

aaee 2021

Mandjoogoordap: Changing Tides

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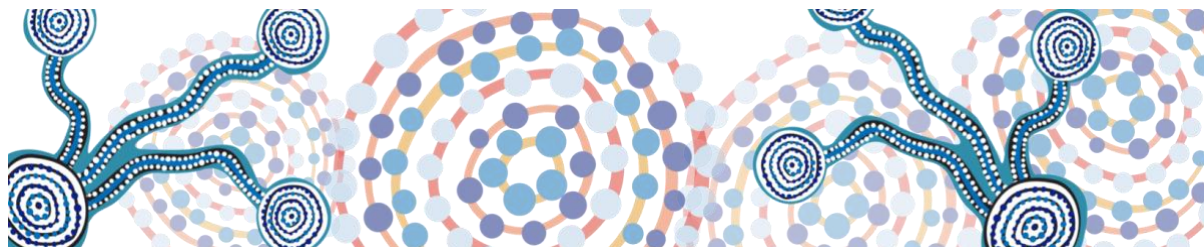
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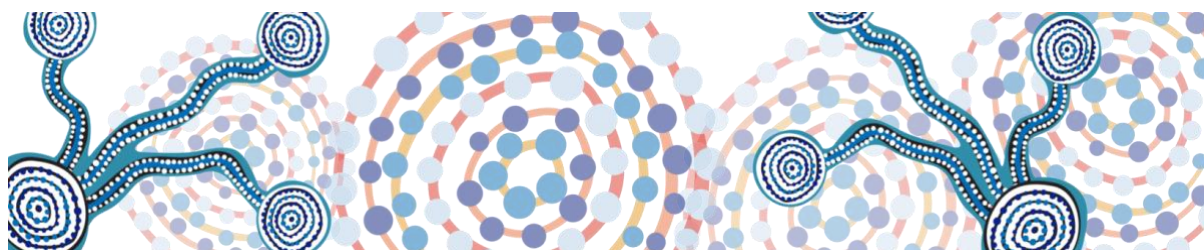
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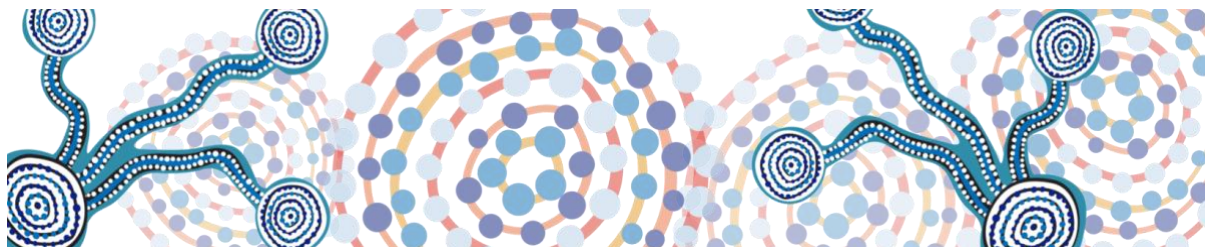
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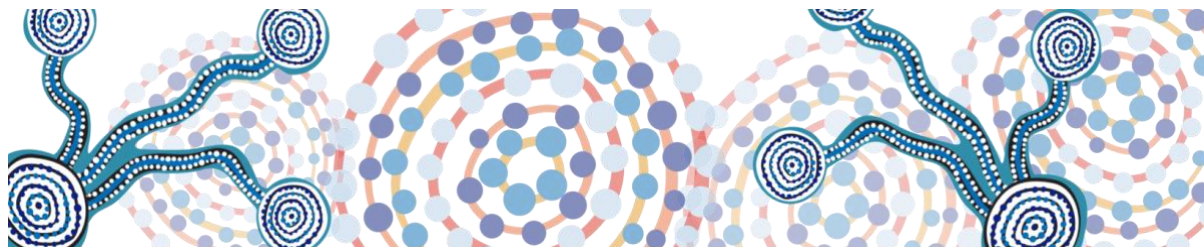
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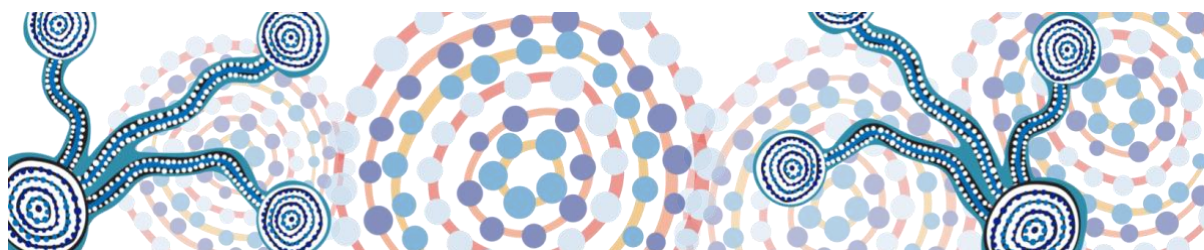
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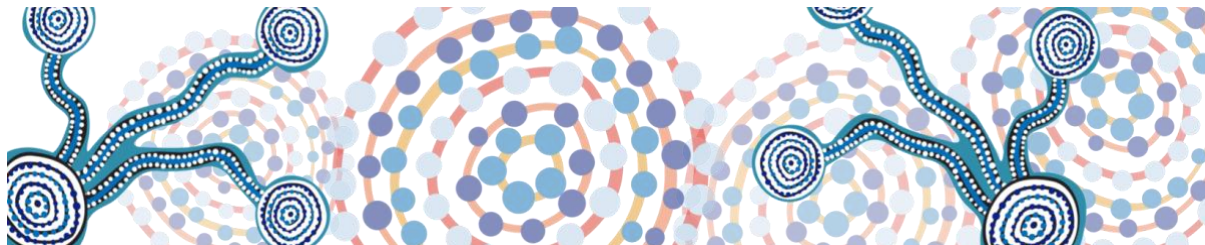
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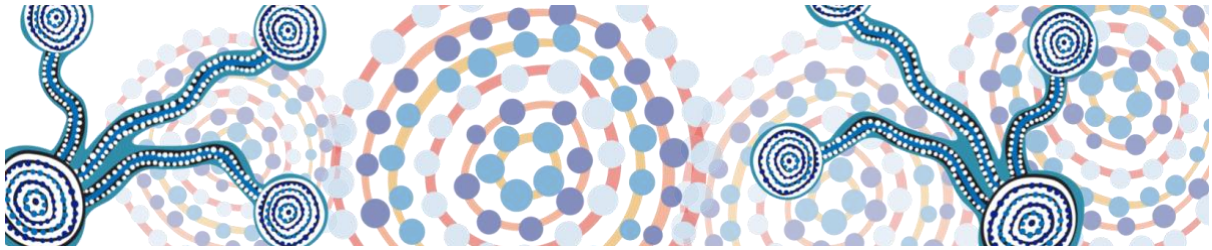
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DAY 1 MORNING (KEYNOTE PRESENTATIONS)

Boardwalk Theatre Tuesday 9.20 -10.50 WST (Live Streamed)

Resilience and the Adaptive Cycle

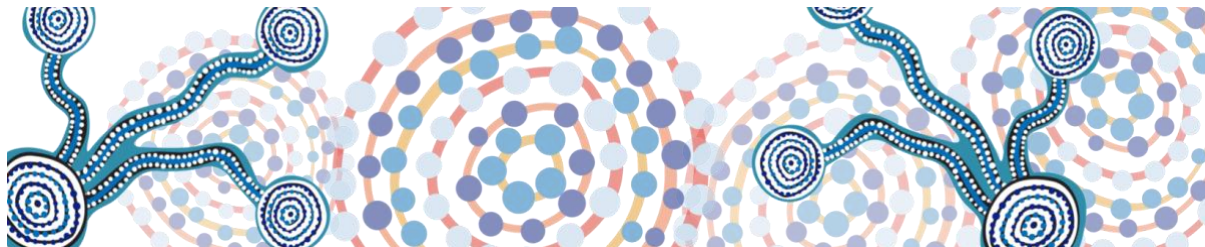
Nicole Hodgson (WA) (Keynote Speaker)

This presentation will introduce the concept of Resilience, and the Adaptive Cycle as a way of understanding both the natural world and the human world, and the way these two worlds influence each other. These crucial concepts of Resilience and the Adaptive Cycle will be described and illustrated with local examples. The focus will be specifically on using these concepts to understand how both positive and negative social and environmental change happens.

Reimagining old thinking for Jane Goodall's Roots & Shoots

James Forbes

Roots & Shoots began in Tanzania in 1991. The brainchild of Dr Jane Goodall, it has since spread around the world as a grassroots movement to more than 50 countries. In Australia, it has been present since the mid 2000s. The strength of Roots & Shoots is its mission to inspire young people to take action for animals, people and the environment. It empowers young people to believe they have agency, the power to choose how they will make a difference. The challenge with the program has been its very grassroots nature has meant the program has expanded and contracted on the basis of certain very driven volunteers. When that volunteer leaves, the program has contracted or stopped altogether. This session will explore how the current Jane Goodall Institute (JGI) CEO has sought to overcome those challenges, to overcome old thinking, by creating programs that drive awareness of Roots & Shoots but appeal to its audience: young people, in the place they are open to new information: school. But also, to establish elements that ensure continuity, irrespective of who is around to drive them forward. Through reorganising the program and bringing in new ideas to change the tide new ways of operating are emerging at JGI that means Roots & Shoots as an idea, will persist long after its eponymous founder is no longer around to inspire others to join Roots & Shoots. By linking to the growing space of environmental and sustainability education, JGI is creating curriculum aligned resources, workshops and more that support teachers, parents and students in their journey to understand Australia's unique natural environment and how they can take action today to make a difference. As educators, you can be poised to take up Jane's call to arms, and become an agent for her clarion call that "what you do makes a difference, and you have to decide what kind of difference you want to make."



DAY 1 MORNING (PRACTITIONER & RESEARCH PRESENTATIONS)

Boardwalk Theatre Tuesday 10.55 -12.30 WST (Live Streamed)

Sustainable Schools WA – A Whole-school Planning Framework for Education for Sustainability

Howard Flinders (WA) (Practitioner Presentation)

Sustainable Schools WA (SS-WA) has been designed and developed ‘by schools, for schools’ in partnership with a range of government and non-government agencies, led by the Department of Education.

In response to clear and ever present challenges to a sustainable future, passionate educators continue to effect positive change through their transformative, action-based teaching and learning programs.

This framework aims to support those educators, showcase good practice, and encourage the develop of whole-school approaches to education for sustainability.

The mandated *Western Australian Curriculum* includes a sustainability cross-curriculum priority; SS-WA aligns fully with this priority, providing additional support for schools to deliver on this requirement as part of their teaching and learning programs.

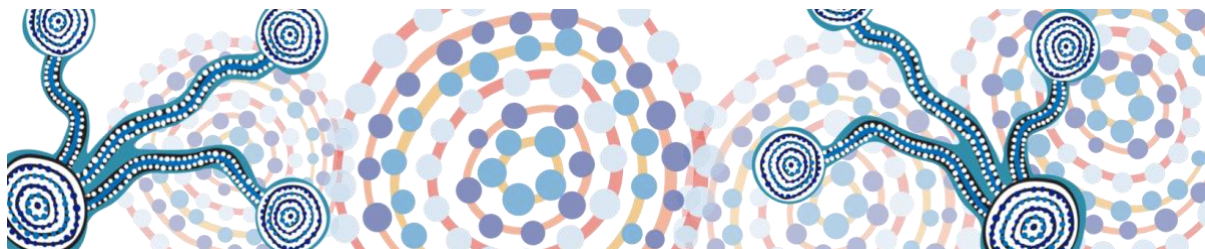
SS-WA reflects an holistic, interconnected definition of sustainability and, as such, provides ‘multiple entry points’ for school community members to engage with, and take action for a more sustainable future.

Having multiple entry points, and specifically those relating to SS-WA’s ‘social handprint’ concept, has facilitated broader connections to Department of Education strategies including its reconciliation action plan (in development), STEM and two-way science initiatives.

Kaadadjiny Boodja: STEM in a school bushland context

Elaine Lewis (WA) (Practitioner Presentation)

STEM education is vital in our rapidly changing world. For STEM education to be meaningful and empowering it needs to be focused on solving real problems identified by students themselves. This presentation will showcase such a STEM initiative. It is located at an urban primary school that includes an area of remnant bushland. This initiative, *Kaadadjiny Boodja*, is ongoing and has been implemented over many years, with different issued addressed at different times. In 2016 for instance, the students focussed on learning about butterflies and subsequently planting host plants for endangered local butterfly species, while in 2019 they created a bush trail with signage that incorporated their art and research findings, along with QR codes and Augmented Reality.



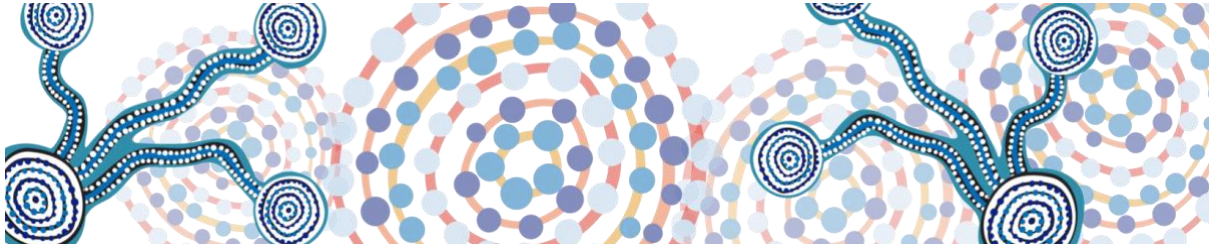
This presentation will share outcomes and impacts of this bushland STEM initiative. Local outcomes include enhanced care of the bushland, in an outdoor classroom STEM real-life meaningful context. Sustained engagement with Noongar educators and artists built positive community relationships and deeper understandings of Noongar knowledge and culture. Students communicated their findings with their peers, the whole school community, the wider local community, as well as other schools across the state, using a wide range of strategies. State impacts involved professional learning sessions across WA by the Department of Education, that included videos and student-created books about the bushland STEM initiative. National impacts have been demonstrated by CSIRO video recognition of the work the school has been doing in this field. Finally, international impacts have been shown through the school sharing this STEM initiative in workshops at recent World Environmental Education Congresses. In brief, this presentation will share strategies employed to enable a problem-solving STEM focus for the care of a unique, urban bushland area.

Reimagining STEM education and the Australian Curriculum through an environmental sustainability education lens

Annette Gough (Vic) (Research Presentation)

The close relationship between science and technology and responses to global environmental changes has been highlighted since at least the 1972 United Nations Conference on the Human Environment. In the intervening 50 years science and technology have grown in prominence as the way forward. Similar to much of the world, the Australian Government currently has a vision for society to be engaged in and enriched by science which has, as its prime focus, building skills and capabilities in Science, Technology, Engineering and Mathematics (STEM). This will require a significant transformation of citizens and society through appropriate education experiences. Simultaneously, the Government's policies and projects, including in education, ignore intergovernmental environmental initiatives, such as the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) as well as the Sustainable Development Goals (SDGs). For the government, STEM is a sustainability-free space, as is STEM education, yet the two should not be seen as incompatible, and indeed can be mutually supportive and generate greater student engagement with science if combined.

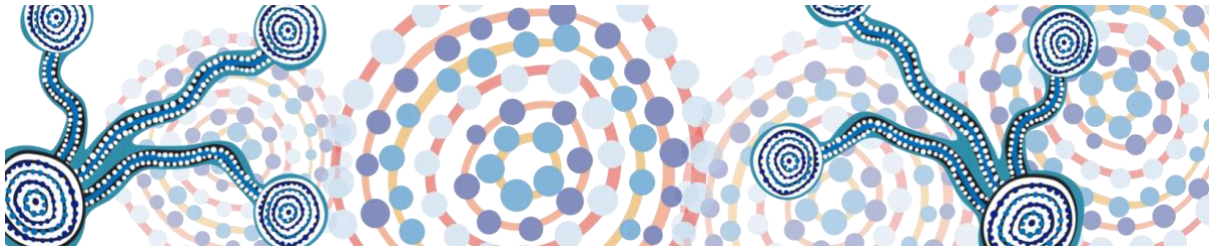
This paper critically analyses the Australian Government's STEM and climate change education policies and programs, through an environmental sustainability education lens and finds many, and growing, gaps and silences in these areas. It compares the Australian situation with STEM and ecological education related developments in several other countries. In the context of significant global changes such as the COVID-19 pandemic, this paper argues that it is time for the Australian education agenda to take the Government's international responsibilities seriously, include meaningful engagement with climate change and biodiversity related topics through environmental sustainability education in the school curriculum, and discusses what a reimagined school science curriculum could look like.



Regeneration: Environmental Education from the Heart

Sandra Wooltorton (WA) (Research Presentation)

In this presentation, we build upon the pedagogy called: *becoming family with place*, an approach to environmental education – and life – with First Nations wisdom at its heart. This is a regenerative approach to ways of knowing, being and doing. As per the [NAIDOC 2021 theme](#), *Healing Country means embracing First Nation's cultural knowledge and understanding of Country as part of Australia's national heritage*. It means truth telling about our past, and redressing historical injustice. Every Australian landscape is Indigenous and storied, and all Australians have an inherent right to learn that joy in place. This is our responsibility to care for place and its narratives, its histories and stories. It is the heart of Australian environmental education, our obligation to our Country, our people and our planet. As part of this presentation, we will describe some new directions in our environmental education research and practice: a regenerative approach.



Fish Trap Theatre Tuesday 10.55 – 12.30

Interpreting private landholder stream restoration practices

Dean Platt (Vic) (Research Presentation)

Relationships between people and place contribute to differences in people's perceptions and knowledge of waterways. Understanding these differences can guide more effective waterway management as waterway authorities rely profoundly on partnerships with landholders to conserve waterways. Waterway health outcomes and policies are grounded in science, which forms the basis of communication/education to landholders. It is possible though that landholders may not comprehend the messages bound in this science. Research using an ethnographic narrative analysis attempted to understand landholder practices, interpretations and relationships regarding river restoration and discuss the implications for river management communication, education and practice. The research focused around rural landholders and aimed to compare biophysical pictures to social pictures of waterway health.

Developed in 1999, the Index of Stream Condition (ISC) is regarded as an important milestone in benchmarking the environmental condition of waterways. It provides a detailed picture of river condition integrating data on five sub-indices – hydrology, water quality, streamside zone, physical form, and aquatic life. The ISC concept appears to disregard interacting with society, especially those with a keen knowledge of river health management, including farmers and landholders who manage frontages.

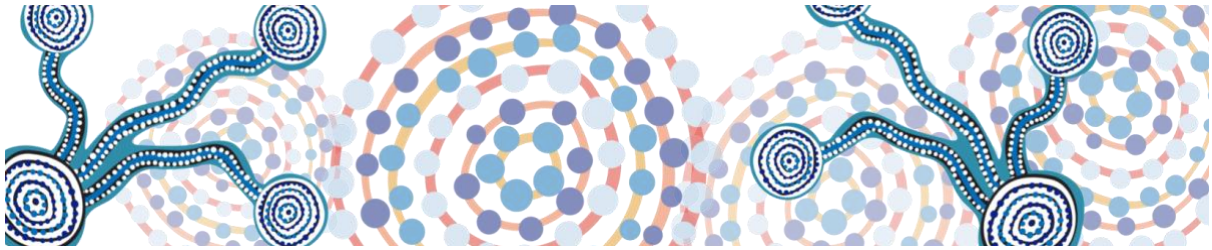
Ethnography is the deliberate 'witness-cum-recording' of human experiences. Thus this research project was a place-based narrative analysis. Landholders and their 'stories' is a 'discourse of familiarity' with their rivers, recorded through direct interviews. They are informants with a 'point of view' on river health and illuminate the 'social picture', whereas the ISC illuminates the 'biophysical picture' of river health.

This research reflected a need to integrate this 'social body' of knowledge to the current 'scientific problems and solutions' approach to waterway restoration. Common knowledge and differentiated knowledge existed.

Oh Poor Land. Can We 'Turn The Tide' Of Land Degradation Associated With Our Agricultural Industry? Come Join The Regenerative Farmers Movement.

Sylvia Leighton (WA) (Practitioner Presentation)

In Australia, over 66% of the landscape is managed by farmers or agricultural practitioners. Agriculture has been responsible for massive land clearing and the consequential decline of our nation's landscape health. In the State of WA another major challenge is the highly urbanised population (approx. 92%) with very little connection and knowledge of the agricultural industry. This divide of separation has increased dramatically over the last two to three decades.



This presentation will provide an outline of the history of agricultural practises in WA and the pressure for increased production. Our broadacre agricultural regions have shifted from a culture of family-owned businesses to large scale corporate style exploitative maximum profit operations. Loss of lifestyle, poor health and minimal interest from the younger generation to engage in this high stress industry sees continual decline in functional rural communities and is tragically decimating the natural ecological systems of our landscapes.

A small but ever-expanding network of farmers is trying to counteract this loss of our landscape health and reinvest in the components of agriculture that make up healthy rural communities and healthy land. Using Wilyun Pools Farm on the southcoast of WA and other farming operations around the state we will provide examples of an ever-increasing network of landholders trying to provide models demonstrating how to do things differently. It is time to challenge the agricultural industry to make effective and genuine changes and demonstrate their contribution to turning around the rapid decline of our landscape health.

Know Your Patch: Learning together, working together to conserve and enhance the local environment.

Joselyn Juraszek (WA) (Practitioner Presentation)

Know Your Patch is designed to connect young people with nature and empower them to act and care for their local environment. It provides students with hands on immersive learning in the outdoors getting them into their local bushland, explore what lives in it, what use to live in it and what threatens its long-term survival. Know your patch will challenge young people's existing ideas, create systems thinking and guide them on an investigative journey to develop an action-based project to protect and conserve their patch. With a focus on learning together and working together, students will have an opportunity to work with Parks and Wildlife Service, local experts, community groups and volunteers through real world experiences.

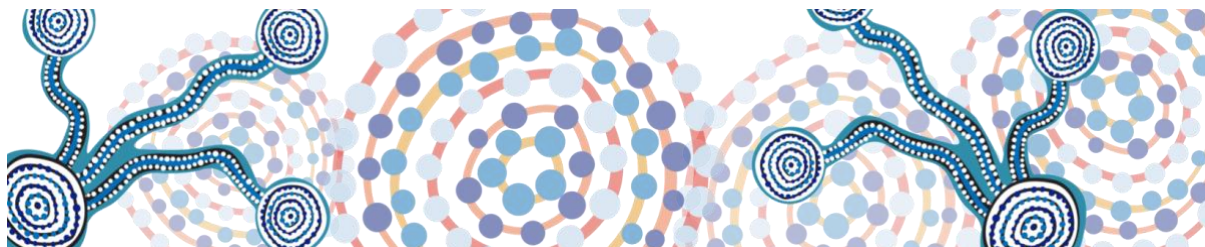
OzHarvest FEAST Program: Taking action on food waste and health in the classroom and community

Katharine Balson (NSW) (Practitioner Presentation)

OzHarvest is Australia's leading food rescue organisation rescuing 250 tonnes of food a week and delivering it to people in need. Whilst our food rescue operations ensure that surplus food gets to hungry people, it does not address the core of the problem.

Reducing food waste has been cited as one of the most effective ways of combating climate change (Project Drawdown) and with households wasting over two million tonnes of food a year in Australia, education is essential to change behaviour!

OzHarvest developed FEAST to educate and inspire primary school aged students (aged 9-12 years) about healthy eating, reducing food waste and sustainable eating practices in the home and at school. FEAST is aligned to the Australian Curriculum Key Learning Areas STEM and the cross-curriculum priority of Sustainability. Students are tasked with designing their



own recipes for a ‘School Cookbook’ to address these topics while educating and engaging their community.

By the end of the FEAST program students, teachers and caregivers will be able to:

1. Understand the importance of food waste issues on a local and global scale;
2. Recognise what behaviours can reduce food waste in the home/school;
3. Prepare, cook and eat nutritious food sustainably; and
4. Understand where food comes from, to make informed, healthier food choices.

The FEAST program incorporates creative classroom cooking with nutritional knowledge and food waste prevention to empower students. The FEAST primary school program has been recognised as a 2020 Banksia Sustainability Award Finalist, Global Compact Network Australia SDG program and has been delivered to 250 schools across Australia impacting 11,000 students.

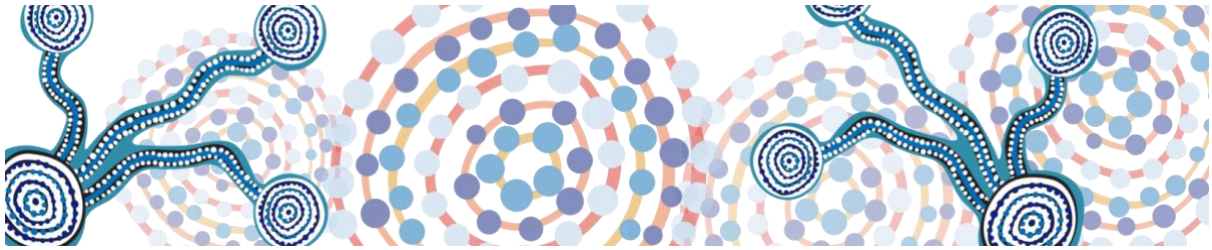
This presentation will explore the challenges of working to reduce food waste in Australian schools and how current education models and behaviour change theory can help to create powerful and effective programs that teachers want to implement.

Using a Problem based learning approach (PBL) and the United Nations sustainable development goals to solve the world’s wicked problems

Rachel Sheffield (Students) (WA) (Poster)

Educating citizens with a strong background in STEM-related knowledge and skills is a priority for responding successfully to pressing global challenges, as advocated by the United Nations Educational Scientific and Cultural Organization (UNESCO, 2016). These challenges include but are not limited to a range of environmental and community issues pertaining to the United Nations sustainable development goals (UN, nd). (Sheffield & De Kok, 2021)

In this unit, students selected one of the United Nations sustainable development goals (UNSDG) (UN, nd) and developed a solution to their own real-world ‘wicked’ problem. Using the Hasso-Plattner design thinking model (2017) they identified a problem, researched, ideated, prototyped and then trialed and tested a possible solution. Each of the UN sustainable development goals (SGDs) have targets to be achieved by the year 2030, and Australia’s progress towards achieving its targets are reported. Students found a real life problem in their lives that they wanted to investigate that they were then able to connect to the UNSDGs. This provided an opportunity for students to have unique, personal and perhaps vulnerable experiences as they struggled to design projects that stimulated their awareness of sustainable development values. Two key aspects of transformative learning theory have been embedded into the design of the unit to engage students deeply in the process and practicalities of problem-based learning (Taylor & Taylor, 2019). ‘Relational knowing’ involves students learning to connect empathically and compassionately with themselves, their community and the natural world. ‘Practical knowing’ involves students in developing their agency to take transformative social action in their community.



Dance Studio Tuesday 10.55 – 12.30

Futureproofing environmental pedagogy: Co-designing education for the climate emergency and addressing the affective dimension of crises for tertiary students and educators.

Tania Leimbach, Dr Jennifer Kent (NSW) (1hr)

The aims of the interactive workshop are two-fold: a) explore together the significant role that teaching and learning can play in illuminating tensions, contradictions and opportunities in the political economy, structured around four key areas: science and media literacy; critical awareness of business-as-usual; risk frameworks; and futuring methods for developing solution mindsets, b) examine together the experience of students and educators in Australian universities and their response to the delivery of 'crisis' subjects. As feelings of environmental grief, nihilism, eco-depression and climate anxiety become more common in the student body, educators need the knowledge and resources to help students deal with these emotional impacts. This is important for understanding the different ways that learning material can impact students on a subjective level; and inform the development of pedagogical strategies that support the integration of content and the efficacy of our future professionals, citizens and political leaders.

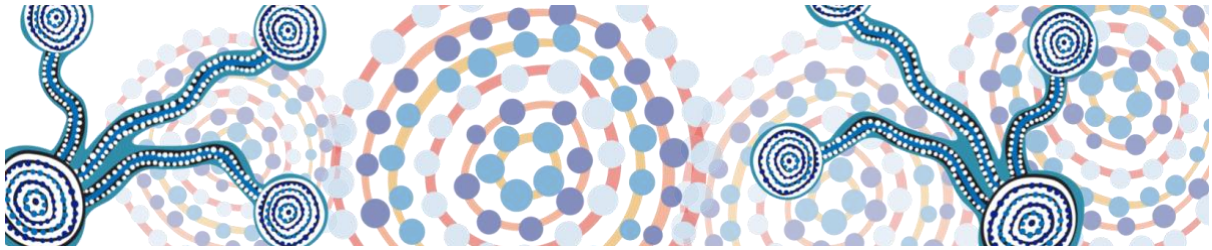
Utilising methods of collaborative learning and co-design, this session is based around a body of research whose aim is to engage with key questions of pedagogy in the tertiary sector and ways to better develop climate literacy; media literacy; risk framing and futuring methods for students. We will explore the affective dimension of 'crisis' through a facilitated dialogue and gather insights from participants who are engaged with these issues in order to share pedagogical strategies that can support the personal and professional agency of students and educators, and the co-design of a toolkit for climate educators.

Can environmental education build personal leadership, empowerment, environmental citizenship, and resilience amongst youth?

Pauna Truong (WA) (Research Presentation)

Young people are often prime targets for environmental education (EE) programs as they are in the transition phase of becoming adults. But are EE programs effective in equipping them with the skills to become future ethical decision makers? More often than not, EE programs are focused on delivering what program developers think participants should know, rather than what participants can do, perpetuating a knowledge-action gap. To bridge this gap, the development of personal capabilities, including leadership, empowerment, environmental citizenship and resilience is needed within EE programs.

This study examined two programs, the knowledge-based Climate Change School Tours (CCST), and the project-based Kids Teaching Kids (KTK), to explore whether participating in either of these programs had an impact on participants' perception of the four personal capabilities. Using a mixed-methods approach, the quantitative results revealed no significant changes before and after participation for both programs. However, the qualitative data showed some indication that participants in KTK felt some development in their personal



leadership, empowerment, and resilience, and was also inspired by their peers to change their own behaviours. Overall, project-based programs had more potential in developing participants' personal capabilities than knowledge-based programs. In light of these findings, developers should take into consideration the integration of certain components, such as project autonomy and mediation support, into their programs to enhance and nurture young people's personal capabilities in their journey to becoming future changemakers.

Changing Tides with community, business and government entities in remote and regional areas in Northern Australia

Ricki Hersberg (Vic) (Practitioner Presentation)

Plastic Oceans Australasia is dedicated to changing the world's attitude to plastic within a generation through educational programs underpinned by global scientific and marine research. Working with community groups, businesses, and individuals, we offer informative education programs to encourage schools and community groups to live more sustainably without plastic. The presentation will showcase the obstacles that remote communities face, how to overcome barriers to entry such as communication and funding models, environmental issues and COVID -19 fallout. We will share the positive outcomes to date and what is to be expected by the people, the environment for future change.

Community Stories and Sense of Place Enhances Nature Connection.

Sarah Way (WA) Poster presentation

As a zoologist and operator of WA ecotourism business *Ways To Nature*, my goal is to connect people with nature through direct experience. I lead guided nature walks and use these interactions to educate my customers about biodiversity conservation principles through interpretation content that is engaging and accessible.

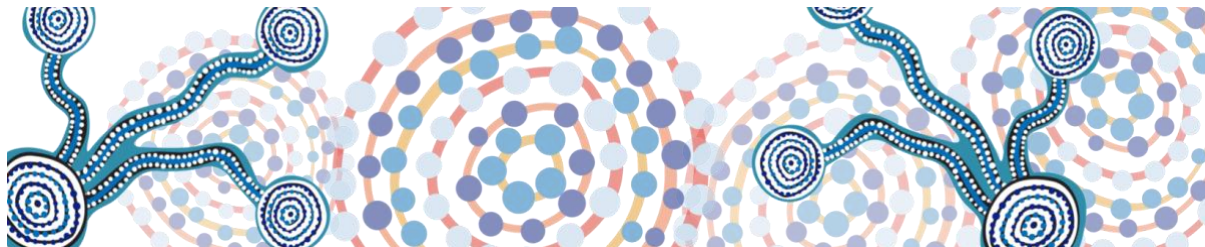
When designing my tours, my research into the Peel-Yalgorup wetland system where I operate was predominately scientific and focused on expanding my ecological knowledge to share with customers.

However, I also discovered strong emotional connections many different people have to these habitats, as well as a deep sense of environmental stewardship.

The Peel-Yalgorup wetlands not only provide important habitat for a diverse range of flora and fauna, they also represent a profound sense of connection and place for the Mandjoogoordap community - both indigenous and non-indigenous.

My tours are now enriched with stories of how the wetlands shape and influence our community – and vice versa. Stories of past community leaders and environmental activists who fought for years to protect the Creery Wetlands, stories of people who work to rehabilitate and care for our wetlands or who have been inspired to create art in them and just take pleasure from being present in them.

Learning about and experiencing this sense of place compliments the appreciation of the wetlands' ecological aspects and provides a more intimate connection with, and understanding of, nature in our lives.



Art Gallery Tuesday 10.55 – 12.30

Building a bandicoot brigade to protect our nose neighbours.

Charlotte Fletcher (Vic) (Research Presentation)

Southern brown bandicoots (*Isodon obesulus obesulus*) were once common throughout Melbourne and the Mornington Peninsula. As their heathy woodland habitat has been destroyed to make way for residential development, they have shifted further from the city, with the last suburban stronghold being the Royal Botanic Gardens at Cranbourne. These survivors, too, are being surrounded by new developments and now contend with a whole host of new neighbours. As residential expansion in South East Melbourne continues apace, we have an opportunity to try to build bandicoot friendly suburbs.

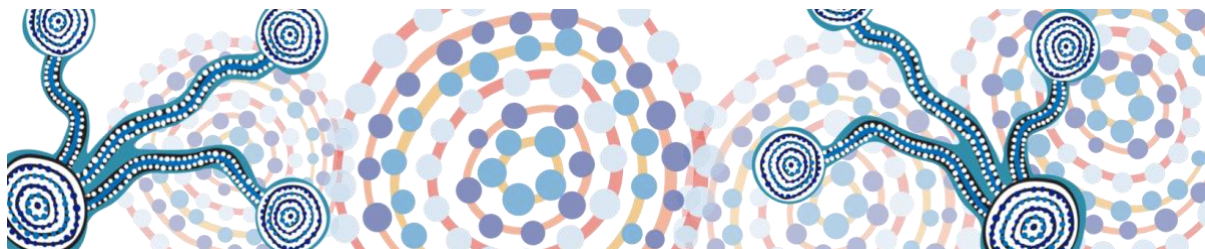
Our socio-ecological system has recently focused on minimizing contact between human residences and wildlife. Building designs feature six foot steel fences, and discussion forums feature threads on pest management, extermination, and low-maintenance fire-proof living. The dream of a patch of land with some grass to kick a ball means the pressure on cities like Melbourne to expand are significant. Simultaneously, many threatened species remain within city boundaries. Can we reorganize our approach to new suburbs to ensure growth doesn't wipe out the endangered species that live among us?

Previous research in the region shows bandicoots frequently use modified habitats, linear remnants and residential properties, and that residents of South-East Melbourne are tentatively optimistic about their nose neighbours, with a few recurring concerns. The Victorian Government-funded Southern brown bandicoot outreach program brings together community members, schools, developers and local council initiatives to further positive interactions between bandicoots and their new neighbours, and make the suburb a friendly place for everyone to live – not just humans. Two years into our program, we will discuss the core role values-based communication has played in being able to get the community on board the Bandi-wagon.

Learning with student climate strikers' humour: Towards critical affective climate justice literacies.

Eve Mayes (Vic) (Research Presentation)

A marked feature of the political tactics of the transnational School Strike 4 Climate movement (also known as Fridays for Futures and Youth Strike for Climate) is the use of humour on cardboard signs, digital memes and social media posts. Young people's cardboard signs, memes and social media posts frequently mobilise humour as public pedagogy and political intervention – to emotionally stir and to politically engage. While students' humour has been at times misinterpreted and its political force trivialised, these texts have simultaneously satirised capitalist colonialist extractivist logics and affirmed that 'another world is possible'. In this paper, I argue that student strikers' creation and mobilisation of



humour demonstrate a *critical affective climate justice literacy* that environmental educators have much to learn from.

Analysing three examples of humour in contemporary student climate justice activism, this paper intersects previous analyses of the potential of humour in social movement studies with recent calls from environmental education scholars to pay greater attention to the potency of emotion for climate justice education, beyond a rationalistic focus on climate science literacy. I extend these insights with work from language arts scholars who have argued the pedagogical potential of *critical affective literacy*: that is, critical engagement with how readers develop emotional relationships with texts, and how readers' emotional responses are forms of cultural politics. Bringing these insights into the environmental education setting, I ask: how might the student/ educator's laughing body be moved towards climate justice action?

At the same time, I explore the potential challenges and limitations of analysing students' climate justice humour in classrooms – particularly the cultural and contextual contingency of humour, the risk of 'killing' the joke through critical analysis or having a joke 'backfire', and current institutional conditions that make educators cautious about appearing to be 'too political' when teaching climate change.

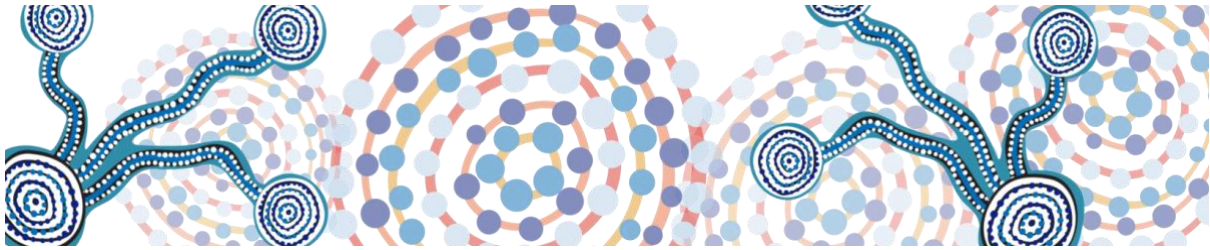
Whaddya mean we eat a credit card a week of plastic? Understanding microplastic loads through a robust citizen science approach.

Michelle Blewitt (SA) (Blewitt, M.; Tymoszuk, K.; Wilson, S) (Research Presentation)

Plastics are a major pollutant of our waterways causing significant harm to wildlife as well as causing social and economic impacts. Microplastics, including fragments, fibres, pellets or beads that are less than 5mm in size, are a significant component of these, however there is limited information on their sources and sinks in Australia. It is therefore imperative to identify how much is out there and where the hotspots are, so targeted abatement strategies can be implemented.

In Australia, however, the extent of knowledge on microplastic loads is very limited. The Australian Microplastic Assessment Project (AUSMAP) is seeking to address this through the creation of a national citizen science program for documenting types and amounts of microplastics on freshwater and marine shores. Launched in mid-2018, AUSMAP is designed to collect scientifically valid data on the prevalence of microplastics in the Australian environment through a practical citizen science methodology that utilises Environmental Education Centres and Marine Discovery Centres, as Regional Hubs for school and community-based activities. Through standardised collection and analysis techniques with rigorous quality control procedures and senior school curriculum material, ideal for middle and senior school students, this world leading program is raising school and community awareness on the issue, while assisting in management.

This presentation will provide an update on what monitoring groups have discovered, and how this information is helping to prevent microplastics entering waterways. Discover how you can be involved and the resources available to support educators with hands on learning to monitor and help create a healthier environment.



Rearranging the deck chairs or time for change? Opportunities for embedding EfS within waste education.

Katherine Gaschk (WA) (Research Presentation)

While there has recently been clear acknowledgement in the public sphere that the way society deals with waste must change, there has been little change in the way ‘information’ or ‘education’ about how to separate household waste is delivered. Current practice remains primarily entrenched in one-way communication strategies. This practice is driven by assumptions made by waste managers and educators that if ‘the information is available’ people will read and understand it and separate correctly unless they do not care. This research explored the accuracy of this assumption for a sample of residents within the southern region of Perth. A survey and interviews were conducted to examine *how* participants separate 19 common household waste items, *why* they make their choices, and *what* barriers and motivators they believe influence their decisions.

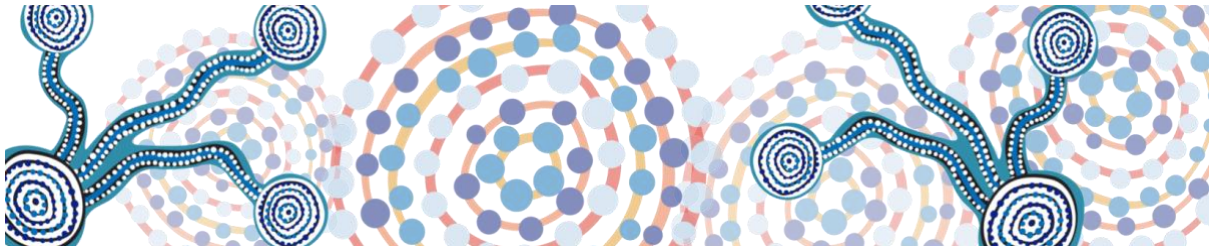
Results showed that despite positive attitudes, there was a low level of knowledge and accuracy in the separation of household waste items varied. The most consistently used information source was the Council Recycling calendar, while uptake of online information sources was poor. The most significant barriers identified by participants were limited knowledge and bin size/collection rates. Main motivators desired by participants were consistent with the barriers identified. Residents indicated a desire to correctly separate their waste and a need for change in the way information is provided. This has important implications for future education and engagement strategies that include the need for residents to more deeply understand waste management processes beyond a static list of ‘recycling rules’. It will be argued that opportunities exist for embedding EfS within waste education that develops individuals’ understanding of waste management systems and encourages them to think critically about the impact of their own waste behaviours within these systems.

Walking the Talk: The evolution of waste education and management practices in AAEEWA programs.

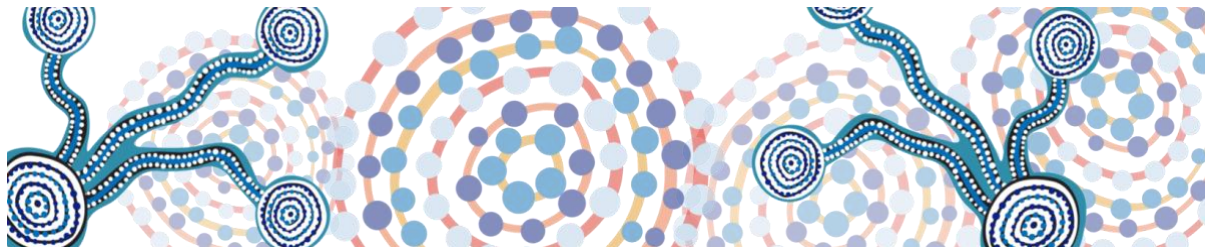
Katherine Gaschk (WA) (Poster)

The sustainable management of municipal solid waste is a challenging issue, where waste generation is the result of decisions made by individuals in their everyday life (home, shopping, workplace, recreation etc). Education is critical to influencing these decisions in achieving reductions in waste generation and effective waste management. The delivery of waste education within Western Australia varies widely across local and State government and are generally information based, with some programs actively engaging with participants.

The WA Chapter of AAEE challenged current perceptions around the delivery of waste education, asking “How can we model the delivery of EfS holistically, where waste reduction education is embedded within the processes, actions and outcomes of all AAEEWA EfS programs?”. We aimed to reduce the impact of our work, while including program participants in our own learning journey. In doing so, we demonstrated clear links between being innovative in addressing environmental issues and through the methods of engagement;



modelling innovations and target behaviours; and the delivery of EfS within our programs. This poster presentation showcases the Chapter's successes in embedding effective waste management practices throughout all of its work in delivering education, innovation, and modelling effective strategies and behaviours in our shared journey towards a waste free future.



DAY 1 AFTERNOON (KEYNOTE PRESENTATIONS)

Ocean Literacy as part of an Australian response to the UN Decade of Ocean Science for Sustainable Development

Jasmine Chambers, Ocean Decade Australia & Harry Breidahl, Nautilus Educational

The concept of ocean literacy evolved in the USA in the early 2000s but has now been adopted widely around the globe. Most recently, IOC-UNESCO has built on this original concept of ocean literacy to develop an educational strategy for the UN Decade of Ocean Science for Sustainable Development (2021 to 2030). As a result, Australian educators represent an important stakeholder group that Ocean Decade Australia aims to engage in an inclusive, systematic and consensus driven response to the UN Decade.

Website Links Ocean Literacy: <https://www.marine-ed.org/ocean-literacy/overview>

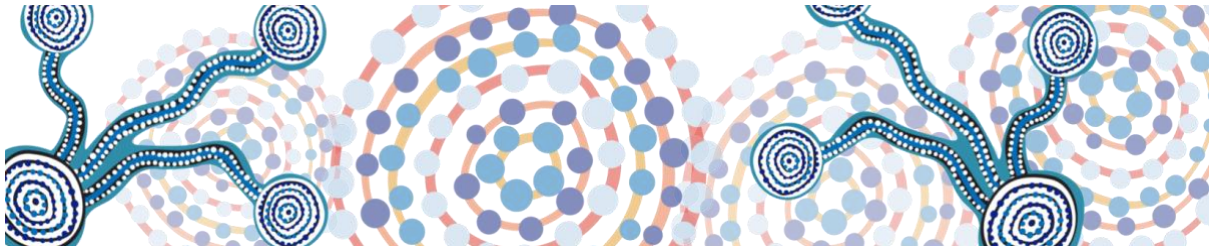
UN Ocean Decade: <https://oceandecade.org>

Ocean Decade Australia: <https://oceandecadeaustralia.org>

Tides of indigenous knowledge

Associate Professor Sandra Morrison

Indigenous peoples and in the case of Aotearoa New Zealand, Māori, have served as guardians of the environment through deeply embedded value systems that have survived the passage of time. Such value systems underpin Māori knowledge or Mātauranga Māori. Mātauranga Māori must stand alongside other knowledge systems if solutions to the complex environmental issues that confront humanity today can be found. Drawing on my experience as being a Māori scholar who leads a number of environmental projects, I promote the necessity of working with interdisciplinary frameworks through sharing experiences and lessons within my own communities. Being open to these forms of collaboration are essential to creating positive change.



DAY 1 AFTERNOON (WORKSHOPS/PRESENTATIONS)

Boardwalk Theatre Tuesday 14.40 – 16.40 (Live Streamed)

Encounters with Extinction: Thinking with Thrombolites and Children

Jane Merewether/Brad Gobby (WA) (Research Presentation)

The Earth is amid an acceleration of extinction with an estimated one million species being at risk of extinction within the next 25 years. Extinction is not far removed from children; it is part of children's present *everyday* lives and futures. This presentation reports on a research project in which young children visited a local extinction event: the endangered Noorook Yalgorup-Lake Clifton thrombolites in south-western Australia. Taking a 'curious practice' approach described by Donna Haraway, we speak about our visits with the children and how we used stories of these visits to think through post-Anthropocene pedagogies and possibilities for thinking about cultivating new ethical and responsible relations with the nonhuman world.

A Framework for Supporting the Development of Botanical Literacies in Early Childhood Education

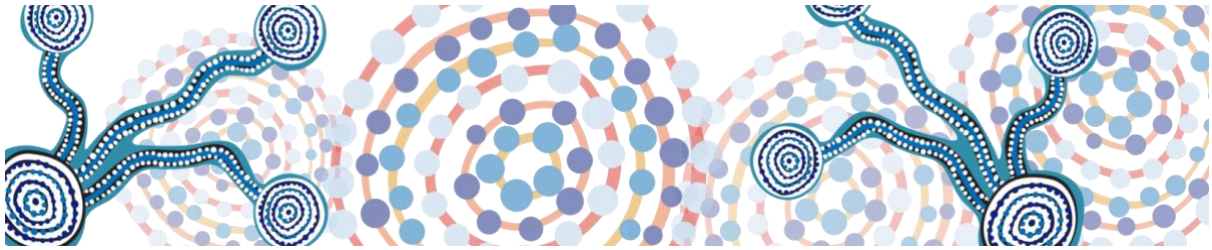
Kimberley Beasley (WA) (Research Presentation)

Although young children in Early Childhood Education (ECE) in Australia are often involved in learning in outdoor natural environments, research on their knowledge and attitudes towards plants is limited. Botanical literacies in young children involves developing knowledge and curiosity about plants, formulating questions about plants, and critically and ethically thinking about plants and their environments. This study explored educators and young children's knowledge and attitudes of the flora in the native bushlands on their school grounds. Fortnightly visits to the school bushlands involved bush walks, informal and formal conversations about plants, children creating drawings, maps and taking photos, as well as visits from local Indigenous people to share Indigenous knowledge of the plants. The results of this research led to the development of a framework for developing botanical literacies in ECE.

Building Confidence & Capacity of Early Years educators to effect behavior change for children

Megan Mentz (WA) (1hr)

The key purpose of this hands-on workshop is to guide sustainable thinking into the day to day actions of early years educators through engagement with the Sustainable Schools Actions framework and use of sustainable language on a daily basis. This presentation will showcase sustainable early years spaces for ideas on best practice engagement and the hands-on component will actively engage educators in biodiversity awareness and citizen science actions to explore their potential for providing ongoing agency in future generations



Fish Trap Theatre Tuesday 14.40 – 16.40

Bringing back the Butterflies

Deidre Knight (SA) (1hr)

Bringing Back the Butterflies (BBB) connects people with Education for Sustainability. BBB's aim is to support schools and communities to increase urban biodiversity by planting endemic butterfly attracting species and learn about the butterfly life cycle and local ecology. All BBB gardeners receive interpretive signage which invites deeper understanding of our natural environment. School plantings are located where parents, caregivers and passersby can read about BBB and participate. Biophilia is even more effective when linked to the curriculum.

Students learn:

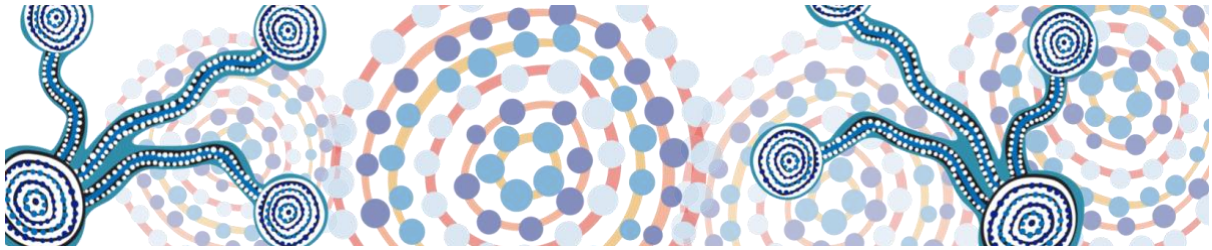
- The butterfly life cycle
- Ecology of butterflies and other species.
- Kaurna people and language
- Biology and biodiversity
- Healthy landscapes
- Place making and community health
- How to transform our environment and have direct physical connection with nature
- Hands on understanding of natural systems.
- They are the changemakers

Schools use BBB as a vector for engaging families and neighbours with campus activities while also highlighting their community leader status. Meaningful community connections are possible when neighbours establish their own BBB garden. This, together with interpretive signage provides a discussion point to build better community relationships. As BBB evolved we established teams of volunteers to assist the aged and infirmed to establish their verges. Such inclusion deepens community interactions and reduces isolation. As BBB plots are established they will be linked to our urban nature walks to be found on the BBB website.

Community benefits of BBB include:-

- an understanding of biodiversity and sustainability issues
- a deeper appreciation of our 'place' in the environment
- positive community connections
- more inviting, cooler and friendly streetscapes
- more meaningful neighbourhood interactions

BBB has generated significant excitement and support from a multitude of organisations and individuals. We now have a supporter base of over 1500 people. What's next? Adelaide wide Community Propagation Teams and peer to peer learning?



Sharing key learnings from AAEE SA's ABC of BBB grant project

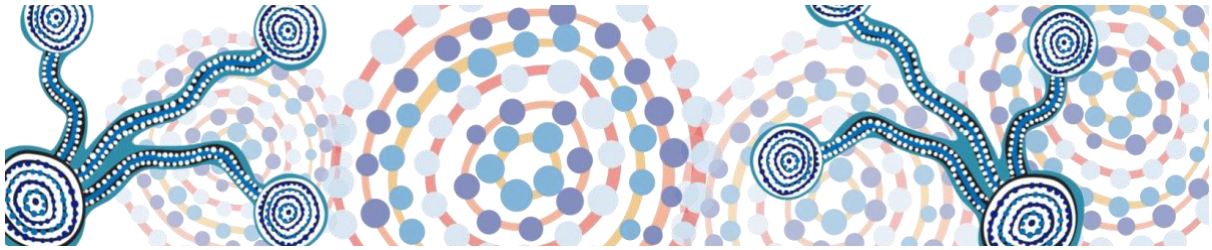
Naomi Findlay (SA) (30 mins)

Successes and failures: Suggestions for hosting Zoom networking PL sessions for teachers, developing and promoting social media, and designing curriculum-linked biodiversity resources for teachers.

Kaarditjin Waalitj (Knowing Eagles)

Simon Cherriman

Successful environmental education requires participants to feel inspired to take interest in a particular topic, and motivated to feel they can engage with a participatory approach to building their knowledge. An effective way to achieve this is by using storytelling, charismatic fauna, indigenous cultural values and modern sustainability values to educate and inspire young people about environmental issues. For the last 14 years I have used a combination of weaving a personal story about a childhood interest in ornithology and high-school bullying with the biology, ecology and historical persecution of an apex predator, the Wedge-tailed Eagle, to educate and inspire hundreds of students in Western Australia about biodiversity conservation. This presentation will showcase a range of information on eagles and their 'story' to offer insights into how, in an era of many an environmental crisis, an 'eagle's eye view' on Country gives a powerful standpoint from which practical, inclusive and inspiring educational activities can be imagined. I will build on this idea by describing one case study, which focuses on a different group of 'charismatic' fauna (hollow-dependent birds and mammals), and involves constructing and installing artificial nest-boxes for wildlife.



Dance Studio Tuesday 14.40 – 16.40

Collaborating creatively with the community to engage in conservation education through innovative and interactive arts programs.

Marnie Giroud (WA) (1hr)

Educators communicating through face-to-face interactions had to quickly reassess teaching methodologies when the news of the COVID-19 pandemic broke.

Environmental education shifted to a lower ranking of importance in a new life-threatening reality. The challenge to continue without audiences in situ, for a prolonged period of shutdown, was a catalyst for educators to look for creative ways to continue their work. The lightning speed of classroom teachers to engage in online learning opportunities for students at home, as well as providing classroom contact for students still attending was commendable. Online learning, zoom meetings and video broadcasts on social media became important tools for engagement.

As a small business owner with a focus on environmental education through events, 92% of my business earning potential was lost overnight. I reassessed my business model and began using video as a medium to showcase current projects and to seek opportunities for work. Delivering conservation messages through artwork translated into physical products. I was also working part time at Kings Park Education & Learning delivering engaging programs for school students and general community.

Kings Park's community engagement response to the COVID-19 Public Health Emergency was swift and creative. With face-to-face programs suspended, the Kings Park Education team moved to develop a free online remote learning program to engage with all sections of the community. Some existing programs and activities were retrofitted, and new content was created to engage existing and new audiences including regional communities unable to participate in on-site programs.

Collaborating creatively to connect community in conservation in different ways both through my small business and at Kings Park was achieved by working remotely with colleagues to produce learning opportunities. The resulting engagement was evident in social media responses and fostered new planning for future outreach using these mediums.

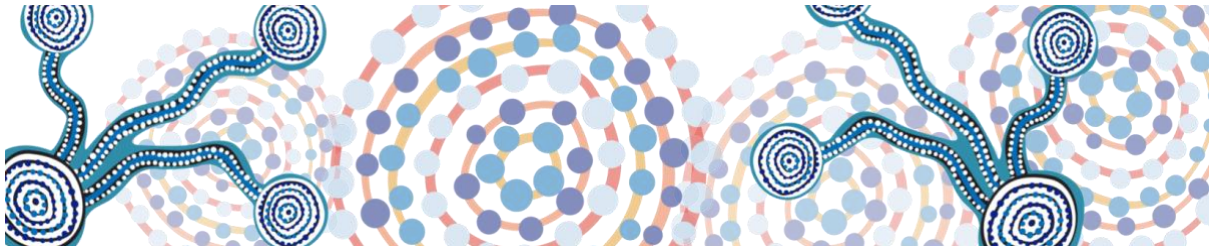
Plastic Oceans Australasia presents Ocean Discovery Days workshop designed for educators who teach grade 6 – 8 students.

Ricki Hershburgh (Vic) (1hr)

Enjoy learning through three interactive activities: Pointless Plastic, Rubbish Lessons and Love is in The Bin.

The 60-minute workshop will provide practical, hands-on activities for educators.

The activities are designed to encourage active learning and critical thinking, with links to the Australian School Curriculum learning areas such as Science, Design and Technology, English and Geography.



The three components – *Pointless Plastic, Rubbish Lessons and Love is in the Bin* - will be allocated 17 minutes each and allow for a 9 minute debrief and wrap up at the end.

Educators will be provided with a variety of informative material and enjoy the experience of being part of Plastic Oceans Australasia Education Program as well as participating in a sample activity. They then can share their results during the debrief which provides greater engagement and reflection on the tasks and how it can benefit their students.

The workshops refer to the science behind the technical research which is used to conduct the Plastic Oceans Australasia Education Program and aligns to the school curriculum while practicing behaviour change for a sustainable future.

The three interactive activities will provide the overall goal of leading students to a deeper understanding of their own plastic use while providing solutions that are feasible within their schools, as well as acquiring the knowledge and data to educate their peers and families on more sustainable habits.

Educators will be able to immerse themselves in the challenges and behaviour change that plastic reduction requires from all of us to reduce the impacts of plastic in waterways and the ocean. With science and self-led initiatives, POA has been able to deliver this program to 5,562 students in the 2019-2020 financial year alone and continues to grow in 2021 including delivery in East Arnhem Land and Queensland to Indigenous communities.

Art Gallery Tuesday 14.40 – 16.40

Relational leadership and practice: why connection and love are the basis for radical change

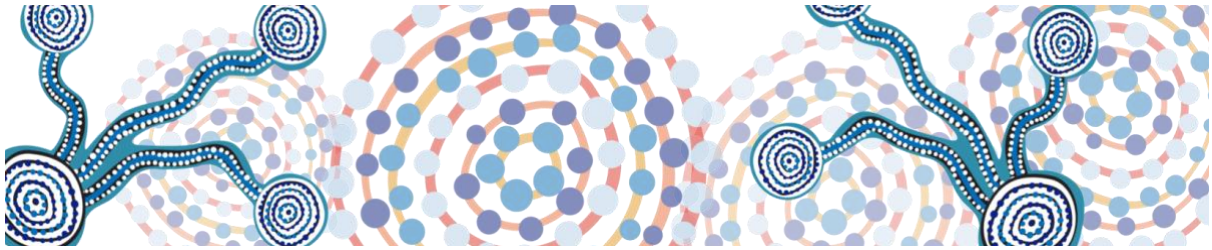
Louise Duxbury (2hr) (WA)

The world faces an unprecedented set of environment and climate crises; current leadership has failed to adequately respond. The call for a new worldview and leadership to be practiced is becoming more insistent especially from women.

Leadership has traditional been seen as masculine, heroic and individual and normative reinforcing self-reliance, assertiveness and competition. These qualities reinforce power structures that underpin unchecked inequality, environmental destruction, marginalization of diverse voices and weakening of democracy.

A new worldview based on the quality of our relationships with ourselves, in communities and with the natural world is needed to address our deep challenges. This workshop will help to develop the language we need to share and practice a relational worldview. It will explore the characteristics of relational leadership and relational practices in our organisations, partnerships and programs.

International evidence indicates that more women in decision-making leadership roles ensures more effective workplaces and better environmental and social outcomes. Despite this information women remain under represented across government and business sectors in



leadership positions and the leadership style practiced in most organisations continues to follow more traditional norms of behaviour and practice.

Understanding the need for a different kind of relational leadership and practice, why such leadership and practice is more effective and the barriers to it being taken up across organisations will lead to increased confidence in participants, both male and female, to become relational leaders and practitioners.

Off-site Workshop Option (CASM) Tuesday 14.40 – 16.40

Development of the Koolbardi Bidi Garden Learning Program to promote interactive, nature-based play as a method of encouraging lifelong learning in children of all ages

Helen Coleman, City of Mandurah

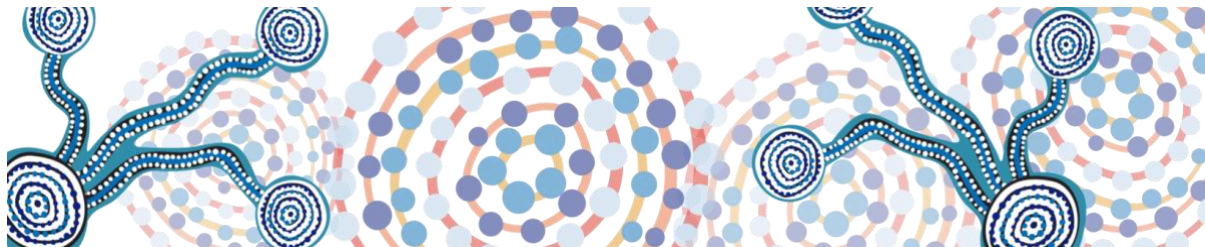
This one hour workshop explores the concepts underpinning the development of the Koolbardi Bidi Garden Learning Program. Using the natural world as a classroom, visitors of all ages are encouraged to breathe, observe, record and wonder.

Printed and online resources share the many uses of local plants as traditional foods, medicines and tools, and as art materials in the hands of contemporary artists. Garden signage encourages mindful activities and simple engagement opportunities such as smelling a leaf, thinking like a magpie or rubbing a flower on a page.

Two booklets created for the KB Learning Program will be provided to attendees. Participants of all ages can respond to provocations in the *Walking With Magpies* journal, such as saying out loud a few words from the Noongar word wall, or following a vine and imagining it wandering across their page. The *Six Seasons Journal* invites participants to observe and record changes in weather, plant and animal activity throughout the year, encouraging a deeper connection to the environment and understanding of traditional Noongar culture.

In alignment with the Conference theme, a focus of the workshop will be on observing change – the movement of shadows and what this tells us about time, weather and navigation; the seasonal cycle and indicators of our six Noongar seasons. Through exploring these everyday observations, noticing, questioning and analysing data, we inspire curiosity and encourage new ideas. We develop a stronger connection to the environment and assign a greater value the complexity and fragility of the ecosystems around us.

<https://www.mandurah.wa.gov.au/explore/arts-and-culture/casm/Cultural-garden>



DAY 2 TOURS

Sustainable Schools & The Wetland Centre Tour

Harnessing Student Passion to Lead Sustainable Change

Kristy Ward/Peta Scorer (Practitioner Presentation)

Students are the future leaders of our world and are passionately invested in a sustainable future. We must develop their compassionate leadership skills so that they can promote positive changes effectively in their community. John Curtin College of the Arts runs a Roots and Shoots group, which operates as part of the global, youth-led program founded by Dr. Jane Goodall in 1991. Running primarily as a club for students, it has provided opportunities for student voice and leadership, community partnerships, networking and collaborative skills, and the development of empathy and compassion in our students. Students work as a team with their teachers and wider school community, planning projects and initiatives to solve global problems for people, animals and the environment on a local scale.

This presentation will discuss the achievements and challenges of the Roots and Shoots program at John Curtin College of the Arts and how it has evolved over time with increasing teacher and student engagement within the school community.

City of Rockingham Castaways Sculpture Awards - Environmental awareness through artistic innovation

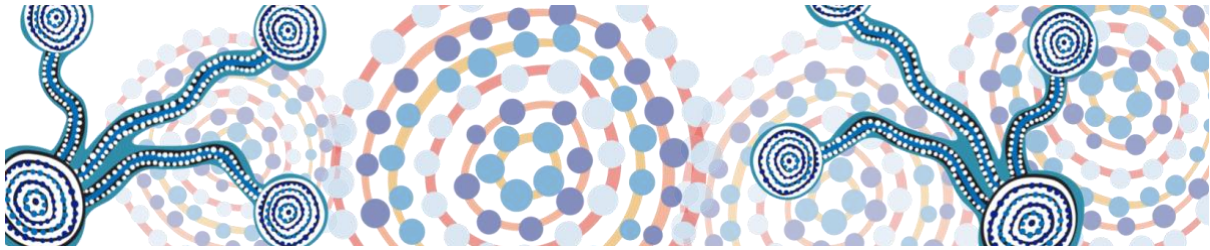
Rebecca Cassells (Poster)

Castaways Sculpture Awards is the City of Rockingham's signature arts and culture event, celebrating environmental awareness and artistic innovation.

'Castaways' is an annual outdoor 'recycled sculpture' exhibition. The awards categories – with a prize pool of \$26,000 - are judged on the creative use of recycled and repurposed materials in new and unexpected ways, and the artist's message, supporting the concept of sustainability.

Castaways started in 2008 as a community project to raise awareness around the discarded items or 'castaways' washing up on local beaches and has continued to expand and evolve. Today, Castaways provides an important opportunity for emerging and professional Western Australian artists, schools, and local businesses to be a part of a regionally-recognised and professionally-curated arts program that continues to promote environmental values.

One of the key objectives of Castaways is to deliver the City's message on recycling and environmental awareness through creative channels. Each year, the community's love of the natural environment, and the importance of reducing our impact is showcased via three exhibitions:



- Main Exhibition, at the Rockingham Foreshore (on the beach)
- Maquette and Small Sculpture Exhibition, at the Rockingham Arts Centre
- Castaways Schools Competition Exhibition, at Churchill Park (Rockingham Foreshore)

The Castaways Schools Competition is an important way of involving and hopefully empowering young people. Both Primary and Secondary schools based in Western Australia are invited to design and develop a recycled sculpture as a class, for exhibition alongside professional artists. Some of the objectives of the Schools Competition include:

- To provide an educational opportunity for local young people regarding recycling, waste reduction and environmental sustainability, linking to the current Western Australian Curriculum.
- To demonstrate to young people how the Arts can be a means of conveying important messages or promoting particular values to the public in an engaging way.

Westside Stories - A Snapshot of Education for Sustainability in W.A. Schools

Tim Hill/(Elaine Lewis) (Workshop – 120 mins)

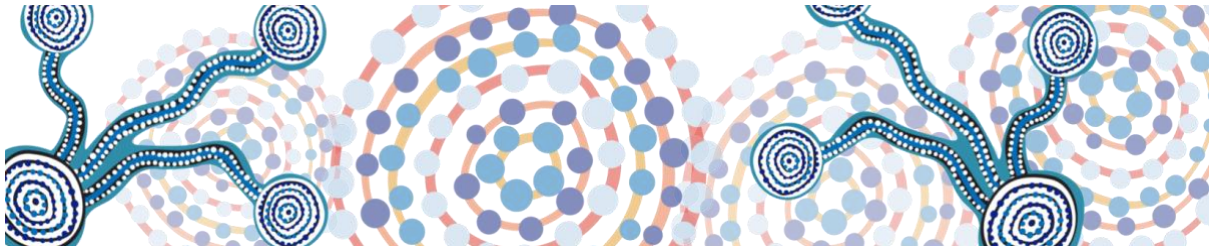
A connected community of passionate educators provides the most sustainable foundation for successful education for sustainability outcomes for future generations. This workshop aims to lay the foundations for a powerful state-wide network of passionate educators who are focused on providing sustainable futures for their students, staff, and community. By sharing our stories, ideas, approaches, and vision, we can strengthen professional ties and identify ways to support each other to provide opportunities and positive outcomes for all stakeholders in sustainable schools across W.A. All schools, public or private, primary and secondary are invited to participate.

This workshop shares stories of how W.A. schools are achieving successful delivery of Education for Sustainability programs, experiences, and pathways. It identifies the ways schools are currently working to embed sustainability into curriculum, resource management, staffing, partnership building and future planning. Case study schools will present their approaches to delivering EfS at the classroom, cohort, whole school and community levels. All participants will be asked to share their school's approaches/ stories to become part of an online database. This will be available for schools to connect with and learn from each other, strengthening our community of passionate environmental educators in W.A. and beyond.

Living through the Adaptive Cycle: The Wetland Centre journey

Denise Crosbie (Practitioner Presentation)

The Wetlands Centre Cockburn opened its doors for the very first time in 1993. A fledgling organisation at the time we had sprouted from the vision of the Wetlands Conservation Society; a vision to create a wetlands-focused centre that serviced the southern suburbs. Over the past 28 years the centre has evolved considerably, experiencing all four phases of the adaptive cycle repeatedly. This presentation will share the stages of this journey through the adaptive cycle which have led to the current exciting phase of reorganisation and the launching pad of a new phase of growth and evolution. Join us to share in our reflection of where we have come from, how we got here, and where we are going now.



Mandurah Estuary & Creery Wetlands Tour

Partnering to Protect our Waterways

Bonnie Beal Richardson (Practitioner Presentation)

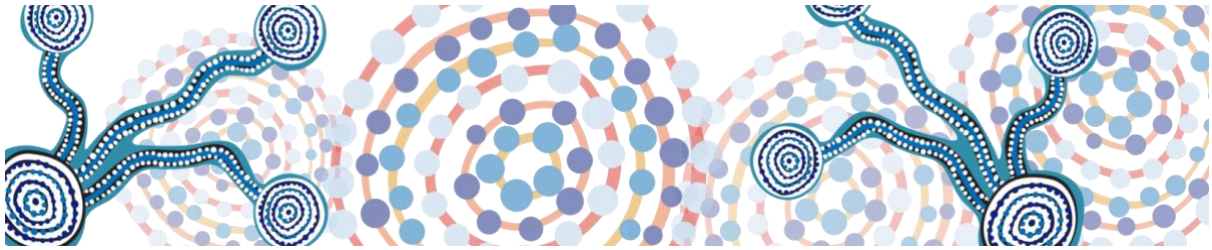
Mandurah is home to approximately 80 year-round resident dolphins. These dolphins are an important aspect of Mandurah's identity. In August 2019, a sixteen-month old dolphin, Luca, died after becoming entangled in fishing line for the third time in six months. Luca's death sparked an incredible community response, drawing widespread attention to the impact of discarded fishing line and other waste on our marine wildlife.

The Clean Waterways Campaign was developed as a collective response to Luca's death, and the larger issue of waste in our waterways. It brings together existing research partnerships and community groups, along with government and local business to jointly develop new ways to engage the local community in caring for our waterways and the wildlife that relies on them.

Shorebirds are counting on us: Reflecting on more than a decade of building community citizen science capability in the Peel-Yalgorup System

Charli Jones (Practitioner Presentation)

The 26,530 ha Peel-Yalgorup System is one of the largest and most diverse Ramsar-listed wetland systems in Australia, incorporating the Peel-Harvey Estuary, the hypersaline Yalgorup Lakes, the relatively freshwater lakes McLarty and Mealup, and National Parks and reserves surrounding these water bodies. Also known as Ramsar Site 482, the wetland system meets at seven of the nine criteria for listing according to the Ramsar Convention as a 'wetland of international importance'. Several criteria relate to the importance of the wetlands as habitat for waterbirds, including migratory shorebirds that spend the summer months feeding in the wetlands of the Peel-Yalgorup System before their migration north to breed in areas like Alaska and Siberia. Lead natural resource management agency for the region the Peel Harvey Catchment Council (PHCC) has been working with partner organisations and community members to coordinate annual citizen science waterbird counts to monitor these special birds and inform management actions. Since 2009 PHCC has delivered at least one intensive education workshop each year to train community members in waterbird identification to enable their participation in the count. Over time, these workshops have evolved in their structure, content and participant targeting in response to observations, participant feedback, changes in the gaps and needs to enable the implementation of the annual counts, and changes to funding availability and requirements. This presentation will detail and reflect on this evolution over more than a decade and what the drivers for change were. It will outline the key successes and challenges of working to build long term and sustainable community capacity for ongoing waterbird monitoring. Finally, it will reflect on future needs and opportunities to continue the evolution of education offerings to enable a diverse and capable community of stewards for the waterbirds and wetlands of the Peel-Yalgorup System and beyond.



Community Stories and Sense of Place Enhances Nature Connection.

Sarah Way (Practitioner Presentation)

As a zoologist and operator of WA ecotourism business *Ways To Nature*, my goal is to connect people with nature through direct experience. I lead guided nature walks and use these interactions to educate my customers about biodiversity conservation principles through interpretation content that is engaging and accessible.

When designing my tours, my research into the Peel-Yalgorup wetland system where I operate was predominately scientific and focused on expanding my ecological knowledge to share with customers.

However, I also discovered strong emotional connections many different people have to these habitats, as well as a deep sense of environmental stewardship.

The Peel-Yalgorup wetlands not only provide important habitat for a diverse range of flora and fauna, they also represent a profound sense of connection and place for the Mandjoogoordap community - both indigenous and non-indigenous.

My tours are now enriched with stories of how the wetlands shape and influence our community – and vice versa. Stories of past community leaders and environmental activists who fought for years to protect the Creery Wetlands, stories of people who work to rehabilitate and care for our wetlands or who have been inspired to create art in them and just take pleasure from being present in them.

Learning about and experiencing this sense of place compliments the appreciation of the wetlands' ecological aspects and provides a more intimate connection with, and understanding of, nature in our lives.

Creery Wetlands Tour

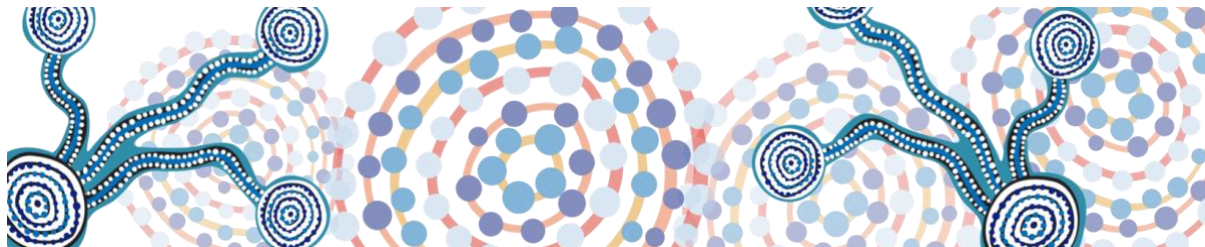
Ways to Nature

<https://www.waystonature.com.au/>

Mosquito management in the Peel region

Peta Foulkes, City of Mandurah

The City of Mandurah delivers the largest and most active mosquito management program on the west coast. In doing so, it delivers an essential community service to protect public health and lifestyle for people living and visiting Mandurah and the region. This presentation provides a behind-the-scenes look into the City's mosquito management program and why we do what we do, including community education, mosquito breeding, the incorporation of GPS technology into aerial larviciding, and how the City is able to cover up to 600 hectares of breeding locations within protected wetlands.



Nature Photography – Using photography as an educational tool to connect and inspire students with their local natural environment.

Sharon Meredith (120 min Workshop)

Delegates are invited to join local photographer Sharon Meredith for a fun and free Nature Photography workshop.

This workshop is hands-on, participants will venture into the great outdoors to discover the photography basics, such as how to best compose your photographs and how to work with natural light. Participants will learn how to capture the colours and shapes of native flowers and tips and tricks for snapping wetland landscapes.

Whilst out adventuring with your camera you will also learn about the Wetland setting, it's vulnerability, a brief historical overview and the wildlife that call this wetland home.

The workshop will finish with reflection on the session and participants will be encouraged to pick their favourite photographs and discuss them with the group.

Requirements:

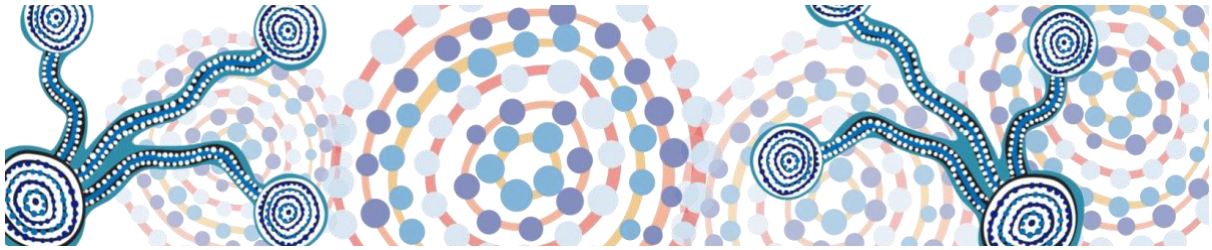
- Bring your phone or a digital camera.
- Wear sturdy walking shoes and dress for the weather.
- Bring a bottle of water.

Mozzie Wise School and Community Mosquito Education Program – Achievements and Opportunities for Growth

Natasha Bowden (Practitioner Presentation)

Public education is a key component of any successful Integrated Mosquito Management (IMM) program which aims to balance the objectives of improving water quality, enhancing environmental health, reducing the emergence of adult mosquitoes and protecting human health. An IMM approach is an ecosystem-based strategy that focuses on long-term prevention of mosquitoes and their diseases through a combination of techniques such as existing biological control, habitat manipulation, modification of cultural practices and continuous educational programs, in association with chemical management options.

SERCUL developed Mozzie Wise in 2015 as a way of providing an ongoing, uniform and large scale education program to schools, workplaces and the community about mosquitoes, their role in the environment, the risk of mosquito borne diseases and ways to recognise and eliminate potential breeding sites. An informed public helps reduce breeding sites, reduces misinformation, minimises unreasonable demands for chemical application and improves human and environmental health. My presentation will showcase the achievements of the Mozzie Wise program in increasing knowledge about mosquitoes through incursions in schools and in the broader community through community displays, workshops, forums and the distribution of educational materials. We will then discuss the opportunities available to



Local Government Authorities, schools and workplaces to extend the program into other communities throughout Western Australia and the potential to adapt the program for use in other areas of Australia.

Coastal Waste Warriors: Creating Waves for Clean Waterways

Danny Willmott, Coastal Waste Warriors

The Field family were inspired to start Coastal Waste Warriors in December 2018 in memory of their daughter Amber Dawn, who loved nature and our ocean. Shortly after Amber's passing, a children's book was written and illustrated by her Kindergarten teachers called 'Amber Dawn Princess Warrior and the Dolphin Rescue'. The book was about a little girl, called Amber, who saved a dolphin from fishing nets. It helped turn a family's pain and the loss of their beautiful girl into taking positive action together with their community to keep our waterways clean. In doing so, they also inspired others to care for the environment we live in.

The first Coastal Waste Warriors beach clean-up was held in January 2019 and was attended by 50 volunteers. 75kg of litter was collected, which turned into the start of Amber Dawn's legacy to inspire our community to come together on a regular basis to keep the Mandurah waterways clean. Two years on, Coastal Waste Warriors has empowered the local community to remove over 2.5 tonnes of litter from our local beaches and waterways. What started as a community gathering is now an incorporated group with a dedicated team of volunteers who participate in monthly clean-ups.

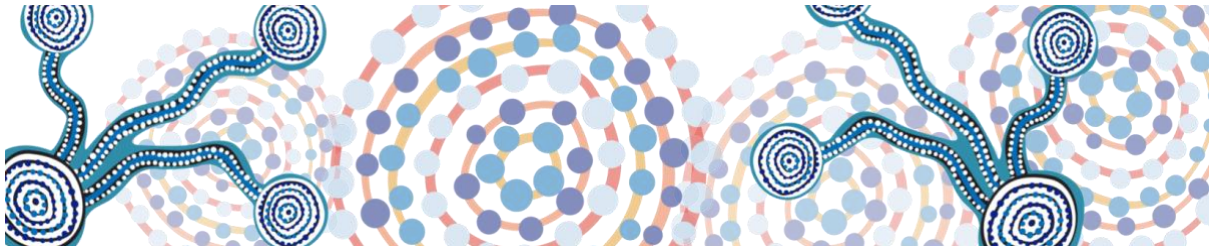
Come along and learn about the journey of Coastal Waste Warriors, and how they've inspired a community movement that turned small ripples into a wave of change.

Eco-tourism: How tourism can support environmental sustainability

Natalie Goddard, Mandurah Cruises

Mandurah Cruises showcase Mandurah's unique marine environment and wildlife to guests from all around the world, on a daily basis. In providing such tours as their 1 Hour Dolphin & Scenic Marine Cruise, they are in a position to educate a captive audience. Guests get to have an interaction with an array of sea creatures, for example the Indo pacific bottlenose dolphin and see, learn about and be amazed by these incredible creatures. Tour Guides are then able to discuss the threats they face, practices that are in place to protect them and what they can do to help. Mandurah Cruises tour guides undergo extensive local knowledge training, where the company engage with locals, community groups, cultural elders, scientists and experts in their field, to ensure the latest and accurate information is provided to guests.

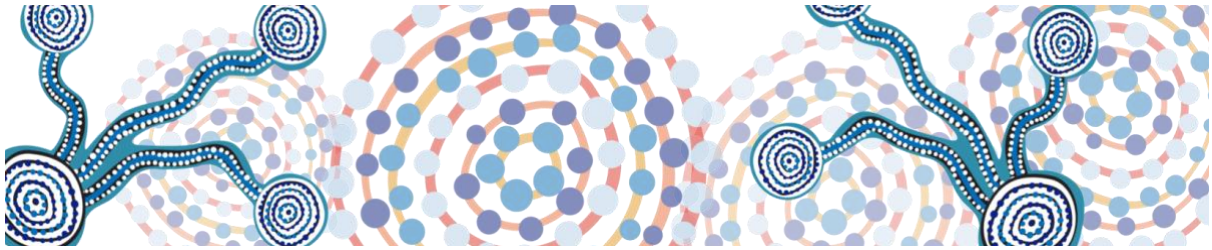
Most recently the company worked on more ways to reduce their footprint on the environment - going completely single use plastic free. In doing so they are able to lead



by example – be able to discuss with guests changes they have made and how simple it is for them to do also.

Aside from using their cruises to educate and lead by example, Mandurah Cruises also do the following to support environmental sustainability:

- **Sponsor local charities and community groups**, whose focus is aligned with their business activities and that they can make a significant difference to.
- **Work closely with** Dolphin Rescue & Research, Estuary Guardians, Peel-Harvey Catchment Council, Mandurah Clean Waterways Committee, Birdlife Australia, Western Australia Seabird Rescue, Ferry Tern Conservation Network and others by providing knowledge, resources and crew time.
- **Provide FREE Marine Education visits** to local schools and childcare centres.
- **Host Island Clean-up events Biannually** for Clean Up Australia Day & Luca's Legacy. Donate prizes at other clean up events in the region.



Mandurah Coast, Thrombalites & DBC Tour

Wildflower Walk at Beacham Reserve

<https://visitmandurah.com/wildflowers-near-perth/>

Mandurah Herbarium Visit

Managing our reserves and engaging the community through a Reserve Management Database

Eryn Jackson, City of Mandurah

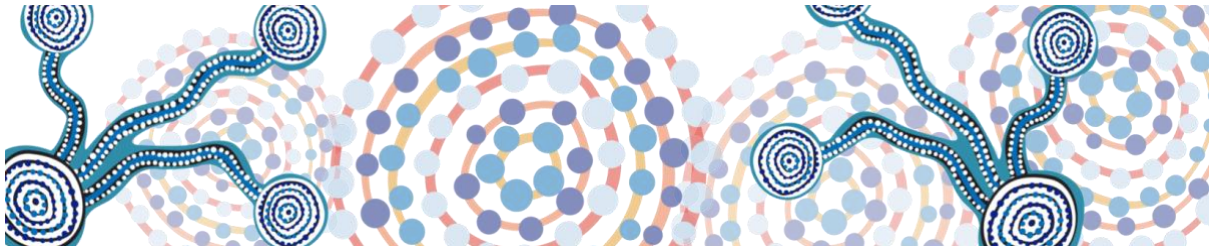
The City of Mandurah has been utilising the IUCN Ecosystems and Invasive Species Thematic Group's best practice approach to the management and restoration of Reserves. Using this approach, the City has implemented plans across 18 reserves (and counting) including several adjacent the Peel-Harvey Estuary Ramsar Site. This short presentation will outline this approach which has a key focus on establishing a baseline biodiversity dataset of weed invasion to guide the development of Reserve Management Plans and prioritising restoration and management options across the City's Reserves.

Using a mapping application, we establish "polygons" (or "areas") with the same weed cover value using 5 categories. We then record the native and weed species present within each area. The information recorded in the field is incorporated directly from the mapping application into a Geographic Information System (GIS), which can be used by land managers, traditional owners and others to make informed decisions on where and how to manage weed species and restore ecosystems.

This database also provides countless opportunities for local volunteers to assist in the reserve management through the collection of their own data. Bird watchers, fungi fanatics and wildflower lovers are just some examples of the people who are out using these reserves regularly. The data they collect in terms of the species sighted, and their location, can all be collected through this database. This assists in building a multi-faceted and comprehensive database based on year-round observation.

Island Point Tour

<https://saltandbush.com.au/itinerary/island-point/>



Reconnecting with Nature by Sensing, Valuing and Envisioning our Future

Merrilee Baker (Practitioner Presentation)

Mandurah has many engaging environmental activities– clean-ups, care for place, tree planting, guided walks, dolphin watching, citizen science, and further afield forest activities.

However, many people prefer to use the environment for recreation, focusing on their own enjoyment and don't necessarily consider other humans and non-human life. Other practices destroy habitat. Many environmentally aware people are overwhelmed by the enormity of change required. Some consider the personal change required too great, so turn away.

Children tend to love nature but as they develop are influenced by the greater world, by more shiny things. The Ego-centric, business-as-usual society competes with nature's future.

My inquiry is “How do we nurture children's natural connection and love through the next developmental stages?” How can we apply systems thinking, valuing nature and leading from the future to transform society from Ego-centric to Eco-focused?

People need to connect with people, nature, and our Selves. Theory U describes three divides: - Disconnects between self and nature create an ecological divide, social division is a disconnect between self and other, and spiritually the disconnect is between self and Self.

I have used IPBES's Natures Future Framework, (future and value thinking), Design and Systems Thinking, Theory U and The Work That Reconnects to facilitate 'connecting' programs and workshops locally and online.

The spiral, introduced by Joanna Macy et al, like several other models uses a process of witnessing and recognising what is really happening, sensing in our bodies, and honouring that. By communicating with each other using deep listening we can compost the feelings and take effective action. By using an open mind, heart and will we get a sense of what needs to emerge.

Approaching issues of our times, issues of disconnection, in this sensing-systems-based way helps us move away from business-as-usual and towards reorganising community environmental education.

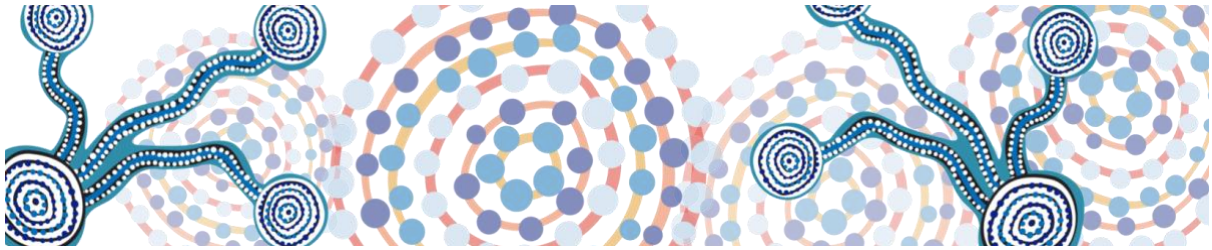
Visit the Lake Clifton Thrombolites

<https://parks.dpaw.wa.gov.au/site/lake-clifton-thrombolites>

Living on the edge of ancient history: improving the health of Lake Clifton and its thrombolites through community stewardship

Steve Fisher and Karen Bettink, Peel Harvey Catchment Council

Lake Clifton is a critical part of the Peel-Yalgorup Ramsar Site, being one of the few places on earth thrombolites, or ancient living rock-like structures, are found. At 2000 years old these thrombolites and their ancestors provide a window into evolution of life on Earth. They are one of the key species and communities directly responsible for the Peel-Yalgorup site being recognised as a Ramsar-listed wetland of international importance,



yet face a multitude of threats and are listed as a Critically Endangered Ecological Community or TEC.

Protecting the lake's thromobiltes, and other local threatened species and ecological communities presents significant challenges. The Catchment includes parts of the Yalgorup National Park, as well as over 300 rural residential properties, where threats to the lake's values include increasing nutrient levels, increasing salinity, decreasing freshwater inflows from groundwater, and weed infestations.

To improve the health and resilience of the Catchment, Peel Harvey Catchment Council established the 2018-2022 Lake Clifton Catchment Conservation Stewardship Program. Built on the platform and learnings, the Stewardship Program partners with local Government Authorities, Birdlife Australia, Landcare, DBCA and individual landholders to build stewardship and support landowners to implement management practices that improve landscape health and resilience.

Through regular contact and a variety of support mechanisms, the program works directly with the catchment's 300 land managers to raise awareness, improve management and restoration of native vegetation and wildlife habitats. Project activities and services include newsletters and media, free site and habitat assessments, annual plant giveaways, events and access to grant funding for onground works. The Land for Wildlife voluntary conservation program is included in the project to encourage long-term community support and action for conservation.

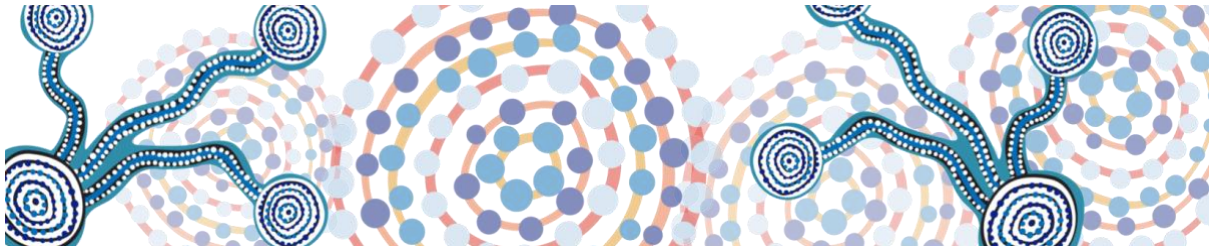
This presentation will discuss how these ancient living rocks formed, their evolutionary role, the threats they currently face and how stewardship is helping their survival.

How to build a possum bridge!

Melony Horton (Practitioner Presentation)

This presentation follows the building of the Gumnut Reserve possum bridge in Dawesville, south Mandurah in 2017/18. It will give lots of advice (what worked and what didn't), management information (who does what, when) and progress forms used, monitoring the build process, fauna monitoring and eco marketing.

- Start with where and why?
- Get your partners engaged
- Engage your community & start monitoring
- Get an idea of costs & grants available
- Finalise design and costs
- Getting the grant
- Building your bridge
- Opening & monitoring usage
- Eco tourism & marketing your bridge



DAY 3 MORNING (KEYNOTE PRESENTATIONS)

Address from the Junior Mayor and Junior Deputy Mayor

Tamsyn Hill and Zoe Thompson, City of Mandurah Junior Council

Mandurah's Junior Mayor Tamsyn Hill, and Deputy Junior Mayor Zoe Thompson represent the Mandurah Junior Council.

The Junior Council was first established in 1985 to enable young people to have a voice in their community and to learn about local government. Since its inception, some of the format has changed, but the original objective has remained the same: to empower young people within Mandurah and equip them with the skills to step up as leaders today and into the future.

In 2021 the Junior Council is made up of 38 Junior Councilors; two Year 6 students from 19 Primary Schools across the City of Mandurah. Students are elected by their schools and learn about local government, issues facing the Mandurah community, advocating for other young people, public speaking and their own ability to influence decision makers.

Junior Council is a fantastic opportunity to connect students from within the diverse Mandurah community, where they learn about respecting one another's opinions, working collaboratively and communicating effectively.

Over the years the Junior Council have had a significant impact in the community through a range of community initiatives they have led, including some environmental projects.

Speaker Profile

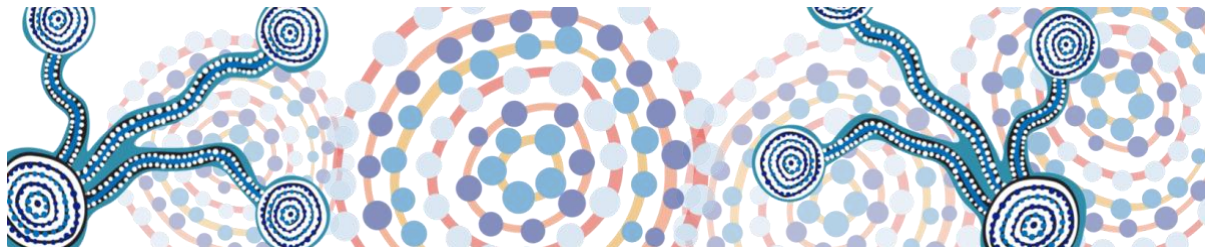
Tamsyn Hill is the Deputy Junior Mayor of Mandurah for 2021. She was appointed to the Junior Council to represent her School Falcon Primary. Working closely alongside her for 2021 is Zoe Thompson, the Deputy Junior Mayor from Frederick Irwin Anglian School.

Indigenous Environmental Philosophy (??)

Anne Poelina (Adjunct Senior Research Fellow, Nulungu Research Institute)

Youth Citizens Assembly

Millenium Kids



DAY 3 MORNING (PRACTITIONER & RESEARCH PRESENTATIONS)

Boardwalk Theatre Thursday 10.40 – 12.15 (Live Streamed)

Restoring Hope and Health – a growing movement

Keith Bradby (WA) (Invited Speaker)

We may be in a climate and ecological emergency, but the change we need if the world is to move into recovery mode is still possible – it has to be still possible. There are many greens hoots of that change appearing around us, and this talk will explore the ‘proof of concept’ for some of these changes. Across south-western Australia there is an ecological, social and cultural revival happening – where did it come from and how is it going? Will it be the profound change the next generation of change makers need? What can we learn from the efforts so far that will carry us into a better future?

Funding Designing and Delivering Creative Environmental Education

Angela Rossen (WA) (Practitioner Presentation)

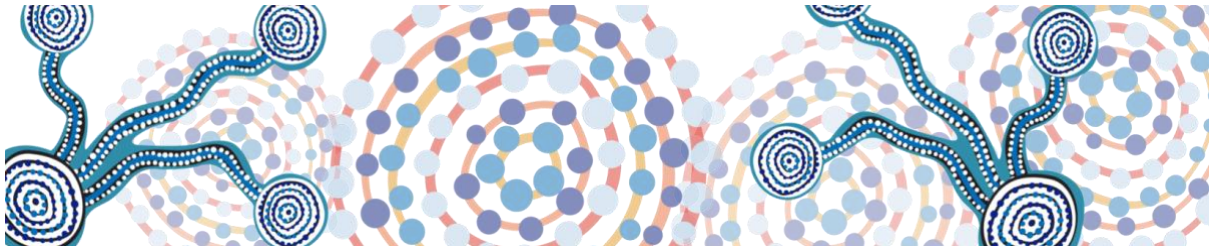
The pandemic like climate change has shown us that major perturbations affect entire systems like health, economy and natural environments. We have learned that the solutions lie in working together cooperatively. However, our economic structures are weighted to competition with the limited focus of profit. To address challenges like the pandemic, climate change and over exploitation of nature we need to find ways to grow action cooperatively from the individual to the global level. Environmental and conservation education and engagement has an important role to play.

To attract ongoing financial support as educators we need to identify the opportunities these challenges present. It may be that to we need to frame our work differently.

In Australia the pandemic has had a marked negative effect on mental health. As educators we are often working with people already struggling with economic hardship who can in addition also be disheartened and disempowered by recurring negative environmental news. Creative community connection is an antidote to this. A population that is well informed, self-motivated, engaged and working together leads to enhanced resilience and wellbeing.

To gain financial support from both government and corporate funders we need to fill their social deficits and the mental health problem is one example. As environmental educators and creative thinkers we need to craft our message to secure buy in from commercial, corporate and governmental entities.

This presentation will examine ways to reframe the environmental message in order to attain funding to present community environmental education events that engage and galvanise.



An exemplar environmental engagement project that brought community together through support from commercial entities and multiple layers of different government instrumentalities will be showcased.

Sustainability and Environmental literacy: Examining understanding, behaviour and attitudes of Preservice teachers around the Environment

Rachel Sheffield; Dr Rekha Koul (WA) (Research Presentation)

Education for sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. Sustainability education is futures-oriented, focusing on protecting environments and creating a more ecologically and socially just world through informed action.

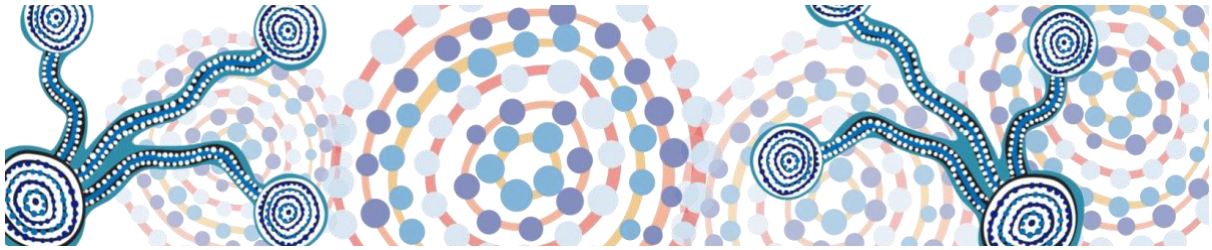
(ACARA, 2018)

In the Australian curriculum the Cross Curricula priority of Sustainability seeks to help students to develop the knowledge, skills and world views to act to protect their world. To be able to do this, students must be supported by educators who have a strong sense of environmental responsibility and have the knowledge, attitudes and beliefs that will support this position. This research examines the knowledge, attitude and beliefs of over 500 1st year pre-service teachers. It postulates that if beginning teachers have a strong understanding of the environment, and are prepared to act, they will support students to develop beliefs and attitudes that will protect the environment and support the future. It was determined that whilst pre-service teachers displayed strong supportive beliefs around environmental issues, they lacked the background knowledge and were unwilling to practice sustainable behaviours. Previous research as eco-barometers around school students' environmental literacy across the world was collected in the 2018 PISA results (OECD, 2020). Within Australia, however, little has been done to consider the 'eco-barometer' of University students training to be classroom teachers.

Exploring Changes in Perceptions and Practices of Sustainability in ESD Communities in Australia during the COVID-19 Pandemic

Kim Beasy (Tas)

Education for sustainable development (ESD) aims to empower future generations to address current global environmental threats, though it faces challenges to implementation, often linked to narrow perceptions of sustainability. To observe such changes in practice and draw their implications for ESD, we explore the effects of COVID-19 in perspectives and practices of sustainability across an education community. We reflect on how disruptions or threats can trigger a (re)imagination of individual and collective action. Our findings suggest that the COVID-19 pandemic and its effects on individuals and societies have altered perceptions and practices of sustainability through envisaging previously unimaginable global environmental restoration, and experiencing personal, professional and collective changes. Our study shows that the perceived restorative effects on the environment of the pandemic lifted the education community spirits and enhanced *a willingness to change* by leveraging the social network around the education community to promote collective action.



Fish Trap Theatre Thursday 10.40 – 12.15

Mother Nature needs her Environmental Educators

Ingrid Albion (Tas) (Research Presentation)

As the tide changes so do all the inhabitants adapt. Now is our chance to bring some new ideas, voices and ways of being so we can create the change we need.

Homeward Bound Projects started as a dream to bring 1000 women from around the world with a STEMM background together to fight for Mother Nature. This ground-breaking, global leadership initiative, set against the backdrop of Antarctica, aims to heighten the influence and impact of women in making decisions that shape our planet's future. It recognises not only that women lead differently but when able to have an equal say at the leadership table they can bring the full force of humanity's power to solve some of the crisis that the world faces.

Its three strategic focal points around Women and Leadership are:

- I AM WILLING AND ABLE TO LEAD
- WE ARE STRONGER TOGETHER
- WE ARE TAKING ACTIONS WITH IMPACT

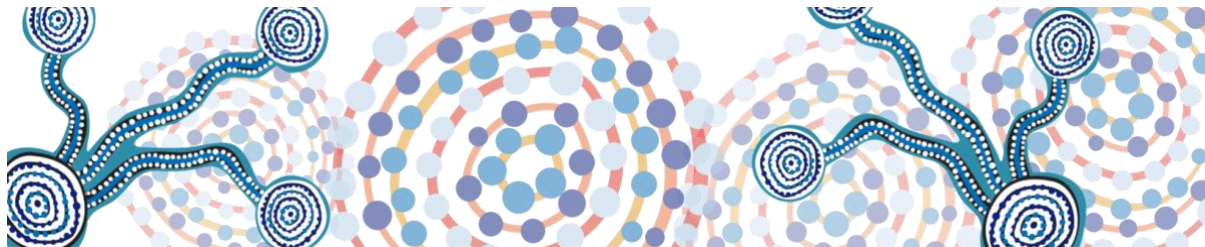
All the women chosen have a desire to work for the greater good of this planet and this program aims to provide them with the tools and strategies to make that difference. Team HB4 set sail to Antarctica in November 2019 containing a rich array of women change makers including a Kenyan lion conservationist, a NSW farmer for climate change, a rocket scientist, a renewable energy advocate at TU Delft, doctors, epidemiologists, engineers, environmental educators, policy makers and senior managers such as at the Global Fund for Disaster Reduction and Recovery.

Their audacious long-term plan is to change the world but their short-term plan became protecting the Antarctica Peninsula by having it declared a Marine Sanctuary. Discover how these warriors are leading to protect Mother Nature and save the world, one peninsula at a time. Use the Homeward Bound Project model to build resilience and strength into your programs and inspire collaboration for the greater good. Working together as global citizens is the only way to create the legacy this planet needs.

The impact of a youth-led *Conservation Action Project* and the benefits of implementing environmental and sustainability focused programs for young people.

Nikki Chatham (WA) (Practitioner Presentation)

In February 2021, six young people formed the Outdoor Adventures group, and signed up for the CSBP Coastal Connections Challenge. The CSBP Coastal Connections Challenge is a program that engages young people in a two day event where they have the opportunity to take part in workshops and discussions, whilst identifying coastal conservation issues and developing a plan for their *Conservation Action Project*. The program empowers young



people and creates the space to showcase their work and/or planned future projects at an event in late June.

We need to continue to think about how we as educators and practitioners think outside of the box and engage young people in inclusive, developmental, interactive and action-focused programs that contribute to environmental change. The CSBP Coastal Connections Challenge has provided the Outdoor Adventures group with the support to implement their project, create change and develop essential life-long skills. The group's project to date has involved organising multiple community beach clean-up days across the next two years, alongside this, they designed a youth friendly calendar to encourage young people to take part and continued advocating and fundraising for the installation of the CoastSnap coastal monitoring program in Kwinana.

The implementation of these programs are important to the continued awareness raising, youth participation, youth voice and future of our environment. Engaging young people in these discussions and programs can have a huge impact on their individual development and contribution to change. It can create a ripple effect, from changes and actions of their friends, family and community. This has been one of the results so far with the Outdoor Adventure group, as the main focus of their project will be undertaken after June, we expect more results and outcomes in relation to youth-led projects and their impact later in the year.

Learning to live with climate change – introduction and overview of book

Blanche Verlie (NSW)

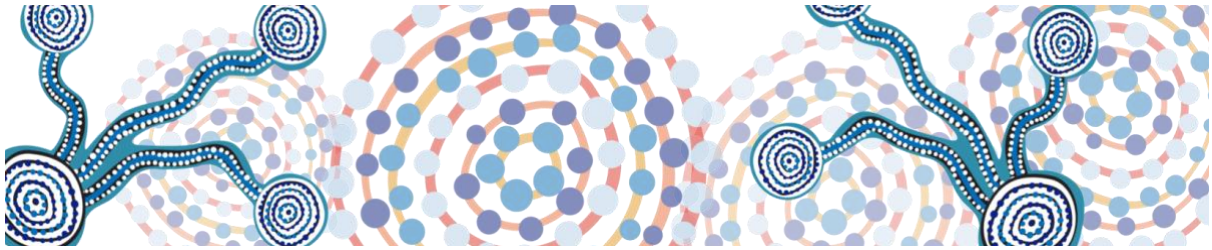
In this presentation I will be offering a brief introduction and overview of my book (available as a free e-book), *Learning to Live with Climate Change*, including its key theoretical contributions and practical guidance for supporting students experiencing ecological distress.

The book description is as follows:

This imaginative and empowering book explores the ways that our emotions entangle us with climate change and offers strategies for engaging with climate anxiety that can contribute to social transformation.

Climate educator Blanche Verlie draws on feminist, more-than-human and affect theories to argue that people in high-carbon societies need to learn to 'live-with' climate change: to appreciate that human lives are interconnected with the climate, and to cultivate the emotional capacities needed to respond to the climate crisis. *Learning to Live with Climate Change* explores the cultural, interpersonal and sociological dimensions of ecological distress. The book engages with Australia's 2019/2020 'Black Summer' of bushfires and smoke, undergraduate students' experiences of climate change, and contemporary activist movements such as the youth strikes for climate. Verlie outlines how we can collectively attune to, live with, and respond to the unsettling realities of climate collapse while counteracting domineering ideals of 'climate control.'

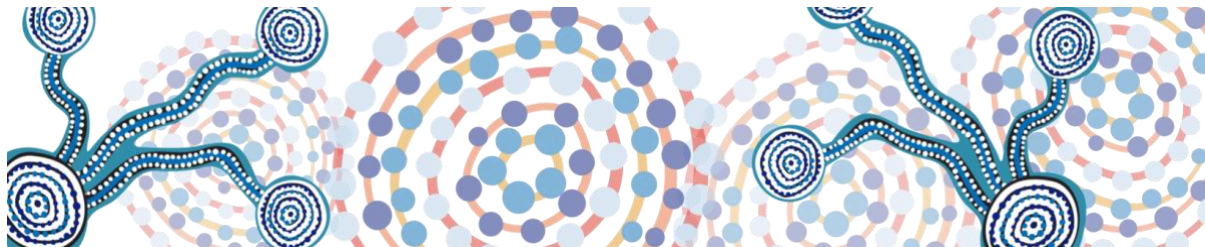
This impressive and timely work is both deeply philosophical and immediately practical. Its accessible style and real-world relevance ensure it will be valued by those researching, studying and working in diverse fields such as sustainability education, climate communication, human geography, cultural studies, environmental sociology and eco-psychology, as well as the broader public.



How to create meaningful connections with nature through storytelling

Nathan Bass (NSW) (Practitioner Presentation)

Storytelling is a powerful tool through which we can recount our own environmental experiences and facilitate a connection between our audience and the natural world. Our unique stories of animal encounters, environmental activism work or time spent in nature have the potential to inspire children to develop their own meaningful connection with nature. This presentation aims to cover the techniques that can elevate a simple story to a powerful tool to connect our students, teachers or the wider community with nature and to inspire them to take action towards having a positive impact on it. By rethinking the way we tell our stories and understanding the importance of good narrative structure and the neurochemistry of storytelling, it is possible to reactivate the same regions in our brains that were active during our initial experience. In turn, this has the potential to activate mirror neurons in the same regions of the brain in our listeners. Through the activation of these mirror neurons, our stories will resonate with our audience on a deeper level as they begin to feel as though they are active participants in our stories. Not only is the way in which we tell these stories important, but so is the content of them. Our stories must be authentic and recount our own personal experiences in a positive and uplifting way. In the same way that the moon pulls on the oceans to create the tides, our environmental stories can pull on the hearts of our audiences and lead to a positive shift in the impact they have on the environment. Our stories can create a movement in the hearts and minds of all those who hear them and together, we have the ability to inspire a generation of children to care about and love our planet.



Dance Studio Thursday 10.40 – 12.15

Caring for Boodja, building wellbeing: A novel Ecohealth programme in Margaret River.

Susanne Hicks (WA) (Practitioner Presentation)

This paper describes an innovative programme developed to address the educational and mental wellbeing needs of Margaret River Senior High School students. The town has many unique challenges, due to wide disparities in economic and social advantage, and susceptibility to economic hardship in a community dependent on a healthy natural environment for many of its industries.

Students passionate about protecting nature and/or less attracted to in-school learning, are being offered sustained nature-based work experiences and introduced to potential career options in the natural world, via weekly workshops delivered by people involved in environmental work, who discuss their professions as well as aspects of local biodiversity. The programme is embedded in a whole of community approach, calling on the in-kind support of local and regional stakeholders, and government, academic and volunteer organisations, working in the fields of environment and mental health. It sits under the umbrella of the EcoHealth Network, a global organisation supporting initiatives such as this one, which are at the intersection of ecological, human, and soil health, and Mindful Margaret River, a community-based initiative promoting mental wellbeing and resilience. Gondwana Link, a regional ecological regeneration organisation, is a major sponsor.

The traditional owners of the region, the Wadandi, are formal custodians of the project and play a significant role throughout in educating participants about aboriginal lore and sustainable land management practices.

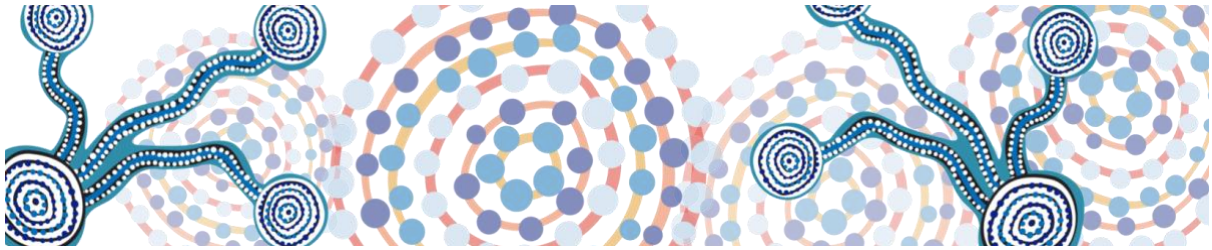
The programme was conceived following anecdotal accounts of the significant mental and physical health improvements of young people involved in ecological regeneration projects in the NE Bioregion of Tasmania. It was surmised that repairing degraded country was a key to these improvements but empirical evidence was lacking. The programme was specifically designed to test this hypothesis, in collaboration with researchers from UWA Psychology department. The research model is described and preliminary outcomes discussed.

The evolution of the Children's Gngangara Groundwater Festival – Whiteman Park's flagship environmental education event

Sarah Stevenson (WA) (Practitioner Presentation)

How do we teach the community to care for a hidden resource on which our ecosystem depends? How do we interest the next generation in protecting something they cannot see? Whiteman Park, a conservation and recreation reserve in Perth's north-east, exists, in part, to protect the land and catchments above the unconfined Gngangara Water Mound aquifer.

In 2002, Whiteman Park brought its own unique adaption of an American model of the Children's Groundwater Festival to Western Australian students. Whiteman Park offers a unique venue for the festival because it relies 100% on groundwater for its own water



supplies and acts to protect the southern tip of the Gngangara Water Mound, as well as the unique Swan Coastal Plain habitats that rely on it.

This talk will explore the development of this remarkably engaging learning festival over the past fourteen years and look at the creation of one of the activities that are presented to primary school students at the annual event.

We are teaching children who are old enough to understand groundwater and related environmental concepts while they are still young enough to form their own value systems – and most importantly, change both their own and their family’s behaviours.

We will illustrate how the children learn through play-based activities, how they self-discover the affects our life choices have on the environment and groundwater in particular, and demonstrate the messages that can be applied by children in their own lives – choices they and their families can make to make a difference.

Waste education for CaLD (Culturally and Linguistically Diverse) communities utilising a strength based community development approach and the multilingual learning resource WasteSorted – Talking my language.

Emma Syme (WA) (Practitioner Presentation)

This presentation explores the benefits and challenges of adopting strengths-based community development approaches to waste education with CaLD (culturally and linguistically diverse) communities. “WasteSorted – Talking My Language” is a multilingual learning resource developed to assist waste sorting behaviours and language development for CaLD communities. This resource was activated through partnerships with community leaders, to overcome the difficulties experienced by CaLD demographics in understanding waste services information due to language and literacy barriers.

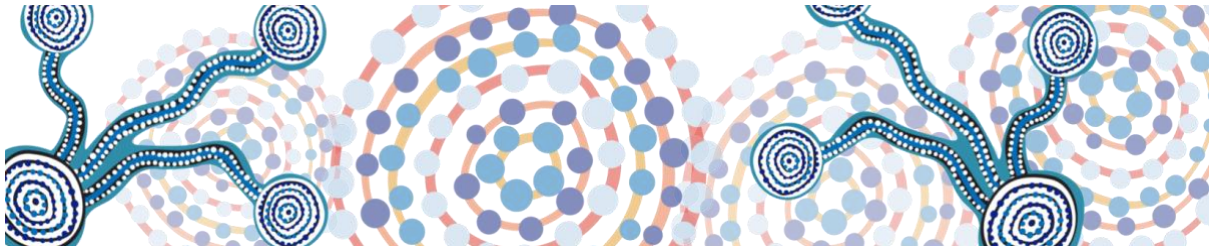
Capacity building workshops and learning kits in the language of choice were provided, with guidance on how to deliver a learning session, to all community leaders involved. This model of activation built positive community engagement, and reinforced the importance of connection to community through the everyday experience of sorting your household waste.

Learning kits were also distributed to local school environments to support the Western Australian Curriculum’s sustainability cross-curriculum priority in Languages syllabus. In this setting the shared, everyday experience of sorting your household waste becomes a cross cultural development tool to build stronger communities, while making waste education information more universally accessible.

Water: Let’s make It Last - Bathurst Regional Council’s successful water conservation campaign which is underpinned by community education, engagement, and enforcement.

Alison Thompson (NSW) (Research Presentation)

This presentation will showcase the success of Bathurst Regional Council in engaging the local community to conserve water throughout the worst drought experienced in the region’s



history. The Water: Let's make It Last program continues to focus on education, engagement, and compliance to deliver ongoing and substantial water savings and has changed forever the way the community values water. The presentation will go on to demonstrate how this LGNSW 2020 Excellence in the Environment award winning program could be replicated in other communities.

Abstract

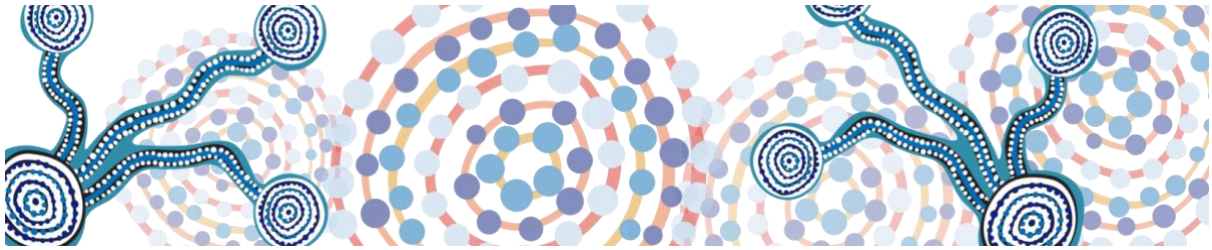
The Water: Let's Make It Last program is a comprehensive community engagement program designed and delivered by Bathurst Regional Council staff in order to support the implementation of water restrictions in response to the region's worst drought on record over the period of 2017 – 2020. Despite rainfall in late 2020 the program and accompanying water restrictions remain in place as a first step in ensuring long term water conservation.

The key objectives of this innovative program were to:

- Rapidly generate community-wide awareness and ensure ongoing access to information about water availability and water restrictions
- Build the capacity of the community to respond to water shortages through community engagement activities
- Achieve high level compliance with water restrictions; and
- Drive positive behavioural change that would result in a significant and sustainable decrease in water consumption across residential commercial, industrial, and agricultural uses, therefore achieving the cornerstone of any water demand management strategy.

The program has seen the implementation of diverse communication and capacity building activities rolled out alongside compliance measures, to support Council's introduction of water restrictions.

The Water: Let's Make It Last program's relevance to other communities lies in its ability to integrate compliance, communication, education, and engagement to generate positive responses from water industry stakeholders and consumers. The program brought into focus the interdependence of water industry stakeholders and consumers, and the value of collaboration across all levels of Government to effect positive short and long-term outcomes that considered the interests of all parties and conserved water. Council's challenges in this regard reflect those of many other communities located within the Murray-Darling Basin and foreshadow the challenges set to come with potential future changes to climate and weather patterns across the region.



Art Gallery Thursday 10.40 – 12.15

Removing barriers for school participation in coastal and marine education through Perth NRM's Adopt A Beach Program.

Wayne Walters (WA) (Practitioner Presentation)

Perth NRM is addressing the need to create opportunities to nurture pathways for young people to become active participants in caring for our fragile coastal and marine environments. This will be achieved through the Adopt A Beach school program, with support from the Feilman Foundation.

The Adopt A Beach program features a variety of approaches for students (currently K-10) to participate in meaningful, facilitated “at-beach” and “in-class” experiences as well as teacher-directed activities. Environmental education providers often cite the difficulties that they experience in trying to connect children to NRM and Landcare programs.

This presentation outlines Perth NRM’s approach to reduce the barriers to school participation in the Adopt A Beach program. It also demonstrates the CONNECT → ENGAGE → ACT model that drives an audience-centred Adopt A Beach experience.

Teaching empathy not facts to save Australia’s wildlife.

Dean Huxley (WA) (Practitioner Presentation)

Australia has the highest rate of species extinction in the world - now more than ever, wildlife conservation needs to be flagged as a priority in Australian education. But the education model we have used for decades is not working.

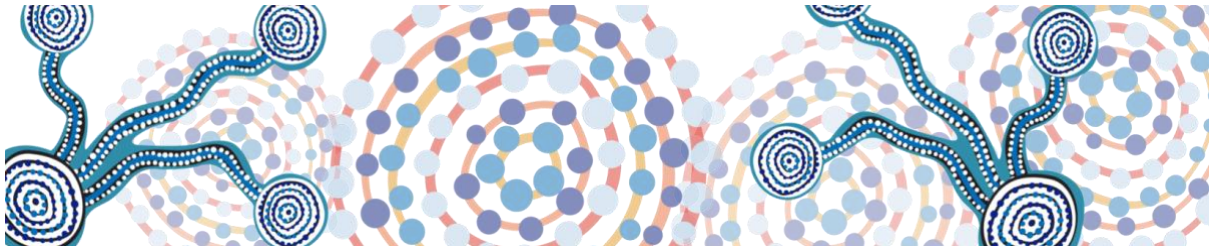
For decades, wildlife conservation has been seen as something that can only be achieved through science and research. And whilst science and research is important in our fight to preserving our precious flora and fauna, the strategies are not working. We are losing species at an alarming rate and the tried-and-true educational models we teach our children are falling short.

World renewed environmental lawyer and advocate, Gus Speth, is now sharing a similar message:

“I used to think the top environmental problems were biodiversity loss, ecosystem collapse and climate change. I thought that with 30 years of good science we could address those problems. But I was wrong. The top environmental problems are selfishness, greed and apathy...and to deal with those we need a spiritual and cultural transformation – and we scientists don’t know how to do that.”

WA Wildlife has a new way of teaching students how to conserve our beautiful wildlife – and science has nothing to do with it!

Cry of the Forests – a tool for educators to engage and inspire audiences to take action to protect our forests and our planet



Jane Hammond (WA) (Practitioner Presentation)

The south west forests of Western Australia grow nowhere else on earth and are part of one of the most biodiverse regions on the planet. They are critically important for biodiversity protection, carbon storage and the water cycle yet we are chopping them down at the rate of 10 football fields every single day.

Cry of the Forests is a social impact documentary film that highlights the plight of WA's native forests and their real value in drawing down and storing carbon. It is currently available to schools and universities and is screening in cinemas around the nation. This presentation discusses the role of documentary film in changing attitudes and building a movement. It looks at how Cry of the Forests is inspiring and engaging audiences and moving people to action. It also examines the role of education in changing attitudes and challenging a dominant narrative. The presentation will discuss how Cry of the Forests can be used as a tool in the classroom and the cinema to engage students and other audiences to understand and value the forests we have left and work to protect them

Connection, Ownership and Change - fostering engaged, active citizens of the future through student-led learning in the World Heritage-listed Blue Mountains of Australia.

Emma Kennedy (NSW) (Practitioner Presentation)

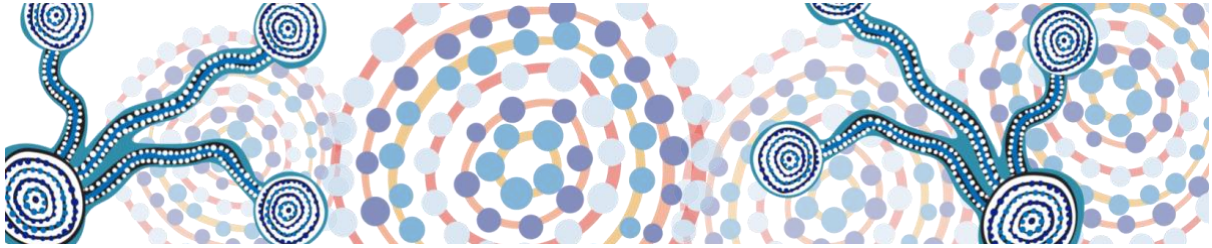
Connecting Kids to Nature is an outdoor experiential learning program aimed at fostering a sense of connection and ownership to place among students and young people in the World Heritage-listed Blue Mountains of Australia. The program has been running since 2014 and caters to around 1,200 children and young people from schools and Early Years Learning Centres each year.

We acknowledge that people will only seek to protect something if they care about it first; so we begin by offering children and young people positive outdoor learning experiences in nature.

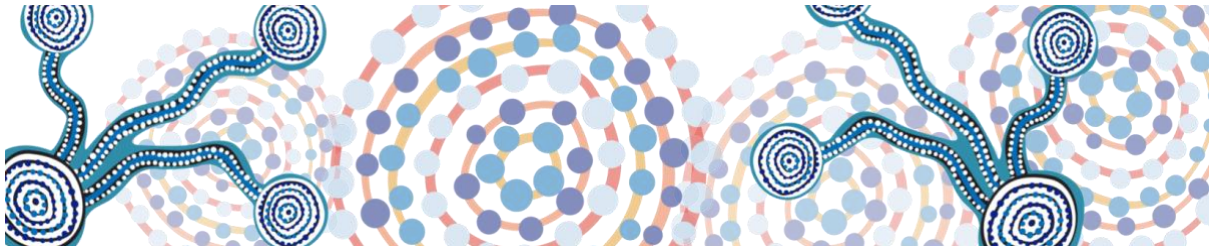
Our core principle is to place student voices and interests at the centre of their experience, by offering choice, providing multiple experiences, and designing learning tasks where students do the thinking. We challenge participants to see the world differently, whether its from the perspective of a raindrop or a water bug or understanding what it means to be a predator / prey.

We are equally interested in outcomes for children's learning, health, resilience, and social-emotional well-being. We create spaces for children and young people to just 'be' in nature – and take time to explore 'valuable time-wasting opportunities.

Our program is not a one-size-fits all affair – it changes and evolves depending on the context, student needs and collaborative partners involved. Collaboration is both the cornerstone of our program and the source of its richness and vitality. From local schoolteachers and Traditional Owners to experts-in-the-field and passionate community members, we draw on a deep well of expertise, creativity, and energy, constantly evolving and changing our program to create rich, meaningful experiences for young people.



By grounding our program in local, real-life experiences and stories, we can also provide pathways for meaningful, effective action. From citizen science projects aimed at protecting koalas from climate change and the design and build of water sensitive systems, to kids-teaching-kids, we bring people together to create positive social and environmental change.



DAY 3 AFTERNOON (KEYNOTE PRESENTATIONS)

Boardwalk Theatre Thursday 13.00 – 16.20 (Live Streamed)

Values-based communications to drive social change and action

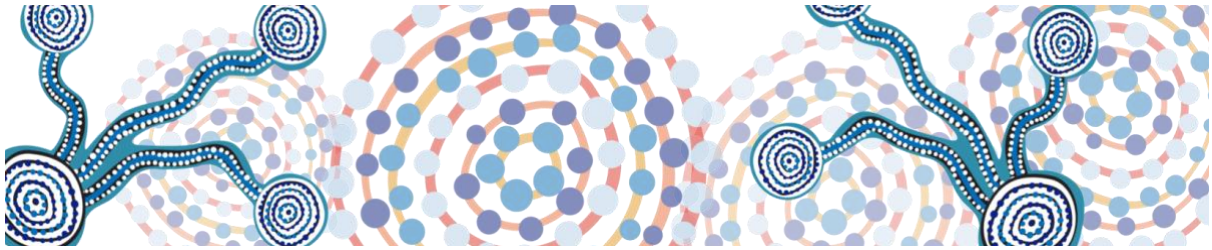
Eleanor Glenn

Values-based communications to drive social change and action Values are at the heart of what we do and why: they are our guides to what ought to be done, and our motivation to take action. In this session, Eleanor will introduce the foundational research findings about values and how they work, and share recent examples of values-based communications. All environmental educators can use this knowledge of values to engage a diverse range of people and design effective communications and programs.

Women Leading Change - why women's leadership for our environment and climate action can transform Australia's response to these crises.

Victoria McKenzie-McHarg

The world now faces an unprecedented set of environmental and climate crises. Overwhelmingly, our existing political, business and civil society leadership has failed to adequately respond to these crises. It's time for leadership change. Put simply, we will not get out of this by relying on the same leadership that got us into it. Instead, leadership styles that are collaborative, networked and responsive to communities will be essential elements in the transition to a sustainable future. Qualities we see in abundance in women's leadership. International evidence indicates that more women in decision making leads to better environment outcomes. While many women are already leading for our environment in Australia, this leadership has largely remained unsupported, unseen and unfunded –limiting its impact and influence. Women's Environmental Leadership Australia (WELA) is empowering, supporting, funding and diversifying women's leadership for our environment and climate action, so that women's insights, knowledge and contributions are fully integrated and valued in the changes we need to make to save our future.



DAY 3 AFTERNOON (WORKSHOPS/PRESENTATIONS)

Boardwalk Theatre Thursday 14.40 – 16.40 (Live Streamed)

BackYard Bandicoots – Transdisciplinary partnerships to engage community in urban bushland conservation

Bonnie Beal Richardson & Catherine Baudains (Research & Practitioner Presentation) (30min) (WA)

Best-practice environmental management relies on cutting-edge research to help shape and develop innovative outcomes. Local governments often lack the resources, experience and skills required to deliver scientific research whereas universities can provide scientific rigour, capacity for research and access to a significant body of literature. However, on their own universities may lack access to research sites to embed research into on-ground practices and the ability to connect with local communities. The linking of the two leads to significant benefits for research, environmental management and local and broader communities. This project showcases the benefits of the Backyard Bandicoots project; a partnership between local government, research institutions and local communities.

Backyard Bandicoots was developed by Murdoch University and the City of Mandurah as part of an Australian Research Council (ARC) Linkage project. The project commenced in 2016 and aimed to:

- Increase community involvement and engagement in the conservation of urban ecosystems,
- Identify how bandicoots contribute to healthy urban bushland through the dispersal of beneficial root fungi,
- Identify habitat use by quenda, using innovative technology to track and monitor animals, and
- Identify and mitigate threats to quenda

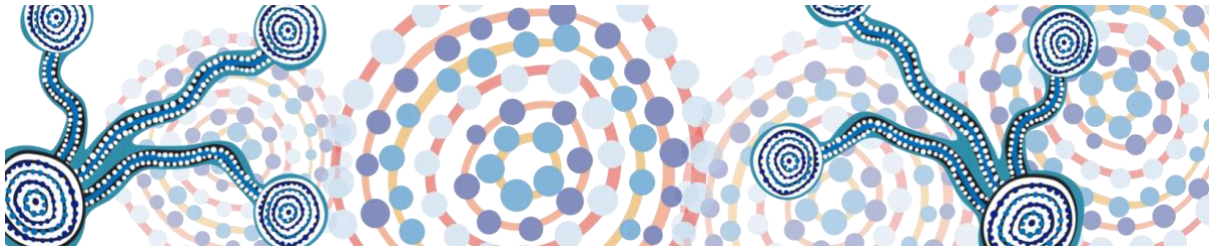
The information gathered through this project contributed significantly to scientific understanding, enhanced the capacity of City staff and local volunteers to appropriately manage for quenda on their own properties/reserves, and increased the local community's understanding of and interest in urban ecosystem processes.

TurtleTagging – Citizen Science through Local Government Partnership with University

Vicky Hartill & Dr Jane Chambers (TBD) (30min) (WA)

To reduce mortality rates in Bibra Lake's native turtle population, in 2019 the City of Cockburn in partnership with Murdoch University, Parks & Wildlife Services, WA Wildlife (formerly Native ARC) and The Wetlands Centre launched the Turtle Trackers citizen science program to help protect nesting females, their nests and eggs during the peak of the nesting season.

Volunteers were recruited and tasked with tracking nesting female turtles around Bibra Lake



from September to November, logging information about turtle sightings and behaviour, and helping to install nesting cages to protect hatchlings. Following two seasons, the program has shown positive signs in supporting the turtle population, and educating the community, but to see lasting results there's still a long road ahead. Learn about the successes and challenges of the Turtle Trackers over the last two years, and how the City plans on continuing this program.

28 years and counting: How does a local Coastcare group remain relevant and engaging?

Mel Horton (Practitioner Presentation) (30min) (WA)

Bouvard Coastcare Group was started 28 years ago in 1993 by a small band of thoughtful residents in Melros. Headed up by Malcolm Flett, a retired bank manager, the group has a vision to maintain and improve their coastal area. They went on to achieve great things but now and then they lost their mojo. This presentation will take delegates through the Bouvard Coastcare Group story, and share our learnings from 28 years of community action. It will include tips and tricks for how the group is still going strong today.

Topics covered:

Choose your leader – business savvy/innovative

Choose your secretary – detailed/organised/IT literate

Choose your treasurer – financial/grants

Choose your committee – core dedicated members/knowledgeable

Use IT to keep admin simple & working for you – Website/Jotforms/Mailchimp

Good exciting projects/United against a cause

Engage with the community & stakeholders

Market, market, market – website/Facebook/newsletters/local press

Is your work with children 'Sticky and Elastic'? Fun ideas for memorable learning.

Emma Hayes/Rowena (NSW) (30 Mins)

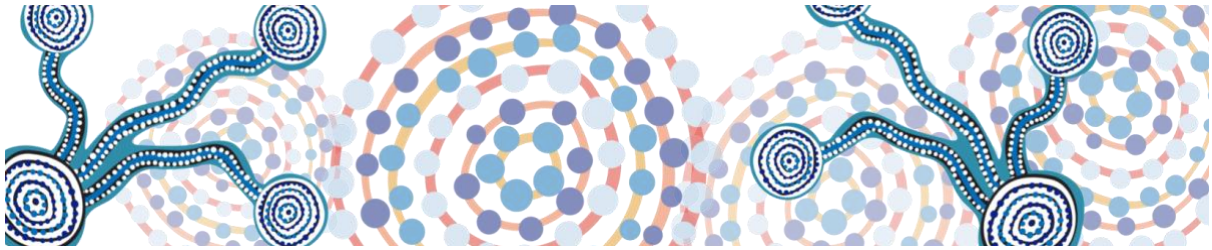
Willoughby City Council is a heavily populated urban area that has continuously grown a resilient, environmentally connected community.

The Council Environmental Education program has been successful in building a high profile and popular status within school, community and preschool groups. Projects continue to engage all schools and are activities for the community are continuously booked out.

Engaging with busy Schools is challenging and once through the door, it requires environmental educators need to give more, cover more curriculum requirements and involve ever increasing number of students in tight spaces.

Covid created a desire within the community to get out into nature in numbers never seen before. The demand for nature interpretation is at an all-time high but how can we make those first-timers, especially those with busy families continue to spend time and develop a passion for conservation?

Providing learning experiences that focus on nature and enables each person to have fun experience is a proven winner. Repeat customers want more.



This workshop will detail how the Wildlife Storybook project has continued to create a platform for engagement within schools. How creative presentations about wildlife have included the children and made them think.

If you think of snails and slugs, think of making natural slime to play with. If you want to teach about Octopus think about getting kids to use their body language to communicate like the Octopus. Learning about Butterflies that dance whilst sharing Pheromones can be a fun dance routine.

This workshop aims to be fun and ensure all participants feel like they have the power to engage with children in a huge variety of ways. To make the learning memorable (sticky) and enable the project to be resilient and stretch far and wide (elastic).

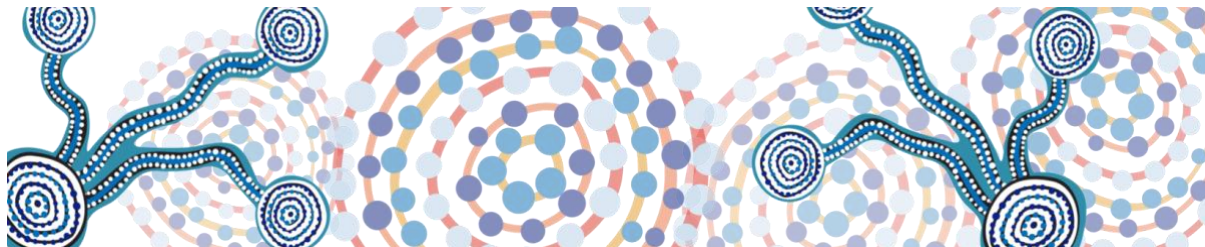
Fish Trap Theatre Thursday 14.40 – 16.40

Responding to IOC-UNESCO Draft Strategy: Ocean Literacy for the UN Decade of Ocean Science for Sustainable Development (2021 to 2030).

Harry Breidahl (30min/Prac Presentation) (Vic)

Marine education in Australia has had a long history, one that parallels the development of environmental education in this nation. One example of this parallel development has been the close association between the Marine Education Society of Australasia (MESA) and AAEE. MESA has been through the first three phases of the Adaptive Cycle – forming in 1984, developing and achieving a high level of success in the 1990s then losing momentum until it finally merged with AAEE in 2014. Although it has taken a while, this new AAEE/MESA entity is aiming to launch into the reorganisation phase and do so by facilitating a national educational component of the UN Decade of Ocean Science for Sustainable Development (2021 to 2030). This response will be based on the IOC-UNESCO concept of ocean literacy.

The focus of this presentation will be to briefly outline the development of the concept of ocean literacy, firstly in the USA and then the international take-up of ocean literacy that resulted in IOC-UNESCO redefining ocean literacy and building it into their response to the challenge of creating the educational components of the UN Decade of Ocean Science for Sustainable Development. Because the UN Decade began in 2021 we are at the start of this internationally significant initiative that, thanks to the involvement of IOC-UNESCO, has a strong education for sustainability component. The main part of the presentation will focus on the reorganisation phase of the Adaptive Cycle by outlining plans to develop a systematic, consensus derived and inclusive national approach to ocean literacy in Australia and do so as part of a strategic response to IOC-UNESCO Draft Strategy: Ocean Literacy for the UN Decade of Ocean Science for Sustainable Development.



Eco-Tourism and Environmental Education to foster connection and conservation of the natural world.

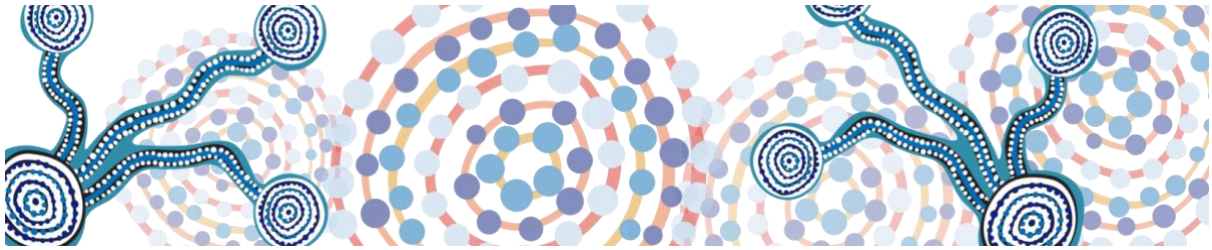
Jamie & Sebastian (30min/Prac Presentation) (WA)

Working as Expedition Guides around the world, taking people to wild places like Antarctica, The Kimberley and the Arctic has given amazing insights to the way experiences in nature can change people's perceptions. With backgrounds in science Jamie and Sebastian have taken their worldwide experience as naturalist guides and lecturers and brought their insights into Eco-Tourism and Environmental Education back home to Mandurah. Launching Salt and Bush Eco Tours as a way to foster environmental connection and awareness to the local area has been one aspect of the couple's endeavors to help care for the local environment. The other side is starting a Not-for-profit focused on environmental education to further create connection and help foster young people to become naturalists and stewards of the environment. Together this creates a hybrid social-eco enterprise, where both arms of the organization strengthen the other. Using nature-based experiences for all ages, Jamie and Sebastian have been able to strengthen community connection to nature and are starting to see positive results in the early stages of their organization. This presentation will outline the learnings from a year in operation as a Hybrid eco enterprise and also share the future aims of the organization as they move forward as environmental educators in business and in a not-for-profit organization.

Empowering small businesses to connect with nature

Gun Dolva

Understanding the human-nature relationship (Braitto et al., 2017) and how individuals and their workplaces engage with nature is an area of increasing research effort (Cantele & Zardini, 2020; Grant, 2017). Such research is critical if we are to mitigate some of the risks associated with climate change (Lopez-Claros, 2020; UnitedNations, 2018). They challenge us to think about how businesses relate to nature and opens up opportunities to create, innovate and encourage entrepreneurship to do so better. Fostering change at the grassroots level can create movement towards larger changes in communities, governments, and their networks. Some solutions lie in engaging with environmental education and adopting 'greener' practices such as green purchasing, incentives and reduction in the use of natural resources (Yildiz Çankaya & Sezen, 2019). Other research indicates that when the strength of pro-environmental values by management match those of employees, an organisation may be more able to balance profit with environmental values (Lu, Liu, Chen, & Long, 2019). We also know that when individuals have experiences in nature their environmental attitudes are increased (Molina-Motos, 2019; Rosa & Collado, 2019). There is however, an absence of research on the role an individual's affiliation with nature (nature connectedness) has on the environmental management of an organisation (Boiral, Heras-Saizarbitoria, & Brotherton, 2019). Research such as this is therefore necessary, not only to fill the gap between what are practical solutions, organisational goals and how these relate to perceptions about nature, but also to explore collaborative solutions (Zylstra, Knight, Esler, & Le Grange, 2014). This presentation summarises the outcomes of such research. It involved in depth interviews with



a focus on ecocentric perspectives and motivations in café and construction industries and presents a collaborative framework that is based on the results from these interviews.

Dance Studio Thursday 14.40 – 16.40

Bringing The Web Of Life To Life

Helene Fisher (2hr) (WA)

Your local nature reserve or wetland, a forest – or the school garden – can be the dynamic classroom through which students can learn first hand about interrelationships in nature.

As they build their knowledge of endemic and introduced species and discover their interrelatedness, students are building their systems thinking capacity. So when they then hear the interconnected ‘voices’ of an ecosystem ‘in council’, the emergent scenario acts as a powerful information base for devising motivated, collaborative action-based projects.

The “Council of All Beings” is an engaging process in which students speak as and on behalf of a local species which they have researched. It gives them an embodied experience of life from the perspective of a voiceless plant or animal, enabling them to see the often invisible effects of certain actions of humans.

A “Council...” can form the pivotal point in a program which addresses curriculum requirements of STEM, English, Health Education, HASS and The Arts as well as the cross-curriculum priority of Sustainability. Supporting materials for preparatory and follow up activities have been used by a number of schools to build an adaptable program into their curriculum. Such a program would cover materials for practicing skills of systems thinking and critical and creative thinking, with many possibilities for practice through forms of written and verbal expression. As well, the local world of nature, however small, can provide opportunities for observing, investigating, analysing and recording data. It’s as much about what students discover and identify as what aspects of nature are missing!

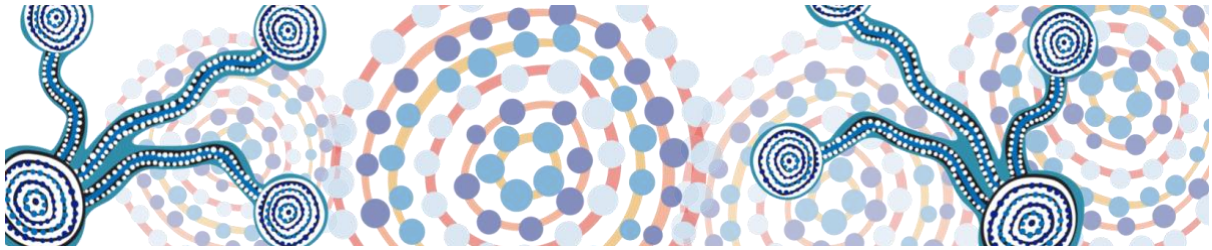
Helene will give an overview of past inspiring programs pivoting around a Council of All Beings at both primary (year 5 & 6) and secondary levels. Workshop participants will hear and engage with possibilities, strategies and activities for integrating it into and supporting the primary and lower secondary curricula.

Art Gallery Thursday 14.40 – 16.40

Engaging multicultural communities in sustainable behaviour

Joshua Brown & Michael Burke

Australia has a culturally diverse population. Currently, 30% of Australia’s population were born overseas, coming from over 200 countries and speaking many languages. A growing population puts increasing pressure on the sustainability of Australia’s natural resources. Furthermore, increasing cultural diversity means that natural resource management agencies



face a raft of challenges engaging with culturally and linguistically diverse communities about sustainable practices.

In Western Australia, the Department of Primary Industries and Regional Development is responsible for the sustainable management of the state's aquatic natural resources and environment. To achieve this outcome the Department uses an integrated approach of fisheries management; research and assessment; and education and enforcement.

Recreational fishing regulations apply to all members of the community. Good communication of these rules is important, as is educating the community about the importance of sustainable behaviour. To successfully engage with a culturally diverse community and encourage voluntary sustainable practices cannot only be challenging, but also extremely rewarding and integral to the sustainability of our fisheries and aquatic environment.

Communicating sustainable messages to culturally and linguistically diverse communities requires a multi-faceted approach. We invite you to join us in an open discussion, where we can share ideas, experiences and possible solutions to successful engagement across cultures and communities.

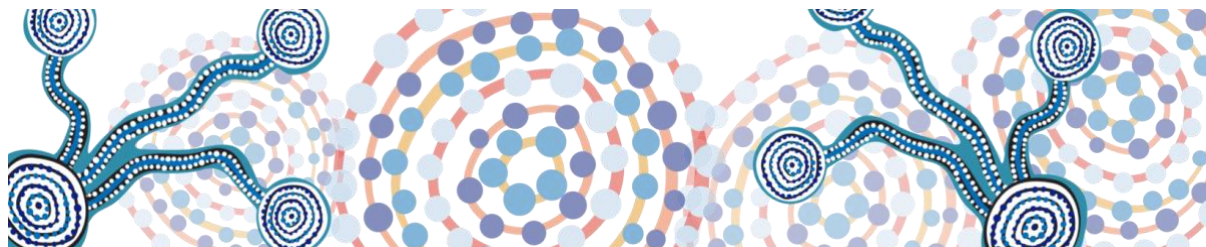
This 60 minute session will explore how we can better value an informed, diverse world. It will incorporate a short introduction from the presenters and involve significant participation from the audience.

Foyer Thursday 14.40 – 16.40

**Forest therapy: using mindfulness to foster pro-conservation behaviour
(2hr off-site Workshop)**

Belinda McCawley (WA)

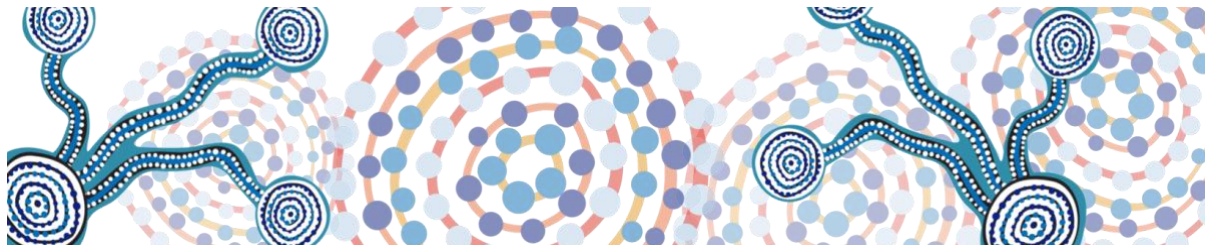
Our society is facing significant ecological and sustainability challenges which demands innovative, practical and creative solutions to change the tides of environmental and sustainability education. Mindfulness can play a key role in addressing environmental challenges through expanded consciousness, self-awareness, compassion and empathy to open hearts to a movement of change. The term "forest therapy" is associated with mindful experiences in nature. It is a medically proven, evidence based public health practise that combines a specific blend of complimentary activities in a forest or natural area. Forest therapy fosters connectedness with nature and promotes a sustained awareness of the interrelatedness between one's self and the rest of nature. It offers participants creative and innovative ways to develop a deep connection with nature. When we have a connection with nature, we have an innate desire to protect. Reconnecting people with nature can play a useful role in addressing many of today's ecological and sustainability challenges.



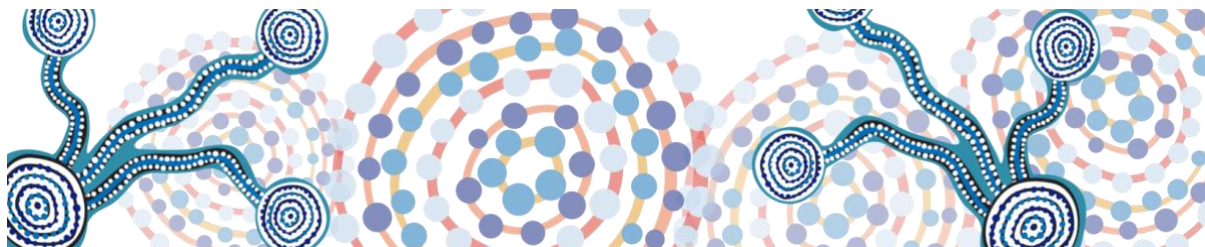
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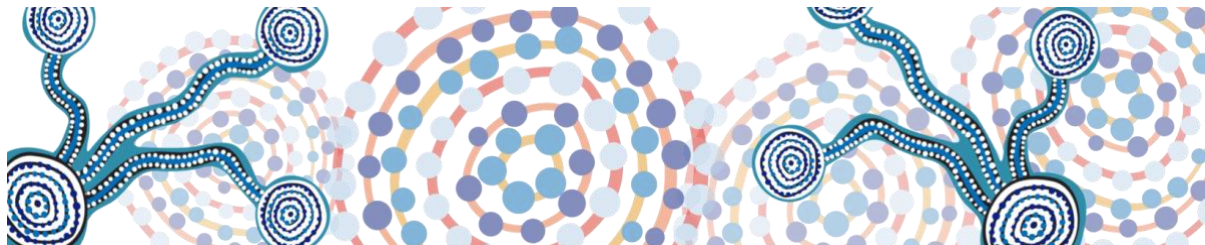


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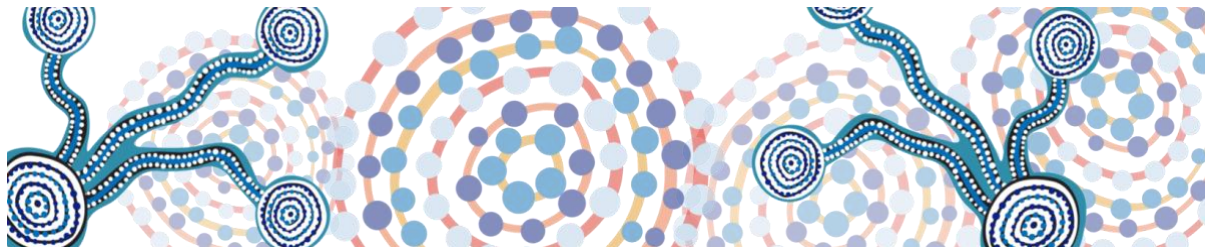


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