2009 Annual Report

Mary River Catchment Coordinating Committee

The vision of the MRCCC is a sustainable and productive catchment

Mary River Catchment Coordinating Committee

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Front cover photos: *Top to bottom - the riffle, pool and sandbank sequence of the Mary River. Photos courtesy of Arkin Mackay – www.stoppress.com.au*

Contents

The MRCCC gratefully acknowledges the support of
The Sunshine Coast Regional Council, Gympie Regional Council and Fraser Coast Regional Council,
the Department of Agriculture, Fisheries and Forestry, the Burnett Mary Regional Group,
the Department of Environment, Water, Heritage and the Arts,
the Department of Main Roads, the Worldwide Fund for Nature, Powerlink
and landholders throughout the Mary Catchment.

DONATIONS TO THE MARY CATCHMENT PUBLIC FUND ARE TAX DEDUCTIBLE

Mary River Catchment Coordinating Committee Delegates 2008 – 2009

Interest Sector	Name	Position
Beef/Grazing	Naomi Cooney	
Dairying	Rob Priebe	
Dept of Primary Industries & Fisheries	Graeme Elphinstone	
Dept of Natural Resources & Water	Shanna Rogers	
Education	Mark Cridland	
Environment	Tim Thornton	
Extractive Industries	Vacant	
Fishing	Vince Collis	
General Community Lower Mary	Tanzi Smith	
Forestry	Ernie Rider	
General Community Upper Mary	Dave Sands	
Horticulture	Jim Buchanan	
Irrigation	Brian Thomas	
Landcare, Lower Mary	Carol Neilson	
Landcare, Upper Mary	Phillip Moran	Deputy Chair
Local Government Lower Mary	Cr Debbie Hawes	
Local Government Middle Mary	Cr Julie Walker/Cr Graham Engeman	
Local Government Upper Mary	Cr Russell Green	
Rural Women	Rosemary Burnett	
Special Member	Nai Nai Bird	
Life Member	Margaret Thompson	Secretary
Special Member	Lin Fairlie	
Special Member	Angus Hutton	
Special Member	Paul Marshall	Chair
Sugar	Vacant	
Western Mary Catchments Community	James Hansen	Treasurer

MRCCC Staff 2008-2009

Brad Wedlock	Operations Manager
Eva Ford	Catchment Officer Threatened Species
Dale Watson	Catchment Officer
Steve Burgess	Catchment Officer
Glenda Pickersgill	Water Quality Improvement Project Officer to Dec 08
Marc Russell	Conservation Partnerships Project Officer
Debbie Seal	Administration
Leah Johnston	Administrative Assistant
Adam Logan	FarmFLOW Officer

Chairman's Report 2009

It has been my honour to have served on the MRCCC's Executive for the last six years, and as Chairman for most of the past year. It gives me some comfort to know that MRCCC is in a relatively strong financial, administrative and human resources position, with well-developed partnership arrangements and the capacity to deliver outcomes efficiently and effectively.

Nonetheless, there are a number of things I would have liked to progress more during my time as Chairman. One of these is the proposed review and update of the Mary River and Tributaries Rehabilitation Plan, taking advantage of the considerable body of new information about the river that has been assembled during the Traveston Crossing Dam EIS process. The second is to progress the MRCCC's vision of establishing a purpose built energy and water-efficient Catchment Centre. We are currently talking to Gympie Regional Council about a suitable site and I am confident the new Executive will continue to pursue these goals.

On behalf of the Executive and Delegates I express our sincere appreciation to those who have donated to the Mary Catchment Public Fund, which was established as a means of raising funds towards a Catchment Centre, and also thank the Gympie Regional Council for providing office space for our staff and Resource Centre in the former Cooloola Shire Council depot.

Although I am now on the other side of the continent, I can't help but keep a watching brief on developments in the Mary in relation to the Traveston Crossing dam. Over the year, the MRCCC has made numerous submissions in relation to the dam and the Northern Pipeline Interconnector, as well as the review of the EPBC Act, the SEQ Water Strategy and the Biodiversity Offsets Policy. A special thanks to Steve Burgess, whose modelling of the Mary River's low flow hydrology and his mapping of water weed infestations in the river have helped to prove that the proposed Traveston Crossing Dam would have a disastrous environmental impact on river processes.

I believe I speak for 85% of people in the catchment who hope an end will soon be put to the whole sorry saga. As I write, the Traveston Crossing Dam proposal has been forwarded to Minister Garrett for a decision under the EPBC Act. At this stage the Minister's decision is expected mid-November, whereupon the MRCCC may need to closely revisit our operating framework and plans for a sustainable development model for the catchment.

The MRCCC has nominated the Riffle, Pool and Sandbank sequences of the alluvial floodplains of the Mary River and its tributaries as a threatened ecological community under the EPBC Act. These reaches provide a unique combination of flow conditions and habitat that are essential for the continued survival of a number of threatened aquatic and semi-aquatic species of international significance. The federal Environment Department has now included this nomination in their finalised priority listing. If successful, the nomination will change the way these sections of the river are managed in the future.

The MRCCC continues to play a lead role promoting and supporting sustainable natural resource management in the Mary Basin. Over its 15 year history, MRCCC has developed and maintained effective engagement with rural landholders, industry, Regional Bodies, local, state and federal government agencies, and landcare and other natural resource management groups along with a range of other stakeholders.

We value all our sector Delegates and project partners and applaud their efforts in helping us deliver on-ground land management practice change by participating in projects such as SuperGraze, Better Catchments, Rainforest Recovery, Conservation Partnerships, Living with Threatened Species habitat rehabilitation and monitoring and through our long standing Waterwatch program. The Mary Catchment has demonstrated a high level awareness of NRM issues and a strong track record of achievement which bodes well for the future of the catchment, despite the formidable challenges that lie ahead.

Over the last 12 months, MRCCC has received funding support from a number of organisations including the Burnett Mary Regional Group, the Gympie and Sunshine Coast Regional councils, the Department of Agriculture Fisheries and Forestry, the Department of Environment, Water, Heritage and the Arts, Main Roads Queensland and the World Wide Fund for Nature. These partnerships are crucial to delivering strategic regional resource condition improvements.

The SuperGraze project, developed by the MRCCC in conjunction with the Burnett Catchment Care Association, has provided improved grazing land assessment and land management practice change across SEQ by equipping landholders with better skills for reading the condition of their pastures and farm landscapes. This project has increased MRCCC's profile within the local grazing community, engaging over 500 landholders in the past 12 months.

Better Catchments engaged landholders in riparian rehabilitation at 30 sites in strategic reaches of the catchment, whilst the Healthy Habitats program signed up 38 properties seeking voluntary registration under Land for Wildlife. The MRCCC's popular frog monitoring and Birdwing butterfly work attracts large numbers of volunteers every year seeking to participate in surveys, or threatened species habitat rehabilitation and protection. Monitoring data collected for frogs, bats, butterflies, and water quality and environmental condition is helping build a picture of how special this catchment is, and clearly points to the need to protect its unique biological diversity.

The MRCCC also hosts the Gympie District FarmFLOW project which is providing producers with farm management extension services and demonstrations of the practical benefits of improved farming practices.

Our new Consulting Business Unit is delivering technical services to clients such as the Main Roads Department, Powerlink and local Government. We hope to grow this business unit in capacity and reputation so that it comes to provide a significant proportion of MRCCC's income and broadens our financial base.

Our staff continue to do us proud. It is a pleasure to acknowledge the outstanding contribution they all make, oftentimes going beyond the call of duty to ensure that MRCCC provides a friendly and helpful service to the public and our projects are successfully completed in a timely and efficient manner. Their dedication and professionalism is greatly appreciated by the Executive and committee alike.

Let me also acknowledge the commitment made by the Executive and the sector Delegates whose contributions to our policies and strategies help keep the organisation fully engaged and relevant. Our sector Delegates give us the benefit of a wealth of NRM knowledge and experience and help us to stay in touch with current issues they are facing. To this must be added the huge voluntary contribution made by our Waterwatch volunteers and those landholders who carry out on-ground works on their piece of our catchment.

I also thank Peter and Bevly Hughes, our rural reporters, who attend most MRCCC meetings and many of the special events, field days and workshops organised by the MRCCC. Their reporting of our activities raises the MRCCC's profile and provides a wide community interface with our activities. I also thank Eve Witney, long standing Editor of the CodLine newsletter, for her ongoing contribution. The MRCCC remains committed to continuing production of the CodLine as a means of increasing awareness of the work being undertaken in the catchment.

Our Secretary, Margaret Thompson, has been a stalwart, providing the new Executive with the benefit of her extensive experience in NRM, including from a regional perspective. Despite a demanding role as Noosa Landcare's NRM Manager, Phil Moran has fulfilled the role of Vice-Chair and Acting Chair admirably, and has brought an insightful and business-like approach to the role. And newcomer to the Executive, James Hanson, has smoothly and capably assumed the role of Treasurer. Lastly I wish to acknowledge the mentoring role that former Chairmen, Jim Buchanan and Harry Jamieson have provided. They have all made my role as Chair much easier and I thank them for it. **Paul Marshall**

From the Acting Chair

Paul's report is very comprehensive and leaves little to add. I would like to thank Paul for his stewardship of the MRCCC during the last year. His knowledge and passion for our environment speaks for itself. I am sure all the friends of the MRCCC will join me in thanking Paul and wishing him well in his new role in Broome. My role has been minimal. I have a great deal of faith and pride in the staff of MRCCC. I would personally like to thank Brad, Deb, Dale, Steve, Eva, Marc, Leah, Kelvin, Jenny and Adam…

The delegates of the MRCCC have a vast amount of knowledge, and I thank them all for their input. It has been an honour for me also to fill this role. I do have a passion for the area we all live in and a desire to see that we care for our bit of country in the future. **Phillip Moran, Acting Chair**

SuperGraze in the Mary Catchment 2008/09 Summary – Brad Wedlock

Delivered as a working partnership between the MRCCC, Gympie District Beef Liaison Group and QPI&F. Funded by the 'Caring for our Country' program.

Supporting Partners: BMRG, AgForce, Regional Councils, Agribusiness Companies.

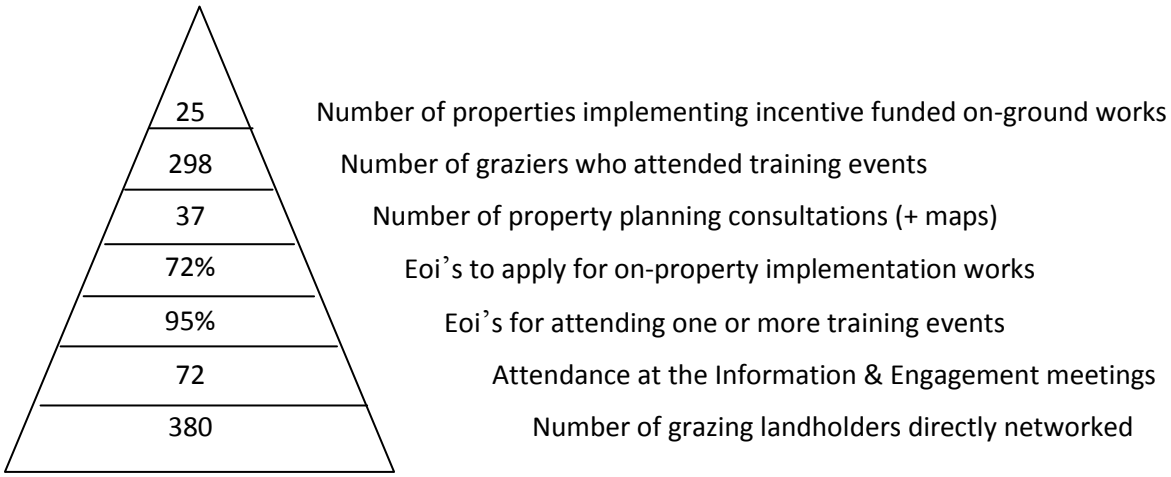
Four priority sub-catchment clusters / grazing network hubs:

1. Munna 2. Kilkivan 3. Middle Mary & Kin Kin 4. Tiaro

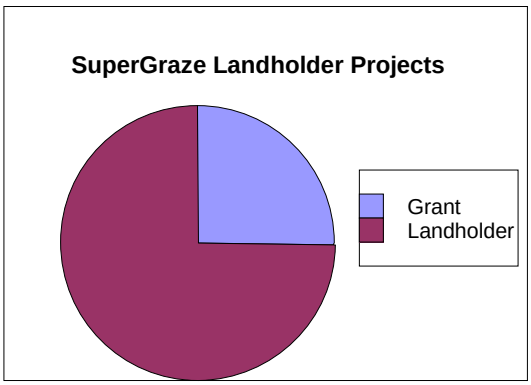
- encompassing 50% of the beef cattle population in the Mary Catchment.

Primary Objective: Improving the profitability, resource condition and sustainability of grazing enterprises by enhancing producer skills through participative learning, training, on-property monitoring, technical advice & incentives for on-ground implementation works & practice change.

The project has two main components – 1. Training, and 2. Property Implementation Works.



No. of Works Projects being implemented	25
Total Value of these Implementation Works	$375,159
Property Investment Multiplier Factor	2.98



% of On-Property Works targeting Project Outcomes	SuperGraze Project Priority Outcomes
68	Improving downstream water quality
48	Improving grazing land condition - includes profitability
44	Improving the evenness of grazing - includes productivity
40	Improving the quality of stock drinking water
32	Improving riparian zone/ wetland condition
16	Improving the reliability of stock drinking water
16	Rehabilitation of gully erosion
16	Rehabilitation of salinity scalds
16	Reducing hillslope runoff – improves productivity
8	Aquatic weed management - salvinia

SuperGraze

The SuperGraze project was successfully completed in June 2009 after a year of operation. SuperGraze built upon the previous 3 years of the Western Mary Catchments Grazing Landscapes project.

The SuperGraze project aimed to assist grazing landholders to improve the productivity and sustainability of their grazing management systems.

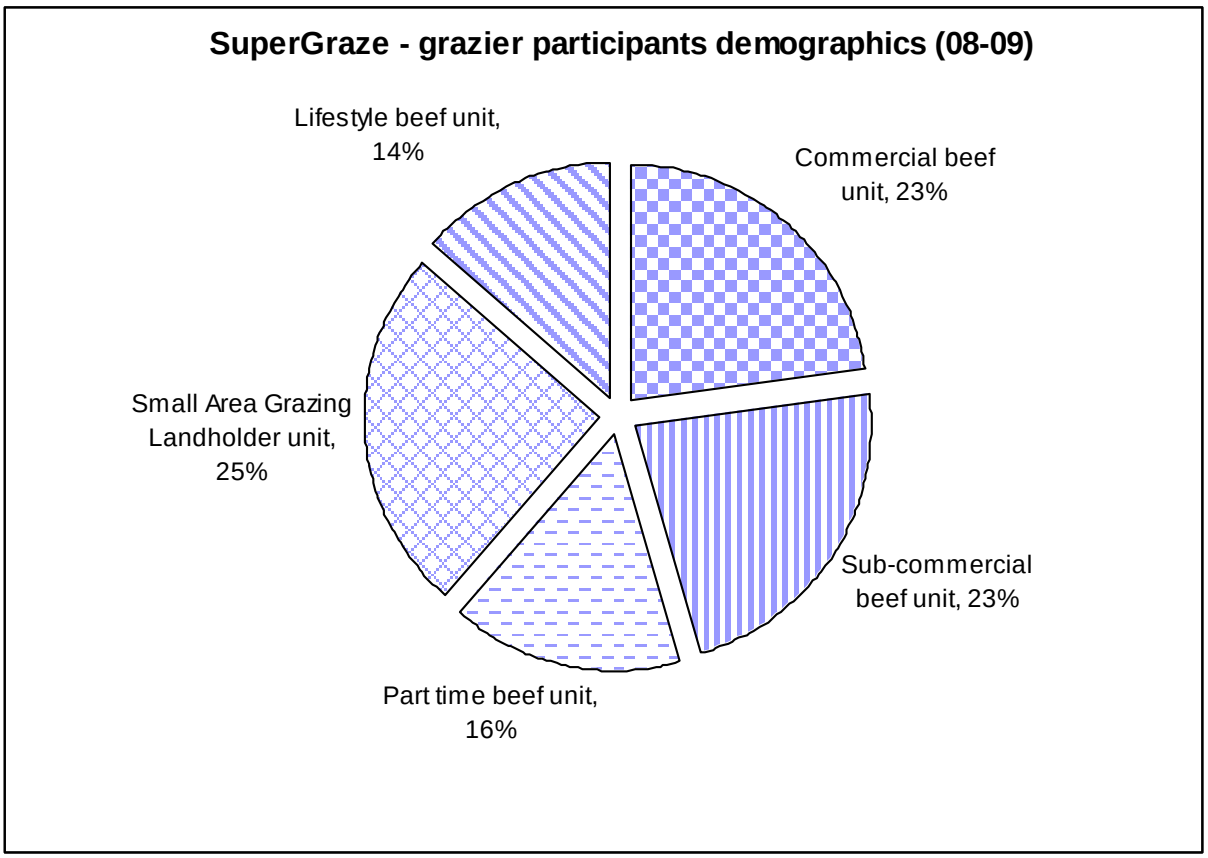
The project focused on the grazing enterprises of the Munna, Wide Bay and Widgee Creek, Manumbar, Tansey and Glastonbury areas. Also included in the project were the predominantly small area grazing landholder sub-catchments of East Gympie (Deep and Tinana Creeks) and Kin Kin Creek in the upper Noosa River catchment.

The Gympie District Beef Liaison Group and QPI&F were the major working partners with the MRCCC for this project. Other significant partners were the BMRG and AgForce.

The project team worked with local graziers in two existing grazing hubs (Munna and Wide Bay – Widgee) to investigate the best ways to improve grazing land condition, sustainability and productivity of their grazing enterprises. Improved land condition through reduction of sediment and nutrient losses from grazing land has been recognised in National Programs such as the Reef Water Quality Protection Plan, as the key to maximising productivity and profits.

SuperGraze established a new grazing hub of graziers from the high rainfall, sown pastures grazing district east of Gympie.

During 2008 / 09 the Mary Catchment experienced some excellent rainfall which led to significant flooding in some parts. This was a welcome relief after the severe drought conditions of previous years.



Field-days & Workshops

The SuperGraze project team organised the following field-days:

Field-days & Workshops	Date	No. of people
Sown tropical pasture systems field-walk	October 08	30
Gympie FarmFLOW soil health field-walk	November 08	20
Teebar SuperGraze Information Session	January 09	20
Munna Creek Waterwatch Group workshop	January 09	15
Wide Bay – Widgee Waterwatch Workshop	February 09	10
Kilkivan SuperGraze Information Session	February 09	10
Goomboorian (Gympie East) SuperGraze Information Session	February 09	30
Oakview grazing project field-walk (Kilkivan network)	May 09	15
Kandanga Giant Rats Tail grass field-day (Gympie East network)	May 09	80
Gympie Waterwatch workshop	May 09	15
Gympie Aquatic Weeds workshop	May 09	15
Noosa Festival of Water field day	June 09	50
Boompa grazing projects field-walk (Munna network)	June 09	30
Testing Management Options economics spreadsheet workshop	June 09	30
Tiaro Landcare Farming & Lifestyle field-day	July 09	80

Property Extension Activities

The SuperGraze project team conducted the following property extension activities:

SuperGraze Grazing Hubs	No. of property extension activities (property visits etc)
Munna Creek sub-catchment	7
Kilkivan / Widgee	13
Gympie East	15
Tiaro sub-catchments	2
Others	4

The project team assisted 41 grazing enterprises with one-on-one extension support activities. Generally the property-level planning and the extension support activities are conducted together to fully capitalise on the grazier's time with the project team.

The on-property consultations were highly regarded by the participating graziers. The graziers rated the information provided as extremely valuable and practical to the success of their grazing enterprises.

Property-level Planning Activities

The SuperGraze project conducted the following property-level planning activities:

SuperGraze Grazing Hubs	No. of property-level planning activities
Munna Creek sub-catchment	8
Kilkivan / Widgee	10
Gympie East	15
Tiaro sub-catchments	2
Others	2

The project team assisted 37 grazing property units with property-level planning activities. The participating graziers were provided with a laminated map of their property, on which they detailed their current infrastructure i.e. creeks, wetlands, paddocks, yards, fence-lines, water-lines, bores, dams and troughs etc.

The project team also assisted with identification of the main grazing land types and stocking rates for safe utilisation of these land types. At the same time, property-specific opportunities and related issues were also identified.

Sustainable Grazing Implementation Projects

The SuperGraze project team assisted graziers in the project area by providing funding incentives for implementation projects. During 2009, 25 applications were received from landholders for on-ground implementation project works. The value of these implementation works totalled $299, 546. On average, each participating property invested an extra $2.94 to match each $1 from the SuperGraze grant.

Total Value of Implementation Works	$375,159
Property Investment Multiplier Factor	2.98

% of On-Property Works targeting Project Outcomes	SuperGraze Project Priority Outcomes
68	Improving downstream water quality
48	Improving grazing land condition - includes profitability
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8	Aquatic weed management - salvinia

An independent panel (independent from the project team advising the participating graziers) was established to approve the proposals for landholders' on-ground project works. The panel was composed of members of the grazing community to ensure a valid process was followed. Utilising community members on this panel provided greater involvement and community ownership of the project.

The members of the panel represented the following project partners:

- Gympie District Beef Liaison Group
- MRCCC
- Landcare

SuperGraze participants

Grazing enterprise demographics	No. of participants in SuperGraze	Total area of demographic property size
Commercial grazing unit	10	13704 ha
Sub-commercial grazing unit	10	3968 ha
Part-time grazing unit	7	2491 ha
Small area grazing landholder unit	11	1524 ha
Lifestyle grazing unit	6	232 ha

Gympie District FarmFLOW Project - Adam Logan

The FarmFLOW project has reached the half way mark and things are going along nicely. Within the last 12 months, the MRCCC successfully applied to the Department of Agriculture, Fisheries and Forestry for a Farm Ready grant. The "Climate Resilient Horticulture for the Gympie District" project is assisting the bean and macadamia industries with adoption of best management practices for erosion control. There are two bean and four macadamia farms demonstrating these practices. Over the next year, field days, technical support and incentive funding is planned.

Macadamia growers learn about best management practices

The "Super Graze" Sustainable Grazing Project contributed to FarmFLOW objectives, providing $41,335 incentive payments to landholders which produced an additional $128,305 in-kind contribution of landholders' labour and use of their own equipment.

A major part of the FarmFLOW project is to promote best management practice on-farm demonstrations and trials. Several demonstrations have been completed or are in progress as follows:

Cameron Wallace waters sweet smother grass

- Geotextile in pineapple plantations concluded. Results shared with Industry at Pineapple Field Day
- Lime/fertiliser demonstration at Wolvi. Pasture cuts to measure dry matter production. Trial looking good for conclusion before the end of the year.
- Dairy Nutrient Trial. Comparing conventional and two coated ureas. Collaboration with Ross Warren, DPIF, who is measuring pasture production. Nitrogen flow through the soil profile is measured with Soil Solute tubes. The trial is currently underway and will run through summer.
- Pineapples – Pre-plant fertiliser application. Trialling four regimes of up front fertiliser application. Plant growth and nutrient flow through the profile will be measured. This trial is expected to conclude in January and is a replica of work Zane Nicholls (DPIF) has done in the Pumicestone.

FarmFlow Field Days and Training activities

Multi Industry Soil Health Day	54 Landholders
Green Bean Nutrition day	27 Attendees
Macadamia Canopy Management Workshop	20 attendees
Macadamia Best Practice Group soil health Workshop	24 attendees
Macadamia Study Tour to Alstonville	35 Growers
Beef Testing Management Options Workshop (part of the Supergraze Project)	30 Landholders

During the year, an ABCD rating system of management practices for horticulture was developed. This was a group effort with QPIF staff, Zane Nicholls, John Bagshaw and Julie O'Halloran.
Grazing Land Type Sheets for the FarmFLOW project area were developed with assistance from Brad Wedlock and Graeme Elphinstone. The final drafts are currently being edited.

Di Collier - Effective cut and swab control of Lantana

Elke Watson's revegetation surrounding the floodplain wetland

Mangold property – Riparian fencing and revegetation

Better Catchments 2008-2009 - Dale Watson

In October 2008 the MRCCC was contracted by the BMRG to coordinate the Better Catchments program in the Mary River Catchment. Better Catchments is an initiative of the Burnett Mary Regional Group (BMRG) funded by the Australian and Queensland Governments through the Caring for our Country Program

The Better Catchments program aimed to improve catchment health through improving resource conditions within priority subcatchments and areas of high conservation value by working with landholders to undertake rehabilitation and revegetation projects, weed and pest management projects and wetland protection and enhancement works. The Better Catchments program builds upon work undertaken by landholders and MRCCC under previous Rivercare programs.

Each of the project sites was assessed, and landholders given advice on rehabilitation techniques, development of property management plans and project applications, which were subsequently sent to BMRG for approval and dissemination of funding. Completed projects were inspected and landholders reimbursed by BMRG for the material costs of their project.

In 2008/2009 a total of 28 Better Catchment projects were completed. The projects were focused in the Cooroy, Gympie & Upper Mary Catchment areas, as outlined in the subcatchment prioritization undertaken earlier in 2008.

Better Catchments landholders successfully completed the following on-ground works:

- 17 riparian revegetation projects
- 15 riparian weed control projects
- 11 riparian fencing
- 3 off stream watering points installed
- 3 bushland weed control
- 3 wetland revegetation
- 2 bushland revegetation
- 1 wetland fencing
- 1 landslip remediation
- 1 riverbank engineering

In total, $153,000 in project funds were allocated. In addition, the landholders generated a substantial $300,000 in-kind contribution, (i.e. labour and cash provided by the landholders towards the project), effectively doubling the value of the funding allocated to the program.

The Policemans Spur River Walk and the Calico Creek River Walk attracted groups of landholders interested in Better Catchments, who joined field officers on a walk along the creek to discuss riparian plant species, riparian restoration techniques and aspects of riparian and in-stream ecology.

To get the message out about the project and general catchment health issues, Better Catchments was promoted with articles in local and regional newspapers, Landcare and industry newsletters, presentations to committees and organisations, presentations at natural resource management forums, field walks and stalls at expos and festivals.

The program culminated in the production of the Better Catchments Landholder Report, which provides a one page summary of each landholder's project, detailing the history, solution and future for each site. The report was distributed to each of the participating landholders and to the wider community, providing an opportunity for the techniques used, success, failures and general lessons learned from each of the projects to be shared.

In August 2009, the MRCCC successfully tendered to the BMRG to continue the Better Catchments program in the Mary Catchment for the next 2 years. The new round of Better Catchments will target control of Weeds of National Significance (WoNS), assisting landholders to prepare Property Pest Management Plans (PPMPs) and delivery of soil management workshops.

Conservation Partnerships Program - Marc Russell

In the latter part of 2008 and to June 2009, the MRCCC hosted the Conservation Partnerships Program for the Gympie region. During this time, the number of properties involved in Conservation Partnerships increased by 38 to over 200. Each property visited received on-site advice and a detailed written report outlining specific biodiversity assets and threats. These properties cover an area of over 4,700 ha– excluding the Wide Bay Training Area which is hundreds of square kilometres.

Project achievements

- 12 workshops / field days were held to help landholders understand biodiversity management and threats (eg weeds / fire). Over 400 participating landholders/land managers (eg QPWS, DNRM, council and community group representatives) attended these workshops.
- Over $52 000 of Federal and State Government funding was spent on 24 local properties (including $4 000 on council managed land at Mullen's Creek). This money and additional funds outlayed by landholders was spent on goods and services through local businesses (landholders contributed over $100 000 of in-kind cash or labour, multiplying the original cash contribution 3-fold).

David Bedford demonstrates the size of his Ficus macrophylla

When the project cash and in-kind is combined:

- Over $40,000 was expended on fencing remnant vegetation and waterways.
- Over $60,000 was expended on weed control.
- Over $40,000 was expended on revegetation projects in strategic areas.
- Over $5,000 was also allocated towards tree vouchers to new members, installing nest boxes and off stream stock watering.

Through extension support, many more landholders are addressing biodiversity issues on their properties without grants being allocated. These figures are not accounted for in the statistics above. By obtaining advice and support from the program, landholders are working "smarter" and many have taken on work simply because they now have strategies, direction and inspiration to do so.

An additional $6,400 contribution was received from Gympie Regional Council. With this funding, the MRCCC is planning to continue land management workshops for landholders in the near future.

Living with threatened species

Eva Ford

Madeira mayhem

With funding from the BMRG's Rainforest Recovery Program, two major sites of Madeira vine control have continued over the past 12 months. Chinaman and Walli Creeks are adjacent sub-catchments near Kenilworth that have been infested with this destructive vine weed more than a decade. To their advantage, Madeira is confined to approximately a two kilometre length of creek at both sites making it easier to contain and manage.

Totem Flora and Fauna contractor inspecting new growth of Madeira vine just months after control measures in the area.

Madeira is a difficult weed to control due to its reproductive mechanism of vegetative nodules that grow along the stem in clusters. Once nodules have dropped from the vine they can survive without sustenance for over a year and for several years if buried. New plants can grow from a very small fragment. Therefore management of a site infested with Madeira requires many years of follow-up after initial treatment to protect forest structure. If this is not achieved then the vines will quickly re-establish and continue to destroy the canopy trees and prevent regeneration of the riparian forest.

After three years of work by landholders, Barung Landcare and Totem Flora and Fauna good progress is being seen this year at both sites and a glimmer of hope is prevailing amongst the 26 landholders who are involved in these projects. Recognition of weeds by landholders and extension staff remains a vital key in the quest for early control, as these projects clearly demonstrate the massive input required if weeds are left to their own devices for very long.

Rivercare in the Kenilworth area

The MRCCC currently works with 54 dedicated property owners around the Kenilworth district, some of whom we have been working with for nearly a decade. Typical activities that are supported through grants include extension to landholders, riparian fencing, control of environmental weeds and encouragement of regeneration, revegetation and off-stream watering infrastructure.

Tree planting along Obi Obi Creek

The Rivercare properties in the Kenilworth district have been blessed with another season of good rainfall making conditions conducive to tree planting and providing incentives for landholders to protect and repair the wonderful waterway that they are given charge of. This calendar year's projects were supported by the Sunshine Coast Regional Council to maintain previously planted revegetation sites and continue weed control at high priority sites, and through the BMRG's Better Catchments program so that several new project sites could be initiated. This assistance to property owners means that previous rehabilitation efforts are not wasted and that landholders can embark on projects that they could not tackle on their own.

4,000 trees were planted and maintained in combined projects on seven properties. Severe frost conditions in June and floods around Easter both damaged and encouraged some trees, but with good autumn rains survivorship remains high with good leaf growth before the period of dormancy during winter. Some property owners face real hardships from riverbank erosion due to the flood events in the first part of the year. Obi Obi Creek and the Mary River banks are particularly vulnerable to minor floods due to their deep,

loose profile and minimal tree cover. However most of the sites have extensive or fragmented remnant vegetation that provide a starting point and improve the success of rehabilitation measures.

Control of environmental weeds occurred on many of the properties with the main targets being Lantana, Cat's claw, Madeira vine, Privet and Blue morning glory. All these weeds are disastrous for riparian areas as they thrive in the moist and semi-shaded conditions displaying rapid growth and high reproduction rates. Their damaging effects on forest structure are to inhibit germination and growth of native seedlings and/or to smother and kill mature plants thereby opening up the canopy to further weed incursion. Where a forest is intact weeds are less able to penetrate and proliferate. We attempt to turn the balance in favour of the native vegetation which provides a more diverse habitat for fauna and improves waterway health. Approximately 35 hectares of riparian vegetation have been protected and improved through weed control over the past 12 months in the Kenilworth area.

Riparian fencing along Belli Creek

Landholders find the time and resources in their busy lives to carry out their commitment to restore and protect our waterways. It is to their credit that monitoring of project sites over time shows real progress where landholders follow through with weed control and tree and fence maintenance. Several of these landholders are also Waterwatch volunteers for the Waterwatch network that operates in the Kenilworth district, helping us to monitor the health of the tributaries and main trunk of the Mary River. Some also participate in the biodiversity program assisting with fauna surveying each frog season.

New landholders are regularly approaching MRCCC to determine ways that they can be involved in Rivercare and gain some assistance to get started on their vision for their property. These people see what is happening in their neighbourhood and recognise the importance of looking after the values of our waterways and associated biodiversity.

Frog Business

The 2008-2009 frog-breeding season was a most exciting time for frog hunters. Regular and steady rains maintained waterway flows and temporary water bodies, providing another good recovery season for the species of the Mary River catchment. It has been refreshing to witness the resilience of nature following the severe dry conditions of previous years. Frogs are well adapted to coping with the dry; many having skin properties that insulate them from water loss, and behavioural mechanisms to retreat to moist pockets when times are dry. The question remains unanswered as to how long populations can survive adverse conditions, and still return to viable levels during ideal breeding conditions.

Wallum frog habitat near Rainbow Beach

The MRCCC's monitoring program aims to address some of the knowledge gaps relating to frogs by determining what a 'normal' population dynamic is over a wide spectrum of environmental conditions. To monitor this we have been visiting four sites over the past four years, recording frogs and other fauna along a 100 metre transect of the creek. While it is too early to draw any conclusions on the data, it does appear that the same species persist over time and that numbers vary seasonally and year to year. Monitoring cryptic fauna requires a long term commitment and we are hopeful of continuing this program long into the future with the continued assistance of the Sunshine Coast Regional Council and other funding bodies.

Volunteers frog surveying in Wallum country

In addition to the monitoring program, we are at present embarking on a further four frog monitoring sites along Skyring and Coles Creeks as part of the Bruce Highway upgrade construction.

Normal coloration for Graceful treefrogs

Blue pigment missing

Male and female Stony-creek frog in amplexus

These sites will be monitored for at least three years to determine if there are any changes to species composition and population levels. Ideally we would have several years of pre-construction baseline data to assist with this study. It was recently mentioned at a conference on fauna movement across linear barriers (e.g roads, railways) that in the Netherlands they monitor for 25 years as part of the planning phase for major infrastructure projects – something we can aspire to!

Funding for biodiversity projects during the 2008-2009 year was generously sourced from the Sunshine Coast and Gympie Regional Councils, the Burnett Mary Regional Group and from the World Wildlife Fund Threatened Species Network. The latter has seeded a frog program in the wallum area to the east of Gympie from Kin Kin Creek to the Mary River extending through to April 2010. This has provided a great opportunity to expand the biodiversity program as well as paving the way for future Waterwatch and Rivercare program extensions. 42 initial surveys have shown that wherever there is a water body, either temporary or permanent, and a reasonable amount of vegetation then at least one, and sometimes three, of the threatened wallum frog species will be present. Sites so far have focused on the area east of Tinana Creek to Tin Can Bay, Cooloola Cove and Rainbow Beach. The species found in this area are the Wallum rocket frog (*Litoria freycineti*), Wallum froglet (*Crinia tinnula*) and the Wallum sedgefrog (*Litoria olongburensis*). All of these species are listed as vulnerable under state legislation (Nature Conservation (Wildlife) Regulation 1994) with *L. olongburensis* also listed as vulnerable under the federal Environmental Protection and Biodiversity Conservation Act 1999. The other wallum dependant species; Cooloola sedgefrog (*Litoria cooloolensis*), rare under the NC(W)A, was not recorded during these surveys and appears to be confined largely to the Cooloola National Park on the mainland and on Fraser Island. Further surveys through the coming season may extend the current known distribution of this species.

A Wallum Frog workshop was presented to the coastal community in December 2008 attracting over 30 locals and agency staff. Participants were enthralled to learn about the many frogs that inhabit the coastal environments and the threats that can affect the long-term persistence of some species. The workshop was followed by a frog search at a nearby dam and creek in Cooloola Cove.

Aside from the wallum project, the stream frog project continued as it has for the past six seasons. Over 100 surveys and monitoring visits were carried out with a total of around 2,300 frog records collected from both the Mary River and coastal catchments. 570 records of six threatened species were recorded from 60 sites which contribute greatly to the growing body of information collected for this region and helps to fills some important knowledge gaps.

Along the way we occasionally find surprises such as the Graceful treefrog *Litoria gracilenta* (pictured above). Normally coloured a beautiful green with yellow belly, this individual startled us with its canary impersonation. Occasionally mutations occur and in this instance the blue pigmentation was missing.

One may wonder how it managed to survive to adulthood and participate in the breeding activities that were well underway in the puddle at Pioneer Park near Kenilworth.

Some frogs change their colour intentionally and this is true of some of the Litoria species that take on a yellow hue during the peak of breeding. In December we counted over 30 yellow male Stony-creek frogs (*Litoria wilcoxii*) along a stretch of about 10 metres at the lower end of Yabba Creek. This type of behaviour is designed to confuse those attempting to identify frogs using colour alone, but helps a male impress potential partners!

Thanks to the WildNet staff at the Department of Environment and Resource Management (DERM) we have been issued with our own copy of WildNet Lite. This is a database interface which allows us to enter our data directly to the WildNet database in Brisbane. Previously we have relied on DERM staff to enter our fauna data but they are no longer able to provide that service. However, WildNet Lite will allow us to maintain site details and retrieve our own data more easily and with more detail, as it will be housed both on our own computer system as well as with WildNet. MRCCC's part time office assistant Leah Johnston has kindly 'volunteered' to be our data entry queen!

Butterfly activities

The Richmond Birdwing Recovery project has been continuing this year with on-going support from the Richmond Birdwing Recovery Network (RBRN) and interest from landholders, both rural and urban, in the host vine (*Pararistolochia praevenosa*) planting activity. Over the past 12 months 800 vines were disseminated with a further 740 ordered for the later part of 2009. These vines are provided free to landholders through funding from the Sunshine Coast and Gympie Regional Councils, helping to reinstate food resources in areas where the butterfly used to occur.

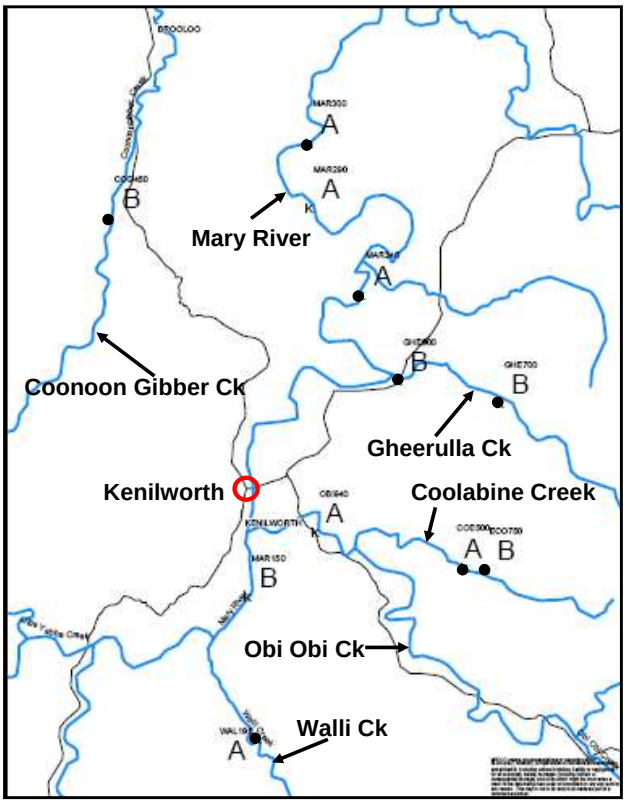
Sightings of butterflies have come in from Moy Pocket, Glastonbury west of Gympie, Bauple, Booral near Hervey Bay and an elderly lady from Wondai says she used to see them out there when she was a young girl. The butterfly remains in reasonable numbers around the west and north of the Sunshine Coast Council area but the links to the northern part of the butterfly's previous range (i.e. Hervey Bay) are very tenuous. There is hope that we can make a difference through planting and habitat protection. With the efforts of landholders throughout the Mary River catchment we may have more sightings of the butterfly in the future.

The Richmond Birdwing butterfly
Image courtesy of Don Sands

The major event over the past 12 months was a dedicated Richmond Birdwing butterfly workshop in Gympie in February this year. Over 60 people attended the all day event with presenters covering butterfly and vine ecology, past and present distribution, threats, recovery actions and community participation. Hosted by the MRCCC and the Richmond Birdwing Recovery Network this event showed that there is great interest in the wildlife of this region and that people are willing to give of their time and energy to see that the natural values that we enjoy are protected. Plans are underway to extend the workshop series to the Maryborough/Hervey Bay area in early 2010.

WaterWatch networks - Steve Burgess

The MRCCC WaterWatch program of community-based ambient water quality monitoring networks has added another year of really useful data to the long-term record of water quality monitoring throughout the catchment. Many thanks to the dozens of people who volunteer their time month after month to assist in this program, from which we are now starting to get a clearer picture of the water quality characteristics of the different streams and waterways of the Mary catchment.



Kenilworth District Waterwatch network sites showing the 'report card' grade at each site

This year, the data collection, storage, analysis and presentation methods used by the MRCCC were used as examples of best practice at a couple of state forums on community-based water quality monitoring. MRCCC were invited to present this information at the state forum in Mackay and at a regional forum in Townsville earlier this year. In some areas we have enough data to formulate our own local water quality guidelines in accordance with the Queensland Water Quality Guidelines (2006). We now have different local temperature guidelines for the upper and lower catchment, and different electrical conductivity guidelines for some of the western catchment streams. We also have different ambient pH guidelines for some of the tributaries on the Mapleton/Maleny plateau.

We have standardized all the equipment in the network by replacing some of the older multi-probes, so that all networks are using the same equipment, which simplifies maintenance and repairs and reduces calibration costs considerably. It also means that volunteers from all six volunteer networks throughout the catchment are using exactly the same equipment and procedures. We have also standardized reporting methods across all 6 networks and have considerably streamlined the procedures for analyzing and presenting information, although this process still requires a lot of time from the project officers for each network, personally checking and interpreting the data from each site. This is perhaps the most important part of the analysis and reporting process, and it is time well spent.

The 'report card' format which MRCCC developed last year gives us the ability to take a summary 'grade' from each site (or local collection of sites) and place these on a map to give a quick overview of ambient water quality across the catchment or subcatchment. (as shown above).

Our next step is to take the data that we have on ambient physical and chemical properties, and combine it with the observations and data on other indicators of stream health (such as the data that volunteers collect about aquatic weeds), and devise a report card system which relates more to the overall 'health' of the stream at each site.

"That salinity reading seems a bit high…".

The other main task for the next year is to improve the transport arrangements and reliability of the way some of the kits have been moving around the networks. This will require better organization from the bloke with the beard in Gympie, and continuing give and take between people in each of the networks in coordinating their busy schedules. The steady, ongoing commitment of waterwatch volunteers to this activity is its most valuable component, and we hope that it can continue for many years to come.

Waterway Monitoring Program of Skyring and Coles Creeks – Dale Watson

In November 2008, the MRCCC was contracted by the Queensland Department of Main Roads to prepare a report on the baseline condition of the Skyring and Coles Creek catchments in the Federal area of the Mary River catchment as part of the Cooroy to Curra Bruce Highway upgrade.

This desktop study identified the existing catchment planning, water quality, hydrologic, aquatic fauna and habitat data and information for the catchments of Skyring and Coles Creek. The information within this base line report was then used to assist in the development of a plan to monitor any changes that may occur within these catchments as a result of the highway upgrade construction.

In June 2009 the MRCCC was contracted to undertake the 'Waterway Monitoring Program of Skyring and Coles Creeks'. This program will monitor changes and trends in stream health parameters (water quality and aquatic faunal condition) before, during and after construction of the Federal section of the Cooroy to Curra upgrade of the Bruce Highway (with a specific focus on the realignment of Skyring and Coles Creek).

Key purposes of the monitoring program are to:

- Characterise stream health
- Compare stream health data against guidelines
- Identify trends through time
- Identify trends through space
- Evaluate on-ground works

The monitoring program is made up of six major components, each of which are detailed below:

Eva Ford scooping for macroinvertebrates in Skyring Creek

1. Physical and Chemical Water Quality

Objectives: Identify existing physical chemical water quality condition and monitor changes over time

Site Locations: 7 sites on Skyring Creek, 5 on Coles Creek (from upper to lower catchment)

Equipment: TPS 90 FLT and Chlorophyll a meters

Parameters: Temp, pH, Dissolved Oxygen, Salinity, Turbidity, Chl a

Monitoring Frequency: Monthly

Sampling Methods: MRCCC Quality Assurance and Calibration

2. Turbidity Logging

Objectives: Monitor changes in turbidity data over time to assess effects of construction of highway upgrade

Site Locations: 4 sites on Skyring Creek, 3 on Coles Creek (upstream & downstream of creek realignment)

Equipment: Greenspan Turbidity Loggers and Sensus Ultra Depth Gauge

Parameters: Turbidity & Stream Depth

Monitoring Frequency: Continuous

Sampling Methods: CRC Catchment Hydrology developed methods

3. Channel Habitat Monitoring

Objectives: Monitor changes in channel habitat characteristics over time to assess effects of construction of highway upgrade

Site Locations: 6 sites on Skyring Creek, 6 on Coles Creek (upstream and downstream of creek realignment)

Parameters: 12 cross sections with habitat data at 2m intervals (e.g. substrate, riparian vegetation, fauna habitat, bank overhangs, woody debris, organic matter, aquatic plants, water levels and velocity)

Monitoring Frequency: 6 monthly

4. Macroinvertebrate Monitoring

Objectives: Monitor changes in macroinvertebrate communities over time to assess effects of construction of highway upgrade

Site Locations: 2 sites on Skyring Creek, 2 on Coles Creek (pool, run, riffle sequence upstream and downstream of creek realignment)

Parameters: Macroinvertebrate species richness and abundance (SIGNAL Score)

Monitoring Frequency: 6 monthly

Sampling Methods: QLD AusRivAS Sampling & Processing Methods

5. Fish Survey

Objectives: Monitor changes in fish communities over time to assess effects of construction of highway upgrade

Site Locations: 2 sites on Skyring Creek, 2 on Coles Creek (pool, run, riffle sequence upstream & downstream of creek realignment)

Equipment: Seine nets, baited box traps, electro-fishing

Parameters: Fish species richness, abundance and condition

Monitoring Frequency: 6 monthly

Sampling Methods: Adapted from Ecosystem Health Monitoring Program (Smith & Storey, 2001)

6. Frog & Microbat Survey

Objectives: Monitor changes in frog & microbat populations over time to assess effects of construction of highway upgrade

Site Locations: 2 x 100m transects on Skyring Creek, 2 x 100m transects on Coles Creek (upstream and downstream of creek realignment) and 4 x (60x60cm) 'frog plates' at each end of transect)

Parameters: Frog and microbat species richness, abundance and condition

Monitoring Frequency: 3 x year (within October to March breeding season)

Sampling Methods: Nocturnal transect monitoring (including AnaBat SD1 data) and diurnal 'frog plate' monitoring

The monitoring program has been approved for three years, with a view to continuing the program after construction of the highway upgrade has been completed. The monitoring program will inform the Queensland Department of Main Roads on the effects of the construction of the highway upgrade and the realignment of Skyring and Coles Creeks during the construction period. A comprehensive scientific report on the effects of the highway upgrade on the water quality and habitat values of Skyring and Coles Creeks will be produced at the conclusion of the program.

MRCCC Aquatic Macroinvertebrate Monitoring – Dale Watson

During 2009, MRCCC field staff undertook a considerable amount of aquatic macroinvertebrate studies, which has led to us learning much about these incredible creatures.

But what exactly are aquatic macroinvertebrates and why are they important? Macroinvertebrates are defined as small animals able to be seen with the naked eye (macro), without backbones (invertebrates) that live in most freshwater systems in the world. Commonly they are called "Water Bugs". Macroinvertebrates cycle energy though ecosystems by breaking down organic material, harvesting algae, shredding course material, feeding on other invertebrates and being eaten by larger vertebrates like platypus, fish and water rats. Without them, the system may start to fail. Although macroinvertebrates may not have a backbone, they can be viewed as the backbone of the aquatic ecosystem.

Due to the abundance, diversity, many habitat preferences and sensitivity to water quality of macroinvertebrates, studying them provides an excellent indication of past and present water quality condition. Understanding the effects of human activity on macroinvertebrates allows us to conserve them and the ecosystems they support.

MRCCC field staff use the 'Australia-Wide Assessment of River Health: Queensland AusRivAS Sampling and Processing Manual, NRWM, 2001' for macroinvertebrate sampling and processing methods, monitoring of all

possible habitat types (riffles, runs, pool beds, edge/backwaters and macrophytes) with macroinvertebrate sampling nets. Areas with good macroinvertebrate habitat (stones, logs, vegetation) are focussed on. Next, the picking and sorting of the macroinvertebate samples begins. This involves spreading the samples out in trays and picking at least 100 macro-invertebrates per sampling area, trying to find as many types as possible.

Identification of the macroinvertebrates is undertaken using our new Prism Optical Stereoscope. Identification is taken to family and genus level , made possible by using the dichotomous key "Identification and Ecology of Australian Freshwater Invertebrates" produced by the Murray Darling Freshwater Research Centre and the "Colour Guide to Invertebrates of Australian Inland Waters" produced by the Cooperative Research Centre for Freshwater Ecology.

The MRCCC uses the SIGNAL (Stream Invertebrate Grade Number – Average Level) assessment and scoring method. The SIGNAL score gives an indication of water quality and general stream health of the waterway and provides indications of the types of pollution and other physical and chemical factors affecting the macroinvertebrate community. This is achieved by assigning each family of macroinvertebrates a 'grade number' between 1 and 10. This grade level reflects family tolerance to a range of environmental conditions, including forms of water pollution. Basically a low grade indicates a high tolerance to environmental change and a high grade indicates a low tolerance to environmental change. An abundance rating is also used to determine a weight factor for each type of macroinvertebrate.

While sampling, processing and identifying the macroinvertebrates in the waters of the Mary River Catchment we have learnt some intriguing facts about these incredible creatures, some of which are listed below.

Caddis Fly larva – the stick that walks

The secret lives of aquatic macroinvertebrates:

Water Measurers (Order: Hemiptera, Family: Hydrometridae): Predators that timidly approach their prey, waving their long antennae (with specialized sense organs at the tip). The prey is speared with a long and slender rostrum and usually carried to land where every bit is sucked out.

Caddis Flies (Order: Trichoptera): Sometimes called "sticks that walk" or the "hermit crabs of the creeks". Many larvae construct portable cases, often incorporating organic and inorganic materials from the surrounding stream habitat bound together with silk produced by the Caddis Fly.

Dragon Fly larva

Whirligig Beetles (Order: Coleoptera, Family: Gyrinidae): Eyes divided into dorsal and ventral portions (they have four eyes!). And just in case four eyes are not enough, they can locate prey using a specialised organ, within the antennal pedicel, which is sensitive to surface waves.

Dragon Fly and Damsel Fly Larvae (Order: Odonta): Have a 'prementum', which is in the stipital region of the labium, containing muscles of palpi and ligular lobes, giving insertion to cranial muscles of labium. In other words they have a mask, covering their head, attached to the neck which can be flicked out at amazing speed to catch prey.

Mayfly

Mayfly (Order: Ephemeroptera): Have abdominal gills that appear to "flutter" like feathers, enabling them to obtain oxygen from the water. Adults have no functioning mouthparts with which to feed, their only purpose is reproduction and dispersal.

Yabbies, Shrimps & Crabs (Order: Decapoda): Maintain balance with a sand grain structure (called a statolith) inside a sensory organ (called a statocyst) at the base of antennae. When the animal is horizontal, the statolith sits squarely on a set of hairs in the base of the statocyst. As the animal moves around so does the statolith, helping the animal to know which way is really up. When shedding their exoskeleton they lose their statoliths. New ones are gained by either rubbing their antennal bases in the sand while the new exoskeleton is soft or by carefully putting sand grains into the pores with their smaller pincer legs!

Sampling for macroinvertebrates

Duke of Edinburgh Award candidate, Sally Neeser

Education and awareness

Each year MRCCC combines forces with DERM staff and Gympie Landcare to host a rotational environmental activity at Cedar Grove camping area along Amamoor Creek in Amamoor State Forest for year 4 and 5 Jones Hill State School students. Under the careful guidance of teacher Shelly Gage, the students are split into groups and cover topics such as water quality testing, aquatic macro invertebrates, food webs, rainforest ecology and pollution of waterways.

With assistance from teachers and parents the groups are taken to each location where they can involve themselves in the activities on offer. They may have the opportunity to use water testing equipment, smell leaves and bark, draw how they think food webs might operate, see for themselves what the tiny creatures look like that inhabit the creeks and how pollution can turn clean water into something that no creature would willingly immerse themselves in.

The students arrive in a state of high excitement, which can be a challenge for those of us trained and experienced in dealing with creatures that are predictable! By the end of the day however, much energy has been spent learning about waterways and forests and all the interesting interactions that occur there.

At the other end of the educational spectrum, MRCCC staff always get a lot of interest from high school and university students looking for information to help them with assignments. We have talked to a number of school groups as part of their senior geography unit on catchments, and biology assignments on biodiversity. One of the field trips we did this year was a mini 'road trip' catchment crawl in the lower Mary and Tinana Creeks with senior students from Agnew school in Maryborough, looking at the differences between the unimpounded and impounded reaches in each stream, and comparing the differences between the two streams. Students carried out standard water monitoring at each site, along with a bit of exploration and discussion about the riparian zones and in-stream aquatic habitat.

This year we conducted a similar field trip with undergraduate planning and environmental studies students from the Sunshine Coast University. These students visited areas downstream and upstream of Traveston Crossing, also looking at areas of excellent riparian habitat in lower Kandanga Creek and looking at land use patterns on the Mary floodplain.

We were also happy to be able to assist with Anna, a master's student from the International Water Centre who spent several months living in the Mary catchment while working on her master's thesis in water management. The activities of the MRCCC (along with many people in the catchment) are also being documented by Kim de Rijke, a PhD candidate in anthropology from the University of Queensland.

In 2009, the MRCCC also hosted Duke of Edinburgh award candidate Sally Neeser, who was trained in the area of data entry and use of an excel spreadsheet. Sally was required to interpret field data sheets from frog surveys, match sites to previously existing site in the database and enter data accurately. Sally also interpreted bat call analysis sheets and researched nomenclature for entry onto both the field sheets and database. Sally worked diligently and accurately interpreting the work of others. The task was of immense help to the ongoing fauna project that MRCCC conducts.

Lake Macdonald Catchment Care group - Noosa Festival of Water

Since 2005, the MRCCC has coordinated the Noosa Festival of Water at the Lake Macdonald Amphitheatre and Noosa Botanic Gardens on behalf of the Lake Macdonald Catchment Care group, and in conjunction with Sunshine Coast Regional Council and Noosa Landcare. The principal aim of the Festival is to raise community awareness of the need to protect and conserve our natural assets. In 2009, the Festival also aimed to help Noosa Biosphere residents better understand the relationship between humans and the Biosphere. The Festival celebrates World Environment Day, and is planned annually for the closest Sunday to that day. This year, this was the 7th June.

As in previous years, the 2009 Festival program included free boat tours to the Gerry Cook Hatchery and the Noosa Water Treatment Plant. This is the most popular attraction on the day, and an excellent promotional opportunity for the Gerry Cook Hatchery, providing the best opportunity to improve community awareness on the captive breeding program for the endangered Mary River Cod. The Festival also incorporates a free kids fishing clinic supported by Bush and Beach journalist, Dave Whelan, as well as entertainment in the Amphitheatre, kids art activities, a range of displays from commercial and community environment organisations and free canoe instruction from Queensland Canoeing.

Martin Fingland with friendly carpet snake

This year's star attraction was undoubtedly Martin Fingland and his collection of native animals. As well as giving a well attended presentation in the Amphitheatre, Martin's display was constantly surrounded by people wanting to get up close and personal with many of our local native species.

Each year, the Festival attracts somewhere in the vicinity of 2000 people. The event is well promoted through a range of media and is now a recognised activity for World Environment Day in the northern Sunshine Coast region. The 2009 Festival of Water was supported by Sunshine Coast Regional Council, the BMRG, and for the first time, Seqwater. The success of the Festival is also reliant upon a significant in-kind contribution of time and services from a large number of volunteers. We are currently negotiating with Council in relation to continuing the Festival in coming years.

Cabomba Biological Control Program – Shon Schooler, CSIRO

Cabomba originates from South America and the southern USA. The plant's tolerance of fragmentation and delicate appearance make it a desirable aquarium plant and consequently it was brought into many countries through the aquarium trade. Cabomba was subsequently introduced into lakes and streams both accidentally, through the dumping of aquarium water, and on purpose, to enable cultivation for later collection and sale. It is primarily spread across catchments by humans on watercraft, boat trailers, and eel-trapping cages.

Cabomba negatively affects the environment, recreational activities, public safety, and water quality. The weed can smother native submerged plants such as pondweeds (*Potamogeton* spp., Potamogetonaceae), stoneworts (*Chara* spp., Charophyceae), hornwort (*Ceratophyllum demersum* Linn., Hydrocharitaceae), and water nymph (*Najas tenuifolia* R. Br., Najadaceae). Cabomba infestation may also reduce germination of desirable native emergent plants. Alteration of the flora by cabomba is thought to have reduced populations of platypus (*Ornithorhynchus anatinus* Shaw, Ornithorhynchidae) and water rats (*Hydromys chrysogaster* Geoffroy, Muridae) in northern Queensland. In southern Queensland, cabomba appears to negatively affect populations of the endangered Mary River cod (*Maccullochella peelii mariensis Rowland,* Percichthyidae). The long stems of cabomba impede the movement of boats and can get tangled in propellers, paddles, and fishing lines. This makes many recreational activities less desirable in areas infested with cabomba impacting upon the tourism economy. In addition, cabomba is a potential danger to swimmers who could become entangled in the long stems. It also interferes with dam machinery, such as valves, pumps, and aerators, which leads to increased costs of maintenance.

There are currently no effective management methods for this weed as herbicide use is greatly restricted in and around water bodies and physical methods are only able to remove small amounts of the plant and may

Hydrotimetes natans adult

spread viable fragments, leading to increased spread. The only effective long-term method appears to be biological control.

The CSIRO is currently testing the host specificity of the most promising biological control agent for cabomba, the aquatic weevil *natans*, in our quarantine building in Brisbane. This is an examination of the host range of the insect to make sure it cannot complete its life-cycle on native Australian plants. We have completed a series replicated tests on the most closely related plant in Australia, watershield (Brasenia *schreberi*), and found that the weevils reproduced on cabomba, but not watershield. This is good news, but we need to complete more testing before we can apply for a permit to release the weevil in Australia. Unfortunately, the testing process is slow because we are having difficulty maintaining a colony of the weevil in our laboratory and are relying on repeated shipments of adult weevils from Argentina. Luckily, we have good collaborators over there who will collect and ship the weevils to us (although maintaining the proper permits is always an issue). However, they too are constrained by cold winter weather, but we expect another shipment in a month or two. We hope to complete the testing by July 2010.

Ecological communities of the riffle/pool/sandbar systems of the Mary River

Steve Burgess

Last year, the MRCCC submitted a detailed scientific nomination of the freshwater aquatic ecosystems of the Mary River floodplains as a threatened ecological community under the Federal Environmental Protection and Biodiversity Conservation Act. This year, the federal government has announced that this nomination has been placed on the priority assessment list, in a modified form, expanded to cover all riffle, pool and sandbar sequences in rivers in the South East Queensland bioregion.

The idea behind this nomination was that we had a number of federally listed threatened species which all lived in and relied upon a similar set of features in the Mary, so it would be more prudent to list and protect the lot of them as one interrelated bunch than have many individual recovery plans. Along with the currently protected species are other species which we know are rare or newly identified and haven't yet been listed, and all the other aspects of the ecosystem and food web which support these listed species. Within the floodplain reaches of the Mary, the river consists of a series of deep long pools separated by fast running sections of riffles and sand bar systems. All of these river features are required in close proximity to each other for the natural life cycles of the Mary River turtle and lungfish (for example), and within each feature there is important habitat for other species such as Mary River Cod, Valisnera (ribbon not-weed) and all the other components of the ecosystem required for their

survival. Importantly, this also includes the riparian vegetation which provides shade, shelter and food for aquatic species and also habitat for a range of other threatened plant and animal species (such as the Giant barred frog) which rely on a particular waterside connection.

Being placed on the priority list means that a federally-funded panel of scientists will be assessing and documenting the ecology of the system ready for a listing under the EPBC act. The MRCCC will be working with this panel along with the many other people that they will be consulting with. The original nomination document and supporting scientific information can be downloaded from the MRCCC website at www.mrccc.org.au/publications . Information about threatened ecological communities and the priority list can be found at the DEWHA website - http://environment.gov.au/biodiversity/threatened/nominations-fpal.html .

Policy and project submissions and representations

Throughout the last year, the MRCCC has taken part in the public consultation process surrounding a large number of policy and project proposals which impact on the catchment. This is a very time consuming process, with a lot of effort being put in by MRCCC staff in reading, researching, consulting and negotiating their way through the issues. Although disheartening at times, there have been many other cases where the information provided by the MRCCC has resulted in a better policy or project outcome for the catchment. The list below outlines the issues in which the MRCCC has actively participated in over the last 12 months.

MRCCC policy and project submissions and negotiations, October 2008 – October 2009

- National Reserve System (Submission)
- Wide Bay Burnett Natural Resource Management Plan (Submission and technical panel)
- Wide Bay Water Strategy (Technical panel)
- Federal Independent Inquiry into the EPBC Act (Submission and interview by national panel)
- National Biodiversity Strategy (Submission)
- National Water Commission Community of Practice for Environmental Water Managers (Inaugural conference)
- Supplementary EIS for Northern Pipeline Interconnector Stage 2 (Invited submission)
- EIS for Woolooga – Cooroy West Powerline (Submission)
- Qld Environmental Protection Policy -Water. (Submission)
- Cambroon sand mining project referral under federal EPBC Act and State Integrated Planning Act (submissions)
- Ongoing Traveston Crossing Dam EIS process (Meetings with Coordinator-general, DEWHA and Community Futures Task Force staff)
- Representations to and meetings with State Government ministers on species recovery plans and climate change hydrology of the Mary River. (Kate Jones, Tim Mulherin, Stirling Hinchliffe)
- Comments on the Mary Water Quality Improvement plan
- Comments to DEWHA on referral of Bruce Highway upgrade between Sankey's Rd, Federal and Traveston Rd, Kybong under the EPBC Act

Tiaro Landcare goes international – a turtle tale to tell. – Marilyn Connell

Chelonians

For just over 3 weeks in August, I was in America being immersed in international chelonian culture. Chelonians include all turtles, tortoises and terrapins. Only turtles are found in Australia, and they only leave the water to bask or nest. They have webbed feet unlike tortoises which have columnar feet. For some reason, tortoises didn't make it to this country. The nearest tortoises are in the Seychelles and in Sumatra but don't occur throughout other Indonesian islands. Except for the pig nose turtle which is restricted to the Northern Territory and Papua New Guinea, all our turtles are side-necks, which are found in South America and Australia.

In Australia, one finds turtles totally different from elsewhere on the planet. Many have extremely long necks, which may equal or even surpass the length of the carapace. In the north-west lives the strange pig-nosed turtle, with characteristics that seem to place it between soft-shelled turtles and marine turtles. The smallest turtle in Australia is the Western swamp turtle with adults reaching 150mm. In 1953 it was one of the world's rarest turtles with a population of 50 individuals. The northern snake-neck turtle lays its eggs underwater and the Western swamp turtle digs its nest cavities with its forelimbs instead of the back ones. Then there is the turtle with the huge, thick ossified tail which attains more than half the length of the entire animal and those with another uniquely Australia trait, the 'bum breathers' with 2 of the 3 species living in the Mary River. Most chelonians have been known for over a century. The discovery of a 40cm diameter river turtle just 15 short years ago, which was so different to any other known turtle that a new genus had to be created for it, adds to the international fascination of our River. So I began to discover why there is such international interest in the Mary River turtles.

The Mary is significant within the Australian rivers for species richness. The Mary accommodates 6 turtle species, only surpassed by the Daly River in the NT with 8.

L to R: Kate Hodges, Carla Eisemberg, Thushan Kapurusinghe, Marilyn Connell, Peter-Paul van Dijk, Usma Noureen, Shailendra Singh

Turtle Survival Alliance symposium St Louis

I was invited to give two presentations on Tiaro Landcare's Mary River turtle project to the 7th Annual Turtle & Tortoise Conservation & Biology symposium. One talk focused on the relationship between the community, the river and the turtle, and the other on our nest protection project. The symposium is the largest non-marine turtle and tortoise symposium in the world. Where else on earth would one find the academic world merging with zoo professionals, NGOs with field researchers, conservationists with biologists, private keepers and breeders all raising glasses and talking turtle. The presence of key global turtle conservation groups created a summit-like opportunity for networking, planning, and strengthening the commitment to a global and unified approach to chelonian conservation. One of the groups involved was the IUCN SSC (International Union for the Conservation of Nature Species Survival Commission) Tortoise and Freshwater Turtle Specialist Group who are responsible for assessing and listing the international conservation status of fauna species on the Red List. The Mary River turtle is listed as endangered. The Turtle Conservation Fund published a list of the Top 25 turtles on Death Row. Number 20 is the Mary River turtle.

Turtle tales from around the world

Talks ranged from Ryan the Brit working on the Madagascar spider tortoise, Omar from Egypt who uses the tribal Bedouins as data collectors with a side benefit of reducing collections of wild tortoises; Torsten from Austria who described the chelonian fauna of Sardinia – one of the European chelonian hotspots; Carla, who while doing her PhD on the pig-nose turtle in the Kikori River, Papua New Guinea found a way to use the local beliefs and legends to help reduce the number of turtles and eggs being used for food, to Gerald's talk on the variability of gonadal differentiation in juvenile turtles of different species and implications for endoscopic sexing. We learnt of a Swiss researcher who became Lonesome George's girlfriend by spending months

gaining his confidence till he no longer was his grumpy old self and was stimulated enough so they could determine his sexual prowess. Lonesome George is the last of the Pinta Island Galapagos tortoises.

Dr Gerald Kuchling, an Austrian from Perth, was awarded the prestigious John Behler Chelonian Conservation Award in recognition of his research and conservation projects in West Australia, China and Burma. Incidentally, he authored the independent report on the Mary River turtle for the Federal government.

Tiaro Landcare was given a free trade table along with two other community not-for-profit turtle projects, from Sri Lanka and Egypt.

It was an opportunity to meet and create friendships with the world's leading chelonian conservation biologists and to meet the Chairs or Presidents of a number of international organisations.

- IUCN SSG Turtle & Tortoise Specialist Group
- Conservation International
- Turtle Survival Alliance
- Chelonian Research Foundation
- Chelonian Research Institute
- Disney Animal Kingdom
- Henry Doorley Zoo, Nebraska
- Centre for Herpetology India
- Turtle Conservation Project Sri Lanka
- WWF Wetlands Project Pakistan

Marilyn Connell and Rick Hudson, President of the Turtle Survival Alliance and independent conservation biologist at Fort Worth Zoo. Transforming passion for turtles into effective conservation action through a global network of living collection and recovery programs www.turtlesurvival.org

Chelonian Research Institute

I spent a week at the highly regarded private not-for-profit Chelonian Research Institute which probably has the largest collection of turtle & tortoise carapaces in the world i.e. over 13,000 specimens. The Institute is a combination of 'museum', quality library, laboratory, study rooms, a zoological park which includes 2 Galapagos tortoises and many other species. Dr Peter Pritchard is the world's foremost authority on turtle research and conservation. Peter, the Director, guide, host, and curator, was extremely generous with his time and very hospitable. Peter, an Oxford educated Brit raised in Ireland with an Australian father, was named by Time magazine as "Hero of the Planet". During the past 50 years, his passion for turtles has taken him to nearly 100 countries of the world with the goal of ensuring that the over 300 species of turtle are not completely displaced from the face of the earth. Peter commented, as far as conservation is concerned, people are the problem, and people are also the only solution.

National Reptile Breeders Expo

After the symposium I was taken to the National Reptile Breeders Expo in Daytona (another world's largest), and was surprised when I asked to give an impromptu speech during the evening turtle talks. It was another chance to gain international exposure for our group, the Mary River turtle and the proposed travesty. Here I met Hiroki from Japan who said they are attempting to breed Mary River turtles. An adult was worth between US$3-4,000.

WHY invited to America?

Publishing our book, The Mary River turtle - Yesterday, today, tomorrow, has spread the word about our project and group throughout the world. We invited the discoverer of the Mary River turtle, John Cann, to

Tiaro Landcare volunteers erecting fencing to protect Mary River turtle nests

launch our book last November at our Bush Tucker banquet. John is recognised world-wide as Australia's top specialist in turtles and I think he spread the word. In February 2009, I gave a presentation at the first Australian freshwater turtle workshop in Brisbane. Following the main event, the 29th International Sea Turtle biology & conservation symposium, Tiaro Landcare hosted a visit by Dr Peter Pritchard and his wife Sibille, Dr Peter-Paul van Dijk, Dr Gerald Kutchling and Chuck Schaffer. I was honoured to chauffeur them around the Mary and of course a quick trip to Fraser Island to snorkel and find the Fraser Island turtle.

In Summary

It was an honour to be the international face of Tiaro Landcare. I've come home with reference books, and we are now cemented in as part of the international turtle community. We have lots of ideas for education and numerous contacts, book sellers etc. I was overwhelmed by the hospitality of the Americans and welcomed into their homes and lives.

Everyone I spoke to was deeply concerned about the effect of the proposed Traveston Dam. Many of the international organisations have now written letters to our state and federal politicians.

To quote the words coined by Paul Kelly & Kev Carmody 'from little things big things grow' which also applies to Tiaro Landcare's Mary River turtle project. In 1999 we learnt of this unique turtle, organised a Mary River turtle forum in Tiaro, and every year since 2001 we have protected Mary River turtle nests resulting in over 2,000 wild hatchlings and the sales of over 250,000 chocolate turtles.

The last word has to be given to the turtles "you only make progress when you stick your neck out"

Marilyn Connell - Project Officer, Tiaro & District Landcare Group

Steve Burgess and Mariana A. de M. Campbell, Mary River Turtle PhD Researcher, monitoring dissolved oxygen on the Mary River, Tiaro

Notes