

UPPER & EAST BURDEKIN WATER QUALITY PROGRAM

Achievements and learnings

August 2024



Australian Government

REEF TRUST



Great Barrier
Reef Foundation

Introduction

The Great Barrier Reef is globally renowned for its intrinsic beauty, immense spatial scale, outstanding biodiversity as well as its natural, social, economic, and cultural values. A healthy and resilient Great Barrier Reef is critical to protect the vast array of ecological communities and species that inhabit coastal, marine, and terrestrial ecosystems. However, the health of the Reef is at risk from a range of factors including climate change, expanding coastal development, direct human use and poor water quality from land-based runoff.

In a bid to significantly improve the health of the Great Barrier Reef, the Reef Trust Partnership (the Partnership) – a landmark collaboration between the Australian Government’s Reef Trust and the Great Barrier Reef Foundation (the Foundation) – was awarded \$443 Million to elevate and amplify efforts to build Reef resilience. As part of the Partnership, the Water Quality Program received \$199 Million to address poor water quality from land-based runoff and respond to the priorities of the Reef 2050 Water Quality Improvement Plan (WQIP).



Upper and East Burdekin Water Quality Program

The Upper and East Burdekin Water Quality Program was one of ten regional water quality programs delivered under the Partnership between 2020 and 2024. Through the adoption of improved grazing land management practices, this \$5.1 Million program aimed to achieve a pollutant reduction target of 49 kilotonnes of fine sediment per year.

The WQIP prioritises a reduction of fine sediment from the Burdekin basin as the highest sediment management priority across all Reef catchments.

The four-year Upper and East Burdekin Water Quality Program (the Program), delivered by NQ Dry Tropics, provided support across the Haughton, Don, Upper Burdekin and East Burdekin catchments.

The Program aimed to increase perennial ground cover at the end of the dry season, creating soils that are 'rainfall ready' and reducing runoff and fine sediment delivery to the Great Barrier Reef.

Progress to targets was tracked using the Paddock to Reef (P2R) [Projector Tool](#) for fine sediment which estimates water quality improvements based on a reported change in the management practices by graziers involved in the program.

Cost-effective gully remediation sites were prioritised using the [Gully Toolbox](#) and the Gully Erosion Control Assessment Tool for design and implementation of erosion control activities.

Program activities centred around the development of property plans and tailored extension support for the adoption of grazing practices that increase groundcover and improve soil health and land condition.

Practices included addressing small-scale erosion issues, managing riparian zones, and grazing pressure. This was accomplished through one-on-one extension, peer-to-peer activities, group learning, property management planning and financial incentives for targeted on-ground works.

The success of the Program is reflected by the 62 graziers who completed 75 on-ground grazing land management projects and remediated nine small gullies over four years positively impacting over 364,000 hectares of grazing land.

The Program prevented over 64 kilotonnes of fine sediment from entering the Great Barrier Reef lagoon every year through the adoption of improved grazing land management practices.

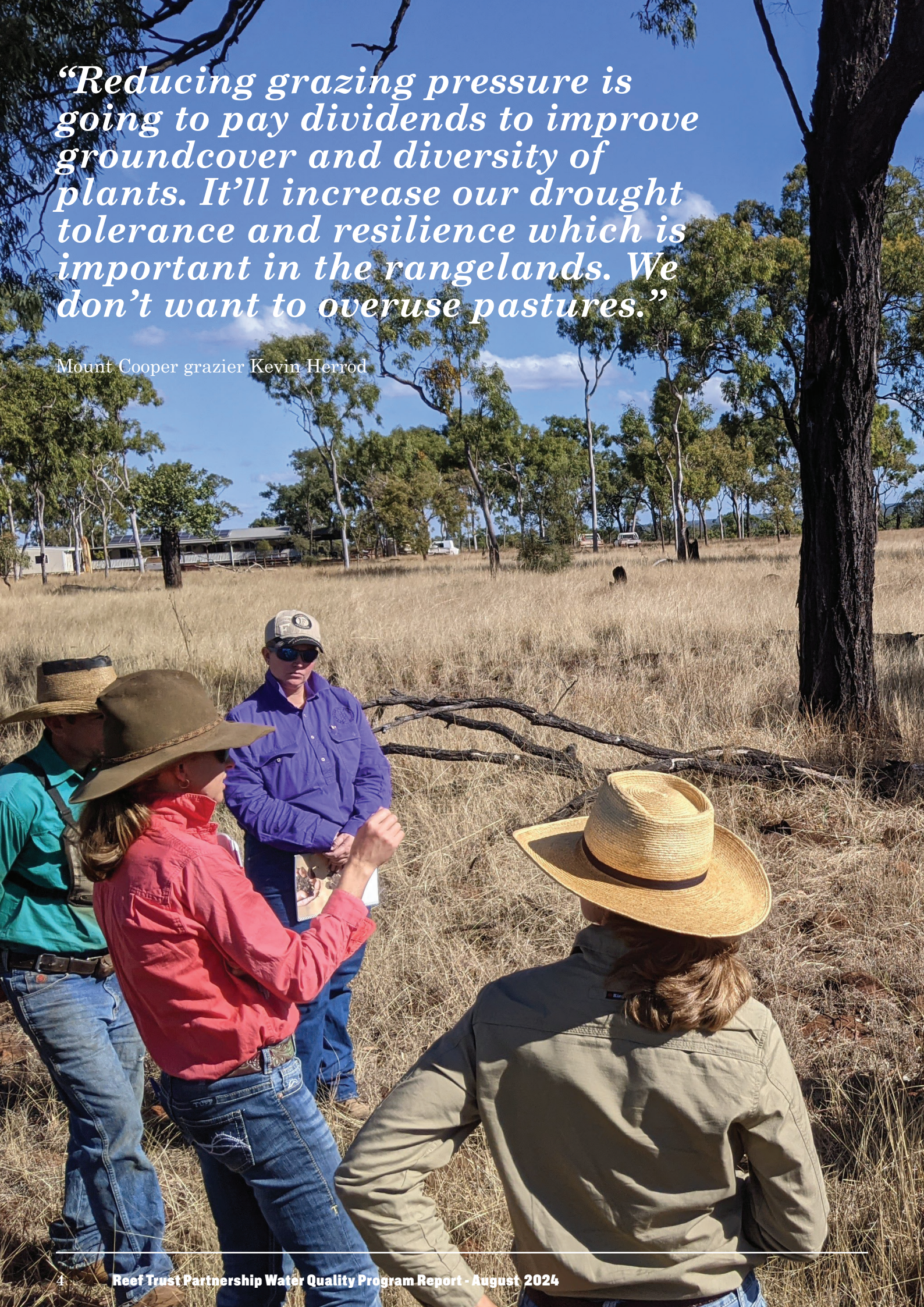


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“Reducing grazing pressure is going to pay dividends to improve groundcover and diversity of plants. It’ll increase our drought tolerance and resilience which is important in the rangelands. We don’t want to overuse pastures.”



Mount Cooper grazier Kevin Herrod

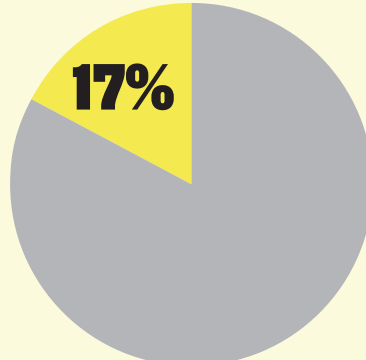


Achievements

 29 information, knowledge sharing and training events	 600 graziers at Regional Water Quality Program events	 62 graziers taking direct action to improve water quality	 3 whole-of-property planning projects across 80,700 hectares
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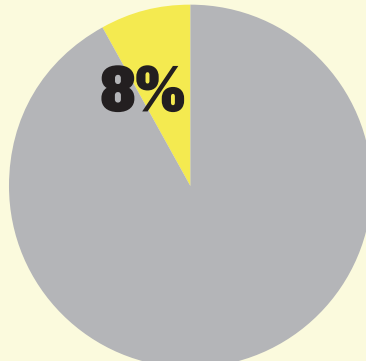
PROGRAM IMPACTS ON PRIORITY CATCHMENTS

 364K hectares of grazing land under changing management practices	 75 on-ground grazing land management practice change projects
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17%

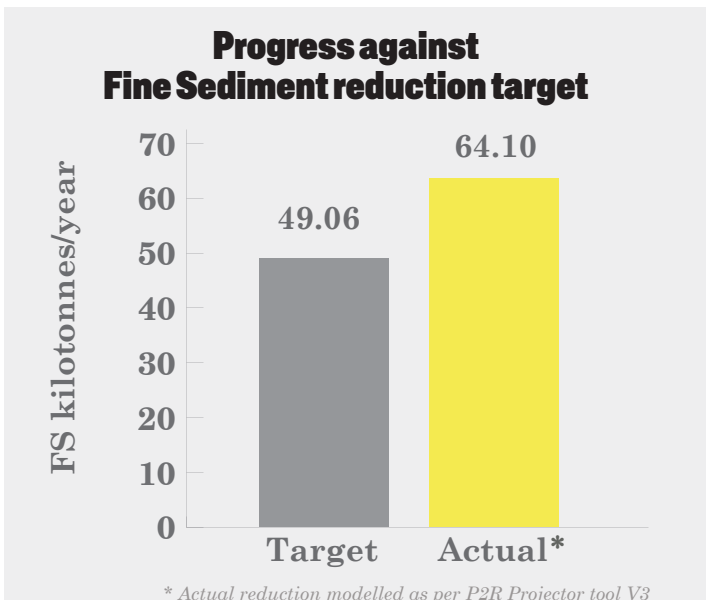
Graziers taking direct action

Nearly 20% of all graziers in priority catchments engaged in practice changes


8%

Hectares of improved practices

Improved practices recorded across nearly 10% of grazing area in priority catchments



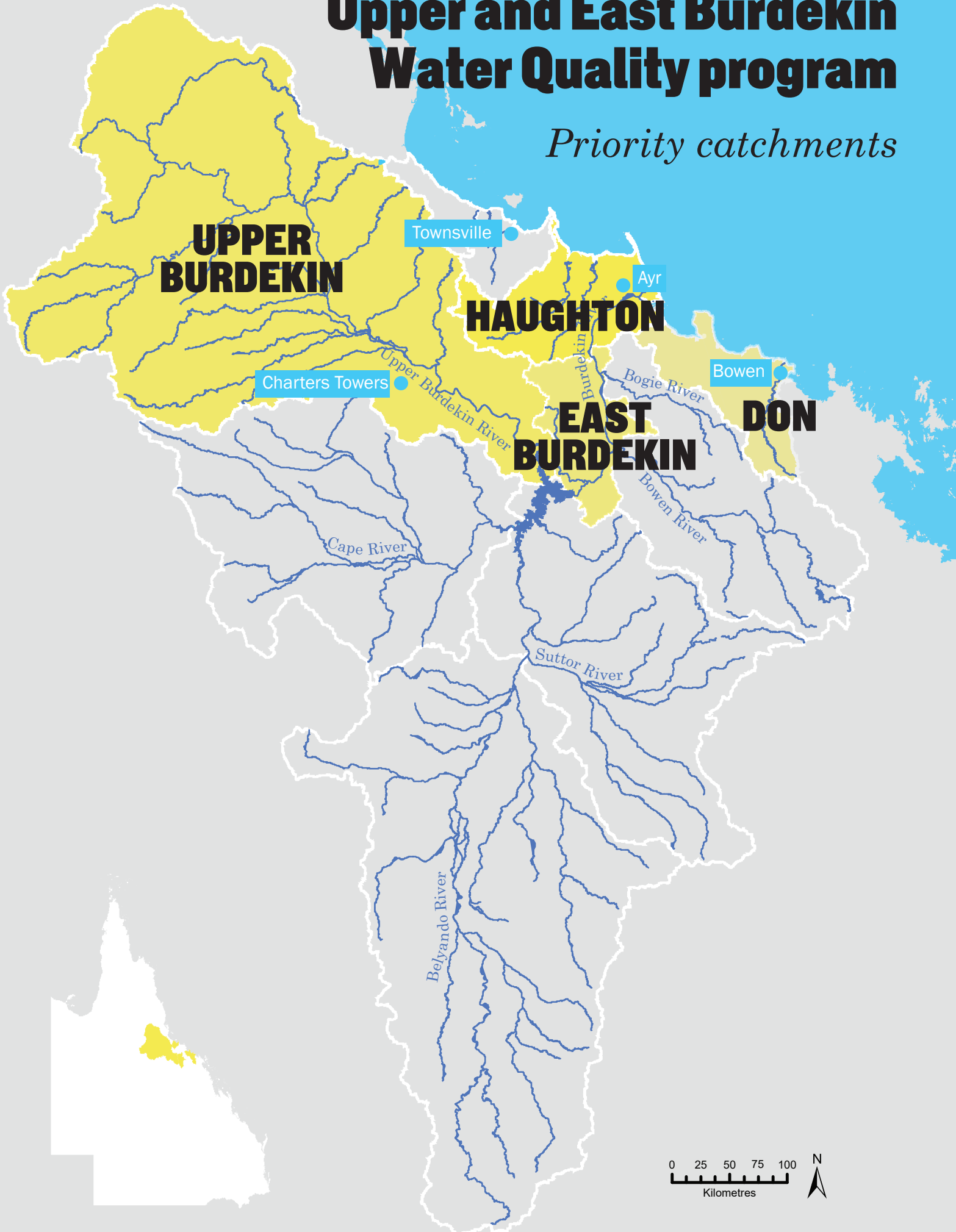
“Providing stock with water away from the river is allowing native vegetation to regrow and set seed which is important to encourage diversity of plant species and increased groundcover.”

Zig Zag grazier Brad Howe



Upper and East Burdekin Water Quality program

Priority catchments





Program Model

Governance arrangements for the program ensured the project delivering on the ground reported directly to the Foundation. This model, shown in Figure 1, increased the transparency of outcomes while also facilitating agility to manage contractual commitments.

The delivery provider reported directly to a regional steering committee made up of key stakeholders including NQ Dry Tropics, the Queensland Government’s Office of the Great Barrier Reef, a grazing industry representative and the Foundation.

The steering committee was supported by a Technical Advisory Group and the Water

Quality Working Group, which provided technical and strategic advice across the whole of the Water Quality Program.

The design of the governance model recognised the importance of local leadership and oversight, as well as strategic and technical guidance.

A verification initiative focused on independently verifying the extent and quality of the on-ground projects which were being reported to ensure the accuracy of the data in the Foundation’s spatial reporting dashboard.

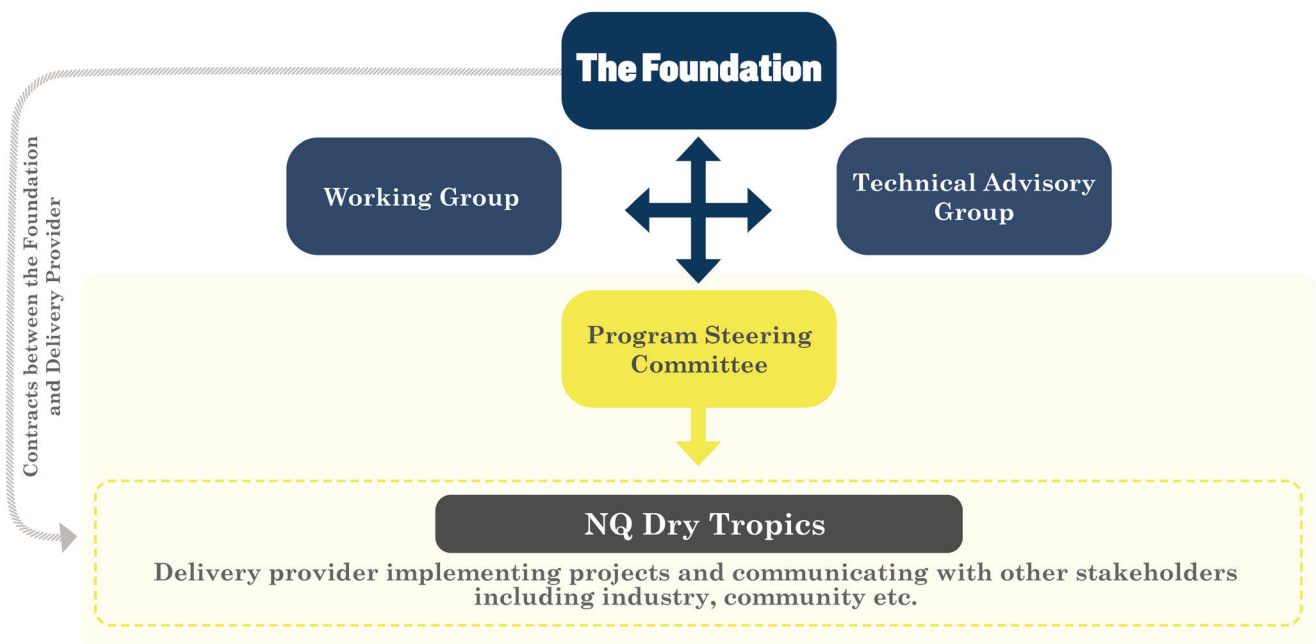


Figure 1. Reef Trust Partnership Upper and East Burdekin Water Quality Program governance model

“Learning how to customise Indicative Land Type, Fire Scar and Erodible Soils reports was very useful. The workshop provided me with the knowledge, skills and tools to plan and analyse property infrastructure and land resources.”

Red Hill Station grazier Kylie Sretton



Program Activities

Extension support and training

Grazing communities were supported to create networks and transfer information, and experiences gained during project activities. Twenty-nine events provided high quality education and training to 600 graziers and 300 industry personnel to underpin decisions and actions that lead to successful and lasting practice change.

A range of topics related to sustainable grazing businesses were investigated including workplace health and safety, rural first aid, farm mapping, infrastructure planning, herd nutrition, forage budgeting, soil health, grazing management strategies, genetics and breeding, business management and succession planning.

Extension officers conducted more than 150 property visits spending over 500 hours

of one-on-one contact time with graziers supporting:

- Forage budgeting to manage stocking rates to ensure end of dry season ground cover is maintained above 70 per cent and accurate paddock records of forage production and consumption are kept.
- Implementation of monitoring plans to enable evaluation of land condition trends over time. This included the development and provision of accurate digital and hard-copy property mapping to identify current fencing and water infrastructure, paddock sizes, land types, grazing radius and vulnerable areas, and identify C/D condition land and consistent paddock records to inform the decision-making process to match stocking rate to carrying capacity.



INCREASED DIGITAL LITERACY

Five practical hands-on Maps and Apps workshops delivered increased digital literacy to 90 attendees.

Training and access were provided to planning tools. These included the Long Paddock for seasonal climate and pasture condition information, the Queensland Globe, an interactive tool for discovering maps, images, and data about Queensland, and Avenza geospatial mapping design tools. The utilities of satellite internet and cloud-based storage was also explored.

This was followed by an in-depth Masterclass session where a complete property map was developed using the variety of tools.

Program Activities

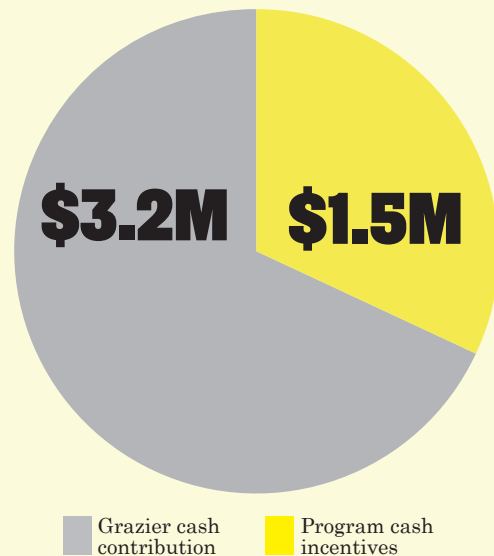
INCENTIVES

The program delivered significant investment into change management to address the root causes of poor water quality discharged from grazing land.

Improved grazing land management practices were achieved through:

- new watering points to better manage grazing pressure
 - 180 troughs
 - 624 km of pipelines
 - 91 water tanks
- 300 km of land type/division fencing to manage grazing pressure
- 92 kilometres of exclusion fencing to protect the vulnerable riparian zone

Investment into infrastructure development for water quality outcomes



SMALL GULLY REMEDIATION

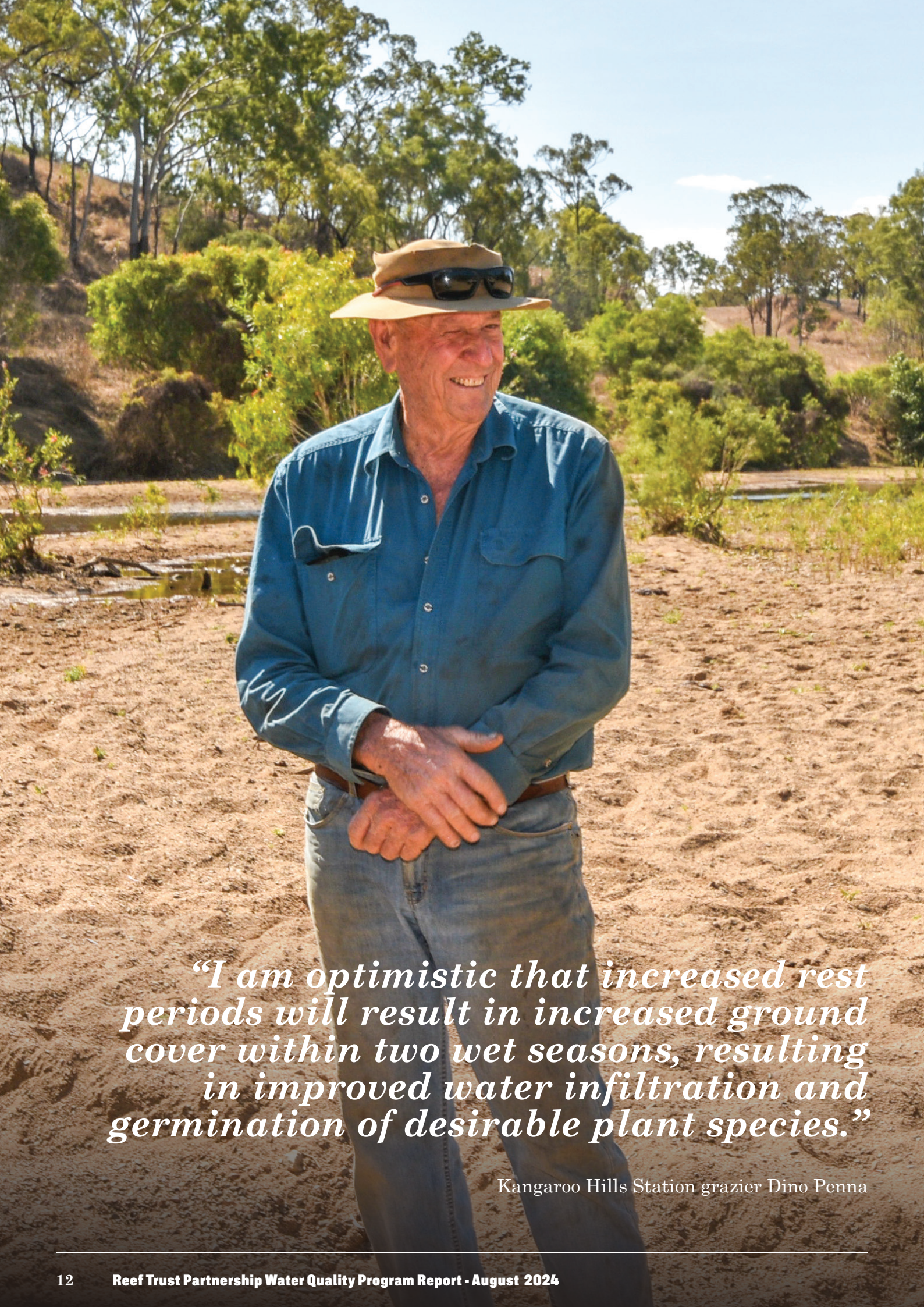


Innovative practices that are proven to stabilise soils and intervene in sediment transport processes were explored.

Indigenous trainees from Indigenous employment group Three Big Rivers worked on country assisting landholders to implement small-scale gully remediation and weed control projects.

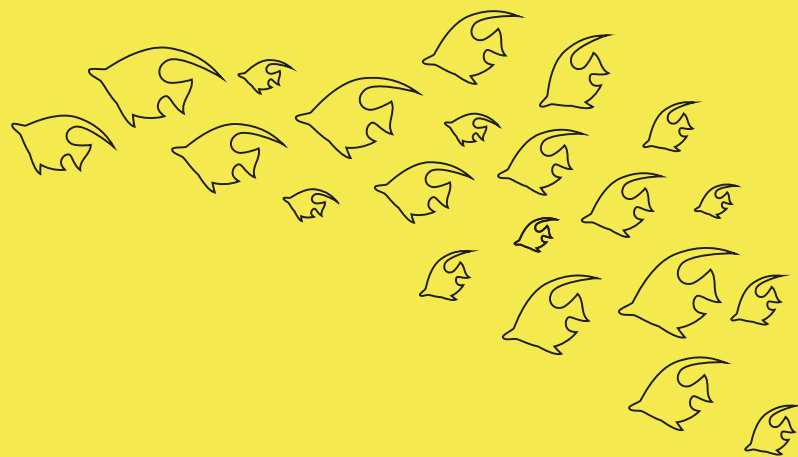
This collaboration provided direct support to landholders for water quality outcomes while achieving meaningful employment opportunities for Traditional Owners and other First Nations people.

Seven small gullies were remediated with the construction of 45 leaky weirs to reduce erosion. More challenging erosion issues were addressed with over 1000 hours of earthmoving machinery operations.



“I am optimistic that increased rest periods will result in increased ground cover within two wet seasons, resulting in improved water infiltration and germination of desirable plant species.”

Kangaroo Hills Station grazier Dino Penna



Learnings

- 1. A social survey of participating graziers found that 84 per cent of respondents were extremely or very confident in their ability to continue their practice change and 81 per cent of respondents expected a ‘large positive’ result from the practice change made.**
- 2. Incentive funding was instrumental to the acceleration of the infrastructure development required for management practices that landholders had been considering in long-term planning.**
- 3. The availability of incentive funding was often the motivation for graziers to undertake a project that was deemed a lower priority and challenging to achieve such as subdivisional fencing of steep, broken country to manage grazing pressure.**
- 4. Practical hands-on workshops increased the digital literacy of graziers by providing training and access to useful planning tools and information on satellite internet and cloud-based storage.**
- 5. Novel engagement activities were required when recruiting new participants to the program. This resulted in a positive unintended outcome of increased certified rural first-aiders in the region.**
- 6. A broad range of approaches was needed for effective engagement including:**
 - Existing extension networks: Established relationships enabled landholder recruitment for new water quality related practices.**
 - Training and Extension Activities: Workshops, field events and training activities provided contact points for relationship development with a wide range of landholders.**
 - Direct one-on-one contact: Field staff-initiated contact with priority landholders.**
 - Word-of-mouth: Appropriate and respected landholders were engaged to enable strong peer engagement.**

Summary

Over the four years of the Reef Trust Partnership Water Quality Program, 62 graziers improved grazing land management practices increasing the productivity and sustainability of over 364,000 hectares in the Upper and East Burdekin, Haughton and Don catchments through the Upper and East Burdekin Water Quality program.

Program activities centred around the development of property plans and tailored extension support for the adoption of grazing practices that increase groundcover and improve soil health and land condition. Practices included addressing small-scale erosion issues, managing riparian zones, and grazing pressure.

Transparency and accountability were delivered through a regional-specific governance model. Real-time data of on-ground actions provided timely and public progress towards pollutant reduction targets. Digital literacy increased through the use of data platforms for planning and management. Financial incentives removed the financial barriers to the timely adoption of best management practices. A robust verification process of on-ground projects has contributed to strengthened regional stewardship and enduring outcomes.

A combination of one-on-one extension, peer-to-peer activities, group learning, property management planning, financial incentives for targeted on-ground works, and small gully remediation contributed to the Program exceeding the target with a reduction of more than 64 kilotonnes of fine sediment per year. This has resulted in a more sustainable grazing industry and better water quality in local waterways and the Great Barrier Reef lagoon.





Acknowledgements

Reef Traditional Owners have been caring for land and sea Country for more than 60,000 years, using Traditional Knowledge passed down through ancestral lines for millennia. The Great Barrier Reef Foundation extends its deepest respect and recognition to all Traditional Owners of the Great Barrier Reef and its Catchments, as First Nations People, holding the hopes, dreams, traditions and cultures of the Reef.

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Program images were supplied by NQ Dry Tropics and the Foundation, cover image Gary Cranitch, Queensland Museum, and page 15 image Ruth Brown, Ironbark.



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