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The water quality crisis

Recent heavy rain has given me the opportunity to collect data on an ever-increasing problem, and that is erosion and water quality. Frankly, the situation is an absolute disgrace,

In early February, 2021, the region received heavy rainfall, a pattern that lasted for 2 months. During that entire period, right up until today, water in the Orara River looked more like cream of chicken soup than water (see right).



A muddy Orara River after only moderately heavy rain.



The clear water from the Shannondale creek

Many will insist that this is what happens naturally when you have heavy rain, but that's not the case.

An example of what occurs naturally is provided by a small creek at Shannondale, less than 4km away from the Orara. During the same heavy rain event, the water in that creek was almost crystal clear, with the creek bed clearly visible through 15cm of fast flowing water (see left). The only discolouration of the water is tannin, picked up from the

Paperbark trees that grow through wetland areas along the way.

The difference is even more stark when samples of both are put into a transparent bottle.



There's no way you can see through the bottle of murky Orara River water on the left, whereas background trees and shadows are clearly visible through the Shannondale water in the right-hand image. The discoloration in the latter is tannin from Tea Trees growing in the upper catchment.

Muddy waterways are not a natural result of heavy rain, it's almost 100% the result of human activity, and one of the most widespread causes is the failure of land-owners to protect river and creek banks from being trampled by cattle. Our own "mighty Clarence" is the saddest example, where hardly any landowner has fenced off the river, deliberately allowing their cattle to access the river, simply to save the cost of pumping water into troughs.



With these denuded trampled banks, it's no wonder they disintegrate in a high flow situation, but cattle are not the only problem for the Clarence River.

To compound the problem, the local council has always encouraged sports like water skiing, promoting events like the "Bridge to Bridge" water ski classic. Then, only a few years ago, the Mayor declared the town of Grafton to be the wake boat capitol of Australia. The resultant erosion can be seen in the above image, where wave action has undercut the fragile alluvial soils at the water's edge.

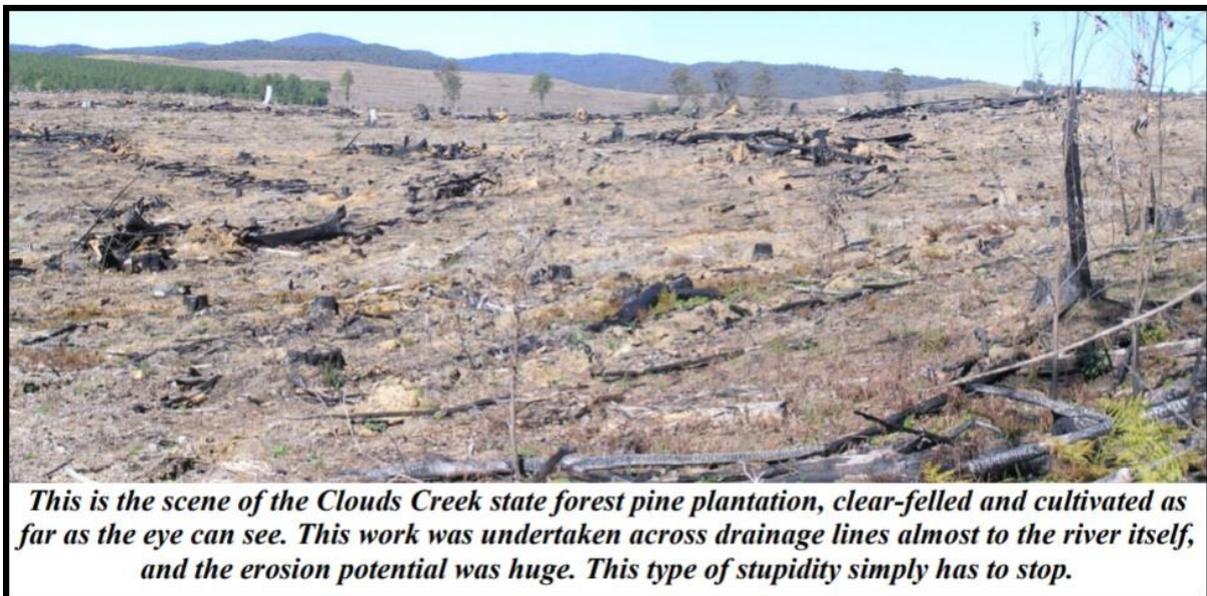


The heavily laden wake boats are designed to create the biggest wave possible

Of course, the finger of blame cannot be pointed solely at grazing and water sports. Forestry is another major contributor, particularly across the mainly forested slopes from Nymboida to the Dorrigo Plateau, which form the Nymboida River catchment, the source of the Coffs – Clarence regional drinking water supply.

Despite constant reports that the turbidity levels in the Nymboida River after rain are too high to allow extraction to occur, we've never heard a complaint from either council about forestry practices, including their being leased for grazing. Even the announcement by Forests NSW in 2015, that they intended to undertake intensive logging of some forests, i.e., clear-felling, there was no complaint. Then again total silence in 2019 when the State Government changed the Integrated Forests Operations Approval, halving the width of buffer zones along all mapped gullies and creeks, allowing logging to occur to within 5m of smaller waterways.

That is the situation in State forests, and it's even worse where private native forestry is carried out, and compliance monitoring is virtually non-existent. And then we have plantations where clear-felling and cultivation is undertaken as a matter of course.



The above caption says it all. Clouds Creek is one of the Nymboida River's main tributaries, and all the mud and debris that ran off this vast denuded landscape, would flow directly downstream into the Nymboida Weir, where all our regional drinking water is sourced. This has been going on for close to 100 years, yet it is still condoned today.

In the late 1990s the Howard government conceived the idea of making tree-planting a 100% tax deduction. On the face of it, with urgent action needed on climate change, this seemed like a good idea, but then all the "shonks" emerged, and a number of investment schemes were born.



Cleared and cultivated erosion prone land



Rows of trees were planted, always aligned up and down the slope to facilitate drainage, but simply acted as drains ferrying silt straight into the region's waterways. In this instance, drainage lines weren't ploughed, they were burnt

Within months, vast areas of land were either purchased or leased by these companies, using investors' money. Then the bulldozers moved in, using lax regulations under the Plantations and Reafforestation Act to legally bulldoze all regrowth forest, remnants of mature forest less than one hectare, and old-growth paddock trees; all to achieve more efficient plantation management (see above and left).

Erosion again was horrific, but the worst thing was the choice of tree species planted, mostly only suitable for wood-chipping like Dunn's White Gum

To cut the story short, there was no market for wood-chip, and the 2008 global financial crisis saw all these investment schemes collapse into bankruptcy. Initially, new owners found there was no market for the planted timbers, so tens of thousands of hectares were simply bulldozed. Later, the biomass industry gained popularity and that was where much of the remainder ended up. Any climate change benefit through carbon sequestration was therefore lost, and in fact the emissions from burning those trees simply added to that problem.

Quite a number of these plantations were subsequently taken over by blueberry growers, the latest 'fad', and the whole cycle of soil disturbance and erosion is being repeated.



This Lanitza plantation contained 20-year-old trees before it was bulldozed for Blueberries

Again, the erosion from the subsequent soil disturbance which, as was the case in the above image, extended across numerous drainage swales and gullies, was enormous.

Of course, a lack of any regulation has seen the blueberry industry expand out of control, with authorities finding the proponents are frequently willing to pay substantial fines, looking on them as a cost of doing business (reference the minutes of the Interagency Blueberry Advisory Committee, 15th February 2017).

The following images are from an area of cleared forest at Halfway Creek where, as can be seen, the land was 'ripped' up and down the slope preparatory to planting blueberries, leaving storm water nowhere else to go but directly into Dundoo Creek along with massive amounts of soil. That waterway feeds directly into the Orara River, which is where this story began.



Cleared forest at Halfway creek, where massive erosion polluted Dundoo Creek, and the Orara River

Government infrastructure provision is every bit as much to blame for the appalling water quality we are forced to endure. Take these images from the recently built Pacific Highway.



Barriers and booms washed away, and the wetlands swamped under tonnes of silt as the Pacific Highway upgrade took place. It took 6 years to complete and this type of incident was repeated time and again all along the 80km route through the Clarence valley. All can be blamed on ineffective erosion control.



More ineffective silt trapping and more creek and river pollution from the construction of the access road to the Shannon Creek dam

Local council works are every bit as bad, this image from the construction of the Shannon Creek dam's access road (see left), shows where massive amounts of silt has completely buried the ineffective green mesh that's supposed to prevent this mud entering waterways.

This is pretty basic stuff, but so-called engineers get away with this shoddy work all the time, and nobody does anything to stop it

Even after the dam was completed and filled, Council saw fit to apparently flush out the reservoir with the following result, the images were taken from the bridge across Shannon Creek, just below the dam wall. Is this going to be a regular occurrence?



This water in these images, released from the Shannon Creek dam is so thick with mud that it appears to be almost solid, as it slides downstream into the Orara and then into the Clarence River itself.

Housing developments are another problem area, where it seems land can be cleared and erosion control only implemented when excavation and construction work begins, often long after the soils have been disturbed by the clearing of that land, as shown in the image (right) of a local housing development on the Lower Clarence.



However, while there are rules in place to prevent the above disasters, albeit inadequately enforced, or not at all, there are no controls over farmers' activities, who are allowed to cultivate land for cropping without any erosion control. Of course many farmers don't want to see good topsoil wash away and manage their land accordingly. However, sadly this is not always the case as evidenced by images of over-grazed land during the last drought, and the massive dust storms that occurred as a direct result. Who knows how much soil has been lost in the current, February 2021, floods across inland NSW.

Which, of course brings us back full circle.

In the Clarence valley we now have a more frightening pollution prospect. Government supported minerals exploration and the prospect of open-cut mining occurring in rugged hilly country adjacent to the Upper Clarence, the Mann and Nymboida Rivers. Potential pollution from those could consist of far more serious material than mud. We simply have to get our collective acts together.

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Report by [REDACTED]