustain ongoing relationships, particularly

between Traditional Owner groups and government agencies. But how is trust demonstrated or proven? This is a puzzling question without a common answer, although some participants suggested that evidence of trustworthiness could be found in actions. For example, as one Traditional Owner stated, if government agencies allowed Aboriginal peoples greater autonomy in applying fire "at any time they want," it would "[mean] that they have a trust level with government departments, that they know what they're doing, they're healing Country, they're healing their family and their clan group's aspirations, to that part of Country" (TO-P1 IV).

Aboriginal peoples do not currently have this autonomy in the Loddon Mallee region nor in any other region of Victoria or south-east Australia. Participants noted that significant gains have been made in recent years not only in relationships between Aboriginal peoples and government agencies but also between those peoples and non-Indigenous researchers and others, which is echoed in the literature (Bourke et al., 2020; Neale et al., 2019; O'Kane et al., 2019). Collaborative projects need to be designed to enable equitable and widespread relationship building (Quote 8, Table 2), connecting individuals to one another's respective communities (Quote 9, Table 2), and allowing the time and space for different people to share and hear stories (Quote 10, Table 2). In short, successful projects establish and build long-term relationships. However, relationship development cannot be rushed. It takes time and resourcing and genuine personal interest and commitment.

4.2 | Country: Working with place and people

Another key message from our conversations across interviews and workshops was that future research needs to actively counter the fragmented frameworks and methods used in most research and management projects. These frameworks and methods were viewed as highly reductionist as they tend either to focus upon one aspect, component, or site within a landscape or ecosystem in isolation from wider contexts or to focus on ecological concerns separate from social and cultural aspects. In other words, these frameworks and methods conceptually fragment landscapes that Traditional Owners and others understand as integrated systems. Thinking and working with Country, as participants explained, instead means engaging with a holistic understanding. Working with Country is more holistic, beginning from the premise that all landscapes and places are peopled, and composed of specific relations between linked and interacting forces and actors—only some of which are human. As this section explores, thinking and working with Country means engaging deeply with the specificity of context

TABLE 2 Quotes to support the principle of “Country—working with place and people.”

Theme	Quotes
Against separation	<p>Quote 1. Con-P1 IV: “A lot of researchers in natural environment tends to be just seen as people are separate to it rather than intrinsically linked to it. So, if we shift the frame and say that people are actually a part of this environment and they’ve got connection to everything there therefore you shouldn’t touch things in that area without consultation or investigate things without the consultation of what those things mean and if it’s appropriate then you actually get the right discussions happening.”</p> <p>Quote 2. Uni-R1 IV: “As an ecologist, I am interested in how fire influences species, but I’m also interested in how human influence on the landscape can potentially help to heal country and potentially have better biodiversity outcomes.”</p> <p>Quote 3. TO-P5 IV: “The concept of land management needs to be land and water management together and in this government department it is not—they are totally separate.”</p> <p>Quote 4. TO-P4 IV: “The water is the big issue, the water and fire going hand-in-hand and that’s the ethos of it all ... if you take people off Country, divert all the water, you know, you’re going to end up with problems. The no rain situation, you clear all them trees, there’s no way that condensation can start, all that wonderful stuff and hold moisture, you know, just little things like that where they don’t think.”</p>
Fire is good	<p>Quote 5. Con-P3 IV: “Every year what happens is that the CFA at head office level want to talk to you about how you prepare your property for the fire season and often it’s very narrowly focused, it doesn’t recognise country, so in an Aboriginal sense. It doesn’t recognise people’s connection to place and it’s often very fear-based.”</p> <p>Quote 6. TO-P4 WS: “I think it needs to be told that fire can be a good thing and it’s not always a bad thing ... It’s not just about us going lighting fire. There’s actually a whole science behind why we’re going out there and why we’re doing it and why we’re putting it in at a certain time.”</p> <p>Quote 7. TO-P2 IV: “I’d like fire to actually be something that’s good, you know, we say, “Right fire, right time is good fire.” So, I would really like to see others appreciate what it can be and landscape or Country needs it.”</p>
Not simply restoration	<p>Quote 8. Uni-R3 WS: “Yeah, I think that would be an interesting process for me to think about is like you know when you are thinking about restoration and biodiversity outcomes. As an ecologist, you know often people want to return to something in the past which is often not possible. But I sometimes feel like you know working with TOs they might have more concrete goals that are just what we would like to see and that makes it easier to actually work towards something.”</p> <p>Quote 9. Con-P3 IV: “I’m kind of interested in can we analyse the landscape today and with knowledge, some key points even aerial imagery and other things, could tell us about how fire was used. So rather than just, you know, Aboriginal people have to remember it all and know it all and tell us, you know, ‘tell us what the solution is’, ‘Actually, can we bring some Western science to meet this traditional knowledge?’ ”</p>
Building mob and community	<p>Quote 10. TO-P1 WS: “And it’s a big part of what I guess Dja Dja Wurrung is doing at the moment and with other traditional owner groups and neighbours across Country and building that capacity in our own mobs of understanding. As well as the planned burning process, having people involved in that and employed at our corporations and our natural resource management businesses, and have them empowered—that Country’s a tool, that we manage.”</p> <p>Quote 11. TO-P2 WS: “What we found doing fire on Country is just how happy you made people—for whatever little achievements we got along the way, and there was a form of celebration and rejoicing.”</p>

and better understanding what is appropriate for that context.

In scientific research, reductionist thinking has long-separated people and the environment (Bird & Nimmo, 2018; Evans, 2021). Working with Country involves seeing people as active parts of the environment (Quote 1, Table 2). For example, one ecologist who had their own disciplinary research priorities nevertheless saw that researching with Country can be healing for both people and land (Quote 2, Table 2). Such separations are rife in colonial systems of land management that habitually separate water, land, and fire as distinct targets of management (Quote 3, Table 2). In the context of cultural fire, this separation of water, land, and fire is both culturally inappropriate and also wholly ineffective in achieving effective long-term management of these entangled and related aspects of Country (Quote 4, Table 2). As one Aboriginal researcher commented:

I know that [Traditional Owners] are often asked to go to one meeting in Melbourne to talk about water and the next day they go and talk about fire and that’s not really how lore works. It’s really far more holistic and everything’s linked—and I think until government can start talking about things and not compartmentalising like they do so thoroughly within their little sub-departments. (Ab-R1 IV)

For participants, the widespread view was that building a future for diverse and nuanced fire practices by Aboriginal peoples involves ensuring that both research projects and wider governance structures are constructed on holistic understandings of Country and fire.

Many participants noted that an important example of understanding fire holistically is to understand its

diverse functions. Engaging with this diversity is counter to dominant narratives of fire, particularly among settler and non-Indigenous groups, in which fire is conceptualised foremost as a hazard and the cause of catastrophic disasters. Participants noted that although there are certainly sound reasons to sometimes be concerned about fire, there is also a pressing need to change our relationship to and perception of it. Fire has potential benefit to assist and heal both people and Country. As one non-Indigenous conservationist explained (Con-P1 IV), “communication around fire is that fire’s bad and fire’s evil. But at the right times and the right conditions fire’s really good and it’s beneficial and it is relatively safe.” This fear-based narrative of fire, mobilised by agencies for the purposes of preparation and response to unwanted bushfires, does not recognise that fire has many roles on Country (Quote 5, Table 2), including cultural fire burning clearly benefiting Indigenous peoples (Quote 6, Table 2) and Country (Quote 7, Table 2) (Ansell et al., 2020; Bird et al., 2018).

Appreciating these factors is vital to the integrity of projects, as one government practitioner noted (Gov-P1, WS), and it is also “fundamental to our survival, frankly”:

That every person knows whose land they’re standing on, have a good grasp of some language and those types of things and better integration into the Indigenous mindset for land management ... I’m pretty ambitious. I’d like to see non-Aboriginal people understanding the concept of *djangdak* and our relationship to the land—very different to what we do now.

Participants therefore suggested that significant efforts are needed to build capacity among researchers, within government agencies, and among members of the public to understand fire as a natural or essential part of Country in south-east Australia. When applied with experience and monitored with care, this understanding is critical to the long-term health and functioning of people and Country.

Understanding fire’s integral role in healing both people and Country requires recognition that revitalising Indigenous fire management cannot simply be a process of restoring past practices. Given the holism of these practices and the ongoing influence of colonisation on both communities and ecosystems, healing Country means bringing together different scientific disciplines and working towards concrete goals of Traditional Owners (Quote 8, Table 3), without placing all responsibility on Traditional Owners to find the solutions (Quote 9, Table 3). Furthermore, revitalisation is a long-term process beyond any research project or political cycle, and it will take time for Country to recover.

Traditional Owners cannot be responsible for how degraded landscapes respond to restoration in the short-term, as one conservation practitioner explained (Con-P1 IV):

You can interpret that [site] as fire promoted those weeds or you can interpret that as those weeds came up and they’re dominating this area because they’re dominating the area ... Traditional Owners shouldn’t have to take the burden of the mistakes of the past that aren’t their fault when people have managed Country poorly.

Healing Country therefore involves acknowledging that the colonial degradation of landscapes across the Australian continent (Bergstrom et al., 2021) and the environmental changes that have occurred are often intractable and are the responsibility of non-Indigenous peoples. Another way of understanding this point is that, as participants explained, applying cultural fire practice in research or management contexts is not a silver bullet and needs to be implemented in conjunction with a range of other practices beyond the application of fire. Neither researchers nor management agencies can expect that burning will resolve environmental problems, or heal Country, in isolation.

Notably, for some Aboriginal co-authors, revitalising Indigenous fire management also entails more than bringing back pre-colonial knowledge and practice. Given the severity of colonial violence and magnitude of ecological change in the Loddon Mallee region and Australia more broadly, revitalising might in fact involve developing an entire range of new adaptive practices. One Traditional Owner explained (TO-P3 WS):

But you know the thing is with the landscape—is for what the mob’s needs were, because the mob managed the landscape to eradicate and put what’s there. As you know, Bendigo is literally tipped upside down so it’s—we are looking at whole new template there, that the templates been totally changed, and we are starting from scratch. So, you know a lot of seed isn’t even in the ground there and that’s why you know we’ve got to put it back and things like that. So, that should be captured as well, you know, the destruction of the Country and what it should look like.⁵

The need to create adaptive management responses to such novel ecosystems (Hobbs et al., 2009) can be understood as another expression of a holistic understanding of Country. Although some participants suggested that degraded and novel

TABLE 3 Quotes to support the principle of “power—acknowledging structures and values.”

Theme	Quotes
Who to convince	<p>Quote 1. TO-P1 WS: “The only way I see it moving passed that is actually having peopled in the higher levels of state government, and even the [Agency head], he says that he’s supportive of cultural burning. He wants to really back it. But then I don’t see that across the state. I don’t see what he’s actually implementing to actually support what he’s saying ... Otherwise, we’re going to be 10 years down the track. We’re going to be sitting there saying the same things.”</p> <p>Quote 2. Ab-R1 WS: “We need more—if we’re going to convince these agencies we need more hard data around the benefits of managing country in the right way ... we can be very vague about what the cultural burning method was that’s been applied and all we’re doing is measuring results. But I do think to get the agencies on board, and they have a fairly hefty responsibility of keeping us safe over summer really, so we need to be able to prove to them I think for them to take it on board more regularly that there are fuel hazard reduction improvements that we know, it’s obvious, that that’s going to be the case. We probably need to have more hard evidence that our cultural burning method whatever that is, is helping them out in summer.”</p> <p>Quote 3. Con-P3 IV: “I’d rather it did things for people who aren’t engaged in cultural fire management, who are doing other kinds of fire management ... that post-monitoring and showing that you’re winning, you know, showing that it’s working ... because I think that will shift a lot of people who work in biodiversity, so ecologists thinking differently about management. I do see still there’s a scepticism among some ecologists about whether cultural burns will actually improve biodiversity.”</p> <p>Quote 4. Gov-P1 WS: “So, I think that our audience is policymakers, and we have to be better at influencing them and we have to understand what they look at ... But really this is how it works. Departments like ours put in big budget bids annually ... It has to have program logics and we’ve actually hired someone with those skills just with the—so those bids go up through secretaries to department and treasury and finance. Now I reckon there’s a unique opportunity now and for the next few years ... if you can define the problem and articulate the benefits you’ve got chances of—can go back to governments with this work and say—because that’s what the bureaucrats are looking at. I’m not criticising it. It’s actually their job.”</p>
Whiteness and decolonisation	<p>Quote 5. TO-P2 WS: “Fire management its system is a supremacist system. It’s military ... I become really challenged that we’ll get somewhere. Because the powerful are so powerful and they want to hang on to the power.”</p> <p>Quote 6. Con-P2 IV: “Helping [Traditional Owners] on pathways through the administration would be pretty useful.”</p> <p>Quote 7. Con-P1 IV: “So how to actually change the way that the governance of fire is done to enable cultural fire to not just be a little sideshow but the main game.”</p> <p>Quote 8. TO-R1 WS: “So decolonising that system is I think really important. And a big part of that is transfer of power and trust and letting go of that need to control [from governments], which departments that administer fire, they’re an authority—in the past they’re scientific and very authoritative. And that’s the way they are, so to try and undo that power and control is deeply embedded in not only their systems, but also their corporate culture as well.”</p>
Economics and ownership	<p>Quote 9. Gov-P2 IV: “You can give them something tangible out of it too such as employment and such as skill development”—“real potential benefits”</p> <p>Quote 10. Gov-P2 WS: “... maybe it’s about taking on young Aboriginal people and getting them doing research or assisting with research and building skills there”</p> <p>Quote 11. Con-P3 IV: “I think that’s quite a challenge for landowners, for example, you know, if we want to learn how to do cultural burns, how will that work in respect of the knowledge that’s embedded there and do Aboriginal people get some benefits out of that? Do they get jobs and all of that as an economic benefit or not? I think that’s quite a challenge within those relationships because we’re so used to stealing things from Aboriginal people.”</p> <p>Quote 12. TO-P2 IV: “I look at older published type documents from a research point of view. They were very—almost appropriation of culture and disconnected hypotheses and analysis in their views.”</p> <p>Quote 13. Uni-R3 WS: “I think then it probably needs some formality around those systems like from a university academic you know the university owns our IP. So, it’s like they are trying to figure out how to, yeah, I mean as [TO-P3] said co-authorship—so that’s great. But I think we need systems in place that perhaps there are agreements when you are working on TO land about how the knowledge will be used. Something formal, I don’t think we can just leave it up to people to do the best they can and because we have requirements for the university and with our funding body.”</p> <p>Quote 14. TO-P5 WS: “Ownership of the actual research that’s completed on this is definitely going to be questioned, and what’s going to happen with it and who has access to it.”</p>
Academic processes	<p>Quote 15. Ab-R1 WS: “The other thing is I think we all have to be aware that one of the barriers is actually a barrier from the academic side. And the amount that they’re over worked in terms of their teaching and the amount of time they actually have to dedicate into research means ... Do I really have the time to go through what mob see is the appropriate engagement process? And until we sort of make that process easier or have universities go all right, we’re going to score this paper differently because they’re going through all the culturally appropriate channels to make this research happen, we’re going to hold—fuck the impact factor,</p>

(Continues)

TABLE 3 (Continued)

Theme	Quotes
	whatever work comes out of it, we're going to say 'righto, that is a bigger piece of work than a <i>Nature</i> paper' on whatever."
	Quote 16. Uni-R1 WS: "... in academia there's been a shift away from citations and papers and more towards—and this is from the government and granting agencies more towards demonstration of impact. And what that really means or supposed to mean is how is this changing society? ... you know a paper is not the goal, citations are not the goal, the goal is that we think the world should be operating this way and you could actually potentially tick that box."
	Quote 17. TO-P3, WS: Cultural fire is about "teaching the whole community and not just teaching the Aboriginal community—it's about teaching everybody and everybody walking along together ... I think everyone could benefit off it, so I'd really like to see it being more accepted as just an everyday thing into the future ... I'd like to see one, land handed back, not just joint management, just handed back so that we just have full freehold and ability to manage our lands as we see fit and in lands where we don't have that control over, I'd like to see a culture shift."

ecosystems present a challenge to the relevance of traditional burning practices, developed within past fire regimes, many Aboriginal fire practitioners have themselves argued that adaptations, either temporarily or on an ongoing basis, are a defining characteristic of these practices (Steffensen, 2020). Achieving desired ecosystem states in the future, whether through research or management, requires being responsive to Country as it is today.

The final dimension of centring Country within collaborative projects is, as participants explained, an understanding that cultural fire is an important source of healing for Aboriginal individuals and their communities and thereby a source of healing for damaged Country. Cultural fire projects and events such as meetings held on Country—that is, in natural environments that allow connection to all relations—site preparation, site surveys, and landscape burns are all occasions to support Traditional Owners' knowledge, wellbeing, and governance capacity and generate economic income (Quote 10, Table 2). Such projects and events can therefore be understood as piecemeal acts of reconciliation, as one Traditional Owner explained (TO-P4 WS):

I think people have got to understand that fire's not going to fix everything. Like I said it's one application that you need ... But, yes, overall, 20 years' time I see us being able to practice culture whenever we feel—when we see the indicators in the Country talking to us to tell us that it's ready to burn. And I feel that for that to happen the structures that are in place at the moment have to be decolonised and I think that that's the way forward. This here is one part of reconciliation, letting Aboriginals practice culture on their Country, healing Country while healing themselves at the same time ... the community's the biggest one for us, trying to get them engaged and get them back

into the environment to care for the Country because once you get them out there, they really love it.

Practising cultural fire on Country creates a self-supporting chain of positive impacts linking people, non-humans, and place. Practising cultural fire, for example, would support emotional wellbeing and cultural connections among Traditional Owners (Quote 11, Table 2) (Addison et al., 2019), which would support the engagement of other Traditional Owners, which would support more cultural fire practice, which would support the resilience of key non-human species, and thereby support more-than-human relationships that constitute Country. Such a holistic understanding of cultural fire is, therefore, not simply something that research projects might seek to document or test but is something that must be incorporated into their design and sustained through project outcomes.

4.3 | Power: Acknowledging structures and values

Implicitly, much of the foregoing has illustrated how the status quo of research as well as land and fire management reflects power imbalances, specifically between settler government agencies and academics, and Traditional Owners. Furthermore, these identify an opportunity to explore new ways of disrupting and developing different power dynamics to govern Country and research.

Cultural fire practices need support. As a conservation practitioner stated (Con-P1 WS):

Government agencies need to be willing to give up power control of resources because if they can do that and they can hand it over to Traditional Owner groups then those groups can have the capacity and the power and the resources to engage in an

equal argument or an equal discussion. But at the moment it's like David and Goliath.

Many participants also said that the most important holders of power were senior members of government agencies, such as the Department of Environment, Land, Water and Planning in Victoria. These people are understood to have the influence to change obstructive policies and redistribute resources in the ways necessary to enable a new chapter of cultural fire management, empowering Traditional Owners (Quote 1, Table 3)

Yet the question of how (or whether) to convince such individuals to give up or share this power was contested. Many participants suggested that shifting power could be achieved by presenting policymakers (Quote 3, Table 3) and ecologists with scientific authority (Quote 2, Table 3), quantitative data about the effectiveness of burning for hazard reduction (Quote 2, Table 3), or other practical information. However, others argued that redistribution of power should not require scientific evidence. As a Traditional Owner researcher stated (TO-R1 WS):

And there's things muttered about, you know, "we need science to back up what we already know"; to me it's like no, I don't feel that I need to legitimise what we know by proving ourselves in a white world. We know this stuff, we're the oldest scientists in the world, so why do we need to prove ourselves? Can't you just trust us?

Participants' theories of change are linked to broader understandings of what is malleable and what is not within the settler-colonial present. To some, non-Indigenous epistemological and political hegemony can be overcome mostly through persuasive evidence, whereas others contend that wholesale political change could occur through trust and reciprocity.

Another approach is to reconsider the extent to which contemporary research, and land and fire management are embedded with whiteness and white privilege (Moreton-Robinson, 2015). Researchers and management practitioners must acknowledge that their activities are often driven by the objectives of non-Indigenous managers and researchers, and the priorities and values of non-Indigenous institutions and policies. One conservation practitioner stated (Con-P1 WS):

[The] objectives of what's put in place to the landscape is very much embedded in a whitefella centric view. It's not informed by Traditional Owners, it's the aspirations of someone else whose Country it isn't. You actually need to reset those aspirations.

Therefore, revitalising cultural fire practice means decolonising prevailing research and management assumptions (Quote 5, Table 3) and their administrative systems (Quote 6, Table 3). Participants noted that decolonising research and management assumptions will require non-Aboriginal researchers and management practitioners to overcome defensiveness and prejudice. Whereas Traditional Owners frequently face prejudice (one Traditional Owner described how "we have so much prejudice that is out there—that is out there that it's alive and well" [TO-P5 IV]), their white collaborators may not be aware of their privilege or position:

I've certainly been at workshops where Aboriginal people have expressed, I guess, disappointment in the way that they haven't been included sufficiently, and I've seen non-Indigenous people take offence at that, as an example, saying, "Well, not all white people are like this," and, "Why am I being victimised and being put in the same group?" (Uni-R1 IV)

Decolonising dominant systems requires individuals to reflect on assumed power and authority while also changing, or working to change, the knowledge and practices of those system so that they redirect power dynamics and support Traditional Owner leadership (Quote 8, Table 3).

Because of that power inequality, government decides that this is our research agenda and you guys want to be included. And if you want to be included, what do you want to be included with? ... there's starting to be this shift in this space. So, I hope that with this shift the whole bunch of cultural awareness and increased cultural safety and capacity of these departments and researchers and universities ... you can actually re-embed power imbalances in the very act trying to remove the power imbalance ... So sometimes you can't even articulate what you want, because you've never had to. It's also maybe a lack of confidence of Aboriginal mobs being hurt in the past. Being betrayed in the past. (TO-R1 IV)

Surrendering power not only needs to be genuine but also must be pursued in ways that will not backfire and harm Indigenous communities or lead to them being "used as a scapegoat" when a given project of initiative does not work out (Uni-R1 IV).

Surrendering of power and resources in this context means their redistribution to Aboriginal peoples. A key means of redistributing power, some participants

emphasised, was to ensure that cultural fire initiatives and related research projects are underpinned by opportunities for employment (Quote 9, Table 3) and skills development (Quote 10, Table 3). As one Traditional Owner practitioner stated (TO-P3 WS), recognition of Traditional Owner authority needed to be both comprehensive and financially sustainable:

I got all my bills paid now, I've got a car you know all that sort of stuff ... so yeah, we do need to scale up Indigenous employment massively ... a lot of these areas where we need to do works, the mob aren't there to do the work ... [cultural heritage assessments] never done in a fire plan because again through [the government agency] it's not seen as a necessity. It's an optional extra that they don't pay for. So, even for our cultural burns we don't get paid for the fire stuff.

Creating economic support is one component of ensuring that Traditional Owners are not simply acknowledged as possessing authority over cultural fire knowledge, practice, and research but are able to consistently exercise that authority. Economic support also helps ensure that Traditional Owners' labours and contributions are not taken for granted (Quotes 11 and 12, Table 3) and their intellectual property is secured and protected (Quote 13, Table 3) through collaborative engagements. As a Traditional Owner practitioner said (TO-P WS):

[I think of] Mob, and those that are less fortunate and able to understand the implications of publishing and relinquishing [one's] rights. I feel I've got an obligation to ensure that they're cared for until this idea of collective inherent rights and knowledge is better understood and controlled by us.⁶

In decolonising systems of research and management, support for Aboriginal involvement and control over knowledge are primary concerns and need to be established among project collaborators prior to project design and monitored throughout (Quote 14, Table 3).

Changes are required to current research practices, institutional processes, goals, and what impact(s) are valued by researchers and their institutions. Contemporary university management, for example, emphasises economic rationalisation through the relentless pursuit of external funding and rapid publications (Fischer et al., 2012), encouraging a primary focus on productivity over meaningful engagement and outputs (Quote 15, Table 3). These are all incompatible with the forms of relationship building, translation obligations, and Indigenous control outlined by participants, suggesting that comprehensive changes are needed in how universities conceptualise and value good research. Altering

research practices might include, as one Traditional Owner academic suggested (TO-R1 WS), changing systems of peer review to ensure community ownership of research:

Well, you know honestly, I'd want for some of my papers—I want them peer-reviewed by the mob, just to make sure that none of that knowledge gets out that's not meant to or whatever ... So yeah, making sure that there's resources allocated in there to include the community, because ownership of research, not just the participants and the mobs immediately working with the ownership of the research, really has to extend to the community. And if they're not behind it, there's no ownership.

Research practices are beginning to change in many settler-colonial contexts (Hill et al., 2020; Liboiron et al., 2018; Rayne et al., 2020). Although some institutions are reconsidering the worth they place on quantitative measures of research value (such as publications and citations), there is a need for more experiments to mitigate durable power imbalances and end the dominance of non-Indigenous epistemologies and institutions. For participants, cultural fire management is an important site for such experimentation, forming an opportunity for Aboriginal and non-Indigenous collaborators to reimagine society and to learn and walk together (Quotes 16 and 17, Table 3).

5 | DISCUSSION AND CONCLUSION

This research started in partnership with select Traditional Owners to develop specific research projects that might, we anticipated, help create further insight into the benefits of cultural fire management in the Loddon Mallee region. Early conversations explored research questions familiar to those with experience in land and fire management research (questions focused on the ecological, conservation, social, or economic outcomes of a particular intervention). Perhaps we could monitor specific species (McKemey et al., 2019) or wellbeing measures (Addison et al., 2019).

But as our conversations progressed into interviews with a wider range of Indigenous and non-Indigenous researchers and practitioners, it became apparent that such questions were premature and that the collective concern was less about *what* research questions should be pursued, or the content of projects, and more about *how* all projects should be planned and undertaken. We encouraged our interview and workshop participants to follow this direction. From the resulting conversations, we found three specific practice-oriented principles—relationships, Country, and

power—that we suggest can help guide research projects related to land and fire management in south-east Australia and potentially elsewhere too.

These principles build on related scholarship on practice, knowledge, and relationships (Kanngieser & Todd, 2020; Ngurra et al., 2019; Yunkaporta, 2019). Such scholarship explores equivocations in meaning between individuals, communities, and institutions and thereby surfaces “the awkwardness of our collaborations” around shared goals (Yates-Doerr, 2019, p. 308).

In our research, foregrounding relationships, Country, and power have led to generative conversations about differing interpretations of terms and concepts. For example, some participants conceived of research relationships in transactional or professional terms, whereas others understood them in terms of obligation and transformation (and then there were others who conceived of them differently again). Similarly, we entered these dialogues with a shared understanding that cultural fire research projects are important occasions for producing knowledge together. These dialogues included various combinations between Indigenous and non-Indigenous peoples within universities, conservation, non-governmental organisations, government agencies, and Traditional Owner corporations. However, these groups did not share common ideas of what such a project might examine or be useful for. More research is vital to persuade more politically and financially powerful actors to make changes that would cede the power and influence of (settler) government agencies. Some groups did suggest specific research ideas, for example, on the effects of burning on human wellbeing or a specific species or testing the timing of burns. However, there was a far greater and more universal interest in the social practices, methods and practical preconditions for new decolonised research projects, and the revitalisation of cultural fire practices at scale. Progress in these matters will require considerable systemic changes, including the transfer and sharing power, to foster better ways of working together and creating genuine, mutually beneficial relationships where they are desired.

We are confronting the need for decolonisation in terms of novel approaches to what cultural fire and, more broadly, self-determination in land management should entail. Although most participants agreed on the importance of relational tactics in developing decolonial and collaborative research, the practice-oriented principles discussed in this paper do not formally exist in south-east Australia nor most other regions where similar issues occur. The application of these principles needs to be mapped out and grounded through experiments in adaptive doing (see Rawluk et al., 2020). We suggest that how these principles are applied will be unique and emergent to each context; they will be aligned to the themes of relationships, Country, and power, tailored to each specific collaboration.

We suggest that a potential path forward involves working experimentally (Neale et al., 2019), acknowledging equivocations, staying unsettled (Yates-Doerr, 2019), and proceeding iteratively and adaptively, with an ethos of listening and creating change (Rawluk et al., 2020). In doing so, it will be essential to foster relationships, attend to the local or regional context of Country, and confront and change power and power structures.

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CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest to be declared.

DATA AVAILABILITY STATEMENT

Data are available on request due to privacy/ethical restrictions.

ETHICS STATEMENT

The research was conducted with approval from the university ethics committee.

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ENDNOTES

- ¹ We acknowledge that there is debate about terminology to appropriate use to describe or represent Aboriginal peoples' fire management practices. All terms are open to critical analysis, and we have chosen cultural fire in this article because it refers to a suite of fire management practices, including burning, and is most used in this specific context. We are aware it is not a neutral term.
- ² We acknowledge the use of the different terms “Traditional Owners” or “Traditional Custodians,” “Aboriginal person,” and “Indigenous.” These terms are utilised to reflect, with different specific locality, the relationships between First Nations people and communities to the land. For example, Indigenous is drawn on as a general term for First Nations people and Traditional Owners, reflecting a specific ancestral connection to Country. We acknowledge the dynamic nature of this language and that again, all language is subject to critical analysis.
- ³ During interviews, which lasted 30–75 min, participants were asked to reflect on their experiences in collaborations with Traditional Owners and government and academic research, common obstacles and keys to success in these collaborations, the outcomes they hoped would emerge from a cultural fire research project, and future challenges and opportunities for expanding cultural fire in the region. Interview transcripts were reviewed by Rawluk and synthesised into a one-page summary, which formed the focus of 90-min workshops each containing three to four participants.

- ⁴ “Blackfella” is an Aboriginal English term to describe an Aboriginal person.
- ⁵ “Mob” is an Aboriginal English term often used as a collective noun for an Aboriginal community.
- ⁶ One important example of the collective and inherent rights of Indigenous peoples is those outlined in the United Nations (UN) Declaration on the Rights of Indigenous Peoples.

REFERENCES

- Addison, J., Stoeckl, N., Larson, S., Jarvis, D., Bidan Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation RNTBC, Ewamian Aboriginal Corporation RNTBC, Gooniyandi Aboriginal Corporation RNTBC, Yanunijarra Ngurrara Aboriginal Corporation RNTBC, & Esparon, M. (2019). The ability of community based natural resource management to contribute to development as freedom and the role of access. *World Development*, 120, 91–104. <https://doi.org/10.1016/j.worlddev.2019.04.004>
- Ansell, J., Evans, J., Adjumarllari Rangers, Arafura Swamp Rangers, Djelk Rangers, Jawoyn Rangers, Mimal Rangers, Numbulwar Numburindi Rangers, Warddeken Rangers, Yirralka Rangers, & Yugul Mangi Rangers. (2020). Contemporary Aboriginal savanna burning projects in Arnhem Land: A regional description and analysis of the fire management aspirations of Traditional Owners. *International Journal of Wildland Fire*, 29(5), 371–385. <https://doi.org/10.1071/WF18152>
- Archibald, J. Q. X., Bol, J., Lee-Morgan, J., & De Santolo, J. (2019). Decolonizing research: Indigenous storywork as methodology. In J.-a. A. Q'um Xiiem, J. B. J. Lee-Morgan, & J. De Santolo (Eds.), *Decolonizing research: Indigenous storywork as methodology* (pp. 1–16). Zed Books.
- Bardsley, D. K., Prowse, T. A. A., & Siegfried, C. (2019). Seeking knowledge of traditional Indigenous burning practices to inform regional bushfire management. *Local Environment*, 24(8), 727–745. <https://doi.org/10.1080/13549839.2019.1640667>
- Bauman, T., Smith, S., Lenfer, A., Kelly, T., Carter, R., & Harding, M. (2014). Traditional Owner agreement-making in Victoria: The Right People for Country Program. *Australian Indigenous Law Review*, 18(1), 78–98. <https://www.jstor.org/stable/26423278>
- Bawaka Country, Wright, S., Suchet-Pearson, S., Lloyd, K., Burarrwanga, L., Ganambarr, R., Ganambarr-Stubbs, M., Ganambarr, G., & Maymuru, D. (2015). Working with and learning from Country: Decentering human authority. *Cultural Geographies*, 22(2), 269–283. <https://doi.org/10.1177/1474474014539248>
- Bergstrom, D. M., Wienecke, B. C., van den Hoff, J., Hughes, L., Lindenmayer, D. B., Ainsworth, T. D., Baker, C. M., Bland, L., Bowman, D. M. J. S., Brooks, S. T., Canadell, J. G., Constable, A. J., Dafforn, K. A., Depledge, M. H., Dickson, C. R., Duke, N. C., Helmstedt, K. J., Holz, A., Johnson, C. R., ... Shaw, J. D. (2021). Combating ecosystem collapse from the tropics to the Antarctic. *Global Change Biology*, 27(9), 1692–1703. <https://doi.org/10.1111/gcb.15539>
- Bilbao, B., Mistry, J., Millán, A., & Berardi, A. (2019). Sharing multiple perspectives on burning: Towards a participatory and intercultural fire management policy in Venezuela, Brazil, and Guyana. *Fire*, 2(3), 39. <https://doi.org/10.3390/fire2030039>
- Bird, R. B., Bird, D. W., Fernandez, L. E., Taylor, N., Taylor, W., & Nimmo, D. (2018). Aboriginal burning promotes fine-scale pyrodiversity and native predators in Australia's Western Desert. *Biological Conservation*, 219, 110–118. <https://doi.org/10.1177/1474474014539248>
- Bird, R. B., & Nimmo, D. (2018). Restore the lost ecological functions of people. *Nature Ecology & Evolution*, 2(7), 1050–1052. <https://doi.org/10.1038/s41559-018-0576-5>
- Boeijs, H. (2009). *Analysis in qualitative research*. SAGE Publications.
- Bourke, M., Atkinson, A., & Neale, T. (2020). Putting Country back together: A conversation about collaboration and Aboriginal fire management. *Postcolonial Studies*, 23(4), 546–551. <https://doi.org/10.1080/13688790.2020.1751909>
- Braun, B. (2015). Futures: Imagining socioecological transformation—An introduction. *Annals of the Association of American Geographers*, 105(2), 239–243. <https://doi.org/10.1080/00045608.2014.1000893>
- Cook, S. D. N., & Wagenaar, H. (2012). Navigating the eternally unfolding present: Toward an epistemology of practice. *The American Review of Public Administration*, 42(1), 3–38. <https://doi.org/10.1177/027507401140740>
- DDWCAC. (2014). *Dhelkunya Dja: Dja Dja Wurrung Country Plan 2014–2034*. Dja Dja Wurrung Wurrung Clans Aboriginal Corporation.
- Dreher, T., & Mondal, A. A. (2018). *Ethical responsiveness and the politics of difference*. Springer. <https://doi.org/10.1007/978-3-319-93958-2>
- Ens, E. J., Pert, P., Clarke, P. A., Budden, M., Clubb, L., Doran, B., Douras, C., Gaikwad, J., Gott, B., & Leonard, S. (2015). Indigenous biocultural knowledge in ecosystem science and management: Review and insight from Australia. *Biological Conservation*, 181, 133–149. <https://doi.org/10.1016/j.biocon.2014.11.008>
- Evans, M. C. (2021). Re-conceptualizing the role(s) of science in biodiversity conservation. *Environmental Conservation*, 48(3), 151–160. <https://doi.org/10.1017/S0376892921000114>
- Fache, E., & Moizo, B. (2015). Do burning practices contribute to caring for Country? Contemporary uses of fire for conservation purposes in Indigenous Australia. *Journal of Ethnobiology*, 35(1), 163–182. <https://doi.org/10.2993/0278-0771-35.1.16>
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(2), 80–92. <https://doi.org/10.1177/160940690600500107>
- Fischer, J., Ritchie, E. G., & Hanspach, J. (2012). Academia's obsession with quantity. *Trends in Ecology & Evolution*, 27(9), 473–474. <https://doi.org/10.1016/j.tree.2012.05.010>
- Fortun, K. (2012). Ethnography in late industrialism. *Cultural Anthropology*, 27(3), 446–464. <https://doi.org/10.1215/9780822375654-007>
- Goolmeier, T., Skroblin, A., & Wintle, B. A. (2022). Getting our Act together to improve Indigenous leadership and recognition in biodiversity management. *Ecological Management and Restoration*, 23, 33–42. <https://doi.org/10.1111/emr.12523>
- Hill, R., Adem, Ç., Alangui, W. V., Molnár, Z., Aumeeruddy-Thomas, Y., Bridgewater, P., Tengó, M., Thaman, R., Yao, C. Y. A., Berkes, F., Carino, J., da Cunha, M. C., Diaw, M. C., Díaz, S., Figueroa, V. E., Fisher, J., Hardison, P., Ichikawa, K., Kariuki, P., ... Xue, D. (2020). Working with Indigenous, local and scientific knowledge in assessments of nature and nature's linkages with people. *Current Opinion in Environmental Sustainability*, 43, 8–20. <https://doi.org/10.1016/j.cosust.2019.12.006>
- Hill, R., Grant, C., George, M., Robinson, C., Jackson, S., & Abel, N. (2012). A typology of Indigenous engagement in Australian environmental management: Implications for knowledge integration and social-ecological system sustainability. *Ecology and Society*, 17(1), 23. <https://doi.org/10.5751/ES-04587-170123>
- Hobbs, R. J., Higgs, E., & Harris, J. A. (2009). Novel ecosystems: Implications for conservation and restoration. *Trends in Ecology & Evolution*, 24(11), 599–605. <https://doi.org/10.1016/j.tree.2009.05.012>
- Johnson, M. (2016). *The land is our history: Indigeneity, law, and the settler state*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780190600020.001.0001>

- Kanngieser, A., & Todd, Z. (2020). From environmental case study to environmental kin study. *History and Theory*, 59(3), 385–393. <https://doi.org/10.1111/hith.12166>
- Lake, F. K., & Christianson, A. C. (2019). Indigenous fire stewardship. In S. L. Manzello (Ed.), *Encyclopedia of wildfires and wildland-urban interface (WUI) fires*. Springer. https://doi.org/10.1007/978-3-319-51727-8_225-1
- Lane, M., & Williams, L. (2009). The natural heritage trust and Indigenous lands: The trials and tribulations of 'new technologies of governance'. *Australian Geographer*, 40, 85–107. <https://doi.org/10.1080/00049180802657067>
- Leonard, K., Aldern, J. D., Christianson, A., Ranco, D., Thornbrugh, C., Loring, P. A., Coughlan, M. R., Jones, P., Mancini, J., & May, D. (2020). Indigenous conservation practices are not a monolith: Western cultural biases and a lack of engagement with Indigenous experts undermine studies of land stewardship. *EcoEvoRxiv*. <https://doi.org/10.32942/osf.io/jmvyq>
- Liboiron, M., Zahara, A., Hawkins, K., Crespo, C., de Moura Neves, B., Wareham-Hayes, V., Edinger, E., Muise, C., Walzak, M., Sarazen, R., Chidley, J., Mills, C., Watwood, L., Arif, H., Earles, E., Pijogge, L., Shirley, J., Jacons, J., & Charron, L. (2021). Abundance and types of plastic pollution in surface waters in the eastern Arctic (Inuit Nunangat) and the case for reconciliation science. *Science of the Total Environment*, 782, 146809. <https://doi.org/10.1016/j.scitotenv.2021.146809>
- Liboiron, M., Zahara, A., & Schoot, I. (2018). Community peer review: A method to bring consent and self-determination into the sciences. Preprints. <https://doi.org/10.20944/preprints201806.0104.v1>
- McKemey, M. B., Patterson, M., Rangers, B., Ens, E. J., Reid, N. C. H., Hunter, J. T., Costello, O., Ridges, M., & Miller, C. (2019). Cross-cultural monitoring of a cultural keystone species informs revival of Indigenous burning of Country in south-eastern Australia. *Human Ecology*, 47(6), 893–904. <https://doi.org/10.1007/s10745-019-00120-9>
- Moreton-Robinson, A. (2015). *The White possessive: Property, power, and Indigenous sovereignty*. Indigenous Americas. University of Minnesota Press. <https://doi.org/10.5749/minnesota/9780816692149.001.0001>
- Neale, T., Carter, R., Nelson, T., & Bourke, M. (2019). Walking together: A decolonising experiment in bushfire management on Dja Dja Wurrung country. *Cultural Geographies*, 26(3), 341–359. <https://doi.org/10.1177/1474474018821419>
- Ngurra, D., Dadd, L., Glass, P., Scott, R., Graham, M., Judge, S., Hodge, P., & Suchet-Pearson, S. (2019). *Yanama budyari gumada*: Reframing the urban to care as Darug Country in western Sydney. *Australian Geographer*, 50(3), 279–293. <https://doi.org/10.1080/00049182.2019.1601150>
- Nolan, R. H., Boer, M. M., Collins, L., de Dios, V. R., Clarke, H., Jenkins, M., Kenny, B., & Bradstock, R. A. (2020). Causes and consequences of eastern Australia's 2019–20 season of mega-fires. *Global Change Biology*, 26(3), 1039–1041. <https://doi.org/10.1111/gcb.14987>
- Nursey-Bray, M., Palmer, R., & Pecl, G. (2017). Spot, log, map: Assessing a marine virtual citizen science program against Reed's best practice for stakeholder participation in environmental management. *Ocean and Coastal Management*, 151, 1–9. <https://doi.org/10.1016/j.ocecoaman.2017.10.031>
- O'Kane, M., Kojovic, N., Shanks, M., & Nurse, M. (2019). Reinvigorating cultural burning practices in Victoria. *Anthropological Society of South Australia*, 43, 71–93. <https://doi.org/10.1016/j.tree.2009.05.012>
- Pascoe, B. (2014). *Dark Emu: Aboriginal Australia and the birth of agriculture*. Magabala Books.
- Rawluk, A., Beilin, R., Bender, H., & Ford, R. (2020). *Practices in social ecological research: Interdisciplinary collaboration in 'adaptive doing'*. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-31189-6>
- Rayne, A., Byrnes, G., Tahu, L. C. R. N., Hollows, J., McIntosh, A., Huikai, M. R. K., Tahu, K., Tūahuriri, M. R. N., Tahu, N., Te Pahi, P. T. E. K., Te Ruahikihiki, K., Tahu Channell Thoms Ngāti Kurū, N., & Steeves, T. E. (2020). Centring Indigenous knowledge systems to re-imagine conservation translocations. *People and Nature*, 2(3), 512–526. <https://doi.org/10.1002/pan3.10126>
- Russell-Smith, J., Cook, G. D., Cooke, P. M., Edwards, A. C., Lendrum, M., Meyer, C. P., & Whitehead, P. J. (2013). Managing fire regimes in north Australian savannas: Applying Aboriginal approaches to contemporary global problems. *Frontiers in Ecology and the Environment*, 11(1), e55–e63. <https://doi.org/10.1890/120251>
- Scherjon, F., Bakels, C., MacDonald, K., & Roebroeks, W. (2015). Burning the land: An ethnographic study of off-site fire use by current and historically documented foragers and implications for the interpretation of past fire practices in the landscape. *Current Anthropology*, 56(3), 299–326. <https://doi.org/10.1086/681561>
- Smith, W., Weir, J. K., & Neale, T. (2018). South East Australia Aboriginal Fire Forum: An independent research report. Bushfire and Natural Hazards CRC (East Melbourne, Vic).
- Smith, W., Neale, T., & Weir, J. K. (2021). Persuasion without policies: The work of reviving Indigenous peoples' fire management in southern Australia. *Geoforum*, 120(March), 82–92.
- Steffensen, V. (2020). *Fire Country: How Indigenous fire management could help save Australia*. Hardie Grant Publishing.
- West, S., Haider, L. J., Stålhammar, S., & Woroniecki, S. (2020). A relational turn for sustainability science? Relational thinking, leverage points and transformations. *Ecosystems and People*, 16(1), 304–325. <https://doi.org/10.1080/26395916.2020.1814417>
- Wright, K. (2018). In the shadow of a willow tree: A community garden experiment in decolonising, multispecies research. *Cultural Studies Review*, 24(1), 74. <https://doi.org/10.5130/csr.v24i1.4700>
- Yates-Doerr, E. (2019). Whose global, which health? Unsettling collaboration with careful equivocation. *American Anthropologist*, 121(2), 297–310. <https://doi.org/10.1111/aman.13259>
- Yunkaporta, T. (2019). *Sand talk: How Indigenous thinking can save the world*. Text Publishing.
- Zander, K. K., Dunnett, D. R., Brown, C., Campiond, O., & Garnett, S. T. (2013). Rewards for providing environmental services—Where indigenous Australians' and western perspectives collide. *Ecological Economics*, 87, 145–154. <https://doi.org/10.1016/j.ecolecon.2012.12.029>

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