

reef and rivers

YOUR **WET TROPICS WATERWAYS** LIFESTYLE & ENVIRONMENT MAGAZINE

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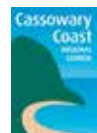




Wet Tropics Waterways

www.wettropicswaterways.org.au

WORKING TOGETHER TO ENHANCE OUR WATERWAYS



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WELCOME

Welcome to the sixth edition of Reef and Rivers Magazine.

This year marks ten years of tracking the health of our waterways, from rainforest streams to the outer reef. It is a milestone worth celebrating, and the best way to mark it is by sharing the stories of the people who make this region so special.

In these pages, you will dive with manta rays, meet the godfather of coral, and join the rangers, farmers, scientists and volunteers restoring our rivers and reefs. You will discover a fish that time forgot, follow whimbrels on their journey across the globe, and learn how small actions add up to real change.

At Wet Tropics Waterways, we bring together partners across government, science, industry and community to protect our catchments and grow awareness of the waterways we all rely on.

I hope these stories inspire you as much as they inspire me.

Dr Simon Costanzo

Independent Chair, Wet Tropics Waterways

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Design & layout: Trina Jensen (trinajensen.com.au)

Writers: Julie Lightfoot, Elaine Seager, Greg Vinall, Carley Rosengreen

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We acknowledge the traditional custodians of the land and sea on which we live and work, and pay our respect to elders past, present and future.

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SEA SPEAK

Hear from people
who live and breathe
Wet Tropics waterways,
for work and pleasure.



HEATHER PLATT

Marine scientist – Reef Biosearch
Manager, Quicksilver
Waterways: Off Cairns, Port Douglas

What do you love most about working in our waterways?

I've been around oceans my whole life. Whenever I'm snorkelling or on a beach, I feel like I'm at home. It's a grounding place for me and it inspires me.

Best experience

Snorkelling at Ribbon Reefs and coming eye to eye with a dwarf minke whale. It was amazing. They congregate there to calf in winter. It's the only place in the world with a known aggregation of dwarf minke whales. I was holding a snorkelling line at the time. To have a minke approach me - it was life-changing.

What changes have you seen over the years?

The growth in knowledge, research and technology. A much better understanding of how the ocean supports us and how we can better protect it. And a move from conservation being talked about with tourists to conservation being something we actually do with tourists - from fish counts to reef health surveys. It shows people want to help look after the Reef.

If you had one message...

Immerse yourself in nature as much as possible. The more we recognise our connection with nature, the more we act to protect our ecosystems.



CAESAR HUNTER

Djabugay Land and Sea Ranger
Waterways: Barron River catchment

What do you love most about working in our waterways?

I grew up with waterways central to my life - swimming, fishing, camping and exploring on the Barron River and its tributaries. It's a big part of Djabugay life. We associate it with relaxing, eating well and being with our bama family. Being able to work in the storywaters I live with means a lot. I can help keep the waterways healthy, observe them and be a custodian.

Best experience

Monitoring our Ngunbay (platypus) and keeping the areas they live in safe. Working with WWF gave me the opportunity to learn smart ways to use and collect data, and tell the stories of our Ngunbay.

What changes have you seen over the years?

Each season brings changes. Some are subtle and some - in extreme tropical conditions - mean drastic changes. We look forward to the seasons bringing cycles of food, water and animal life that have meaning for our culture, country, animals and plants. Changes in development have greatly impacted our waterways and their health. What's important is working to improve this so they regenerate.

If you had one message...

Observe your country, learn its ways, care for it and respect it.



SHANIA BOLEN

Great Barrier Reef Legacy and Forever Reef Project
Port Douglas facility manager
Waterways: Off Port Douglas

What do you love most about working in our waterways?

Every experience is unique - seeing crocodiles in our rivers, watching coral spawn under a full moon, sharing the wonder of the Reef with kids who are seeing it for the first time. There's always something to fall in love with.

Best experience

Swimming with manta rays between Batt Reef and Tongue Reef. They were feeding and dancing. We were the only ones out there. It felt like time stood still. Those are the moments where your connection deepens.

What changes have you seen over the years?

I've been here through mass bleaching events. It's confronting. You see the change and the loss but you also see resilience - reefs regrowing and awareness shifting. More people are coming here wanting to understand how they can help the Reef, and that gives me hope. Curiosity is turning into care.

If you had one message...

You don't have to be a scientist to care for our waterways. Just like every coral plays its own role in supporting the Reef, every action we take, no matter how small, matters. We have the best-managed reef in the world, and its future depends on us.



JENNI CALCRAFT

Orpheus Island Research Station Manager, James Cook University
Waterways: Southern Wet Tropics

What do you love most about working in our waterways?

Every day is different. The biodiversity spans reef, seagrass, mangroves and freshwater. Our classroom is on the reef. I love watching people experience it the first time, seeing the Reef as a functioning ecosystem they can be immersed in, measure and understand.

Best experience

Connecting researchers and students directly to these ecosystems. And when conditions are glassy, skies are clear and people are fully engaged.

What changes have you seen over the years?

The most visible are slow and cumulative - hotter summers bringing intense rainfall, cyclones, coral bleaching and less recovery windows. The February 2025 monsoon and flood plumes were a stark reminder of how tightly catchments are linked to ecosystem health, with a mass die-off of giant clams at Orpheus because of reduced salinity. Better changes include more moorings and reducing anchor damage.

If you had one message...

These systems are resilient but not invincible. Small, cumulative actions matter - from catchment management to everyday behaviour on the water. With informed choices, future generations will inherit a functioning ecosystem, not just memories.



RORY BROOKES

Fishing Guide, Tropical Sportfisher/
Aroona
Waterways: Off Cairns

What do you love most about working in our waterways?

You can go from pristine rainforest streams and waterfalls to mangrove-lined rivers and estuaries, and then tropical islands and the outer reef. All in one region! I spend hundreds of days on the water each year, and no two days are ever the same.

Best experience

One recent highlight was taking my 12-year-old nephew on a 200-kilometre boating adventure. We camped on a remote island and fly-fished remote sand cays on the Great Barrier Reef. It was an amazing experience to share with him.

What changes have you seen over the years?

Since the gill net phase-out began along the Great Barrier Reef coastline, I've seen encouraging signs in our waterways, with many more barramundi in the rivers and more dugong sightings along the coast.

If you had one message...

We are all so lucky to live in a tropical paradise, and it's important that we look after this incredible resource so that its beauty remains for future generations to enjoy.

FOR THE LOVE OF CORAL

He's known as 'the godfather of coral'.

Charlie Veron discovered a quarter of the world's coral species, he's a world leader in coral evolution, he's won awards, written books and been hailed by David Attenborough. Now in his 80s, Charlie lives in the Wet Tropics and he hasn't slowed down...

When John 'Charlie' Veron was a kid, he had an octopus as a pet for about a year – back when it wasn't known that the Sydney blue-ringed octopus was one of the most deadly creatures in the ocean. 'Occie' would come out of a cave in Charlie's aquarium and would crawl up his arm to feed on meat snacks. So began a deep curiosity for all creatures that led a schoolteacher to call John 'Charles Darwin'. The name stuck – well at least the first part – and so did his fascination with nature.

Charlie became the first full-time researcher on the Great Barrier Reef and he has since studied most of the world's major reefs. Now in his 80s, he and his wife Mary, who is also a researcher, are compiling 'Corals of the World', an open-access website on coral identification. He's also a visionary, with Great Barrier Reef Legacy, in developing Australia's first coral biobank to preserve coral biodiversity for future generations. It's at Port Douglas.

WHAT WAS YOUR FIRST IMPRESSION OF THE GREAT BARRIER REEF?

I was 22 or 23 years old and it was mind-boggling for me – life changing. It was more alive than anything I had experienced before. I would stay on the reef all day long, until I was absolutely exhausted.

BEST EXPERIENCE ON THE REEF

After so many years, what is most interesting to me now isn't the chocolate box type pretty reefs. It's the more unusual habitats – things like inshore reefs and mangrove habitats where you see completely different corals.

WHAT CHANGES HAVE YOU SEEN OVER THE YEARS?

The damage from coral bleaching. The first time I saw a mass bleaching was while working in Japan in 1987. I came across a bay that was really isolated. There were no people, no roads, no nothing, and all the corals were white. I thought 'something like this has been noticed on parts of the Great Barrier Reef'. That's when I first realised there was a connection between climate change and bleaching of corals.

IS THE CORAL BIOBANK A WAY TO HELP FUTUREPROOF THE REEF?

Yes. It backs up the living biodiversity of corals, for reef research and restoration efforts. The goal is to complete the collection of all 415 species and to safeguard them for the future. Preserving coral biodiversity buys us time – for science to advance, for conservation solutions to scale and for global action to curb greenhouse gas emissions so that ocean conditions can recover, giving corals a real chance not just to survive but to flourish.

HOW IMPORTANT IS CORAL TO THE REEF?

Coral is home to about 70 per cent of all marine species at some point of their life cycle. And you've only got to swim over a reef to see why – there are lots of little fish everywhere but as you swim towards them they'll disappear into the coral. They're protected by it and down deeper there are tiny larvae of everything. If coral dies, or turns to rubble, all that protection goes. And it's not just about the marine world. The oceans are the lungs of Earth, absorbing carbon dioxide from the atmosphere and regulating the temperature of air and water.

TELL US ABOUT YOUR WEBSITE 'CORALS OF THE WORLD'...

It details every species of coral in the world – its taxonomy, diversity and distribution. It's my lifetime's work, and everyone else's. At the moment, we are producing an expanded version, that'll hopefully be available this year. (Visit www.coralsoftheworld.org)

COME AND SEE THE FOREVER REEF PROJECT:

209 of 415 coral species have so far been collected for the Great Barrier Reef Legacy's living coral biobank. To learn more about taking a tour of the 'coral ark', or adopting a coral, visit www.foreverreef.org





THE FISH THAT TIME FORGOT

Introducing one of Australia's rarest freshwater fish... The Bloomfield River Cod was unknown to science until the 1990s. But it's thought to be 25 million years old. This species only lives between two remote waterfalls. And now we're in a race to save it.

It's not every day you uncover a new species. So when Brad Pusey and Mark Kennard spotted a "little fish with a blue-green tinge" in the Bloomfield River catchment during surveys more than 30 years ago, they were excited for science.

"We didn't know what it was, it didn't 'key out' in a taxonomic sense," Mark, who was a young research assistant at the time, says.

The pair named the species the Bloomfield River Cod, or 'Guyu wujalwujalensis', in recognition of the Kuku-Yalanji Aboriginal people and the nearby Wujal Wujal community. It's now known to be

one of Australia's rarest and most geographically isolated freshwater fish – only living between Bloomfield Falls and Roaring Meg Falls and, remarkably, living 1,500km north of its closest relative.

Brad and Mark, who are both professors at Griffith University's Australian Rivers Institute, say there is still so much we don't know about the 'relict' species – a remnant from a fish group that once ranged widely across the continent. And they say new threats, including bigger floods and introduced fish species, are making it vital to learn more.

WORKING TOGETHER TO SAVE A SPECIES

Brad and Mark have partnered with Jabalbins Yalanji Aboriginal Rangers and a range of other stakeholders to blend western science with traditional knowledge. Together they're exploring unsurveyed sections of waterways and using new technology – from drones to electrofishing, underwater cameras and environmental DNA sampling – to monitor the cod population.

The team is also recording water quality and habitat condition data, and collecting samples of the cod and its food sources for laboratory analysis.

Bobby Kulka, an Eastern Kuku-Yalanji Traditional Owner, welcomes working together.

"We all learn so much from each other. It's vital for the species. These fish have been here for a long time. We want them to continue to be here."

The new challenges for Bloomfield River Cod include habitat changes after extreme floods and the arrival of Tully grunter and eel-tailed catfish from other Wet Tropics rivers, as well as non-native guppy fish.

"It is unknown how, why or when these species were introduced into

this river, but all three are widespread and abundant," Mark says.

"They're a significant risk because of competition for food and space, and the potential for predation on cod eggs and larvae."

RIVER SURVEYS, DNA SAMPLING AND GENETICS

Researchers want to know a whole lot more about the Bloomfield River Cod's genetic diversity and biology.

"To help this species, we need to better understand how many there are, what their distribution is, how genetically diverse the population is, how long they live, when they reproduce, what they eat and what external factors impact them," Mark says.

"And we are looking for signals from the Bloomfield River Cod's very interesting past by sampling its DNA in the present."

The research team is also developing a monitoring method that Jabalbins Rangers will use to track the health of cod populations and their habitats long after the current project is over.

EVOLUTIONARY HISTORY

The risk of losing yet another species to human impacts is far too great to ignore, Brad says.

"This fish is a really significant part of the biodiversity of Australia, and it's a significant part of the evolutionary history of fauna given the current distribution of the other members of its family – in southern areas."

Bobby sees the research as a gateway for the younger generation.

"We can take this knowledge into the schools. This is our fish. We need to take care of it, look after the ecosystem and be proud of the work that's going on."



This project is led by Griffith University in partnership with Jabalbins Yalanji Aboriginal Corporation and its Eastern Kuku-Yalanji people. Other key collaborators include the Queensland Government, Terrain NRM, the Wet Tropics Waterways Partnership, Wet Tropics Management Authority and James Cook University. It is supported by the Australian Government through the National Environmental Science Program (Resilient Landscapes Hub) and through the jointly funded Commonwealth-State Disaster Recovery Funding Arrangements.



TREEMENDOUS

Cane farmers, Indigenous rangers and landcare groups are working together to strengthen the banks of rivers, creeks and cane drains in the Mulgrave catchment. The results have been inspiring...

Franco and Frances Arri once grew some of the closest sugar cane crops to the Great Barrier Reef – on land less than three kilometres from the ocean.

Their farm, in Deeral, produced 95,000 tonnes of sugar cane in 43 years. They bought the property in the last of the Wet Tropics region's sugar expansions, and upgraded drainage systems to make low-lying land productive.

Now those areas are being returned to a natural wetland – something that has long been a 'bucket-list' item for the Arri family.

Franco and Frances are working with Greening Australia, Madjandji

Aboriginal Corporation's Madjaybana Rangers and Mulgrave Landcare to plant mangroves and trees along their cane drains, and they are loving the results.

"We started planting around the drains about three years ago," Franco says. "Over 15,000 trees are in the strips of trees along the waterways now. It's great. The revegetation has happened so fast on these soils.

"We are close to the ocean, and our eastern boundary abuts the Mulgrave River. We were always conscious of that in our farming practices. And these days it's less about what the land can do for us and more about what we can do for the river, the Reef..."

The latest tree-planting was part of the Queensland Government's Reef Assist program – a \$34 million initiative to improve the health of river catchments adjacent to the Great Barrier Reef while also creating 'green jobs' and training opportunities.

In Far North Queensland more than 160,000 native plants have been planted along waterways through the program.

Greening Australia's Lisa O'Mara says the projects she has been involved in are some of the best she's experienced in many years of land care.

"The community has been right behind us," she says. "One year in, Cyclone...

Jasper came along and a third of the trees we'd planted were lost.

"We all got back out there and replanted. The end result is 8.5 hectares of revegetation along waterways that's brought so many people together."

Mulgrave Landcare's nursery in Gordonvale has expanded under the Reef Assist program. Staff and volunteers provided seedlings for the project and joined forces with Madjaybana rangers to build up seedling stock and host combined community tree plantings.

"The expansion of the nursery has been wonderful for Mulgrave Landcare," Belinda Billing says. "We now have a community nursery with volunteers coming together two mornings a week, producing thousands of seedlings for revegetation projects each year.

"Landcare is about conservation and community, and the nursery supports both."

Madjaybana Senior Ranger Anthony Satini says the ranger group grew from six to 10 during the project, and blended traditional knowledge with training covering everything from ecosystem management to vegetation surveys, water quality monitoring and drone operation.

He says watching low-lying land return to its original state has been the most satisfying part.

"We began in some places in thick guinea grass, wild raspberry, calopo vine... To see the change from that to what we have now has been a big highlight. Some of the trees are up to six metres high now."

Five projects were completed between 2023 and 2026 in the Wet Tropics under the Reef Assist program.

The Reef Assist program is funded through the Queensland Government's Queensland Reef Water Quality Program.



REEF ASSIST 2.0 – Wet Tropics and Cape York regions stats

 **INVESTMENT**
\$8.9M

In total REEF ASSIST 2.0 funds towards 6 projects

- 1 Jaragun Ecoservices:** Restoration of Wetland Function in the Russell River Catchment
- 2 Johnstone Region Landcare Group:** Cassowary Coast Propagation and Riparian Repair Project
- 3 Wet Tropics Management Authority:** Atherton Tablelands Riparian Revegetation Project
- 4 Greening Australia:** Wet Tropics Wetland and Cane Drainage Water Quality Treatment Systems
- 5 Jabalbina Yalanji Aboriginal Corporation:** Daintree River Wawu Dimbi Riparian Revegetation
- 6 Cape York Gully Remediation and Creation of Indigenous Employment Pathways**

 **100 JOBS**

(41 FTEs) a mixture of full time, part-time and casuals

61 First Nations, 45 Youth, 32 Women

 **163,000** native plants PLANTED

 **277,000** native trees propagated

 **200,000** native seeds COLLECTED

 **14ha** of gully remediation (ALL IN CAPE YORK)

THE SECRET LIVES OF MANTA RAYS

Manta rays are being tagged to learn more about their movements on the northern Great Barrier Reef. Given their speed and agility, it's no mean feat...



REEF SERIES

When a manta ray was tagged off the Frankland Islands last year, it took scientists, traditional owners and the general public on an unexpected voyage.

'Yulu' the manta ray travelled 340 kilometres in two weeks, heading north from the Frankland Islands and reaching waters just south of Cooktown. Then her tag came off and she was lost to online viewers.

Her trip, swimming at about one kilometre an hour, was keenly watched by the Gunggandji-Mandingalbay Yidinji Land and Sea Rangers and by scientists at Biopixel Oceans Foundation.

"We know very little about manta rays on the northern Great Barrier Reef, which reduces our ability to protect them," Biopixel's Ingo Miller says.

The Biopixel team has tagged 11 reef manta rays over the last nine years, two of them at reefs off the Wet Tropics region and the rest in the Weipa-Aurukun area and south to Bowen.

The Frankland Islands, off Deeral, is a known group feeding site while further north, at Ribbon Reef off Cooktown, there are several known manta ray cleaning stations.

NATURE'S CLEAN FREAKS

Manta rays could be described as 'clean freaks' - they make pitstops for smaller fish to remove dead skin and parasites, and they've been recorded returning to the same spot again and again and happily spending up to an hour on the cleaning process.

Osprey Reef, off Cairns, is another known location for groups of manta rays.

"Most of our knowledge about them up here is through tourism operators and other boaties," Ingo says. "We tag to fill

knowledge gaps but it's a challenge because they're not the easiest species to locate or tag.

"Unlike sharks, we don't usually catch and release manta rays. We swim with them and they're powerful swimmers that don't usually approach you or stay close by. We need to be 100 per cent sure when we shoot, so the tag goes into the right spot."

Other manta rays have been monitored by satellite on the Great Barrier Reef for up to six months, some travelling more than 1,500 kilometres within a 200km radius.

Gunggandji-Mandingalbay Yidinji Traditional Owners are hopeful more tagging will happen in the Frankland Island area to build up knowledge.

They've been working with Biopixel Ocean Foundations to tag wildlife as part of research into seagrass and its role in the food chain, and they're training so that this kind of monitoring work can continue after the project ends.

Land and Sea Ranger Brody Gray says it has been an eye-opener.

"You see things like shark tagging on television - and now we're getting to go out and learn exactly how it's done. We already monitor large animals but the science side of things is really interesting.

"The tagging is one way - along with recording sightings and working with scientists sampling invertebrates like crabs and prawns, and smaller fish species - to learn more about which species are part of the seagrass food web.

"It also tells us where different species are feeding. Combining science and cultural ways brings more results. And the more we know, the better we can look after the health of the Reef."

Share your manta ray photos and videos with **Project Manta**, a research project run by Sunshine Coast University. Email projectmanta@usc.edu.au



FAST FACTS: MANTA RAYS

- They have the largest brain to body ratio of any fish.
- The reef manta rays' wingspan can reach 5.5 metres. Giant manta rays get to 7 metres.
- 'Manta' comes from the Spanish word for blanket.
- They are gentle giants, with no tail spine.
- They are highly coordinated, doing barrel rolls and swimming in circles to catch food, including small fish, in their wake.
- They can live for up to 50 years but they're not big reproducers.
- They are listed as a vulnerable species.

Through GMYPPBC RNTBC, the Gunggandji-Mandingalbay Yidinji Rangers partnered with Biopixel Oceans Foundation and JCU TropWATER to deliver the Stable Isotope Seagrass and Megafauna Project, supported and funded by the Reef Trust Partnership, a collaboration between the Australian Government and the Great Barrier Reef Foundation.



TINY PLASTICS, BIG PROBLEM!

Microplastics have been found in oceans across the globe – from the deepest sea trenches to remote beaches. A nationwide citizen science program is helping to track where these tiny plastic fragments are building up along our coasts.

Surveys at 10 coastal sites in the Wet Tropics are taking a closer look at what’s washing up along the Reef. So far, the news is encouraging. While microplastics have been recorded along these shorelines, contamination levels remain low, likely due to the lower population density and less urban pressure in the Far North.

WHAT ARE MICROPLASTICS?

Microplastics are tiny plastic particles less than five millimetres in size. Some are intentionally this small – such as microbeads that were once used in cosmetics or the microfibrils from synthetic clothing. However, most microplastics recorded in the Wet Tropics are hard fragments, indicating they originate from the larger plastics that have broken up.

WHY ARE THEY A PROBLEM?

Unlike organic materials, plastic does not biodegrade. Instead, it breaks up into smaller and smaller pieces that can exist in the environment for decades, even centuries.

Many microplastics eventually settle in sediments – which are important feeding grounds for fish, crustaceans and other aquatic species. They can also act like tiny chemical sponges, absorbing pollutants including heavy metals, pesticides and hydrocarbons. This cocktail of contaminants may then be ingested by marine life. The full ecological impacts are still not fully understood but research suggests microplastics can cause stress, physical injury and feeding problems for aquatic organisms.

HOW DO THEY REACH THE REEF?

Microplastics enter waterways through litter, landfill leaching, stormwater runoff and sometimes wastewater treatment systems. Major sources include fibres shed from synthetic clothing during washing, microscopic particles from vehicle tyres wearing down on roads, fragments from paints and coatings, and the breakdown of ageing plastic materials and infrastructure.

Microplastics can also be transported over longer distances by ocean currents, so some particles found on the Reef may have originated from outside the region.

WHAT IS BEING DONE TO REDUCE PLASTIC POLLUTION?

A range of initiatives are underway. In Queensland, the State Government has introduced bans on several single-use plastic items. Locally there are programs such as Plastic Free Places which is helping hospitality businesses in Cairns and Port Douglas to transition away from disposable plastics. Globally, the United Nations is working towards a plastics treaty, aimed at reducing plastic pollution across its entire lifecycle.

WHAT CAN WE DO ABOUT IT IN THE WET TROPICS?

- Choose products with less single-use packaging.
- Support businesses that use compostable or reusable materials.
- Choose natural fibres over synthetics.
- Join community clean-up events.

The Australian Microplastic Assessment Project (AUSMAP) has partnered with Tangaroa Blue Foundation through the ReefClean Project since 2019. It is funded by the Australian Government's Reef Trust. Visit tangaroablue.org and <https://www.ausmap.org/hotspot-map> for more information.



BEACH BESTIES

Introducing the next generation of coastal carers: Co-Exist is a new environmental group in Cairns. It's for 18 to 30-year-olds. And beach clean-ups are part of the gig.

Once a month a group of Gen Zs hits our beaches. It's less for relaxing – although that happens too – and more for the environment. The group is 'Cairns Co-Exist', it's part of a national movement and it's led by 25-year-old Sophie Nelson.

"I saw Co-Exist on Instagram and then it kept popping up on my socials," Sophie says.

"I went to my first event in early 2025 and loved it."

Sophie now organises the monthly beach clean-ups along the coast from Cairns's northern beaches to the Esplanade, as well as creekside tree-planting events and spotlighting nights at places like Crystal Cascades, Stoney Creek and the Cattana Wetlands.

She says each beach is characterised by different marine debris and land-based rubbish.

"We find a lot of marine rubbish at Ellis Beach – I think it's to do with the way the tide wraps around the beach. There are more microplastics at Ellis Beach than other beaches, and at Trinity Beach we find a lot of bigger objects like discarded clothes, shoes and bottles. At Machan's Beach, it's discarded fishing lines along the rock walls.

"At every beach, we'll find over 100 cigarette butts each time we do a clean-up."

Marine debris data is uploaded to Co-Exist after each clean-up, and to the Australian Marine Debris Initiative app. At spotlighting events, species are recorded on the iNaturalist app.

BEACH SERIES

Sophie says meeting new people is one of the great things about the group. And knowing you are making a difference.

"Often we are picking up little bits of rubbish, like microplastics. But it all adds up. Plastics are eaten by fish. We eat fish..."

"This is a high-value area, right on the Great Barrier Reef. It's a patch of paradise and it's struggling enough already. We want to do our bit to keep the environment healthy.

"You meet amazing people, a lot of them backpackers from all over the world.

"This kind of group can cause a ripple effect, changing what we do with rubbish at home, how we shop..."

Co-Exist started in Cairns in late 2022. So far, 238 people have been involved and 189 kilograms of rubbish has been removed from Cairns beaches.

To find out more, and to join an event, visit www.coexistaus.org



Co-Exist Cairns is one of three Co-Exist collectives that have received a grant from the Queensland Government for marine debris clean-ups. It has also been funded by the Vincent Fairfax Family Foundation.

SPEAR FISHING

WITH ELLA WAGNER

She caught her first fish as a four year old – and was hooked. Now she’s a champion angler, a skipper and deckie on game-fishing charter boats, a women’s spearfishing retreat leader, a free diver and a host for ABC Radio’s ‘Fish Talk’. All this between nursing shifts...

Where do you start with Ella Wagner? She’s enjoying a winning season of marlin fishing right now and she’s just been filmed for an upcoming television series. But alongside the reef fishing is a passion for spearfishing that sees her spend as much time in the water as on it. So we’ll dive into that with her today:

WHY SPEARFISHING?

I was the kid who kissed fish and released them! When you’re under the water you actually see the reef life, the animals in their natural habitat. It’s a connection and appreciation that ties in with sustainable fishing.

WHAT DO YOU LIKE TO TARGET?

When I’m reef spearfishing, it’s red emperor, nannygai, coral trout and tusker fish. In blue water, I’m looking for Mahi Mahi, Spanish mackerel, dog tooth tuna and job fish.

MOST SATISFYING CATCH:

Probably a Mahi Mahi off the Daintree coast. I’d spent so much time in the water before that, watching their behaviour.

DO YOU HAVE A STANDOUT EXPERIENCE?

Lots of them! One is spearfishing with friends in about 15 metres of water on the reef and watching whales come towards us with calves. They were so calm, sussing us out with their big eyes. The calves were on the other side of them but they nosed them around and stayed next to us for ages. It was like they were showing them off to us. Whales underwater are amazing. You hear their ‘song’ before they come in. The size and nature of them - they make you feel so insignificant.

WHAT SUSTAINABLE FISHING PRACTICES DO YOU LIVE BY?

Spear-fishing is probably the most sustainable type of fishing – there is no by-catch, you can select the size and species and leave no trace. Knowing your species, the size limits, bag limits, closures and protected species is important. And avoiding obviously spawning fish or breeding aggregations. I live by taking only what I intend to eat. When we’re hosting line-fishing charters with families, we do half a day of snorkelling to see the fish, learn about ocean creatures and behaviours. When we are fishing it’s mostly catch and release because many visitors to Cairns are only here for a short time.

TOP TIPS FOR SPEARFISHING:

Look out for the clean water, the flat day, the right currents. Stay calm and relaxed - fish are more likely to move around you. And wait that extra moment before pulling the trigger. Be stealthy: Hide behind something, know where fish will be. Look for the pressure point of a reef. Go in with a dive buddy and always have their back.

And respect your limits: Never push your breath hold. Don’t try to do your longest dive. You might need a reserve ‘tank’.

WHAT ABOUT SHARKS?

We see a lot of them. 99% of the time they’re just big fish. You can tell if they’re looking for a meal or not – if their pectoral fin is up, if they’re swimming up high. The snap of the speargun rubbers can bring them in. They associate it with an easy feed. In deep water, targeting dog tooth tuna, spearfishing can really become a team sport. If it’s too sketchy, we leave. I’ve also been in shallow water at Jewel Reef with bull sharks all around us. My buddy and I went back-to-back and made our way back to the boat.

WHAT KEEPS YOU GOING BACK FOR MORE?

The thrill never fades. I’ve got such an appreciation for the water, for where we’re getting this source of food from. And I love teaching people, watching them fall in love with being in and on the ocean as much as I have. Being out there is just as magical now as it was the first time.





GRASSY GOODNESS

Fish life is increasing in the Russell River thanks to an Australia-first transplanting project for native grass.



It's a sunny morning on the Russell River and the water clarity is amazing – so it's easy to see a huge patch of *Vallisneria nana*, a native eel grass, growing on the riverbed.

It's also exciting. Eleven years ago, this patch was tiny and a one-off reminder of what the waterway might have looked like before glush weed – a plant introduced into Australia for aquariums – took over large stretches of the river.

Now this patch is a fish haven. And it's also the basis for establishing other areas of *Vallisneria* in the Russell River, thanks to an ambitious transplanting project that began a year and a half ago.

Jaragun EcoServices' rangers have been working with scientists from James Cook University to restore the river's natural habitat.

"First we needed to do a lot of weed control," Jaragun's Talia Beaut

says. "Jaragun has been removing glush weed for 10 years, and also planting native trees to stabilise the riverbank."

Vallisneria samples were initially placed in tanks in a laboratory to trial transplanting methods.

"Results showed we should be able to tie (metal) nuts to the plants and drop them from the boat to do the transplanting," Talia says. "Now we are trialling the best kinds of sites - from how much sunlight to substrates, water flow and different water depths."

"We think fish might be nibbling plants before they've had a chance to establish, so we're running a trial to see if that's the case."

Rangers are also testing the river's water quality on a regular basis, looking at everything from nutrient and salinity levels to temperature changes, to start long-term records that'll help with eel grass monitoring and also the river's overall health.

FAST-GROWING GRASSES

James Cook University Associate Professor Nathan Waltham says seeing phenomenal growth at a trial site one year after the first transplants was "super exciting".

"Two beds are quite extensive. We've had some success, and transplants are progressively getting better. The goal is to keep moving into new sites in the river."

"At the start of this project, there were three natural beds. One has eroded since, which highlights the dynamic nature of these systems, and the need for urgent restoration action."

Jaragun EcoServices is hoping this will prove to be a cost-effective, scalable way to bring the species back in Wet Tropics river systems and others across Australia.

Vallisneria beds are important for many reasons – they become nursery

RIVER SERIES

areas for fish, they protect smaller fish species and they serve as a food source. The grasses also filter water, capturing fine sediment that's moving downstream. They stabilise the riverbed and, like seagrass along the coast, they store carbon from the atmosphere.

Jaragun EcoServices has partnered with Griffith University on soil carbon assessments in the Russell River and with James Cook University on the carbon values of laboratory-grown *Vallisneria* – and Traditional Owners are hopeful the native grass can be part of broader 'teal' carbon initiatives in the future involving the removal of glush weed.

RETURN OF FISH LIFE

Ranger Robert Ambrum says watching fast growth rates of *Vallisneria* has been rewarding.

"Going through the whole process – from collecting the plants and trimming them up to choosing new sites and trying to establish this species – it makes the growth rates even better to see."

"In the river, these plants are growing centimetres every few days. And we are seeing eels, catfish, barramundi, freshwater mussels..."

He describes glush weed as "the guinea grass of waterways".

The escaped aquarium plant can form thick mats and outcompete native plants like *Vallisneria* in the water, while also taking over on the land. The weed's denseness means that fish life suffers as well, and its sticky seeds can spread via boats and wildlife.

"*Vallisneria* and glush weed like the same conditions," Robert says. "We still have glush weed in one area of the river and we're on the lookout for outbreaks."

"Our goal is to find areas upstream that can act as nursery beds for *Vallisneria*, so we have plant material on an ongoing basis."



The 'Restoration of Multihabitat Mangrove Ecosystems - Russell-Mulgrave Basin' project is funded by the Australian Government's Reef Trust. Jaragun EcoServices is working in partnership with James Cook University and Griffith University.

CANYONING

Are you ready to take the plunge? Canyoning is growing in popularity across the world and in the Wet Tropics we have some great spots to whet your appetite.



The way Bazz Goes sees it, canyoning is one of the best ways to recapture the joy of being a kid.

Jumping, sliding, zip-lining, hanging out under waterfalls... Canyoning has it all. And that's probably why he's still doing it, both as a commercial guide and in his spare time.

Bazz began canyoning in Switzerland, a mecca for mountain activities. When a mate from Cairns visited, the seeds of an idea were planted and later that year he returned to Australia to explore the Crystal Cascades and Behana Gorge areas.

SWIM, JUMP, SLIDE!

"What we have in the Wet Tropics is a great introduction to canyoning – it's warm, our creeks are clean and clear, there are natural holes in rocks to swim through and pop out the other side of, rapids to swim, jumps and rock slides, and places to abseil," he says.

Bazz now runs a tour company, Cairns Canyoning, with trips to Crystal Cascades and Behana Gorge. He says the best part is helping the people who achieve something they weren't sure they could do.

ADVENTURE SERIES

"We're all there together but it's also an individual sport. It's great to see some people start a trip nervously and end it saying 'can we do that again?'."

"The standouts are the kids. They haven't learned fear yet and they go for it. We had an eight-year-old Japanese girl on a trip with four rugby lads. She was jumping off everything first and the guys were seeing it and saying 'well we have to go too now!'."

There have been amputees on trips and one person who was blind. "He didn't have the visual luxury so we described the terrain – the rocks, handholds, the rainforest and waterfalls. There were moments when he just wanted to enjoy feeling the rock, feeling the water..."

BAZZ'S TOP PICK

Bazz has also been a white-water raft guide on the Tully and Barron rivers, and a guide for sea-kayaking, diving, hot air ballooning and snow skiing. Ask him what he loves doing most in our Wet Tropics waterways though and the answer might surprise you.

"I'd say to anyone, go and just sit under a waterfall in the rainforest. Listen to the water, take in the trees and wildlife. It's amazing!"

SAFETY FIRST

Water levels in our rivers and creeks rise and fall quickly and the terrain is ever-changing. It's advisable to go canyoning with an experienced guide or in a group led by knowledgeable individuals. You'll need a good understanding of weather conditions, the sections of water and gorges and the surrounding environment, and you'll need safety equipment to make it both fun and safe.





LOVING THE LAND

Mark Gallagher grew up on his family's farm and in its waterways. He loves banana farming but, more than that, he loves the land. And his passion for sustainable farming is helping the property's new owners on their journey...

As a kid, Mark Gallagher remembers "soil as bare as bitumen" between rows on his family's first banana farm. His parents, Pat and Patricia, bought the 77 hectares of former grazing land in the 1960s and started growing bananas the traditional way.

"In those days bare ground was still the practice," Mark says. "But it made no sense in this environment – with hilly terrain, high rainfall and a 12-month crop that keeps you continually travelling through the rows.

FARMING SERIES

"Questioning why things were done a certain way kept us looking for better solutions."

The Gallagher family would go on to become one of Australia's biggest banana plantation owners – and a frontrunner in changes to farming practices ranging from ground cover and paddock design to reducing chemical inputs by trialling biological products.

With land beside the North Johnstone River and Rankine Creek, they also revegetated, creating strips of forest between farming land and waterways.

Over the years, Mark estimates 100,000 trees have been planted along river and creek banks and in unfarmable gullies, with seedlings from his home nursery and Tablelands group TREAT.

"Fifty years ago, no one was thinking 'BMP' (Best Management Practice)," he says. "We were just doing what we thought would support the business of growing bananas and also safeguarding the environment."

Mark says one of the biggest environmental changes they made was starting to allow native grasses and weeds to grow back under the banana canopies – a standard practice in banana farming these days.

"We'd only slash it back where the tractor runs were, and we'd use that as additional mulch for the trees," he says. "Keeping the grass cover has reduced soil movement, runoff and erosion, and it also helped our soil profile."

The family contoured large areas of their steeper cleared land.

"It has spread out the flow of water in heavy rain and taken the energy out of it," Mark says. "And it also makes the paddocks easier to work. Grassing the headlands and having riparian vegetation complements that. It's continuing to slow down water."

Farming between Innisfail and Milla Millaa, with a backdrop of

rainforest and mountains, he says the environment was always front of mind.

"This is a unique part of the world and the effects of our actions don't always stop at our boundaries. The small things matter, especially in a high rainfall environment."

Mark and his brothers, Michael and Robert and their families, sold their farming land last year but their legacy of sustainable farming continues through Jagjeet Singh, an employee who bought the original farm with his family.

The last year has been a transitional one, with Mark still on the land most days. Jagjeet says Mark's ongoing support has been invaluable, along with everything he has learnt over the years.

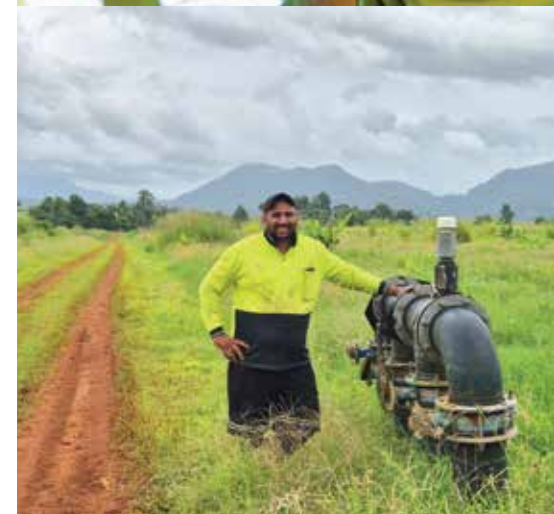
The Singhs have 150 acres under bananas and are now planning to replant the other 100 acres, which has been fallow for almost a year. They are also working with extension officers from the Australian Banana Growers Council, who will be taking aerial footage of the fallow paddocks to help plan for planting in a way that'll make the best use of the land while also preventing erosion.

Jagjeet says he has changed, with the land, during his 10 years at Wadda Plantation.

"Your viewpoints on things alter when you see the results – of things like using chemicals and fertilisers more wisely and having ground cover," he says.

"Walking through the grass with banana bunches, I used to only be thinking it was making it harder. But if you don't have the ground cover you're not protecting the land and you lose the good insects and, potentially, the most important thing, the soil.

"We can see the systems that were developed over 58 years of farming are working – from good drainage to good plantings. With the fertile soil and these systems, we've had a smooth transition. I love this land, this environment."





CREEK SERIES

Historically, the Saltwater Creek catchment was rich in wetlands, lagoons and sand ridges but post-war expansion brought large-scale drainage works and channelised waterways, resulting in fragmented fish habitat.

Today, Saltwater and Lily Creeks are impacted by nutrient runoff, invasive weeds, litter and pest fish including tilapia — all of which affect water quality and habitat health.

MANGROVE JACK NURSERIES

Phil says these urban creeks play a crucial role in the lifecycle of popular recreational fishing species, including mangrove jack.

“Every time we come down here — whether we’re using cameras, scoop nets, or electrofishing — we find juvenile mangrove jack ranging from under 50 millimetres to about 200 millimetres,” he says.

“It really highlights how important these urban waterways are. Those little jacks will eventually make their way into Trinity Inlet, where they can grow to around 500 millimetres. The more fish that successfully migrate there, the better the fishing is for everyone.

“Projects like this offer recreational fishers a chance to actively get involved in protecting the nursery habitats that underpin strong fish stocks and healthy waterways.”

GET INVOLVED

OzFish welcomes community members who are keen to help with planting, weeding, litter clean-ups and fish monitoring. To get involved, follow ‘OzFish Unlimited - Cairns Chapter’ on Facebook or check the event calendar at <https://ozfish.org.au/events/>

This project is funded by the Australian Government's Urban Rivers and Catchments Program with the support of OzFish Unlimited, Cairns Regional Council, Creekwatch, and Gimuy Walubara Yidinji and Yirrganydji Traditional Owners. The project is also supported by BCF – Boating, Camping, Fishing.

CITY FISH: RESTORING URBAN CREEKS

Despite decades of urban development, the creeks winding through Cairns suburbs are important nurseries for native fish. They’re quietly supporting the fisheries that locals love.

One of Phil Laycock’s earliest memories is catching his first fish on a family trip to the mouth of the Barron River. Phil has spent his whole life fishing in the Wet Tropics and now, in his role as a project manager with OzFish, he’s living the dream, improving fish habitat in the heart of Cairns.

Through the Saltwater Creek Restoration Project, Phil and the OzFish team are working to improve habitat in Saltwater and Lily creeks by revegetating creek banks, managing weeds and removing litter. They are also installing fish-friendly culverts and rocks ramps to help fish migrate between wetlands and upstream locations.

60+ FISH SPECIES

“As part of the project, we’ve been hosting regular citizen science monitoring events with the community, and to date we’ve found 61 different fish species in these two creeks,” Phil says. “There’s an incredible diversity here — they’re definitely not just drains full of tilapia.

“In addition to recreational fishing favourites like mangrove jack, barramundi and jungle perch, we’ve recorded seven species of gudgeon, Roman-nose gobies and the eastern rainbowfish. We even collected some blue-eyes, a small native fish with the most beautiful bright blue eyes.”



PET FISH

How to Say Goodbye Responsibly

Releasing unwanted aquarium fish into local waterways can have serious impacts on native ecosystems.

Species that are common in home aquariums — including guppies, platys, swordtails and tilapia — can become invasive when introduced into rivers, creeks or wetlands where they don’t naturally occur.

These fish can compete with native species for food and habitat, spread disease and disrupt fragile freshwater ecosystems.

If you can no longer care for your fish, there are safe and responsible alternatives.

1. REHOME THEM

Ask family, friends or community aquarium groups if they can provide a new home for your fish.

2. RETURN THEM

Many aquarium stores or fish hobbyists may be willing to take unwanted fish back.

3. EUTHANISE HUMANELY

If rehoming isn’t possible, seek advice from a vet or aquarium expert about humane euthanasia methods.

Never release aquarium fish into local waterways. Protecting our rivers starts with responsible choices at home.

For more information visit the Wet Tropics Waterways website at www.wettropicswaterways.org.au/how-to-dispose-of-unwanted-fish

WORLD TRAVELLING WHIMBRELS

When we think of endurance athletes flying into Cairns each year, we think of Ironman competitors. But what about the small birds taking a 10,000-kilometre route to us annually - and sometimes flying up to six days non-stop?!



Cairns bird lover Sally Sheldon will never forget the first time she watched a mass roost of whimbrels - a type of migratory shorebird - at the mouth of the Barron River.

"Night was falling and over 600 of these birds were gathered together against the mangroves," she says. "The sound they were making, constantly talking to each other, was deafening.

"They'd flown in on dusk from all points of the compass. At dawn we watched them quietly take off, one group after another. They were gone within minutes."

WILDLIFE SERIES

Sally and another Cairns bird researcher, Paul Fisk, monitored whimbrels on the southern bank of the Barron River for four years, until 2023.

Paul discovered their nighttime roost in the 1990s - solving a mystery for local birders who'd long seen whimbrels leaving the Cairns Esplanade and mangrove areas from Yorkeys Knob to Yarrabah on dusk.

Whimbrels only huddle together in huge groups, it seems, at night.

"No other migratory shorebird that we know of roosts in such large numbers exclusively at night quite like that," Sally, who works for Birdlife Australia, says.

"We would see 600 to 800 whimbrels together every night. Two or three decades ago, numbers were higher. Well over 1000 of these birds would come to Cairns. The Barron River seems to be a really important nighttime place for them, where they feel more protected."

FAR AWAY FROM SHOOTERS

Whimbrels are still shot in large numbers in some parts of the world by recreational hunters, and their feeding grounds are shrinking across the globe because of urban and industrial development.

Because of this, the Cairns mudflats and mangroves are becoming increasingly important for them - and about 25 other migratory shorebird species that travel huge distances to spend summer holidays here.

Up to 4000 shorebirds come to Cairns from Russia, Alaska, Mongolia and China each year after their breeding seasons. They spend up to seven months moulting, growing new feathers and, later in their stay, grazing almost non-stop on crabs, worms, shrimps and molluscs, to double their body weight for the long trip home.

Almost two thirds of these birds - 16 species - are listed as threatened.

A NATIONALLY SIGNIFICANT MIGRATORY SHOREBIRD LOCATION

"Cairns is a significant northern area for migratory birds in Australia," Sally says.

"The Esplanade is one of their richest feeding areas. The inlet captures a mixture of fine sediment, creating extensive mangrove areas and intertidal mudflats with rich invertebrate life that you don't see in many other places.

"It's really important for these birds that we keep our mangrove estuaries and inter-tidal mudflats healthy."

Very little is known about whimbrels when they're in Australia and Sally puts that down to their nocturnal behaviour and their preference to "go solo" while hunting for food in the mangroves during the day.

"Most of the bird monitoring happens in the daytime when species roost together on high tide," she says.

"We'd like to know more about whimbrels - from whether mass roosting at night is common in Australia to how many of the same birds we see each year."

HOW WE CAN HELP

The best ways to help whimbrels and other migratory shorebirds is to preserve the natural environments they rely on, she says.

"With urban environments like the Cairns Esplanade, that can be a challenge. Even actions like sand replenishment work can affect their habitat because sand washes onto the mudflats and creates a barrier for feeding.

"Simple things we can all do to help are walking on the boardwalk, above the mudflats and the sandier sections of the Cairns Esplanade, and keeping dogs from chasing birds."



ENDURANCE ATHLETES OF THE BIRD WORLD

- In a lifetime, migratory birds will fly the same distance as to the moon and back.
- They can't glide or soar - they literally flap their wings the entire journey.
- To help preserve energy, they can fly while shutting down half their brain.

FOREST SERIES

Volunteers are planting Lomandra grass on the banks, and establishing native lowland rainforest trees - from seeds collected locally and grown in the C4 nursery - on land beyond the creek bank.

They've chosen species that cassowaries will be able to walk through easily, with deep enough roots to also stabilise the creek bank.

"We needed natives that can create a canopy to shade out weeds," Peter says. "But we also need to select a range of species that don't grow too high and that improve driver visibility compared to a wall of guinea grass. That way a cassowary has less chance of suddenly 'popping out' onto the road."

C4 has been tree-planting and controlling weeds in rainforest and beach areas around Mission Beach, and at Smith's Gap between El Arish and Feluga, for the last 30 years. Volunteers range from children to octogenarians.

The group actively looks for new areas where revegetation can make a real difference - especially patches of unproductive or degraded land alongside forests, creeks and wildlife corridors.



The creekbank revegetation work is a Terrain NRM Green Connections project funded by the Queensland Government's Natural Resource Management Expansion Program.

WET TROPICS

NATURAL RESOURCE MANAGEMENT



FOREST BUILDERS

Just metres from a busy road in Mission Beach, this creek largely goes unnoticed. A team of volunteers are working their magic to change that...

Peter Rowles is in his happy place - he's on the shovel digging holes for trees and native grass near the banks of a creek. To get to this stage has been a mission in itself - the banks were covered in guinea grass a few short months ago and para grass was doing its best to smother the waterway.

"You could barely see the creek line," he says. "And big chunks of the bank were being ripped out in floods."

Peter and a crew of volunteers are less than a kilometre from the ocean at Mission Beach, on private land in a cassowary corridor that connects the coastal wetlands with world-heritage rainforest.

It's known as Lot 66 or 'Garrett's Corridor' because Midnight Oil frontman and former Federal Environment Minister Peter Garrett

stepped in 18 years ago to stop a residential development on the land.

It's now a nature refuge owned by Queensland Trust for Nature, and conservation group 'C4 - Community for Coastal and Cassowary Conservation' is steadily working to restore deforested and degraded areas.

"We started in 2014, revegetating in the middle of a pile of grass where some land was cleared by the previous owners to plan residential lots," Peter says.

"There was one dead wattle in amongst the guinea grass. The goal is to return this land to something resembling the forest that was there originally."

The group's current, and final, section of revegetation work is along this unnamed waterway that flows into Wongaling Creek and then the ocean.

A THRIVING & SUSTAINABLE WET TROPICS

Terrain NRM is an independent, not for profit and community-based environmental management organisation. We think innovatively and act collaboratively, combining the latest science with local knowledge to develop sustainable solutions to increase the resilience of the rainforests, reefs, landscapes and local communities of Australia's Wet Tropics region.



TERRAIN

NATURAL RESOURCE MANAGEMENT

terrain.org.au

wettropicswaterways.org.au 29



FISHING FROM THE BANK

While our bluewater and coral reefs are amazing, some of the most rewarding fishing in the Wet Tropics is land-based. Cairns fisher Greg Vinall talks all things lure fishing...

If you are willing to explore on foot, the Wet Tropics' rainforest creeks, tidal mangrove systems, beaches and headlands offer year-round lure fishing. You don't need a boat or much gear. But you do need to understand how Wet Tropics systems work.

FRESHWATER

Step into upland creeks and you're immediately in another world, cut off from estuaries by waterfalls

and escarpments. These creeks are home to sooty grunters and redclaw crayfish. The upper Barron and Herbert River have endless opportunities.

Below this, freshwater systems are home to jungle perch, barramundi and mangrove jack among others. (Take care though - saltwater crocodiles can also live in these waters.)

Behana, Cooper and Stoney creeks are great places to start.

To find a fishing spot, look for road crossings and foot tracks with access

points, without entering private property. Once you're on the water, put your lures tight to structure.

Freshwater fish love currents and lie in wait for food. Cast closer than feels comfortable. Retrieve with intent. Whether it's a sooty under a ledge or a jungle perch in a root ball, you're triggering them to react.

TOP LURES (Freshwater)

- 40-60mm hardbodies
- Small surface walkers & poppers
- 3 inch paddle tails

BEST FISHING TIMES

At the end of the wet season and into the dry, when the water is fairly clear and still running a little high. Early in the wet season is great too. Perseverance is rewarded during the dry although low, clear water can spook fish. Avoid the height of the wet season.

ESTUARIES

River systems widen and slow near the ocean. You'll find barramundi, mangrove jack, fingermark and trevally. Currents and structures dictate fish behaviour. With the mudflats and mangroves, it's tricky. Look for bridges, walkways and boat ramps. But watch out for crocs!

Tides are everything in these systems. Smaller tides (midway between full and new moons) bring gentler water movement and can be easier to fish. Focus on snags, mangrove edges, rock bars and drains.

Barramundi and mangrove jack are more active in the warmer months. Trevally and queenfish are more common as the weather cools. Flathead, javelin fish, cod, bream and whiting are some of the other species.

The Daintree, Barron and Johnstone river systems are the easiest to access. Use Google Earth or maps to find likely access points.

TOP LURES (Estuaries)

- 60-120mm hardbodies
- 3-5" paddletail soft plastics
- 3-5" surface walkers
- 3-4" soft plastic prawns

BEST FISHING TIMES

After heavy rain near the rivermouths. In drier times, fish often move further upstream. The last half of the run-in tide and the first half of the run-out are often the best.

COASTAL

On our coastlines, the rock walls, jetties and headlands concentrate bait and attract predators. Sandy beaches are good for casual lure tossing. At beaches near creek mouths, focus on gutters and current lines for barramundi, queenfish and threadfin salmon. Coral trout, fingermark and cod are possible at rocky headlands, along with the odd barra.

If nothing happens in 15 to 20 minutes, move unless you've seen signs of fish or bait species. In that case, make a few more casts or try a different lure.

The Cairns Esplanade can be surprisingly good. At Palm Cove Jetty, there are squid, mackerel, trevally and giant barra. Lucinda Jetty is also a great spot.

TOP LURES (Coastal)

- 90-150mm hardbodies, especially noisy shallow divers
- 4-7" paddletail soft plastics
- 4" soft vibes
- 3-4" surface poppers and stickbaits

BEST FISHING TIMES

Any time! Opportunities change with seasons and conditions. Don't worry about dirty water - fishing beaches and headlands with flood runoff can be productive. Think barra and threadfin in the wet season. Trevally and mackerel come within casting range in the dry.

GEAR CHECK (KEEP IT SIMPLE)

- 2-4kg spin rod (creeks and estuaries)
- 4-8kg spin rod (barra and jacks)
- 2000-4000 size reel with braid
- Leader: 10-30lb fluorocarbon
- Polarised sunglasses (essential)



Hard Body Lure



Paddle Tail Soft Plastic Lure



Popper Lure



Surface Walker Lure



Prawn Soft Plastic Lure



Stick Bait Lure



Soft Vibe Lure

SAFETY (FNQ REALITY CHECK)

- Always assume crocodiles are there
- Avoid fishing at the water's edge in risky zones
- Fish with a friend where possible
- Watch your footing on rocks and mud
- Carry basic first aid



FULL BOAR

Caring for our reefs and rivers takes many forms. Sometimes, it's flying in helicopters to shoot feral pigs.



A passion for the great outdoors and the environment led Nathan Ravenscroft into aerial pig control after a career in the military. Ten years later, he runs a thriving business across northern Australia and has recently been circling the Ingham region's floodplains and coastal fringes - where healthy wetlands play a vital role in improving water quality before it reaches the Great Barrier Reef.

"The work is more challenging in the Wet Tropics because of the complex terrain, the mix of different land tenures and a range of hazards - from powerlines and trees to insect swarms and fast-changing weather conditions," Nathan says.

"You need a detailed understanding of the landscape and highly qualified and experienced pilots who know the local area."

He says Hinchinbrook has a "moderate" pig problem compared to other regions like Cape York or the Gulf Country.

PEST SERIES

"We generally remove around 100 pigs per trip. Aerial control is one tool. There is also a lot of important work happening on the ground, including baiting and trapping."

PROTECTING ECOSYSTEMS

Feral pigs are more than an agricultural pest. They tear up wetlands, increase erosion, damage turtle nesting sites and degrade the natural filtration systems that protect downstream rivers and the Reef lagoon. Controlling their numbers is critical to safeguarding both productive farmland and fragile ecosystems.

Nathan says success depends on combining local knowledge with science.

"We rely heavily on landholders to help pinpoint where pigs are active. We also use data to guide our timing. We need pigs to be on the move to detect them easily, and their activity is influenced by sun and moon cycles. They're generally more active during full and new moon periods."

Hinchinbrook Shire Council's biosecurity team has been working with Nathan for several years as part of the Hinchinbrook Community Feral Pig Management Program, a coordinated community feral pig control program. Mayor Ramon Jayo says pigs are "everyone's problem".

"Back in 2009 we brought key stakeholders together to develop a strategy," he says. At the time, feral pigs were costing our sugarcane industry \$1.2 million a year, and they were also ripping up wetlands and waterways.

"An effective control program needs the whole community to be involved in control work and reporting sightings. Our feral pig coordinator supports landholders with training, advice and access to traps and

affordable bait. Ultimately, it's a shared effort."

The program has recently received a boost through the Herbert Integrated Project, a new multi-faceted reef water quality project funded by the Queensland Government, allowing the council to scale up control efforts and trial new technology in high-priority wetland areas.

"We're focusing on about 10,000 hectares of coastal fringe wetlands where pigs cause significant damage," Mayor Jayo says.

"We know from DNA research that there are three family groups in the Hinchinbrook region - a coastal group, a floodplain group and one in the high country. Tracking collars have shown they tend to stay within a two-kilometre home range, which means it's feasible to target smaller areas and eradicate local populations."

AI-ENABLED CAMERAS

Alongside aerial control and trapping, new AI-enabled cameras are monitoring eight pig hotspots. The system sends images when pigs are detected, reducing the need for constant trap inspections.

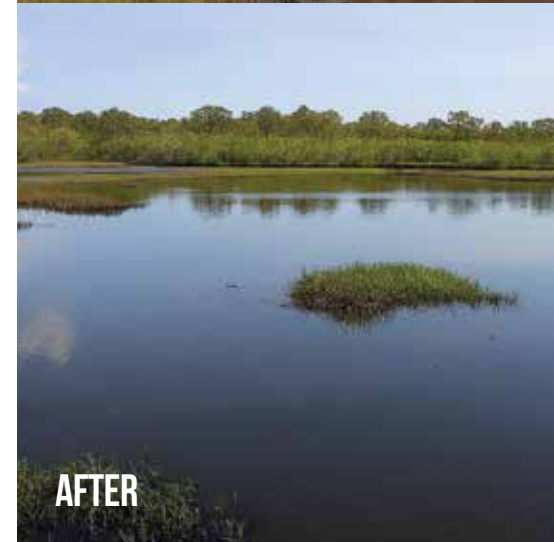
"Technology is helping to make the program more efficient and manageable," Mayor Jayo says.

"While we're unlikely to completely eradicate feral pigs, we are making a measurable impact. Annual cane losses have dropped from \$1.2 million to around \$300,000, and before-and-after images of wetlands show clear environmental recovery."

The feral pig control program is only one element of the multi-faceted Herbert Integrated Project (HIP). The HIP is delivering practical, community driven solutions for landscape and wetland repair, ensuring better water quality for the Reef and creating new opportunities for the region.



BEFORE — PIG DAMAGE



AFTER

FERAL PIGS: FAST FACTS

- They're one of Australia's worst invasive species.
- They were introduced by the first fleet of European settlers.
- **Highly adaptable:** They can live in diverse habitats.
- With inefficient sweat glands, pigs seek out water courses and floodplains to wallow in and keep cool.
- **Rapid breeders:** A sow can produce two litters a year with 10-12 piglets per litter.
- **Average lifespan:** 5 years.
- **Estimated population:** Tens of millions across Australia.

The HIP is funded through the Queensland Government's Queensland Reef Water Quality Program and delivered by Terrain NRM in partnership with many stakeholders including Hinchinbrook Shire Council, Herbert Cane Productivity Services Ltd, Canegrowers and TropWATER.



YOUNG ECO-TRAVELLERS

Teenagers from across Australia are coming to the Wet Tropics to do more than admire its natural wonders — they're helping to protect them.

High school students are planting trees on rainforest edges, removing rubbish from mangroves and surveying coral as part of a program that is turning visitors into 'citizen scientists' with a passion for the Wet Tropics.

The region is globally significant for its interconnected World Heritage areas - the Great Barrier Reef and ancient rainforests - but many students only come across these ecosystems in textbooks.

A Cairns-based educational tour company, Small World Journeys, is helping to bring textbook learnings to life.

Over 1500 students from nearly 50 schools are now travelling to the Wet Tropics each year. Many begin their journey high in rainforest catchments before heading out onto the Reef

and experiencing first-hand how the region's ecosystems are connected.

"Our programs are all about hands-on learning," Small World Journeys' Rachael MacLeod says. "Students don't just hear about conservation — they take part in it."

On Fitzroy Island, off Cairns, teenagers are part of reef monitoring programs including CoralWatch, and on the outer Great Barrier Reef they're using 'Eye on the Reef', to record sightings that are used by scientists.

"This is often the first time they are seeing coral up close," Rachael says. "Last year, our students made more than 6000 coral observations."

"By identifying corals and recording reef conditions, they help with datasets that researchers can use over time, and they learn why long-term monitoring matters."

COMMUNITY SERIES

Along the way, students begin to understand how tightly connected the region's ecosystems are — seeing how they link together from mountain streams all the way to coral reefs.

The pressures facing tropical environments are also part of the program.

"We show students the impacts of human activity and what's being done to address this," Rachael says.

"We talk about things like crown-of-thorns starfish and how they are a natural part of the Reef, but how large outbreaks are linked to poor water quality that is caused by human impacts.

"It's really cool to see their faces when they start to understand the connections."

Picnic Point School student Mariah Bizri, from Sydney, says she learnt a lot from her trip.

"We saw how coral lives and reproduces, and the relationship between species in ecosystems, as well as the effect of invasive and overpopulated species on the local environment, and the human impacts on the environment," she says. "We learnt about the role of indigenous people in maintaining and using the land, and contemporary and traditional management strategies."

These kinds of learnings are turning young visitors into stewards.

"Our students are actively contributing to solutions," Rachael says.

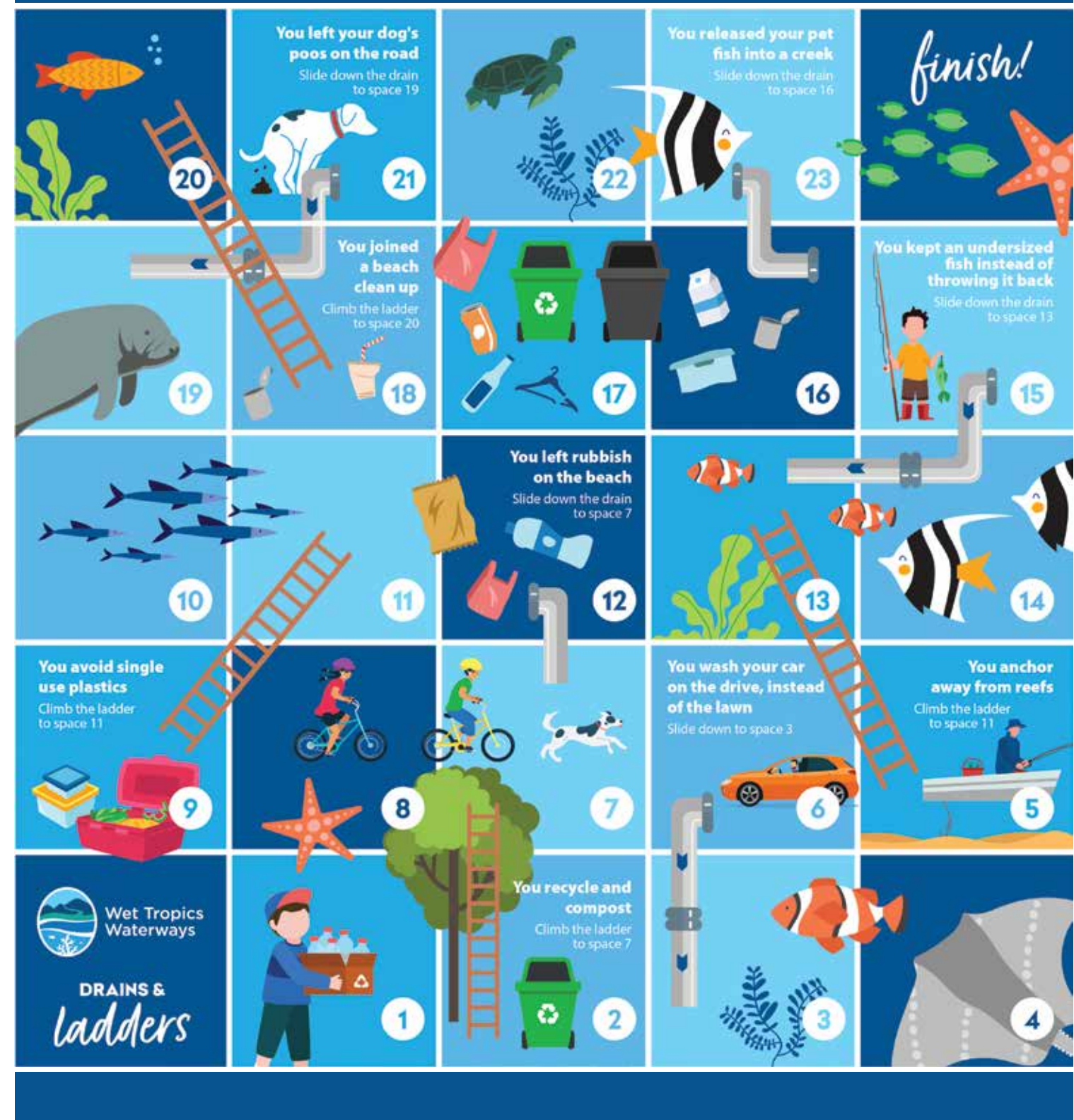
"Last year they planted 1176 trees and removed many kilos of rubbish from mangroves.

"One of the key lessons they learn is that everyone can make a difference, even through simple daily actions like composting lunch leftovers and collecting soft plastic waste for re-use.

"Collectively, small individual actions can add up to positive change."

DRAINS & LADDERS

Grab a dice and teach your kids about looking after waterway health





RESTORING THE DAINTREE

The Daintree River is an iconic waterway known for its crocodiles and World Heritage rainforest, ancient ferns and rare wildlife. It's one of the Wet Tropics' healthiest river systems – but even the Daintree faces increasing pressure from climate change and modified land uses.

Cyclone Jasper hit the Daintree region hard in 2023, with river levels surging more than two metres above previous records. Intense rainfall triggered over 100 landslides and stripped riverbank

vegetation, sending sediment out to the ocean's inshore seagrass meadows and coral reefs. Almost three years later, a vast amount of sediment is still moving through the Lower Daintree catchment from the

landslides. The increased sediment has caused river profiles to change significantly, reducing capacity to carry floodwaters and increasing flood risks.

RIVER SERIES

RESTORING RIVERBANKS

One of the most visible erosion sites from recent weather events is just upstream from the Daintree River ferry crossing. Here, Terrain NRM has led a project to stabilise 100 metres of riverbank through engineered rock structures, bank contouring and revegetation. Project leader Zack Severino says soil was washing away with every storm.

"Rock armouring is giving the bank immediate stability, and long-term resilience will come from vegetation," he says. "We've planted mangroves along the bank, and grasses and trees behind the mangroves.

"The reinforced bank has already been put to the test, standing up well to flooding and the impact of Cyclone Narelle. This site is expected to prevent about 1,200 tonnes of sediment from entering the Reef lagoon each year. It's a start."

Jabalbina Rangers planted trees as part of the project and are also helping to 'green' riverbanks in other areas of the Lower Daintree. Most recently, rangers planted 10,000 trees through a Queensland Government Reef Assist project, and they are preparing to plant another 5,000 trees through a Cassowary Credits environmental market initiative.

ADAPTING TO CHANGE

The Lower Daintree catchment is also experiencing broader land-use change following the closure of Mossman Sugar Mill. New crop varieties are being tested, and landholders are seeking new opportunities for land that is no longer profitable to farm, including environmental markets and nature-based tourism.

One example is the oxbow lake at McDowell Swamp in the lower Daintree. The U-shaped remnant of an old river channel includes nationally

significant wetlands with enormous ecological potential as a habitat for fish, amphibians and birds. Rainforest Rescue, a not-for-profit conservation group, is acquiring land across the Oxbow for a restoration project that could see over 750 hectares of wetland forest return to life.

CEO Branden Barber says McDowell Swamp Oxbow is the ecological heart of the proposal.

"This is an incredibly diverse landscape with endangered remnant forest, wetlands, melaleuca swamp and threatened mangrove forest," he says.

"Restoring the environment in this area would improve waterway health and fish habitat connectivity, build resilience to floods and generate income through carbon and biodiversity markets, while supporting and enhancing ecotourism."

LOOKING AHEAD

The Daintree is the least modified catchment in the Wet Tropics. In the last 10 years, it has consistently been the highest-graded basin in the Wet Tropics Waterway Health Report Card. It also has a big proportion of protected land areas, the highest diversity of native fish and the lowest number of pest fish species.

Less modified landscapes, like the Daintree, are more resilient to significant climate events. But the recent flooding has shown that even this relatively intact system is vulnerable and needs ongoing protection.

Zack says the Daintree is becoming a showcase for other regions. "This catchment is going through a major period of change, both environmentally and socially. That's creating challenges. It's also opening up new opportunities and highlighting how we may need to adapt at all levels – from landholder to legislator – as new economies emerge."



Terrain NRM partnered with Neilly Group Engineering, Douglas Shire Council and Jabalibina Aboriginal Corporation on the 'Daintree Wetlands: Reef Coastal Restoration in the Lower Daintree Project', funded by the Australian Government's Reef Trust through their Reef Coastal Restoration Program.



LEADING ON COUNTRY

Indigenous ranger programs are expanding across the Wet Tropics. They're creating jobs, strengthening cultural connections and putting more boots on the ground to care for Country.

From drone surveys and camera trapping to water quality monitoring... Indigenous rangers are increasingly blending cutting edge technology and cultural knowledge to help restore and protect Country.

Across the Wet Tropics, there are more than 20 Rainforest Aboriginal Peoples groups, many with ranger programs at different stages of development. The Queensland Government's Reef Assist Traditional Owner Grants Program is helping, with grants that are opening up career pathways, particularly for young people.

In the Gordonvale area, the funding has been used to start a junior Jawajawa ranger program.

"We had a lot of interest in our ranger program, so we took the opportunity to pilot a one year traineeship," Jasmine Clubb from Dulabed and Malanbarra Yidinji Aboriginal Corporation (DMY) says.

"Young people think being a ranger is cool. They learn land management skills but it's also about empowerment and creating meaningful career pathways.

"We've seen how working on Country and reconnecting with culture has strengthened confidence and self identity."

DMY was one of eight Traditional Owner groups in the Wet Tropics to receive funding through the program - a \$2 million initiative underneath the Reef Assist program, which has supported 11 groups from the Wet Tropics to the Burnett Mary.

For the Babinda-based Madjaybana Rangers, the grant opened doors to new scientific partnerships and skills development beyond traditional land management.

Anthony Satini says the team worked alongside scientists to design a water quality monitoring program in the

Russell River, measuring nutrients, pesticides and sediment levels.

"We selected a range of sites — some pristine, others degraded," he says. "It is interesting to see how the science lined up with our cultural knowledge.

"Working alongside scientists is helping us to build skills. We've had plant identification training from botanists and worked with bird experts on surveys. It all adds to what we can do as rangers."

In Malanda, the Ngadjon Jii Noongyanbudda Rangers have recruited and trained new rangers while delivering restoration projects along the North Johnstone River. They are helping to reduce sediment runoff and weeds, and to create wildlife corridors.

"One site is behind the Malanda cheese factory," Natalie Foster says. "Bega Group stepped up and covered the cost of 1000 trees, as well as ongoing maintenance."

"We're a fairly new team, so this work allowed us to upskill rangers in conservation practices like nursery propagation, as well as project planning and reporting.

"It has been a big learning curve, but there's a strong network among ranger groups and we're able to support each other."



The Reef Assist Traditional Owner Grants Program is funded through the Queensland Government's Queensland Reef Water Quality Program.

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BIOSECURITY RISKS OF THE WET TROPICS



REPORT Amazon Frogbit

Amazon Frogbit

What is it

Amazon Frogbit (*Limnobium laevigatum*) is a floating aquatic plant native to Central and South America. It was introduced for use in aquariums and ponds but has become highly invasive in many regions, including parts of Queensland.

Amazon Frogbit forms dense mats on water surfaces, smothering native aquatic plants and reducing oxygen levels in the water. This disrupts ecosystems, harms aquatic life, and can block waterways, impacting recreational activities and water management infrastructure.

What to do about it

Avoid trading or introducing Amazon Frogbit to ponds or aquariums. Report all infestations to local biosecurity authorities. Dispose of aquarium contents responsibly.

BIOSECURITY OBLIGATIONS AND LEGAL REQUIREMENTS:

Amazon frogbit is a locally declared pest plant under Local Laws in Mareeba, Tablelands, Cairns, and Cassowary Coast. It is an offence under Local Law to distribute or propagate. Penalties apply.





TURNING THE TIDE ON EROSION



More than 50 kilometres from the ocean, Tablelands graziers are doing their bit to protect the Great Barrier Reef by stopping erosion on hillslopes and creekbanks. It's reducing sediment loads on the Reef.

Every wet season, landholders lose valuable topsoil when it's washed off the land and into creeks and rivers. Now graziers are combining tree-plantings with engineered structures to solve an age-old problem in our high rainfall region.

BUILDING ZUNI BOWLS

Seven years ago, Owen Rankine took a chance on three 'Zuni bowls' to fix his erosion problems. The bowls are rock structures that stop eroded gullies from getting bigger during rain events, and they were the first to be built on farms in the Wet Tropics region.

"The concept made sense," Owen says as he looks out over a Zuni bowl surrounded by pasture. "And the bowls have done exactly what they were supposed to do. They've slowed down the water, dispersed it across the land and given the grass a chance to grow over bare dirt."

"They've held up really well over some solid wet seasons."

Zuni bowls, named after the Zuni Valley's Native American Pueblo people, are built at vertical drops in gullies to act as erosion-busters. The new bowls were part of a bigger project coordinated by Terrain NRM to improve pasture, land and the water flowing down creeks on the Tablelands.

OWEN AND ROMA

Owen and his partner Roma Starczewska run about 400 head of beef cattle in the Malanda region. As part of the same project, they fenced off their waterways and installed a dam-to-troughs watering system that's powered by a solar pump.

They've also joined a recent creekbank restoration initiative where almost 9000 native trees were planted along waterways on private properties through a Tablelands Regional Council program.

Owen says the changes are steadily helping both his beef cattle and the environment.

He's now planning for erosion control work further upstream.

"We've seen a big turnaround from previous wet seasons when gully erosion was getting worse each event and topsoil was washing away. With the cattle completely out of our creeks now and with less bare ground in the gully area, the water running off hills is clear about 90 per cent of the time."

THE PETERSEN FAMILY

Trevor Petersen also runs a beef cattle farm on hilly land near Malanda. He and his wife Jean and parents Ken and Connie have two creeks winding through their property that eventually flow into the North Johnstone River, and when floods washed out an old cattle-crossing and swept away a section of creek bank, he also wanted to make changes.

Both creeks have now been completely fenced off from cattle, the creek crossing has been remodelled and the family has installed an off-stream solar-powered water supply system for stock. Hundreds of trees and grasses were also planted along the creek.

"This is a steep area and over time it was eroding away," Trevor says. "Now we've got a nice little green corridor that's a kilometre wide. The trees are great wind breaks for the cattle, and the soil isn't getting washed away anymore."

"Improving our creeks has helped in many ways - our pastures are better which improves animal nutrition, we don't have cattle slipping down the banks anymore and less soil is washing away. And we are seeing more birds and platypuses."



FAST FACTS

- High flow rain and flood events cause erosion.
- Sediment runoff (soil particles) makes water cloudy, smothers seagrass and prevents sunlight from getting through to corals.
- A major source of sediment runoff is erosion of hillslopes, gullies and creekbanks.
- Other sources on farmland include a lack of ground cover and cattle accessing waterways.

Graziers worked with Terrain NRM as part of the Upper Johnstone Integrated Project, funded by the Queensland Government's Natural Resources Investment Program, and with the Tablelands Regional Council as part of the Riparian Restoration on Private Land project, funded by the Australian Government to enable Reef Guardian Councils to deliver projects and activities identified in their Reef Action Plans.



CORAL SPAWNING 101

Every year, coral reefs burst into life during mass coral spawning. It's one of the most extraordinary natural events – for divers and for the Great Barrier Reef's survival.

WHAT IS CORAL SPAWNING?

Coral spawning happens when corals, which are living animals, release egg and sperm bundles for external fertilisation. Most reef-building corals are 'broadcast spawners', meaning entire coral colonies release bundles simultaneously. They float to the surface, break apart, co-mingle and create coral larvae.

WHAT DOES IT LOOK LIKE?

A colourful underwater snowstorm - billions of pink, yellow, orange, red and white spherical bundles rising towards the surface. Divers describe it as magical, surreal and dreamlike.

WHEN DOES IT HAPPEN?

At night when most predators are less active. Across the Reef, it's usually one to six nights after the October, November and December full moons.

HOW DOES MASS SYNCHRONISATION HAPPEN?

There are multiple environmental cues. Spawning usually follows a full moon, when water temperatures have risen and are stable. Day length, tidal patterns and chemical signalling between colonies are also cues.

HOW LONG DOES IT TAKE?

It's often a few hours on a single night, but different coral species may spawn on different evenings across a one-to-two-week period.

DO FISH AND OTHER MARINE ANIMALS EAT CORAL SPAWN?

Yes. Coral spawn is a rich food source. Many reef animals love it - from starfish and sea cucumbers to fish and whale sharks. Luckily, the sheer volume ensures that plenty of coral spawn survives to be fertilised.

HOW DO CORAL LARVAE BECOME NEW CORALS?

After fertilisation, the tiny embryos float for days or weeks as they form into fully mature larvae that then settle on hard surfaces of the reef. If conditions are right, a larva transforms into a tiny polyp and begins to create a new coral colony.

HOW IMPORTANT IS CORAL SPAWNING?

Really important! It helps reefs to recover from cyclones, storms, bleaching events... It also boosts genetic diversity, increasing the ecosystem's resilience and ability to adapt. The spawning corals that have survived multiple bleaching events are potentially genetic gold. The transfer of their heat-tolerant DNA to their offspring is something researchers are studying to understand how crucial that heat-tolerant DNA could be for the reef's long-term future.

IS CORAL SPAWNING AFFECTED BY CLIMATE CHANGE?

Yes. Rising sea temperatures can cause stress and disrupt timing or reduce the amount of spawning.

WHAT ABOUT THE CORALS THAT AREN'T PART OF MASS SPAWNING EVENTS?

Some species spawn at other times of the year, and others fertilise eggs internally and release larger, more developed larvae.



WORKING TOGETHER TO PROTECT OUR NATURAL ASSETS



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Seagrass meadows are one of our most valuable natural assets - supporting biodiversity, marine life, local fisheries, and cultural connections. Each year, Ports North monitor seagrass across the Ports of Cairns, Mourilyan, Karumba and Thursday Island, helping us understand the health of the habitats and broader marine environment where we operate. In Karumba, this partnership has created something truly special, the world's longest continuous seagrass monitoring program of its kind. Together, we're building knowledge, protecting our environment, and helping ensure these vital ecosystems thrive for future generations.



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