



Spring Creek owner, Wayne Smith, demonstrating the flow of water directed by diversion banks through the newly constructed rock chute

Case study

Gully remediation at Spring Creek

Working with land managers to reduce sediment loss

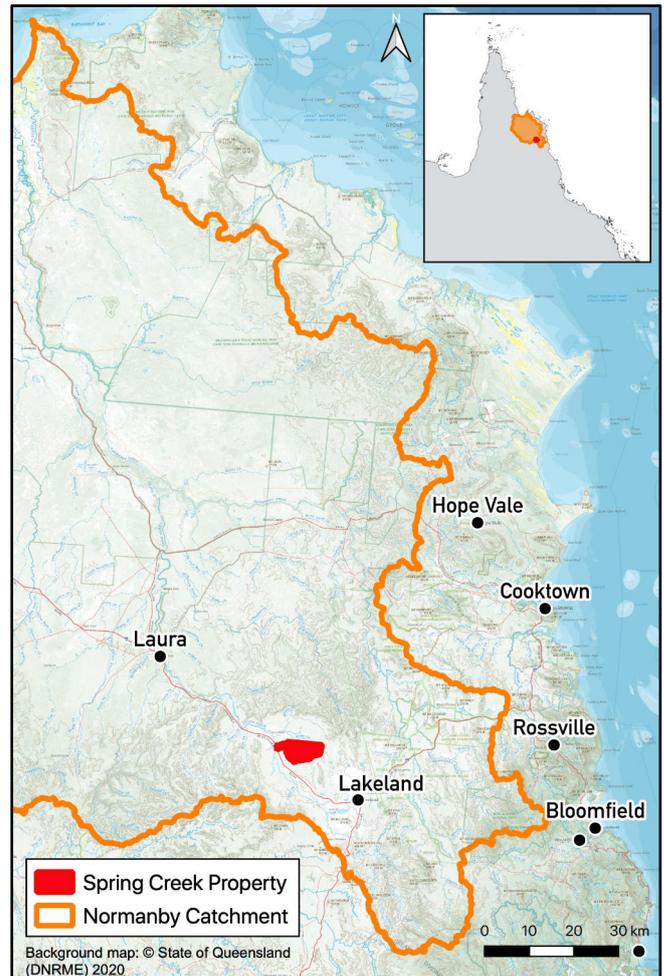
Background

Gully erosion causes significant amounts of sediment to enter Cape York waterways. Around a million tonnes of sediment washes through southern Cape York's Normanby catchment every year due to gully erosion. Gullies create more problems than just run off—they damage pasture, wreck fences and cause injury to cattle.

Cape York NRM is partnering with landholders across the Normanby catchment to tackle gully erosion problems, thanks to funding from the Australian Government delivered through the Reef Trust Phase IV program.

Wayne Smith is one landholder who has been actively involved in the program. He owns and manages Spring Creek—a 3,000-hectare pastoral holding 20 kilometres from Lakeland.

Spring Creek is one of many smaller holdings subdivided from a larger cattle station. All of these subdivided properties are erosion-prone due to the dispersive properties of the sub-soil, and historical management practices.



Purpose and motivation

Spring Creek has several large scalded areas and gullies, which owing to the highly dispersive soil, are rapidly eroding. Cape York NRM is working with Wayne to remediate these areas, fence them off to exclude cattle, restore groundcover and halt erosion.

Wayne said he was very pleased to have the opportunity to improve the condition of his land.

“Gullies are a massive problem here. They start quickly, and in one wet season they can spread a long way. We’ve got fence lines destroyed and tracks washing out. These are obviously expensive and time consuming to fix. That’s a big reason that I was keen to work with Cape York NRM on this project.

“I also want to look after my land, as all farmers do. I want to look after the rivers and creeks. I want to be able to drive around my place and be proud of how it looks instead of seeing all this erosion. That pride of place is a big motivation for me.”



Fencing infrastructure undercut by gully erosion



Wayne inspects a rock chute at a scalded area

Approach

Remediation works have commenced on one scalded area and an alluvial gully, with more work to occur after the 2019–20 wet season.

The on-ground works will include:

- Cattle exclusion fences
- Rock chutes located at the gully head—rock chutes are ramps that stabilise the head of the gully and stop it from migrating during rainfall events
- Diversion banks to direct water towards the rock chute and prevent gully branching
- Porous check dams to slow water flow and trap sediment
- Shallow ripping of scalded areas, followed by mulching and seeding to encourage grass growth

Cape York NRM continues to oversee and manage the project, through engaging with the landholder, identifying sites, liaising with technical partners and conducting all monitoring of activities. All construction works were designed by a qualified engineer, with CSIRO providing valuable technical advice to ensure the designs would effectively stop erosion and restore each area.

Wayne said that while the construction process was a lot of hard work, it was very rewarding.

“We quarried over half a million tonnes of rock to build the rock chute, the diversion banks and the check dams. It took a lot of hours of hard work in the heat, and about six flat tyres, but I’m really happy with how it is looking so far.”

Wayne was also appreciative of the technical expertise underpinning the work.

“It’s great to have plans in place from an engineer so we know that what we’re doing is designed to work. I’m a big believer in doing something once and doing it right.”

Results

With exclusion fences, rock chutes and check dams completed at two sites, the outcomes for improved pasture growth and reduced erosion are already becoming evident. After only a few weeks of cattle exclusion from the gully site, grass cover has noticeably improved. These positive results will increase during the wet season.

The restoration of land at Spring Creek will enable improved cattle management.

“This is really productive country and it grows anything,” Wayne added.

“Once these areas are restored, we’ll be able to reintroduce stock for brief periods at a time, and there will actually be good grass for them. The important thing is to keep the stocking rates right and manage the grass well.”

Monitoring

Monitoring points have been set up at the erosion control sites. Photos will be taken throughout the project’s duration (until December 2021) and during the recovery period (especially after the subsequent wet season). Land condition assessments will also be conducted to measure features such as ground cover, pasture condition and soil condition.



Challenges and reflections

The main challenge from Wayne's perspective is that there is always more work that can be done and only limited funds to do it.

"It's important to be proactive and target problems before they get out of control. The challenge is that it takes time to get the resources and support to do the work well. We're always looking to do more to restore the land," Wayne said.

Cape York NRM's Sustainable Industries and Water Quality Manager Michael Goddard was very pleased with the progress of work at Spring Creek. He praised Wayne for his proactive attitude towards remediating environmental issues on his land.

"Wayne has done a fantastic job with this project. He has done a lot of hard work to make the engineer's designs a reality. The benefits to his property and to water quality downstream are substantial," Michael said.

"For Cape York NRM, a big challenge is making sure these projects make a difference in the long run. We can fix a gully, but if the surrounding land is overstocked, then it's just a temporary solution. That's why when we fix a gully, we also focus on changing how the entire landscape is managed, whether that's with better pasture management, fire management, tackling weeds or constructing smarter roads."

Wayne says the project has been a valuable learning experience, emphasising the importance of proactive land management. With Cape York NRM's help, he plans to continue to tackle erosion issues across Spring Creek, as well as staying on top of other issues such as rubber vine infestation.

“Look after your country and it will look after you”



Rock chute installed at the gully head, with diversion banks to direct water towards the chute



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The Scaling Up Normanby Basin gully and streambank remediation in priority areas project is funded by the Australian Government and delivered through the Reef Trust

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