



Statement of Capability: Ecology Services

Leading solutions for
ecological restoration



We pay respect to the Traditional
Owners of this land and acknowledge
all Elders past and present.

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Your trusted partner in
delivering ecological solutions
to rehabilitate and restore
natural landscapes.



About the Water & Carbon Group

Since our establishment in 2007, the Water & Carbon Group has been at the forefront of ecological restoration initiatives.

At the Water & Carbon Group, we aim to engineer a new era of comprehensive environmental solutions that meet the financial, environmental and sustainability goals of our customers.

We apply our unique approach collaboratively across our business, with a team committed to approaching every project with an integrated mindset.

Operating across Australia and beyond, we cater to a diverse clientele spanning the private and public sectors.

Here are the promises we work to uphold:

Integrity and Trust:

We're driven to work with integrity on every aspect of our work. Comprising a team who live and breathe our values, we speak your language, and prioritise the best outcomes for you and your project through our unique perspective.

Hands-on Experience:

Drawing on extensive and diverse experience in reforestation, ecological restoration, carbon modelling, wastewater engineering, and project management, our team has the skills and knowledge to develop quality ecological projects.

Full Project Services:

From consulting and design to establishment and maintenance, we offer a comprehensive suite of ecological services. Our end-to-end solutions provide a seamless experience, ensuring that every aspect of your project receives the attention it deserves.

By leveraging our expertise and collaborative approach, we aim to create sustainable solutions that make a positive impact on both the environment and your bottom line.

Our Ecology Team

Our Ecological Restoration Team has expertise across a range of sectors and industries.



Dan Cole

Ecological Restoration Manager

Dan brings a track record as a project ecologist managing forest restoration projects. He is actively involved in designing and delivering projects centred around biodiverse reforestation and riparian connectivity. Dan has a strong botanical background with diversified landscape, reforestation and horticultural experiences both in Australia and abroad. He is a member of the Society for Ecological Restoration, Australasian Systematic Botany Society, and Australian Network for Plant Conservation.

- Bachelor of Horticultural Science (Western Sydney University)
- Diploma of Arboriculture (TAFE NSW)
- Queensland Herbarium Training: Regional Ecosystem (BioCondition)
- Certified Ecological Restoration Practitioner (Society for Ecological Restoration)
- Certified Environmental Practitioner (Environment Institute of Australia and New Zealand)
- Registered Professional Forester (Institute of Foresters Australia)
- Biosecurity QLD: Myrtle Rust training, Biosecurity QLD: Fire Ant training
- ACDC Licence, First Aid



Rob McKenzie

Senior Designer

Rob has over two decades of expertise in ecological engineering and ecosystem services. He has led multiple wetland design and ecosystem restoration teams, a notable highlight being the award-winning Unity Water Biodiverse Forest & Treatment Wetland in Maleny, on Queensland's Sunshine Coast. He has made significant contributions to pioneering the ecological treatment of leachate.

Rob has also lectured at Griffith University on ecological engineering amidst conducting a range of scientific research projects on passive treatment systems and effluent reuse.

- Master of Engineering (Griffith University)
- Bachelor of Agricultural Science - Honors (Southern Cross University)



Callum Howell

Carbon & Natural Capital Manager

Callum is responsible for developing and managing programs that tackle the complex issues of biodiversity, climate change and carbon.

He has more than 25 years' experience in managing complex projects and operations across Australia and Europe.

- B.AgrEc (Rural Development)
- GradDip (Project Management)
- GradCert in Rural Systems Management

Our diversity of skill set, experience and insight uniquely equips the Water & Carbon Group to manage the full scope of project delivery, from planning and implementation to establishment, on-ground support, and maintenance over long-term timeframes.



Bruce Duguay

Restoration Practitioner – Team Leader

Bruce is an experienced restoration practitioner with more than 20 years experience working in reforestation across Australia, and North and South America. This has encompassed a wide variety of environments, from flying remote forestry operations in Canada and the Amazon rainforests in Peru to alpine plantations in Victoria, large-scale forestry plantations in Queensland and South Australia, and constructed wetland plantings and bushland regeneration in South East Queensland.

- ACDC Licence
- First Aid



Scott Jardine

Carbon & Natural Capital Technical Lead

With more than 12 years' experience as an agronomist with an extensive background in economics, geospatial design, and agricultural waste management, Scott is highly experienced at improving the accessibility of agronomic and environmental information and data. He is responsible for the geospatial and technical design of carbon farming projects.

- Bachelor of Agriculture (University of Melbourne)

Our Capabilities

At the Water & Carbon Group, our multidisciplinary team understands that restoring, maintaining, and conserving the environment is a critical element in sustaining biodiversity and creating healthy communities – now and into the future.

What we do

Our dedicated Ecological Services team specialises in providing comprehensive environmental solutions aimed at restoring and transforming degraded urban and agricultural landscapes. Our focus extends to restoring natural systems, native vegetation, and wildlife habitats, thereby creating amenity for surrounding communities.

We have the capability to deliver ecological restoration and climate change adaptation projects across most regions of Australia, and throughout the South Pacific. With our revegetation operations being based in Springwood, Queensland, our team can deliver regular site maintenance and watering services for sites in South-East Queensland and Northern New South Wales.

We have an extensive roster of clients, and regularly complete projects for local and state government departments, large companies, and private landholders.

Tying together our expertise across ecology, horticulture, botany and forestry, we work collaboratively to deliver innovative and integrated solutions that focus on quality and longevity.

What to expect

Co-Benefits:

As industry leaders, we both design and deliver ecological restoration initiatives that not only restore ecosystems but also enhance and preserve the unique values that matter most to our clients and communities (co-benefits).

Triple Bottom Line Solutions:

We take pride in leading the industry towards triple bottom line sustainability. Driven to create lasting solutions, we strive to meet the economic, environmental, and social dimensions of our clients' objectives.

Innovation as Standard:

We design and implement projects that go beyond the ordinary. This commitment to constant improvement sets us apart, allowing us to craft solutions that not only meet but exceed expectations.

Our team brings a wealth of diverse experience, enabling us to deliver a full scope of work across consulting, design, establishment, and ongoing maintenance.

Advisory

Including concept designs and feasibility studies.



Delivery

On-ground delivery of projects such as restoration and reforestation, treatment wetlands, sludge treatment reed beds, vegetation offsets, and carbon projects.



Maintenance

Regular site maintenance and watering services.



Our Capabilities

Ecological restoration

Riparian & Floodplain Restoration

We can design and deliver robust solutions to restore degraded or underutilised land, protect prime agricultural land, and restore environmentally sensitive lands such as river frontage.

Habitat Rehabilitation

Where land clearing has significantly impacted Australian fauna, our experts design and deliver landscape connectivity projects at varied scale and scope.

Endangered Ecological Communities & Threatened Species

We rehabilitate Endangered Ecological Communities including managing threatened species. Our team also works to develop local 'ownership' among diverse landholders through awareness and understanding of these ecosystems.

Subtropical Rainforest Restoration

We have expertise in restoration of the unique ecosystems of subtropical climates.





Vegetation offsets

Commercial and residential expansion that removes native vegetation often requires offsetting by local municipalities.

Our team undertakes comprehensive site evaluations to deliver vegetation offsets tailored to the surrounding ecosystem.

We employ modern planting techniques to ensure the longevity of each site and project.

Carbon Projects

Our team can facilitate carbon projects end to end. We have experience in a range of accredited carbon methodologies, including:

- Environmental Plantings
- Savannah Fire Management
- Reforestation
- Wastewater Methane Capture
- Human Induced Regeneration (HIR)

Integrated ecological & wastewater treatment solutions

Effluent Reuse & Irrigation

We specialise in designing and developing sustainable land-based effluent disposal schemes, with the opportunity to polish effluent streams, produce new ecological space, or irrigate pasture crops.

Stormwater & Treatment Wetlands

Our environmental practitioners and wastewater engineers collaborate closely to deliver solutions that focus on high-quality treatment outcomes and reusability, with solutions for most wastewater streams.

Phytoremediation

We specialise in phytoremediation, using plant-based solutions for efficient cleanup of soil, wastewater, and leachate. Our approach harnesses nature's power to absorb, detoxify, and remediate contaminants.

With a focus on innovative, integrated and industry-leading solutions, we create and deliver positive outcomes for your projects well beyond the immediate scope.



Shailer Pioneer Park Wetlands and Riparian Restoration

(Slacks Creek Restoration Project)

The Water & Carbon Group was engaged to design and construct a treatment solution at Shailer Pioneer Park, an area of low-lying council parkland. Our innovative design included a stormwater wetland, boardwalk, and an open grassed park area.

The project achieved multiple objectives: creating a community-focused environmental precinct, improving water quality entering the Logan River, showcasing 'Water Sensitive Urban Design' for Logan City Council, guiding staff in stormwater wetland management, enhancing local ecology, and ensuring cost-effectiveness with minimal maintenance.

We used locally native plant species and addressed issues such as safety, the risk of mosquitoes and cane toads, biodiversity, and provision of multiple land use benefits.

Delivered on time and within budget, the project exceeded expectations, thriving despite challenges like flooding, frost damage, and seasonal dry weather.

The site has evolved into a valuable environmental precinct, integrating rehabilitated riparian zones, wetlands, and sporting amenities.

1
hectare of
completed
reforestation

3
year project
duration

50
species in
the riparian
restoration
project



Tackling leachate with nature-based solutions

Shoal Bay, Darwin

The Water & Carbon Group undertook a project designed to combat leachate challenges in Darwin's unique environment and weather conditions. Our team designed, constructed, and now operate a groundbreaking leachate and PFAS treatment plant that incorporates nature-based solutions. Our innovative approach integrated vetiver grass and cover crops, using them to irrigate treated leachate across the landfill cap.

The treated leachate irrigation system aimed to facilitate the dispersal of treated leachate while addressing key objectives, including optimising vetiver plant growth, maximising nitrogen uptake in vetiver plants, minimising leaching of nitrate beyond the irrigation area, managing soil salinity, preserving soil structure against the impact of sodicity, and avoiding irrigation during high rainfall or saturated soil conditions

The success of this sustainable leachate treatment solution has supported City of Darwin's vision to protect the environment.



Climate change adaptation – mangrove restoration trial

Papua New Guinea

The Water & Carbon Group coordinated a climate change adaptation initiative in Papua New Guinea (PNG) to support shoreline protection, partnering with the Conservation and Environment Protection Authority and local communities. Focused on Gwarumemase village, east of Port Moresby, our team conducted a mangrove restoration trial to counter coastal erosion and saltwater intrusion impacts, and to support biodiversity.

The key elements of the project included BESE elements, a 3D matrix created from waste products, forming a biodegradable structure supporting ecosystem restoration. This approach allowed for a seed-based system with mosaic planting, offering a faster alternative to traditional tubestock planting.

Both the BESE trial and seed-based system proved successful, demonstrating the possibility for significant scale-up to support mangrove restoration and coastal communities across PNG. Gwarumemase youth now actively maintain and monitor the trial, exemplifying the project's enduring impact on shoreline protection and local livelihoods.

Logan City Council: A Decade of Revegetation



Since 2012, we have delivered projects and collaborated with Logan City Council across various projects of scale and requirement, providing additional value not only to Council but also to the local community.

The projects delivered include biodiverse reforestation, riparian connectivity, and vegetation offsets, mostly within agricultural landscapes.

Ecological Restoration & Vegetation Offsets

2023-2030

Logan Vegetation Offsets – Sebring Park

3ha | \$353K

Sebring Park is a vegetation offset site at Jimboomba that adjoins the Logan River. The site required more than 6000 plants to reinstate a riparian forest. The park will be managed by WCG until 2030.

2019-2023

Logan Vegetation Offsets – Joadie Park and Teak Park

8ha | \$442K

Joadie Park and Teak Park have been important vegetation offset projects over a total of 8 hectares.

2019-2023

Logan Vegetation Offsets – Battle Park, Bethania Shores Park, Moffat Park & South Quarter Park

9ha | \$427K

Bethania Shores Park is a riparian offset planting on the Logan River. The South Quarter Park offset enhances a floodplain wetland adjoining the Logan River. The Moffat Park offset will be a Melaleuca irbyana targeted planting adjoining a remnant Swamp Tea-Tree community.

2013-2018

Logan River Riparian Restoration & Melaleuca Irbyana Offset Projects

12ha | \$269K

Located within the Chambers Flat catchment of the river, the five sites were revegetated from 2013 through to 2018. The Melaleuca irbyana, 'Critically Endangered' Swamp Tea-Tree community project was a Queensland State Government offset project.



Riparian & Floodplain Restoration

2023-2025

Albert River Riparian Restoration Project

0.3ha | \$70K

The Albert River project includes riparian restoration and mangrove rehabilitation adjoining an urban park. The team provided training activities as part of the Skilling Queenslanders for Work program.

2014-2018 & 2020-2024

Logan River Riparian Restoration Projects

4ha | \$376K

The Logan River riparian restoration projects are being undertaken to manage risks adjoining vegetation offset sites, which includes extensive weed management. Enhancement planting has also been undertaken to reinstate biodiverse riparian zones that will increase the resilience of the sites to future flood impacts.

2013-2018

Slacks Creek Restoration Project (SCRIP)

25ha | \$1.6M

SCRIP was a partnership with Logan City Council, Griffith University, WCG and CSIRO. Slacks Creek traverses through a range of environments including highly urbanised and degraded zones.

The project included the Shailer Pioneer Park constructed stormwater wetland and targeted reforestation across six sites to increase both terrestrial and hydrological connectivity in Slacks Creek. Additionally, it has improved water quality outcomes for the Logan River and Moreton Bay.

2019 - 2020

Windaroo Flying Fox Buffer

1,700m² | \$40K

The Windaroo Creek Flying Fox Buffer Planting Project rehabilitated approximately 1,700 m² of degraded riparian zone within Noyer Park and Mt Warren Oval, Windaroo.

2013-2018

Riverdale Park (Riparian Parkland) Reforestation and Bush Food Forest

8ha

Riverdale is an urban park with cleared and degraded vegetation communities adjoining Slacks Creek and Logan River. Open forest, riparian and swamp forest communities have been reinstated in the northern sections of the park along with enhancement planting of an existing wetland.

Traditional Owner engagement was undertaken with Jagera Daran, with the northern section regarded as a significant site and meeting place for Aboriginal people. The team designed and implemented a bush food forest with a living collection of traditional Aboriginal food plants to increase community awareness and connection to culture.

Logan City Council: A Decade of Revegetation



Effluent Irrigated Forests

2015 Cedar Grove Wastewater Treatment – Integrated Disposal Strategy

152ha | \$50K

The team designed a treated effluent disposal strategy for the growing Cedar Grove sewage treatment plant.

A parcel of land was purchased by Logan City Council, creating the opportunity to design a 126 hectare biodiversity forest, with the aim of dry weather discharge to the Logan River.

26 hectares of constructed wetlands were incorporated into the design to act as a naturalisation and final polishing step in the sewage treatment process.



Stormwater Wetlands

2014 Shailer Pioneer Park Stormwater 9ha

Part of the Slacks Creek Restoration Project, this stormwater wetland was designed and constructed to improve the water quality of runoff from the Centenary Creek catchment.

The project involved integrating strong multi-purpose functionality into design and included features such as a boardwalk over the wetland and an open grassed park area.

Since completion, the project has developed into a high-value environmental precinct with integrated rehabilitated riparian zones with the wetland and the existing adjacent sporting amenities.



Rainforest Restoration

2018 - 2023 Bahrs Scrub Subcatchment (Lowland Subtropical Rainforest) 9ha | \$240K

Remnant vegetation along Belivah Creek is rich in biological diversity and contains relics of the Critically Endangered Lowland Subtropical Rainforest community.

The objectives of the projects were to eradicate weeds within the site and to implement high-density plantings adjoining the project boundaries to assist with protecting the rainforest remnants and to enhance the sites biodiversity and resilience to flood events.

Logan Council was also seeking to improve biodiversity and increase the ecological connectivity of Lowland Subtropical Rainforest along the Windaroo Creek catchment. The project aimed to improve ecological function and habitat connectivity. It helped to improve the water quality within the Albert River while also improving the visual amenity for park users.

Clients

We have worked with various clients over the years and have strong relationships with each based on our project performance.

Local government

- Logan City Council
- Brisbane City Council
- Gladstone Regional Council
- Goondiwindi Regional Council
- Lockyer Valley Regional Council
- Lismore City Council

Consultancies

- Alluvium Consulting
- GWT Civil

Utilities

- Seqwater
- Unitywater (Maleny Precinct)
- North East Water (VIC)
- Water Corporation (WA)
- QLD Urban Utilities

Associations

- Fitzroy Basin Association
- Sydney Olympic Park Authority

Landowners

- Griffith University
- Banyula-Saratini Farms



the WATER & CARBON
group

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