

RESEARCH ARTICLE

How can we re-envision care for weeds? Indigenous weed management on the Shoalhaven River

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Abstract

1. The challenges posed by invasive plants include not only ecological disruption and biodiversity loss but also complex management and ethical dilemmas. These issues point to a critical gap in how care is conceptualised and practised in weed management. Addressing these challenges requires reframing care as a gentle practice that aligns with the natural rhythms of Country, while acknowledging and honouring weeds as part of cultural and ecological systems.
2. This paper draws on a case study of the Shoalhaven River (referred to as River) in New South Wales, Australia, to explore the place-based ethical and practical dimensions of care in the context of weed management. Three key methods shape this approach. First, yarning with Country, an Indigenous research method, is central, incorporating insights from Aboriginal cultural knowledge holders and weed managers connected to River. Second, storytelling about yarns with weeds highlights relational narratives and experiences with invasive plants. Finally, reflections on Travels (dreams) provide a spiritual and interpretative lens, offering deeper insights into the interconnectedness of care, culture and Country.
3. Analysis revealed two central themes shaping gentle care: gentleness and rhythm. Participants described practices of weed management that emphasised observation, timing and respect for the agency of plants. These included slow, careful reduction strategies and the use of native plantings to gently care for and support coexistence.
4. The study revealed that care practices towards invasive plants are deeply intertwined with relationships to Country, emphasising gentleness, rhythm and timing. These themes emerged through yarns, Travels and stories shared by participants. Through these relationships, invasive plants can teach people how to manage them in ways that align with cultural and ecological values.
5. Centring Indigenous knowledge systems in contemporary weed management practices can lead to more ethical, effective and sustainable outcomes. By drawing on illuminating care-based approaches that focus on learning from invasive plants and nurturing relationships with them, this paper calls for the

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inclusion of Indigenous knowledge as a fundamental part of managing Country in land management programmes.

KEYWORDS

Aboriginal Country, Aboriginal weed management, care, invasive plants, relational ethics, Shoalhaven River

1 | INTRODUCTION

The management of invasive plants raises significant ethical dilemmas, particularly in how care is conceptualised and practised within these frameworks. Conventional management practices, those grounded in western ecological science and typically characterised by top-down decision-making, standardised techniques such as chemical spraying or mechanical removal, and a focus on measurable, outcome-based goals, often prioritise efficiency and control over relational or place-based considerations. These approaches tend to frame care as a set of normative (Pettersen, 2011), action-oriented interventions, reducing it to technical acts performed on the environment (Bach & Larson, 2017; Fletcher et al., 2021; Glas, 2017). As a result, they can marginalise alternative ways of knowing, overlook the agency of plants and perpetuate ethical tensions in how we engage with ecosystems. At its core, the problem addressed in this paper lies in this narrow framing of care, which excludes Indigenous knowledge systems that emphasise reciprocity, responsibility and the spiritual and ecological relationships that underpin Country.

While recent work, such as Jarić et al. (2025), Reyes-García et al. (2024), Wehi et al. (2023), Black et al. (2021), Reo and Ogden (2018) and Reo et al. (2017), advocate for the integration of Indigenous relational frameworks into invasive species management globally, the aim of this study was to listen to River and draw on a place-based case study to explore the ethical and practical dimensions of care in weed management. I refer to the Shoalhaven River as River without 'the' and with a capital 'R' to honour her as a sovereign being rather than an object or geographical feature (Arnold et al., 2023; Martuwarra RiverOfLife et al., 2022). This naming reflects my recognition of River as kin, Ancestor, teacher and carer. It is both a cultural and ethical choice grounded in Indigenous ways of knowing and relating to Country. River is located on the south coast of New South Wales, Australia. She flows through many Aboriginal Countries, including Yuin, Gundungurra and Jerrinja, with sacred cultural, spiritual and ecological significance. This research focuses particularly on the lower reaches of River, on Jerrinja Country near places like Shoalhaven Heads, Culburra, Cullunghutti (Coolangatta Mountain) and Gerroa, where freshwater meets saltwater; where River flows into Gadu (the sea).

Furthermore, this paper expands the conversation by introducing the concept of 'gentle care' as an Indigenous ethic of weed management, developed through Yuin-guided methodologies, including methods of yarning with Country, storytelling, and the use of Travels. Unlike broader theoretical calls for pluralism, this situates

care within lived practices and responsibilities on Country, offering a relational and temporal ethic that repositions weeds as teachers. By weaving together Indigenous perspectives with environmental governance, I argue for a paradigm shift in weed management, advocating for a gentler, more responsive approach that aligns with the natural rhythms of Country and honours the agency of plants.

This paper situates itself within the interdisciplinary fields of environmental ethics, human geography, Indigenous studies and ecological management, addressing critical gaps in the discourse on care and stewardship in the context of invasive plant management. It asserts that current discussions often prioritise normative frameworks of care, which risk marginalising relational and culturally grounded approaches essential for holistic ecological stewardship. Through an analysis from a Country perspective, the paper expands our understanding of how to balance reduction with regeneration and how to listen to the teachings of Country to manage ecosystems sustainably.

I begin by defining Country, exploring the literature on care within the context of Country, weaving together Indigenous and environmental perspectives on weed management, relational ethics (Bawaka et al., 2022; Keller & Kettay, 2017; Wehi et al., 2023) and gentle geographies (Finn, 2016; Saville, 2021). Weaving together implies a thoughtful connection of ideas and practices, recognising their distinctiveness while bringing them together in a harmonious, complementary way. While scholars such as Johnson et al. (2016) use 'weaving' to describe methodological collaborations between Indigenous and western scientific paradigms, the weaving in this study arises from culture as a lived practice of relational ethics. Rather than a metaphor for bridging systems, weaving here is a ceremonial, ontological and epistemic engagement with Country (Johnson et al., 2016; Whyte et al., 2016). Following the literature review, Section 3 outlines the use of Indigenous research methodologies such as yarning with Country, including yarns and interviews with Aboriginal weed managers and Aboriginal cultural knowledge holders. This paper proceeds by outlining a methodological approach grounded in Indigenous research practices, including yarning with Country, storytelling with Aboriginal cultural knowledge holders, and Travels (dreams) as a culturally legitimate method. Building on this foundation, the results highlight the rhythms of Country, the ethic of gentleness, Aboriginal perspectives from River and plant-human relations that shape weed management. These insights are then taken up in the discussion, which situates the findings within broader debates on Indigenous-led care practices, invasive species management and more-than-human geographies. Finally, the

conclusion draws the threads together, showing how the research responds to the goals of reframing care, advancing sustainable weed management and centring Country's teachings in environmental practice.

2 | WEAVING CARE LITERATURE: INDIGENOUS AND WESTERN PERSPECTIVES

In recent decades, the concept of caring for Country has gained increasing attention across Indigenous and environmental literature (Brown & Thompson, 2020; Cooke, 1999; Daniels et al., 2022; Dudgeon et al., 2024; Fatima et al., 2023; Taylor-Bragge et al., 2021). This care is more than a set of ecological practices; it is a relational and spiritual responsibility grounded in Indigenous law and ethics (Atchison et al., 2024; Bangalang et al., 2022; Burgess et al., 2009; Ngurra et al., 2019; Wehi et al., 2023; West et al., 2018). At a national level, Australia has supported caring for Country through initiatives such as the Caring for Country program (2008–2018), which was followed by continued investment through the Indigenous Protected Areas (IPA) program and the Indigenous Ranger Program (formerly Working on Country) (Hunt et al., 2009). These programmes support Indigenous-led land and sea management activities (Austin et al., 2018), including cultural burning and ecological restoration. However, they are often implemented within western policy logics that emphasise measurable outputs and environmental service delivery (Head & Atchison, 2015; Zander et al., 2013). As a result, care can be reduced to mechanical actions, spraying, planting and monitoring, rather than understood through Indigenous knowledge systems as an ongoing, reciprocal relationship with Country that is spiritual, ecological and cultural (Bawaka et al., 2022; Nxele et al., 2019; Reyes-García et al., 2024; Ticktin et al., 2006). This tension underscores the need for deeper engagement with Indigenous-led frameworks of care and governance that uphold relational ethics and responsibilities.

Country, in Indigenous Australian worldviews, is not just land but a living being holding all life forms, waterways, skies, stories, spirits and Ancestors (Pascoe, 2014; Rose, 2007). People are not separate from Country; they are of Country, and caring for Country involves caring for oneself, one's community and one's responsibilities to past and future generations (Bataille et al., 2021; Bawaka et al., 2022; Grieves, 2009; Neidjie, 1989). Spirituality is central to this understanding, whereby Country is a conscious entity that cares and is cared for. Work by the Martuwarra RiverOfLife et al. (2022) and others has shown that recognising the spirit of places like River enhances responsibility, not only as caretakers but as kin.

These relational understandings of care echo the ethics articulated in the Bawaka Collective's work on 'Caring as Country', which foregrounds Yolŋu knowledge systems and relational ontologies that position care as an emergent, place-based responsibility (Bawaka et al., 2022). Rather than imposing stewardship on Country, they affirm that care is reciprocal and flows through Country and all beings,

including plants, waters and weather systems. The act of listening to Country, being attuned to its signs and needs, forms a key part of this ethical framework, as does the capacity for Country to teach, correct and guide. Indigenous scholars and knowledge holders have long called for the recognition of these forms of agency and care in environmental governance (Enqvist et al., 2018; Gorman & Vemuri, 2005; Wehi et al., 2023).

Weaving offers a compelling metaphor and method for understanding Indigenous care practices. Indigenous scholars such as Johnson et al. (2016) and Whyte et al. (2016) have shown how weaving can signify both epistemological integration and political alliance, an act of bringing together diverse knowledges without subsuming one into the other. Weaving in this context reflects Indigenous women's work with plants, seasons, stories and ceremony; often done with song, intention and gratitude (Leddy & Miller, 2023). Wehi et al. (2023) note that these practices honour biocultural relationships and responsibilities, and the act of weaving becomes a form of ecological pedagogy. Applying this to weed management reframes restoration not as domination or replacement but as relational repair, guided by attentiveness, seasonality and intergenerational knowledge.

Within feminist philosophy, care is understood as an ethic that emphasises context, emotion and reciprocity over abstract moral reasoning (Held, 2005; Keller & Kettay, 2017). Geographers have extended this into the realm of human–environment relations, revealing how care emerges through daily, embodied practices (McEwan & Goodman, 2010; Rousell & Tran, 2024; van Dooren, 2015). This scholarship challenges binaries between care for people and care for nature, arguing instead for more-than-human care ecologies (Pitt, 2018). Yet even within this expanding discourse, critiques have emerged. Saville (2021), for instance, notes the dangers of universalising care ethics without attention to cultural and contextual differences. His work, alongside the emerging field of gentle geographies (Finn, 2016), offers a theoretical and ethical framework that values humility (Kupfer, 2003), slowness and attentiveness to human and more-than-human relationships, principles that are resonant with Indigenous ways of being.

3 | METHODOLOGY

This section outlines the methodological framework and data analysis process employed in this study, which is grounded in Indigenous research methodologies and guided by Indigenous protocols. By engaging with nonhuman and human participants through yarning with Country (Barlo et al., 2020), semi-structured interviews, storytelling and the use of Travels (dreams) (Arnold, 2025; Arnold et al., 2023), the research emphasises reciprocal relationships and relational knowledge shared by all entities on Country. The data collection and analysis processes were carefully shaped by respect, cultural protocols and ethical principles of care, ensuring that both human and more-than-human contributions were honoured. This holistic approach offers a comprehensive understanding of

Indigenous weed management practices, with a particular focus on the themes of gentleness, rhythm and timing.

As a Gundungurra woman, my identity and connection to Country are intertwined with cultural teachings. My role within this relational framework is one of responsibility and reciprocity, where I am not just a caretaker of the land but also nurtured and guided by it. This oneness with Country has been further enriched by the teachings of Yuin Elders, from the South Coast of New South Wales, Australia. Due to colonisation, I was not passed down cultural Gundungurra teachings, and on my journey to learn, I met Yuin Elders who have generously shared their knowledge and practices with me. Through their guidance, I have come to understand the importance of listening to the voices of all entities, both human and more-than-human, in Country. Their teachings have emphasised the significance of ceremony, storytelling and the relational ethics that guide how we engage with plants, animals and other elements of the land. Yuin Elders have shown me how to read the text of the land (Harrison & McConchie, 2012), understand the deep connections that bind us to Country, and how those connections must be honoured and protected through care, respect and reciprocal relationships. These teachings shape my approach to research, emphasising that the knowledge we receive from Country comes with the responsibility to give back and care to contribute to its well-being.

I worked closely with participants through snowball sampling (Noy, 2008), a method appropriate for accessing community networks and relational knowledge systems. As a researcher with both insider and outsider roles, I reflected on positionality throughout the project, recognising that trust, cultural safety and ethical care were central to building meaningful relationships (Tuhiwai Smith, 1999). Power asymmetries between academic institutions and Indigenous communities required careful attention, particularly in ensuring that research was accountable to community priorities and not extractive in nature (Tuhiwai Smith, 1999). Thematic analysis was used to identify patterns across interviews and yarning sessions, following the phases outlined by Braun and Clarke (2006). In addition, documentary sources such as government reports, environmental plans and policy frameworks were analysed to contextualise and complement the fieldwork (Tight, 2019). This multi-layered approach enabled a deeper engagement with the ethical, ecological and cultural dimensions of weed management, informed by Country and community.

The notion of 'gentle geographies' offers a caring and ethical approach that advocates for humility and slowness in academic research, aligning closely with Indigenous perspectives on cyclical understandings of Country, time and relationships (Finn, 2016; Kupfer, 2003; Milgin et al., 2020; Saville, 2021). This concept is particularly relevant in studying weeds, which might be viewed not merely as invaders to be eradicated but as entities with their own roles and lessons within ecosystems. For instance, Saville (2021) describes a gentle researcher as one who acknowledges their own shortcomings and recognises the partial and contingent nature of the knowledge they co-produce. Such researchers remain teachable, motivated to improve and continuously question how research stories are told and how co-produced knowledge is shared in ways that

reflect a humble position. A gentle approach to research emphasises the importance of balancing the continual journey of learning with an openness to improvement. It suggests that instead of imposing rigid methodologies and preconceived notions, researchers should cultivate an attitude of respect and attentiveness to the subjects and contexts of their studies (Finn, 2016).

In my research, I engage with gentleness by exploring what weeds can teach us about how to care for Country. This approach invites me to reconceptualise conventional weed management practices, seeking to centre Indigenous ecological, cultural and respectful practices. I aim to move beyond the binary framing of weeds as merely 'bad' or 'invasive', focusing instead on their roles and impacts within broader ecological and social systems. This process encourages me to adopt a reflective and compassionate stance, recognising that managing weeds is not only a technical issue but also a deeply social and ethical one.

3.1 | Indigenous methods

I utilised the method of yarning with Country (Barlo et al., 2020), informed by Yuin protocols, which involves deep listening and engagement with the land, recognising non-human entities as active contributors of knowledge (Harrison & McConchie, 2012). This method was complemented by semi-structured interviews and yarns with Aboriginal weed managers (such as Park Rangers and Bush Regenerators) and Aboriginal cultural knowledge holders, allowing for the weaving of both Indigenous and western scientific perspectives on weed management. The use of Travels as a method enriched the research by enabling spiritual and relational insights to emerge through embodied, intuitive engagement with Country, including with spirit (Arnold, 2025; Arnold et al., 2023). Recognised as a legitimate form of epistemological engagement, the capitalisation of Travels reflects its significance. Uncle Max, a Yuin Elder, taught me to use the term Travels instead of dreams to respect the cultural understanding that these are not merely imagined experiences, but real journeys to the spirit world where teachings are received. As Hirt (2012) clarify in the context of Mapuche epistemology, dreams that are regarded as legitimate sources of knowledge are not individually claimed but are recognised by the community through culturally embedded protocols, including the status of the dreamer and the depth of spiritual work involved. In the Indigenous Australian context, while there are differences between communities, the authority of dreams is likewise grounded in cultural legitimacy, spiritual responsibility and recognition within community. In this research, insights gained through Travels were not treated as individual or universal truths but were held with humility, shared with Elders and situated within Country, including cultural, spiritual and ecological relations. In addition, the research diary served as a tool for reflection, capturing the dynamic interactions and insights gained from both human and nonhuman participants. The yarns and interviews were open to the participant and included stories about their relationships with weeds, weeding

practices, experiences, challenges and perspectives on learning to live with weeds. By centring Yuin ways of learning, the study positions non-humans as active participants and knowledge holders, challenging dominant western paradigms and embracing Indigenous epistemologies. Ethical considerations, grounded in respect, reciprocity and cultural protocols, shaped the research process, ensuring an inclusive, holistic approach that honours the spiritual, ecological and cultural significance of Country, particularly in the context of weed management and regeneration. This study received approval from the University of Wollongong Human Research Ethics Committee (HREC), reference 2020/438. All research activities were conducted in accordance with the ethical guidelines set forth by the HREC to ensure the protection, confidentiality and well-being of participants throughout the study.

3.2 | Recruitment

The identification and recruitment of both non-human and human participants were guided by cultural and ecological criteria. Non-human participants, primarily weeds thriving near River, were selected for both their cultural significance to the Aboriginal community and their ecological impact on Country. Over a year (March 2021–2022), purposive sampling and yarning with Country led to the identification of 12 diverse weed species.

Human participants were also recruited purposively, drawing on existing connections within the Yuin community and outreach to local councils, Bushcare groups, and the New South Wales National Parks and Wildlife Service. In total, eight Aboriginal participants, seven men and one woman, I yarned with; some chose to be identified by name while others preferred pseudonyms. While a broader pool of participants informed the thematic analysis, the research draws most heavily on three key contributors whose depth of knowledge, sustained engagement and ongoing relational yarns significantly shaped the process and findings. This emphasis reflects Indigenous methodologies that privilege relationality (Moreton-Robinson, 2017) and deep listening, recognising that knowledge is built through trust, reciprocity and responsibility over time.

My identity as a Gundungurra woman connected to the Yuin community facilitated trust and access, enabling deeper engagement with participants. At the same time, I navigated the challenges of power dynamics and insider–outsider relationships with reflexivity, ensuring the research remained grounded in respect, cultural humility and ethical responsibility. While participant numbers were small, the richness and depth of these interactions provided a comprehensive and situated understanding of Indigenous weed management practices.

3.3 | Data collection

The data collection for this study was guided by the methodology, which is grounded in Country and Yuin ways of learning,

emphasising reciprocal relationships between human and non-human participants. For the human participants, a \$50 gift card was provided for each hour and for the non-human participants, I would give back by caring for River, for example, volunteering my time for weed removal or cleaning up rubbish on my path. Yarning with both human and non-human entities, particularly weeds along River, was central to gathering insights, ensuring a deep engagement with the ecological and cultural dynamics of Country. The collaborative and respectful approach, grounded in Indigenous protocols, creates trust and mutual understanding, enabling the collection of rich, diverse narratives that shaped the study's holistic and relational understanding of weed management practices.

3.4 | Data analysis

The analysis process in this research, referred to as 'Country analysis', was guided by Yuin teachings and protocols, emphasising a deep connection with Country. Manual transcription allowed for intimate engagement with data, revealing subtle insights often missed through automated methods. Thematic analysis was applied, weaving insights from human and nonhuman participants, including yarns, diary entries and observations. Collaboration with Aboriginal cultural knowledge holders was central, ensuring that the research aligned with cultural protocols, reflecting a shared commitment to integrity and respect for both human and non-human contributions.

4 | GENTLENESS IN DUALITY: THE RHYTHMS OF COUNTRY

4.1 | Gentleness

In Yuin epistemologies, gentleness is understood as a dynamic duality, including both soft and firm elements (Arnold, 2025). It embodies a balanced reciprocation, where softness may also require assertiveness—such as speaking with a strong voice or applying a firm grip. This dual nature is reflected in the rhythms of life and death (Arnold, 2025; Dufourmantelle, 2018), which oscillate between softness and firmness (van Dooren, 2015). Within the context of weed management, this duality guides an ethic of care, acknowledging that both softness and firmness are essential in nurturing and sustaining gentle ecological relationships.

In the same way that some humans damage Country, some plants do not walk gently when they migrate to new lands. In other words, particular plants do not learn or practice gentle care for Country in their new home. A Travel involving a plant I experienced during my study is illustrative:

I could see a vast and pristine forest, deep red setting sun and something moving in the distance. As I focused my vision and attention to see what was moving, I could see this plant walking on all

fours, like an animal. As it walked, it crushed many small plants and insects under its heavy feet. As I watched this entity, the other trees, plants, and animals seemed to disappear before my eyes. I felt its presence, which was fierce and destructive. It turned its head to look at me; its eyes were empty of light, and then, suddenly, I felt cold. It breathed fire to the last remaining group of flowers before I suddenly woke up.

(Research diary, 2022)

This Travel conveyed a plant destroying an entire ecosystem through trampling, travelling and fire. My Travel seemed to be in opposition to gentleness, without any life-giving element and with only death and destruction apparent.

Plants and their impact on Country can be both constructive and destructive. I awoke with this understanding of the message, but my interpretation was not clear. It was the yarning with Ed that took place after this Travel that gave me the greatest insight. After sharing the Travel with Ed, he paused and reflected for a moment, and responded, 'Well, there is sometimes no distinction between plant or animal; plants and animals are relatives, and they can behave quite similarly' (2022).

I understood Ed's interpretation of my Travel that humans are related to plants; that plants were the first people and our Ancestors. However, Ed was also teaching me that some weeds are not gentle in Country, just like humans or other animals. Plants and animals share similar traits in their ability to colonise new environments, sometimes disrupting native life.

4.1.1 | Responding to *Lantana* with care

Lantana (*Lantana camara*), while exhibiting beneficial and caring qualities within its native environment, becomes disruptive and harmful when introduced to non-native ecosystems. Addressing this disruptive behaviour using approaches rooted in a colonising mentality—one that prioritises destruction without regard for Country—risks further endangering native species. In contrast, responding to *Lantana* with gentleness and care represents a decolonial approach. This method allows for the gentle management of invasive weeds without resorting to excessive or harmful interventions.

Lantana gently cares for Mother Earth's people in its native home in Central and South America through its medicinal properties (Ghisalberti, 2000). The leaves can offer caring qualities for sick people. They can be made into a poultice to treat sores, chicken pox, measles, fevers, colds, rheumatism, asthma and high blood pressure was also treated with preparations from the plant (Ghisalberti, 2000; Negi et al., 2019). However, in many other countries, such as Australia, where it has been introduced, *Lantana* can lead to destruction and harm to Country. *Lantana* can be poisonous,

spread fast like fire, trample on native plants and destroy ecosystems (Dutta et al., 2021), just like colonising people. *Lantana* has colonised coastal areas in Australia and is spread out along many parts of River (Turner & Somerville, 2020).

According to participant Alex, who works as a weed manager on Jerrinja Country at River, *Lantana* can behave in invasive ways. Alex explained to me that:

I see [*Lantana*] as being very invasive and using up nutrients from the land. I also think that the weeds tend to kill native plants in that they shelter and attack them. I see that Old Man Banksia trees, Acacias and She Oaks are struggling to compete.

(Alex, weed manager, 2021)

Through observation and lived experience, Alex sees that *Lantana* invades natural ecosystems, transforming native vegetation into impenetrable thickets and reduces forest areas and water resource availability (Katembo et al., 2022). *Lantana* not only limits the ability of native seed spread, but also it has an extremely high rate of reproduction (Katembo et al., 2022) attributed to its predisposition to produce large amounts of seeds each year, ranging between 6000 and 12,000 per plant (Muvengwi & Ndagurwa, 2015). This invasive behaviour results in reduced biodiversity and alters ecosystems.

Managing invasive plants like *Lantana*, which threaten to reshape the landscape, necessitates a careful approach and a deep commitment to preserving Country. Bush regenerator, Ron, explained it this way:

The noxious weed blokes, they come in, in high volume and their collateral damage is way worse than ours. Say there's three weeds and one native, they'll kill the lot. Where we'll come in and we'll try and... If we have to do prep work, we'll cut around the native, to save that.

(Ron, weed manager, 2021)

Ron explained how noxious weed managers are not gentle in the process of removal and kill native plants at the same time as killing invasive ones. From Ron's understanding, an alternative approach in an area that has invasive plants is to cut around the native ones. It is important to identify native plants in the target area and then, according to him, you can clear weeds using the cut-and-paint method. To cut, he makes sure the stem is cut close to or at ground level, and he then paints herbicide onto the cut stump (Local Land Services (LLS), 2022). Cutting and painting individual weed stems ensures that only the target weed will be killed by the herbicide and not any native plants. This is a slower method, but it is careful and does not eradicate other plants in a treatment target area.

4.1.2 | She Oaks gently care in relationship with Coral trees

Gentler reduction strategies support new growth while acknowledging the inevitability of some loss. I asked Ed about his strategies when managing *Lantana* and other weeds on his property. Like Ron, Ed prefers a gentle approach: 'I opt for a gentle method of reduction instead of eradication. Observing and attempting to reduce weeds through planting more native trees' (2021). Ed's method aims to reduce weeds, working in alignment with the duality of Country, bringing forth more new life while accepting that some elements will die. He observes and listens to Country's voice, and when weeds 'pop up', he plants native plants before invasive plants get too big to control.

Listening to and learning from Country to manage environmental challenges is a gentle yet effective way of responding to the problem of invasive plants. After Ed explained his method, he guided me to an area to show me an example of *Coral Trees* (*Erythrina × sykesii*) (Figure 1) sitting (growing) in a circle near the creek. *Coral Trees* are striking in appearance, bursting with vivid red blossoms that attract native birds and pollinators and forming wide canopies that shade creeks and riverbanks. Originally hybridised, their origins unknown, and introduced as ornamental trees (Smith, 1996), *Coral Trees* have since naturalised in many parts of Australia, including along the River. While they are considered invasive in some contexts (Smith, 1996), spreading easily



FIGURE 1 Coral Trees surrounded by She Oak at a creek near River (2021).

through fallen branches and suckering roots, their relationship with Country is more complex than simple categorisations of 'harmful' or 'beneficial' suggest. Before the *Coral Trees* had a chance to get out of control and spread, Ed had planted some *She Oaks* (*Casuarina*) to surround them. After showing me these trees, he continued:

That way they (Coral Trees) stayed small, and I was able to keep them. I wouldn't want to take away a food source, because birds love to feed off the flowers in bloom. A hole in a dead tree was formed for animals to live in. Nature cares for them in its own way. We do not need to spend loads of money. Especially when it comes to homing wildlife or addressing an invasive weed. Plants and other beings can do the work, such as a tree can form a home and planting a tree near a weed can reduce invasiveness.

(Ed, cultural knowledge holder, 2021)

According to Ed, it is important to consider that some weeds offer food to native birds. Therefore, when working to reduce weeds, it is necessary to ensure there is always a sufficient food source. Sometimes, it might not always be obvious how to care gently for Country, but if we observe and listen, she can teach us how to look after her and to be gentle.

Gentle care and working collaboratively with Country allow us to address invasive weeds without excessive intervention. During our yarn, I asked Ed to teach me more about how people might learn to be gentle to reduce weeds. He explained that 'humans and plants need to work together, and, once we do, Country will take care of everything else' (2021). In other words, according to Ed, people must fulfil their caring role on Country and Mother Earth will take care of all of us.

Gentle care, unlike normative approaches that often prioritise efficiency and uniformity (Saville, 2021), is inclusive of the death of some species that work towards greater ecological balance. Gentle care is grounded in the understanding that ecosystems are interconnected and require sensitivity to their unique needs. As I was leaving River that day, my mind took me back to what Ed said during our most recent yarn to help me complete this lesson, 'What is important is that we are gentle and caring towards Country, no matter what' (2021). If people centre Country's well-being, our practices could be gentle and caring in every context. Death can sometimes result in new life that is primarily focused on the health of Country. Rather than seeing invasive species removal as a process of complete destruction, this approach advocates for actions that prioritise the overall health of Country. By centring the well-being of Country and recognising that the removal of certain species may be essential for restoring balance, invasive plant management becomes an expression of gentle care—one that moves beyond top-down, prescriptive actions. This shift nurtures a more reflective and relational ethic of care, ensuring that management practices are attuned to the natural rhythms and long-term health of Country. A gentle approach is ultimately more sustainable and ecologically sound, as it respects the oneness of life and the cyclical nature of death and renewal within Country.

4.2 | Rhythm and timing

4.2.1 | The rhythm of the land: Understanding plant intelligence in response to country

Plants are attuned to their environments in ways that demand deep understanding from those managing them. Ron pointed to the need for weed managers to think in terms of the plants' own life cycles and survival strategies, stating, 'You got to think like a plant... like when you go hunting and that' (2021). His analogy highlights the importance of understanding the rhythms and behaviours of plants—just as a hunter learns the patterns of their prey, a weed manager must understand the temporal dynamics of plant growth and adaptation. This approach emphasises the critical role that timing plays in effective weed management, focusing on life cycles, growth patterns and the plant's responses to its environment.

Plants also demonstrate adaptability by anticipating environmental changes and demonstrating a sense of timing in their responses to conditions (Trewavas, 2017). Plants' adaptability is inherently linked to their ability to synchronise with the rhythms and cycles of Country, particularly in how they time their growth and survival strategies in response to environmental changes. Ron, a seasoned weed manager with over 20 years of experience, shared his observations on how plants anticipate these changes over time. Through most of Ron's working life with plants, more than 20 years, Ron has seen that all plants, weeds or natives have abilities that are clearly intelligent. He shared with me an example of their capabilities:

And then there's this theory on, like with weeds, you are supposed to not spray, and this is the thing I've just picked up, from experience. They say you are supposed to have a 2-h period before rain and after rain. Because rain can wash the chemical off and that. But... I've worked out that they know before it's going to rain. The plant knows!!!

(Ron, weed manager, 2021)

This sense of anticipation is a temporal skill, as plants, through their intrinsic relationship with Country, sense shifts in humidity or pressure, allowing them to adjust their rhythm and behaviour accordingly. Rhythm is not just a matter of survival but a deeply ingrained process that allows plants to synchronise their cycles with the environment.

Some plants close their flowers to protect against pollen damage from precipitation or desiccation that can render the pollen unviable (van der Kooi et al., 2019). Closure during rain also reduces pollen wash (Abdusalam & Tan, 2014), which refers to the runoff of pollen from plants. Ron observed that the weeds he treated with herbicides had interesting responses, and he continued:

So, you know it's the best time to kill a weed.... But it is not recommended. It's not recommended. But it's the best way.... Every plant knows when it's gonna

rain. So they got a system in them that locks, opens and shuts, so when they get a cut, they shut it off, right, and so when they are fearful, they shut off. So, when the rain comes, they unlock the security system, and we found out that if you can hit that plant, at a certain time before the rain, you get a better result than if you do after the rain. Or before it even rained.

(Ron, weed manager, 2021)

This process is not generally recommended in weed management due to the potential for wash-off and water contamination. However, it reflects how plant life cycles, particularly in response to rainfall, follow a temporal rhythm that is crucial for effective management strategies. However, the use of herbicides during such a window of opportunity is problematic in broader environmental contexts, such as potential water contamination (Rana & Rana, 2015). The life cycles and adaptations of plants like weeds are slow and cyclical, requiring consistent, long-term observation and engagement to manage effectively. From the understanding that plants are synchronised to Country's rhythm, it seems impossible for Ron to work within western constructs of time for weed management and regeneration projects.

4.2.2 | Timing: Lessons from Madeira Vine's invasive persistence

Extensive time and consistent effort are required to learn how to take care of Country. As I stand on River's edge one morning, I am reminded of a time I met with Ron and asked him about the process of plant immersion and the concept of time. He said:

Some weeds take ten years to beat. Meaning they've got a seed cycle of five to ten years. And you could kill the existing plant, but because that plant has been there for say ten years, it's got ten years' worth of seeds in the ground. So, every year, we gotta come back for ten years to try and stop that spread, but if we miss one seed year, that puts us back to another seven years. That's Madeira and all of that. Like Madeira is one of our worst ones at the moment.

(Ron, weed manager, 2021)

Madeira Vine is difficult to control successfully with herbicides due to the persistence of numerous viable tubers that remain (for 5–10 years) after herbicide treatment and re-infest-treated sites (Webb & Harrington, 2005). In order for Ron and his colleagues to ensure they successfully kill *Madeira*, they need to dedicate a significant amount of time and return to the same spot every year to get the tubers. *Madeira* is currently one of the most invasive plants at River and requires ongoing care, not for a specific amount of time, but continuously for as long as it takes to exhaust the underground tuber bank.

Madeira Vine has learnt to avoid being killed by chemicals and being eaten by animals. Ron continues:

They might have grown along the ground and then now they grow up high, if we grow up here and if we grow there, I don't know how they think like that. A plant must think....

(Ron, weed manager, 2021)

From Ron's experiences working with weeds, it is very clear to him that plants such as *Madeira* have thought up new ways to survive, such as growing higher to avoid chemicals. Plants have even been shown to use information encrypted in the light, showing that not only do plants think, but they also remember (Karpiński & Szechyńska-Hebda, 2010; Trewavas, 2017). Such intelligence is an inevitable consequence for all organisms that consistently manage life in a variable environment.

5 | DISCUSSION

This paper contributes to an expanding field of geographical and Indigenous scholarship that redefines care as a situated, ethical and relational practice (Bawaka et al., 2022; Saville, 2021; Wehi et al., 2023). By drawing on Yuin protocols and Indigenous knowledge systems, it introduces a culturally grounded framework of 'gentle care' in weed management; one that contrasts sharply with normative, interventionist paradigms prevalent in environmental governance (Fletcher et al., 2021; Zander et al., 2013). This framework highlights care as reciprocal, place-based and enacted through spiritual and ecological relationships with Country (Arnold, 2025; Atchison et al., 2024; Bawaka et al., 2022; Milgin et al., 2020; Wehi et al., 2023).

Grounded in Yuin knowledge systems and guided by relational ethics, this research develops the concept of gentle care within Indigenous weed management to describe a culturally grounded ethic that is responsive to the rhythms and needs of Country. Gentle care is not passive; it is deliberate, reciprocal and informed by seasonal, ceremonial and spiritual obligations. Invasive plants such as *Coral Trees* (*Erythrina × sykesii*) or *Madeira Vine* (*Anredera cordifolia*) challenge the neat binaries of invasive/native, reminding us that care must be ecological, political, and temporal. Following Bangalang et al. (2022), who describe care as a practice that is attentive to both plants and people, this approach emphasises relational repair rather than eradication. Gentle care means allowing time for transformation, listening to what these plants may be saying and responding in ways that prioritise ecological and cultural well-being across generations.

This study complements and extends the relational frameworks proposed by Jarić et al. (2025), Wehi et al. (2023), Reo and Ogden (2018) and Reo et al. (2017) by offering grounded, empirical insights into how care can be enacted through everyday weed management practices. Where Wehi et al. make a compelling theoretical

case for the recognition of Indigenous perspectives in global invasive species frameworks, this research demonstrates how those perspectives are embodied in site-specific actions that align with Country's rhythms.

Two central themes, gentleness and rhythm, emerged from yarning with Country, Travels and yarns. Gentleness was shown to involve more than avoiding harm; it is about listening to Country and taking measured, respectful action. Ron's and Ed's descriptions of careful removal and regeneration illustrate a non-dominating ethic that prioritises ecological balance and cultural responsibility. This resonates with Saville's (2021) call for humility and with gentle geographies (Finn, 2016), which position care as emergent from attentive and responsive relationships.

The second theme, rhythm, underscores the temporal intelligence of plants and the importance of managing weeds in alignment with Country's cycles. Ron's insights into weed response to seasonal rainfall and seed cycles reflect a long-term, adaptive approach to land care. These accounts reaffirm arguments made by Milgin et al. (2020) and Trewavas (2017) about ecological attentiveness and adaptive intelligence. Rather than short-term efficiency, participants demonstrated that time-bound, cyclical practices lead to more effective and culturally appropriate outcomes.

Methodologically, the study affirms the credibility of Indigenous approaches to research, including yarning with Country, storytelling and the use of Travels as legitimate, spiritually grounded methods of knowing (Arnold et al., 2023; Barlo et al., 2020; Hirt, 2012). Data co-produced with both human and nonhuman entities reflect relational accountability and ensure ethical integrity, contributing to the robustness and validity of the findings (Tuhiwai Smith, 1999).

This study also points to important implications for policy and practice. Programmes governed by frameworks such as the NSW Invasive Species Plan and the Biosecurity Act often reflect western logics that prioritise deliverables and rapid outcomes (Head & Atchison, 2015). The contribution here lies in showing how such policies can be reimagined through practices of gentle care; practices that attend to timing, spiritual connection and nonhuman agency. In this way, gentle care offers a model for implementing justice-oriented biodiversity strategies that emerge from Country rather than being imposed upon it. For example, training and practice manuals for ranger programmes could incorporate Aboriginal methods of observation, timing and non-destructive weed control. By realigning practices to Country's needs and intelligence, weed management could move beyond harm reduction towards restoration and responsibility.

In sum, this research repositions weed management not merely as a technical problem but as an ethical, cultural and ecological practice. By seeing weeds as teachers, and by recognising plants as agents in more-than-human communities, this paper calls for a shift away from prescriptive eradication and towards relational repair. Gentle care, as a concept and a practice, offers a transformative model for decolonising environmental management, grounded in respect, rhythm and responsibility to Country.

6 | CONCLUSION

This paper listened to River and drew on a place-based case study to explore the ethical and practical dimensions of care in weed management. In doing so, it contributes to wider literature on human–nature relations that emphasises reciprocity, relational ethics and more-than-human agency (Jarić et al., 2025; Reo & Ogden, 2018; Wehi et al., 2023). By weaving together insights from yarning with Country, storytelling and Travels, this research positions invasive plants not solely as threats to be eradicated but as teachers that invite a deeper understanding of ecological rhythms, coexistence and responsibility. The notion of gentle care developed here, anchored in Indigenous perspectives, extends and deepens the emergent field of gentle geographies by offering a culturally specific framework for ecological stewardship.

Five key contributions emerged from this study, advancing Indigenous and environmental scholarship. First, it introduces the concept of gentle care as an Indigenous ethic in weed management, grounded in relational responsibilities to Country. Second, it positions Travels (dreams) as a culturally legitimate method for ecological knowledge production, offering spiritual and interpretive insight. Third, it presents previously undocumented Aboriginal perspectives from River, including plant–human relationships that reveal weeds as teachers. Fourth, it reframes invasive plants as relational agents with temporal intelligence and ecological roles, challenging conventional binaries of native/invasive. Finally, it does not offer definitive strategies but instead shows how Indigenous ways of knowing can inform culturally grounded and ethical approaches to land care.

An additional aim was to analyse the findings from a Country perspective. This analysis revealed two central themes: gentleness and rhythm. From this perspective, care is understood as a relational and reciprocal ethic, one enacted through timing, rhythm and deep attentiveness to Country's teachings. In contrast, conventional approaches to weed management and normative models of care often fail to fully explore or recognise the ecological functions weeds might offer. The concept of gentle care offers a distinct theoretical contribution to human–nature studies, moving beyond binaries of native/invasive and human/nature to demonstrate how care can emerge through rhythm, healing and coexistence. This approach is a reminder that care is not a one-time intervention but an ongoing relationship, as continuous and fluid as the flow of River herself. Plants, like people, need time to adapt and become part of their surroundings. Weeds such as *Madeira Vine* (*A. cordifolia*) demonstrate a kind of temporal intelligence, learning and responding to place over time. By centring this relational ethic, the study contributes uniquely to international and interdisciplinary conversations on environmental ethics, Indigenous governance and decolonial methodologies (Black et al., 2021; Nxele et al., 2019; Ticktin et al., 2006).

Ultimately, this paper invites land managers, researchers and policymakers to engage with Indigenous knowledge systems not as supplementary or symbolic, but as vital to the ethical and sustainable management of invasive species. In doing so, it opens pathways for geographers, ecologists and Indigenous scholars alike to

reconceptualise human–plant relations not as technical problems to be solved but as relationships to be cultivated, aligning with global calls for more ethical and reciprocal engagements with more-than-human worlds. By learning with and from Country, and by centring care as a slow, reciprocal practice, we are better positioned to restore ecological balance and nurture a future grounded in respect, relationship and collective well-being.

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CONFLICT OF INTEREST STATEMENT

The authors declare no additional conflicts of interest.

DATA AVAILABILITY STATEMENT

The raw data collected through the survey are not publicly available due to human ethical considerations (University of Wollongong Human Ethics Approval HREC 2020/438), in accordance with cultural protocols.

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