



TREAT News Cool Season April - June 2006

What About Water Quality?

Colin Hunt, Noel Grundon and Simon Burchill

When the purity of our drinking water and potentially our health is affected by drought or floods, we sit up and take notice. The rest of the time we tend to ignore the quality of water in local creeks, rivers and lakes.

Several towns derive water from the Barron River's Tinaroo dam, whose poor water quality forces local councils to outlay significant sums of money to filter and purify the water before it is safe to drink. By contrast, Lake Eacham is considerably higher in water quality because no creeks run into it and it is fed solely by rainfall.

There is always great pressure on our farmers to increase their productivity i.e. to get more crop and livestock output for every hectare, and for every hour worked. This has been particularly evident on farms in the catchment of the Johnstone the other major river, apart from the Barron, that rises in and flows through the Tablelands. An increase in the area of sugar cane and higher value horticultural crops has meant that fertiliser and pesticide applications are up at high levels in the lower Johnstone catchment. These chemicals, along with soil washed from farmsteads, are having a major impact on the health of the Great Barrier Reef. Already the inner reefs opposite the mouth of the Johnstone at Innisfail are in poor condition.

The type of pollution that emanates from land so-called - 'non-point pollution' is very difficult to control. We cannot tax it because its source is unknown. It's from somewhere upstream, but where? What we can do, however, is encourage landowners to look at their fertilizer and pesticide applications and see if they can be more strategic with their applications and use less, without sacrificing yield. We are going to see more and more farmers changing the way they do things to make more profit while at the same time generating positive environmental outcomes.

Another way that damaging run-off can be reduced is by intercepting it with a wider buffer strip between crop and creek. On some properties silt traps and rehabilitated wetlands can augment the buffers. When stormwater hits a buffer or silt trap it slows down, dropping its silt load and giving up some of its nitrogen and phosphorus to the underlying vegetation.

Excluding cattle from adequate buffer zones by fencing and the provision of alternative watering points are also effective methods of reducing stream pollution.

But all these improvements - have a cost a cost in money terms, a cost in terms of land given over to buffers and traps and a cost in terms of landowners' time. For the widespread adoption of these measures on properties, incentives are needed.

The creation in all states of Natural Resource Management Boards has increased the opportunities for delivering incentives for water quality improvement. On the agenda of the Wet Tropics NRM Board, FNQ NRM Ltd, is the seizing of opportunities to get multiple benefits for the incentives it is about to provide through its Investment Plan.

Among FNQ NRM's foremost objectives is to assist the creation of wildlife corridors, and it has prioritized Peterson Creek. Donaghy's corridor has already proved that corridors are effective in allowing wildlife to move between remnant and forest.

Peterson Creek is an attractive investment for the Board because it is already a natural corridor that will effectively link the Crater Lakes National Park at Lake Eacham with Yungaburra State Forest, and because it will deliver two other Board priorities at the same time. These are the augmentation of critically endangered Mabi (Type 5b) habitat at the Curtain Fig Tree end, and the improvement of - water quality in this case in Peterson Creek and Tinaroo Dam.

In prioritizing Peterson Creek it has also taken into account the fact that in TREAT it is funding an organization that is already growing the appropriate trees, negotiating with landowners with Peterson Creek frontage, getting trees in the ground and ensuring their adequate maintenance. Its unique liaison with the Queensland Parks and Wildlife Service makes TREAT an even more attractive vehicle through which the Board can deliver its incentive funding.

Better water quality in Tablelands waterways is always going to be one of the benefits of TREAT's activities, but it is also one of the most elusive benefits to pin down. To be useful, water quality testing needs to be frequent and done properly so that the results are reliable. And it would be desirable to have baseline data on water quality before any tree planting and fencing took place.

But even without baseline data it is possible to generate conclusions about the state of waterways by comparing the results of testing with the standards that we are trying to achieve. These standards are in terms of biological oxygen - demand (BOD) a measure of the potential for organic matter to reduce the oxygen content of - the water and host life turbidity which measures the level of sediments that can inhibit life and damage the Reef, and nitrogen and phosphorus which are the main causes of algal growth in streams and dams and on the Reef, and in extreme cases eutrophication.

TREAT now has water testing kits that allow measurement of the above plus pH, temperature, conductivity and total dissolved salts, and is now in a position to undertake comprehensive water testing in the creeks and waterways that it is interested in planting or has repaired.

To encourage TREAT's members, landowners, and members of other treeplanting groups on the Tableland to become involved in documenting the effects of revegetation on water quality, TREAT plans to hold a workshop on May 17th at the Lake Eacham Nursery.

Participants will discuss the benefits of improved water quality as well as learning sampling techniques and the use of water testing kits. TREAT will call for samples to be brought in to TREAT for testing on Friday mornings.

In the case of Peterson Creek where we have some baseline data on water quality prior to the commencement of revegetation, it will be very interesting to chart any improvement in Peterson Creek water quality over time. Then we will assess the benefits derived by both stream biota and human beings.

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Note: If members come to the nursery for trees and have not yet given TREAT their property ID, would they please bring their rates notice with them, so TREAT can copy the property ID and add it to our database for the destination of trees.

Water Quality Workshop

This workshop to be held by TREAT is receiving funding assistance from Bundaberg Rum Bushcare Funds who also funded the purchase of items of equipment to measure various aspects of water quality.

The half-day workshop will commence with a series of short talks on topics such as: What is meant by 'water quality'? What chemical and biological parameters are measured?; What are the standards used to assess good, fair and impure water quality for agricultural crops, farm animals, human use?; How to collect a water sample; What can landowners do to improve the quality of water in streams flowing through their properties?; Can we place an economic value on improving water quality?

To allow enough time for people to have hands-on use of the various instruments, the workshop will be limited to 20 people. If numbers warrant it, a second workshop will be held.

The equipment TREAT will have at the workshop will measure: water pH, temperature, conductivity and total dissolved salts dissolved oxygen in water water turbidity dissolved nitrate.

In the future, TREAT hopes to also measure total and dissolved phosphate.

The workshop will be held on 17th May at the QPWS Lake Eacham Nursery, starting at 9:30am.

Would those wishing to attend please ring Barbara Lanskey on 4091 4468. The workshop is FREE.

Our Trees Are Dying. What's Going On?

by Ruth Temple-Smith, NRM Facilitator, Biodiversity/Bushcare, Tasmania

This couldn't be Tasmania! Sadly it is. If you travel down the midlands highway, there are places where there's not a live tree to be seen. Farmers have watched as their trees have died. First the trees lose their leaves. Then they re-shoot, sometimes several times. After that comes the sticky sap on the bark and soon after they die.

Over the last forty years there has been widespread premature death of rural native trees, principally eucalypts occurring in the low rainfall areas of the eastern half of the State. The phenomenon of rural tree decline is becoming more widespread and the intensity of deterioration is increasing. In places it's like a wave moving across the landscape. The problem is not unique to Tasmania. Rural tree decline is happening in parts of New South Wales, Victoria and Western Australia.

In Tasmania tree decline is not confined to trees in paddocks. It is affecting the forests and woodlands. All forests in the low rainfall areas are affected to some extent.

The eucalypt most affected is *Eucalyptus viminalis* (white gum), the most dominant tree in the midlands and still relatively widespread through-out the area. Other eucalypts affected are *Eucalyptus amygdalina* (black peppermint), *Eucalyptus ovata* (black gum), *Eucalyptus rodwagi* (swamp peppermint), *Eucalyptus tenuiramis* (silver peppermint), *Eucalyptus dairympleana* (mountain gum), *Eucalyptus pauciflora* (cabbage gum), *Eucalyptus delegatensis* (white topped stringy bark), *Eucalyptus globulus* (blue gum) and *Eucalyptus ribida* (candle bark). At the same time, farmers have been intrigued to see wattles and blackwoods unaffected.

The problem is two-fold: premature death of trees and lack of regeneration to replace them.

Is it serious?

Trees play a vital role in the landscape. They provide shelter, shade and wildlife habitat. They control catchment hydrology. They protect and restore the natural beauty of the landscape and make living conditions more pleasant. Their loss changes the physical, chemical and biological balance in the environment.

The loss of trees in the landscape has resulted in many forms of land degradation, loss of native plants and animals and a reduction of product loss. Shelter for stock, pastures and crops has been lost. It's had a detrimental effect on land stability.

The midlands of Tasmania is part of the low rainfall area affected. It is an important area for agriculture and for biodiversity conservation. It was one of the first areas in Australia converted to agriculture. It is used for meat and wool production and increasingly cropping. It has been declared a Biodiversity Hotspot because of its richness in plant and animal species. There are over 180 rare or threatened species including Wedge-tailed eagle, Eastern barred bandicoot, Spotted-tail quoll, Tussock skink, Green and gold frog, Tunbridge looper moth, Black tipped spider orchid, Wallaby grass, South Esk pine, Midlands wattle, Swamp everlasting daisy, Masked owl and Swan Galaxias.

Many species are found nowhere else in the world; for example, the Tunbridge Buttercup and numerous orchid species. The area is considered to be under threat from pressures such as land clearing, development, salinity, weeds and feral animals. Tree decline is adding to these pressures.

So just what is the cause?

There's no simple or single answer. The causes are complex and still not fully understood. Studies continue to try to unlock the puzzle. Current knowledge indicates that a number of factors are involved: drought, climate change, possum and insect damage, land management practices. Some people sum it up thus - AIDS: Agriculture, Insects, Dryness and Superphosphate. Which factors are most dominant may vary across the landscape.

The picture is by no means clear. Paddock trees are affected by ploughing around them, overgrazing and increased nutrient input. But trees in fences off forests are also suffering. One problem leads to another. With fewer trees and less understorey, the balance between pests and predators has changed. With fewer birds there are more insects to do damage. The possibility of a disease was ruled out when no evidence could be found. Many believe that by far the greatest factor is dryness from drought, climate change and/or soil compaction impeding filtration.

What's being done?

Continued search for answers goes on, many projects have been aimed at tackling the problem. Many projects have focused on regeneration through planting tube stock and/or direct seeding. There has been mixed success. Survival rate has been affected by while the drought conditions, lack of follow up and insufficient weed control. Sites with adequate ground preparation prior to planting have been more successful than those without. At one stage trees were banded with metal sheeting to prevent possum damage. It did stop the possums but didn't always save the trees. There has been much debate about what to plant. While some believe only trees grown from locally collected seed should be planted, others argue that they are the ones dying and maybe species that will survive should be used. Adding to this is the view that if climate change is really the cause then maybe it's natural evolution that we are faced with.

Numerous projects have focused on protection of remnant and riparian vegetation especially sites with threatened species. Many of the more recent projects have provided incentives and entered into ten-year management agreements with the landholders. Some landholders have gone further and permanently protected areas by placing them under covenants. Landholders have also been given advice and guidelines on bushland management to assist with on-going maintenance.

More recently, a Natural Heritage Funded project has produced a Decision Support System (DSS) to control tree decline. Although there is widespread decline, there are still patches of bush that are healthy and where natural regeneration is occurring. The DSS was developed by comparing adjacent healthy and dieback-affected stands. The system uses a sequence of yes/no answers about tree condition, site characteristics and management history that leads the user to a set of practical treatments for improving stand condition. It is hoped that this will prove to be an effective tool for farmers managing their land and to protect remnants of remnant vegetation.

Peterson Creek Plantings

by Barb Lanskey

A total of approximately 7,200 trees were planted in February and March this year at Peterson Creek. To further extend the wildlife corridor TREAT is building between the Lake Eacham National Park and the Curtain Fig Tree forest. These were planted on land made available by the De Tournour family and funding assistance was received through the region's natural resource management organisation FNQ NRM Ltd.

The trees were planted over three Saturday mornings and conditions were generally quite cloudy and pleasant. There was a good turnout at each of the plantings and volunteer numbers were well above the School for Field Studies students. These young folk had arrived in Australia from America less than a week beforehand, and after some initial instruction they became very practised tree planters.

A traditional TREAT barbecue was held after each planting at the bottom of the Burchill's property close by.

This year TREAT had invested in a bit more equipment such as gas rings to boil up the water for tea and coffee, and a gazebo for shelter from either sun or rain, to augment the usual hired marquee. At the last BBQ, Jodie Blocky from DNR & M (Dept. of Natural Resources and Mines), talked about some of the class 1 weeds to watch out for, which were already on the Tablelands. Then a recently joined member of TREAT, Veronica Weal, gave us a most enjoyable rendition of her lighthearted poem about catching a rat.

The plantings were helped by rain either before or after the day of planting, but then cyclone Larry arrived. Flooding in the creek meant the little trees were inundated and had to suffer debris washing over them. When the waters receded, the trees were either leaning at an angle or flattened with lots of debris smothering their small foliage. A rescue mission was organized and over two mornings, QPWS nursery staff, TREAT members and the School for Field Studies students cleaned the debris from the little trees and straightened them up. In some areas huge amounts of para grass had come down the creek and covered lots of the trees, but many were found underneath and given room to breathe and reshoot.

On the southern side of the creek, the setaria grass and seeds were quick to colonize the area and here we had to search for the trees and then push the grass away from them to assist in locating the trees for follow-up maintenance.

Maintenance is a very important part of all TREAT's tree planting projects and the necessity for this is now recognized by the funding bodies. FNQ NRM Ltd. Have this year secured funding to include maintenance of the plantings for 3 years.

Over 50,000 trees have now been planted in the corridor since 1998. Not all of them have survived the elements and various in-fill plantings have been necessary, but the corridor is easily seen from Pearamon Road.

On Saturday 17th June, TREAT will hold another working field day at Peterson Creek. After viewing the progress of the corridor, people will be able to assist in some maintenance of an area if they wish.

Thank You, SFS

TREAT would like to say a big "Thank you" to the School for Field Studies for helping at the Peterson Creek plantings this year and then coming to help with the rescue of the young trees after cyclone Larry. Well done, and you were much appreciated!

Other Plantings

by Barb Lanskey

Crawford's. Nearly 30 people helped Jill and Don plant 1,300 trees in January to complete the top section of a wildlife corridor on their property at Gadgarra Road, Lake Eacham.

The trees were grown by Jill and Don at their home nursery and the area for planting was prepared by us to their usual high standard. After the trees were planted and we'd enjoyed morning tea refreshments, Don led a group of us on a very interesting tour of the property so we could view the plantings done over the last 5 years.

Sadly, the cyclone has damaged their forestry plot and some of the older trees, but the recent plantings are all fine.

John Hall's. John had prepared an area for planting 1,000 trees around a dam on his property at Kairi, and 25 people came to help plant and mulch them at the end of January. John had laid out copious quantities of mulch in rows between the trees to suppress weeds as well as to conserve moisture for the trees.

After planting, the trees were watered with a pump from the dam. A leisurely morning tea at John and Shirley's house followed, with huge lamingtons and scones, and we laughed with Shirley at her tales of introduction to things essentially Australian. John says the trees are all doing well and of course the dam is overflowing.

Nursery News

By Nick Stevens

Hi All, I hope this issue finds you all well and getting back to some sort of normalcy after our brush with Cyclone Larry. I'd like to take this opportunity to welcome 2 new staff who commenced full-time employment at the nursery in January/ February, Mr Darren Caulfield and Mr Nick Teiwsen. Darren has been based at the nursery for a number of years as a trainee and casual staff member and is well known to many TREAT members.

Nick and his family come to us from Gloucester in NSW, where Nick has been a field officer with NSW Parks in the Barrington Tops area. Congratulations to you both.

I'd like to mention at this time also that trainees Gavin Kennedy and Carla Holden will complete their traineeships in May and to wish them all the best. The tree planting season has - been going well with the exception of TC Larry. TREAT has planted a further 7,000 trees on the banks of Peterson Creek above Pearamon Road, bringing the total effort on this project since 1998 to just over 52,000 trees. QPWS staff have continued planting on the coastal lowlands in January and February, planting 1,600 trees at Eubenangee Swamp NP and 1,200 at Daintree National Park.

TREAT members, QPWS staff, Traditional Owners and SFS students planted 800 plants along the roadside at the entrance to Lake Barrine NP. Thankfully the nursery was spared from any major damage and still has plenty of trees available this season to members who haven't used their allocation or who require suitable plants to replace trees damaged during the cyclone.

The new roof withstood the destructive winds and great germination results in the seed room. Above average temperatures there are being regulated by the movable layer of shade cloth under the roof so as strategic watering - take a look next time you are in the nursery.

Finally, an assessment of the effects of TC Larry:

Although it will be some time before we have knowledge of the full effects, initially it appears that there has been a great loss of flowers and fruits as well as leaves and limbs of trees in the local area. The impacts of this are sure to have a profound effect on local wildlife populations in the short to medium term as well as affecting some aspects of the nursery's operations such as collection of propagative materials. Many of our collection records were for individual trees that have either been seriously damaged or no longer survive.

Initial inspection of this year's plantings at Peterson Ck showed that many of the trees survived the event and were able to be rescued from under the debris. Two working bees were organized in the weeks following the cyclone and much of the site has been saved. Our sites in the Tully/ El Irish area have suffered extensive damage and it will take some time to salvage what we can and get the project back on track.

TREAT on TAP

by Barb Lanskey

This year TREAT's Tree Awareness Program for primary schools was offered to and accepted by Kairi, Ravenshoe and Malanda State Schools.

Kairi grades 5,6 & 7 completed their program in February and Ravenshoe grade 6 completed theirs in March, apart from the school planting which was scheduled for the day the cyclone hit. (I'm sure the groundsman will have lots of places now to plant the trees the students took from the nursery!) Malanda's program will fit in with the school's activities in late April/ early May.

From Doris

Being a "happy" worker for "TREAT" the last 12 years off and on - I would like to put my bit in.

I was a stranger to the area, when we were settling in here from Victoria, and we thought it was a bit of a paradise.

Everybody in TREAT made me welcome and that made it so much easier to feel at home. Especially "Joy", she was kind of a mother to all of us.

Going on in years people are coming and going , but the "casual" atmosphere is still there .

We are learning a lot and it is so satisfying to help to restore the fading Rainforest.

Doris Cartarius

Fruit Collection Diary January - March 2006

Species	Common Name	Collection Provenance
<i>Acmenosperma claviformum</i>	Trumpet Satinash	RE 7.8.3
<i>Agathis microstachya</i>	Bull Kauri	RE 7.8.2
<i>Alchornea rugosa</i>	Alchem tree	RE 7.8.3
<i>Alphitonia whiteii</i>	Red Ash	RE 7.8.2
<i>Astonia scholaris</i>	Milky Pine	RE 7.8.2, 7.8.3
<i>Aphananthe philippinensis</i>	Grey Handledwood	RE 7.8.3
<i>Apodytes brevistyla</i>	Buff Alder	RE 7.8.2
<i>Athertonia diversifolia</i>	Atherton Oak	RE 7.8.2, 7.8.4
<i>Barringtonia calytrata</i>	Mango Pine	RE 7.12.1
<i>Blepharocarya involucrigera</i>	Rose Ternut	RE 7.8.2, 7.8.3
<i>Brachychiton acerifolius</i>	Flame Tree	RE 7.8.2, 7.8.3
<i>Celtis paniculata</i>	Silky Celtis	RE 7.8.3
<i>Cleistanthus apodus</i>	Weeping Cleistanthus	
<i>Cordia dichotoma</i>	Cordia	RE 7.8.3
<i>Cordylone canniifolia</i>	Palm-lily	RE 7.8.2
<i>Corynocarpus cribbianus</i>	Cribwood	RE 7.8.3
<i>Croton insularis</i>	Silver Croton	RE 7.8.3
<i>Cryptocarya triplinervis</i>	Brown Laurel	RE 7.8.2, 7.8.3
<i>Cycas aspera</i>	Cycad	RE 7.8.8
<i>Darringtonia darlingiana</i>	Brown Oak	RE 7.8.2
<i>Dysoxylum mollissimum</i> ssp. <i>Molle</i>	Miva Mahogany	RE 7.8.2, 7.8.3
<i>Euroschinus fasciata</i>	Pink Poplar	RE 7.8.2, 7.8.3
<i>Ficus congesta</i>	Water Fig	RE 7.8.2
<i>Ficus hispida</i>	Hairy fig	RE 7.8.3
<i>Ficus leptoclada</i>	Figwood	RE 7.8.3
<i>Ficus watkinsiana</i>	Watkin's Fig	RE 7.8.3
<i>Geissolias biagiiana</i>	Red Carabeen	RE 7.8.2, 7.8.3
<i>Gmelina fasciculiflora</i>	White Beech	RE 7.8.2
<i>Guioa acutifolia</i>	Glossy Tamarind	RE 7.8.2, 7.8.3
<i>Homalanthus novoguineensis</i>	Tropical Bending Heart	RE 7.8.2, 7.8.3, 7.8.4
<i>Mallotus paniculatus</i>	Turn in the wind	RE 7.8.2, 7.8.3
<i>Mallotus philippensis</i>	Red Kamala	RE 7.8.2, 7.8.3
<i>Melastoma affine</i>	Native Lasiandra	RE 7.8.2
<i>Mischocarpus pyriformis</i>	Pear fruited tamarind	RE 7.8.2
<i>Neolitsea dealbata</i>	Grey Bullwood	RE 7.8.2, 7.8.3
<i>Paracichedenandra pinosum</i>	Tulip siris	RE 7.8.3
<i>Phaleria clerodendron</i>	Scrub Daphne	RE 7.8.2
<i>Pliiodistigma tropicum</i>	Apricot Myrtle	RE 7.8.2
<i>Pittosporum venulosum</i>	Rusty Pittosporum	RE 7.8.2
<i>Rhodomyrtus blairiana</i>	Iron Malletwood	RE 7.8.2
<i>Rhodomyrtus pervagata</i>	Rusty Rhodomyrtus	RE 7.8.2
<i>Rhodomyrtus sericea</i>	Grey Rhodomyrtus	RE 7.8.4
<i>Sloanea australis</i> ssp. <i>parviflora</i>	Blush Alder	RE 7.8.2
<i>Sloanea macbridei</i>	Crek Carabeen	RE 7.8.4
<i>Syzygium australe</i>	Grey Satinash	RE 7.8.2, 7.8.3
<i>Syzygium wilsonii</i> ssp. <i>wilsonii</i>	Powderpuff Lillypilly	RE 7.8.2
<i>Terziumia sericeocarpa</i>	Damson	RE 7.8.2, 7.8.3, 7.12.1
<i>Tetrastyanandra longipes</i>	Tetra beech	RE 7.8.3
<i>Trema orientalis</i>	Peach Cedar	RE 7.8.2, 7.8.3
<i>Viticochroma queenslandica</i>	Vitex	RE 7.8.2, 7.8.3
<i>Zanthoxylum veneticum</i>	Thorny Yellow Boxwood	RE 7.8.3

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