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Vulnerable reading practices for ecosocial justice in environmental education

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ABSTRACT

Environmental education has the potential to extend its transformative potential by reframing social and ecological justice as always interconnected. This paper introduces vulnerable reading as a method for unsettling anthropocentric and colonial influences on how educators conceptualise and respond to environmental precarity through a socio-ecological lens. It has emerged from a six-month walking project during which the authors developed vulnerable reading practices as they walked with young children, educators, and a weedy landscape in Boorloo (Perth), Western Australia. With a focus on reimagining pedagogies to be inclusive of multiple weedy ideas, bodies and voices, the paper uses empirical examples of practice to illustrate how vulnerable reading across temporalities, scales, disciplines, and genres draws attention to the complex relations humans share with weedy worlds. The paper shows how vulnerable reading is a feminist and anticolonial practice that makes visible the complexity of relations humans share with more-than-human worlds and is an example of ecosocial justice in action.

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Introduction

This paper introduces vulnerable reading as a method for unsettling the influences of a Western[1] worldview on environmental pedagogies in early childhood education. With a focus on reimagining pedagogies to be inclusive of multiple weedy ideas, bodies and voices, the paper uses empirical examples of practice to illustrate how vulnerable reading across temporalities, scales, disciplines, and genres draws attention to the complex relations humans share with weedy worlds. This work has emerged from a six-month walking project during which we, the authors of this paper (Karen and Mindy) developed vulnerable reading practices as we walked with young children, educators, and a weedy landscape in Boorloo (Perth), Western Australia. During these walks we were especially interested in the pedagogical potential of weedy landscapes since by their very nature, they are places in which the connectedness of multiple and complex human and more-than-human histories are emphasised (Head, 2014). We are also interested in how early childhood educators can develop vulnerable reading practices as a method for troubling certain logics that characterise a Western worldview and how vulnerable reading can support the generation of environmental pedagogies that attend to the interconnectedness of social and ecological (ecosocial) justice.

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We begin by situating the study within the context of popular Western approaches to environmental education in the Anthropocene. We then explain how a critical ecofeminist framing is helpful for troubling problematic logics underpinning these approaches. Next, we contextualise the study by situating it within the specific weedy landscape with which we walked with children and educators. In doing so, we explain an encounter with Bracken Fern, a plant that is labelled a weed by the local council and school involved in the project. Following this, we describe how engagement with hesitating and reclaiming practices (Stengers 2008) created openings for the development of vulnerable reading practices. We then explain our conceptualisation of vulnerable reading and describe how thinking and reading-with the concepts of weedy landscapes (Tsing 2017) and thick time (Neimanis and Walker 2014) helped frame our thinking and supported the development of reading practices. Five Bracken Fern stories are then introduced, each with an invitation to the reader to approach the excerpt with vulnerability. Finally, we return to the weedy landscape with which we walked and explain how our vulnerable reading practices are an example of ecosocial justice in action.

Environmental education in the anthropocene

Since its naming in the early 2000s, the use of the term Anthropocene has been problematised by feminist scholars (see for example Donna Haraway 2016 and Rosi Braidotti 2020). This is because of its unrealistic positioning of humans (and more specifically Man) as a dominant force in earth's history and future (Paulsen, Jagodzinski, and Hawke 2022). The word Anthropocene, with its literal translation into 'the age of Man', is predicated on the idea that humans have exceptional capabilities that can be harnessed to control and master environmental problems (Taylor 2017). Another critique is that the idea of the Anthropocene generalises all humanity as the cause of planetary degradation and all humans as affected by the consequences of environmental damage in equal ways (Paulsen, Jagodzinski, and Hawke 2022). These assumptions are problematic for several reasons. For instance, they fail to account for the ways in which more-than-human bodies affect and are affected by environmental changes and how human and more-than-human futures are inextricably intertwined [Common Worlds Research Collective (CWRC)), 2020]. Nor do they consider the complex and unequal social and political histories contributing to where 'we' are today. As Rosi Braidotti (2020) reminds us, 'we' might all be in this (climate change) together, but 'we' will experience it differently. In a settler colonial society such as Australia and where this project is situated, universalised narratives are a particular concern since they erase the violent histories of European settlement and contribute to the ongoing subordination and erasure of Aboriginal knowledges and histories (Shay and Wickes 2017).

The logics on which these assumptions are based are also problematic when they are translated into environmental education. For example, if an educator views the Anthropocene as an era during which humans must endure and eventually overcome, then pedagogical decisions will likely align with social justice outcomes and consequently ignore the interconnectedness of human and more-than-human futures (Jorgenson et al. 2019). With its aim to 'train future generations to actively engage with and mitigate the anthropogenic effects' of human activity, sustainability education is an example of an approach primarily concerned with human futures (Ginsburg and Audley 2020, 43). Whilst sustainability projects are important for certain reasons, there is a risk of reinforcing the narrative that humans can somehow master nature and restore it to an often-idealised prior state (Head, 2014). Further, these experiences are often bound by colonial timeframes, meaning Indigenous histories and knowledges are ignored thus creating space for settler majorities to prescribe their ways of knowing and doing as universal practice (Bang et al. 2014).

A critical ecological feminist framing (Plumwood 2002) is helpful for troubling these logics. Firstly, critical ecofeminism problematises the inequality of binary thinking. For a binary to exist, there must be an unequal distribution of power and consequently a more dominant side. By

exposing the inequalities of social class, species, gender, sexuality, and race, critical ecofeminism addresses intersectionality thus emphasising environmental precarity as a matter of *eco*social justice. Secondly, this framing acknowledges how binaries that enable inequalities are assigned specifically to Western thought (Plumwood 2002). For example, these binaries do not exist in Australian Aboriginal ontologies where 'everything exists in a state of emergence and relationality' (Country et al. 2016, 456). Black feminist thought has also made important contributions to the task of troubling binaries by drawing attention to intersectionality and making visible the often romanticized (Nxumalo, 2020) and 'deficit or empty views of Black people's relations with so-called natural places' (Nxumalo and Cedillo 2017, 106). Minoritized feminist early childhood scholars such as Fikile Nxumalo (2020), Michele Salazar Pérez (2017) and Janelle Brady (2022) draw our attention to the ways in which Black feminist thinking (re)situates narratives of settler colonial destruction and displacement of Indigenous peoples within early childhood settings (Nxumalo, 2020). Similarly, the collective research of Kalkadoon and Wakka Wakka Elder Judi Wickes, Aboriginal researcher Marnee Shay (2017) and Quandamoopah woman Karen Martin (2007) point to the necessity of foregrounding Indigenous storytelling as a practice for disrupting the uneven impacts of colonial narratives within early childhood educational contexts in Australia.

Critical ecofeminism acknowledges that problematising binary thinking is not just a question of ethics but also political and the only way forward is to take notice of both 'difference and continuity' (Plumwood 2002, 3). This means a way forward is not about doing away with social justice and sustainability projects in early childhood contexts. Rather, it is about educators making space for a plurality of knowing and being with multiple ideas, voices, and bodies (Law 2015). This requires practices that foreground human-nature relations (Nxumalo, Nayak, and Tuck 2022) and being open to learning a 'new way of being-in-the-world' (Paulsen, Jagodzinski, and Hawke 2022, 12). This shift aligns with the Common Worlds Research Collective's (CWRC) vision for education to learn new ways to become *with* the world and to expand notions of justice to include the ecological (2020). It also aligns with what feminist scholars such as Donna Haraway (2016), Val Plumwood (1993) and Rosi Braidotti (2020) have long emphasised; that future ecological survival requires an ethics that attends to the relationality of human and more-than-human worlds. However, this is a significant paradigm shift for many educators working within a Western education system. This is because a relational worldview challenges Western education's predilection towards individualism, progress, and mastery. It requires what Red River Métis environmental scientist Max Liboiron describes as a feminist and anticolonial approach to humility. According to Liboiron, humility involves 'bringing attention to how there's no such thing as an individual accomplishment—you've only accomplished something because of your web of relations' (Gutiérrezi and Libroiron 2019, Universalism vs humility section, para.4). As white settler women researching on land that has never been ceded, we approached this project with humility. For example, by noticing and attending to our own relations with weedy worlds we are able to focus on learning *with* (rather than exclusively about) weedy landscapes. Understanding our own connectedness with weedy relations, reminds us of our accountability towards learning to live well with weedy worlds.

Situating the project

The project involved Karen, the first author of this paper, walking with a wetlands ecosystem and twenty-six six- and seven-year-old children and their educators. Mindy, the second author of this paper would sometimes join the group for these walks. Whadjuk Elder Marie Taylor explains that before colonisation, the wetlands were known as Gabbiljee or the watery place at the end of Derbarl Yerrigan (Bateman Park 2024). Further, Taylor describes Derbarl Yerrigan (Swan Estuary), Gabbijee and its connecting waterways has having spiritual, cultural and historical significance for the Whadjuk Noongar[2] language group who have been the custodians of Boorloo for over 40 000 years (Bateman Park 2024). Over several months, Karen and Mindy

engaged with critical walking practices (Springgay and Truman 2018) as they walked-with weather, creek, trees, insects, soil, birds and most significantly, a plant commonly known as Bracken Fern (see Figure 1). Noticing it growing prolifically along the creek bed and in bushland besides the path, Bracken Fern was hard to ignore. Over several months and despite a transition from the cool Djeran season to wet and cold Makuru and then to warm and windy Djilba, Bracken Fern was always present in varying stages of living and dying. However, despite its overwhelming presence, Bracken Fern was largely ignored during the walks, remaining in the background as the children participated in various activities such as cubby building, collecting insects and testing the floatability of paper boats in the creek.

After speaking with the educators involved in the project, Karen learnt that within the Gabbiljee locality, at least by the shire, Bracken Fern is viewed as an invasive weed (City of Melville 2013). The council, various volunteer groups and the school involved in the project had been working together to try to eradicate it from the area. Consequently, Bracken Fern was ignored during the walks because it was seen as a pest and destructive to the ecosystem. Since Karen was already developing hesitating practices (Nociti 2022), this presented as an opportunity for slowing down and considering the taken for grantedness and partiality of this way of thinking (Stengers 2008). Hesitating created space for Karen to consider how they might have approached Bracken Fern in their previous role as an early childhood educator. Karen's education has largely been influenced by a Western worldview and like many Western models of environmental education, this translates into pedagogies focussed on teaching children how to care for or fix up environments impacted by human activity (Nxumalo and Pacini-Ketchabaw 2017). However, these types of approaches are in fact human mastery disguised as good moral

Figure 1. Bracken Fern, Gabbiljee.

judgement (Singh 2018). Aligning activities such as weed pulling and tree planting with social justice, normalises the idea that only humans have agency over how environments are shaped and used (Taylor 2013) and does not account for the interconnectedness of ecological systems (CWRC, 2020). By amplifying certain weedy ideas, bodies and voices, these approaches reinforce binary thinking and play into the colonial desire for a return to a 'pure' and romanticised nature (Taylor 2013)

Curious about the pedagogical potential of making visible otherwise weedy ideas, bodies and voices, we set about experimenting with and developing vulnerable reading practices. This involved taking hesitating one step further by enacting what philosopher Isabelle Stengers describes as 'reclaiming' (Stengers 2008, 51). Reclaiming involves (re)learning the ways in which we think, write, and read and in ways that prompt thinking, feeling, and imagining as opposed to theorising. In other words, if hesitating makes visible the partiality of dominant weedy narratives, then reclaiming (enacted through vulnerable reading) is a form of resistance against its influence on environmental education.

Vulnerable reading

We view vulnerable reading as 'operating in a middle region' where we acknowledge our own vulnerability to dominant discourses but at the same time, we are active in resisting its effects (Butler 2016, 17). There is no formula for how to read with vulnerability. Rather, we have developed an eclectic collection of practices in response to each reading. To assist with this process, we draw insights from Julietta Singh's (2018) postcolonial scholarship on reading against mastery and from others who have developed vulnerable reading practices in feminist environmental humanities (see for example, Kate Rigby 2015 and Stacey Alaimo 2016). It was also helpful to read and think-with a feminist conceptualisation of vulnerability (Butler 2016). From a feminist viewpoint, vulnerability is always in 'relation to a field of objects, forces, and passions' and therefore dependent on situated relational encounters (Butler 2016, 16). This conceptualisation aligns with the relational ontological positioning and the multiple, overlapping, and complex discourses we are thinking-with throughout this inquiry. If vulnerability is seen as dependent on relations, then it requires an openness to uncertainty (Singh 2018). Consequently, the vulnerable reading practices presented in this paper resist certainty that leads to foregone conclusions (Singh 2018) and make room for 'somethings' to emerge.

Reading with vulnerability is challenging work because in Western educational spaces, reading is systematic and about the acquisition of knowledge. To further support the development of our reading practices, we work with Anna Tsing's concept of weedy landscapes (2017) and thick time (Neimanis and Walker 2014) to help frame our thinking. These concepts challenge Western perspectives of time and space, reminding us that humans cannot ever achieve mastery over nature. Next, these concepts are introduced, along with an explanation how thinking-with these concepts supports reading and thinking with vulnerability.

Weedy landscapes

Anthropologist Anna Tsing describes landscapes as assemblages of material and imaginative 'gatherings in the making' (Tsing 2017, 7). Thus, *weedy* landscapes are sites where multiple elements have assembled and dispersed many times over and in various configurations to 'negotiate collaborative survival' (Tsing 2017, 7). We see Gabbiljee as a weedy landscape since it has materialised *because of* a combination of situated 'physical geographies, phenomenologies, and cultural and political commitments'. Bracken Fern has not only survived this world-making, but it has also flourished. However, we are careful not to label Bracken Fern (or any other plant) a weed within this weedy landscape. This would position the plant as an object to be mastered

and controlled, a logic that leads to binary thinking. It would also simplify the reasons behind Bracken Fern's invasive trajectory within the landscape by placing blame on its individual characteristics as opposed to a consequence of a complex network of relations (Frawley and McCalman 2014).

Understanding Gabbiljee as a weedy landscape comprising of multiple past-present-future weedy worlds helps direct our attention towards noticing the specific relations within the landscape that allow for certain weedy ideas, voices and bodies to be amplified and others to remain in the background.

Thick time

The concept of thick time is proposed by Neimanis and Walker (2014) as a way of (re)framing the temporality of popular climate change discourse. In contrast to Western perspectives of temporality, thick time is proposed as a 'transcorporeal stretching between present, future, and past' (Neimanis and Walker 2014, 558). Neimanis and Walker draw on intra-action as a way of understanding the world as materialising from relations, always emergent and in motion (Barad 2007). Critical to this framing is the shift in the type of response thinking-with thick time illicits. This can be seen throughout Tonya Rooney, Mindy Blaise and Jo Pollit's (2019) weather walks with children, Place, and weather. When Place is understood as something trees, rocks, soil, insects, children, and more are weathering together then the focus shifts away from activities designed to teach children about weather and/or Place. Instead, weather walks invite responses that activate attunements to the interconnections' with and within multiple worlds (Blaise, Rooney, and Pollitt 2019). The concept of thick time is embedded in our vulnerable reading practices as a way of shifting our thinking away from responses that ask how we might 'fix up' or restore impacted ecosystems. Instead, we are prompted to ask ourselves questions such as 'how are we Gabbiljee'? Or 'how are we weedy'?

Next, we experiment with a collection of vulnerable reading practices as we read and think-with five Bracken Fern stories. The eclectic collection of stories weave across genres, temporalities, species of Bracken and geographical scales. This is intentional since we are attending to Tsing's observation that 'landscape assemblages arise in the juxtaposition of varied modes of making worlds' and we are interested in cultivating new and otherwise weedy assemblages (Tsing 2017, 16). When read with vulnerability, each story is an invitation to know, think and do otherwise with Bracken Fern. Following an introduction to each story, vulnerable reading practices are used as a way of locating Anthropocentric logics within the story and in the wider context of environmental education. This is followed by a discussion about what a vulnerable reading of the story can do for educators tasked with planning environmental curricula.

We invite you to try vulnerable reading practices for yourself. While reading these stories we encourage you to practice humility, to be curious and to sustain an openness to 'not quite' knowing.

Eradication Story

Many introduced plant species pose a serious threat to Western Australia's natural areas and waterways. If invasive species are left uncontrolled they can significantly alter our bushland by out-competing our native species. This impacts our native fauna by altering the natural habitat and food sources available. It can also increase fire loads and promote more frequent fires which further degrades our bushlands. Often weed species respond faster post-fire and if fires are too frequent they can deplete the seed bank of many native species.

In waterways, aquatic weeds can threaten our systems by; removing dissolved oxygen from the water resulting in fish kills, or by forming dense mats that congest waterways, preventing

sunlight penetration and smothering our native vegetation. They can also be unsightly and reduce public amenity.

(South East Regional Centre for Urban Landcare 2023)

Situating Eradication Story

Eradication Story is an excerpt from a website dedicated to a group involved in the management and control of Bracken Fern, along with other 'invasive' plants from the Gabbiljee area.

While reading the Eradication Story, did you notice how certain words position weeds in particular ways?

For this reading, we are inspired by Kate Rigby's (2015) analysis of the ways in which language works to frame discourse about human and non-human relations. Situated in Australia, where bushfires regularly threaten lives and homes during increasingly warmer summer months, Rigby's work analyses stories told in the aftermath of a bushfire disaster (2015). She surmises that the language used in disaster narratives frame how these events are conceptualised, consequently determining how humans respond. For example, Rigby problematizes the term *natural* disaster because it assumes disasters such as bushfires are solely caused by physical phenomena, thus eradicating the role humans play in global warming and ignoring the complexity of multiple and overlapping interrelations (physical *and* cultural) at play (Rigby 2015). Similar to Rigby troubling the term natural disaster, we noticed there are words in Eradication Story that presuppose a nature and culture binary (2015). More specifically, we noticed how words such as *introduced*, *invasive* and *uncontrolled* position the plant as something requiring management, whilst language such as *threat*, *out-competing* and *uncontrolled* evoke a sense of impending disaster (Frawley and McCalman 2014). Furthermore, naming introduced plants as *unsightly* reinforces the logic that the main purpose of the wetlands is for the enjoyment of humans.

The implication that weeds alone are the cause of multiple problems for the ecosystem is problematic since this ignores the complexity of 'biological, ecological and environmental forces' at in play in a weedy landscape such as Gabbiljee (Frawley and McCalman 2014). For example, humans, along with weeds, soil, seeds, weather, waterways, and more are simultaneously assembling Gabbiljee (Tsing 2017). If we think of Bracken Fern's trajectory as dependent on its relations with other elements (both physical and cultural), our focus shifts away from management and control and towards responses that consider how we might learn to live well with 'weedy presents and futures' (Head, 2014, 89). This renewed focus makes space for otherwise ideas, bodies, and voices, such as the large variety of insects that feed on Bracken Fern and the Quenda who rely on its shade and shelter after fire. It reminds us of our connectedness to insects, Bracken Fern, fire and Quenda and our accountability towards caring for the relations we share with multiple weedy worlds.

Colonial Story

'You boys go and get some more heather and bracken while we clear away and wash up,' said Anne. 'That is if you mean us to camp here another night.'

'Yes. I think we will,' said Julian. 'I think we may find things rather interesting here this week- end!'

Julian went out with Dick and they brought in a great deal more bedding. Everyone had complained that the hard floor came through the amount of heather and bracken they had used the night before, and poor George was quite stiff.

(Blyton 1998)

Situating Colonial Story

Colonial Story is an excerpt from the book *Five Go to Billycock Hill* from the Famous Five fictional series by English children's author Enid Blyton. In this story, five English children go camping in the countryside. When setting up camp, the children locate Bracken and Heather to use as bedding. The following morning, they seek to find more after an uncomfortable night's sleep. Whilst not situated in an Australian context, this story was chosen for its many references to Bracken Fern and as an example of the ways in which hierarchical logics are often normalised in Western children's literature (Taylor 2013).

While reading Colonial Story did you notice how descriptions, collecting, and Bracken-filled beds normalised human-environment binaries?

For this reading, we attend to Veronica Pacini-Ketchabaw and Meagan Montpetit's (2019) observation of children's literature, as often depicting humans as having power, influence and/or agency over non-human worlds. Our vulnerable reading of Colonial Story focuses on noticing and then tracing the origins of this type of hierarchical logic. For example, we notice how Bracken Fern is positioned as an unlimited resource, passive in the composition of the story. Bracken features regularly in the Enid Blyton Famous Five series, most often as a resource for which the children use to make comfortable beds. Given its historical use as bedding and flooring, it is not surprising Blyton refers to it for this purpose (Jackson 2014). This repetitive 'collecting' plotline, along with the image of abundant fauna behind the children as they lay in their Bracken-made beds (see Figure 2) make it appear there is a never-ending supply of the plant for the children to collect and use.

Colonial Story normalises how settler societies have historically positioned the environment as a resource for human use. For example, throughout colonial history, various species of Bracken Fern has been used in the production of soap and glass and has been a key ingredient in bleach, dye and fertilizer, all products that ensure the comfort of humans (Jackson 2014). Acknowledging this logic as distinctly colonial, we are reminded that 'no single cosmology can order a landscape alone' (Tsing 2017, 16). Further, Liboiron's anticolonial scholarship reminds us that a universal worldview turns 'diverse landscapes into "universal" ones, erasing place' (Gutiérrezi and Libroiron 2019, Universalism vs humility section, para.2). Liboiron's observation that 'universalism can't see everything' is the impetus for our next story (Gutiérrezi and Libroiron 2019, Universalism vs humility section, para.3).

Figure 2. Illustration from *Five Go to Billycock Hill*.

Bush Medicine Story

Common Names: Bracken Fern, Bracken, Common bracken, Austral Fern and Austral Bracken.
Noongar Names: Manya (Denmark area), Munda (Perth area)
Parts Used: The leaves, stems, tips and roots.
Medicinal Uses: Infusions of the crushed leaves were used externally as washes to relieve sores and rheumatic pain. They were also taken internally to treat intestinal worms, including tapeworms. Infusions of the leaves and stems were applied externally to relieve arthritis. Juice from the young stems and crushed leaves was rubbed into the skin to relieve insect and ant bites.
(Hansen and Horsfall 2016)

Situating Bush Medicine Story

Bush Medicine story is an excerpt from a Noongar Bush Medicine Guide. Importantly, the guide is co-authored by Vivienne Hansen, a Noongar woman whose Grandfather was a healer and passed on to her 'a deep understanding and knowledge of traditional bush medicine, remedies and practices' (Hansen and Horsfall 2016, x).

When reading Bush Medicine Story, did you notice how easy it is to value bush medicine as less than Western medicine or to make comparisons to Western medicine or past and present?

To read Bush Medicine Story with vulnerability requires a deliberate shift away from the desire to make comparisons between Noongar healing practices and Western medicine or between past and present medicinal knowledge. This type of thinking is a product of colonialism and the failure of European settlers to notice the sophisticated healing practices used by Aboriginal peoples for over 50 000 years (Hansen and Horsfall 2016). Instead, we think and read-with Noongar knowledges in relation to temporality, situatedness and healing.

The Noongar people's knowledge of weather patterns, constellations, and plant and animal lifecycles act as a guide to noticing and understanding seasonal changes (Hansen and Horsfall 2016). This knowledge is situated according to the specificity of the Noongar dialect group (Hansen and Horsfall 2016). The seasons played a vital role in medicinal practices since it determined the availability of certain plants and the methods used for extraction of saps and liquids (Hansen and Horsfall 2016).

A vulnerable reading of Bush Medicine Story is an invitation to reconfigure our relations with Bracken Fern. It does this by challenging the labelling of Bracken Fern as a weed. Secondly, by resisting comparisons between past and present, it emphasises the idea that worlds materialise through past-present-future relations (Barad 2007). A number of early childhood educators and academics recognise the potential for thinking-with Indigenous knowledges for this same reason (see for example, Hamm 2015, Nxumalo 2016 and Ritchie 2017). Of particular relevance to this inquiry is Margaret Somerville and Sarah Powell's (2022) long term bushfire project with young children at an early learning centre situated at the foot of the Blue Mountains in Sydney, Australia. Somerville and Powell (2022) shared Aboriginal stories with the children as a way of seeing 'bushfire as opportunity rather than absolute destruction' (303). They describe the sharing of these stories as a process of becoming-*with* the multiplicity of relations affected by seasonal bushfires. This project and others are situated within a larger network of transdisciplinary research with similar aims. For example, in Western Australia where this research is situated, Noongar singer Clint Bracknell, Noongar and Yamatji performer Trevor Ryan, social ecologist Pierre Horwitz and interdisciplinary scholar Jonathon W. Marshall bring together 'scientific and

Noongar perspectives on ecology' for the purpose of enhancing people's relations with local landscapes (Bracknell et al. 2022, 407). Like these projects, we have noticed how a vulnerable reading of Bush Medicine Story is an invitation to notice otherwise relations and to become-*with* Bracken Fern's multiple pasts, presents and futures.

Speculative Story

Situating Speculative Story

Speculative Story is a visual story created by Karen, the first author of this paper (Figure 3). Inspired by a creative workshop where Karen and other researchers experimented with visual ecologist Aviva Reed's ecological portraits (2022), Speculative Story was created *in situ* as Karen sat, sketched, painted and imagined-with Bracken Fern, creek, layers of leaf litter and the dry heat of Bunuru. Speculative Story is an exploration of 'soil imaginaries'; a speculation of what lies beneath the elements of Bracken Fern visible to the human eye (Reed 2022, 35). Karen is not a practising artist and the decision to include Speculative Story is steeped in vulnerability and uncertainty. She feels vulnerable because educators and researchers are expected to be masters of their craft. Its inclusion offers potential for reconciling binaries between science and art, life and death, past and present and human and more-than-human worlds.

Did you notice how easy it can be to ignore this story? Because it has been created by one's imagination, it is sometimes easy to dismiss it as simplistic and futile to a worthwhile inquiry

A vulnerable reading of this tangle of rhizomes, roots, organisms, water, soil, fungi and more is full of uncertainty. How do you read or tell a story like this? Where is the beginning, middle, and end? There is a sense of uncertainty because who knows what messages a reader might draw from the picture. Embracing this uncertainty, we found thinking-with Reed's conceptualisation of kin and decay generative because they are inclusive of the complex and multiple agents contributing to the formation of weedy landscapes (Reed 2022). For example, thinking-with-kin is an invitation to 'step into a space of matter memory' with Bracken Fern worlds (Reed 2022, 32).

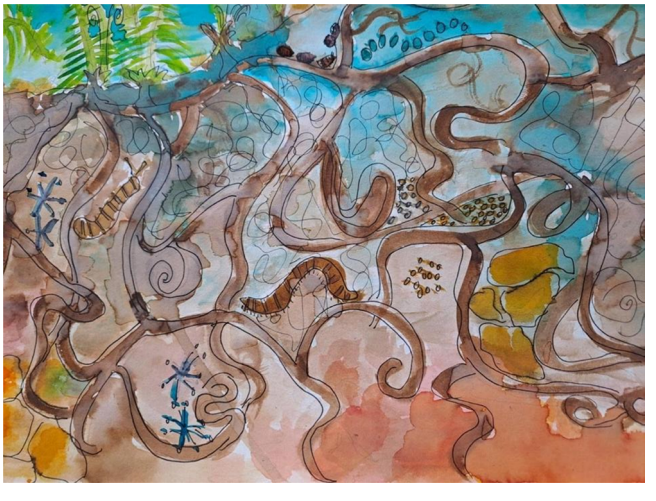

Figure 3. Beneath the Bracken (Nociti, 2023).

Reed's observation that 'our ancestors are in the soil' (2022, 31) resonates with the history of the Gabbiljee landscape since during a period of colonisation, there were several incidents of violent exchanges between the Beeliar group and settlers to the area (City of Melville, n.d.). A vulnerable reading of Speculative Story invites the reader to notice ancestral blood intermingled with rhizomes, soil, bacteria, and water past, present and futures. It reminds us that the formation of the present is in synergy with pasts and futures (Reed 2022). Reading and thinking-with decay draws attention to the continuous cycle of life and death occurring above and below the soil's surface (Reed 2022). This is important when thinking-with weedy landscapes because it demonstrates how responses aiming to eradicate weeds only contribute to the assembling of new and otherwise worlds (Tsing 2017). Furthermore, expanding pedagogies to include kin and decay times has the potential to uncover 'the ways in which settler colonialism is entrenched and reified in educational environments' (Bang et al. 2014). Drawing inspiration from Megan Bang (Ojibwe and Italian descent) and colleague's examples of practices for (re) storying Chicago as Indigenous lands, we speculate that tracing and making visible the complex relations between Gabbiljee, Bracken Fern, colonial and Noongar histories supports a shift towards (re)storying Gabbiljee as first and foremost Noongar Country (Bang et al. 2014).

Spell Story

'The fern-seed right and left I strew,
Mer-man, for your babies three;
I grieve that I did wrong to you.
Fern-seed maketh eyes to see.'

(Baring-Gold 1885)

Situating Spell Story

Spell Story is an excerpt from a fairytale published in 1895 and titled *The Shephard's Daughter*. Written by English author Sabine Baring-Gould, *The Shepherd's Daughte*r speaks of a duchess who is sailing on a large lake occupied by mermen (Baring-Gold 1885). The duchess angers the mermen by using her knitting needles to determine the depth of the lake, consequently blinding three mer-babies. One of the mermen places a curse on the duchess's son. That night the duchess has a dream in which she is told to collect the seeds of a fern and scatter them over the lake. The following day, the duchess follows suit and recites a spell (the excerpt for Spell Story) as she disperses fern seeds across the water of the lake, thus restoring the sight of the mer-babies.

Some species of Bracken, amongst other varieties of fern, feature prominently in European folklore (Dutta and Hasan 2023). The origins of fern's prevalence in mythology are attributed to its anatomy; because ferns regenerate through spores instead of seeds or flowers, early botanists were unable to explain their capacity to reproduce and consequently ascribed the fern as having magical properties (Dutta and Hasan 2023). Turning to mythology for explanations for what could not be scientifically explained was common practice during medieval times and when witchcraft was prominent. (Dutta and Hasan 2023). Although Spell Story is not explicitly situated within the context of Gabbiljee, its inclusion is intentional as we were curious to see how a vulnerable reading might open up spaces for thinking-with Bracken Fern's relations with spell worlds.

Do you notice when reading Spell Story, it is tempting to dismiss it as a work of fiction? And how this reaction is easily taken for granted as a certainty?

In the Western world, stories with magic defy the rational logic that something must be seen to be believed and/or to be true. When reading Spell Story, it can be tempting to dismiss it

as untrue or perhaps look for a rational explanation behind the existence of the tale. However, this type of reading would only lead to certainty and a guarantee we are right in 'knowing' fairytales can only be read as works of fiction. Therefore, for this vulnerable reading, we intentionally hesitate to make space for noticing ways magic, witches and spells might teach us about living well with weedy worlds (Pignarre & Stengers, 2011). In Australia, where this study is situated, European fairytales and folklore are predominantly found within the English discipline and it is unlikely a tale with magic would be shared as part of environmental curricula, which is situated in the Science discipline. This is also true for Aboriginal dreaming stories that are typically presented as an alternative 'mode of understanding and interpretation rather than "real" events' (Watts 2013). However, these texts present opportunities for 'dialogue with and against dominant cultural texts' and afford openings for challenging Western explanations of worldly phenomena (Cutter-Mackenzie, Payne, and Reid 2010). For example, for those who practice witchcraft, magic is central to environmentalism (Campbell 2021). Some branches of ecofeminism are grounded in the work of the witch Starhawk, who 'centred modern witchcraft around the Earth and nature and espoused a mutual relationship between those who wield magic and the Earth' (Campbell 2021, 34).

For modern day witches, magic has the potential to disrupt human-nature binaries through the repetition of relational rituals with the non-human world (Campbell 2021). Thinking-with witchcraft extends beyond this potential; talking seriously about spellcraft has the power to activate thinking that other worlds are possible (Pignarre & Stengers, 2011). More specifically, taking seriously the techniques used by witches has the potential to support a 'sensibility to think and act' (Goffey 2011, 10). This potential lies in the belief that the effects of rituals can be attributed to a power extending beyond the technician themself. For witches, this power is inherent and autonomous; characteristics that cultivate a disposition to make some sort of consequential response. A vulnerable reading of Spell Story requires an openness to these possibilities. This means instead of dismissing Spell Story as fiction, we consider the ways in which witches have always lived well with Bracken. This practice activates (rather than closes off) thinking, opening up possibilities for the generation of pedagogies that support learning, thinking and becoming-with weedy landscapes.

Becoming-with multiple weedy worlds

We shared these stories, along with others, with the educators before, during and after our walks with Gabbiljee. We also modelled our developing vulnerable reading practices by sharing our feelings of uncertainty about not always having the answers. Our vulnerable reading practices amplified weedy ideas, bodies and voices that challenged the depiction of Bracken Fern as an invasive weed. Over time, we noticed a shift in how we related to and with Bracken Fern. For example, during one of the walks, the educators intentionally pointed out Bracken Fern and shared with the children some of the stories that we had been reading and thinking-with together (see Figure 4).

Most significantly, Bracken Fern was no longer ignored or dismissed as 'just a weed' but instead was seen as an important part of the landscape. We noticed how more attention was given to noticing relations. This included the relations between Bracken Fern, insects, insects, soil, fire, Noongar histories, weather (and more) but also the relations the children and educators share with these elements of the landscape. The stories made visible a much bigger story of which we are all a part of.

This paper proposes vulnerable reading as a methodology for amplifying the weedy ideas, bodies and voices that would otherwise have been silenced by the influences of the educators' and our own worldview in relation to the Anthropocene. It required practices informed by a relational ethics and a feminist conceptualisation of vulnerability. Layered with hesitating and

Figure 4. Encountering Bracken Fern.

humility, the vulnerable reading of five Bracken Fern stories made visible the multiplicity and complexity of Bracken Fern worlds. This type of reading is important if environmental education is to move beyond pedagogies that focus solely on social justice, towards those that include both ecological and social justice. In addition, vulnerable reading practices troubles settler emplacement by making room for Indigenous pasts, presents and futures. Troubling the use of language (as in Eradication and Colonial Story), thinking-with multiple ways of knowing (as in Bush Medicine, Speculative and Spell Story) and sitting-with uncertainty (as in Speculative and Spell Story) are practices that have made visible the multiple weedy worlds that we are all a part. They are practices that activate and sustain thinking as opposed to the closed-off certainty that characterises reading for knowledge. For educators tasked with designing environmental curricula, vulnerable reading supports a shift towards pedagogies inclusive of multiple ideas, bodies and voices and is an example of ecosocial justice in action.

Notes

1. Contemporary Western perspectives are representative of diverse schools of thought and there are examples where non-Western knowledges have been respectfully embedded in environmental curricula (Paulsen, Jagodzinski, and Hawke 2022). This paper is concerned with the aspects of Western society operating from a system of binaries, for example nature vs culture, mind vs body and modern vs indigenous knowledges (Latour 1993).
2. The Whadjuk Noongar people are an Aboriginal clan who share a common ancestral language belonging to a large region situated in the southwest corner of Western Australia (Bracknell 2020).

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