



What a difference four years can make... Over 1500 tonnes of sediment has been prevented from entering the Great Barrier Reef lagoon because graziers in the Upper Johnstone catchment have adopted new ways to tackle erosion. This project has been a win-win, with graziers benefitting from improved productivity, stabilised creek banks and better soil health.

The issue

The Johnstone River catchment is a priority for water quality improvement, with Far North Queensland's highest sediment reduction target in the Australian and Queensland Government's Reef 2050 Water Quality Improvement Plan. Long-term grazing in an area known for its high rainfall and steep terrain (Tablelands and Innisfail) has caused erosion which is worsening each wet season.

Solutions

Terrain NRM has been working closely with 12 landholders through the Upper Johnstone Integrated Project to repair erosion hotspots and fine-tune grazing management practices.

Projects have included:

- Earthworks along waterways (Zuni bowls, creek crossing modifications, riverbank re-shaping).
- Tree and grass plantings along waterways.
- Fencing off sections of repaired waterways and alternative water sources for cattle.
- Introducing smaller paddocks and rotational grazing practices that include more intense grazing for shorter periods, paddock spells for longer and closer attention to pasture condition as an indicator of grazing times in paddocks.
- A series of landholder workshops on grazing practices, soil health, water quality.



Works on the Petersen's farm included a modified creek crossing (bank re-shaping, rock and gravel placement), new fences to keep cattle off more than a kilometre of water course, 5000 trees and grasses along the waterway, an off-stream watering system with a tank and troughs connected to a solar pump, and a modified grazing management plan. "We do the earthworks and revegetation, and the family does the fencing and installation of off-stream watering infrastructure."



5000 native trees were planted in this landslide area in March 2020. "We look at erosion on a site-by-site basis. For this landslide, trees were a very cost-effective way of stabilising the soil."

Results

Several properties have benefitted from a range of sediment reduction methods and grazing practice change, while there has been a narrower focus on some of the other farms. The project also impacted on a wider group of landholders through a series of workshops and farm visits to see practice changes of 'early adopters'.

Overall improvements include:

- 1523 tonnes of sediment prevented from entering the Great Barrier Reef lagoon annually due to erosion control work on 12 properties.
- 25,450 native trees planted – 10ha of land revegetated.
- Repairs to 11 gullies - 4.6ha of land repaired.
- 23km of fencing installed to protect streambank that is being remediated and to create smaller paddocks for more sustainable grazing management practices.
- Greater awareness and understanding of soil health, water quality and grazing management practice change through a series of 12 workshops and 12 property visits for graziers throughout the region, and both on-farm and online advice from grazing and soil health specialists.



Zuni bowls: Built into gully heads where there are abrupt vertical drops, they are a smaller-scale, cost-effective way for farmers to stop erosion advancing in catchments. The second image is 10 months after construction. The bowl has settled into the landscape and grass is growing on land below that was previously bare.



Earthworks at an eroded creek crossing and at a gully head forming beside sloping pasture where cattle once moved between paddocks. Tree-planting and grazing management changes were also part of this project.

Working relationships

Terrain's project coordinator Vanessa Drysdale says landholders' enthusiasm for grazing management practice change has increased because of the earthworks and the close working relationships that were developed.

Grazier Rob Pagano: "With extra fencing we can keep cattle away from erosion spots and manage our pastures better when it gets wet by moving stock through paddocks more quickly so there is less damage to the soil. Now I want to plant grasses and let them grow with no pressure on them. This has been great for me. You want to do what's best for both the land and the cattle but you can't always afford to take those steps all at once."

Grazier Trevor Petersen: "Each of our paddocks had the same grazing pressure. Now we'll have smaller paddocks and manage them differently. We'll be doing things like grazing one more heavily while resting another and looking at each paddock more closely to assess pasture. The goal is a more environmentally-friendly way of working, for the land and water quality, without affecting productivity."



Fencing off erosion remediation areas to prevent access by cattle, and a solar pump installed as part of a water solution for stock.

Workshops

A number of workshops were delivered to landholders throughout the project on a range of topics including An Introduction to Grazing Naturally, Open Season Planning, Closed Season Planning, Advanced Sessions, Soil Health, Data Analysis and Water Sampling.



Capacity building

This project has helped to raise awareness of erosion issues beyond the farm gate, of sustainable erosion control techniques and cost-effective ways for property owners to improve their land. It has also upskilled the region's earth-moving industry for ongoing erosion control projects.

"Every wet season it gets a bit worse, and more topsoil is washed away. If we can repair our gullies, and other farmers can do the same thing, it's another step to improving our pastures and stopping run-off to the Reef." – Grazier Owen Rankine

"Terrain is like a Backyard Blitz for farmers." – Grazier Stewart Loudon

"This project is all about reducing sediment losses to the Great Barrier Reef lagoon while helping graziers to help themselves by addressing erosion problems and improving their pastures and livelihoods. We tell graziers: 'Changes on properties, however big or small they may seem, can really make a difference'." - Terrain NRM's Vanessa Drysdale

"The aim is to increase the capacity of people - from landholders and private contractors to local government - to fix small-scale gully erosion that is impacting farming, the land and water flowing to the Great Barrier Reef." – Terrain NRM's Jen Mackenzie.

What's next?

This project has begun a journey in the Upper Johnstone region that can make a significant difference to the land, and to water flowing to the Great Barrier Reef lagoon. There is more scope, and more appetite, for erosion control work in this catchment, and still a lot more to be achieved.



For more information about the Upper Johnstone Integrated Project, visit Terrain NRM's website at www.terrain.org.au This project is funded by the Queensland Government's Natural Resources Investment Program.