A Year in Waa Weelum: Growing with/in an Australian natural dye garden

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ABSTRACT

'Growing Waa Weelum' is practice-based research located in the natural dye garden at RMIT University, Brunswick campus (*Naarm*/Melbourne, Australia). *Waa Weelum* ('home of the crow') is a precedent for tertiary education natural dye gardens in Australia, and the 3-year project focuses on strengthening relations between people, plants and place. One year in, we reflect on what it means to learn with/in Waa Weelum, and the critical role of fashion and textiles education in growing local knowledge networks to enact transition design as part of 'planetary civics' (Johar 2023). This development paper presents reflections on three emergent and interconnected areas at this stage in the project: the garden as a slow living lab for fashion and textiles education; potentials for regenerative futures in education garden sites; and the importance of growing local and collective knowledges in Australia.

Research activities explore approaches for generating and sharing creative, community-connected fashion and textiles knowledges. Initial nature-based learning activities have extended fashion and textiles education practices beyond the studio and into community engagement and interdisciplinary learning; and in combination with findings from garden case studies, have opened future directions for knowledge exchange. A year of observation aligned with the Indigenous seasonal calendar of the Kulin Nations has also revealed tensions around restoration and transitions toward regeneration in an Australian context, where settler-colonisation has violently disrupted traditional knowledges. The project development highlights the ethical imperative to collectively grow and value creative, and local knowledges that are sensitive to cultural contexts; and integrate an appreciation for and understanding of indigenous plants and localised approaches in fashion and textiles education. As a practice-based research project, *Growing Waa Weelum* contributes an Australian perspective to local and relational approaches to change (Camrass, 2023; Fletcher and Tham, 2023; Reed, 2007).

Keywords: Dye Plant Garden, Nature-Based Learning, Regenerative Futures, Decolonising Knowledge Systems, Living Systems

INTRODUCTION

Waa Weelum (‘home of the crow’) is a name given by Yaluk-ut Weelum and Boon Wurrung Elder, and RMIT Elder in Research, Professor N’Arwee’t Carolyn Briggs, to the land of RMIT University’s Brunswick (*Bulleke-bek*) campus. Originally established in 2018, the *Waa Weelum* dye garden was untended during COVID-19 lockdowns and revived in 2022 as restrictions eased. When we joined the garden care group in 2022, we noticed only one native plant species in the landscape design, a Silver-leaved Mountain Gum. The beds were otherwise planted with introduced species notable for their dye properties. We observed high plant loss over warmer months as plants struggled in the south-eastern Australian climate. It raised the question: Where were the endemic dye plants? As we began searching for these plants, another question emerged: How are knowledges about local dye plants held? This shaped the direction of the ‘Growing Waa Weelum’ project (GWW) to explore and foster relationships between people, plants and place through collective, culturally sensitive, and creative educational activities in a dye garden.

GWW is practice-based research (2023-2026), aiming to contribute an Australian perspective to design for change, through fashion and textiles education. One year in, we reflect on what it means to learn with/in *Waa Weelum*, and the critical role of fashion and textiles education in growing local knowledge networks to enact transition design toward regenerative futures. This development paper reflects on three areas:

1. potentials for regenerative futures in education garden sites;
2. the importance of growing local and collective knowledges in an Australian context; and
3. the garden as a slow living lab for fashion and textiles education

LITERATURE REVIEW

Regenerative futures

United Nations Sustainable Development Goals (United Nations, 2015) and Planetary Boundaries (Stockholm Resilience Centre, 2023) highlight the need for systemic, coordinated change to address global challenges of environmental degradation, biodiversity, climate emergency, and inequity. We have already crossed six of nine Planetary Boundaries, which are critical thresholds defining safe limits for maintaining a stable, resilient Earth (ibid.).

Indy Johar (2023), Donna Haraway (2016) and Earth Logic (Fletcher and Tham, 2023) invite us to explore ways of living and learning in an entangled world by recognising interdependency and cocreation, and embracing diverse ways of knowing. Johar (2023) describes ‘planetary civics’ as a global transition toward a dematerialised economy rooted in creativity and care, transforming material systems to prioritise circularity, and upholding the autonomy, agency and sovereignty of Indigenous

peoples and the more-than-human. GWW aligns with academics and practitioners who foreground respect, reciprocity and relationality for sustaining social innovation processes and designing change (Braidotti, 2022; Petrella et al., 2020, p. 24; Fletcher et al., 2019; Fletcher and Grose, 2012; Akama, Hagen & Whaanga-Schollum, 2019; Haraway, 2016; Akama and Yee, 2016). We look to Reed's (2007) living system approaches as pathways toward regeneration, and as educators, draw on nature-based practices aimed at enhancing Earth's resilience (Vasconcelos and Calheiros, 2022). Reed (2007 p.677) notes that "reconnection to place … would help foster the shift from sustainable design to restorative and regenerative design."

Local and collective knowledges

Underpinning this project are principles of 'commoning', a relational process of maintaining or reproducing shared life, and 'mutuality', an experience of caring and being cared for by the surroundings we are part of. Olivia Hamilton's framework (2018, pp. 128-134) describes how commoning processes help cultivate mutuality in creative projects, design teaching and pedagogy. Processes of tending a garden, and relations with/in a garden, can become pathways through problems associated with transactional or exploitative systems, orienting toward relations and environments that prioritise care, emergence and exchange. This recognises human and more-than-human agencies with/in garden spaces, and addresses the self-determination of plants beyond fashion and textiles material production (Andrée, 2024), positioning the garden as a space for mutual growth and regenerative action.

McCaw (2022) frames tertiary learning experiences outside the classroom as living systems approaches. Members of the Nature-Based Learning Collaborative Research Network (Jordan and Chawla, 2019) workshopped a definition of nature-based learning: gaining knowledge, skills, and values through exposure to nature and nature-inspired environments. Nature-based learning can take place in natural or built settings with elements like plants, animals, or water. It occurs across all ages, in diverse settings, and with varying formal and informal structures, fostering environmental awareness and academic or personal growth. Education gardens fit within this definition, providing opportunities for hands-on learning and exploratory activities.

In an Australian context, nature-based learning is aligned with learning on Country. From an Australian Aboriginal perspective, "Country and everything it encompasses is an active participant in the world, shaping and creating it. It is far from a passive backdrop to human experience" (Bawaka Country et al., 2015, p.270). Country is foundational for First Nations ontologies and epistemologies, which are deeply connected with living systems. Jade Kennedy (Yuin) outlines the national agenda to embed Aboriginal and Torres Strait Islander Knowledges and perspectives within Australian tertiary curricula since the Bradley Review (DEEWR, 2008), which called for improved Indigenous education outcomes through cultural competence and valuing

Indigenous Knowledges and perspectives (Burns 2013 cited in Kennedy et al., 2019, p.149). Kennedy introduces 'curriculum reconciliation' encouraging academics to "reflectively reconcile their own disciplinary knowledge with Aboriginal Knowledges that are situated in the Country on which they teach" (Kennedy et al. 2019, p. 149). This suggests how an Australian dye garden can integrate nature-based discipline learning with First Nations ways of thinking, doing and being.

Education dye gardens

Education dye gardens are worldwide, from Takasaki Dye Botanical Garden (Japan) to The Mothership in Tangier (Morocco), and Museum Tekstil Jakarta (Indonesia). In the UK, fibre and dye gardens for tertiary education include Nottingham Trent University's Waverley Dye Garden, the Roof Terrace Dye Garden at Central St Martins, the Fashion Revolution Dye Garden shown at Royal Horticultural Society Chelsea Flower Show in 2022 (relocated to Headington School in Oxford), and a natural dye trail in the Cambridge University Botanic Garden. In North America there is The Textile Dye Garden at New York's Pratt Institute and Cornell Natural Dye Garden within Cornell University's Human Centred Design.

Our review of plant knowledge gardens in Australia focuses on natural dye, indigenous plants, and tertiary education. Despite numerous tertiary education dye gardens internationally, and numerous community edible gardens (Westmeadows Indigenous Community Garden), private dye gardens (Heather Thomas), and groups sharing dye plant knowledges (Natural Dye Group, Friends of the Royal Botanical Gardens Victoria), the literature review and community of practice mapping identified *Waa Weelum* to be a standalone in Australia, noting that Australian Indigenous Communities' cultural practices of collecting plants for fibre and dye on Country is connected to custodianship of landscapes rather than gardens (Cumpston et al. 2022, p.12).

METHODOLOGY

GWW is led by a cross-cultural team, with Indigenous Leadership from Professor N'arwee't Carolyn Briggs (Yaluk-ut Weelum, Boon Wurrung) and College Senior Reconciliation Advisor Cathy Doe (Irukandji). Research activities are undertaken by creative practice researchers, Dr Tarryn Handcock (white, non-Indigenous), Verity Prideaux (white, non-Indigenous) and Cathy Doe. Initial exploratory research activities (Table 1) cultivate creative and community-connected fashion and textiles knowledges (nature-based learning).

Table 1. Emergent and concurrent research inquiry using practice-based methods

Relations (human and more-than-human)	**Literature Review -** Experiential education and place-based knowledge sharing	A review of tertiary dye gardens, nature-based learning, sustainable and regenerative practices, more than human, creative commons.
	Workshops & Community Engagement	Facilitating workshops, walk and talks, citizen science events and discussion panels with the general public and undergraduate student coursework.
	Waa Weelum Garden Observation Journal - Fashion and Textiles critical reflective practice	Discussion and making processes for critically reflective practice research documented via observational note-taking, photos, film, audio and video recording.
Plant Knowledges	**Literature Review -** dye and fibre plant investigation*	A comparison of indigenous and non-indigenous plants for dye and fibre practices. A consideration of First Nations knowledges, local ecologies and overlays to inform plant choices.
	Community of Practice - local garden case studies	Exploration of *Naarm*/Melbourne based gardens with fibre and dye plants. Study of education gardens wayfinding, plant signage and communication of First Nations perspectives and knowledge.
	Waa Weelum Garden Observation Journal	Use of a digital journal to track tending, planting, harvesting and to observe local ecologies and more-than-human inhabitants. Organised in alignment with the Indigenous seasonal calendar of the Kulin Nations.
	Material Archive*	Exploration of plant-based dye and material fashion and textiles potentials through creative practice, critical reflection, and workshop activities.
**Outside the scope of this development paper*		

Community of practice local garden case studies

Gardens within 1 hour of *Naarm*/Melbourne were selected for a community of practice study (Table 2). The gardens are studied through site visit walks and recorded using drawing, photography, video and note taking. This reflects an embodied and situated approach to understand relations and knowledges with/in gardens.

Table 2. Community of Practice, select indigenous plant and tertiary education gardens

Gardens	***Sharing plant knowledges***	***Indigenous plant gardens***	***Tertiary education gardens***
Royal Botanical Gardens Victoria (RBG), *Naarm*/Melbourne	x		
Milarri Garden, Melbourne Museum, Carlton	x	x	
Systems Garden, University of Melbourne, Parkville	x		x
Aboriginal Garden, Monash University, Clayton	x	x	x
Earth Sciences Garden, Monash University, Clayton			x
Nangak Tamboree Wildlife Sanctuary, La Trobe University, Bundoora	x	x	x
Ngarara Place, RMIT University, *Naarm*/Melbourne		x	

Waa Weelum garden observation journal

Observations are recorded in a digital journal aligned with the Eastern Kulin Nations seasonal calendar, which recognises seven seasons defined by patterns in living systems rather than set dates (Bunjilaka Aboriginal Cultural Centre, 2024). Informed by Indigenous storytelling as co-production of knowledges with/in/as place (Bawaka Country et al., 2015; Cumpston et al., 2022, p.21), qualitative entries document activities, observations, experiences with/in the garden (Figure 1).

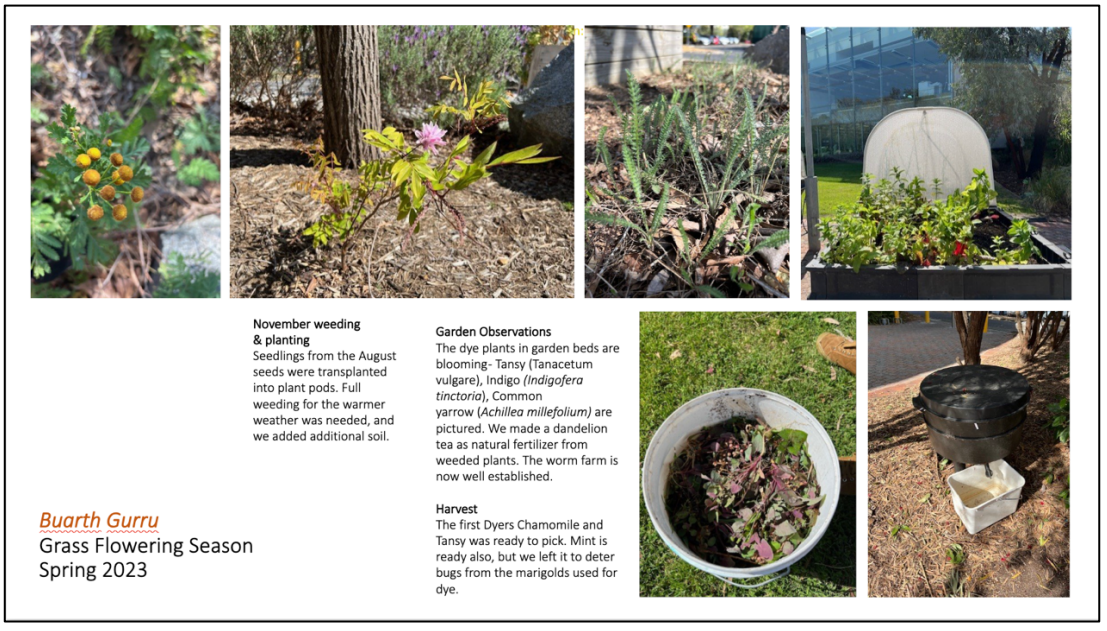

Fig. 1 Page from *Waa Weelum* Garden Observation Journal – *Buarth Gurru* 2023

Nature-based learning and engagement

Activities with/in the garden include coursework, community planting, citizen science events and public workshops. Fashion and textiles coursework engages students with circularity, responsible practice, and natural dye skills. Interdisciplinary workshops enhance ecoliteracy, with interior design students testing soil health and mapping plants as environmental health indicators for the bioregion. Campus community members participated in planting, harvesting and citizen science events supporting sustainability education. Contributions to the Aussie Backyard Bird Count and Sustainability Week through BirdLife Australia and iNaturalist feed into the Atlas of Living Australia, an open access platform mapping Australian biodiversity.

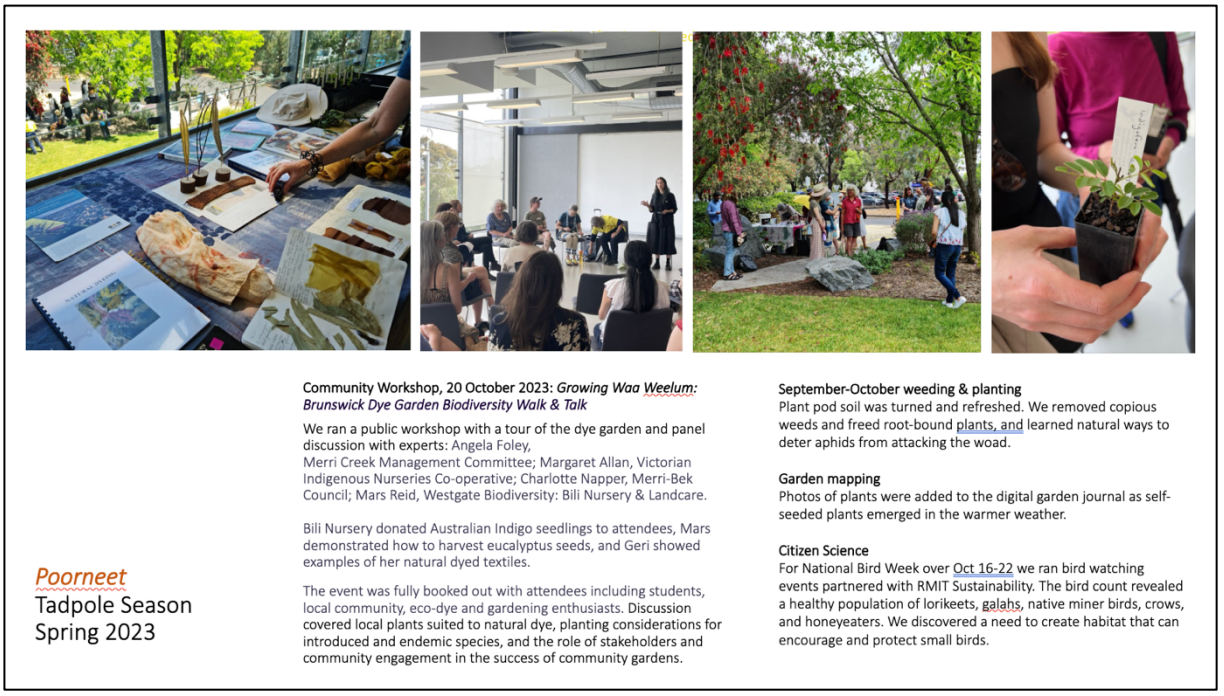

Fig. 2 Page from *Waa Weelum* Garden Observation Journal - *Poorneet* 2023

Community engagement events (Figure 2) include a ‘walk and talk’ with local council, indigenous plant nurseries, environmental restoration agencies, dye artists, and public attendees. In 2024 we ran two public workshops for Melbourne Design Week (Figure 3) which focused on sharing natural dye knowledges and colour sampling with/in *Waa Weelum*.

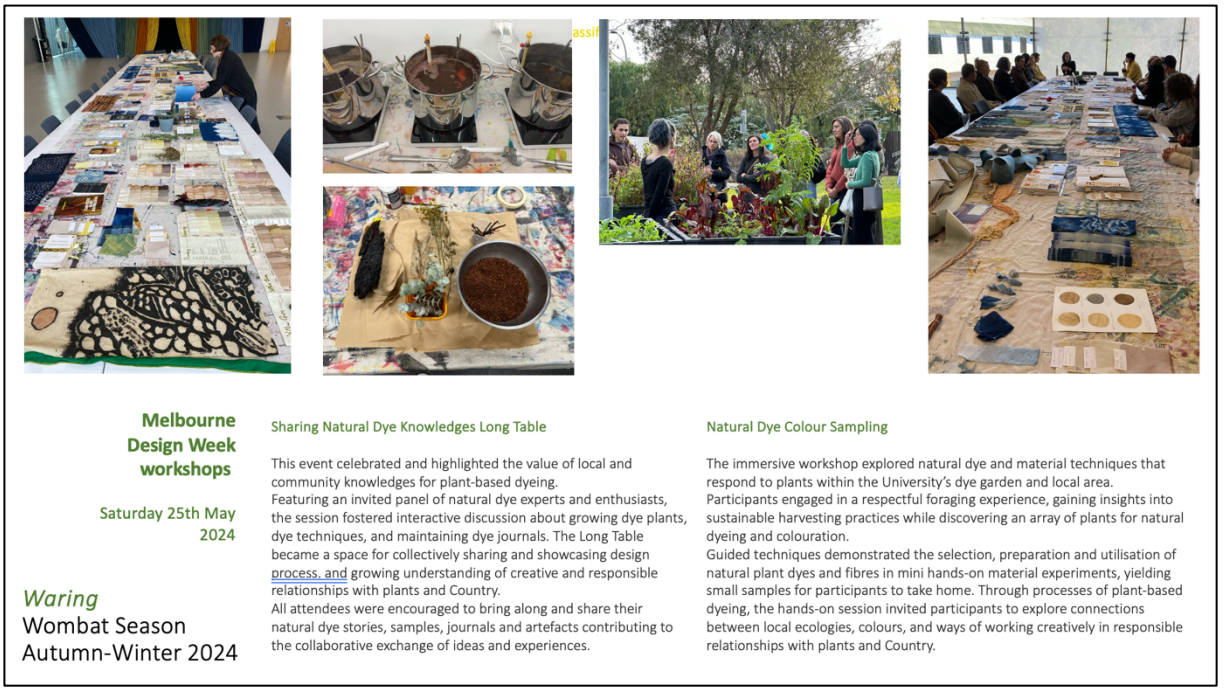

Fig. 3 Page from *Waa Weelum* Garden Observation Journal - *Waring* 2024

RESULTS AND DISCUSSIONS

Garden case studies analysis (Table 3) revealed that Systems Garden was organised by taxonomic hierarchy; and except for Milarri Garden, all prioritised sharing plant knowledges using Linnaean taxonomic systems and Latin over Indigenous languages. We reflected *how* sharing plant knowledges shapes education, noting that privileging Western systems thinking perpetuates these frameworks.

Table 3. Community of Practice local garden case study, summary of knowledge overlays

Garden Location	***Organising plant knowledges***	***Indigenous plant knowledges***	***Digital overlay of knowledges***
Herb and Medicinal Collection, Royal Botanical Gardens Victoria (RBG)	 Signage privileges Western systems and taxonomies for plant classification, with Latin name first. Newer signage includes pictograms indicating uses: food, medicinal, poison, scent, insect repellent, dye. Only one dye plant was signed, although many were present.	 Garden signage uses Woi Wurrung language and reflects Traditional Owners' connection to Country. Design was led by First Nations people and International Indigenous Design Charter principles.	 QR codes link to multimedia information about collections; digital commoning emerges through diverse perspectives in the digital space.
Milarri Garden, Melbourne Museum	 Signage privileges Australian Indigenous languages and names these first. Signs indicate when the Aboriginal name is unknown or is being sought from Traditional Owners and Custodians. Signs indicate relational networks in place (e.g.	 Garden design features only plants used by Australian Indigenous peoples for food, technology and medicine, and was created in collaboration with First Nations people.	-

	plants, people and moths).		
Systems Garden, University of Melbourne	 Older signage privileges Western taxonomies for plant classification, using Linnean taxonomic hierarchy and garden beds are organised by family (the 'system' of the garden). Signs indicate country of origin for the collection.	 Newer signage includes pictograms indicating use: food, scientific, botany, medical, economic or Indigenous peoples' use.	 Signs include image-based information and QR codes which link to related open resources; digital commoning emerges through open sources, online resources.
Aboriginal Garden, Monash University, Clayton	 Signage privileges Western systems and taxonomies for plant classification, using Latin name first.	 Garden design features plants native to south-eastern Australia, valued by Indigenous peoples for the health of all life on Country. Written signage indicates Australian Indigenous peoples' plant use (food, fibre, medicine/poison, tools/technology). No dye plants are signed, although some are present. Garden was established by	-

		ethnobotanist, Dr. Beth Gott.	
Nangak Tamboree Wildlife Sanctuary, La Trobe University	 Signage privileges Western systems and taxonomies for plant classification, using common name first then Latin name and lastly Indigenous name and language group.	 Landscape design applies ecological restoration and regeneration principles. Signage focuses on plant relations with living systems. Some Aboriginal cultural plant practices are shared.	-

In the two tertiary education gardens featuring native plants, signage highlighted only one plant with dye properties. A literature review (beyond the scope of this paper) revealed limited documentation of native dye plants in south-eastern Australia, beyond Acacia and Eucalyptus. This knowledge gap may stem from disruption and destruction of First Nations knowledge systems, Indigenous Cultural Intellectual Property protections, and alternative valuations and modes of knowledge exchange of endemic plants. Analysis suggests opportunities for more local, interdisciplinary and cultural approaches to understanding and sharing Australian plant dye practices.

Consciously aligning observations with the Kulin calendar brought awareness to relational systems and imbalances in the garden (like early flowering, absence of small birds), and revealed patterns in *Naarm*/Melbourne's volatile weather. It encouraged a living systems perspective (McCaw, 2022), grounding the work in principles of interconnectedness, diversity, and change. The observations suggest that environmental and institutional relations need to be addressed together for education gardens to achieve ecological praxis. We found that cycles of tending the garden are time consuming, and not as highly valued in institutional spaces as outcome-driven activities. On reflection, cycles of gardening are transformative rather than repetitive (Bennett, 2001, p. 39) and, when conceptualised through commoning, become a pattern of performative meaning creation, where tending-together generates mutual value for human and more-than-human inhabits of the space (Bollier and Helfrich, 2015, pp. 84-85).

Through coursework and community engagement, we found that actively being with/in

the garden is nature-based learning that fosters understandings of local biodiversity, circular systems, disciplinary skill sets, ethics, cross-cultural exchange, and commoning. These enabled us to build relationships and gain insight into native plants suited to natural dye, planting considerations, and the role of stakeholders and community in the success of commons and education gardens.

CONCLUSION

Waa Weelum is a site for critical enquiry into materials used in fashion and textiles practice and provides a platform to interrogate ethics of extraction, pace of cultivation, and care for land and Country. So far, we have found that nature-based learning and engagement activities with/in the garden can increase awareness of more-than-human agencies, inform future planting, contribute to community development, and form an approach to responsible material relationships with place. A year of observation revealed the garden's entanglement in environmental and institutional ecologies that determine what emerges or flourishes in the space.

The project development also highlighted the importance of this research in the Global South. Growing Waa Weelum is situated on unceded First Nations land, where settler-colonisation disrupts traditional knowledges, including environmental, seasonal, material, and plant-based practices. There is limited documentation of cross-cultural exploration of dye properties of endemic plants in south-eastern Australia, revealing the importance of developing cultural and ecoliteracy skills and sensitivities within a local context, to enable ethical integration of indigenous plants and material knowledges as part of fashion and textiles education.

Next steps are deeper analysis of the garden case studies and observational journal, with key findings informing future planting, signage, education and commoning activities. Findings from the research will inform principles for landscape development as part of RMIT's sustainability and landscape masterplans, and set a precedent for establishing and maintaining a tertiary fashion and textiles dye garden for an Australian context.

ACKNOWLEDGEMENTS

This research takes place on the unceded land of the Wurundjeri Woi Wurrung and Boon Wurrung language groups of the Eastern Kulin Nations. In this paper, Woi Wurrung and Boon Wurrung language is italicized and Elders and Community have granted permission for the public use of these words. The research team acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land, sky, air, water, animals, spirits and stories across Australia, and recognizes First Nations peoples' continuing connection to Country. We pay our respect to Ancestors and Elders, past and present, and to Traditional Owners and

Knowledge Holders of all Indigenous nations and language groups who have been instrumental in this research project.

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