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The CODLine

Incorporating NEWS of the Mary River Catchment Coordinating Committee

Dairying for sustainability

Peter and Elke Watson
Landholders, Conondale

The Watson family bought their properties along the Mary River at Conondale in 1984. The land had been used for dairy production in the 1950s and 1960s and the dairy had been closed in the early 1970s when bulk milk was introduced. The property had been a busy and productive dairy in its time, growing lots of corn to feed the milking cows and pigs. However the property management had lost its direction by the time the property was purchased by Jeffrey Watson, with the help of his friend Harold Grigor.

As was common practice in the era, the wide river flats (originally standing vine scrub) had been almost completely denuded of trees. Only a few large old blue gums remained, a symptom of continuous grazing regimes. The fertility inventory of the pastures was also limited; much of the farm was covered by 'Queensland oats' (blady grass), a species that flourishes in degraded pastures.

Over the next 23 years, a program of pasture regeneration and tree planting has been implemented. The place is now a productive dairy again.

The two kilometre stretch of Mary River frontage was fenced off in 1991. We have enhanced the pioneer colonisation by sheoaks by planting native trees in a five to ten metre strip along the top of the bank. This vegetation has made the bank stable, even in very large floods. In the record flood in 1999, only a minimal amount of riverbank was lost – just a strip 1.5 metres wide along a 10 metre stretch. This was in strong contrast to the substantial losses suffered by neighbouring farms and to losses that had occurred in earlier large floods.

Managing for sustainability is transforming the landscape for both business and wildlife at Peter and Elke Watson's dairying property near Conondale.

A creek meandering through the property was fenced off in 1994. Trees planted along this riparian zone are now up to 15 metres tall. Birds, snakes and other wildlife are protected in this area and do indeed flourish.

This zone now forms a two kilometre corridor of trees from the road to the property boundary.

The old blue gums on the river flats are now in their dying years and are great nesting sites for native birds. Indian mynahs visit the property but are exterminated as soon as they are noticed. Being very intelligent birds, they move on to less dangerous places, leaving the farm for the native birds.

The natural swamps and shallow water on the flats have been allowed to remain and are our next project. These areas are already partly fenced, and we plan to plant them to native swamp trees and shrubs to increase the breeding grounds for the local wetlands birds.

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Northern Pipeline Interconnector sucks Obi Obi dry – and maybe Six Mile too!

The lower reaches of Obi Obi Creek could be severely impacted in the near future by the construction of the **northern pipeline interconnector** which will divert 'excess' water from Baroon Pocket Dam to supply the northern suburbs of Brisbane.

So what's wrong with that? It sounds like a reasonable idea, if the water isn't currently being used. Let's investigate this further.

The major environmental impact of stage 1 of the pipeline proposal will be to allow the level of water extraction from Baroon Pocket Dam on Obi Obi Creek to go from its current level of about 18 500 ML/annum to its 'full' level of about 36 000 ML/annum within about 18 months.

The **severe environmental implications** of going to this level of extraction were well documented in the studies by the scientific panel for the **Mary Basin Water Resource Plan**. There is opportunity for even further extraction from the Obi Obi Creek under the current Mary Basin WRP. The impacts of this potentially severe extraction scenario from the Obi Obi Creek have not been assessed in any studies available to the public.

As part of a community-minded interest in preserving stream health, in line with the Obi Obi Creek rehabilitation scheme, **downstream irrigators have been historically conservative** in using the water allocated to them, using only about 700 ML/year of the 2000 ML/year allocated to them from flows in the creek. They are obviously concerned their efforts at maintaining the ecosystems in Obi Obi Creek will come to nought if their unused allocation is extracted from the Obi Obi system via the pipeline.

Stage 1 of the pipeline will result in almost doubling the extraction of water from Obi Obi Creek, with major impacts on the flow regime, riparian and in-stream habitats of that stream. Stage 2 will allow additional extraction from Six Mile Creek (at Lake Macdonald) and from the Mary River at Coles Crossing.

All of these areas are significant habitat for a number of important EPBC listed species, particularly the Mary River cod, the Mary River turtle, the Australian lungfish and several threatened stream frog species.

The most severe risk is to the critically endangered **Mary River cod**. The importance of Obi Obi and Six Mile creeks to the survival of the species is highlighted in the Mary Cod Recovery Plan prepared by the State Government and registered with the Federal Government Dept of Environment & Water.

When the pipeline project was submitted to the Federal Government for its assessment there was **no mention at all of likely impacts on these threatened species**, and the assessor would have had no idea from the documentation submitted of the likely implications of the project for the Mary River.

In addition to the pipeline stage 1 and stage 2, the **proposed dam at Traveston Crossing** is also anticipated to have significant environmental impacts on the main trunk of the Mary River, and to reduce the freshwater flows past the existing Mary River Barrage into Hervey Bay. It is imperative that the cumulative impacts of the operation of all these water infrastructure projects be taken into account in the Environmental Impact Studies for each project.

If the flow implications of the operation of stage 1 of the pipeline has severe habitat impacts on Obi Obi Creek and the operation of stage 2 has severe habitat impacts on Six Mile Creek, then this leaves only one remaining large area of suitable habitat identified in the Mary River Cod Recovery Plan – in Tinana Creek, isolated from the remaining population in the main trunk of the river by the Mary River Barrage and the estuarine area of the Mary River near Maryborough.

If the Traveston Crossing proposal proceeds, then this would remove most of the remaining existing breeding habitat in the main trunk of the river as well, in addition to providing a major barrier to migration in response to flow alterations and climate change. It is quite possible that this would ensure the extinction of this species in the wild. Similar concerns apply to other endangered species that rely on continuous connected corridors of suitable riparian and in-stream habitat for their survival.

Senate Inquiry

17th April 2007 saw a panel of Senators congregate at the DPI Conference Centre in Gympie to hear from groups and individuals that submitted comments on the proposed dam at Traveston. The room was full to overflowing with media and interested residents.

The Senate had received 187 submissions: 186 of these were against the proposal, and one was in favour of the dam (this came from the State Government).

Whilst it is true the Senate Inquiry *cannot* stop the dam, the Federal Government *can* stop the dam under Environment legislation.

Traveston Dam proposal updates

Dam Proponents

Queensland Water Infrastructure Pty Ltd

Website: www.qldwi.com.au
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Dam Opponents

Save the Mary River Coordinating Group

Website: www.savethemaryriver.com
Email: savethemaryriver@gmail.com

Save the Mary Support Centre

Main St, Kandanga

Healthy soils = Healthy profits

Brad Wedlock
Projects Manager
Mary River Catchment Coordinating Committee

Graziers need it, dairy farmers need it, small croppers need it, cane-growers need it, and the catchment needs it. It is no secret, but it is rarely thought about – until now! What are we talking about?

Healthy soils – and they are making a welcome return to centre stage. A profitable and sustainable farming or grazing enterprise relies upon healthy soils.

In January a pilot soil health program was commenced in the Lower Wonga district as part of the National Landcare Program funded project called 'Western Mary Catchments Grazing Landscapes Project'. This pilot program shows property owners how to measure the health of their soils using a 'soil health kit' and 'soil health score card'.

The program commenced with an introductory night, attended by 30 graziers, jointly run by Queensland University of Technology, MRCCC, DPI&F and the Gympie District Beef Liaison Group. During this introductory session the participants were introduced to some basic soil health concepts.

A **healthy soil** is all about having the correct balance and interaction between the physical, chemical and biological components.

Professor Peter Grace from QUT said that the 'key to soil health and sustainable profits is **carbon**, and this has become more important with recent political announcements concerning carbon trading. Increasing soil carbon levels have a direct bearing on higher profit levels. Carbon is about 60% of the soil organic matter which made up of decomposing plant and biological material, as well as still-living soil organisms. Basically the soil organic content is what gives the soil its structure. Poor structure results in poor pasture growth'.

Once the soil health participants had attended the introductory night, a field-day was organised which allowed the participants to delve deeper into soil health through the demonstration of the use of the 'soil health kit' and the 'soil score card'. The kit was developed by QUT as part of an Australia-wide 'Healthy Soils, Healthy Farms' Federal Government program.

But the single most important way to **test soil health** is to dig a hole and observe root growth, feel and smell the soil. Characteristics which help to indicate a healthy soil are organic matter content, water holding capacity, water infiltration rate, electrical conductivity (salt content) and pH. The **soil health kit** can measure these characteristics. The kit is intended for use by graziers in the Gympie district.

The **soil score card** was customised by DPI&F and the MRCCC for use by graziers in south-east Queensland. The soil health score card rates the condition of a variety of factors which impact on soil health, and provides an overall score of the health of the soil in your paddock. The soil score card takes about 15 minutes to complete.

During the field-day it was pointed out to participants that many commercial soil tests show a low soil nitrogen level. It is important to realise that in **any pasture soil nitrogen will be low** and that very often an application of fertiliser wastes money and releases greenhouse gases.

After the field day, two soil health groups were formed each consisting of eight members. The soil health kit will rotate between these graziers, who will test the health of their soils on their properties.

For more information about the Western Mary Catchments Grazing Landscapes Project, contact Brad Wedlock at MRCCC on 5482 4766.

Dairying for sustainability (Part 2)

Peter B Watson
Dairy Farmer, Conondale

'Sustainable land use management' does not seem to be said in the same breath as 'exploiting a land use system'. The days when land use managers would blatantly pillage the land to do what they liked are almost behind us…

Highly visible land use systems like the dairy industry employs subtle techniques to try to maintain a constant supply of fresh green feed for milking cows.

Gone are the days of complete pasture ploughing and re-sowing and their subsequent soil losses in heavy rain. The subtropical dairy industry uses perennial species that regenerate in the spring after winter feeds have senesced. Winter feeds are direct-drilled into the soil, avoiding the need to completely plough pasture to plant winter feed. This technology greatly reduces tillage costs. Erosion risk is also greatly reduced, as the soil is no longer exposed at the end of summer and autumn when erosive rainfall events can occur.

Sophisticated electronics mean water use can be optimised. No longer are water tables overfilled by irrigating, flushing nutrients from the pasture into the watercourse. Now soil water holding capacity can be monitored electronically to optimise plant growth.

These subtle 'best management' practices available to today's dairy managers allow for sustainable land use systems. These systems show that best management practice is environmentally sustainable. Environmentally sustainable activities show that management can operate on the black side of the ledger while pillaging of the environment for short term gain shows on the red side of the ledger. Stewardship by present day land use managers can be both subtle and profitable.

Dairying Better & Better

Financial incentives available for NRM initiatives

Contact BMRG Regional Liaison Officers at

MRCCC

Brad Wedlock & Deb Seal

5482 4766

Barung Landcare

John Muir

5494 3151 or 0429 943 153

The journey back to Nature

Ben Risby-Jones
Landholder, Cedar Creek

Back in 1999, my wife and I moved to our beautiful property here on the Sunshine Coast, full of great ideas, high ideals, fuelled with a healthy dose of naivety.

When I say naivety, I didn't even know the five to six acres of lantana we had was a 'problem'. Our property is 127 acres at the end of a no-through road surrounded on three sides by Mapleton Forest Reserve – now National Park. There is about five acres of cleared grassy valley flats with the rest forested, some with pristine Eucalypt open bushland (the ridge tops) and some with good quality (some remnant, some regrowth) rainforest. Between these two there was a great swath of lantana.

I liked the feeling that people hadn't tamed this property. When we arrived, a colony of micro-bats was living in the house (there were no flyscreens) along with, it seemed, everything else that crawls, flies, slides, climbs and bites. There was no electricity, and nobody within hearing or sight. There was little to give us the illusion of being separated from nature. I loved it. It challenged my comfort zone.

I began my country living education. I didn't have a mower, so the neighbour was kind enough to let her horses in to keep down the grass. They had full range over the place, including through the creek. I had a sense that big hard-hoofed animals in the creek wasn't a good idea, but I didn't know why.

Then in early 2000 fate took a hand. An unimposing advertisement for a workshop on healthy creeks appeared in the *Mary Valley Voice*. Main Roads had put a new bridge over one of the Belli Creek crossings and as a part of this they had done an environmental impact study. They had found two endangered frogs, the cascade tree frog and the giant barred-frog. When they put in the new bridge they damaged these frogs' habitat, and to make amends they were putting funds towards rehabilitating habitat for these frogs elsewhere. Through the workshop, QPWS was looking for landholders who were interested in rehabilitating the frogs' habitat on their property.

I didn't know much about **how to revegetate**, or even where to start. So I put my hand up and said I was interested. To my shock, there were only two other landholders who were also interested.

Since then we've received a **steady stream of support** from local, state and federal government for ongoing environmental works on this property. Many experts have come to identify animal species and tree species throughout the property, and to advise on best practices for revegetation works.

Initially, I was planting the trees by myself; putting in a few hundred felt like a big achievement! Now, six years down the track, the project has gained momentum. We have put in around 12 000 trees, mostly on very steep slopes previously covered by thick lantana, with another 2000 going in this season. Some of the first plantings are nearly maintenance free and I am happy to say the end is nearly in sight.

My main motivation is to recreate, as best as possible, the whole ecosystem, undoing the damage of the past, and allow the restructuring of a delicate balanced network of flora and fauna to occupy the space it once did. It is one of my life-long goals to **extend the remnant** that exists next door in the National Park all the way to our front gate, and then to preserve this as best as possible with a perpetually binding covenant as a gift to future generations.

As far as strategies go, I always go for minimal impact and, if I can, I always turn a negative into a positive! For lantana, I crush it down in winter to ground level using a brush hook and as many people as I can find. Then, after it has regrown in spring (to about 1-2 feet), I spray it with 1/100 glycophosphate (without surfactant). This creates a beautiful blanket mulch to plant into. I have achieved great results with this process. Through the lantana mulch, the light and warmth of the sun gets in to activate the seed bank in the soil.

We have a great seed source all around us so we plant predominantly pioneers: the secondary, tertiary and climax phase plants will come naturally from the wonderful seed bank all around our property. I like to plant (as opposed to only waiting for volunteers/natural regrowth) to get a canopy up as quickly as possible. This reduces maintenance and reinfestation by weed species.

My **planting formula** is like this:

- 70% pioneer trees that will live for only 5 to 20 years
- 15 % secondary phase tree species that may last for 50 to 60 years
- 10% tertiary phase tree species that could last 100 to 120+ years
- 5% climax phase tree species that could last for more than 150 years.

I plant at about 1-metre spacings and pay particular attention to the spacing of the tertiary and climax phase species.

In our more mature plantings where the lantana has completely gone, the vines need to be removed gently. I've try to avoid approaching this as a battle – I see it more as changing the direction of the environment.

Everything you do has impact: introducing an animal, removing an animal, introducing a species, removing a species, introducing genetic material (where are your tree seedlings coming from?), removing genetic material (clearing a remnant). It takes a very long time to be able to observe and understand the long-term implications of actions such as these.

So instead of going to war with weeds, I think in terms of shifting the direction in which our environment is moving. My property was moving steadily towards a monoculture of lantana; now it is moving towards an incredibly intricate network of diversification. This is the influence I have chosen to support. My intention is that this diverse network will be self-supportive in the years to come.

Identifying endangered species on our property has opened many doors to environmentally supportive funding, as have the remnant rainforest and also the creek.

The most valuable thing I have learnt is this: if you want to revegetate your property and you don't know how or where to start – **ASK an expert or someone who has done it before**. My experience is that there is an enormous amount of support available, be it for funding, labour, trees, information, whatever. It is all out there waiting for you to access it.

I also think it is critical to look at things with a long term vision, to see the impact that the choices you make today will have on the environment in years to come.

Dam those frogs!

Eva Ford
Catchment Officer, Mary River
Catchment Coordinating C'mtee

On balmy nights in spring and summer I, in the company of similarly strange volunteers, saunter through uncharted territory, along steep creekbanks covered in vineforest and treacherous obstacles, in search of a giant barred frog *Mixophyes iteratus* (Endangered under the EPBC Act 1999), sitting stoically with golden eyes a-staring, or a chocolate brown female Stony Creek frog *Litoria wilcoxii*.

As Catchment Officer with the Mary River Catchment Coordinating Committee (MRCCC), my work centres around research, protection and rehabilitation of threatened species and their associated habitat on private, council and road reserve land within the Mary River catchment and coastal drainages.

We have concentrated on waterway-dependant flagship species, such as the Mary River cod and Mary River turtle, Australian lungfish, giant barred frog, cascade treefrog and tusked frog. More recently, the vulnerable Richmond Birdwing Butterfly has joined the ranks as its recovery is intrinsically linked to the protection and re-establishment of its host vine, *Pararistolochia praevenosa*, mainly along waterways and moist gullies.

Giant barred frog (juvenile) [Eva Ford]

Discovering any of these species on a patch of land can initiate extension to land managers about possible on-ground works or protection arrangements. These species can swing the funding punches and help decision-makers make wiser decisions!

This past frogging season has seen us venture into new territory within Cooloola Shire, between Kenilworth and Gympie. The driving force was the startling announcement, in May 2006, that the Mary River valley would be flooded by a dam constructed at Traveston, upstream of Gympie.

Along with contractors collecting information for the dam's Environmental Impact Statement, we selected some critical areas to survey for frogs.

Unfortunately this frog-breeding season has been one of the driest on record and we have witnessed the creeks at their lowest summer levels in the memory of local landholders.

Typically by January/February the creeks have good flows and amphibious breeding is well underway, but this year many normally permanent Mary River tributaries were dried to isolated pools.

We didn't hear a single great barred frog or cascade tree frog sending out its mating call, unless enticed by evening intruders with CD players.

Good stream-frog habitat [Eva Ford]

This year we also noticed the lack of insects – flying insects were noticeable by their almost complete absence. So what have the smiling ones been eating, I wonder? Little to eat, little opportunity for breeding – not a good scenario. How many harsh years can these species endure?

However our surveys did extend the known range of these threatened frogs. Surprisingly, giant barred frogs and cascade tree frogs were found at the confluences of some creeks with the Mary River and even along the main trunk of the river, at altitudes much lower than these species' usual ranges.

Riparian vegetation is patchy along the Mary River and in many places the stable bank structures necessary for breeding have been lost or are tenuous.

What is of concern is that a large water body with no riparian shelter or bank structure between tributaries is a sure fire way to stop the flow of genetic material upstream and downstream for many stream-dependant species. Such is the scenario that will result if the Traveston Dam goes ahead as planned.

On the wings of a Birdwing by Eva Ford

Recent drought has seen the possible demise of a Richmond birdwing butterfly colony at Kin Kin, one of the few remaining colonies of this species. A few decades ago the striking emerald green and black patterns of the Richmond birdwing butterfly could be seen in large flocks along the coast from River Heads near Hervey Bay to Grafton in NSW. The current distribution is just one third of the previous range. Today the butterfly is only seen south of Cooroy/Kenilworth.

The caterpillar relies on only one vine species, *Pararistolochia praevenosa*, which grows in association with lowland rainforests of the coastal plains.

The Mary River Catchment Coordinating Committee and the Richmond Birdwing Butterfly Network – with assistance from Maroochy, Noosa and Cooloola Shire councils – are working to collect records of vines and butterflies and to distribute vines for planting to interested property owners in some shires.

Property owners can assist by planting more vines and reporting known vine locations and butterfly sightings.

For information about vine identification, to submit vine and butterfly sightings or to plant vines, contact Eva Ford at the Mary River Catchment Coordinating Committee on 5482 4766 or mrccc@ozwide.net.au. The Richmond Birdwing Butterfly Network can be contacted at dsands@bigpond.net.au

Only her memories

Beverly Hand
Aboriginal Indigenous Coordinator
Burnett Mary Regional Group

Often when I read history I feel separate from it. It is just dates and facts that we rattle off. Information in the back of our minds. In traditional Indigenous times, memories were more active and history was handed down by oral means. Information regarding creation, laws, beliefs, genealogies, ecosystems, natural resource management, customs and protocols were delivered and maintained by oral means. This aspect of Indigenous society endures until today …

Now, in the glorious tradition of my ancestors, I want to tell you all a story as I understand it to be. There may be some readers who know this type of history as my mother told it to me.

'When I was a young girl, about seven or eight, I lived with my Uncle Kenny, Aunty Lucy, and their children for a while. First, we worked at Kenilworth for Mr Peters. I don't remember much there except it was really beautiful.

'Then we went to Glastonbury where Uncle Kenny and Aunty Lucy worked for Mr and Mrs McCarthy. I remember us kids were allowed to go to school with all the other kids. And that was fun. It was the war in those days and we used to do drills. When the siren went, all the girls and little children would run to this sort of ditch that was made behind the school. And all the big boys and teachers would go and pretend to put holes in the tank and burn the school. But the best thing I remember was when Mrs McCarthy would send her son John down after school sometimes with cakes or biscuits for all us children to share for afternoon tea. They were nice people them.

'Uncle Kenny and Grandfather helped them get good timber out of that country so they could have good land for their children … They reckon the timber they took out of that country was really good hardwood, tall and straight … And a lot of the timber went to make the many piers along Queensland's coast. They tell me that much of it is still standing.

'When we were small we used to take that road right through to Kilkivan. I wonder if you can today? … Back in those days I think that it was on Mr McCarthy's property but we were allowed

Penny Bond (nee Embrey), Beverly Hand's mother.

on it because Grandfather did so much work for them and they were friends with Grandfather anyway. He could go anywhere, but some of us couldn't.

'One time Grandfather and Uncle Kenny had to go somewhere special near Glastonbury. When they came back they took us all to a place past Manumbar. When we got there Grandfather told us children to wait at the top of this big gorge while him and Uncle Kenny went down to take the old man turtle there further down the stream so we could swim and not disturb him. Grandfather said this was the old turtle's home and we could use it for a little while but to look after his home while we were there.'

Today my mother lives in Cherbourg Aboriginal Community, spending most of her time in the Cherbourg Hospital. She suffers from many ailments that keep her moving from the Respite Centre to Hospital. She no longer seems to have her memories set in place like she used to, though she does still have them.

As for that turtle, one year I visited that same waterhole with an anthropologist. As we walked down the track to the gorge, lo and behold, there was an old turtle basking in the sun on a rock in the middle of the waterhole. As we approached, the turtle slid off the rock and into the water, never to be seen again.

This is only a story that I am telling you, as I understand it to be. There are no dates or facts that are freely rattled off. **Only her memories.**

Cod Contacts ...

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Storm means broodstook needed

Vince Collis
Noosa District Community Hatchery Association

The rearing tanks made it in, but no room for the trailer (foreground & right).

We are still going after the storm in December.

Everything was going fine until a couple of trees decided to get into the building out of the wind, well, that upset things a bit.

The exotic pines along the lakeside landed in the ponds, and the resin from these caused so much pollution that it killed the broodstock that were in the ponds at the time.

We also lost about 10 000 fingerlings because power was lost and then we couldn't get into the hatchery for twenty-four hours after the storm.

You could say fair bit of work was done to get the hatchery up and running again.

Thanks to Geoff Black and his crew and a lot of other Council people who helped us – your help is very much appreciated.

Thanks also to the Council people who had to come out at night weeks after the storm to clear the road so that we could get home from the hatchery after yet more trees fell down. Thanks to everyone who helped.

We have finished rebuilding the hatchery and are now chasing broodstock which we desperately need now! At the moment we have just two fish as broodstock.

We are hoping to have a successful breeding season this year.

If you can help out the Hatchery by sourcing Mary River cod broodstock, please contact Vince Collis on 5485 2334 or collisv@westnet.com.au

Fish survival school

Dr Michael Hutchison
Senior Fisheries Biologist, DPI&F

Teaching survival skills to threatened species of fish is a new and unusual project being undertaken by the Department of Primary Industries and Fisheries at the Southern Fisheries Centre, Deception Bay.

The $400 000 study, funded by the Murray-Darling Basin Commission's Native Fish Strategy, is looking to develop techniques to boost the chances of survival of threatened species when they are released into the wild.

Hatchery-reared fish are generally protected from attack by predators as part of the rearing process in ponds and tanks. Fish reared to large sizes may also become used to a diet of pellets. Fish don't have to fight that hard to survive in hatcheries which provide ideal growing environments. However this dramatically changes once they are released back into the wild and have to fend for themselves.

Our studies and other research indicate that if hatchery-reared fish escape predation in the first 24 hours, their survival rates go up tremendously. We are looking to reduce hatchery domestication effects by training threatened species such as Murray cod, silver perch and the eel-tailed catfish to recognise predators and to react to them. The training of larger fish will also teach them how to recognise wild and live foods.

We will be looking to develop a series of techniques where we can successfully train pond-reared juvenile fish to seek shelter to hide themselves from predators.

The project may have application to other threatened fish species such as trout cod and Macquarie perch which are found in the Murray-Darling Basin and the Mary River cod found in south-east Queensland, as well as benefits for local stocking groups.

For more information on this project, contact Michael Hutchison on 3817 9590 or Michael.Hutchison@dpi.qld.gov.au

Cod Contacts ...

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Mary River Catchment Coordinating Group

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LANDCARE

Mary's missing quolls

Scott Burnett
Wildlife Preservation Society of Qld

Quolls represent the last gasp of Australia's pouched carnivore lineages. Two quoll species are known from the Mary Valley: the spotted-tailed quoll and the northern quoll. These two species are readily distinguished by size (ST quoll >2kg; N quoll <1kg) and the pattern of spots. As the name suggests, ST quolls have large and conspicuous spots on the body and tail; the northern quoll has smaller spots on the body only.

The two species differ in ecology too. Spotted-tailed quolls are hypercarnivores, eating other vertebrates. They are heavier-built than the finer northern quoll, which can appear almost squirrel-like. Northern quolls eat rodents, small birds and reptiles, insects and fruit.

It's notoriously difficult to collect data on quoll populations. Quolls are solitary and roam over large distances, so the chances of one happening across a biologist's live-trap are slim. Despite their scarcity and (mostly) nocturnal habitats, quolls are adventurous and opportunistic creatures, so they can come to light when raiding poultry pens or scavenging roadkill.

With the help of groups who collect data on fauna (Queensland Museum, QPWS and Quoll Seekers Network), we have compiled 357 spotted-tailed quoll sightings records in south-east Queensland. Only about 20 of these records are from the Mary River catchment.

Looking over the data it is clear both species of quoll have declined within the catchment. Perhaps they are even on the brink of extinction? Northern quolls, recently listed as Endangered by the Commonwealth Government, haven't been positively encountered in the catchment for nearly 50 years. We have only three sighting reports of spotted-tailed quolls in the past 10 years. Researchers from QPWS and WPSQ have also made concerted but unsuccessful attempts to find quolls, so it is obvious quolls are very scarce in the area. There is still plenty of bush out there, so where are the quolls?

Northern quoll. [Photo: B. Thomson/Scott Burnett]

Land-clearing has had a big effect on forest species such as quolls. Clearing removes shelter and the habitat of many prey species. Quolls are more susceptible to predators such as dogs, foxes and birds of prey in cleared country.

Cane toads swept through the area decades ago and most probably decimated the quoll populations around that time. Quolls are very susceptible to the toad's poison, but don't recognise it as dangerous. Strychnine baiting also decimates quoll populations, unlike 1080-bait to which quolls have a high natural immunity.

Killing at poultry yards and roadkill have no doubt added to the pressure on dwindling populations. A single hostile poultry yard owner could potentially exterminate all the quolls from an area of 110 km^2.

Through the Mary River catchment (and much of south-east Queensland), sizable natural areas remain, so where are the quolls? Intermittent sightings suggest there are small pockets of quolls out there, but there is little doubt they have disappeared from many areas of apparently suitable habitat.

This is a danger in itself, termed the '**small population paradigm**'. The inherent dangers of being a small population are so great that any animal population of less than 1000 individuals is automatically considered to be Vulnerable to Extinction by the Queensland and Commonwealth governments. Small populations are much more sensitive to genetic defects and random events such as intense wildfire, drought, flooding or disease.

Among genetic effects associated with the small population paradigm are genetic drift, loss of heterozygosity, and inbreeding depression. **Genetic drift** occurs in small populations and is a numerical phenomenon, whereby random genetic events take on greater power than the forces of natural selection and consequently animals become less and less adapted to their environment. **Loss of heterozygosity** or genetic diversity is a consequence of population bottlenecks, and limits the genetic responses of organisms to changing conditions, and hence the species' evolutionary potential. **Inbreeding depression** is a catch-all term for a syndrome in which inbreeding within a species leads to a reduction in reproductive or survival via any of several genetic malfunctions. Increased inbreeding is a consequence of small populations, where animals don't have the choice to breed outside of their family. Most wildlife species have behavioural strategies to reduce this under normal conditions. For example, in quolls all young males leave the mother's home range at independence; females stay closer to home, and so the chances of inbreeding are reduced.

Of course, not just quolls are threatened by the small population paradigm. Most of our wildlife today finds itself occupying smaller, more fragmented patches of habitat, which starts the process that can lead to species disappearing from patches of apparently intact habitat.

The solution is to retain or re-establish vegetation corridors between good quality habitat, so that all species of native fauna have room to range and survive.

You, readers, are the key to mapping quolls in the Mary catchment. Please email quoll@wildlife.org.au or call the Quoll Seekers Network on 3221 0194 to report quoll sightings.

Spotted-tailed quoll. [Photo: R. Jackson]

One Stop Conservation Shop

Open for business in the Mary catchment

Landowners in the Mary River catchment interested in protecting biodiversity on their properties now have access to a One Stop Nature Conservation Shop through the Conservation Partnerships Program.

Private landholders are custodians of significant areas of habitat. While much of our valuable biodiversity is protected in National Parks or other government reserves, more than 70% of remnant bushland is on privately owned land.

Many species of flora and fauna are unique to this region and some are considered rare or threatened with extinction. As pressures increase from population growth and human activities, we need to preserve adequate habitat for our native flora and fauna's survival.

The Conservation Partnerships Program (CPP) aims to advise and support landholders who volunteer to protect and enhance bush on their own properties.

Cooloola, Hervey Bay, Maryborough, Caloundra, Woocoo, Tiaro and Kilkivan Councils, with support from Burnett Mary Regional Group, Natural Heritage Trust, Water and Salinity Action Program, Environmental Protection Agency and Greening Australia, are offering a range of exciting options for landholders to protect and enhance wildlife habitat.

Three council-based officers have been appointed to assist landowners with

Project Officers (from left): Marc Russell (Cooloola Shire Council), Melanie Mott (Hervey Bay City Council) and Roger Currie (Maryborough Shire Council).

on-site advice, educational workshops, obtaining grants, Land for Wildlife (LFW) registrations, Voluntary Conservation Covenants, or Nature Refuge status, depending on landowners requirements.

Caloundra City Council's CPP, running for several years now, has been so successful that it has been used as a model for the consortium of Councils listed above. Several councils in the Burnett catchment are also watching the project with interest and we hope the program soon move further north.

Over 300 properties are involved with LFW in Caloundra City Council's area. This equates to a property area of over 5000 ha, with 2900 ha of retained habitat (remnant vegetation) and 200 ha under restoration. Fifteen properties have been approved for a protective covenant and 12 properties have Nature Refuge status, similar in protection to a National Park.

Nick Clancy from Caloundra Council finds the community is eager for the advice, education and support delivered by the Conservation Partnerships Program for ecological issues on their properties.

Program Officers contacts are:

Cooloola Shire
– Marc Russell on 5481 0805

Maryborough and neighbouring shires
– Roger Currie on 4190 5806

Hervey Bay City
– Melanie Mott on 4197 4583

Caloundra City
– Nick Clancy on 5439 6433

BMRG Biodiversity Conservation
– Rachel Lyons on 5483 7718

Climate-conscious Council & community

Kamal Singh
Noosa Shire Council

Australia is the highest per capita GHG emitter in the world, so Australians have a global responsibility to act to mitigate climate change.

Noosa Shire residents can participate in the 'Living Smart Homes' program (supported by Noosa Council, Caboolture Shire Council, Queensland's Environmental Protection Agency, South East Queensland Catchments and the Queensland University of Technology).

Program participants help deal with the climate change crisis by incorporating ecological sustainability into their lifestyle in the areas of energy efficiency, water efficiency, waste reduction and sustainable transport. Participants are encouraged to display their progress with signs on their properties, indicating their achievements. It is a very easy and direct way to play a part in the global solution.

Through its Cities for Climate Protection (CCP) program, the International Council for Local Environmental Initiatives has provided Noosa Shire Council with a framework to identify, manage and reduce its greenhouse gas (GHG) emissions.

Another of Noosa's GHG emissions reduction initiatives is a program to encourage Noosa businesses to take up eco-efficiency and sustainable practices whilst improving their bottom line.

In addition, after a successful trial Council is preparing a biodiesel substitution strategy for its fleet of vehicles.

From driving our cars, running our houses, to producing, processing and transporting the goods we consume, nearly every aspect of our lives is dependent on fossil fuel-based energy which is the main source of human GHG emissions. The single most important thing that we as a community can do in response to the issue of climate change is to be more energy and resource efficient in our actions. Wasting less makes sense not only environmentally and socially, but it will also save you money. Remember you can and do make a difference.

For further information, please contact Noosa Council's Cities for Climate Protection Officer, Kamal Singh, on 5449 5130.

Bio-control: why & how

John Wightman
Blackall Range Weeds Task Force

Most overseas plants that become weeds here have come without their natural enemies and haven't been found by new ones. One tool available to our natural resource managers is to create a cadre of natural enemies that can exploit the weed as a food source. When this is successful, we call it biological control. Biological control is most likely to succeed when integrated with other resource management tools, such has strategic herbicide application, grazing management, and prevention of spread.

Biological control projects are lengthy and expensive processes and are the realm of the public sector, such as CSIRO and various State Departments. Once a project is commenced, continuity needs to be guaranteed until it is clear the project has succeeded or will not succeed.

The first job is to trace the weed's centre of origin and then to investigate the life system of the target species in its native country in climate zones akin to where it has established in Australia.

Any diseases or herbivores that appear to keep the target in check in its native environment are classified as a 'potential biohazard'. Then these species are subjected to intensive checks to ensure they will have no deleterious effect on native flora and fauna if they are introduced. Some conservationists feel *no* species should be introduced, because it is not possible to test widely enough to guarantee safety. This is so, but the risk is balanced against the benefit to the common good of reducing the impact of a weed species. These tests are carried out overseas or in quarantine in Australia.

Once a potential biocontrol agent has been deemed safe for release, it has to be multiplied, distributed and monitored. At this point the ownership of the project passes from government bodies to interest groups within the regional natural resource management administrations (RNRMA). Hopefully, support for training and facility development is being taken on board by the RNRMAs, so that the final stage in these long and expensive processes is in the hands of the people on the land who will benefit most.

Cats Claw bug breeding

Kevin Dailly, CCC Bamro Officer
Gympie & District Landcare Group

Gympie & District Landcare Group is undertaking to breed up the selected bio-control agent for cat's claw creeper. This project is called the Cats Claw Creeper Bio-control Agent Mass Rearing Operation, or CCC-Bamro for short!

Scientists at the Alan Fletcher Research Station have completed host-specificity trials on the leaf-sucking tingid bug *Carvalhotingis visenda.* They tested the bug on 37 species of plants, and it only feeds on cats claw creeper. This tingid bug is native to Brazil and Argentina and has been in quarantine since 2004. The bug has been approved for release, and is now out of quarantine.

Gympie & District Landcare Group is currently constructing extensive infrastructure to house and breed these bugs on a large scale and expect to take possession of the first breeding colony in approximately six weeks, with the first field releases anticipated in August/ September 2007.

Stage 1 of the releases will encompass Cooloola, Noosa, Kilkivan, Tiaro and Woocoo Shires. Negotiations are currently underway with other Shires and private landholders who will be invited to participate in Stage 2.

The leaf-sucking tingid bug Carvalhotingis visenda *(approx. 2 mm) will be taking on cats claw creeper in the Mary catchment.*
[Photo courtesy of CSIRO]

BMRG have part-funded the project for the 07/08 and 08/09 financial years, with the shortfall in funding being generously contributed by local government authorities and Government Agencies.

If you want more information or are interested in participating in the Cat's Claw Creeper Bio-Control Project, contact Kevin Dailly on 5483 8866 or 0417 724 542.

Cabomba bio-control reprieve

Phillip Moran
Noosa & Dist. Landcare Group

The biological control programme for Cabomba *Cabomba caroliniana* suffered a setback recently when the Federal Government decided not to fund future work through its 'Defeating the Weeds Menace Programme'. Community groups, water authorities and councils had all contributed to this project, lead by Dr Shon Schooler of the CSIRO.

With the research in danger of being halted, the Burnett-Mary Regional Group threw the project a lifeline with the injection of $150 000, enabling Shon to continue this vital work.

Application has been made to the Australian Quarantine & Inspection Service (AQIS) to import a promising biological control agent, the stem boring weevil *Hydrotimetes natans.*

When permission is obtained, CSIRO can begin host-specificity testing to ensure no detrimental off-target damage will occur to our environment.

CSIRO have also developed aquaria needed to test this aquatic species. It is necessary to inject carbon dioxide into the water for the cabomba to grow well. Significant OH&S issues dealing with the use of compressed gasses in an enclosed space had to be overcome for this to work. The development of this process will be described in the book *Biological Control of Tropical Weeds*, to be published by Cambridge University Press.

Further good news was received recently when it was announced that the Federal Government had decided to change its original decision and fund the project after all. I think all the letters the Minister received made him realise what a valuable project this is!

Noosa High visits Lake Macdonald

Phillip Moran
Noosa & District Landcare Group

In April 2007 biology students from Noosa & District High School enjoyed a day at the Lake to learn about aquatic weeds. The day started with a PowerPoint presentation at the school where students saw slides of aquatic weeds from around Australia and their effects on our waterways. Two of these weeds, cabomba *Cabomba caroliniana* and glush weed *Hygrophila costata*, are serious pest plants in and around our Lake.

This was followed by a trip to Lake Macdonald, Noosa's main potable water supply, where the students were able to look at these two pests and see what is being done to try to control them. Ross Paulger of Noosa Council demonstrated the Council's aquatic weed harvester. The harvester removes up to 10 tonnes of cabomba from the lake each day. Vanessa Moscato (Landcare's Waterwatch coordinator) demonstrated the water quality equipment used by Noosa & District Landcare's Waterwatch volunteers to test water quality across the shire. Noosa Council's Environment services crew provided students and teachers with a barbeque lunch, appreciated by all.

Then we headed off to Sivyer's Rd Park to look at a glush weed control project, funded by the Burnett-Mary Regional Group (BMRG) and carried out by Noosa & District Landcare and Noosa Council. A gas burn treatment is used to remove the bulk of the weed, and the remainder is treated using Glyphosate 360 (Bi-active Roundup). The treated area is then replanted with native vegetation to create dense shade to suppress weed growth.

The students were attentive, keen, and asked lots of questions. Their teachers (Annie Bailey and Tim Schnitzerling) are a great example to the students. Their passion for the environment is obviously rubbing off on these kids.

Thanks go to Noosa Council (Geoff Black in particular) for their continued support of environmental education in our Shire.

Noosa Festival of Water

Ruth Hutchison
Coordinator

On **Sunday 3rd June** the Lake Macdonald Catchment Care Group will host the Noosa Festival of Water at the Lake Macdonald Amphitheatre and the Noosa Botanic Gardens to celebrate World Environment Day in Noosa Shire. This year's Festival will begin at 10.00 am and finish at 3.00 pm.

The Noosa Festival of Water highlights issues relating to our most precious natural resource – **Water** – particularly conserving and protecting water supplies for current and future generations.

The Festival, now in its third year, will again showcase some of Noosa's greatest attractions together with a variety of activities. Festival organisers are planning **musical entertainment** at the amphitheatre including live music from local entertainers Giants over the Falls, the ever-popular Barleyshakes, the Noosa Pipe Band and much more.

There will also be the opportunity for young people to **learn how to fish** sustainably with the 'Take a Kid Fishing' program under the expert guidance of David Whelan, *Bush 'n' Beach Fishing Magazine*'s journalist. Bookings for this program can be arranged by ringing 5482 4766.

The Festival will also offer **free boat tours** to the **Gerry Cook Fish Hatchery**, home of the endangered Mary River cod, and tours of the Noosa Water Treatment Plant.

Canoeing activities will take place on the Lake to coincide with the opening of the new **Canoe Trail (**bookings preferred to Queensland Canoeing on 3278 1033), or bring your own canoe!

Valda McLean from Noosa Parks Association and Cecily Fearnley will host the popular hourly **birdwatching tours.** Noosa Landcare will be giving out two **free trees** to every Noosa ratepayer who produces a current rates notice.

Locals will be able to have their dam, bore or creek **water samples tested** at the Mary River Catchment Coordinating Committee's display, where water can be tested (free) from 10 am until 2 pm.

There will be a range of **displays** from organisations featuring alternative water treatment/storage solutions.

Other displays include the Burnett Mary Regional Group, Noosa Council's Sustainable Housing Program, 'Living Smart Homes', Wilvos, Treemax, the Camphor Laurel Group, Noosa Integrated Catchment Association, Healthy Waterways, Sunshine Coast Environment Council, Dilly Bag and Water Aware.

The **Noosa Regional Gallery** will host its very popular family day in the Botanic Gardens, providing an opportunity for budding artists young and old to produce their own works of art. This year's theme is 'The Floating Land'.

At the **Lecture Tent**, a program of presenters will provide information on a range of wildlife and sustainability issues, including the Richmond Birdwing Butterfly, Climate Smart Living, Aquatic Weeds and Installation of Water Tanks. Ron West from the historic Majestic Theatre will also present a glimpse of the world of **silent movies**.

A range of refreshments will be available. Admission to the Festival is free.

The Lake Macdonald Catchment Care Group gratefully acknowledges the support of the following sponsors:

The Department of Natural Resources and Water; The Burnett Mary Regional Group, Noosa Shire Council, Australian Water Services, Veolia, Pristine Water Systems, Treemax, ABC Coast FM, Mary River Catchment Resource Centre, Cooroy Mountain Springwater, Noosa & District Landcare Group and Cleanaway.

For more information, contact Ruth on on 5482 4766.

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