



# Mandoon – The Helena River Confluence

Waterways Western Australia

December 2023



THE UNIVERSITY OF  
**WESTERN  
AUSTRALIA**

**FEILMAN  
FOUNDATION**



*“The entire Helena River floodplain is the mythological site for the Wagyl and is culturally very important to Noongar people. Any disturbance of the river will damage its historical and spiritual values.” (G. Ugle, 2022)<sup>1</sup>*

*“We need to acknowledge the place of Helena River in the myths of Australian history and identity.” (Helena River Confluence, 2023)*

*“I was introduced to this river in my work and fell in love with it. Its spirit is strong, wild and beautiful.” (HRC, 2023)*

*“I have a lifelong connection to Helena River, having grown up on a property with a creek feeding the river through it. I have waded through it, sat on the banks, sketching trees, swum in it on rare occasions, and stood up to protect it.” (HRC, 2023)*

*“I want to learn the customs, beliefs and knowledge of the first people who knew the Helena River.” (HRC, 2023)*

*“I am a Traditional Owner with no power or control of activities on country.” (HRC, 2023)*

*“I want to feel hopeful that there is a pathway to heal the river and build resilience.” (HRC, 2023)*

*“Water is a precious commodity in a country like ours. Without water, we have nothing. Water is essential to all life and culture; it was in the past and still is today. Water doesn’t just come from a tap. Water brings life.” (HRC feedback, 2023)*

*It took me a while to love the Helena River,  
with its messy bed full of fallen paperbark trunks,  
flowing only at times of good rain,  
with its floodplains at times neglected and weedy,  
its eroding banks, its course constrained by ever expanding development,  
its flow robbed by upstream dams.  
But then you start to pay attention,  
you see the towering trees that adorn those banks,  
that anchor the wetland in its place,  
you follow their trunks towards the sky and see holes in those trunks,  
birds in those hollows, flowers in those branches.  
You hear the frogs at night and the call of magpies,  
sometimes when you are lucky you catch a long-necked turtle sunning itself,  
a quenda rummaging in the leaf litter under the shade of those century old trees.  
Mandoon Bilya, the Helena River, slowly wins you over,  
and once she gets hold of you, she makes your heart forever hers.*

*Poem by Dr Marilena Stimpfl, Lower Helena Association*

# Acknowledgement

*Ngala kaadatj nidja Noongar Boodjar. Kura kura, yeye, boorda.*

*We know that this is Noongar Land. A long, long time ago, today and forever.*

Whadjuk and Ballardong people of the Noongar Nation are the Traditional Owners and Custodians of this Boodjar (land) and its Bilya (river).

There are several Noongar names for what is now commonly known as “Helena River”. In Guildford, it is “Mandoon” or “place of many trees”. Yagan, a Noongar leader, described the land to Robert Lyon in 1832. The land south of Mandoon, between Derbarl Yerrigan (Swan River) and Djarlgarro Beeliar (Canning River), was Beeloo country, Munday’s territory. North of Mandoon, from Derbarl Yerrigan and Moorda (Darling Ranges) to the Upper Swan, was Weeip’s territory <sup>2</sup>.

In Noongar culture, the river was formed by the Wagyl, the Great Creator Spirit. The river is highly significant to Noongar people, who have occupied its banks and floodplain for many thousands of years. The entire river is a registered Aboriginal heritage site, with over 40 individual sites within the wider registration, and the river’s floodplain contains the second oldest archaeology site in southwest WA, with at least 29,000 years of demonstrated occupation<sup>10</sup>.

We pay deep respect to Noongar people, their Ancestors, Elders, Descendants, and their profound connection to Boodjar. We are very grateful for knowledge shared by local Aboriginal people with special thanks to Greg Ugle, Muriel Bowie, Bella Bropho, Kelvin Garlett, Betty Garlett, Peter and Miranda Farmer, Joe Collard, Ben Ugle, Fred and John Mogridge, Walter and Meg McGuire, Ilona McGuire, Lucy Arnall and Quinton Tucker.

## Dedication

This document is dedicated to the memory of Alice Warrell, a much-loved Whadjuk and Yued Artist who camped along the Bilya in Midland with her moort (family) as a child. We show great appreciation and gratitude for Alice’s insight into the Bilya’s significance to Noongar people and her strong advocacy for its protection.

## About

The document was written by Francesca Flynn of Evergreen Consultancy WA on behalf of *Waterways Western Australia*. Francesca was supported by Whadjuk-Noongar Elder, Greg Ugle. Unless otherwise credited, diagrams were created by Francesca Flynn, maps by Daniel Jan Martin and graphic workshop recordings by Peta Roebuck and Will Bessen of Tuna Blue. Photographs by Francesca Flynn, Scott Slawinski of Base Imagery, and Kelly Bucksey of Kelly Bucksey Photographer.

The *Mandoon - Helena River Confluence* process was a collaborative effort by *Waterways Western Australia* including Executive Director Prof Anas Ghadouani, A/Prof Nadelle Brooks, Ross Allen, Francesca Flynn, Daniel Jan Martin, Dr Sarah Laborde, Prof Kirsten Martinus, Rob Shannon, Dr Liah Coggins, Collene Castle, John Savell, Sarah Hissey, OnYou Na and Katherine Cresey. The *Helena River Confluence* event hosted in March 2023 was facilitated by Ross Allen, of Three Seeds Agency. Community feedback was digitised by OnYou Na and modelled by A/Prof Nadelle Brooks and Francesca Flynn with support from the *Waterways Western Australia* team. For information, contact [waterways@uwa.edu.au](mailto:waterways@uwa.edu.au)

We are deeply grateful to the local community for their participation, in particular, Prof John Considine of *Helena River Alliance*, Dr Marilena Stimpfl of *Lower Helena Association* and Philip Lane of *Helena River Catchment Group*, who sparked this initiative through the *Helena River Alliance*. We give heartfelt thanks to the *Feilman Foundation*, in particular Tom Perrigo OAM, and *The University of Western Australia*, for their leadership and support which enabled this project to occur. We give special thanks to Executive Director, Professor Anas Ghadouani, for his invaluable knowledge and guidance.

This document is a community resource which is intended to be shared and used by as many people as possible. It is an open invitation to everyone to get involved with a new future not just for Helena River, but for all waterways.

This document should be referenced as: “Flynn, Francesca and Ugle, Gregory (2023) Mandoon – The Helena River Confluence, *Waterways Western Australia*, The University of Western Australia, 14 December 2023”.

## Foreword

The approaching Bicentenary of Western Australia in 2029 beckons a unique occasion for reflection on the challenges, truths, impacts, and innovations of the past two centuries. It also invites us to collectively gaze ahead to the next 200 years, fostering a shared vision for the waterways in Western Australia.

The Waterways Western Australia initiative started as a collaboration between The University of Western Australia and the Feilman Foundation, recognising the need for harnessing the community's profound spiritual and emotional bond with the State's waterways, channelling it into tangible social, economic, and environmental benefits. This involves integrating scientific and traditional knowledge, aligning with community values, and devising action plans for sustainable management that extend beyond the forthcoming 2029 Bicentennial.

Waterways - comprising groundwater, surface water, wetlands - constitute a crucial ecosystem vital for the health and well-being of all Western Australians. They play a pivotal role in providing essential services such as water supply for communities, industry, mining and agriculture, recreation and tourism, while also serving as critical habitats for diverse flora and fauna.

The last 200 years, however, have taken their toll. Disappearing wetlands and dead and dying river systems have combined with decreasing rainfall and increasing populations. Among Western Australia's 208 major rivers, fewer than 1% maintain a status of "pristine or near pristine" condition. While numerous individuals are making commendable efforts, the overall health of waterways is deteriorating. To genuinely aspire to restore our rivers to a state conducive to the well-being of present and future communities, we must embrace fresh perspectives and approaches to their management.

The significance of waterways extends across various dimensions - social, cultural (embracing aesthetic, historic, scientific, and spiritual values), environmental and economic. These values are immeasurable and underscore the importance of the Waterways Western Australia Program as it endeavours to tackle the key challenges in water management, forging a shared vision for WA waterways.

The program aims to enhance community awareness regarding the value and interconnectedness of our waterways within our communities. Recognising that successful legislation requires the support of those it impacts, fostering a "shared vision" among the community, corporate sector and government is essential. Leveraging the strong emotional and spiritual attachment to waterways presents both a political opportunity and a pathway towards a sustainable future.

The establishment of this innovative community-driven initiative is designed to generate a scalable approach, adaptable to other water systems through collaborative development, authentically engaging with First Nations people, and implementation with government involvement. This has the capability to emerge as a potent mechanism for enhancing waterway well-being and fortifying resilience against climate change and urbanisation.

The upcoming 2029 Western Australian Bicentenary presents a perfect occasion to introduce a fresh community-driven strategy for sustaining waterways. It has the potential to spark transformative shifts, creating an enduring impact, not only for Helena River but for all rivers in Western Australia.

The Waterways Western Australia Program employs an iterative and agile approach, involving community engagement, analysis of shared data, development of shared visions, formulation of outputs, prioritisation of potential solutions, and the reporting of findings with recommendations.

This process, in turn, supports funding applications for the launch of outputs and projects within the catchments. Additionally, the methodology encompasses the planning and review of findings, recommendations, and outputs to guide, strategize, and implement subsequent case studies.

As case study outputs are introduced and tested, forthcoming case studies will further fine-tune elements of the approach, serving as foundational components for assessing and enhancing the overall methodology. This iterative process is designed to progressively realise the overarching vision and objectives of the program over time.

The *Mandoon - Helena River Confluence* project played a pivotal role as the inaugural pilot case study for Waterways Western Australia.

We extend our gratitude to Francesca Flynn and Greg Ugle, whose passion and devotion to Helena River were instrumental in shaping this remarkable report.

We also acknowledge the contributions of all those involved in this project, including attendees of the *Helena River Confluence* event in March 2023 and everyone who provided feedback on the draft document. We eagerly anticipate future collaborative projects with them.

Respectfully,

**Thomas Perrigo OAM**

**Director, Feilman Foundation**

and

**Professor Anas Ghadouani**

**Executive Director, Waterways Western Australia**

**Professor of Environmental Engineering, The University of Western Australia**

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## Executive Summary

This document presents the findings of the *Mandoon – Helena River Confluence* project delivered by *Waterways Western Australia* and the emerging community vision for the Helena River. It is an open invitation to everyone to consider a new future for the river and to actively contribute to making it happen.

Initiatives have been identified that could be delivered by the community as distinct projects to support the development of a collaborative plan for the river's future that is based on community values and empowerment. By using a values based sustainability framework, the proposed plan could manage the river's environmental, economic and social aspects from a whole community perspective and create a shared journey towards a new shared vision.

Development of a community-driven plan that embraces the scientific, social, aesthetic, historic and spiritual values of a river catchment in a holistic and integrated way could establish a new blueprint for sustainable waterways management. Whilst this project is focused on Helena River, the proposed plan could have far-reaching impacts by creating a transferable process that can be replicated on any waterway in Australia.

## The Forgotten River

If you live in Perth, you may have heard of Helena River. Most people are aware of Mundaring Weir and the Golden Pipeline, built more than 120 years ago to supply the river's freshwater to the Goldfields. Many are unaware of the river's importance beyond a water supply and it is often devalued due to a lack of regular flow including a common misconception that it is not a "real" river without its water. There is a distinct lack of awareness about Helena River compared to other rivers in Perth. Limited access to the river increases community disconnection from its values and apathy towards its protection. Some locals refer to it as "the forgotten river."

The river has a long history. It navigates some of the oldest and youngest geology on Earth, flowing over ancient granite formed 2,600 million years ago and alluvial sediments that still form today. The river and its waterways are highly significant to Noongar people<sup>3-9</sup>. In Noongar culture, the river was formed by The Wagyl, the Great Creator Spirit. The entire river is a registered Aboriginal heritage site, with over 40 individual sites within the wider registration, and its floodplain contains the second oldest archaeology site in southwest WA, with 29,000 years of demonstrated occupation<sup>10</sup>. Until 1829, the river sustained Noongar people with freshwater, food, medicine and an important route from Whadjuk to Ballardong Country.

The river is deeply valuable. It is one of Perth's last freshwater rivers and the only major river valley in the metropolitan area that is still relatively natural, with large areas of forest and few roads. Its upper catchment is a large, regionally significant space with high ecological and recreational values, and it provides an important green corridor from Moorda (the Darling Range) to the Derbarl Yerrigan (Swan River), offering a haven for long-neck tortoises, quenda, insects and birds in urban areas like Midland and Hazelmere<sup>11</sup>. The river's granite outcrops have particular and unique ecological and cultural values.

The river's health is declining. Due to a drying climate and up to 40% less rainfall since the 1970s, the catchment no longer provides enough stream flow to fill the dams. Desalinated water and groundwater must be pumped into Mundaring Weir to maintain drinking water supply. Decades of water extraction, low water flows and urbanisation of the lower reaches have taken their toll. Condition assessments in 2001 and 2018 revealed extensive weeds, eroded banks and a mostly cleared floodplain. The river is impacted by pollutants like hydrocarbons, metals, pesticides, herbicides and surfactants, and is highly vulnerable to rising salinity. Riverbank vegetation decline has been recorded in Guildford since 2010 and various studies have shown decreasing native fish, crayfish, mussels and invertebrates.

Threats to the river's health are exacerbated by complex land ownership and land use including private property, conservation estate, drinking water catchment and state forest that encompasses four local governments. Catchment wide threats such as dieback, feral species, weeds, salinity, erosion, sedimentation, unauthorised access, unsealed tracks, mining, prescribed burns, water extraction and increased bushfire risk contribute to the extraordinary pressure placed on the river.

Responsibility for the protection and management of Helena River and its catchment is shared by several state government agencies, each with different legislation. Work effort and resourcing is primarily focused on individual legislations and different agencies have varying resources and capacities. Outside of the drinking water catchment, no one agency has

overall responsibility, meaning there is no overarching and integrated plan for the entire river. Land use planning is administered by four local planning schemes (Mundaring, Kalamunda, Swan, York) and decisions are impacted by the different knowledge levels, priorities and motivations of local government councillors.

Fragmented management across government and community has big long-term implications. The system is working as designed, and there are many people doing great work, yet the river's health is in decline. As the river's health declines, the social and economic values it offers to the community are eroding. For over 40 years, the local community has raised concerns about the lack of regular flows in Helena River, development of its lower floodplain and incremental loss of its green spaces in urban areas. As Perth's population expands east, there are increasing demands to develop land for housing, protect biodiversity and freshwater resources, and encourage outdoor leisure and wellness.

## Community Vision for the Future

In December 2022, the Helena River Catchment was identified as the inaugural project of *Waterways Western Australia*, an initiative hosted by The University of Western Australia and supported by the Feilman Foundation. A local project manager, Francesca Flynn of Evergreen, was engaged to help bring the community together and identify a shared vision for the river.

In March 2023, *Waterways Western Australia* hosted *The Helena River Confluence*, a coming together of the river's community to explore a shared vision for the future. It was attended by 107 people from 51 organisations over two days including community groups, businesses, schools, government agencies and Noongar Traditional Owners.

### Key findings are:

1. The community recognises that Helena River is deeply valuable to both humans and wildlife. They want more opportunities to connect with the river's values and more resources allocated to its management for the benefit of all life. They want the river's values to be better quantified, protected, enhanced and shared by decision makers, particularly in relation to its remaining floodplain and wetlands in the Lower Helena.
2. The community recognises that the river's health is critical to its value to the community. They want holistic and integrated management of the river that provides a better balance between its environmental, social, and economic values, including a government commitment to maintain minimum water flows from the dams into the riverbed.
3. The community shares collective concern about the fate of the river in the face of climate change and urbanisation. They want significantly more action from government to stop floodplain infill and clearing, reverse damage done and build resilience to future change. They want to see a greater sense of urgency taken to mitigate threats to the river's health so it may continue to function and support communities in the future.
4. The community knows that the river is a diverse and complex ecosystem that does not abide by legal tenure, legislation or boundaries on maps. They want catchment-wide consideration of the river's values that transcends land ownership and allows coordinated management of threats at a landscape scale. They want decision makers to understand how small incremental changes can impact the health of the whole system over time and space.
5. The community knows that the river is highly significant to Noongar people and want more consideration of Traditional Indigenous Knowledge in its management, including appropriate ecological and cultural water flows.
6. The community wants more opportunities to learn about the river's cultural significance and for it to be a centrepiece in bringing people together for meaningful reconciliation and cross-cultural connection.
7. The community wants sustainable development that respects the river's right to flourish in a healthy condition, including its floodplain and wetlands, and accounts for the wellbeing of all living communities, human and not, now and forever.
8. The community wants the river to be a source of permanent local jobs with economic value derived from the river reinvested into its management through initiatives like sustainable tourism, carbon sequestration and a ranger program.
9. The community wants to be included in collaborative decision making and to feel empowered to contribute their knowledge and experience to support the river's future. They want to be involved in a shared journey towards a shared vision and be part of a bigger picture.



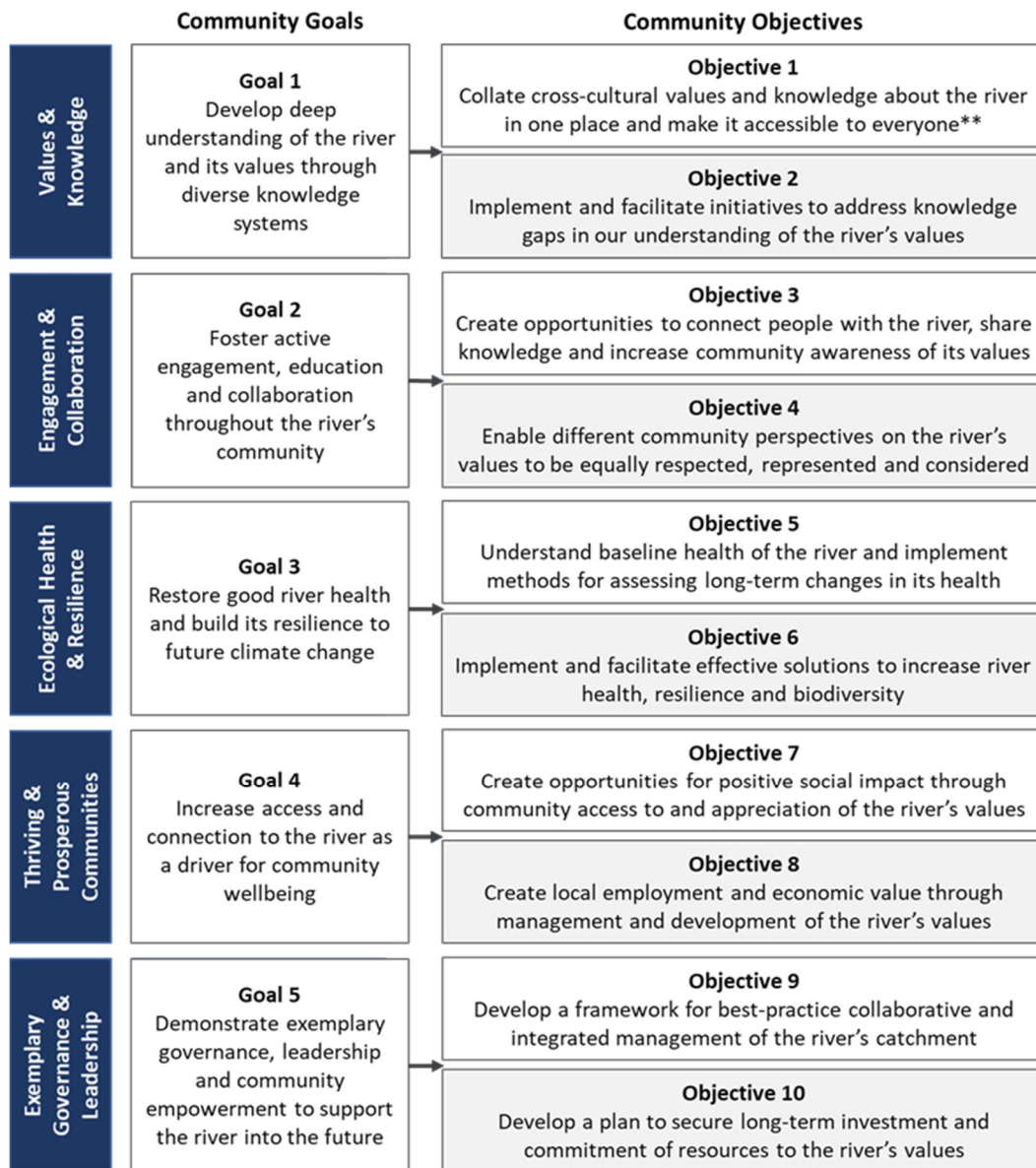
Lower Pumpback Dam, Francesca Flynn



Upper Helena River Pool, Francesca Flynn



The *Helena River Confluence* event generated 142 community ideas for the river’s future. A Business Motivation Model was used to organise the ideas into strategic goals and objectives relating to five key themes.



\*\* as culturally appropriate

A collective community vision for the Helena River’s future has begun to emerge:

*Helena River’s health is protected and restored for all to enjoy through connection of people with place and culture, and enhancement of environmental and social values that support sustainable economic development.*

The emerging community vision strongly aligns with the strategic direction of Australian government agencies, as well as the United Nations Sustainable Development Goals (SDGs) on water use, ecosystem health, community wellbeing, economic growth and employment. The community aspiration of creating a River Park along the entirety of the Helena River through consolidation of existing conservation estate, parks and reserves specifically aligns with the Western Australian government’s recent endorsement of a new national target to protect 30% of Australia’s land and marine areas by 2030.

### A Shared Journey for the Future

It is clear that a critical next step for Helena River is to develop an integrated plan that unites the community, including government, under a shared vision for the future. Various plans have been produced for parts of the river, but there is no integrated plan which brings together all this information and holistically considers the river’s environmental, economic and social values from a catchment-wide and whole-community perspective.

The plan should provide a detailed roadmap to restore the river's health, protect its cultural significance, and reconnect the community with its values now and into the future. To be effective, the plan should be fully costed to equip decision makers with certainty on what resources are needed to achieve the shared vision and where collaborative action and targeted investment can have the most impact.

A collaborative approach to developing and implementing the plan is critical because overcoming the challenges and threats faced by Helena River is not achievable by one organisation alone. From government to community groups, schools, researchers, developers, businesses and Traditional Owners, we all have a role to play in the river's future. It will take the collective action of many to halt its decline and put it on the path to recovery. The plan should also align with strategic government priorities and industry best-practice, whilst inspiring and empowering the community to embark on a shared journey to reconnect with the river for generations to come. Public education and engagement will be essential to enable all community members to gain the knowledge and understanding needed to embrace a new future for Helena River.

Several initiatives that were identified during the *Helena River Confluence* event could be delivered by community groups as distinct projects to support the development of a collaborative plan for the river's future that is based on community values and empowerment to actively participate in a better future. A potential scope could include:

1. Conservation Audit: To establish and share the river's environmental values and baseline ecological health.
2. Conservation Plan: To provide a costed roadmap to restore the ecological health of the river.
3. Cultural Mapping: To identify and document Aboriginal and non-Aboriginal cultural knowledge of the river.
4. Cultural Interpretation: To provide a costed action plan to protect and share the river's cross-cultural significance.
5. Access Audit: To document and share existing community access opportunities to the river.
6. Trails Plan: To investigate opportunities to increase community access to the river through sustainable trails.
7. Business Plan: To determine the river's recurrent management costs, income and job creation potential.
8. Tourism Plan: To stimulate sustainable economic growth and create local jobs through nature-based tourism.

Implementation of these initiatives would support the development of an integrated catchment plan that uses a values based sustainability framework and diverse knowledge systems to manage environmental, economic and social outcomes from a community-wide perspective.

## A New Blueprint for Community-Driven Sustainable Waterways Management

Development of a community-driven plan that embraces the scientific, social, aesthetic, historic and spiritual values of the catchment in a holistic and integrated way could establish a new blueprint for sustainable waterways management by:

- Using a values based sustainability framework to manage environmental, social and economic considerations across an entire river catchment in a whole-of-system, integrated approach.
- Adopting a collaborative approach that considers the values of the whole community and applies collective knowledge and experience to maximise outcomes and connect everyone under one shared vision for the future.
- Creating a learning journey to enable the wider community to gain the knowledge, awareness and understanding needed to commit to the new shared vision for the river's future.
- Providing detailed cost estimates to equip decision makers with certainty on what resources are needed to achieve the shared vision and where collaborative action and targeted investment can have the most impact.

Development of the plan would lead to significant outcomes for the river and its community, including:

- A roadmap to protect and restore the health of Helena River, preserve and share its cultural significance, enhance its social and economic values, and reconnect it with the community now and into the future.

- A framework that identifies priority actions at a catchment scale, facilitates coordination of effort and sharing of resources, and empowers individual agencies and groups to add value beyond arbitrary organisational boundaries.
- Opportunities for genuine community connection, reconciliation and cross-cultural understanding by bringing Aboriginal and non-Aboriginal people together through a shared appreciation of the river.
- Opportunities for public education and social transition to enable the community to gain understanding of the river's value, develop care for its protection, build trust in its management and commit to a new vision for its future.
- Connection of community and government under one shared vision for the river's future that is supported by most people and provides certainty for industry, developers and investors to be able to plan for future generations.
- Connection of the individual objectives of many government agencies, community groups, Traditional Owners and individuals, the collective efforts of hundreds of people who have cared for the river for many years.
- Deep understanding of the river system that builds on the good work already undertaken and provides a solid knowledge foundation to underpin future work and investment.
- A process for knowledge collection and sharing that is accessible to everyone and supports future initiatives.
- Opportunities for permanent and skilled employment and volunteer roles that enhance the river's values, support local businesses and generate sustainable economic growth.
- A process for collaborative design and decision making that embeds grassroots experience, scientific research and Traditional Indigenous Knowledge into the river's management and uses it to strengthen policy formation.

Implementation of the plan would have numerous positive benefits and sustainable outcomes for Helena River and its communities by improving the river's health, connecting people with its places and culture, and teaching them to recognise the importance of sustainable waterways so that future generations can continue to access their values.

## Transformative Social Impacts

Whilst this project is focused on Helena River, the proposed plan could have far-reaching impacts by creating a transferable process that can be replicated anywhere in Australia. Development of the plan would provide a blueprint that can be co-developed and co-delivered with government and community to create a shared journey towards a shared vision for any waterway. In this way, the proposed plan has the potential to become a powerful tool for restoring waterways health and building resilience in the face of climate change and urbanisation.

The 2029 Perth Bicentenary is an ideal opportunity to launch a new initiative for community-driven sustainable waterways management as we look back at the impact of 200 years of colonisation and look forward to the next 200 years of a drying climate. The Bicentenary can be a catalyst for transformative change and leave a lasting legacy, not just for Helena River, but for all rivers and communities in Australia.

Stimulation of social change aligns with Australia's *Strategy for Nature (2019-2030)* which takes a new viewpoint to anything seen before. It states that Australia must urgently move away from the notion of "environmental protection" and instead recognise the fundamental importance that ecological health has in underpinning our entire societal and economic wellbeing. We must embed the health, adaption and resilience of waterways into all aspects of our lives and empower individuals and communities to collectively generate the change that is so urgently needed.

Of Western Australia's 208 major rivers, less than 1% are in "pristine or near pristine" condition<sup>12</sup>. The system is working as designed, and there are many people doing great work, yet waterways health is in decline. To have a realistic chance of returning our rivers to a healthy condition for communities of today and tomorrow, we need to welcome new thinking and approaches to their management and the best time to act is now.

Upper Helena River Pool, Francesca Flynn



Lower Helena River Pool, Francesca Flynn

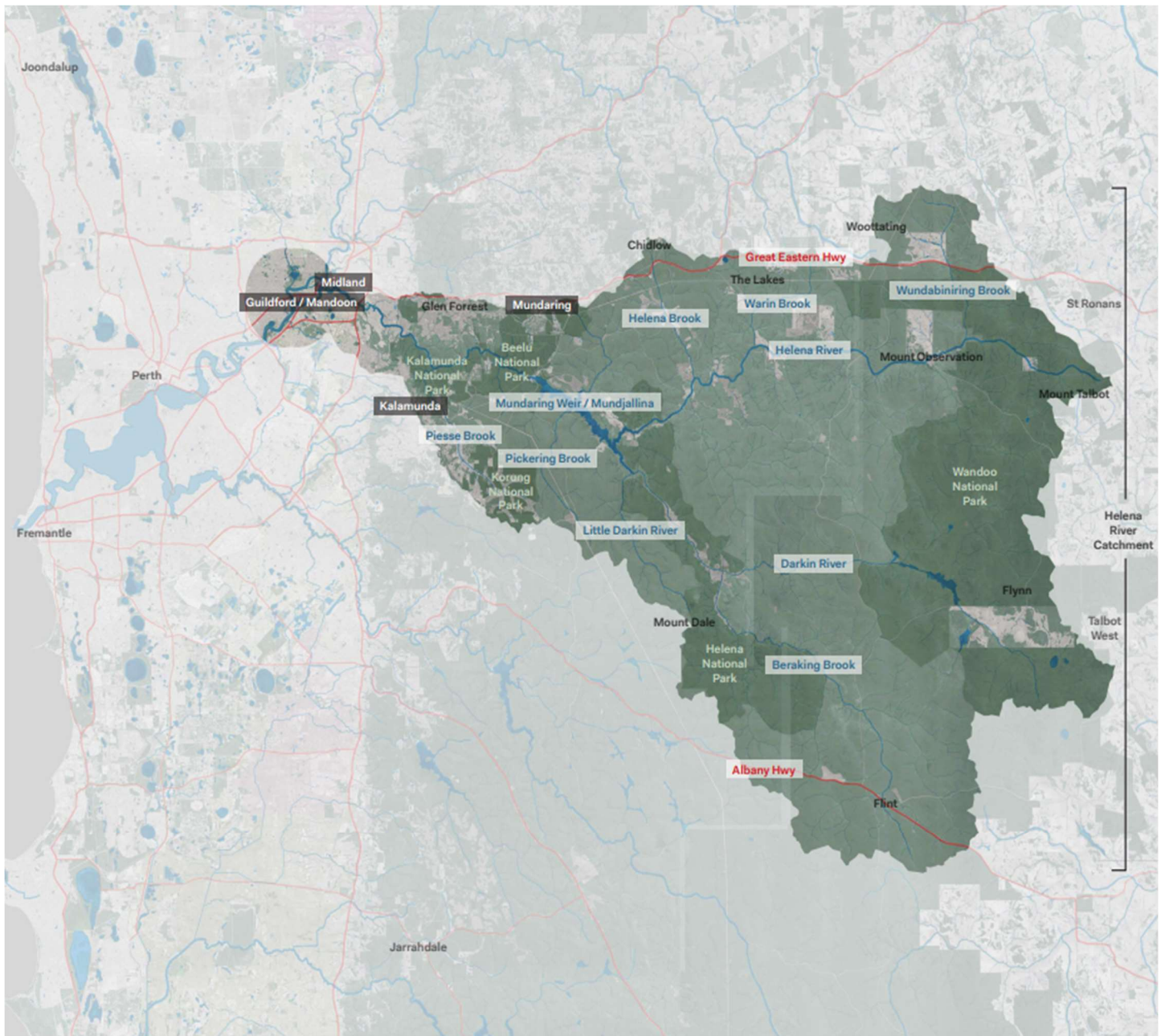


Lower Pumpback Dam, Francesca Flynn



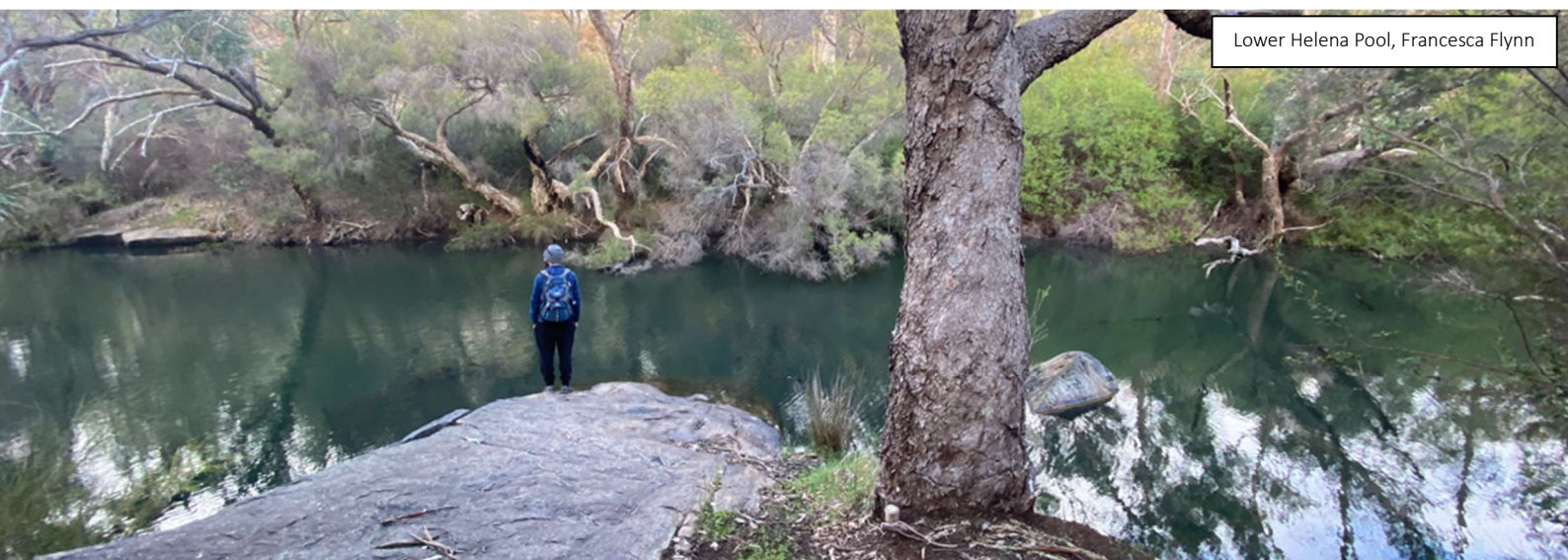
## Definitions

Community	the community of the Helena River Catchment including government agencies, non-governmental organisations, businesses, schools, community groups and individuals of all ages
Confluence	a flowing together of waterways; a coming together of people; a meeting place
Cross-cultural	the cultures of all different people in the community including Aboriginal and non-Aboriginal people, Australian born people and people from overseas who call this place home
Culture	the way of life, especially the general customs and beliefs, of a particular group of people at a particular time; the attitudes, behaviours and opinions of a particular group of people in society
Health	a state of complete wellbeing, not merely the absence of disease (World Health Organisation)
Helena River	the waterways of the Helena River Catchment that flow into Derbarl Yerrigan (Swan River) as part of “Helena River”; includes Darkin River, Little Darkin River, Beraking Brook, Pickering Brook, Piesse Brook, Nyaania Creek, Quenda Creek, Elder Creek, Wangalla Brook, Darlington Brook, Kadina Brook, Wariin Brook, Helena Brook, Gunjin Gully and many others
Helena River Confluence	a 2-day event held on 29-30 March 2023 attended by members of the Helena River community; the Confluence; HRC
Lower Helena	section of Helena River from Derbarl Yerrigan (Swan River) to the Lower Pumpback Dam
Middle Helena	section of Helena River from the Lower Pumpback Dam to Mundaring Weir
Sustainability	a state of being that meets the needs of the present without compromising the ability of future generations to meet their needs; requires holistic governance of environmental, social and economic values
Traditional Indigenous Knowledge	traditional knowledge and traditional cultural expressions of Aboriginal and Torres Strait Islander peoples; a broad term that covers a wide range of knowledge held and continually developed
Upper Helena	section of Helena River upstream of Mundaring Weir
Values	the degree of importance, significance or worth of something, somewhere or someone to people of past, present or future generations; can be classified according to the Australian Burra Charter as being aesthetic, historic, scientific, social or spiritual
Wellbeing	quality of life, positivity, and a sense of meaning and purpose; determined by social, economic and environmental conditions (World Health Organisation)



Helena River Catchment Overview (Daniel Jan Martin)

*“Helena Valley, between the weir at Mundaring and a point somewhere at the back of Boya, has, for him who will seek it at some inconvenience, the most extravagantly, exquisitely beautiful scenery in Western Australia... In the early morning sun, the weir and its surroundings seem to inspire a spirit of peace and harmony that could sooth the most turbulent soul.” (The West Australian, 1932)*



Lower Helena Pool, Francesca Flynn

# The Forgotten River

If you live in Perth, you may have heard of Helena River. Most people are aware of Mundaring Weir and the Golden Pipeline, built more than 120 years ago to supply the river's freshwater to the Goldfields. Many are unaware of the river's importance beyond a water supply and it is often devalued due to a lack of regular flow. Some locals refer to it as "the forgotten river."

The river has a long history. It navigates some of the oldest and youngest geology on Earth, flowing over ancient granite formed 2,600 million years ago and alluvial sediments that still form today. The river is highly significant to Noongar people<sup>3-9</sup>. In Noongar culture, the river was formed by the Wagyl, the Great Creator Spirit. The entire river is a registered Aboriginal heritage site, with over 40 individual sites within the wider registration, and its floodplain contains the second oldest archaeology site in southwest WA, with at least 29,000 years of demonstrated occupation<sup>10</sup>. Until 1829, the river sustained Noongar people with freshwater, food, medicine and an important route from Whadjuk to Ballardong Country.

Helena River is deeply valuable. It is one of Perth's last freshwater rivers and the only major river valley in the metropolitan area that is still relatively natural, with large areas of forest and few roads. It emerges from peaks in the wandoo woodland west of York in Ballardong Country, passes through jarrah forests of Mundaring and Kalamunda in the Perth Hills into Whadjuk Country, and down onto the Swan Coastal Plain, joining the Derbarl Yerrigan (Swan River) in Mandoon (Guildford). Its catchment is a large, regionally significant space with high ecological and recreational values, and it provides an important green corridor from Moorda (the Darling Range) to the Derbarl Yerrigan, offering a haven for long-neck tortoises, quenda, insects and birds in urban areas like Midland and Hazelmere<sup>11</sup>. The valley's granite outcrops have particular and unique ecological and cultural values.

When Europeans arrived, they immediately recognised the river's value. They renamed it "Helena River", likely after the sister of Ensign Robert Dale, a 19 year old who explored the river and hills east of Perth in 1829<sup>13,14</sup>. They quickly divided up its lower reaches for the Swan River Colony and forced Noongar people off the new property. By 1832, Noongar leader Midgegooroo was captured on the banks of Helena River and executed days later by firing squad without trial, after acting-Governor Irwin declared him and son Yagan outlaws for their role in Noongar resistance<sup>15</sup>. Yagan was captured weeks later, his head cut off, smoked, and sent to England for public display, coincidentally transported by Robert Dale.

The new settlers were encouraged to use the river and other waterways for industry and leisure. By 1903, Mundaring Weir had been built, flooding parts of the Upper Helena valley, and C Y O'Connor's "Golden Pipeline" now transported the river's water 526 km east to the desert, fuelling the gold rush and giving rise to Kalgoorlie<sup>16</sup>. Mundaring Weir Forestry Settlement had been established by 1923 and operated until 2011<sup>17,18</sup>. The quest to "conquer" the environment had begun.

*"Mile after mile this crystal water is pumped, that the desert may blossom, that men may live where others die. The iron road has been thrown out – the wilderness has given up its treasure. Man has conquered."* (Letter to *The West Australian*, 1930)

In the 1930s, swimming in the Helena River's natural pools was popular and guided walks by the Railway Department saw over 500 people regularly arrive at Glen Forrest station from Perth to undertake the "7 mile Mandoon Hike" along the river to Darlington. Explorers described the Helena as a paradise and speak of its beauty in a spiritual and heavenly sense.

*"Over all broods a spirit of celestial realms. This is surely a preparatory paradise for which we all hope in the life to come."*<sup>19</sup>







**57 km**  
Length



**1,655 km<sup>2</sup>**

Helena River Catchment

(Built-up urban area of Perth: 1,722 km<sup>2</sup>)



**900+** Streams and watercourses  
**17** Sub-catchments

**~800 mm**  
Average rainfall (2011)



**720 mm**

Average rainfall (2014-2018)

AAF (2007-2011) **9.8 GL**

AAF (2010-2014) **6.2 GL**

AAF (2012-2015) **5.1 GL**

Average annual flow



**3** broad sections of Helena River:

**Lower** Swan River to Lower Pumpback Dam



**Middle** LPD to Mundaring Weir

**Upper** Upstream of Mundaring Weir (90% of the catchment)

**3** Bio-geographic regions

(Swan Coastal Plain, Jarrah Forest, Avon Wheatbelt)



**63.6 billion L**

Mundaring Weir capacity  
Built 1898-1903

**50+**



Towns supplied with drinking water



**4** Local Government Authorities  
(Swan, Mundaring, Kalamunda, York)



**6** National Parks  
(Beelu, Gooseberry Hill, Greenmount, Helena, Kalamunda, Wandoo)



**90 million L**

Water supplied to towns and industry each day



**2** Noongar regions  
(Whadjuk, Ballardong)



**29,000+ years**

Of recorded occupation by Noongar people

**526 km**  
Length of Golden Pipeline from Mundaring Weir to Kalgoorlie



**10** Endangered, vulnerable and priority terrestrial flora species

**4** Major heritage trails  
(Bibbulmun Track, Munda Biddi Trail, Kattamorda Heritage Trail, Kep Track)



Priority Ecological Community **1**  
(Central Northern Darling Scarp Granite Shrubland)



**13** Specially protected fauna species  
(7 birds, 4 mammals, 1 lizard, 1 freshwater mussel)



**3** Black Cockatoo species  
(Forest Red Tailed, Carnaby's, Baudin's)

**2,600 million years**

Age of Archaean granite in Helena Valley



## A River in Trouble

Today, Helena River is in trouble. Due to a drying climate and up to 40% less rainfall since the 1970s<sup>23</sup>, the catchment no longer provides enough stream flow to fill the dams. Desalinated water and groundwater must be pumped into Mundaring Weir to maintain adequate drinking water supply<sup>24</sup>.

Decades of water extraction and low water flows have taken their toll on the river. Impacts include loss of instream habitat, disconnection of pools, siltation, low dissolved oxygen and poor water quality. Many of the river's pools are no longer permanent and the lower reaches are heavily sedimented. In 2008, a report to the Swan River Trust recommended Helena River as a "priority catchment" for investigations into potential environmental flow releases from Mundaring Weir<sup>25</sup>. In 2010, a water release program from the Lower Dam was initiated by the state government to maintain instream habitat and water quality in the Lower Helena in summer<sup>26</sup>. There is no current mechanism to release water from Mundaring Weir although scientists have called for measures to be put into place to enable future flows from the Weir to the Middle Helena<sup>27</sup>.

*"I have concerns for the health and welfare of Helena River. I have witnessed many changes."* (HRC, 2023)

The river's health is declining. Condition assessments in 2001 and 2018 revealed extensive weeds, degraded vegetation, eroded riverbanks and a mostly cleared floodplain<sup>28,29</sup>. Sampling in 2006 and 2013 identified pollutants like hydrocarbons, metals, pesticides, herbicides and surfactants in the river's water and sediments<sup>30,31</sup>. Decline of riverbank vegetation has been recorded at the confluence in Guildford since 2010<sup>32</sup> and the river is highly vulnerable to rising salinity<sup>33-35</sup>. Various studies have confirmed that native fish, crayfish, mussels and invertebrates have declined, likely due to a combination of pressure from low water flows, vegetation clearance, habitat degradation, salinity, poor water quality and ferals<sup>26,27,36,37</sup>. It is thought that mussels found in the Helena with deformed shells may demonstrate chronic effects of water pollution<sup>38</sup>.

*"I have lived on this land for 62 years. I have cared for Helena River all these years, through four floods, seeing tortoises decline, military bridge burn, the rising sea level and old trees dying."* (HRC, 2023)

Perth has undergone a rapid expansion of population and infrastructure in recent years, with extensive clearance of native vegetation and floodplain development. The Helena River's middle and upper reaches are largely protected by national parks and the drinking water catchment. However, the lower floodplain and its few remaining wetlands are highly vulnerable to a continuous pressure to provide urban development to cater for Perth's growing population. The floodplain is gradually being rezoned and infilled for housing as we move towards a target of 3.5 million by 2050 (currently 2.1 million)<sup>39-47</sup>.

There is widespread lack of understanding about the river's inherent values and it has a history of neglect. The importance of the Lower Helena is not well recognised, despite its strong environmental and cultural values, and its wetlands are largely abandoned and ignored. The Lower Helena has a long legacy of industrial land use including the Midland Railway Workshops, a brickworks, a tannery and an abattoir<sup>48</sup>. The river's floodplain has lost most of its "Guildford Complex", a rare and threatened vegetation type, and land rezoning and developments continue to be approved that will result in more clearance. Local government Councillors recently suggested rerouting a heavy freight rail through the Lower Helena valley, requiring more clearing and infill of the river's floodplain<sup>49</sup>.

Threats to the river's health are exacerbated by complex land ownership and use across the catchment, including private property, conservation estate, drinking water catchment and state forest that stretches over four local governments (Mundaring, Kalamunda, Swan, York). The river's management is fragmented, shared over several independent agencies and governed by an intricate framework of policies and plans. Catchment wide threats such as *Phytophthora* dieback, feral species, weeds, rising salinity, erosion, sedimentation, unauthorised vehicle access, unsealed tracks, mining, water extraction and increased bushfire risk contribute to the extraordinary pressure placed on the river's ecosystem<sup>30,50</sup>.

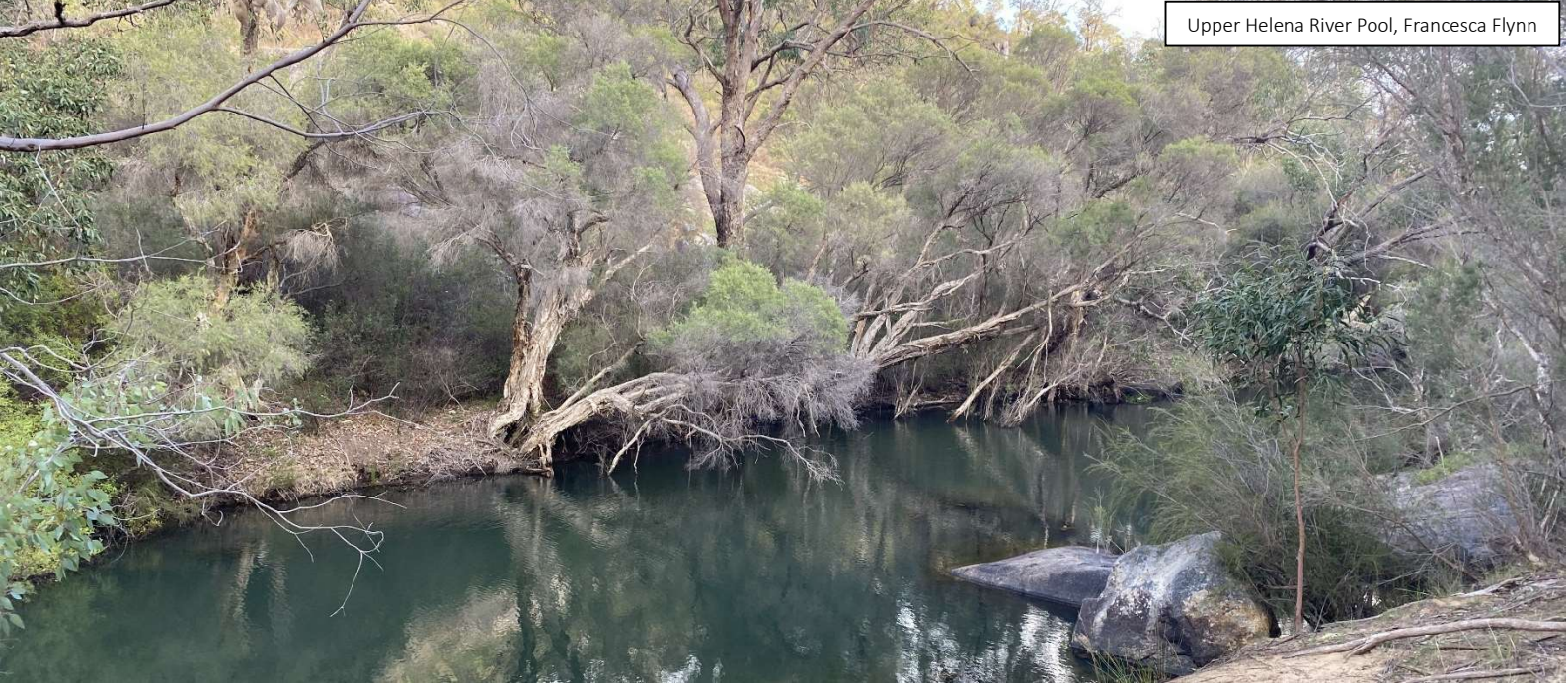
There is a distinct lack of awareness and understanding about the Helena River's value compared to the Swan and Canning Rivers, including a common misconception that it is not a "real" river without its water. Many people do not know how valuable the river is, particularly the lower floodplain, or how vulnerable it is to incremental threats. Limited access to the river exacerbates the problem by increasing community disconnection from its values and apathy towards its protection. In a basic sense, the river is under threat from lack of knowledge, appreciation of its values and commitment for its protection. As the river's health declines, the social and economic values it offers to the community are eroding.



Riverbank Reserve, Guildford, Francesca Flynn



Lower Helena Pumpback Dam, Francesca Flynn



Upper Helena River Pool, Francesca Flynn

# Globally Declining Waterways Health

Declining health is not unique to Helena River. Globally, waterways are under threat from population growth, urban expansion and climate change. Common risks include pollution, acidification, vegetation decline, and altered flow, erosion and sedimentation<sup>51</sup>. There have been recent calls by scientists to give rivers the same legal rights to exist as people<sup>52</sup>.

Waterways management is an ongoing challenge with increasing need for proactive intervention and deeper understanding to achieve protection. Management typically relates to environmental or economic values, rather than social and cultural, and ecology is notoriously under resourced<sup>53</sup>.

Inadequate budget and resources often leads to ineffective outcomes or community dissatisfaction, especially when social or cultural values are seen to be overlooked<sup>53</sup>.

Governments can also be unsuccessful in bringing communities together due to the complexity and rigidity of regulations that govern individual departments and agencies. Best efforts can be disadvantaged by limited resources, inadequate budgets, fragmented management systems and siloed work efforts.

In New Zealand, a 2023 report found that 55% of the country’s rivers are “moderate or severely” impaired by pollution and 45% are un-swimmable due to infection risk. Just 2% of large lakes were in “good” health. Researchers labelled the findings “appalling” and “sobering”, highlighting that more waterways were declining than improving, despite strong government commitment to return rivers to health since 2017<sup>54</sup>.

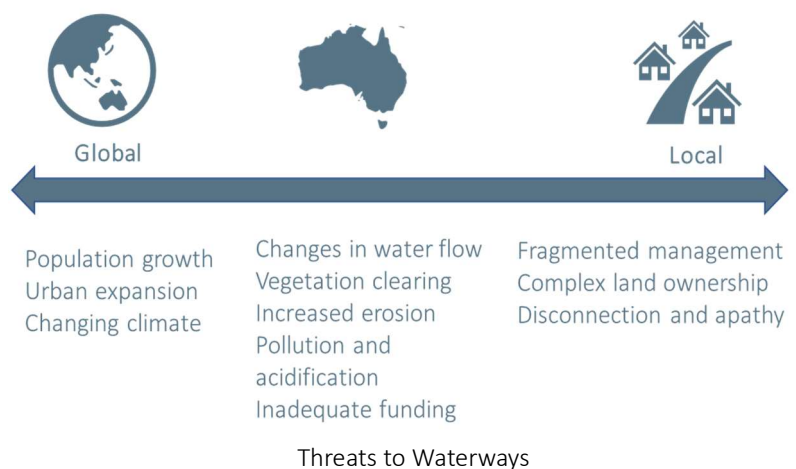
In America, a 2013-2014 survey of almost two million kilometres of waterways found that over half were too polluted to support healthy aquatic life. Over 58% were in “poor” health due to nutrient contamination and only 18% were in “good” condition. Over 20,000 km of waterways contained fish that had unsafe concentrations of mercury, a toxic heavy metal<sup>55</sup>.

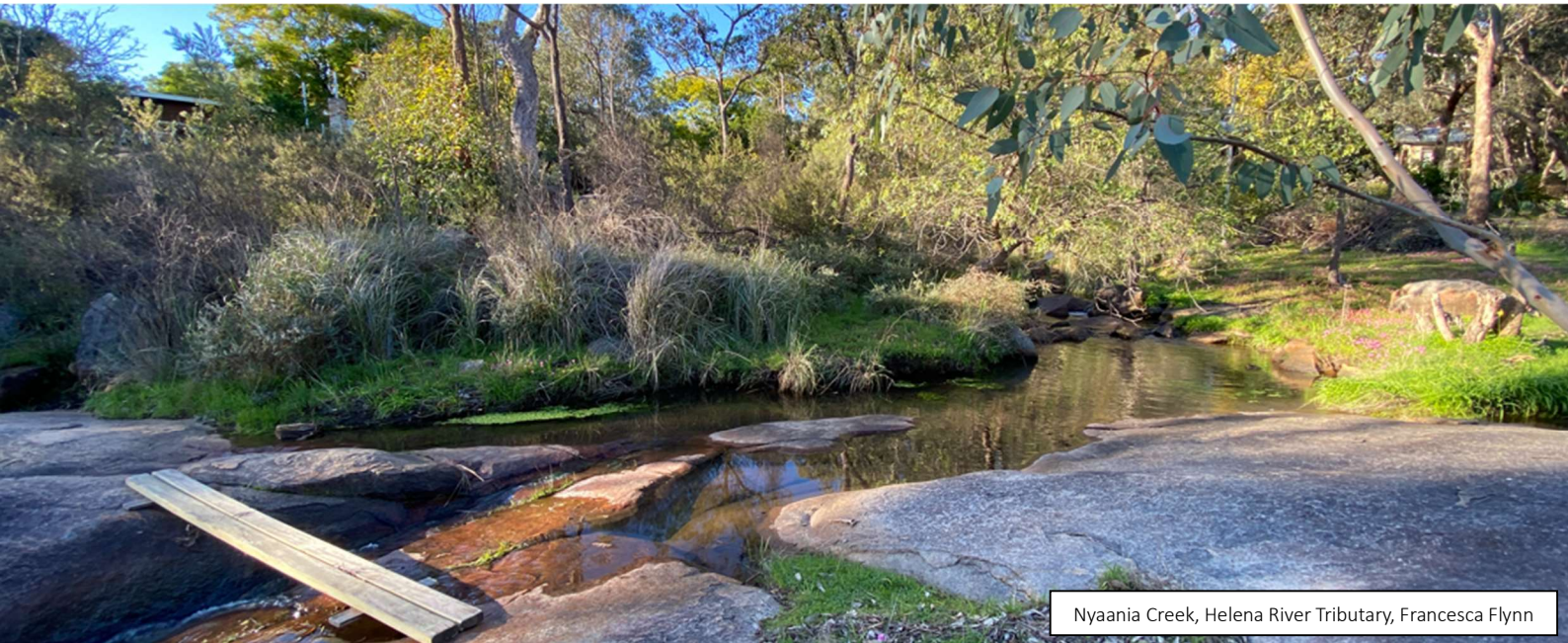
In Europe, a 2021 review identified widespread lack of ambition and investment to achieve river health. It estimated that just 10% of rivers studied will be “healthy” by 2027, despite a legally binding EU target. The biggest challenge was low budget and reluctance to change policy that relates to strong market sectors. Many river management plans failed to consider water allocation, industrial abstraction and climate change, and most had no cost estimates for proposed actions. The review concluded that there is broad lack of political understanding about the social importance of healthy rivers and a general failure to take their management seriously<sup>56</sup>.

Australia’s *Strategy for Nature (2019-2030)* identifies waterways and wetlands as critical parts of the natural environment that are threatened by a growing population and climate change. Major risks include water quality decline, native species loss and changed flood/drought conditions<sup>57</sup>. Australia’s largest river system, the Murray-Darling, has been dramatically altered by agriculture and water extraction. After millions of dead fish appeared in the Darling-Baaka in April 2023, tests showed that the river is “chronically sick” with “sky-high” nutrients and algae<sup>58</sup>. Of WA’s 208 major rivers, from Fitzroy-Martowarra in the north to Frankland-Kwakoorillup in the south, less than 1% are in “pristine or near pristine” condition<sup>12</sup>.

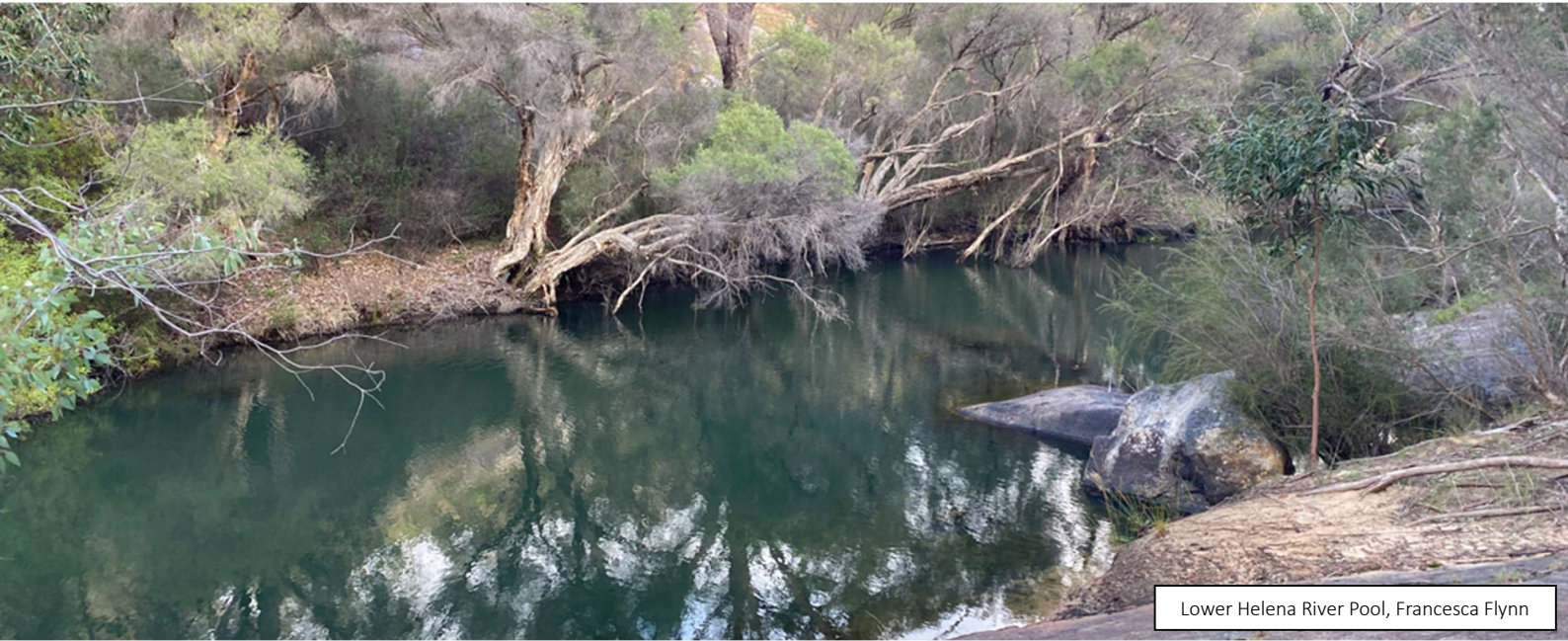
There is growing focus on returning rivers to swimmable conditions. In Paris, three swimming areas will open on the River Seine after a \$1.4 billion clean-up for the 2024 Olympics. At the 1900 Paris Olympics, events were held in the river before swimming was banned in 1923 due to pollution<sup>59</sup>. In Sydney, the Parramatta River recently reopened for swimming at Bayview Park for the first time since 1969 after a \$700,000 revitalisation project delivered collaboratively by two local governments and the community with state government support<sup>60</sup>.

*“Older residents have fond memories of taking to the Parramatta River on hot days and younger residents have heard stories of their grandparents’ days. This summer, we are taking the moments out of old black-and-white photo albums and bringing them back to life.” City of Canada Bay Mayor Angelo Tsireka, 2022.*





Nyaania Creek, Helena River Tributary, Francesca Flynn



Lower Helena River Pool, Francesca Flynn



Upper Helena River Pool, Francesca Flynn

# Helena River Management

Responsibility for the protection and management of Helena River and its catchment is shared by several state government agencies, each with different legislation. Agency work effort is primarily focused on individual legislation, with varying resources and capacities across different agencies. Outside of the drinking water catchment, no one agency has overall responsibility, meaning there is no overarching and integrated plan for the entire river.

Most of the Lower Helena is bordered by private property in Midland, Guildford, Woodbridge, Hazelmere, Bellevue, Boya, Koongamia, Bushmead and Helena Valley including several schools and reserves. The Middle and Upper Helena is mostly state forest, drinking water catchment and conservation estate managed by the state government, with some privately owned residences and land used for agriculture, mining, tourism and other industries. The complexity of current governance structures that manage the river's values is demonstrated in the simplified diagram below.



Complexity of Helena River Governance Structure (Francesca Flynn)

Planning authorities, such as the Western Australian Planning Commission (WAPC), Department of Planning, Lands and Heritage (DPLH), local governments and redevelopment authorities (e.g. DevelopmentWA) administer the *Planning and Development Act 2005*. Authorities seek advice on water resources and waterways from relevant government departments e.g. DWER and DBCA. Planning in the Helena Catchment is administered by four local planning schemes (Mundaring, Swan, Kalamunda, York) and decisions are impacted by different knowledge levels and motivations of local government councillors.

In 2010, DPLH released the *Middle Helena Land Use and Water Management Strategy*<sup>61</sup> to combine land use planning, management and water protection in the middle catchment (upper and lower excluded). The *Draft State Planning Policy 2.9 Planning for Water*<sup>62</sup> and its guidelines apply to land planning decisions that may impact the river. DPLH also manage the river's heritage values including the Helena River Aboriginal Heritage Site under the *Aboriginal Heritage Act 1972*.

The WAPC acquires and manages land on the Lower Helena foreshore for parks and recreation under the *Metropolitan Region Scheme 1963*, including large areas in Midland, Hazelmere, Guildford and Woodbridge. DevelopmentWA is responsible for developing areas of the foreshore for public use under the *Metropolitan Redevelopment Act 2011*, including sites like the historical Midland Railway Workshops.

Water resources in WA are protected and managed under six separate management acts. Through one of these acts, the *Water Agencies (Powers) Act 1984*, the Department of Water and Environmental Regulation (DWER) leads water resources management by coordinating cross-government efforts. The WA Government is currently working to reform water resources management legislation into one Act, the *Water Reform Bill*, which will consolidate six Acts into one.

DWER manage parts of the Helena Catchment for public drinking water supply through the *Mundaring Weir Catchment Area Drinking Water Source Protection Plan*<sup>63</sup> and *Operational Policy 13, Recreation in Public Drinking Water Source Areas (PDWSA)*<sup>64</sup>. PDWSA are managed under the *Country Areas Water Supply Act 1947* and *Metropolitan Water Supply, Sewerage and Drainage Act 1909*. Noongar Traditional Owners have controlled access to heritage sites in PDWSA for cultural activities<sup>65</sup>. Management is shared with Water Corporation, a water service provider of public drinking water, wastewater and drainage which operates the river's dams and drinking water infrastructure under license conditions. This includes water releases from the Lower Pumpback Dam to maintain stream habitat. An industry joint venture by Acciona Agua and Trility operates the 165 ML/day water treatment plant at the Weir and supplies treated water to Water Corporation<sup>66</sup>.

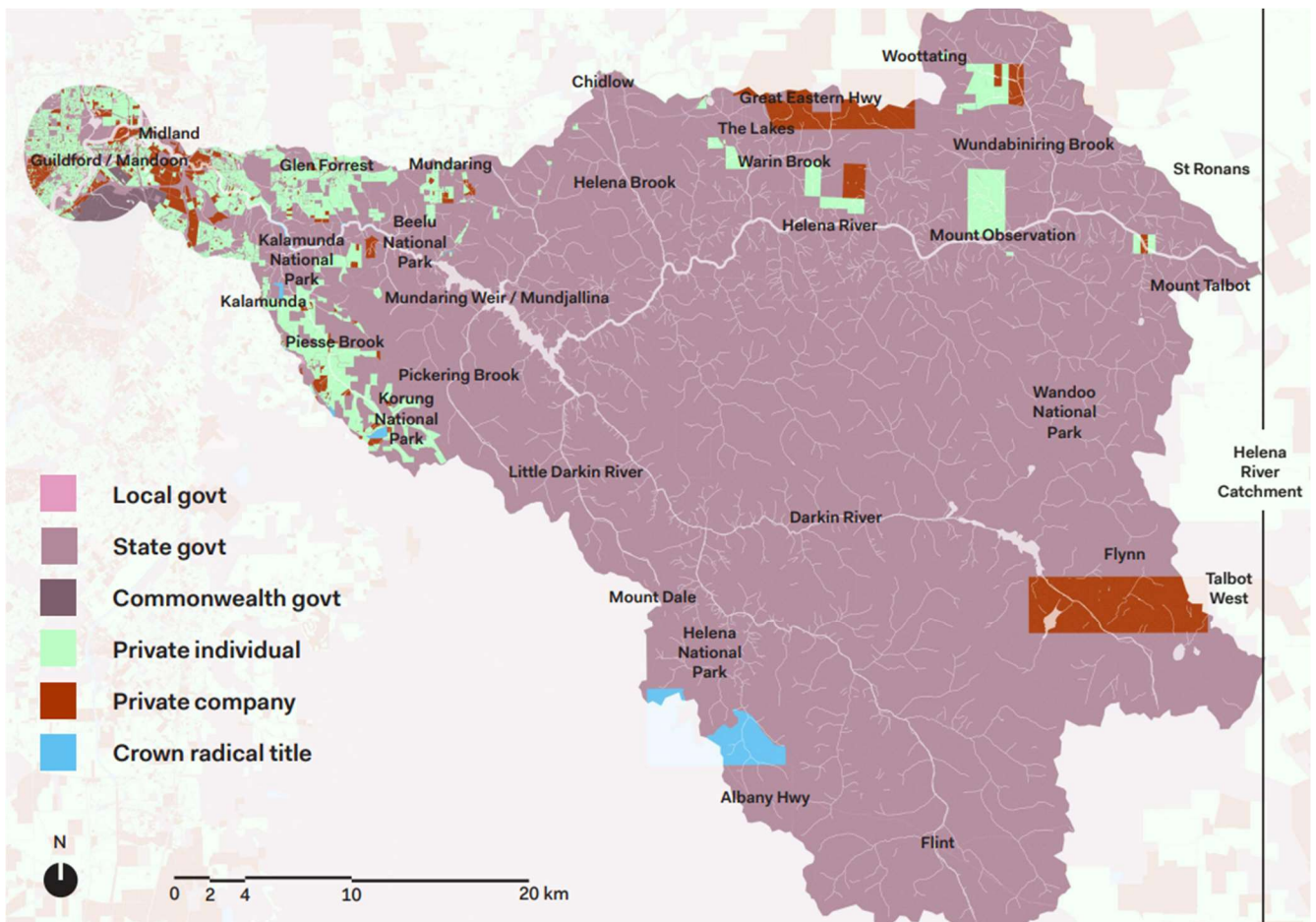
DWER have a role in approving water management strategies that accompany planning proposals adjacent foreshore areas where development may impact waterways, consistent with *Operational Policy 4.3, Identifying and Establishing Waterways Foreshore Areas*<sup>67</sup>. DWER also manages water and environmental regulation (e.g. vegetation clearing, industry licences, permits and approvals), urban water management and building waterwise communities<sup>68</sup>. They coordinate the *Healthy Rivers* program which collects data and develops collaborative solutions to improve river health. There are two *Healthy Rivers* sites on Helena River: Mundaring Weir Downstream and Whiteman Road.

The Department of Biodiversity, Conservation and Attractions (DBCA) manages state forest and conservation estate along the river under the *Conservation and Land Management Act 1984*. There are no individual management plans for the river's six national parks (Beelu, Gooseberry Hill, Greenmount, Helena, Kalamunda, Wandoo). DBCA also manage the Lower Helena downstream of the Lower Dam under the *Swan and Canning Rivers Management Act 2006* and *Swan Canning River Protection Strategy 2015*<sup>69</sup>. Under the Act, the Riverbed (River Reserve) is vested in DBCA and the Riverpark (including crown land along the river) is jointly managed by DBCA and the foreshore land manager. The Act established the *Swan Canning Development Control Area (DCA)*, for which DBCA is the primary planning authority. In 2022, DBCA released a draft Planning Policy for the DCA, including the Lower Helena "Mandoon" area<sup>70</sup>. The Swan River Trust is an advisory body under the Act. DBCA are also responsible for biodiversity and threatened flora, fauna and ecological communities in accordance with the *Biodiversity Conservation Act 2016* and support community on-ground action and strategic initiatives on Helena River via the Eastern Region Landcare Program, the Swan Alcoa Landcare Program (SALP) and Community Rivercare grants.

The Department of Primary Industries and Regional Development (DPIRD) administer the *Fish Resources Management Act 1994* under which it is illegal to capture freshwater fish and crayfish without a licence. A south-west freshwater angling licence is required in waters south of Greenough and above the tidal influence including all lakes, dams, rivers and streams. A separate licence and rules apply to marron. Fishing is banned in drinking water supply catchments. DPIRD undertake surveillance, monitoring and, where possible, eradication of aquatic pests. They manage *Freshwater Fish Distribution in WA*, an interactive online website, and *Fish Watch*, a 24 hour hotline for reporting aquatic pests, illegal fishing and fish kills. DPIRD

are the state coordinator for fish kills, including response to ocean fish kills, although DWER manage kills in estuaries, rivers and inland water bodies and DBCA manage kills specifically in the Swan-Canning system, which includes the Lower Helena.

The Forest Products Commission (FPC) manages and develops WA’s forest industry including plantation and native forest on state government land. In the Helena Catchment, this includes Greenmount and Mundaring State Forests. The FPC work under the *Forest Products Act 2000* and the *WA Forest Management Plan 2014-2023*<sup>71</sup>. The plan is currently being revised for 2024-2033 by the Conservation and Parks Commission and DBCA<sup>72</sup> and will see a significant reduction in native forest logging although it does not include clearing for mining. The Department of Mines, Industry Regulation and Safety (DMIRS) regulates mining including environmental compliance and management. Sand mining occurs in the Upper Helena although the catchment has largely avoided, thus far, the extensive clearing associated with bauxite strip mining which has impacted the wider southwest forests<sup>73,74</sup>. Parts of the Helena Catchment are within Alcoa and other mining lease areas<sup>75</sup>.



Helena River Catchment Land Ownership (Daniel Jan Martin)

The *Eastern Region Landcare Program* (ERLP) coordinates landcare by state and local government and community groups in Perth’s Eastern Region Catchment. This includes the catchments of Helena River, Jane Brook, Susannah Brook, Blackadder Woodbridge Creeks, and Wooroloo Brook. The ERLP was hosted by the Eastern Metropolitan Regional Council (EMRC) until 2021 and then Perth NRM until late 2023. DBCA are currently exploring future delivery models for the ERLP with the community. Under the EMRC, the ERLP delivered the *Swan and Helena River Management Framework 2007*<sup>76</sup>, the *Swan and Helena Rivers Heritage Audit & Statement of Significance 2009*<sup>4</sup>, the *Eastern Catchment Management Plan 2012-2022*<sup>77</sup>, the *Swan and Helena Rivers Floodplain Development Strategy 2020*<sup>78</sup> and various flood, ecology and recreation plans<sup>79-84</sup>.

Under the *South West Native Title Settlement 2021*, Noongar people are recognised as Traditional Owners of southwest WA through six Indigenous Land Use Agreements (ILUAs). The Whadjuk ILUA covers most of Helena River Catchment except the headwaters near York which fall under the Ballardong ILUA. In 2022, the Whadjuk and Ballardong Regional Aboriginal Corporations were appointed to represent the ILUAs. The settlement includes opportunities for co-management of conservation land with DBCA and creation of the Noongar Land Estate, with up to 320,000 hectares to be held by the Noongar Boodja Trust. Large areas of the Middle Helena are earmarked for potential transfer to the Estate.



## Healthy River, Healthy Community

Water is life and waterways are the life of Australian communities. They provide for our most fundamental needs and maintain the healthy functioning of natural ecosystems that is essential to sustain all life. Proximity to water is linked to improved physical and mental wellbeing, from higher vitamin D levels and increased exercise, to positive mood, reduced stress and better social relations<sup>85</sup>. Waterways also provide many subtle benefits that feature strongly in our sense of identity and place<sup>86</sup>. Aboriginal and Torres Strait Islander people, in particular, have a special relationship with waterways based on a profound spiritual connection and deep obligation to care for country that underpins their entire existence.

As Perth's population expands east, there are increasing and conflicting demands to develop land for housing, retain green spaces for biodiversity, protect water resources and encourage outdoor leisure and wellness. Several trails cross the Helena Catchment including the Bibbulmun Track, Munda Biddi Trail, Kattamorda Trail and Kep Track. However, under DWER *Operational Policy 13*<sup>64</sup>, access is strictly controlled in the drinking water catchment to protect water quality and recreation is not permitted in the Reservoir Protection Zone (2 km buffer from Mundaring Weir high water mark). Restrictions are unpopular as people seek more outdoor recreation opportunities yet the desire for increased access can sometimes conflict with community aspirations for healthy rivers. In the Lower Helena, *State Planning Policy 2.10* allows for recreation on the Swan-Canning river subject to "the biological and ecological limitations of the river"<sup>87</sup>. However, there are few opportunities to connect with the Lower Helena as private properties block access and the Midland foreshore is mostly fenced off.

Helena River is fiercely cared for by the local community and championed by many individuals who physically care for the river and advocate for its protection<sup>88,89</sup>. Some of the most prominent groups include Helena River Catchment Group (HRCG), Lower Helena Association (LHA), Friends of Piesse Brook (FPB) and Helena River Alliance (HRA). HRCG was established in 1997 to facilitate biodiversity conservation in the Helena River Catchment including land, vegetation and water quality<sup>90</sup>. In 2014, HRCG produced the *Helena River Catchment Plan 2012-2022*<sup>91</sup> in response to the EMRC *Eastern Catchment Management Plan 2012-2022*<sup>77</sup>. HRCG acts as an umbrella organisation for Friends groups and the Katharine Street River Gang, and also implements its own revegetation projects, including the award-winning *Lower Pumpback Dam to Scott St Bridge Project* that saw the return of the Red-eared Firetail Finch. The current *Helena River Iconic Project* builds on HRCG work through the revegetation of 1.7 km of river between Scott and Katharine Streets that is funded by DBCA under the *Community Rivercare Program* and delivered by Ellen Brockman Integrated Catchment Group.

LHA was established in 2011 with assistance from HRCG, as a splinter group for projects downstream of Military Road bridge, with a focus on rehabilitation of the riverbank and wetlands in Woodbridge and South Guildford. FPB are an incorporated group that operates on 8 km of private and public land along Piesse Brook, a tributary of the Helena that flows into the Lower Pumpback Dam. HRA was established in 2021 when several community groups joined forces in an attempt to coordinate and strengthen efforts to protect the river. HRA brings together long-standing landcare groups like HRCG, LHA, Blackadder Woodbridge Catchment Group and Friends of Woodbridge Bushlands, with social interest groups like Guildford Association, Midland Society, Woodbridge Ratepayers and Transition Town Guildford.

Community groups have a wealth of collective knowledge and are highly motivated to improve their local patch. Local residents can have a strong influence on local planning and land use, not just as local government Councillors, but also through participation in community groups, operation of local businesses, communication, advocacy and stakeholder engagement. For example, Friends of Woodbridge Bushlands has worked with various stakeholders for over 15 years, including Trillion Trees and the City of Swan, to improve the coordination of floodplain maintenance in the Lower Helena.

However, with limited involvement in decision making and no connection to a "bigger picture", the best efforts of community can be impeded. Many groups work in isolation towards individual goals and compete for limited resources. Whilst this may not be a problem in the short term, fragmented management across government and community has big long-term implications. The system is working as designed and many people are doing great work, yet the river's health is in decline.

Waterway health is intrinsically linked to environmental, societal and economic wellbeing. When waterways are degraded or disconnected from society, it not only affects biodiversity but our entire way of life and the things that are important to all Australians. Ecological grief and solastalgia, or the distress caused by environmental change, are often exacerbated by a sense of powerlessness or lack of control over unfolding changes. As Helena River's health declines, the values it offers to the community are eroding. To have a realistic chance of returning the river to a healthy condition for communities of today and tomorrow, we need to welcome new thinking and approaches to its management and the best time to act is now.



The Helena River Confluence, March 2023, Scott Slawinski



Save the Helena River Wetlands, Helena River Alliance



The Helena River Confluence, March 2023, Kelly Bucksey

# Waterways Western Australia

For over 40 years, the community has raised concerns about the lack of water flows in Helena River, development of its lower floodplain and incremental loss of its green spaces in urban areas. Many local groups have advocated for better protection of the river and more access to its values and there is growing activism around alleged contradictory government decision making<sup>1,92,93</sup>.

Establishment of the Helena River Alliance (HRA) in 2021 solidified the community’s desire for more collaborative action to help secure a better future for the river. In 2022, an unprecedented opportunity arose through connection of HRA co-founders Professor John Anthony Considine and Dr Marilena Stimpfl with *Waterways Western Australia*, a new initiative hosted by The University of Western Australia and supported by the Feilman Foundation.

*Waterways Western Australia* aims to create a legacy of thriving waterways for future generations by bringing communities together to address key water management challenges leading up to and beyond the 2029 Perth Bicentenary. Its mission is to connect communities with waterways and enable their mutual long-term health and wellbeing through initiatives that increase knowledge, understanding, collaboration and commitment to a sustainable future. It has three key pillars of action:

- Generate a body of knowledge for best practice conservation, culture and community outcomes.
- Nurture collaboration between leadership, community, governance, and policy.
- Create actionable solutions for sustainable waterways management.

In August 2022, *Waterways Western Australia* held a visioning workshop. It was attended by HRA members who identified the river as an ideal focus. By December 2022, the Helena River Catchment was established as the inaugural project for *Waterways Western Australia* due to its high ecological, cultural and social values and strong community interest.



*Waterways Western Australia Visioning Workshop (Will Bessen)*

*Waterways Western Australia* engaged a project manager and environmental scientist, Francesca Flynn of Evergreen Consultancy WA, to help bring the community together and identify a shared vision for Helena River. Francesca was selected due to her local knowledge and community connections within the Catchment. She worked with *Waterways Western Australia* and the local community to help deliver and document *The Helena River Confluence*, a coming together of the river’s community. Francesca was guided throughout this process by Whadjuk-Noongar Traditional Owner, Greg Ugle, and supported by the *Waterways Western Australia* team and wider Helena River community.

# The Helena River Confluence

The process began by identifying people and organisations with an interest in Helena River including Noongar Traditional Owners, community groups, local businesses, schools and government agencies. In total, 384 individuals were identified and the list continues to grow as connections are built. Each person was assessed according to their interest in the river and influence over its future. Over 200 key people were invited to come together as a community to discuss the river. People were encouraged to share the invite amongst their networks and part attendance was welcomed.

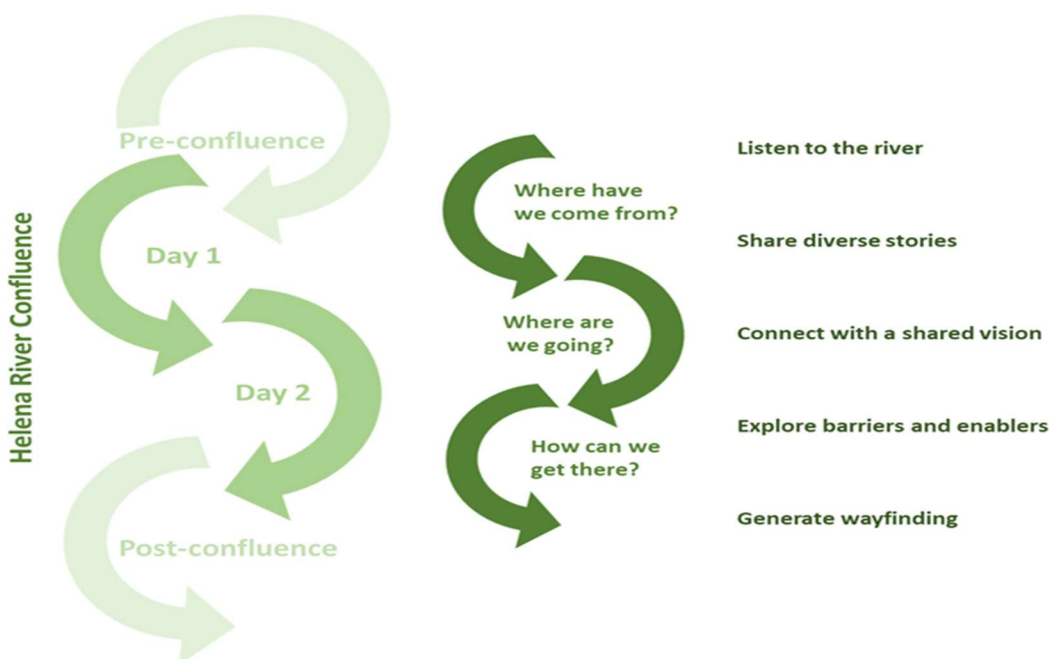
In total, 232 people were directly invited and many more people would have received a shared invite through their networks. An incredible response was received, with many people expressing relief that Helena River was the focus of attention. Only one person said they did not want to be involved with the project.

On 29-30 March 2023, *Waterways Western Australia* hosted *The Helena River Confluence*, a coming together of the river’s community to explore a shared vision for the future.

- Day 1, hosted at two locations on Helena River: Perth Polo Club in the Lower Helena, at the confluence with the Derbarl Yerrigan (Swan River), and Mundaring Weir Hotel in the Middle Helena
- Day 2, hosted at Royal Perth Yacht Club near the confluence of the Derbarl Yerrigan and Djarlgarro Beeliar (Canning River)



The Helena River Confluence, March 2023, Scott Slawinski



*The Helena River Confluence Overview (Ross Allen)*

*The Helena River Confluence* process was designed and delivered by Ross Allen of Three Seeds Agency, a strategy and engagement specialist, with support from the wider Waterways team.

The Confluence included a range of group activities designed to share stories, connect people with the river’s past, present and future, identify challenges and opportunities, and explore a shared vision for the future.



The activities were designed to be slow, to leave no one behind, and to make space for diverse perspectives. Day 1 had more unstructured sharing of stories whilst Day 2 had more structured exercises and data gathering.



The activities were designed to empower the community to contribute in the way they felt most comfortable, with opportunities to share information by writing, drawing or recording their stories and thoughts on video or tape recorder.



After the Confluence event, *Waterways Western Australia* shared a graphical summary of the findings by Peta Roebuck and invited open feedback from everyone, including those who could not attend on the day.



The Helena River Confluence, March 2023, Scott Slawinski and Kelly Bucksey



**384+**  
Individuals or organisations identified



**232+**  
Direct invitations (60% of identified)



**100+**  
Direct phone calls



**102** from community groups & NGOs



**35** from state government



**25** local individuals



**23** from universities



**22** from local government



**12** from local schools



**11** from local businesses



**2** from community funders



**2** Days  
29- 30 March 2023



**3** Venues  
Perth Polo Club  
Mundaring Weir Hotel  
Nedlands Yacht Club

**152**  
Attendances over two days

**107**  
Individuals (46% of invited)

## Day 1



**94**  
Individuals attended Day 1 (40% of invited) incl:



**13**  
Aboriginal people (14% of attendees)



**43** from community groups & NGOs



**13** from state government



**8** local individuals



**12** from universities



**8** from local government



**5** from schools



**5** from businesses



**0** from community funders

## Day 2



**58**  
Individuals attended Day 2 (25% of invited) incl:



**8**  
Aboriginal people (14% of attendees)



**22** from community groups & NGOs



**7** from state government



**9** local individuals



**10** from universities



**2** from local government



**1** from schools



**7** from businesses



**0** from community funders

**51** Organisations represented over 2 days incl:

**28**

NGOs and Community Groups

**7**

Businesses

**6**

Schools & Universities

**5**

Local Govs

**4**

WA Gov Dept.

**1**

Traditional Owner Org

<b>NGOs</b>	<b>WA GOVERNMENT</b>
Bibbulmun Track Foundation	Dept. of Biodiversity, Conservation & Attractions
Bibbul Ngarma Aboriginal Association	Dept. of Health, Advisory Committee for Purity of Water
Blackadder Woodbridge Catchment Group	Dept. of Water and Environmental Regulation
Bushmead Conservation Cobbers	Water Corporation
Ellen Brockman Integrated Catchment Group (Chittering Landcare Centre)	<b>LOCAL GOVERNMENT</b>
Friends of Flooded Gum	City of Kalamunda
Friends of Nyaania Creek	City of Swan
Friends of Woodbridge Bushland	Shire of Mundaring
Helena River Alliance	Shire of York
Helena River Catchment Group	Perth Hills Tourism Alliance
Koya Aboriginal Corporation	<b>NATIVE TITLE</b>
Lower Helena Association	Whadjuk Aboriginal Regional Corporation
Midland Junction Arts Centre	<b>PRIVATE BUSINESSES</b>
Midland Society	Aurecon
Mundaring Arts Centre	Djoona
Mundaring and Hills Historical Society	Go Cultural Aboriginal Tours & Experiences
Mundaring Chamber of Commerce	Evergreen Consultancy WA
National Trust of Australia (WA)	Peter Farmer Designs
Perth Hills Future	Three Seeds Agency
Perth NRM	Wonnil Partners
Perth Polo Club	<b>SCHOOLS &amp; UNIVERSITIES</b>
State NRM	Curtin University
Swan Valley Nyungah Community	Governor Stirling Senior High School
Trillion Trees	Guildford Association Inc
Urbaqua	Guildford Grammar School
WA Naturalists' Club (Darling Range Branch)	Guildford Primary School
Western Australian Indigenous Tourism Operators Council	The University of Western Australia
Wildflower Society of Western Australia (Eastern Hills Branch)	

*The Helena River Confluence Attendees*

The *Helena River Confluence* was attended by 107 people over two days with representation from 51 organisations including community groups, NGOs, state and local government agencies, businesses, schools, universities and Noongar Traditional Owners. To encourage sharing of information, attendees were asked to speak from their personal perspective, rather than that of the organisations they belong to or work for.





The community also shared what they thought other people valued most about Helena River....

place to relax a place for recreation a river without water exploitation  
river as a resource water for humans only development potential culture  
little source of water land for humans only **control** habitat  
rehabilitation development water rights financial benefits place  
space flat land to be exploited a dump for trash exclusive use greed trees  
property value age spirit exclusion history  
stories connection **resource** meeting place  
ecosystem ignored **water** protection 4wd access  
home open space a path, a connection traditional ways gateway to nature long history  
stock access to river public open space environment ownership  
stories and memories **control** exploitable asset power  
biodiversity sites heritage water resource  
nature birds **water** private property spiritual connections  
their backyard farmland **songline**  
hydration industrial exploitation connectivity vegetation developable land  
visible water economic value nothing, just a ditch exclusivity power  
community recreation food and drink caring for country potential traditional ownership  
provides water to our cities stories and memories

Helena River Community Values Part 2

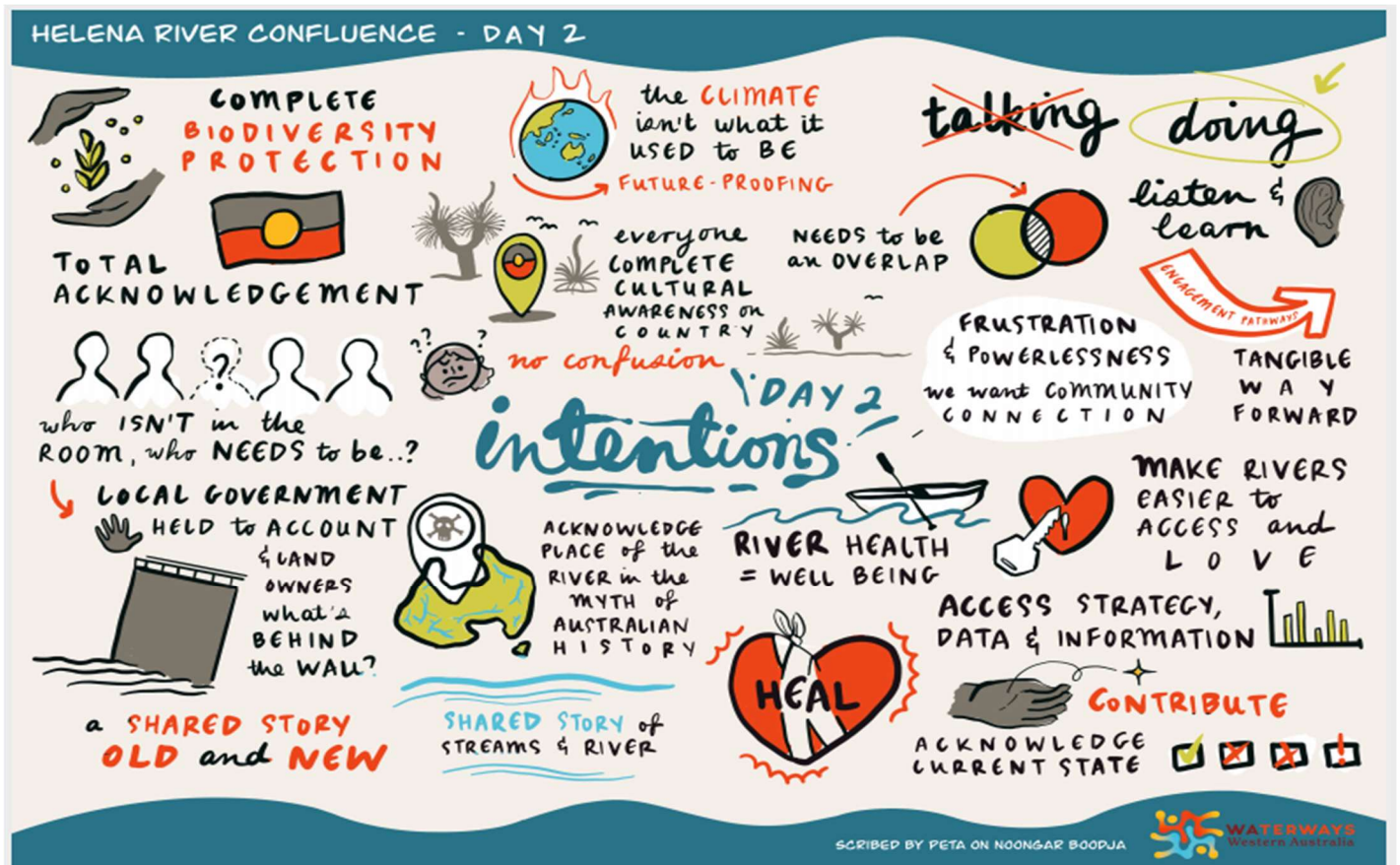


The Helena River Confluence, March 2023, Scott Slawinski

The community shared what their hopes and intentions were for Helena River's future.....

who isn't here? how to engage with developers, businesses and land owners?  
 waterway rangers embed traditional ecological knowledge engagement pathways  
 listen, learn and add value  
 stories of the river river health = well being look back and move forwards  
 other names for the river? acknowledging the place of the river in the myths of Australian history and identity  
 frustrated at powerlessness but want community connection stories  
 intention to learn and understand Noongar culture accessibility the story of the river is more than the Helena  
 what's behind the wall?  
 shared vision: caring for the river connected access strategy, data and information  
 engage networks and volunteers local government held to account surely Helena River has another name?  
 add value and change make rivers easier to access, discover and love connectivity  
 access improvement for connection river to be recognised more broadly  
 a shared story of streams and rivers contribute and heal water is the life force, without it, there will be no life  
 river's value to be seen and heard  
 it needs the respect it deserves stop talking, start doing value the importance of the waterway  
 respect traditional ecological knowledge  
 traditional ecological knowledge engage teaching and learning Helena River survey  
 acknowledge current state  
 need a vision statement river health must be restored rangers to look after the river  
 people and resources to work on it right now non-Indigenous work with Indigenous tangible way forward  
 seek understanding across boundaries what the river provides for the scientific community  
 acknowledge and understand climate change is inevitable connecting old and new stories about the river

Helena River Community Barriers

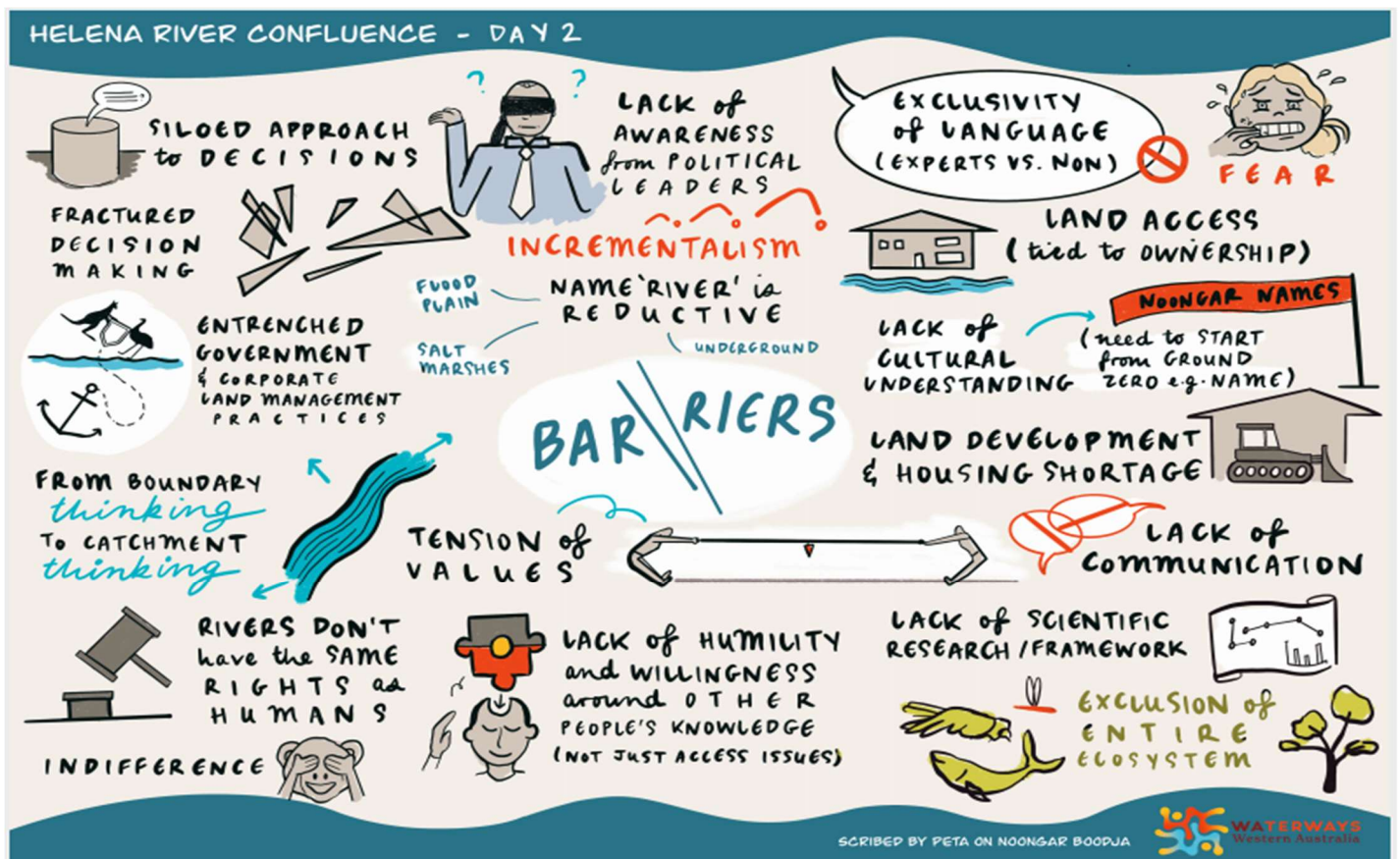


Helena River Confluence, March 2023, Community Intentions (Peta Roebuck)

The community also shared the barriers and challenges they thought Helena River faced...

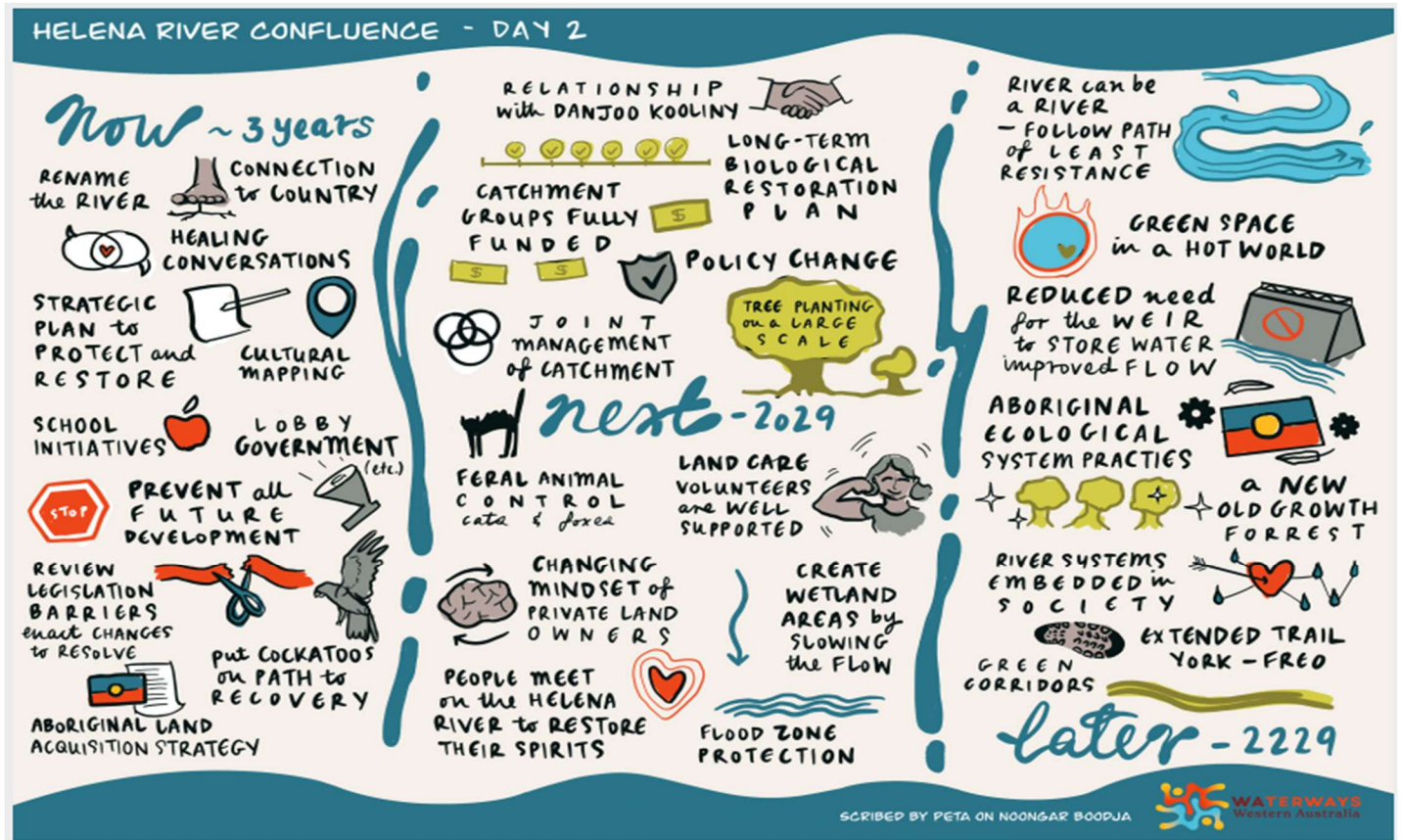
entrenched government and corporate land management practices ego and self interest  
 valuing traditional ecological knowledge willingness to access knowledge  
 land ownership **time** lack of understanding across culture and boundaries  
 incrementalism **communication** different values  
 community language stories/past wrongs  
 complex catchment ecosystem challenges **indifference**  
**lack of water flow** how we define the river  
 pressure for land development for housing and population  
**politics access fear ignorance**  
 groundwater boundary thinking lack of cultural mapping  
 lack of common broad vision or purpose for the river what is the value of water  
 Australia hasn't given any river "rights" yet lack of appreciation for drinking water out of a tap  
 lack of understanding of current cultural and scientific health of the river **safety**  
 exclusivity of language "Helena River" name

Helena River Community Barriers and Challenges



Helena River Confluence, March 2023, Barriers (Peta Roebuck)

The community identified what actions should occur to support the river over four timescales, to enable people to think beyond personal motivations: “now” (next 3 years), “next” (to the 2029 Bicentenary and beyond), “later” (2229) and “anytime”. They responded with 142 ideas including 60 for “now”, 45 for “next”, 25 for “later” and 12 for “anytime”. There was a lot of overlap in ideas e.g. “cultural mapping”, “map culture” and “cultural mapping of significant sites”.



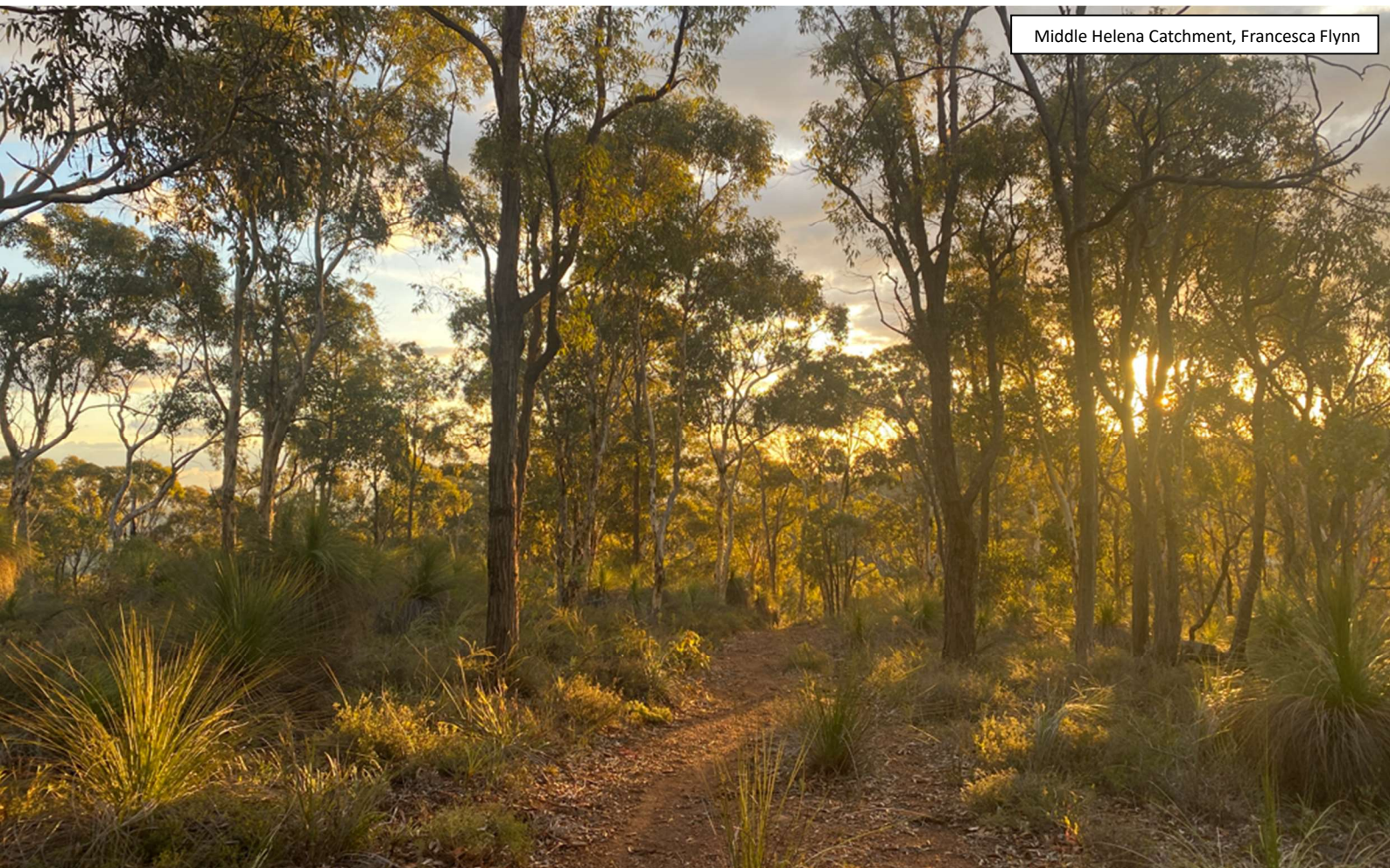
Helena River Confluence, March 2023, Actions for Now, Next, Later (Peta Roebuck)



Helena River Confluence, March 2023, What's Next? (Peta Roebuck)



Nyaania Creek, Helena River Tributary, Francesca Flynn

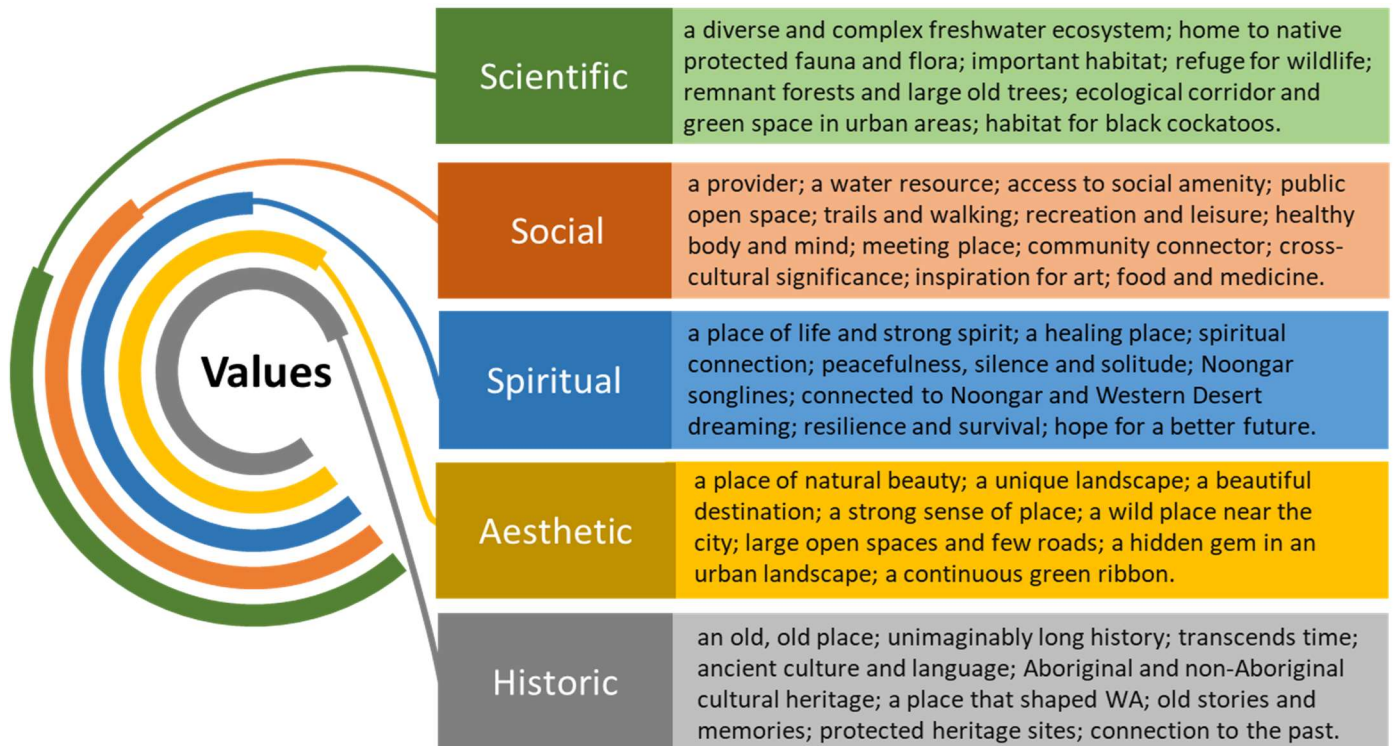


Middle Helena Catchment, Francesca Flynn

## Community Values and Challenges

After the Confluence, the *Waterways Western Australia* team spent a lot of time analysing the community feedback. Three additional workshops were held in April and May 2023 to review, consolidate and summarise the findings, including one that was attended by members of Helena River Alliance (Prof John Considine), Lower Helena Association (Dr Marilena Stimpfl), Perth Hills Future (Erik Stanton-Clements) and the Whadjuk Cultural Advisory Committee (Greg Ugle). In addition, an Aboriginal Advisory Group was established by Wonnil Partners (Collene Castle) on behalf of *Waterways Western Australia* to provide independent cultural advice to the project.

The findings illustrate how deeply valuable the Helena River is to the community. Its values can be grouped into themes using the Burra Charter classification system, an Australian framework for using values to manage places of significance<sup>94</sup>.



*Helena River Community Values Summary*

There is collective community concern for the river’s values into the future. The major challenges and barriers identified by the community can be grouped into common themes.

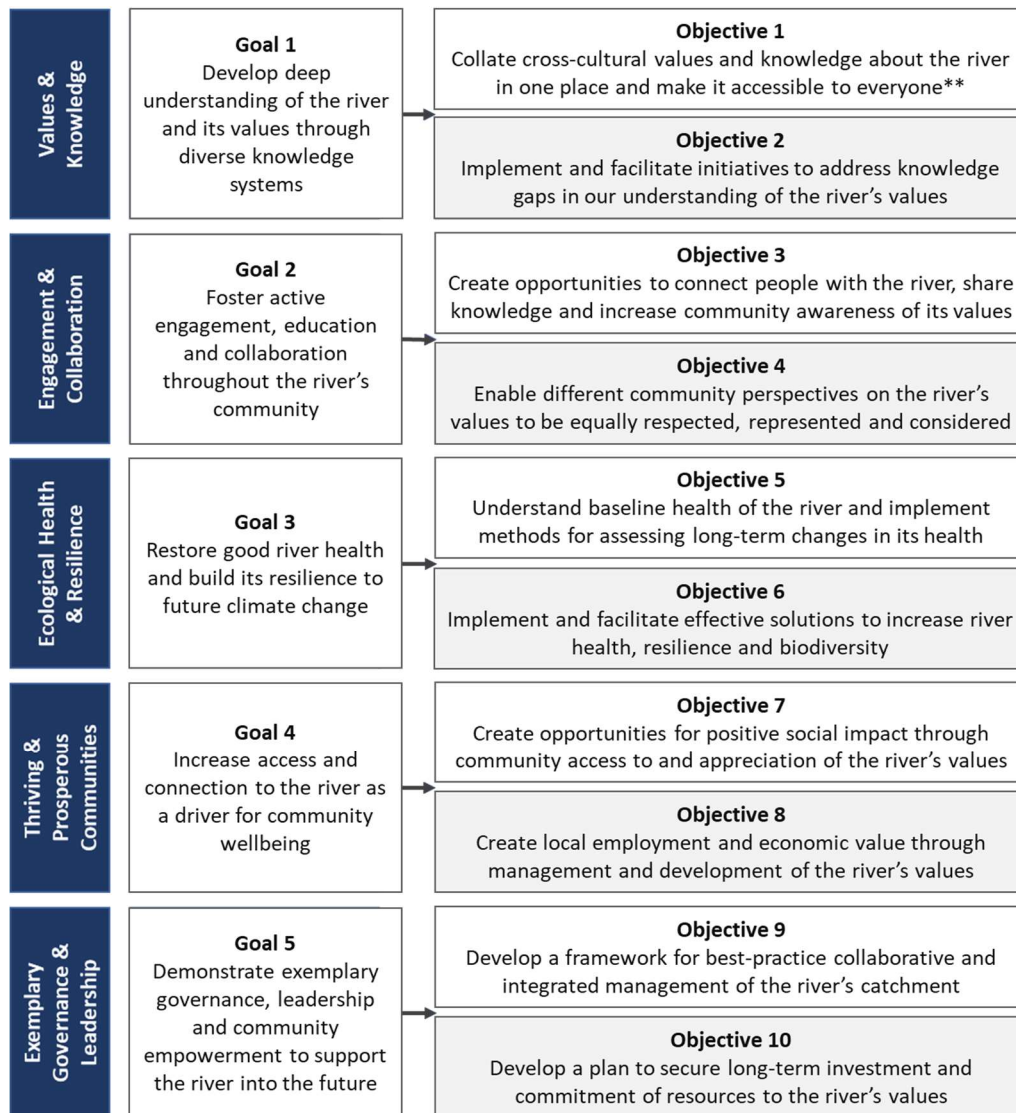
<b>Knowledge &amp; Understanding</b>	widescale lack of knowledge and awareness; unknown river health and water status; lack of cross-cultural awareness; poor understanding of Noongar values; lack of cultural mapping; unappreciation; ignorance; indifference; entrenched beliefs; unwillingness to learn and change; lack of respect; apathy and inaction.
<b>Communication &amp; Collaboration</b>	lack of communication across entire community; poor knowledge sharing; misunderstandings; mistrust; past wrongs; lack of truth-telling about impacts on Noongar people; lack of truth about river management and funding; community excluded from decisions; exclusive language; restrictive river definition; colonial name.
<b>Governance &amp; Management</b>	complex and disjointed management; work in silos; fragmented decision making; entrenched government and corporate land management; lack of overarching plan or river policy; complex catchment and land ownership; politics; fear of change and admitting wrong; self-interest; inadequate funding; no leadership.
<b>Unsustainable Development</b>	continuous pressure for housing land; unsustainable population growth; development incrementalism; death by a thousand cuts; unprotected Lower Helena; floodplain and wetlands undervalued; infilled floodplain; boundary-thinking and planning; no “right” for river to exist; no consideration of climate change.
<b>Competing Interests</b>	competing demands for land and water resources; conflicting and unsustainable land use; lack of water flow for the river and groundwater; limited public access; exclusion from the river; lack of adequate budget for environmental and social values; safety challenges; inadequate sharing of resources; time pressure.

*Helena River Community Barriers Summary*

# Community Goals and Objectives

The Helena River Confluence event generated 142 community ideas for the river's future. A Business Motivation Model was used to organise the ideas into strategic goals and objectives by the *Waterways Western Australia* team in a process led by A/Prof Nadelle Brooks. The key strategic themes were identified as follows:

- Values and Knowledge
- Engagement and Collaboration
- Health and Resilience
- Thriving and Prosperous Communities
- Exemplary Governance and Leadership



\*\* as culturally appropriate

*Helena River Business Motivation Model (Adapted from Waterways Western Australia)*



# Community Initiatives

The 142 community ideas for Helena River’s future were reviewed and consolidated into 60 initiatives which align with the 10 community objectives. Many of these initiatives could be delivered by community groups, either individually or working in partnership with government, industry or academia, to support the development of a collaborative plan that is based on community values and empowerment to actively participate in a better future.

Community Objectives	Community Initiatives
<p><b>Objective 1</b> Collate cross-cultural values and knowledge about the river in one place and make it accessible to everyone**</p>	<ul style="list-style-type: none"> <li>- Collate all existing information and data about the river’s values and significance</li> <li>- Develop a community communication platform to share information about the river in one place</li> <li>- Curate an art exhibit about the river’s values (incl. painting, sculpture, photos, film, performance)</li> <li>- Work with Noongar people to design and deliver a dual naming and signage project along the river</li> <li>- Support community members who want to publish stories, language, songs and art about the river</li> <li>- Engage a filmmaker to produce a documentary about the river’s significance and screen it locally</li> </ul>
<p><b>Objective 2</b> Implement and facilitate initiatives to address knowledge gaps in our understanding of the river’s values</p>	<ul style="list-style-type: none"> <li>- Undertake cross-cultural mapping to document significant places, events and people along the river</li> <li>- Work with Noongar people to document traditional ecological knowledge about the river</li> <li>- Design and host a series of yarning circles for the community to listen and learn from Noongar people</li> <li>- Design and deliver a truth-telling project about the impact of Mundaring Weir on Noongar people</li> <li>- Develop a research program to address data gaps in our understanding of the river’s values</li> <li>- Develop a clear process and agreement for knowledge sharing and collaboration with the community</li> </ul>
<p><b>Objective 3</b> Create opportunities to connect people with the river, share knowledge and increase community awareness of its values</p>	<ul style="list-style-type: none"> <li>- Deliver a program of community events to create shared social and cultural experiences on the river</li> <li>- Launch an annual art competition for adults and children focused on the river</li> <li>- Deliver a series of family friendly education initiatives that increase knowledge of the river’s values</li> <li>- Design and deliver a school program to develop early understanding of the river and its importance</li> <li>- Design and deliver an education program for private landowners on the river to support river health</li> <li>- Implement a communication program to raise the river’s profile in the Perth and business communities</li> </ul>
<p><b>Objective 4</b> Enable different community perspectives on the river’s values to be equally respected, represented and considered</p>	<ul style="list-style-type: none"> <li>- Develop an interpretation plan to share the river’s cross-cultural significance with the community</li> <li>- Work with Noongar people to develop a community cultural awareness program for the river</li> <li>- Support the implementation of third-party Reconciliation Action Plans across Helena River Catchment</li> <li>- Create a community relationship plan to identify and connect individuals, organisations and businesses</li> <li>- Develop a process to engage local youth and local business/industry with the wider community</li> <li>- Facilitate mainstream conversations about the potential for rivers to have legal rights</li> </ul>
<p><b>Objective 5</b> Understand baseline health of the river and implement methods for assessing long-term changes</p>	<ul style="list-style-type: none"> <li>- Undertake a detailed conservation audit to document the baseline ecological health of the river system</li> <li>- Undertake an assessment of the river’s water balance including allocations, flows and quality</li> <li>- Develop a citizen science community sampling program to monitor long-term health of the river</li> <li>- Work with Aboriginal people to understand opportunities for traditional ecological management</li> <li>- Undertake a comprehensive assessment of the river’s future condition under predicted climate change</li> <li>- Assess and document the river’s role in putting black cockatoos on the paths to recovery</li> </ul>



Mundaring Weir, Francesca Flynn



## Community Objectives

## Community Initiatives

<p><b>Objective 6</b> Implement and facilitate effective solutions to increase river health, resilience and biodiversity</p>	<ul style="list-style-type: none"> <li>- Design a biodiversity and ecological health restoration plan for the entire river</li> <li>- Design a catchment-scale vegetation restoration and rehabilitation program</li> <li>- Establish a ranger program to undertake on ground work with community and government</li> <li>- Facilitate regular water releases from Mundaring Weir and the Lower Dam to maintain minimum flows</li> <li>- Work with planners and landowners to protect and expand the Lower Helena green corridor</li> <li>- Facilitate the creation of a River Park to consolidate and expand conservation land along the entire river</li> </ul>
<p><b>Objective 7</b> Create opportunities for positive social impact through community access to and appreciation of the river's values</p>	<ul style="list-style-type: none"> <li>- Undertake an audit to document current opportunities to access the river for recreation and leisure</li> <li>- Develop a trails plan to assess the condition of existing trails and the feasibility of creating new trails</li> <li>- Work with Noongar people to design a songline trail with interpretive signage and a guidebook</li> <li>- Design and build new trails from York to Guildford and from Mundaring to Kalamunda town centres</li> <li>- Work with landowners and managers to increase community access to the river in urban areas</li> <li>- Design and deliver a campaign about river health and community wellbeing</li> </ul>
<p><b>Objective 8</b> Create local employment and economic value through management and development of the river's values</p>	<ul style="list-style-type: none"> <li>- Develop a sustainable nature-based tourism plan (incl. trails, cultural tourism, astrotourism)</li> <li>- Facilitate and support development of sustainable tourism experiences along the river</li> <li>- Facilitate and support development of virtual tours of biodiversity hotspots and cultural sites</li> <li>- Develop a communication program on key opportunities and risks for business, industry and developers</li> <li>- Investigate carbon sequestration that would enable the river to create economic value by being healthy</li> <li>- Assess the feasibility of re-establishing swimming or low-impact water sport in the river</li> </ul>
<p><b>Objective 9</b> Develop a framework for best practice collaborative and integrated management of the river's catchment</p>	<ul style="list-style-type: none"> <li>- Develop an integrated catchment management plan using a values-based sustainability framework</li> <li>- Develop a process to input community values and feedback into management and planning</li> <li>- Facilitate agreement amongst decision makers on collaborative management and cooperative effort</li> <li>- Establish a collaborative community advisory group that provides a strong unified voice for the river</li> <li>- Review legislation and policy barriers to change and explore opportunities to overcome</li> <li>- Design and deliver a campaign to build community trust in the river's management and future</li> </ul>
<p><b>Objective 10</b> Develop a plan to secure long-term investment and commitment of resources to the river's values</p>	<ul style="list-style-type: none"> <li>- Develop a business plan for the river to assess management costs, income and job creation potential</li> <li>- Include cost estimates in the integrated management plan to provide a solid basis for investment</li> <li>- Facilitate collaborations, partnerships and effective shared use of resources across the community</li> <li>- Empower the community to obtain independent funding for initiatives that align with a shared vision</li> <li>- Design and deliver a campaign to generate long-term commitment to catchment scale funding</li> <li>- Facilitate mainstream conversations about the importance of financial investment in river health</li> </ul>



# Community Vision for the Future

A collective community vision for the Helena River's future has begun to emerge:

**Helena River's health is protected and restored for all to enjoy through connection of people with place and culture, and enhancement of environmental and social values that support sustainable economic development.**

1. The community recognises that Helena River is deeply valuable to both humans and wildlife. They want more opportunities to connect with the river's values and more resources allocated to its management for the benefit of all life. They want the river's values to be better quantified, understood, protected and shared by decision makers, particularly in relation to its remaining floodplain and wetlands in the Lower Helena.

*"Remove obvious barriers to access the river." "Make the river easier to access, discover and love." (HRC, 2023)*

2. The community recognises that the river's health is critical to its value to the community. They want holistic and integrated management of the river that provides a better balance between its social, environmental and economic values, including a government commitment to maintain minimum water flows from the dams into the riverbed.

*"I want to see commitment to healing the whole river in the future and mandated water flows." (HRC, 2023)*

3. The community shares collective concern about the fate of the river in the face of climate change and urbanisation. They want significantly more action from government to stop floodplain infill and clearing, reverse damage done and build resilience to future change. They want to see a greater sense of urgency to mitigate threats to the river's health so it may continue to function and support communities in the future.

*"I want to feel that the river is in safe hands. That it will be valued in the future. I want its preciousness to be recognised, its banks cleared of weeds, so it can continue to sustain wildlife that depends on it, including us!" (HRC, 2023)*

4. The community knows that the river is a diverse and complex ecosystem that does not abide by legal tenure, legislation or boundaries on maps. They want catchment-wide consideration of the river's values that transcends land ownership and allows coordinated management of threats at a landscape scale. They want decision makers to understand how small incremental changes impact the health of the whole system over time and space.

*"We need to overcome boundary thinking to inform planning, land use and management." (HRC, 2023)*

5. The community knows that the river is highly significant to Noongar people and want more consideration of Traditional Indigenous Knowledge in its management, including appropriate ecological and cultural water flows.

*"We need to reconnect Indigenous young people with their country, culture and language. This project is the perfect opportunity to do that." (HRC, 2023)*

6. The community wants more opportunities to learn about the river's cultural significance and for it to be a centrepiece in bringing people together for meaningful reconciliation and cross-cultural connection.

*"I want to understand Noongar knowledge about the river." "I'd like to feel more connected to country." (HRC, 2023)*

7. The community wants sustainable development that respects the river's right to flourish in a healthy condition, including its floodplain and wetlands, and accounts for the wellbeing of all living communities, human and not, now and forever.

*"We need to implement sustainable development now." (HRC, 2023)*

8. The community wants the river to be a source of permanent local jobs with economic value derived from the river reinvested into its management through initiatives like sustainable tourism, carbon sequestration and a ranger program.

*"I want to learn how we can sustainably and respectfully develop the river for tourism." (HRC, 2023)*

9. The community feels a sense of responsibility towards the river. They want to be included in collaborative decision making and to feel empowered to contribute their knowledge and experience to support the river's future. They want to be involved in a shared journey towards a shared vision and be part of a bigger picture.

*"As an Indigenous woman, I want to ensure my culture, history and county is interwoven in this process and that thousands of years of our ways are listened to." (HRC, 2023)*

## Vision Alignment with Government Strategy

The emerging community vision for Helena River strongly aligns with *Australia's Strategy for Nature (2019-2030)* which sets the overarching framework for all national, state and local policies and plans for nature<sup>57</sup>. The strategy states that in order to protect biodiversity and maintain functioning ecosystems in the face of climate change, we must urgently adapt our management approach. It encourages integration of disciplines, landscape-scale and boundaryless management, and adaptive decision making based on the latest science. It emphasizes the enormous value of community contribution to conservation and highlights the importance of collaborative decision making for effective policy<sup>57</sup>.

The emerging community vision strongly aligns with the strategic direction of government agencies responsible for the river's management, as outlined below. *Waterways Western Australia* aims to continue to work with government and community groups to collaborate on specific priorities and ensure alignment with strategic priorities and best practice.

Agency	Strategic Priorities
Advisory Committee for Purity of Water <sup>95</sup>	Protect, monitor and manage drinking water quality in WA. Foster inter-agency cooperation.
Dept. of Biodiversity, Conservation and Attractions <sup>96</sup>	Conserve WA's biodiversity and cultural/natural values. Provide world-recognised nature-based tourism and recreation experiences. Connect with community to increase appreciation, knowledge and enjoyment of WA's biodiversity and conservation.
Dept. of Jobs, Tourism, Science and Innovation <sup>97</sup>	Advance WA as a thriving, inclusive place to live, work, study and visit. Promote and engage our natural assets, unique capabilities and Aboriginal heritage.
Dept. of Planning, Lands and Heritage <sup>98</sup>	Provide a quality environment with liveable communities and thriving regions. Support a strong economy and creation of jobs. Balance demand on land for environmental, economic and cultural outcomes. Conserve cultural heritage.
Dept. of Transport <sup>99</sup>	Adaptive, climate-resilient transport solutions. Sustainable land use for future growth, jobs and economic prosperity.
Dept. of Water and Environmental Regulation <sup>100</sup>	Provide water resources for the needs of the community, ecosystem and economy. Protect environmental values and ensure that development is sustainable. Build greater environmental and community resilience to climate change.
DevelopmentWA <sup>101</sup>	Build sense of place through high-quality urban design, heritage protection and cultural activities that respond to environment, climate and lifestyle. Protect natural systems, habitat and biodiversity and respond to climate change. Build relationships with government, communities and private sector.
Forest Products Commission WA <sup>102</sup>	Facilitate a vibrant and sustainable forestry industry to deliver social and economic benefits to Western Australian communities. Deliver healthy forests for future generations.
Swan River Trust <sup>103</sup>	Work with others to protect and enhance the ecological health and long-term community benefits of the Swan Canning river system.
Water Corporation <sup>104</sup>	Provide water services for state development. Accelerate environmental sustainability of the water cycle as our climate changes. Develop local solutions in partnership with communities.
Western Australian Planning Commission <sup>105</sup>	Facilitate infill development and sustainable urban growth for liveable communities. Protect the urban tree canopy for all communities for amenity and health benefits. Ensure WAPC land and property assets are used for long-term community benefit. Greater early, effective and genuine and engagement with community and industry. Deliver a planning system and processes adapted for change.

The emerging community vision also strongly aligns with the various environmental and community development strategies belonging to the catchment's four local government authorities, in particular Mundaring and Kalamunda, who focus on sustainable nature based tourism as an economic growth strategy for the Perth Hills region<sup>106,107</sup>.

The emerging community vision also strongly aligns with the United Nations Sustainable Development Goals (SDGs) around water use, ecosystem health, climate action, community wellbeing, economic growth, employment and lifelong learning and community partnerships<sup>108</sup>.

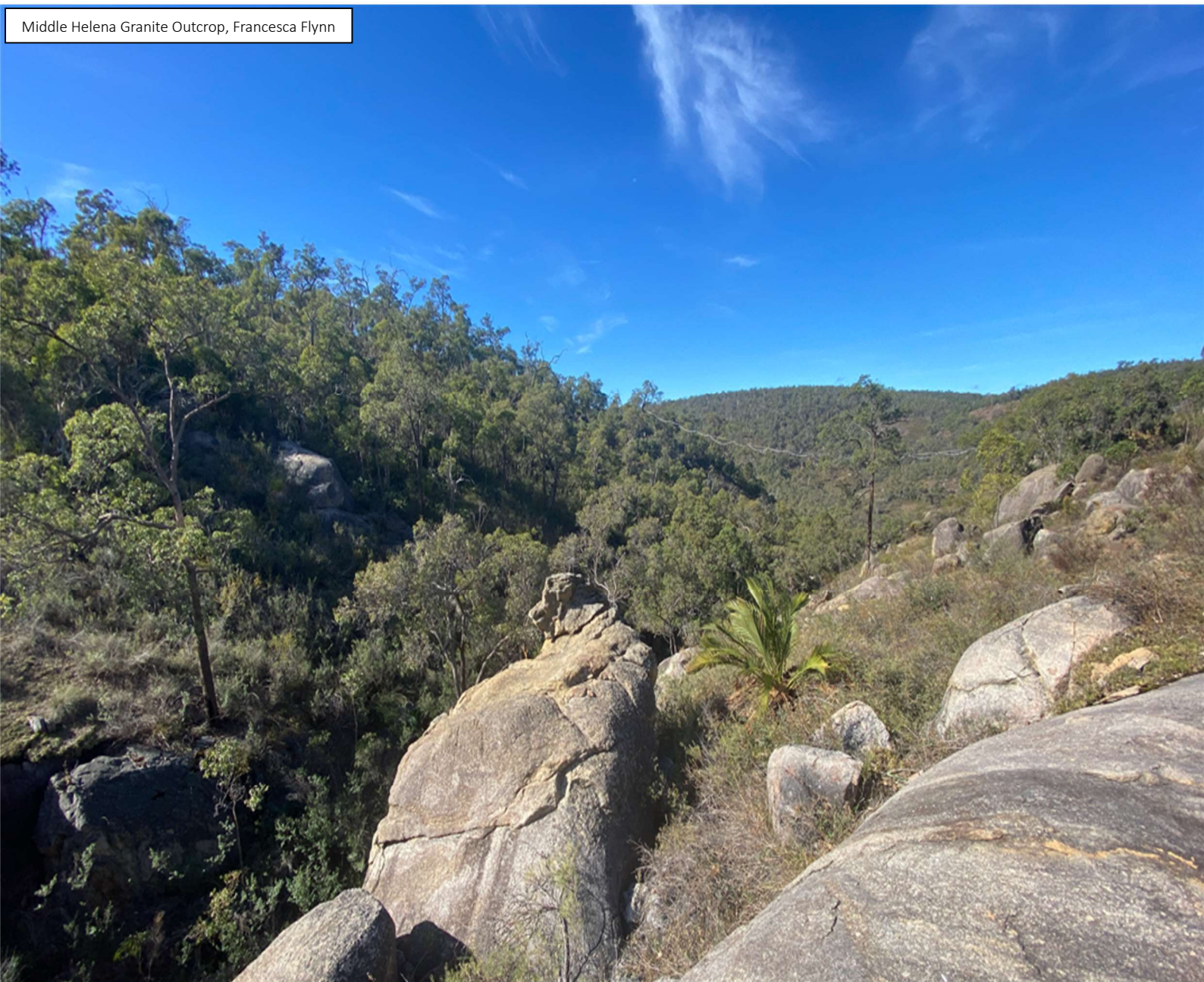
The community idea of creating a River Park along the entirety of Helena River through consolidation of existing conservation estate, national parks and reserves specifically aligns with the state government's recent endorsement of a new national target to protect 30% of Australia's land and marine areas for conservation by 2030.

DBCA is on track to deliver the *Plan for our Parks* initiative through creation of 5 million ha of new parks and reserves and a 20% increase in WA's conservation estate between 2019-2024 and is looking for new opportunities to protect land for conservation<sup>109</sup>. In January 2023, DBCA Executive Director Peter Sharp told ABC there are many opportunities for land protection through different collaborative management arrangements<sup>110</sup>.

*"There is opportunity for us to be exploring how we work with private landholders, pastoral lessees and other Aboriginal lands, to put in place management frameworks that would meet the international obligation that Australia is signing up to. It doesn't all have to be in national parks and reserves." Peter Sharp, January 2023*

It is the ideal time for government and community to come together to co-develop a sustainable integrated management plan for the Helena River Catchment that unites everyone under one shared vision for the future.

Middle Helena Granite Outcrop, Francesca Flynn



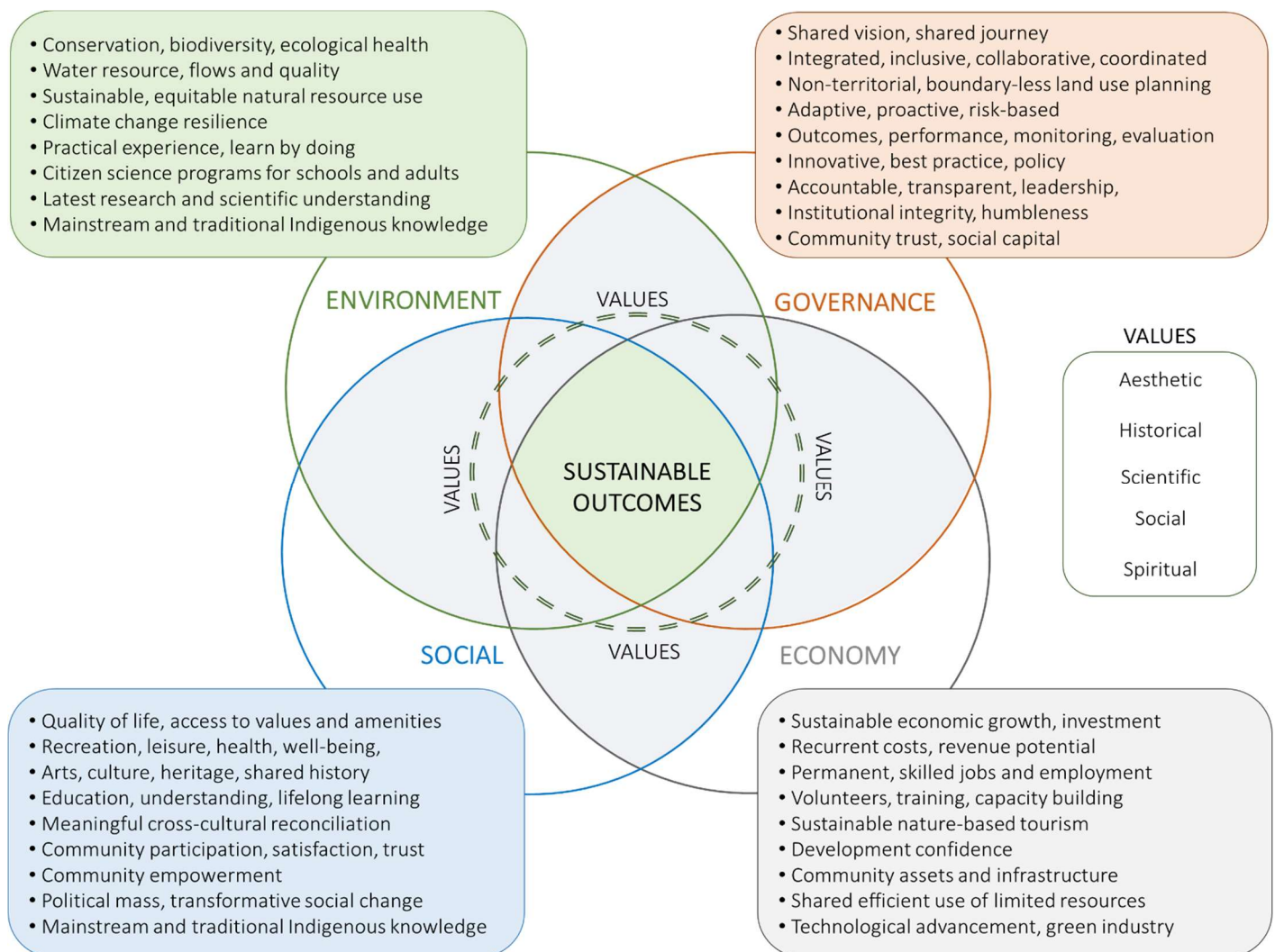
# A Shared Community Plan for the Future

It is clear that a critical next step for Helena River is to develop a plan that unites the community, including government agencies, under a shared vision for the future. Various plans have been produced for parts of the river, but there is no integrated plan which brings together all this information and holistically considers the river’s environmental, economic and social values from a catchment-wide and whole-community perspective.

A collaborative approach to developing and implementing the plan is critical because overcoming the challenges and threats faced by Helena River is not achievable by one organisation alone. From government to community groups, schools, researchers, developers, businesses and Traditional Owners, we all have a role to play in the river’s future. It will take the collective action of many to halt its decline and put it on the path to recovery. The plan should align with strategic government priorities and industry best-practice, whilst inspiring and empowering the community to embark on a shared journey to reconnect with the river for generations to come. Public education and engagement will be essential to enable all community members to gain the knowledge and understanding needed to embrace a new future for Helena River.

The plan should provide a detailed roadmap to restore the river’s health, protect its cultural significance, and reconnect the community with its values now and into the future. To be effective, the plan should be fully costed to equip decision makers with certainty on what resources are needed to achieve the shared vision and where collaborative action and targeted investment can have the most impact.

Management of environmental, social and economic values using a sustainable development framework is common practice in Australia. Most government agencies have a strategic focus on sustainability and some, like DevelopmentWA, a major land manager in the Lower Helena, set minimum sustainability standards<sup>101</sup>. A potential framework for sustainable management of Helena River’s values is presented below.



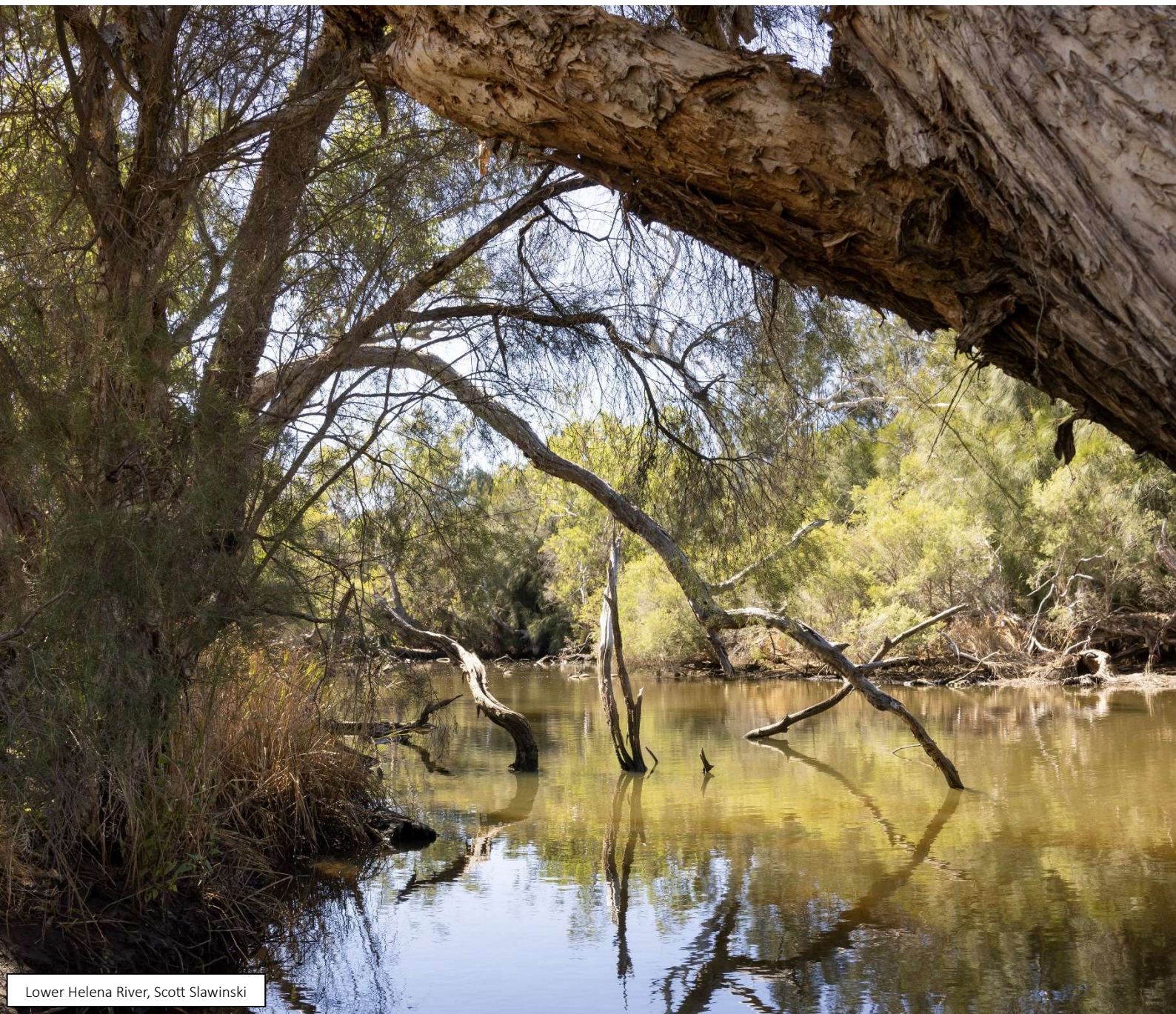
Potential Framework for Sustainable Management of Helena River (Source: Adapted from Tom Perrigo OAM)

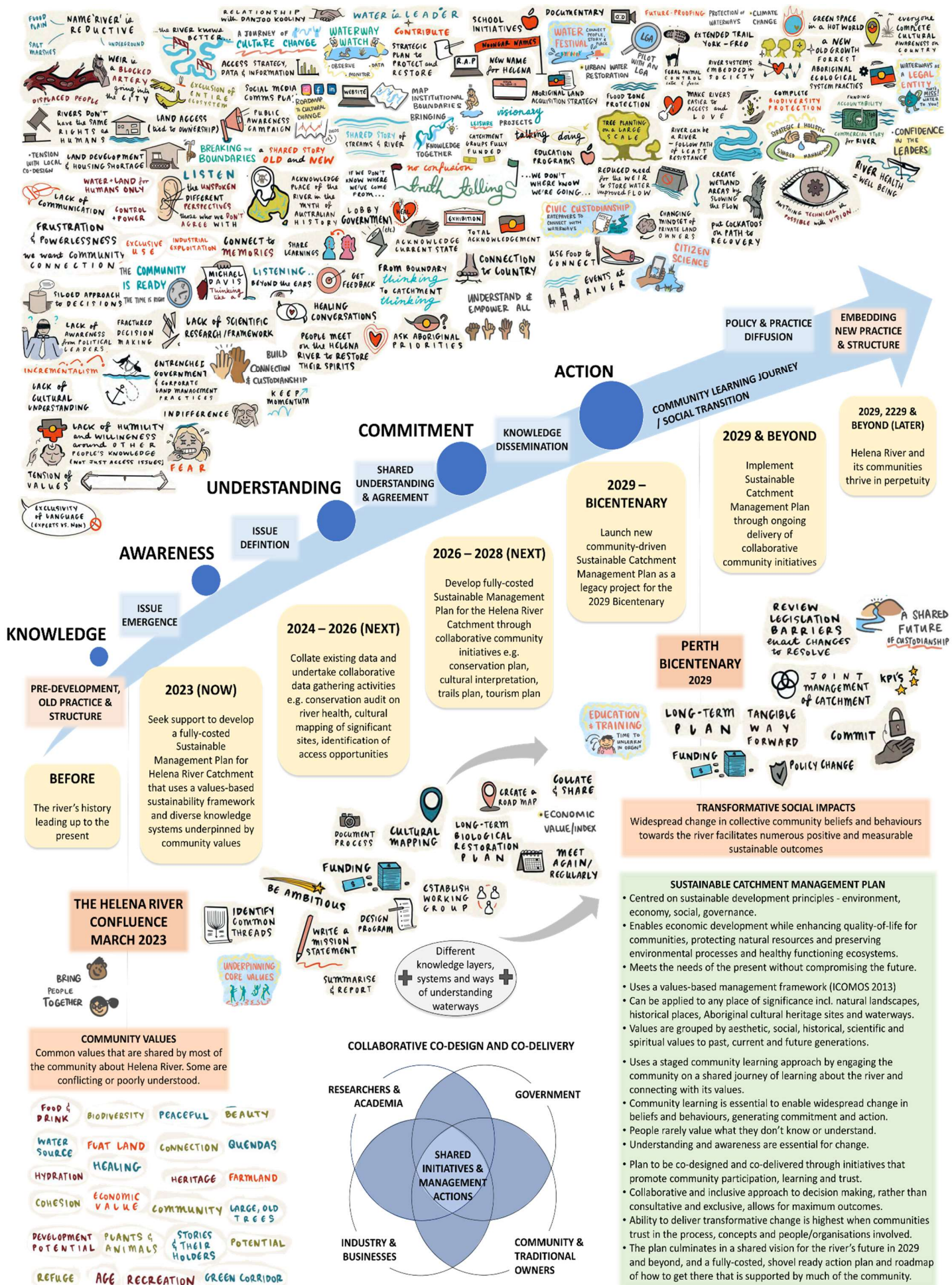
Values are widely recognised as a strong basis for sustainable management of significant places as they allow multiple competing interests to be addressed in a local context, enable identification of community priorities and resources, and provide a strong basis for budget allocation and policy development. Values are a social construct that change over time and so are inherently adaptive to evolving circumstances. The ICOMOS Burra Charter provides an Australian framework for using values to manage places of significance<sup>94</sup>. It can be applied to any place that is considered important including historical buildings, Aboriginal heritage sites, natural landscapes and waterways. It recognises five types of values to past, current and future generations.

- Aesthetic – the sensory perception of a place such as its visual form, scale and design
- Historical – the actions of historic figures, events, phases or activities
- Scientific – the structure and behaviour of the physical world including traditional Indigenous knowledge
- Social – the qualities and sentiments for why a place is considered significant to society
- Spiritual – the deep emotional connections that people have to the physical and non-physical world

Spiritual values are intangible and often misunderstood, yet they are a powerful tool for change. Emotional connection is a strong motivator that can create shifts in society that drive political mass for change at policy level.

A potential timescale for the development of the community plan is presented opposite using graphical community feedback provided at the *Helena River Confluence* event.





Potential Community Catchment Plan Timescale

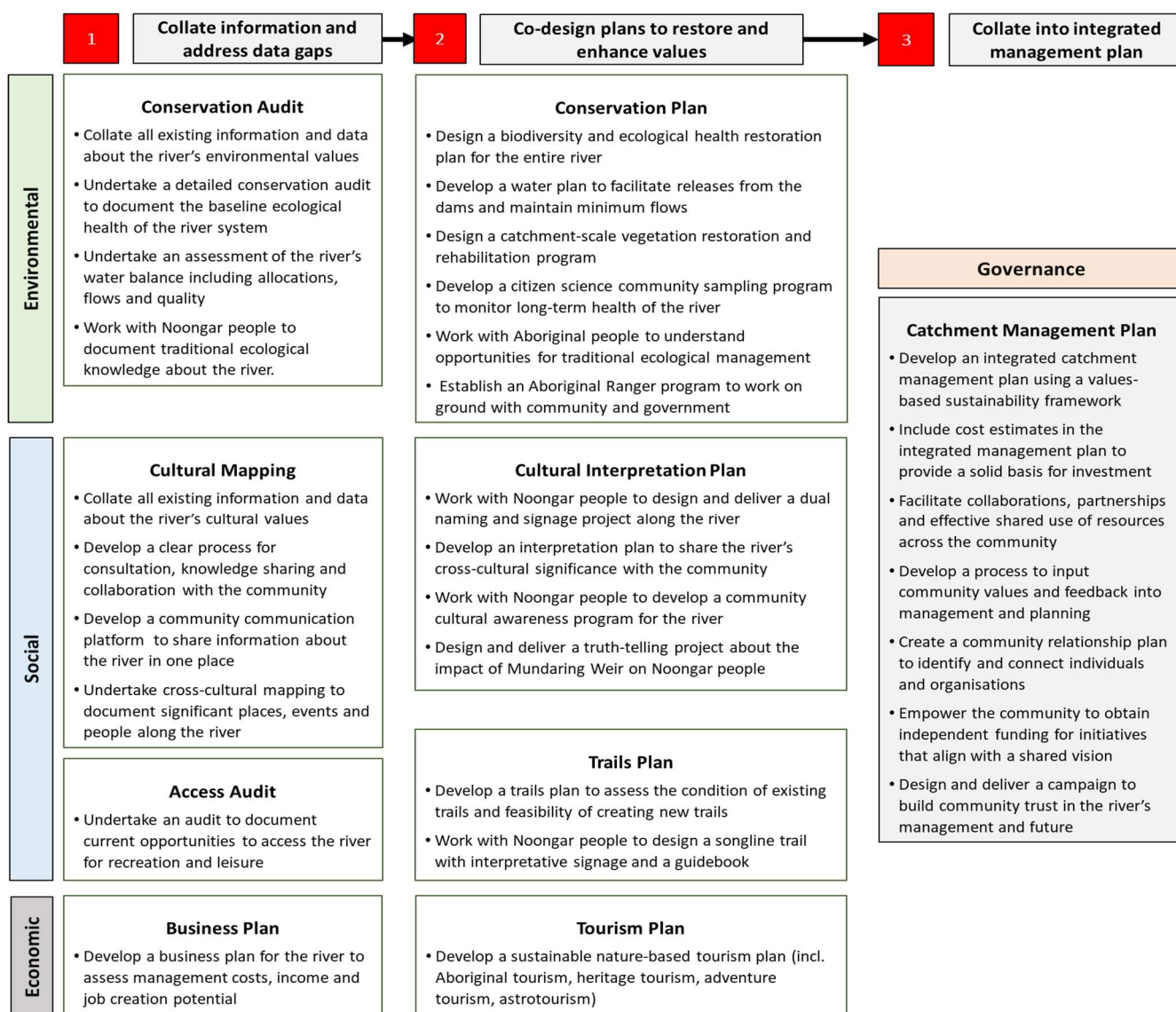
Development of a community-driven integrated plan for the Helena River Catchment could be undertaken in three phases:

1. Collate existing information about the river, identify data gaps and undertake data collection activities.
2. Develop plans to restore the river’s health, preserve its cultural significance, and enhance its social and economic values on a catchment-scale through co-design with the entire community.
3. Collate into an integrated catchment management plan that uses a values based sustainability framework to connect the community under a shared vision for the river’s future and presents a costed roadmap to follow.

In order to create a plan for the future, it is essential to start by understanding its current status. Establishing the river’s “baseline” condition is critical to enable objectives to be set and performance to be measured. A lot of good work has been done, and is still being done, by the local community, researchers, scientists and government that provides a solid foundation to build upon. Collation and analysis of this work from a catchment-wide perspective is needed to expand on the collective efforts that have gone before.

Once existing data is collated, gaps are likely to occur in our understanding of the river’s health and values. Additional data gathering is likely to be needed to properly understand the river’s components and processes, its condition along the full length, how it integrates with the changing landscape and how its ecosystems might change in the future. Once data gaps are addressed, an integrated plan for the river’s future can be developed.

Many initiatives that were identified during the *Helena River Confluence* event could be delivered by the community as distinct projects to support the development of a collaborative plan for the river’s future. A potential scope is shown below.



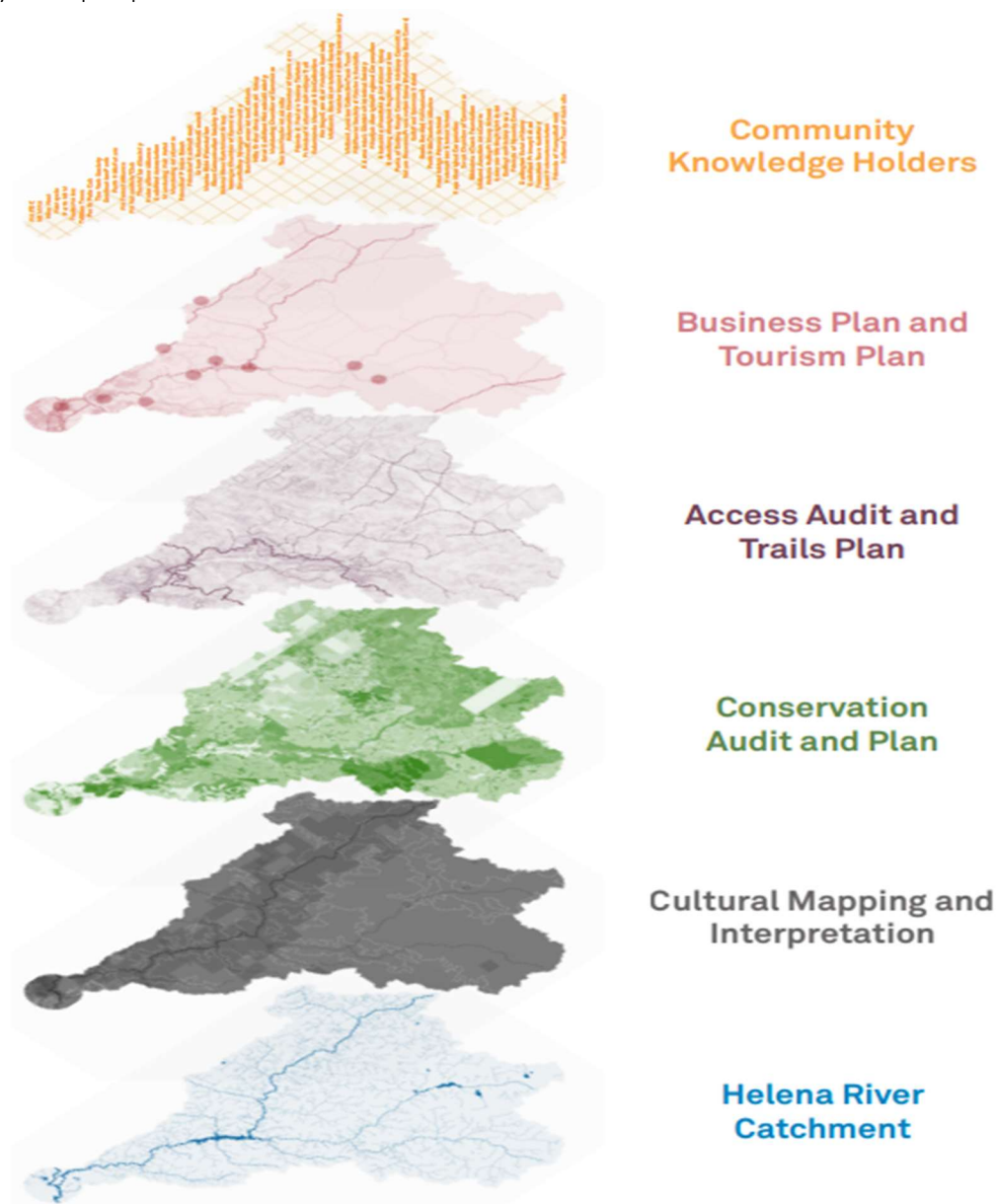
Potential Scope to Build an Integrated Community-Driven Catchment Plan



The key components of a community-driven integrated catchment plan could include:

1. Conservation Audit: To establish and share the river’s environmental values and baseline ecological health.
2. Conservation Plan: To provide a costed roadmap to restore the ecological health of the river.
3. Cultural Mapping: To identify and document Aboriginal and non-Aboriginal cultural knowledge of the river.
4. Cultural Interpretation: To provide a costed action plan to protect and share the river’s cross-cultural significance.
5. Access Audit: To document and share existing community access opportunities to the river.
6. Trails Plan: To investigate opportunities to increase community access to the river through sustainable trails.
7. Business Plan: To determine the river’s recurrent management costs, income and job creation potential.
8. Tourism Plan: To stimulate sustainable economic growth and create local jobs through nature-based tourism.

Implementation of these initiatives would support the development of an integrated catchment plan that uses a values based sustainability framework and diverse knowledge systems to manage environmental, economic and social outcomes from a community-wide perspective.



*Examples of Diverse Knowledge Layers for Helena River (Daniel Jan Martin)*



Upper Helena Granite Outcrop, Francesca Flynn



Lower Helena River Pool, Francesca Flynn



Lower Pumpback Dam, Francesca Flynn

# A New Blueprint for Community-Driven Sustainable Waterways Management

Development of a community-driven plan that embraces the scientific, social, aesthetic, historic and spiritual values of the catchment in a holistic and integrated way could establish a new blueprint for sustainable waterways management by:

- Using a values based sustainability framework to manage environmental, social and economic considerations across an entire river catchment in a whole-of-system, integrated approach.
- Adopting a collaborative approach that considers the values of the whole community and applies collective knowledge and experience to maximise outcomes and connect everyone under one shared vision for the future.
- Creating a learning journey to enable the wider community to gain the knowledge, awareness and understanding needed to commit to the new shared vision for the river's future.
- Providing detailed cost estimates to equip decision makers with certainty on what resources are needed to achieve the shared vision and where collaborative action and targeted investment can have the most impact.

Development of the plan would lead to significant outcomes for the river and its community, including:

- A roadmap to protect and restore the health of Helena River, preserve and share its cultural significance, enhance its social and economic values, and reconnect it with the community now and into the future.
- A framework that identifies priority actions at a catchment scale, facilitates coordination of effort and sharing of resources, and empowers individual agencies and groups to add value beyond arbitrary organisational boundaries.
- Opportunities for genuine community connection, reconciliation and cross-cultural understanding by bringing Aboriginal and non-Aboriginal people together through a shared appreciation of the river.
- Opportunities for public education and social transition to enable the community to gain understanding of the river's value, develop care for its protection, build trust in its management and commit to a new vision for its future.
- Connection of community and government under one shared vision for the river's future that is supported by most people and provides certainty for industry, developers and investors to be able to plan for future generations.
- Connection of the individual objectives of many government agencies, community groups, Traditional Owners and individuals, the collective efforts of hundreds of people who have cared for the river for many years.
- Deep understanding of the river system that builds on the good work already undertaken and provides a solid knowledge foundation to underpin all future work and investment.
- A process for knowledge collection and sharing that is accessible to everyone in the community and provides support for future initiatives and research.
- Opportunities for permanent and skilled local employment and volunteer roles to enhance the river's values, support local businesses and generate sustainable economic growth.
- A process for collaborative design and decision making that embeds grassroots experience, scientific research and Traditional Indigenous Knowledge into the river's management and uses it to strengthen policy formation.

Implementation of the plan would have numerous positive benefits and sustainable outcomes for Helena River and its communities by improving the river's health, connecting people with its places and culture, and teaching them to recognise the importance of sustainable waterways so that future generations can continue to access their values.

*"I want to feel an energy of moving forward together. With everyone sharing a common goal of protecting the river so it will continue to look after us as long as we look after it." (HRC, 2023)*

# Barriers to Social Change

The local community want to be involved in a transformative change for Helena River’s future. To be successful, this would require transition from the current way of doing things to a new way.

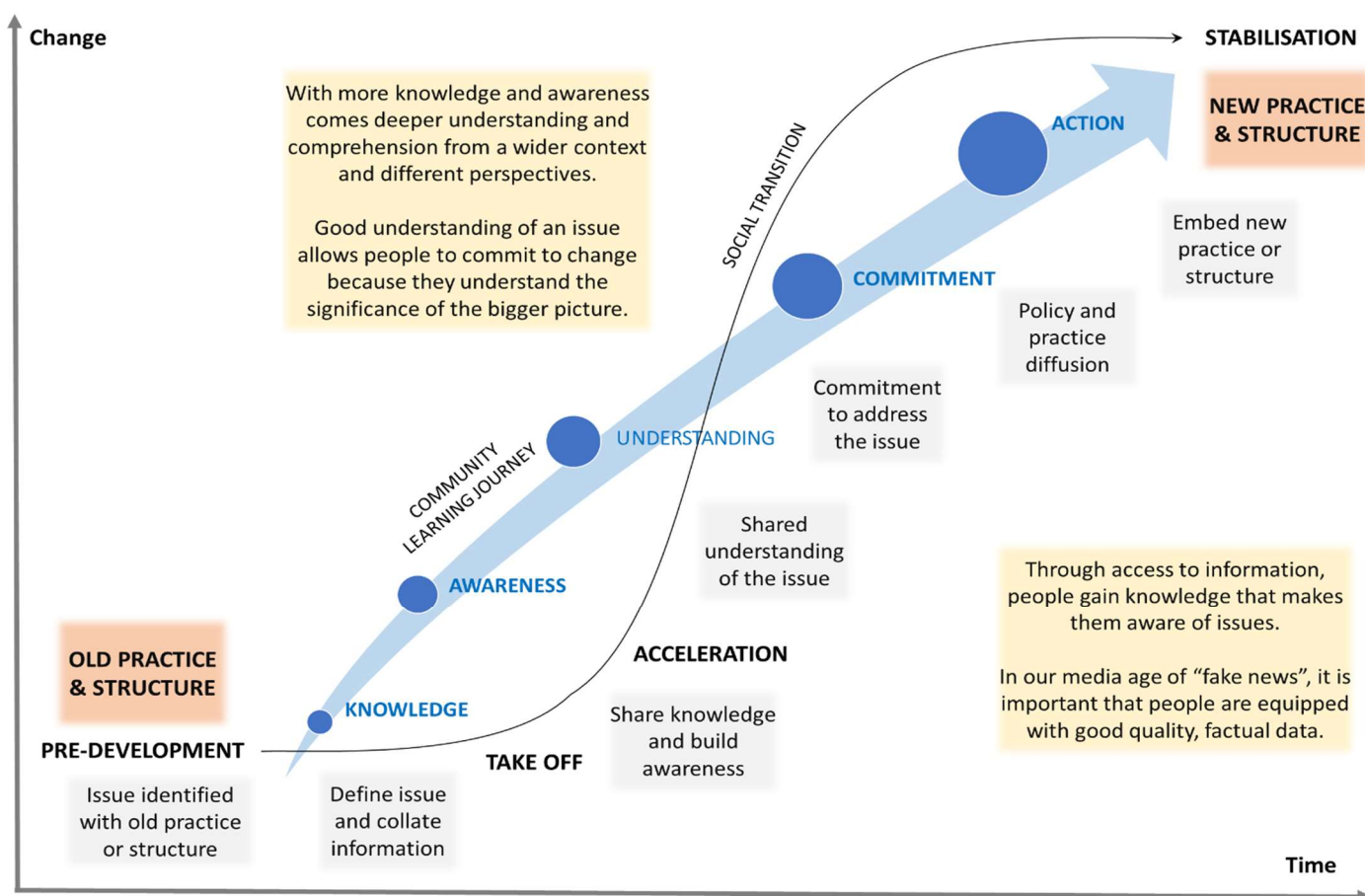
A major barrier to this type of social change is a lack of widespread support for the new vision. This could come in many forms, including lack of knowledge about the river’s values, lack of cooperation from landowners and developers, lack of involvement from community groups, lack of inclusion of Noongar Traditional Owners, lack of buy-in from government agencies, and lack of political support and investment.

Another barrier to change is that people who are already committed to the new vision often forget that not everyone shares the same view. Many people might be unaware that Helena River is deeply valuable or that its health is under threat. Some may oppose change because of perceived challenges like additional costs, longer processes or “red tape”, and some may have complex personal and political motivations. Fear of change is often a core motivator of behaviour.

There is a distinct lack of awareness and understanding about Helena River’s value compared to the Swan and Canning Rivers, including a common misconception that it is not a “real” river without its water. Many people do not know how valuable the river is, particularly the lower floodplain, or how vulnerable it is to incremental threats. Limited access to the river exacerbates the problem by increasing community disconnection from its values and apathy towards its protection.

In a basic sense, the river is under threat from lack of knowledge, appreciation of its values and commitment to its protection. For example, without proper understanding of the river’s spiritual value to Noongar people, the good intentions of local government Reconciliation Actions Plans often do not translate into planning and decision making, leaving heritage sites along the river at risk. Different knowledge levels of elected councillors in local government mean that decision makers often do not understand the consequences of their actions on the whole river system or its values.

A collective learning journey is needed to change how people think about the river and inspire and empower the community to embark on a shared journey to reconnect with the river for generations to come.



Social Transition from Old to New Practice (Adapted from WSC 2022<sup>111</sup> and Rotmans et al 2001<sup>112</sup>)

## A Shared Community Journey

Transformative change is not easy and will require collaborative effort of government and community working together.

Overcoming the challenges and threats faced by Helena River and other waterways is not achievable by one sector or organisation alone. From government agencies to community members, researchers, developers, businesses and Traditional Owners, we all have a role to play in the river's future and it will take the collective action of many to halt its decline and put it on the path to recovery. A wealth of knowledge and experience from community groups, researchers, field practitioners, citizen scientists and government agencies is needed to ensure that the plan for the river's future is robust and effective and that there is appetite and willingness from many to undertake a shared journey together.

Public education and engagement is essential to enable all community members to gain the understanding needed to embrace a new future for Helena River. Success depends on enabling the wider community to gain knowledge of the river's values, build awareness and motivation for change, and develop the understanding required to commit to a new vision for the river. Information needs to be shared in a way that is inclusive, safe, fun and appealing to mainstream society, using diverse cross-cultural knowledge systems, different learning styles and shared experiences to build connections and trust. Tailored communications are needed to engage with different members of the community with diverse perspectives including the business and industry sector, land developers and youth groups.

Change is only possible when many people are able to develop a good understanding of an issue from a whole community perspective and avoid the "us and them" mentality to commit to a new way of doing things. A large part of the community needs to understand the critical link between waterways health and community wellbeing in order to create widespread change in beliefs and behaviours. Broad community appetite for change helps to drive political commitment to allocation of new resources, development of new policy and mandate of social changes.

*Waterways Western Australia* seeks to catalyse long-term conversations that bring government and community together and create a legacy of thriving waterways for future generations by addressing key water management challenges leading up to and beyond the 2029 Perth Bicentenary. This document is an open invitation to everyone in the community to consider a new shared journey towards a new shared vision, not just for Helena River, but for the future of all waterways in Western Australia.



## Transformative Social Impacts

Whilst this project is focused on Helena River, the proposed plan could have far-reaching impacts by creating a transferable process that can be replicated anywhere in Australia. Development of the plan would provide a blueprint that can be co-developed and co-delivered with government and community to create a shared journey towards a shared vision for any waterway. In this way, the proposed plan has the potential to become a powerful tool for restoring waterways health and building resilience in the face of climate change and urbanisation.

The 2029 Perth Bicentenary is an ideal opportunity to launch a new initiative for community-driven sustainable waterways management as we look back at the impact of 200 years of colonisation and look forward to the next 200 years of a drying climate. The Bicentenary can be a catalyst for transformative change and leave a lasting legacy, not just for Helena River, but for all rivers and communities in Australia.

Stimulation of social change strongly aligns with Australia's *Strategy for Nature (2019-2030)* which takes a new viewpoint to anything seen before<sup>57</sup>. It states that Australia must urgently move away from the notion of "environmental protection" and instead recognise the fundamental importance that ecological health has in underpinning our entire societal and economic wellbeing, now and under a changing climate. We must embed and prioritise health, adaptation and resilience into all aspects of our lives and empower individuals, communities and governments to collectively generate the change that is so urgently needed

Of Western Australia's 208 major rivers, less than 1% are in "pristine or near pristine" condition<sup>12</sup>. The system is working as designed, and there are many people doing great work, yet waterways health is in decline. To have a realistic chance of returning our rivers to a healthy condition for communities of today and tomorrow, we need to welcome new thinking and approaches to their management and the best time to act is now.



## References

1. Ugle, G. *Lloyd Street Bridge - Noongar Traditional Owners Position Statement*. (2022).
2. Green, N. *Nyungar - The People. Aboriginal Customs in the Southwest of Australia*. (1979).
3. The Combined Swan River and Swan Coastal Plain and Darling Ranges Native Title Holders and Traditional Owners. *Report on Aboriginal Consultations and Site Visits of Elder Creek in Koongamia, Western Australia*. (2009).
4. Latitude Creative Services, Heritage and Conservation Professionals & National Trust (WA). *Swan and Helena Rivers Management Framework: Heritage Audit and Statement of Significance, prepared for the Eastern Metropolitan Regional Council*. (2009).
5. Goode, B. *Report on an Aboriginal Heritage Survey for the Roe / Great Eastern Highway Bypass Interchanges Project, Western Australia, prepared for Main Roads Western Australia*. (2020).
6. Goode, B. *Addendum to Report on an Aboriginal Heritage Survey for the Roe / Great Eastern Highway Bypass Interchanges Project, Western Australia, prepared for Main Roads Western Australia*. (2020).
7. O'Connor, R., Quatermaine, G. & Bodney C. *An Investigation into the Aboriginal Significance of Wetlands and Rivers in the Perth - Bunbury Region*. (1989).
8. Hill, A. L. *Sharing Sweet Water: Culture and the Wise Use of Perth's Wetlands*. (2006).
9. Hill, A. L. *Sharing Sweet Water: Culture and the Wise Use of Wetlands In Western Australia*, thesis presented for the degree of Doctor of Philosophy of Murdoch University. (2013).
10. Schwede, M. Quartz, the Multifaceted Stone: A regional prehistory of the Helena River Valley on the Swan Coastal Plain of South Western Australia, Thesis for Doctor of Philosophy of University of Western Australia, Department of Archaeology. (1990).
11. Department of Biodiversity, Conservation and Attractions. *Precinct 14: Helena River - Swan River Confluence to Mundaring Weir*. (1997).
12. Water and Rivers Commission, Department of Environment. *The Importance of Western Australia's Waterways. Archived from website on 1 July 2004*. (2004).
13. Quicke, E. *The Helena Story*. (1985).
14. Quicke, E. *Mundaring Weir Among the Hills*. (1979).
15. Green, N. *Broken Spears: Aborigines and Europeans in the southwest of Australia*. (1984).
16. Hartley, R. A century of water supply to the Western Australian goldfields and wheat-belt from Mundaring Weir and the Kalgoorlie pipeline. *Early Days: Journal of the Royal Western Australian Historical Society* 11, 727–744 (2000).
17. Bush, F. *Heritage Assessment: Mundaring Weir Forestry Settlement*. (2009).
18. Menck, C. Mundaring and Hills Historical Society. *Mundaring Weir Forestry Settlement*. (2013).
19. The West Australian. *Hiking the Helena* article. (1932).
20. Department of Water & Swan River Trust. *Helena River: Swan Canning Catchment Nutrient Report 2011*. (2011).
21. Department of Water and Environmental Regulation. *Helena River: Swan Canning Catchment Nutrient Report 2018*. (2018).
22. Department of Water & Department of Parks and Wildlife. *Helena River: Swan Canning Catchment Nutrient Report Update 2014*. (2016).
23. CSIRO & Bureau of Meteorology. *Climate Change in Australia Information for Australia's Natural Resource Management Regions: Technical Report*. (2015).
24. Water Corporation. *Dam Levels website*. (Accessed September 2023).
25. GHD. *Swan River Trust Report for Environmental Flows and Objectives: Swan and Canning Rivers*. (2008).
26. Close, P., Ford, B., Maughan, J. & Ryan, T. *Evaluation of Environmental Water Releases on the Aquatic Fauna of the Helena River, Aquatic Fauna Surveys Summer 2013 and Autumn 2014*. (2014).
27. Creagh, S. & Storey, A. *Helena River Fish and Macroinvertebrate Surveys 2010 and 2011, prepared for the Eastern Metropolitan Regional Council*. (2011).
28. McGilvray, A. & Sylva, K. *Helena River (Mandoon) Tributary Foreshore Assessment*. (2018).
29. Siemon, N. *Foreshore Assessment in the Helena River Catchment, Report No. 20*. (2001).

30. Eastern Metropolitan Regional Council. *Helping the Helena: Establishing a baseline of water quality pollutants for linkages in fish and mussel decline*. (2014).
31. Nice, H., Foulsham, G., Morgan, B. & Evans, S. *A Baseline Study of Contaminants in the Swan and Canning Catchment Drainage System, Water Science Technical Series, Report No WST 3*. (2009).
32. Traylor, K. *Understanding and Predicting Riparian Decline: ecohydrology and hydro-climatological change. Information sheet 101/2020*. (2020).
33. Smith, R. A., Bari, M. A., Dixon, R. N. M. & Rowlands, D. W. *Helena River Salinity Situation Statement, Water Resource Technical Series, Report No WRT 34*. (2007).
34. Croton, J. T. & Dalton, J. A. *Stream Salinity Response to Clearing and Revegetation of the Helena Catchment, prepared for Water & Rivers Commission*. (1999).
35. Stokes, R. & Batini, F. E. Management Implications of Hydrologic Responses to Experimental Logging in the Mundaring Reservoir Catchment, Western Australia. in *Hydrology and Water Resources Symposium 1986: River Basin Management; Preprints of Papers 233–237* (Institution of Engineers, Australia, 1986).
36. Storey, A. & Creagh, S. *Lower Helena River: Trial Environmental Releases, Report prepared on behalf of Department of Water*. (2010).
37. Wansbrough, C. & Stewart, S. *Helena River Freshwater Fish Habitat Survey*. (2006).
38. Klunzinger, M. W., Beatty, S. & Lymbery, A. J. *Freshwater Mussel Response to Drying in the Lower Helena Pipehead Dam, Mussel translocation strategy for conservation management, Report to Swan River Trust*. (2011).
39. Shire of Mundaring. *Mundaring Foothills Growth Strategy*. (2017).
40. City of Swan. *Local Planning Scheme No 17 Amendment No. 85: Hazelmere Enterprise Area Structure Plan, Precinct 2A Helena River*. (2014).
41. Shire of Mundaring. *Ordinary Council Meeting Agenda, Item 10.2 Endorsement of Draft Helena Valley Urban Expansion Strategy for Advertising*. (2016).
42. RPS. *Helena Valley Land Use Study*. (2013).
43. Cardno. *Helena Valley Traffic and Land Use Study*. (2015).
44. Dynamic Planning and Developments. *Helena Valley Local Structure Plan 76, Lot 252 (No. 480) and Pt Lot 205 (No. 655) Helena Valley Road*. (2021).
45. City of Swan. *Local Planning Scheme No 17, Amendment No 127, Hazelmere Enterprise Area Structure Plan Precinct 2B*. (2015).
46. Department of Planning, L. and H. *North-East Sub-regional Planning Framework, Perth and Peel @ 3.5 million*. (2018).
47. Western Australian Planning Commission. *Metropolitan Region Scheme Amendment 1352/57, Part Lot 799 Katharine Street Bellevue, Report on Submissions*. (2020).
48. Metropolitan Redevelopment Authority. *Midland Heritage Interpretation Strategy*. (2017).
49. City of Swan. *Minutes of Ordinary Meeting of Council, 1 June 2022, C13.15 Cr Zannino - Proposed Realignment of National Freight Route*. (2022).
50. Gager, P. & Conacher, A. Erosion of Access Tracks in Kalamunda National Park, Western Australia: Causes and management implications. *Australian Geographer* 32, 343–357 (2001).
51. Office of the Auditor General Western Australia. *Our Heritage and Our Future: Health of the Swan Canning River System, Report 16*. (2014).
52. Barkham, P. Should rivers have the same rights as people? *The Guardian* (2021).
53. Tickner, D. *et al.* Managing Rivers for Multiple Benefits- A Coherent Approach to Research, Policy and Planning. *Frontiers in Environmental Sciences* 5, (2017).
54. McClure, T. Only 2% of New Zealand's large lakes are in good health, bleak report finds. *The Guardian* (2023).
55. US Environmental Protection Agency. *National Rivers and Streams Assessment 2013-2014: A Collaborative Survey*. (2020).
56. Living Rivers Europe. *The Final Sprint for Europe's Rivers. An NGO analysis of 2022-2027 draft river basin management plans*. (2021).
57. Commonwealth of Australia. *Australia's Strategy for Nature 2019-2030. Australia's national biodiversity strategy and action plan*. (2019).



58. Connick, F. Water testing after Menindee fish kill shows a 'chronically sick' river. *The Guardian* (2023).
59. Nowakowski, T. For the first time in a century, Paris is making the Seine swimmable. *Smithsonian Magazine* (2023).
60. Hansen, B. The Bayview Park Section of the Parramatta River Is Reopening for Swimming for the First Time Since 1969. *Concrete Playground* (2022).
61. Department of Planning. *Middle Helena Catchment Area: Land use and water management strategy*. (2010).
62. Department of Planning, Lands and Heritage. *Draft State Planning Policy 2.9 Planning for Water*. (2021).
63. Department of Water. *Mundaring Weir Catchment Area, Drinking Water Source Protection Plan, Report No 69*. (2007).
64. Department of Water and Environmental Regulation. *Operational Policy 13: Recreation within public drinking water source areas on Crown land*. (2019).
65. Department of Water and Environment Regulation. *Water Quality Information Sheet 39, Aboriginal customary activities in public drinking water source areas in the South West Native Title Settlement Area*. (2019).
66. Trility. *Mundaring Water Treatment Project: Achieving and securing future water needs*. (2020).
67. Department of Water. *Operational Policy 4.3, Identifying and Establishing Waterways Foreshore Area*. (2012).
68. Department of Water and Environmental Regulation. *Waterwise Perth Action Plan 2: Kep Katitjin Gabi Kaadadjan - Growing waterwise communities in Boorloo (Perth) and Bindjareb (Peel) to address climate change*. (2022).
69. Department of Parks and Wildlife and Swan River Trust. *Swan Canning River Protection Strategy*. (2015).
70. Department of Biodiversity, Conservation and Attractions. *Planning for Localities along the Swan Canning Development Control Area - Draft for Public Comment*. (2022).
71. Conservation Commission of Western Australia. *Forest Management Plan 2014-2023*. (2013).
72. Conservation and Parks Commission. *Forest Management Plan 2024-2033, Draft*. (2022).
73. Milne, P. Alcoa mining threatens Perth's drinking water. *WA Today* (2023).
74. Thompson, B. WA Premier warns Alcoa over threat to drinking water. *Australian Financial Review* (2023).
75. Environmental Protection Authority. *Bauxite Mining in the Darling Range, Western Australia*. (1978).
76. Hassell Ltd. *Swan and Helena Rivers Management Framework Report*. (2007).
77. Eastern Metropolitan Regional Council. *Eastern Catchment Management Plan 2012-2022*. (2012).
78. Eastern Metropolitan Regional Council. *Story Map: Swan and Helena Rivers Floodplain Development Strategy*. (2020).
79. Transplan Pty Ltd. *Swan and Helena Rivers Regional Recreational Path, Development Plan prepared for Eastern Metropolitan Regional Council*. (2009).
80. Stephens, D. *Swan and Helena Rivers Flood Study: Hydrology. Prepared for Eastern Metropolitan Regional Council*. (2016).
81. Nathan, R. *Swan and Helena Rivers Flood Study, Review of HARC Draft Report for the Eastern Metropolitan Regional Council*. (2016).
82. Eastern Metropolitan Regional Council. *Bellevue Light Industrial Area: Hydrocarbon Track and Trace Project*. (2016).
83. Eastern Metropolitan Regional Council. *Understanding and Managing Flood Risk in Perth's Eastern Region, Final Project Report*. (2016).
84. Eastern Metropolitan Regional Council. *Fish of the Helena River Catchment brochure*. (2012).
85. Hunt, E. Blue spaces: why time spent near water is the secret of happiness. *The Guardian* (2019).
86. Pickering, G. & Broomhall, S. *Rivers of Emotion: An emotional history of Derbarl Yerrigan and Djarlgarro Beelier / the Swan and Canning Rivers*. (2012).
87. Department of Planning, Lands and Heritage. *State Planning Policy 2.10 - Swan-Canning river system*. (2006).
88. Dundas, B. & Mills, H. *The Guildford Floodplain Study: A Study of Resident Perceptions of Change to Flora and Fauna*. (2011).
89. Dundas, B. *Review of Literature on Land Use Planning on Regional Foreshore Reserves in the Guildford Area*. (2010).
90. Western, L. & Pilgrim, A. Learning as we go: catchment management in the urban rural fringe. The Swan Mundaring Community Catchment Project, Perth, Western Australia. *Australian Journal of Environmental Education* 17, 143–148 (2001).
91. Helena River Catchment Group Inc. *Helena River Catchment Group Action Plan 2012-2022*. (2014).

92. Torre, G. WA Government halts work on controversial bridge amid Indigenous heritage concerns. *National Indigenous Times* (2022).
93. Government of Western Australia. *New alignment for Lloyd Street Bridge to be examined, Media Statement by Minister for Transport and Planning, Rita Saffioti.* (2022).
94. Australia ICOMOS Incorporated. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance.* (2013).
95. Department of Health, Advisory Committee for the Purity of Water. (2023).
96. Department of Biodiversity, Conservation and Attractions. *Strategic Directions 2022-2025.* (2022).
97. Department of Jobs, Tourism, Science and Innovation. *Strategic Plan 2021-2025.* (2021).
98. Department of Planning, Lands and Heritage. *Strategic Plan 2019-2024.* (2019).
99. Department of Transport. *Strategic Intent 2022-2025.* (2022).
100. Department of Water and Environmental Regulation. *Water and Environmental Regulation Strategic Plan 2022-2026.* (2022).
101. DevelopmentWA. *DevelopmentWA Minimum Sustainability Standards.* Undated.
102. Forest Products Commission. *Annual Report 2021-2022.* (2022).
103. Swan River Trust. *Swan River Trust Annual Report 2021-2022.* (2022).
104. Water Corporation. *Statement of Corporate Intent 2022-2023.* (2022).
105. Western Australian Planning Commission. *Strategic Plan 2022-2025.* (2022).
106. Shire of Mundaring. *Economic Development and Tourism Informing Strategy 2023-2028 .* (2023).
107. City of Kalamunda. *Tourism Development Strategy 2019-2025.* (2019).
108. United Nations. *Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015.* (2015).
109. Government of Western Australia. *Plan for our Parks: Securing 5 million hectares over 5 years.* (2019).
110. de Kruijff, P. Western Australia looks for ways to protect its share of nation's 30pc land conservation target. *ABC News* (2023).
111. Rogers, B., Ewert, J., Chesterfield, C., Hammer, K. & Novalia, W. *WSC Transition Tools Manual Version 1.* (2022).
112. Rotmans, J., Kemp, R. & van Asselt, M. More Evolution than Revolution: Transition Management in Public Policy. *Foresight* 3, 15–31 (2001).

## Abbreviations

DBCA	Department of Biodiversity, Conservation and Attractions
DCA	Development Control Area
DMIRS	Department of Mines, Industry Regulation and Safety
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EMRC	Eastern Metropolitan Regional Council
ERLP	Eastern Region Landcare Program
FPB	Friends of Piesse Brook
FPC	Forest Products Commission
HRA	Helena River Alliance
HRC	Helena River Confluence
HRCG	Helena River Catchment Group
ILUA	Indigenous Land Use Agreement
LHA	Lower Helena Association
NGO	Non-Governmental Organisation
PDWSA	Public Drinking Water Source Area
SALP	Swan Alcoa Landcare Program
SDG	Sustainable Development Goal
WAPC	Western Australian Planning Commission

