

Flows for the Future Newsletter

Welcome to the latest edition of the Flows for the Future (F4F) Newsletter, featuring work carried out with landholders to improve the health of catchments in the Eastern Mount Lofty Ranges.

We are going digital! If you would prefer to receive our newsletter via email, as well as program updates, scan the QR code (right) to subscribe.



It has been a busy year for Flows for the Future, particularly as we built 9 new gravity devices across the Finnis, Marne Saunders and Angas catchments throughout summer. In April, the program also achieved a significant milestone by removing a dam near Mt Barker that was no longer needed for water use. This action will reinstate natural flows to the area, marking a big win for the local environment and the landholders who can now plan how they will use the extra space.

The construction season may now be closed but procurement is underway so that we can hit the ground running with new device builds in spring. If you already have a gravity low flow device on your property, now is also the ideal time to check on it. Ensuring the inlet is clear of debris and enabling flow helps maintain the device's efficiency and contributes to the overall health of our waterways.

F4F was excited to be part of the eleventh annual Australian Stream Management Conference in Victor Harbor in August, which was a prime opportunity to connect with other environmental professionals and exchange knowledge about integrated catchment management in Australia.

We contributed 2 papers to the conference that will be published online as part of the conference proceedings. The first, 'People, Passion and Policy', delves into the role of community engagement in waterway management, and the second, 'Innovation in Infrastructure - the construction challenges of delivering low flows', explores the technical aspects of gravity device construction. We're hopeful that sharing these papers will inspire other agencies to consider gravity devices as a method of restoring flows, as well as provide key learnings to support their journeys.

Local profile

Phil Lehmann

Max & Me Wines

Eden Valley

When you hear the name Lehmann, you might think of green vineyards and award-winning wines but, just like the famous Transformer movie quote, there is more to Phil Lehmann than meets the eye.

As a fifth generation Barossa local, it would be an obvious assumption that Phil would dive straight into the family wine craft but Phil, having a rebellious side, had other ideas. While studying engineering, he spent his breaks travelling and riding dirt bikes, with little thought to his future career but as they say (or they do now), you can take the boy out of the vineyard but you can't take the vineyard out of the boy. So, after spending some years away from the horticulture industry, Phil returned to his roots and found his passion for winemaking and viticulture.

Phil credits the strong mentorship of people such as Brian Walsh, Robert O'Callaghan, Barb Storey, John Lienert and Annabelle Traviglioni as crucial in the Barossa retaining its core values throughout the industry's evolution, and ensuring a space for wineries of all visions and sizes within the region.

'It's beautiful that small, quality wineries can play on the world stage without the need for massive volumes and a sprawling tank farm.' Phil said.

'There is great creativity and diversity in style coming out of the Barossa today.'



Being a man of the land, climate and sustainability are hot topics for Phil, who is involved with regional discussions about the shifting climate and what can be done about it.

‘From energy use to water, varietal selection, vine-growing methods and soil health, it is about achieving the right balance and sharing our individual experiences with our peers, so we can choose our best path forward.’

‘The goal is to grow excellent fruit on healthy farms that respect the land, whilst not going broke in the process.’

‘Living with drought impacts staring at us through each window has made me even more focused on how we can better manage our water use.’

With water resources being at the forefront of Phil’s mind, it was an easy decision for both he and wife Sarah to sign-up to F4F, with 2 dams on Phil’s property having gravity low flow bypass devices installed in March this year.

In addition to increasing landscape health and resilience, Phil was impressed by the holistic start-to-finish view of F4F and the shared outlook by all involved, from planning to construction.

‘The contractor chosen, Tony and his crew, did an outstanding job. They love the landscape and what they do, and the excellent results speak for themselves. I am looking forward to the first decent rain and see how the new devices perform.’

So are we Phil!



Phil with wife Sarah, and their 10 year old rescue greyhound Jinx.

Second Nature Conservancy

Second Nature Conservancy (SNC), formerly known as the Goolwa to Wellington Local Action Planning Association, is a not-for-profit, non-government organisation that was established and incorporated in 1998.

SNC works closely with the local community and landholders to protect and restore biodiversity and manage natural resources to create an environment where human activity and natural ecosystems can sustainably co-exist. The organisation employs up to 16 people, ranging from field workers who conduct on-ground works, to project officers who coordinate works and community engagement.

Since its inception, SNC has worked on a range of projects to protect and enhance more than 10,000 hectares of conservation-sensitive areas, plant more than 1.8 million native seedlings and engage with more than 4,000 landholders throughout the Goolwa to Wellington region. They offer advice, support and on ground services for activities such as bush management, revegetation, watercourse restoration, plant ID, weed control, and property planning.

F4F contracted SNC for engagement support when the program started in 2017. Their local insight and landholder relationships meant we hit the ground running, raising awareness about low flows and increasing program participation.

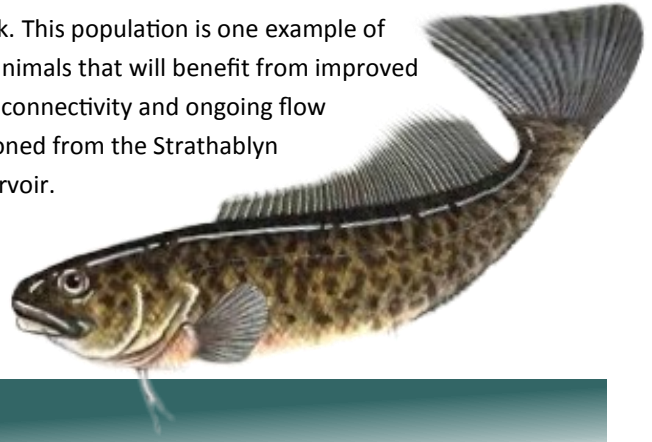
We would like to thank Leah Hunter and Kylln Wadmore for their valued contribution to F4F these past few years, and to SNC for incorporating low flows into their charter to restore biodiversity and encourage sustainable resource use.

Fish in focus— river blackfish

River blackfish are unique to freshwater streams in south-eastern Australia. They are carnivorous ambush predators that will eat just about anything, including aquatic insects, molluscs, crustaceans, smaller fish, and terrestrial invertebrates that fall into the water. They can grow up to 60 cm long but are usually less than 30 cm. With many small scales and a protective mucous coating, they have earned the not-so-flattering common name of 'greasy' or 'slimy'. During spawning, sticky eggs are usually attached in batches inside hollow logs or rock crevices. The male fish closely guards the batch until hatching and dispersal. Developed catchments with silty run-off threaten the species as it can smother these eggs and spawning sites.

River blackfish (*Gadopsis marmoratus*) were once found across the entire ELMR, but their habitat is now reduced by

drying and barriers to flow. A 2022 fish monitoring survey discovered just four distinct sub-populations persisting in large spring-fed pools in separate catchments. River blackfish habitat is reduced due to drying and barriers to flow. Last year, we shared a rescue mission for one such population of river blackfish in Rodwell Creek. This population is one example of the animals that will benefit from improved pool connectivity and ongoing flow siphoned from the Strathablyn Reservoir.



Get in the zone! The riparian zone

Riparian zones impact the health of catchments, agricultural areas and communities that rely on waterways. These transitional areas between terrestrial and aquatic ecosystems are teeming with life, even in creeks and gullies that carry flow only occasionally.

Just as diversity lends itself to a productive and resilient human community, the same is true for diversity in the riparian zone, with diverse species of riparian fauna and flora proving to be the key to success.

So, what are the benefits of a diverse and healthy riparian zone?

Erosion control

The deep, fibrous roots of native riparian vegetation can help stabilise soil along waterways, helping to prevent erosion. This reduces sedimentation and helps preserve habitat for riparian organisms.

Integrated pest management

A diverse and healthy riparian ecosystem provides a haven of diversity for predatory insects that help manage pests in agricultural areas. This can reduce dependency on chemicals, saving money and improving crop yields.

Increased pollination

By providing more diverse habitats for predatory insects, we are creating more habitats for our pollinators. Native bees are known to nest in the ground in riparian zones and rely on these habitats for their life cycles. Riparian natural corridors allow for the movement of pollinators throughout the region, promoting biodiversity and enhancing pollination services for agricultural landscapes.

Flood mitigation

A healthy riparian zone with shrubs and trees can help slow water movement, and perennial, deep-rooted native plants

can absorb more water than shallow-rooted invasive plants such as Kikuyu grass.

Water quality

The riparian zones act as natural filters, trapping pollutants, nutrients, and sediments from water run-off before they enter our waterways. This can help improve water quality and cycle nutrients in the soil and water.

Diversity for wildlife

Many species rely on riparian zones for their breeding cycles, shelter and food. By returning native plant diversity to our waterways, we can ensure those cycles continue and diversity can flourish.

Climate regulation

Riparian vegetation can help regulate the temperature of the water and surrounding micro-climate. The shading of native trees and shrubs can keep areas cooler and provide suitable conditions for wildlife.

Recreation and aesthetics

Riparian zones enhance the visual appeal of the landscape, including land values. They provide green spaces for a variety of recreational activities such as hiking, birdwatching, fishing, and camping, allowing people to connect with nature and enjoy its beauty.

Beneficial practices for managing riparian zones can include:

- weed control strategies
- managing stock access
- revegetating with local native species using provenance tube stock
- pest control of browsing herbivores.

For more information, contact Landscapes SA. We've provided their contact details on page 6.

Vegetation monitoring at Strathalbyn Reservoir

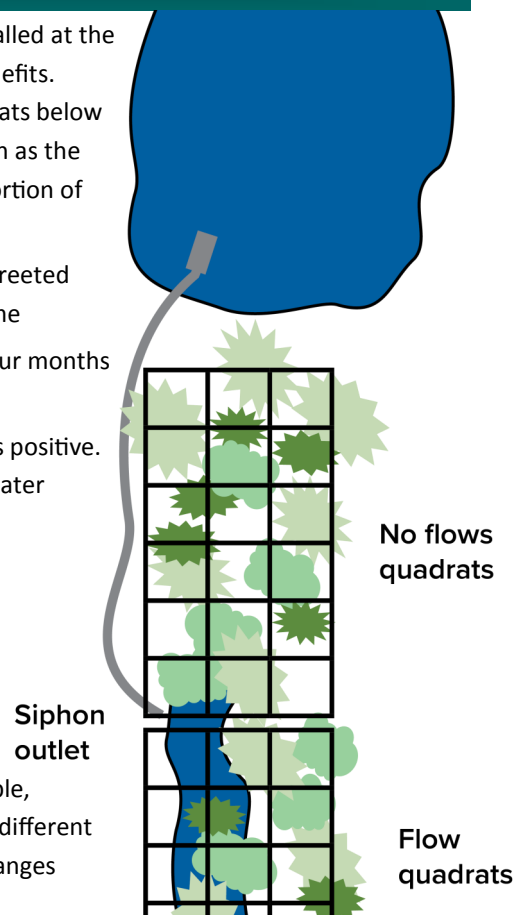
In the last edition, we shared with you the ongoing flow delivered from a siphon installed at the Strathalbyn Reservoir, and new monitoring sites established to measure the flow benefits. Thirty 1 x 1 metre control sites are located just above the siphon outlet and 30 quadrats below the outlet. In each quadrat, we meticulously record details about the vegetation, such as the number of native species, the cover of native semi-aquatic vegetation, and the proportion of native biomass.

The team revisited the site in February to record a new data set. They were happily greeted onsite by the noisy chirps of an army of frogs. The chorus, which is unusual for daytime mid-summer, is a promising sign. The siphon had delivered ongoing flow for about four months over late spring and summer, so we expected to see greening around the flow site.

Although it's too early to draw any conclusions, the preliminary analysis of the data is positive. Greening around the flow site was anticipated; in some ways, it proves that adding water makes things grow. But then we dug a little deeper. In quadrats that are receiving environmental flows, we observed:

- increased cover of native semi-aquatic species
- increased cover of all native species
- a higher ratio of native vs non-native species.

While the initial results are promising, it's important to acknowledge potential challenges. Seasonal effects, such as the dormancy of perennial vegetation for example, can complicate the results. This underscores the necessity for ongoing monitoring at different times of the year, which will provide a more comprehensive understanding of the changes associated with increased flow.



A tribute to 'Old Man Barker'



Image: 20 metre trees

In an unassuming location on Adelaide Road, Mount Barker, bustling with cars and people going about their daily drives, sits a magnificent river red gum, known affectionately to the locals as 'Old Man Barker.'

'Old Man Barker' won the South Australian Tree of the Year award from the organisation '20 Metre Trees'. This award, decided through an annual poll, recognizes trees that stand out for their size, age, and ecological significance. Last year, Old Man Barker led the poll by a sizeable margin, a testament to its grandeur and the community's appreciation for it. With a trunk circumference of 7.3 metres, it is a fantastic example of an *Eucalyptus camaldulensis*.

'Old Man Barker' is estimated to be up to 300 years old. The tree has withstood storm batterings, lightning, and people over the years and has the scars to prove it. What it lacks in lush limbs, it makes up for in numerous hollows, providing refuge to native wildlife such as possums, birds, and bats. Some species, like the Adelaide rosella, are obligate hollow users, meaning they depend on hollows to nest. Most naturally occurring hollows across

Australia are in eucalyptus over 80-120 years old. Preserving these older trees, even in an urban environment, is vital to the ongoing survival of these animals. Fallen branches have been left at the tree's base to provide further habitat.

River red gum trees hold a significant place in our cultural heritage. They have been integral to the lives of Indigenous Australians, serving as materials for canoes, bowls, shields, and other utensils. Aboriginal people caused scars on trees by removing bark for various purposes. These scar trees hold immense archaeological value, offering insights into our traditional ways.

Vegetation in a healthy catchment should include trees of many ages, diversity in plant species, and vegetation layers (e.g., understory, mosses, and old trees with hollows). This ensures that new plants will be recruited and provides a range of habitats to maintain the local ecosystem. The preservation of old trees, like 'Old Man Barker', in urban environments is not just a matter of aesthetics, but a responsibility we all share in maintaining the balance of our local ecosystems. You can see this magnificent tree adjacent to the southern exit from the SE Freeway approaching Mt Barker and Littlehampton.

Watercourse and dam field days

In Autumn, Landscapes Hills and Fleurieu and Second Nature Conservancy held a series of successful watercourse and dam field days, with the informative sessions covering watercourse restoration, dam maintenance and dam rejuvenation.

F4F participated in the field days, taking the opportunity to engage with landholders and discuss how we can collaborate with them to reinstate more natural flow patterns at dams on their properties. Passing environmental flows play a significant role in watercourse restoration and ensures watercourse environments downstream of dams receive the water they need at the right time.

Attendees learned strategies to rejuvenate their dams and watercourses by utilising livestock and planting native species. Attendees were shown how excluding livestock from an area is an effective way of reducing sedimentation and erosion and, once fenced out, livestock can be used in short bursts to graze down weedy grasses, a practice known as 'crash grazing.'

The field days also showed examples of how planting low-growing native species such as sedges and rushes near the edge of watercourses, stabilises banks and improves water quality, and how it is important to ensure trees or large shrubs are placed at least 15 m away from dams to preserve the dam wall integrity.

A topic that was stressed throughout the field days was the importance of regular dam maintenance, with routine inspections to look for signs of damage, particularly along dam walls and in spillways, essential to keep things flowing smoothly. A functional spillway with no blockages should ensure the water level is never closer than 500 mm from the top of the dam wall. If, over time, you find that silt and other sediments have built-up and reduced the capacity of your dam, de-silting may be needed to address this problem. The current recommended practice for desilting a dam is available on the Landscapes Hills and Fleurieu website.

Additionally, you should contact the Landscapes Hills and Fleurieu's Water Team if you are considering any repairs or modifications to a dam, to ensure adherence to best practice guidelines and the *Landscape South Australia Act 2019*.

Landscapes Hills and Fleurieu is the go-to agency for advice on sustainable land management. If you'd like more information, don't hesitate to contact them or attend one of their many free events.



Contact information Landscapes SA

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Contact Information Second Nature Conservancy

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Meet Ben Woods, field officer

Ben, a diesel mechanic by trade, brings a unique blend of skills to the F4F table. He has previously spent time in the tourism industry, improving the local ecosystem and business efficiencies on sustainability projects, and also has training in management, leadership and mechanical engineering.

After 10 years of self-employment, Ben joined the Department for Environment and Water in 2023 as a Senior Field Officer, working on flood recovery with the National

Parks and Wildlife Service in the Riverland before joining the F4F construction team. He took no time settling-in to the F4F team, using his skills and hands-on experience to develop a valve lock (pictured left) for future siphons. Once this innovative lock is complete, it will

enhance infrastructure security by reducing the risk of accidental flow past the calibration point, preventing delivery above the threshold flow rate.

Ben has had a keen interest in the environment since childhood and is a nature lover through and through, often spending his downtime exploring South Australia with a camera in hand. Ben is a skilled photographer who loves capturing landscapes and all the unique fauna that call them home. His long exposure photography provides a creative outlet and Ben enjoys actively supporting other photographers and artists through networking and fostering community growth.

Far from being 'snap happy', an image such as Ben's Littra

House Star Trail can take months of planning to determine a suitable location, desirable moon phases and maximum probability of clear skies. The camera must be kept warm to prevent dew forming on the lens and can capture anywhere between 300 and 900 images in a single night. It is often a long drive home before the photos are downloaded and blended to produce one final image, and the shoot can be deemed a success or not.

F4F is taking advantage of Ben's good eye to build our image gallery with better quality photos of new builds and changes in the landscape over time.

You can check out more of Ben's photography at bendwoods.com

Below: Ben's image 'Littra Star Trail' won the 2023 South Australian Ranger Association Photo of the Year award.



A huge thanks to the many landholders and broader community who continue to work with us to support catchment health.

The Flows for the Future Program is delivered under the Murray–Darling Basin Plan, jointly funded through the Australian Government Department of Climate Change, Energy, the Environment and Water and the South Australian Department for Environment and Water.

More information

Provide feedback, share your story or request to receive our next update electronically via
T: (08) 8391 2109 | E: F4F@sa.gov.au

www.environment.sa.gov.au/topics/water/flows-for-future