



A richer Condamine

ENRICH—HABITATS FOR LIFE IN THE CONDAMINE RIVER IS A TWO-YEAR PROJECT AND **HEATHER SMITH** LETS US KNOW WHAT THEY'VE BEEN UP TO.



Top: Condamine headwaters above Killarney. Inset: Planting trees along the Condamine River as part of 'Enrich' are Condamine Alliance Manager River Kevin Graham (back left), Southern Downs Regional Council representatives Andrew Smith and Tim Kajewski, and Warwick East State School students Justin Horne, Kate Potter and Jasmine Gibson.

Australia is home to 50 separate rainforest reserves that are inscribed on the World Heritage list for their outstanding natural universal values. Since 2007, these reserves have been collectively known as the Gondwana Rainforests of Australia and one, shaped like a boy riding a unicycle from a bird's eye view, is where this biodiversity story begins.

'Enrich' is the creation of Queensland natural resource management group the Condamine Alliance, and the legacy of the Condamine catchment community. Beginning in 2012, the project has worked with local schools, Landcare, community groups, land managers and local councils to restore biodiversity, protect riverbanks and increase connectivity to achieve a healthier river.

That river is the Condamine, whose headwaters begin in the cool, ancient Gondwana rainforest and flow off the back of the Great Dividing Range into the Murray–Darling Basin, Australia's most iconic, and largest river system.

Riparian enrichment

Condamine Alliance aims to rehabilitate 650 hectares of riparian land along some 65 kilometres of the river during this two-year project. Work is underway in two stretches between Killarney and Cecil Plains in the west. These were in poor condition and were identified as needing priority attention for rehabilitation. Land managers are being assisted to establish native plants, remove weeds, control wild pigs, install off-stream watering points and fence waterways.

"The Condamine River nourishes some of the world's most productive agricultural land and sustains many communities who live beside it. It is home to many iconic native fish species and other plants and wildlife that contribute to the high ecosystem values of this area. Our Enrich message is all about increasing carbon stores, enhancing biodiversity, and building greater environmental resilience." (Kevin Graham, Condamine Alliance River Manager)

Enrich—Habitats for Life is supported through funding from the Australian Government's Biodiversity Fund.

Historical land clearing and poor land management along this riparian zone has caused serious damage, which was exacerbated by floods in 2011 and 2012. The strong flows swept tonnes of debris through the river system and caused widespread erosion and slumping of riverbanks. The floods provided ideal conditions for weeds and pests, with extensive wild pig damage along the river and many new infestations of blackberry and privet. The only way to tackle these problems was with the involvement of local land managers.

Community involvement

Engagement has been a focus for the project from the very start. To date, three community information sessions have been held for land managers, along with seven school visits, five planting excursions and numerous meetings with interested partners. Condamine Alliance appointed local environmental consultant Dawn Heath, to coordinate the rehabilitation works with land managers once they joined the project.

Land managers involved in the project range from small-lot farmers to large-production businesses like Spicers Peak Station, which includes the Spicers Peak Nature Refuge near Cunningham's Gap. The New Holland Mouse and Powerful Owl are just two of the 27 rare and threatened animals that live in the 2000-hectare refuge. Others include Spotted-tailed Quolls, the Cascade Tree Frog, the Regent Honeyeater and the Long-nosed Bandicoot. Spicers Peak Station joined the Enrich project to help protect the refuge's special residents and improve natural habitat.

Further west in the catchment, local schools have been planting eight sections along the Condamine in Warwick. Three hundred students have helped plant nearly 700 seedlings so far and more schools will join in this year.

The school planting excursions attracted strong support from Southern Downs Regional Council, Condamine Headwaters Landcare Group, Warwick Fish Stocking Association and the Warwick River Trust.

Improving biodiversity

Enrich has focused on a few key activities to help land managers increase carbon stores, enhance biodiversity and improve connectivity in the riparian zone.

- Establishing native plants is a significant part of the project and, so far, 1380 native seedlings have been planted in riparian areas on both private and public properties. These seedlings have a greater chance of survival if there are less pests, such as wild pigs, to damage or destroy them.
- Wild pigs are a serious threat to biodiversity so Condamine Alliance brought together 23 neighbouring land managers to join a wild pig aerial operation. As a result, a total of 1812 wild pigs were eradicated on 25 properties over five days—the region's most successful wild pig cull.
- Some land managers, together with Spicers Peak Refuge, have received help to install fencing along their stretches of the river to protect vegetation and keep stock out. Already, fencing has been erected along 25 kilometres of waterway and 24 off-stream watering points have been built.
- Weed control is also underway with 40 hectares treated to date.

Carbon study

Condamine Alliance engaged the University of Southern Queensland to undertake a study to estimate the amount of carbon produced by riparian vegetation and coarse woody debris (fallen trees and branches) in the two main river stretches. The riparian zone was divided into 17 sample plots measuring 10 x 50 metres. Each plot's condition was assessed for trees, shrubs and coarse woody debris and awarded a score of poor, good or excellent.

The highest amount of total carbon was found in plots dominated by River Red Gum, followed by plots with more River She-oak. The average total carbon of all 17 plots was 143.6 tonnes per hectare which compares favourably with the global average for warm temperate dry forest. Principal scientist Tek Maraseni said this indicated that relatively high levels of biomass carbon are achievable in riparian zones.

“Riparian forests are not only valuable for biodiversity and ecosystem services, but are equally crucial for carbon sequestration, mainly because of fertile soils and abundant soil moisture. Surprisingly, more than 95 per cent

“Our Enrich message is all about increasing carbon stores, enhancing biodiversity, and building greater environmental resilience.”

Kevin Graham,
Condamine Alliance
River Manager

PHOTOS THROUGHOUT THIS
ARTICLE COURTESY OF THE
CONDOMINE ALLIANCE.





“The kids love the planting excursions and it is a great way to promote the importance of biodiversity, rivers and connectivity.”

Kevin Graham



of the total carbon came from trees and shrubs and less than 5 per cent came from coarse woody debris. This means if we are only interested in carbon mass then we should give more weight to trees and regrowth and much less weight to coarse woody debris.” (Tek Maraseni)

Tek recommends that if Australia wants to achieve greenhouse gas emissions reduction targets, it needs to encourage farmers to implement mixed species environmental planting within a 50-metre riparian buffer along all creeks and rivers. His research shows that this would have benefits for both adaptation, such as flood control and soil erosion control, as well as carbon capture.

It would be helpful to conduct more research across a larger number of samples to determine if these results represented the broader riparian zone. In the meantime, the sample plots may be used as permanent monitoring plots to offer important reference points for future carbon trend analysis.

Sharing achievements

Over its 10-year history, Condamine Alliance has learnt the value of sharing outcomes and achievements with project participants and the wider community. From the project’s start, stories have been regularly shared through an e-newsletter and the media. A ‘report card’ was produced in the first 12 months to let the community know about activities and outcomes. This was followed by a newsletter that was distributed to everyone involved to highlight the good work, introduce participants,

and increase awareness about the benefits of riparian vegetation. To top off the first year, Condamine Alliance hosted a riverside picnic in Warwick to show appreciation for the many people and organisations who have been involved in the rehabilitation activities so far.

The legacy of Enrich

This project is just one part of the Condamine Alliance’s broader river restoration program that also includes the award-winning Dewfish demonstration reach. Each project is a stepping stone to greater knowledge, awareness and progress in catchment-wide water management.

The next step is to focus on a new reach, named after the Nikki Long Cod, in the Gondwana Rainforest. This will once again bring the community together to look after the biodiversity of this unique and ancient area. Its location brings the Enrich story full circle—where one enrichment project begins and ends, another one grows.



Australian Government



FOR FURTHER INFORMATION

Kevin Graham — kevin.graham@condaminealliance.com.au