Healthy Land & Water

Kedron Brook Riverine Recovery Workbook

Australian Government

Queensland Government

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PROJECT PARTNERS:

bushtekniq

four fold STUDIO

BLIGH TANNER

Welcome to your backyard restoration journey! If you are holding this booklet, it's because you are as excited as we are to restore your section of the Brook, help preserve its ecological value and improve its resilience to future flooding events.

Kedron Brook is an important ecological corridor which makes managing the vegetation in the area key to preserving the corridor and its ecological benefits. This vegetation, especially along the waterway, plays **a crucial role in increasing resilience to weather events, maintaining water quality and supporting terrestrial and aquatic wildlife habitats**.

ACKNOWLEDGMENT OF COUNTRY

In the spirit of reconciliation, we acknowledge the Traditional Custodians of Country connected by the waters of Kedron Brook. The Jinibara and Kabi Kabi Peoples of upper catchments, the Jagera and Turrbal Peoples and the Quandamooka People of the bay. We acknowledge their connections to land, sea and community. We pay our respect to their Elders past, present and emerging and extend that respect to all Aboriginal and Torres Strait Islander people today.

Flooding is a natural phenomenon; over the years, the Brook and its environment have adapted and responded to these events. Residents and locals like you have seen the change along the creek and in their backyard.

What can you do to help turn this around? Restoring and enhancing the natural values of your backyard are the first steps to put in motion wider ecological resilience throughout the waterway.

In this workbook, we encourage you to explore, through a restoration lens, the typical opportunities and challenges of living on a creek. This booklet and workshop activities aim to deepen your understanding of the local ecosystem, help you gain practical restoration skills, and help you to craft a practical plan for maintaining your land while improving its ecological resilience.

Throughout this workbook, we encourage you to:

Observe and plan before jumping into action.

Keep in mind that your goals and priorities are not set in stone, and you can revisit, revise, collaborate and expand your plan as you learn and experience more of your restoration journey.

Tali Shelley's story

A CREEK CUSTODIAN'S JOURNEY

With serendipity, we found our home on the Kedron Brook in 2005. We were seeking a patch of earth with food-growing potential and a place to raise adventurous kids, so we gravitated to local waterways. A handmade FOR SALE sign caught our attention as we journeyed along Olearia Street and the rest, as they say, is history.

This waterway has shaped who I am in the world and will continue to inspire me to be a better being. Learning by volunteering for creek care groups and local community, whilst slowly regenerating my backyard to a healthy biodiverse habitat, has also helped me to evolve a family bush regeneration business, 'Bushtekniq' est. 2015.

Curiosity, observation, listening, learning, resting and celebrating have been key features over many seasons as a holistic bush regenerator and creek custodian. 'Patience, consistency and determination' became my mantra as I tackled endless Madeira (a smothering weedy vine with bountiful nodules) in the backyard. I've observed how weedy species hold benefits: guinea grass is resilient in phenomenal floods, is home to red-backed fairy-wrens and makes excellent mulch for new plantings...though local lomandras and waterhouseas are the ultimate leafy legends of these waterways!

Some other relations I have grown with creek community – those who call this place home too:

- Meeting neighbours down at the old causeway – kids splash in the creek while parents pick up rubbish.
- Black cockatoos return to nest annually in the old gum, and with neighbours planting 'future food trees' (casuarina) for them.
- So many epic birds: white-bellied sea eagle, pacific baza, owls, kingfishers, cormorants and rails.
- Turtles, frogs, fish, skinks, snakes, water dragons, water rats, sugar gliders and wallabies.
- Fireflies, butterflies and other fascinating beings of the insect realm.
- Glowing mushrooms, mighty trees and the resilience of other leafy locals naturally regenerate and strengthen our creek banks.

It's important to rest and celebrate! This can be in a quiet reflective moment with a cuppa – or sharing this growing project with family, friends and community. I love being home on the Kedron Brook and love the way it cares for me too.

WORKSHOP ONE

Observation + planning

Step 1 – Activity: Goal setting

Take a moment to reflect on your aspirations for your property/site. How do you want your backyard to look? How do you want to interact with the Brook? Would you like to see more birds or butterflies? How would you like your backyard to be in 1 year? And what about in 5 years?

Remember that your goals can change and take different shapes based on new learnings and circumstances.

Write down your 3 holistic goals for your property:

GOAL 1:

GOAL 2:

GOAL 3:

Good things take time, but what's the first step? What's going to take more patience to achieve? Where is your restoration going to start and how is it going to progress?

1 year:

5 years:

15 years:

With your goals in mind, start writing in the boxes below:

PRIORITY: what is your priority?

RESOURCES: what do you have access to?

LEARNING: are there opportunities / knowledge gaps you need support with?

CHALLENGES / PERCEIVED BOUNDARIES

1. What are the things you feel you need support with:

2. What are the things that you feel you are never going to tackle because they seem too difficult:

Step 2 – At-home activity. Local perspective: Observe your surroundings

When you get home, keep up the active observation.

Take time and space to re-connect with your closest ecosystems and co-habitants. Active observation in your backyard will help identify values to enhance, and less desirable features to plan a succession for.

Take some notes of:

What do you notice (i.e. birds feeding, abundance of weeds, unlikely habitats, plants in seed, etc.)?

What are 3 things that you feel are missing (i.e. native plants along the bank, large trees, habitat, etc.)?

What are some things that you remember seeing but you can't spot now (i.e. wildlife sightings, large debris, etc.)?

If it helps you, take photos.

Ross Williams Story –

A STORY OF ECOLOGICAL CONNECTION AND STEWARDSHIP

My name is Ross (Timmubar) Williams, and I am a proud descendant of the Bindal Peoples. I have lived in the upper part of the Brook for 24 years and have become a welcomed visitor in this land. When I first arrived here, my initial desire was to get to know the Traditional Owners Country deeply. I wanted to introduce myself to the landscape, to the life of the Brook, and to the natural surroundings that sustain this environment.

Over the years, my relationship to this place has only deepened. I've spent countless hours walking beside the Brook and through its reaches and branches. By sitting in its quiet spaces, I have learned from the birds, the plants, and the many other inhabitants that call it home. The Brook is not just a place; it's a living, breathing system that teaches you if you are willing to listen.

Living here, however, comes with its challenges. One of the most significant is the general lack of understanding of the Brook and its ecological importance. Many people do not realise the critical role it plays in providing habitat to so many species, or how their actions can directly impact its health. It's vital that people get involved in the Brook's rehabilitation, offer it protection when necessary, and educate others about its significance.

A key part of this understanding involves recognising the interconnectedness of the Brook's ecosystem. The upper reaches of the Brook feed into the broader system, and what happens here affects everything downstream. Understanding the flow of water and how our actions influence water quality and ecosystem resilience is essential. The way we manage our land—our backyards, the soil, and the water beneath it—all contribute to the health of the system as a whole. This chain of events stretches all the way down to Moreton Bay. By making mindful choices, we can have a lasting positive impact on this interconnected system.

It's about more than just avoiding pollution; it's about treating the land with respect, to ensure the vitality of both the water and the ecosystems that depend on it.

Step 3 – Activity: Property site assessment

Creating a detailed map of features present on your property, both natural and altered, is a good visual aid to capture how each component impacts another. Often, sketching a map on paper brings attention to elements that may otherwise be overlooked.

Add a legend or key to highlight important details, so everything is easy to understand at a glance!

1) Sketch out the following

- House, sheds, fences, pools etc.
- Driveways, access tracks and paths including local access.
- Existing trees.
- Small plants, shrubs and hedges.
- Your property's observed ***"high flood line".***
- Use an arrow to show where the water energy/flow hits the bank the most.
- Use an arrow to show any overland water flow across your property.
- Areas of interest (areas where nothing grows, pipes, soil changes, boggy areas.)
- Your ***riparian buffer.***
- Erosion areas.
- Weeds.
- Debris.
- Bare ground.
- Stormwater outlet/drainage. If there is one, where does it come from and go to? You can use an arrow to show the direction.
- Areas where birds concentrate.
- Areas where the vegetation grows well.

High flood line or **level** means the maximum level to which the water level could rise, due to rainfall, floods and run-off in the catchment areas, over and above the level of water normally conserved in a public stream.

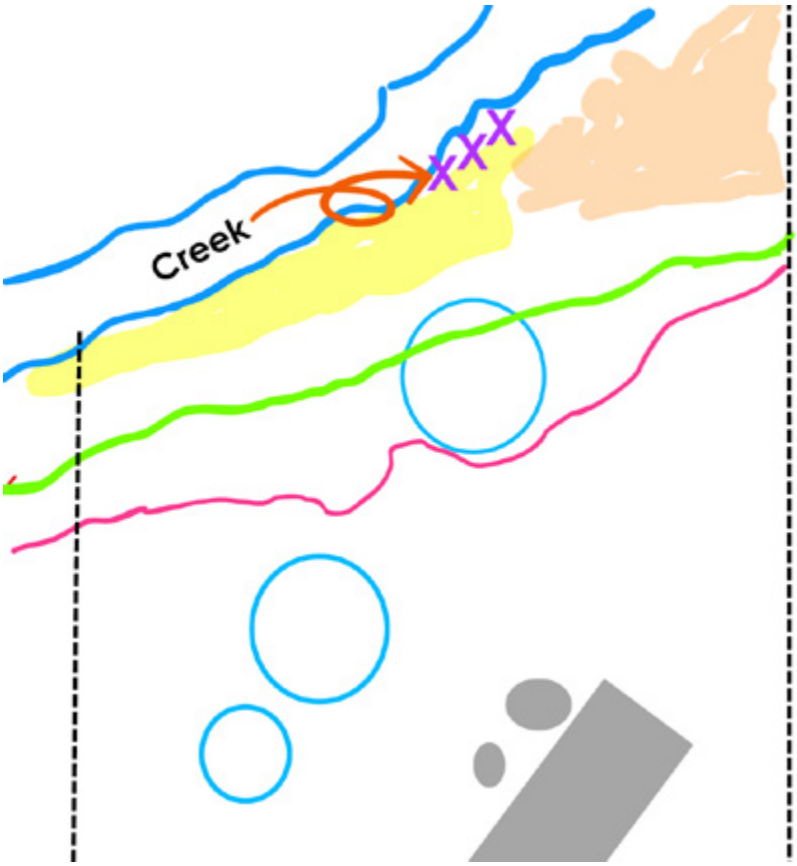
Riparian buffers are strips of vegetation (trees, shrubs or grass) planted next to streams or other water bodies. By planting vegetation along streams, space is created between the water and upland land uses, which helps protect the banks, water quality and stream habitat.

We have provided an example of a property map on the following page. It also includes a legend/key. This example shows only some of the important details mentioned above. Ideally, you would include as many important features as possible.

Map Examples:

Legend

- Sheds/fences/pools
- Existing trees
- Shrubs and small plants
- Weeds
- High flood line
- Riparian buffer line
- X Signs of erosion
- Water energy hits here the most



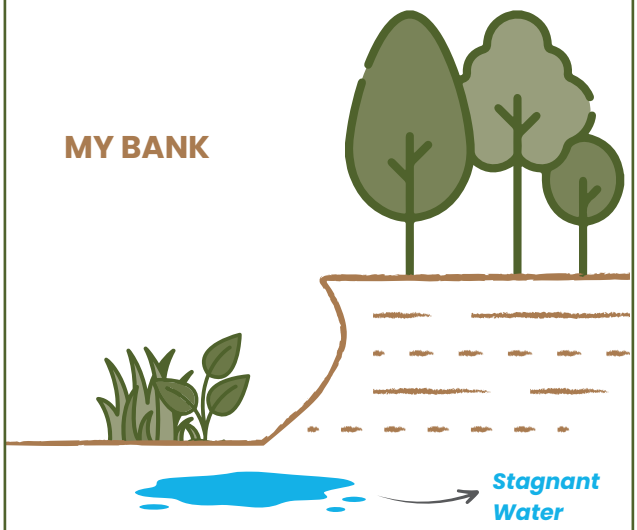
Legend

- Sheds/fences/pools
- Existing trees
- Shrubs and small plants
- Weeds
- High flood line
- Riparian buffer line
- X Signs of erosion
- Water energy hits here the most
- ---- Property boundaries

2) Creek cross-section: side on, what's the profile of the bank?

- What is the shape of the bank (steep, gentle slope, etc.)?
- What do the different sides of the bank look like?
- Include notes if the profile changes upstream to downstream.

Examples:



Your bank drawing:

Other bank drawing:

Now it's your turn to draw the map!

You can use the permanent markers to draw on the plastic pouches over your map, or you can sketch your own in your workbook (below).

Note each element down:

- Start by drawing your property boundaries, the general size and shape of the block. Drawing to scale might be helpful.
- Then mark the relevant details as explained above and during the workshop.

Notes:

Time to get dirty with the ribbon test!

First, take note of what the soil is like where the vegetation grows well on your property (is it sandy, rocky, gravelly, etc):

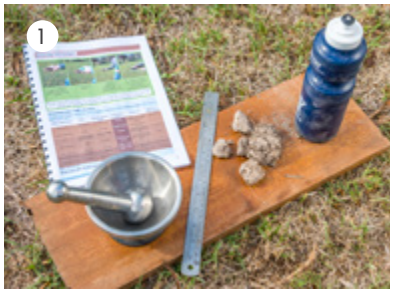
Soil texture describes how rough or smooth the soil is, based on the amount of sand, silt, and clay. Texture indicates how much water and the soil can hold and how these elements are transported through the soil.

Soil often changes in texture depending on depth, which for a plant will mean adjusting to different conditions as the roots grow. Soil with smaller, finer particles (like silt and clay) holds more water, but not all of it can be used by plants.

You can test soil texture by hand with the ribboning method. Some practice will help you get better at it over time.

Now let's do the test!

Follow the instructions below and note down what you find.



1. Crush the soil sample by hand, or with a mortar and pestle if necessary. Remove any roots and gravel. The sample should be the size of a golf ball.

2. Hold the sample, moisten it, and work it by hand until it is consistently moist throughout. It should not be sloppy or drip water. Note: heavy clays will take time.

3. Shape the sample into a bolus (ball). Assess it for coherence against the first column of the Soil texture table.
4. Next feel the bolus of soil between the fingers and evaluate its feel against the second column of the table.

5. Now shape the sample into a thick cigar shape.

6. Finally flatten the cigar gently to about 10mm thick by pressing it out between thumb and forefinger. Push it away from you as a ribbon of soil.

7. When the ribbon breaks, measure the length of the section it forms. Do this a few times to get an average ribbon length. Evaluate the average length against the third column of the table.

Measure + compare!

Soil texture table

Evaluate samples against this table for **bolus coherence**, **feel** and **ribbon length.**

1	2	3	4	5	6
Bolus coherence	**Feel**	**Approx. ribbon length**	**Soil texture type**	**Comments**	**Approx. % clay content**
Nil to slight	Sandy and gritty	Less than 15mm	**Sand**	Unable to form a ball, single grains stick to fingers	Up to 10%
Slight to just firm	Sandy	15-25mm	**Sandy loam**	Sand grains can be seen or felt	10-25%
Firm	Smooth, spongy and may be greasy	Approx. 25mm	**Loams**	Can feel spongy or silky, no sand can be felt	20-30%
Firm to strong	Sandy	25-40mm	**Sandy clay loam**	Sandy to touch with grains visible	20-30%
Firm to strong	Smooth	40-50mm	**Clay loam**	Smooth to touch	30-35%
Strong plastic bolus	Plastic	50-85mm	**Light clay**	Smooth like soft plasticine	35-45%
Strong plastic bolus	Plastic	Greater than 85mm	**Medium – heavy clays**	Smooth and handles like plasticine	Over 45%

This soil testing information was produced by NQ Dry Tropics as part of the Landholders Driving Change (LDC) project and the Sustainable Soils for the Burdekin Project. LDC is a Burdekin Major Integrated Project funded by the Queensland Government through the Queensland Reef Water Quality Program. The Sustainable Soils for the Burdekin Project was funded through the Australian Government's National Landcare Program.

Reference: *NQ Dry Tropics 2019, NQ Dry Tropics RASH Manual 2019, NQ Dry Tropics, Townsville.*

Living by Kedron Brook – Jean and John's story

OUR HAVEN ON KEDRON BROOK

Our names are Jean and John. We are the lucky custodians of a 1-hectare property that backs onto Kedron Brook. We purchased this property in 2014 for the space it provides to our son who has severe autism and an enduring love of nature.

We previously lived on a small suburban block in Toowong and even though we were very close to the Mt Coot-tha Botanic Gardens, we found it too noisy. By comparison, where we live now by Kedron Brook is so peaceful! The predominant sounds here are mostly from birds rather than humans. So far, I have seen 32 different bird species just in my own backyard.

In early 2020, along with one of our neighbours, we joined the Land for Wildlife program. Our aim is to re-vegetate the perimeter of our property with endemic native species. We are particularly focussed on the northern side of our property where it backs onto the Brook. The purpose of our plantings there is not only to provide food and shelter for wildlife, but also to help mitigate the damage caused during flood events.

We have opened a pathway from Oxford Grove Park to allow people access to our part of Kedron Brook. Most don't realise they are traversing private land but that's fine by us as long as they are respectful. We like to think that they are there to appreciate nature and perhaps they may even be inspired to create a native garden in their own backyard.

Step 4 – Activity: Identify weedy plants

We have numbered the weeds in this guide, to help you add details of weeds onto your property map (see Activity 3). *Photos and table information by Tali Shelley, Bushtekniq.*

KEY TO FORM/ HABIT:

Gr = Grass/ Grass-like
GrC = Ground Cover
V = Vine / Scrambler
He = Herbaceous
Shr = Shrub
ST = Small Tree
Tr = Med-Large Tree

Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
TOUGHEST GUYS TO PRIORITISE						
1	*Dolichandra unguis-cati* 	Cats-claw Creeper	Central & South America	V – rampant climber with robust, woody stems, also acts as a GrC	Flower: yellow tubular, in spring; Fruit: dark brown strap-like pods with papery, winged seeds; Other: woody tubers, extensive roots, distinctive three-clawed tendrils	Cut from trees; manual removal of / dig tubers where possible; keep consistently defoliating e.g. brushcutting in thickly growing GrC areas; EXTREMELY TOUGH!

Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
TOUGHEST GUYS TO PRIORITISE						
2	*Ipomea cairica* 	Mile-a-minute	Tropical Africa & Asia	V – rampant twining climber	Flower: pink-purple, tubular; Leaf: palmate; Other: elastic-like vine, hard to trace as roots at nodes/ breaks easily	Cut vine from vegetation to 'break scaffold'; manual removal of stem & root; consistent follow-up necessary; EXTREMELY PERSISTENT!
3	*Anredera cordifolia* 	Madeira	South America	V – vigorous climber, drapes, smothers	Leaf: heart-shaped, fleshy; Other: fleshy stems with prolific nodules that sprout easily	Cut vine from vegetation to 'break scaffold'; manual removal – bag all parts to liquefy; consistent follow-up necessary; EXTREMELY PERSISTENT!
4	*Asparagus spp.* 	Climbing Asparagus	Southern & Eastern Africa	V – twining climber	Fruit: orange or black berries; Leaf: fern-like; Stems: scattered spines	Wear gloves to cut stems from vegetation to 'break scaffold'; mature plant crowns can be cut from ground with Kama; EXTREMELY PERSISTENT!
5	*Dyschoriste depressa* 	Dyscho	Tropical Africa	He – vigorous, prolific when young, sprawls to 2m	Leaf: ovoid; Fruit: prolific capsules containing shiny black seed; Other: grows profusely, replacing mown grass lawns in short time	Where possible, leave till lanky (0.4m) for easier manual removal, just before seed-maturity; compost-solarise all parts; EXTREMELY PERSISTENT!
6	*Commelina benghalensis* 	Hairy Commelina	Africa & Pan Pacific	He – grows thickly, robustly	Stem & leaf: fleshy hairy with long orange-brown hairs on leaf sheath; Flowers: pale blue with uneven petals; Other: 'underground flowers' – white corms contain seeds	Reproduces vegetatively so compost-solarise all parts; be thorough when removing, repeated follow-up necessary; EXTREMELY PERSISTENT!
7	*Sphaegneticola trilobata* 	Singapore Daisy	Central & South America	He – mat-forming groundcover	Flower: Bright yellow; Leaf: fleshy, serrate; Stem: hairy, thick, roots at nodes	Manually remove, or for large areas, use aid of kama or brushcutter then smother with heavy material until composted; EXTREMELY TOUGH!

KEY TO FORM/ HABIT:

Gr = Grass/ Grass-like | **V** = Vine / Scrambler | **Shr** = Shrub | **Tr** = Med-Large Tree

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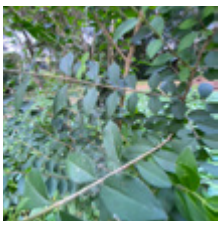
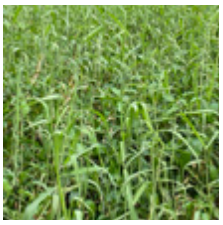
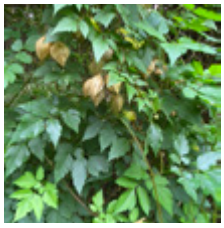
Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
TOUGHEST GUYS TO PRIORITISE						
8	*Ruellia tweediana* 	Mexican Bluebell	Central & South America	He – grows thickly in waterways	Flower: purple trumpet, prolific seed setting; Other: well-rooted in dense soils	Dig to remove, have a return or replacement strategy ready; be aware of erosion-risk aftermath; EXTREMELY TOUGH!
9	*Colocasia esculenta* 	Taro	South East Asia	He – clumping in or beside waterway	Leaf: large heart-shaped, purple tinges; Stem: thick, fleshy; root/ rhizome: bulbous, stoloniferous, colonises quickly this way	Wear PPE when removing due to strongly irritant sap; dig out tubers, allow to dry out completely
10	*Callisia repens* 	Creeping Inch Weed	Central & South America	GrC – rampant, mat-forming	Leaf: fleshy, small, purple; Stem: roots at nodes	manual removal, bag all parts to compost-solarise; persistence is key
11	*Ochna serrulata* 	Ochna	Southern Africa	Shr – (1-2m) forms dense thickets	Flower: Yellow forming black seeds within a red sepal; Leaf: shiny with finely toothed margins; Stem: woody	Deep root can be tough to remove – wait for moist soil then use a hori hori, mattock or treepopper
12	*Leucaena leucocephala* 	Leucaena	Central & South America	ST – woody stemmed to 10m tall	Leaf: fine compound; Flower: cream pompom; Fruit: flattened pods to 20cm	Root can be difficult to remove – wait for moist soil then use a hori hori, mattock or a treepopper; deep ring-barking can be effective

Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
TOUGHEST GUYS TO PRIORITISE						
13	*Ligustrum sinense* 	Small Leaved Privet	China & south East Asia	ST – forms dense thickets	Leaf: opposite along stem; Fruit: druoes of dull black fruits; Stem: pale	Root can be difficult to remove, due to strong suckering habit – wait for moist soil then use a hori hori, mattock or a treepopper
14	*Celtis sinensis* 	Chinese Elm	Eastern Asia	Tr – Large to 30m, forms dense thickets; Deciduous	Bark: smooth, pale/ grey; Leaf: alternate, distinct veins; Fruit in a drupe turning from green to red	Root can be difficult to remove, due to strong suckering habit – wait for moist soil then use a hori hori, mattock or a treepopper; Ringbarking effective also
15	*Camphora cinnamomi* 	Camphor Laurel	China	Tr – Large to 35m	Bark: Roughly fissured, dark brown; Leaf: glossy, aromatic when crushed	Root can be difficult to remove, due to woody nature – wait for moist soil then use a hori hori, mattock or a treepopper; Ringbarking effective also
TOUGH YET FUNCTIONAL: MANAGE, REMOVE, REPLACE						
16	*Urochloa mutica* 	Para Grass	Tropical Africa	Gr – mat-forming in wet habitats	Leaf & stem: densely hairy; spreads rapidly via stolons rooting at nodes	Grow shady species nearby to weaken habit; regenerate/ replace small areas at a time ; use a mattock or kama – brushcut to contain & use as mulch
17	*Megathyrsus maximus* 	Guinea Grass/ Green Panic	Africa	Gr – variable habit, usually erect (<3.5m) in dense tussocks	Leaf: flat, hairy with prominent midrib Seedhead: loosely branched	Grow shady species nearby to weaken habit; regenerate/ replace small areas at a time ; use a mattock or kama – brushcut to contain & use as mulch
18	*Ipomea caerulea* 	Morning Glory	Central & South America	V – twining climber, scrambler	Flower: showy blue-purple, tubular; Leaf: variable lobed to heart-shaped; stem: hairy when young	Cut vine from vegetation to 'break scaffold'; manual removal of stem & root; consistent follow-up necessary

KEY TO FORM/ HABIT:

Gr = Grass/ Grass-like | **V** = Vine / Scrambler | **Shr** = Shrub | **Tr** = Med-Large Tree

GrC = Ground Cover | **He** = Herbaceous | **ST** = Small Tree

Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
TOUGH YET FUNCTIONAL: MANAGE, REMOVE, REPLACE						
19	*Neonotonia wightii* 	Glycine	Africa	V – twining climber, scrambler	Leaf: trifoliate, velvety; Flower: small white-mauve in elongated racemes; Fruit: pea-like in densely hairy pods	Cut vine from vegetation to 'break scaffold'; manual removal of stem & root; consistent follow-up necessary
20	*Cardiospermum grandiflorum* 	Balloon Vine	Tropical America	V – fast-growing, smothering climber	Stem: hairy with tendrils; Leaf: compound, three groups of three; Fruit: papery pods with black spherical seed attached; Flower: white clusters	Cut vine from vegetation to 'break scaffold'; manual removal of stem & root; consistent follow-up necessary; BEWARE of native look-a-like *Cayratia (Causonis) clematidea*
LOWER PRIORITY DUE TO FUNCTION IN ECOSYSTEM						
21	*Lantana camara* 	Lantana	Central & South America	Shr – prolific arching branches, thicket-forming/ scrambling	Stem: rough to touch; Leaf: hairy, pungent; Flower: clusters, small tubular, variable in colour; Fruit: purplish-black, spherical	Cut branches with kama, being mindful of good habitat value (small birds) & natural regeneration within thickets; manual removal of root with mattock; BEWARE of native look-a-likes *Trema tomentosa* & *Callicarpa pedunculata*
22	Solanum species 	Wild Tobacco/ Devils Fig/ Spiky Baccy	South America	Shr – ST – with branchlets (3m, sometimes <10m)	Fruit: ovoid, pale-yellow; S.mauritianum: Leaf & stem: hairy, pungent; S.torvum: Leaf & stem: hairy with thorns	Regenerate areas adjacent due to great habitat value – a variety of birds feed on fruit; easy to chop & remove due to soft wood

Ranking – Listed in order of ACTION priority	Species	Common Name	Origin	Form/ Habit	Identifying Features	Suggested Holistic Weeding Method & Notes
LOWER PRIORITY DUE TO FUNCTION IN ECOSYSTEM						
23	*Ricinus communis* 	Castor Oil Plant	Africa	Shr – robust (3m), forms thickets	Leaf: Peltate, separating lobes; Fruit: green (until dry) with blunt spines; Flower: fine red-yellow in cluster on tip; Stem: hollow, hairless	Quick to regenerate after flood events so best to remove when young; cut, then use mattock or tree-popper when mature
24	*Tithonia diversifolia* 	Japanese Sunflower	Central America	Shr – spreading (1-3m), forms thickets	Flower: large, yellow fragrant flower; Stem: soft; Leaf: Sub-ovate	Has great use for regenerating soils; ensure there is a remove-replace strategy
25	*Cyperus involucratis* 	Umbrella Sedge	Eastern Africa	Gr – clumping sedge in or beside waterway (<1.5m)	Stem: rigid, triangular; Flower/ Seed: gold-brown, arranged as rays	Cut stems with kama, removal / compost-solarise seed heads, use leaves as mulch; consider erosion risk & aquatic habitat loss if removing entire clumps – use mattock; replace with native sedges/ rushes

Restoring our natural environment is a complex, lengthy and ongoing process. The SEQ Ecological Restoration Framework Manual is a useful technical guide to build your knowledge in efficient and effective ecological restoration.

Notes and questions:

As you work through your plan you might have some questions that you would like to ask the Healthy Land & Water team or another expert. You can take note of them here to ask questions in future workshops or at a later date:

Want to know more?

We would like to pick your brain and ask you if there is anything in particular that you would like to learn or know more about. Take notes and make sure to share at our next event on the Brook.

We are working on a resource book and would love to include what the locals and residents are interested in.

WORKSHOP TWO

Stabilising, weeding + planting

When it comes to stabilising the land, tackling those pesky weeds, and planning your planting strategy, you will produce better outcomes if you consider:

Remove and replant.

Species selection.

Seasonal requirements.

Current weather outlook.

Find some handy guides and references to help you.

Helen Moriarty's story

ROOTS OF RESTORATION: A LIFETIME ALONG KEDRON BROOK

Hi, I am Helen Moriarty the group leader of the Tuesday Tree Liberators Bushcare group. We have been a part of the BCC Habitat Brisbane program, helping to restore habitat along Kedron Brook at Pony Club Bend, since 2007.

But my association with the Brook goes a lot further back to my childhood in the 1950s living near Grinstead Park, expeditions with my mother to view the wildflowers on Sparks Hill, encountering a brown snake while exploring alone in the hyacinth swamps of Grinstead Park, the wonderment at the colour and beauty of the small Rainbow fish and Gudgeon in the Brook itself, and the delicacy of the maiden hair ferns and native violets in the shady gullies.
I earned my Girl Guide naturalist badge exploring Grinstead Park.

When we moved to Mitchelton right on the Brook, in 2000 I was secretary of the Kedron Brook catchment Branch of Wildlife Qld, and I also began helping at Keren's Osborne Rd group monthly working bees.

On retirement, I facilitated the sculpture project on the new bikeway at Pony Club Bend. At the opening, my neighbour Margaret and I were chatting about how 'someone' should remove the vines smothering the few remaining trees on the upper bank of the Brook. We arranged to meet the following Tuesday and make a start on the Maderia vine weighing down the last big Waterhousia tree on our site. We soon had lots of help, from neighbours, fellow bushcarers, and the BCC ward team came along every week, in those early years, to take away truckloads of vines, Maderia, glycine, and asparagus, being the main ones on our site. Since then our group has planted thousands of trees, shrubs, and grasses. We now have natural regeneration from our own seed and seed brought in by birds.

My inspiration came from childhood exploration, knowledge came from lots of workshops and on ground helping others, and the rewards are friendships with others in the group and seeing the increase in diversity of the flora and fauna and the increased accessibility of the creek, so our children can continue to explore and be inspired by their local nature.

Remove and replant

Replacing invasive species with native plants significantly boosts biodiversity and supports local ecosystems. Native plants also improve soil structure and fertility, enhancing overall soil health.

Additionally, properly selected and planted vegetation can stabilise soil, reducing erosion and its associated impacts. Effective vegetation management also helps reduce flood impact by allowing the soil to absorb more water, reducing runoff and keeping this valuable resource on your property.

The golden rule of nature-based intervention:

'If you can't ID let it be.'

If you can't correctly identify a plant or weed, the best thing to do is leave it alone. You can always go and find out more information or do more research and planning before undertaking any actions.

That weedy looking vine might be doing good!

What is the best practice when revegetating?

The answer is to **follow The Bradley Method.**

The Bradley Method emphasises rigorous and timely weed control during recovery. Once native vegetation is re-established, weed control is needed less often, mainly in vulnerable areas like creek banks and roadsides.

The method's **core principles** are:

1. **Always work from good to bad areas** – Secure the best areas first to expand from there.
2. **Minimise disturbance to natural conditions** – Focus on careful, strategic removal of weeds to avoid soil disruption.
3. **Do not overclear** – Let the regeneration of the bush set the pace.

Now let's look at each step. If it helps, tick the boxes as you go through each step.

1. Work from good to bad

- [ ] **Identify high-quality areas:** The first step is to assess the site and identify areas where native plants are already well-established and healthy. These spots have the best chance of natural regeneration and require less intensive intervention.

- [ ] **Secure and expand:** Start working in these healthy areas because they provide a reliable base for regeneration. By securing them first, you create a foundation for native plants to grow outward into surrounding areas. This prevents overwhelming the natural ecosystem and allows for steady progress as the healthier areas provide support for the weaker ones.

- [ ] **Botanical knowledge:** To apply this principle effectively, it's important to distinguish between native species and invasive weeds. While you don't need to be a botanist, being able to tell the difference is essential for assessing which areas are "best" and deciding where to focus your efforts.

  Later in this booklet, we have listed some native species (see 'Native species list') with photos for you. In addition, there are some great resources out there to help you out in the ID process (see end of the booklet for the references).

2. Minimise disturbance to natural conditions

The second principle is based on the understanding that disturbed soil encourages weed growth and that bare ground is highly susceptible to erosion. When the ground is disturbed through digging, trampling, or overclearing, it creates favourable conditions for invasive species to thrive.

While some disturbance is inevitable during weed removal, the goal is to keep it to an absolute minimum. This can be achieved by:

- [ ] **Disciplined movement:** Be careful about where you step and avoid unnecessary trampling to reduce soil disruption or changes in compactness.

- [ ] **Efficient weeding techniques:** Gently remove weeds by hand where possible, avoiding unnecessary pulling or digging that could harm the surrounding soil or native plants. The idea is to remove the weed's roots without uprooting nearby natives.

- [ ] **Restore soil and mulch:** After weed removal, you should replace any displaced soil, humus, or mulch in its original position and order. This maintains the integrity of the natural layers, which are essential for protecting seeds and preventing further weed growth.

- [ ] **Disguise human impact:** Before leaving the area you worked on, erase any trace of human activity.

3. Do not overclear – Let the regeneration of the bush set the pace

The third principle focusses on allowing natural regeneration to guide you. The idea is to avoid clearing large areas all at once, which can disrupt the balance of the ecosystem and encourage weed invasion or accelerate erosion. Here's a detailed breakdown:

- **Gradual weed removal:** Remove weeds gradually rather than trying to clear your entire backyard at once. Overclearing exposes bare soil, which is highly vulnerable to new weed growth and erosion.
- **Follow the pace of natural regeneration:** The idea is to rely on the natural resilience of native plants to regenerate via growth or germination of new seeds, once the weeds have been removed. The bush "sets the pace," meaning that only as much weeding should be done as the native vegetation can handle in its recovery. Patience is key. The goal is to create conditions where native plants can naturally expand into the areas where weeds have been removed, rather than forcing rapid clearing that may leave gaps for invasive species.
- **Adapt to the ecosystem:** Every site is different, and this principle requires an understanding of how the specific ecosystem functions. For example, in some areas, certain types of weeds may provide temporary ground cover that protects the soil from erosion until native plants can take over.

By allowing the natural regeneration of native species to guide weed removal, this principle helps ensure that the ecosystem restores itself sustainably. The slow, steady approach supports a balanced recovery and minimises the need for ongoing intervention.

Watering and mulching: Water newly planted species regularly until they are established. Mulching helps retain moisture and suppress weeds.

Monitoring and maintenance: Regularly monitor the site for signs of stress or pest issues. Maintenance might include additional watering and weeding.

Tools you might need for your removing and replanting

Here's a list of common tools that might come in handy in this phase of your restoration journey.

Hand weeders: Small, hand-held tools like weed pullers or trowels for removing weeds by hand with minimal soil disturbance.

Pruners or secateurs: For cutting back or removing invasive plant growth and shrubs.

Gloves: Durable gardening gloves to protect hands from thorns, rough plants, and soil.

Trowels and shovels: Trowels for planting and larger shovels for moving soil or mulch.

Buckets or bags: For collecting and transporting weeds and debris from the site.

Mulch: Organic materials like wood chips, leaves or straw to cover soil and suppress weeds after clearing.

Compost: To replenish soil nutrients and support the growth of native plants.

Optional Tools:

- **Garden kneeler or pad:** To make working on the ground more comfortable and to avoid compacting the soil.
- **Watering equipment:** Watering cans or hoses to keep newly planted or recovering native vegetation hydrated. Adding a seaweed extract to 'water in' plants will also encourage root establishment.
- **Marking tools:** Stakes, flags, or markers to help identify and keep track of areas that have been worked on or need attention.

Native species list

Just like humans, plants function better in community, each filling a niche in the story of waterway health and habitat. We have an important role to play too, in identifying, observing, planting and caring for these epic green beings.

Some of these species are small or not very well known, and you won't find them in a plant nursery. Nonetheless many rushes, sedges, groundcovers and herbs like *Commelina diffusa, Ottochloa gracilima* and *Persicaria* (Knotweed, pictured in the table below) are important for healthy water filtration and habitat, so it is necessary to learn to identify these and respectfully work with them.

Other species have a legendary status, especially in the wake of flood events. Their performance in bank stabilisation and erosion control is stellar – they do this by enmeshing their roots deeply and broadly into the substrate and withstanding high velocity, high sediment load and extended periods of inundation. **Let's put the spotlight on two of these local legends:**

LOMANDRA: Lomandra is a mat rush, and whilst there are at least a dozen species in South East Queensland, only two species are found commonly in creek lines, *Lomandra hystrix* and *Lomandra longifolia*. With strong strappy leaves and robust growth, even during dry periods or in less-than-perfect soil conditions, these plants shine with resilience. Their fragrant yet spiky flowers attract all manner of pollinators, and the mass of leaves provides great habitat for insects, spiders, frogs and reptiles.

WEEPING LILLY PILLY, *Waterhousea floribunda*: A grand presence in our waterways, this densely canopied tree keeps water shaded and cool for aquatic animals, whilst providing valued habitat in gnarled roots and hollowed trunks to generous branches and abundant blossom in the spring. Their distinctive glossy leaves with undulate margins turn from pink and lime when fresh, to a deep green and then red before falling, making for an attractive feature tree in any riparian setting.

Below is a table of 25 plants to plant, each with a different form and function or role to fill along the beautiful Brook. *Photos and table information by Tali Shelley, Bushtekniq.*

KEY TO FORM/ HABIT:

Gr = Grass/ Grass-like/ Sedge

GrC = Ground Cover

V = Vine / Scrambler

He = Herbaceous

Shr = Shrub

ST = Small Tree

Tr = Med Feature Tree

FT = Med-Large/ Feature Tree

Lower bank/ Upper bank	Species	Common Name	Form/ Habit	Function	Habitat Value	notes/ other features
LB/ UB	*Lomandra hystrix / longifolia* 	Creek Mat Rush	Gr	Bank stability, understorey, flood resilient	Insect, butterfly, frog	Resilient, adaptable, flood hero!

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LB	*Carex appressa* 	Carex	Gr	Bank stability	Insect, butterfly, frog	Good alternative to Lomandra
LB	*Juncus/ Cyperus species* 	Common Rush / sedge	Gr	Bank stability	Insect, frog	Resilient, adaptable, attractive
LB	*Crinum spp. Lilies* 	River / Swamp Lily	He	Semi-aquatic	Pollinator, spider	Beautiful flowers, floating seed
LB	*Persicaria spp.* 	Knot Weed	He	Bank stability, semi-aquatic	Pollinator, fish	Beautiful flowers, seasonal
LB/ UB	*Commelina diffusa* 	Blue Commelina	GrC	Groundcover	Insect, pollinator	Valuable groundcover: other GrC's include *Ottochloa, Oplismenus, Hydrocotyles*
LB	*Christella dentata* 	Binung Fern	He	Groundcover, shade-loving	Frog, reptile	Delicate yet hardy

Lower bank/ Upper bank	Species	Common Name	Form/ Habit	Function	Habitat Value	notes/ other features
LB/ UB	*Dianella spp.* 	Flax Lily	He	Understorey	Insect	Pretty purple flowers and berries
LB/ UB	*Alpinia caerulea* 	Blue Ginger	Shr	Bank stability, understorey, shade-loving	Bee, pollinator	Adaptable, edible features
LB/ UB	*Melaleuca Spp.* 	Bottlebrush / Paperbark	Tr	Bank stability	Pollinator, bird, mammal	Beautiful weeping foliage, resilient, adaptable, flood hero!
LB/ UB	*Ficus coronata* 	Creek Sandpaper Fig	Tr	bank stability	pollinator, butterfly, bird, mammal	Resilient, adaptable, flood hero!
LB/ UB	*Casuarina /Allocasuarina spp.* 	River / Forest She-oaks	Tr	Bank stability	Insect, bird: black cockatoo	Resilient, adaptable, flood hero!
LB/ UB	*Castanospermum australe* 	Black Bean	FTr	Bank stability	Pollinator, bird, mammal	Resilient, adaptable, beautiful flowers, flood hero!
LB/ UB	*Glochidion ferdinandi* 	Cheese Tree	FTr	Bank stability	Pollinator, moth, bird, mammal	Resilient, adaptable

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Lower bank/ Upper bank	Species	Common Name	Form/ Habit	Function	Habitat Value	notes/ other features
LB	*Waterhousea floribunda* 	Weeping Lilly Pilly	FTr	Bank stability	Pollinator, frog, bird, mammal	Mother Creek Tree, a resilient, adaptable, flood hero!
UB	*Smilax australis* 	Barbed Wire Vine	V	Erosion control, understorey	Insect	Keeps bush turkeys at bay
UB	*Geitenoplesium cymosum* 	Scrambling Lily	V	Erosion control, understorey, shade-loving	Insect	Scrambling vine, delicate leaves and flowers, edible fruit
UB	*Cymbopogon refractus* 	Native Lemon Grass	Gr	Understorey	Insect	Resilient, useful fragrant leaves
UB	*Breynia oblongifolia* 	Coffee Bush	Shr	Understorey	Insect, butterfly	Resilient, adaptable, edible fruit

Lower bank/ Upper bank	Species	Common Name	Form/ Habit	Function	Habitat Value	notes/ other features
UB/ LB	*Acacia spp.* 	Maiden/ Brisbane/ Black Wattle etc	Shr-ST	Fast growing, bank stability	Insect, pollinator, butterfly, bird, mammal	Several local species, great blossom, resilient, adaptable, useful
UB/ LB	*Hibiscus heterophyllus* 	Native Hibiscus	Shr	Fast growing, structure	Insect, butterfly	Beautiful flowers, edible foliage
UB/ LB	*Trema tomentosa* 	Bush Peach	Shr	Fast growing, structure	Insect, butterfly, bird	Resilient, adaptable
UB	*Macaranga tanarius* 	Macaranga	FT	Shade, bank stability	Insect, butterfly, bird, mammal	Attractive foliage, resilient, adaptable
UB	*Streblus brunonianus* 	Whalebone Tree	ST	Shade-loving, bank stability	Insect, butterfly, bird	Beautiful weeping foliage, edible fruit
UB	*Elaeocarpus grandis* 	Blue Quandong	FT	Bank stability	Insect, butterfly, bird, mammal	Attractive foliage, mother tree, resilient, adaptable, flood hero!

Weather, seasons and what to do, when

Calendar

Season	DOs	DON'Ts
Summer	Watering Weeding	Clearing
Autumn	Planting	–
Winter	Lower creek weeding	Planting – frost-tolerant plants only
Spring	Planting	Clearing

Below, take note of what you see in each season and what restoration tasks you are planning on carrying out.

January	February	March	April
Key tasks + observations: • E.g. Water level is higher	**Key tasks + observations:**	**Key tasks + observations:**	**Key tasks + observations:**

May	June	July	August
Key tasks + observations:	**Key tasks + observations:**	**Key tasks + observations:**	**Key tasks + observations:** • E.g. Acacia in flower

September	October	November	December
Key tasks + observations:	**Key tasks + observations:** • E.g. Magpie nesting	**Key tasks + observations:**	**Key tasks + observations:**

Continuing your journey

Regeneration, revegetation, and environmental rehabilitation is a lengthy and ongoing process. Visible results may take time to appear, so it's important not to get discouraged or dwell too negatively on any mistakes or setbacks. Instead, use your learnings and discoveries as a guide for new steps and actions.

Be sure to track and record progress whenever possible. You can use journalling and photos to track your progress and celebrate the before and after. This will help you understand what works and what doesn't, and it will also serve as a source of encouragement as you see the improvements over time.

References and practical guides

Kedron Brook Catchment Network: www.kedronbrook.org.au/about/about-kbcn

Healthy Land & Water: www.hlw.org.au/resources

Bushtekniq (educational workshops): bushtekniq.org

SOWN (Save Our Waterways Now): www.sown.com.au/educational-activities/

Queensland Globe: www.qldglobe.information.qld.gov.au

NQ Dry Tropics 2019, NQ Dry Tropics RASH Manual 2019, NQ Dry Tropics, Townsville. Available URL: https://cdn.environment.sa.gov.au/landscape/docs/ep/rapid_assessment_of_soil_health_rash_manual.pdf

The Creek in Our Backyard – A practical guide for habitat restoration (Revised 2013) by Robert Whyte: https://sown.com.au/wp-content/uploads/2020/05/Creek_in_our_backyard_revised_2013.pdf

Bringing Back the Bush: The Bradley Method of Bush Regeneration by Joan Bradley

Chenoweth EPLA and Bushland Restoration Services (2012) **South East Queensland Ecological Restoration Framework:** Code of Practice, Manual and Guidelines. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Native Plant and Materials Resources

NAME:	**Brisbane City Council's Free Native Plants program** (residential/private property only)
TYPE:	Native plants
DESCRIPTION:	Brisbane City Council's Free Native Plants program offers a range of plants to enable the community to cultivate a greener and more sustainable Brisbane. The native species provided through the program will help grow our city's urban forest and support wildlife. The Free Native Plants program is open to residents and entities within the Brisbane Local Government area. Plants must be planted on private property and are not intended for planting on Council land or to be used for waterway revegetation. Brisbane residential ratepayers, residential tenants, public housing and Defence Housing residents can claim two free native plants each financial year (July to June). See Brisbane City Council's website for details.
CONTACT + INFO:	www.brisbane.qld.gov.au/clean-and-green/green-home-and-community/sustainable-gardening/free-native-plants-program

NAME:	**City of Moreton Bay Council's community nurseries**
TYPE:	Native plants
DESCRIPTION:	Moreton Bay's community nurseries grow local flora for planting in reserves, parks, schools, and public spaces. They are open to the public, with a range of native plants for sale. Council also provides one free native plant voucher to residential property owners in the City of Moreton Bay region each financial year. You can use your voucher to access free native plants (conditions apply). Pot sizes and the types of plants available will vary at each nursery. Nursery staff can help you with your selection when you redeem your voucher. See Council's website to apply for a free native plant voucher or lodge a request. Community and environment groups, schools and childcare centres can also apply.
CONTACT + INFO:	www.moretonbay.qld.gov.au/Services/Environment/Community-Nurseries

NAME:	**Kumbartcho Sanctuary and Nursery**
TYPE:	Native plants, education
DESCRIPTION:	Kumbartcho Nursery specialises in native plants. The nursery is operated by volunteers with a passion for native plants and helping people to choose the right plant for their property. The volunteers are supported by trained horticultural staff who co-ordinate their activities. Kumbartcho Nursery offers tube stock and some limited larger plants at reasonable prices. They are also members of City of Moreton Bay's community nurseries program. See website for opening hours.
CONTACT + INFO:	15 Bunya Pine Ct, Eatons Hill, QLD 4037 **E**: info@kumbartcho.org.au | **Ph:** (07) 3264 3953 www.kumbartcho.org.au/nursery

NAME:	**Paten Park Native Nursery**
TYPE:	Native plants, education
DESCRIPTION:	Paten Park Native Nursery is a not-for-profit community nursery. Our purpose is to protect and restore the ecological values of South East Queensland habitats by returning locally indigenous plants to the landscape. It is a member of the Brisbane City Council's Free Native Plants Program (accepting approved stamped free native plant vouchers). Great online plant species list with details specific to your area. Open: Tuesday to Saturday 9am – 4pm Sunday: 9am – 1pm Closed: Mondays
CONTACT + INFO:	57 Paten Rd, The Gap QLD 4061 Ph: (07) 3300 6304 www.ppnn.org.au

NAME:	**SOWN (Save Our Waterways Now) Nursery**
TYPE:	Native plants, education, equipment loan
DESCRIPTION:	SOWN financial members can obtain free plants, native to the Enoggera catchment, for planting in their revegetation sites or bush gardens. SOWN have great online plant guides and resources. Membership fees are available online. Members are also able to borrow tools from the SOWN Nursery on short-term loans. Membership cards must be shown to take plants or borrow equipment. The nursery is located at 57 Paten Road, The Gap. Follow the road into Paten Park and we are at the end next to the Paten Park Native Nursery. More information and opening hours available online.
CONTACT + INFO:	57 Paten Road, The Gap, Brisbane, Qld **E:** info@saveourwaterwaysnow.com.au www.facebook.com/saveourwaterwaysnow www.sown.com.au/sown-nursery

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Australian Government

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Healthy Land & Water

PROJECT PARTNERS:

bushtekniq

fourfold STUDIO

BLIGH TANNER

Healthy Land & Water

To find out more about the Kedron Brook Riverine Recovery project contact Healthy Land & Water:

E: kedron.brook@hlw.org.au | **P:** (07) 3177 9100

www.hlw.org.au/kedron-brook

Level 11, 240 Queen St
GPO Box 735
MEANJIN (BRISBANE), QLD 4001 , Australia