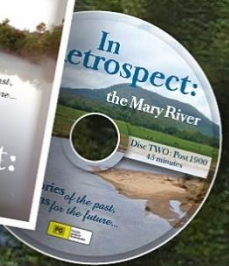
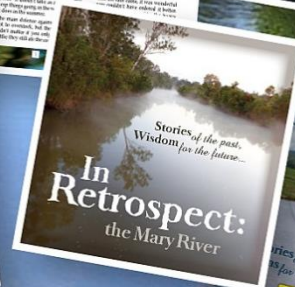
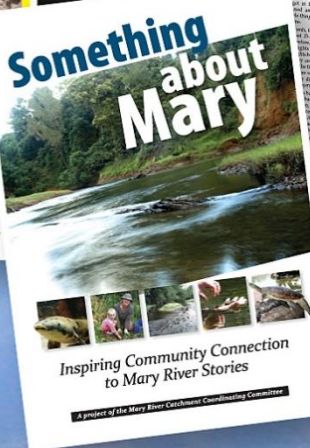
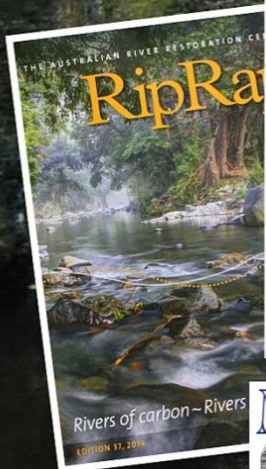


M R C C C

Annual Report 2014



Mary River Catchment Coordinating Committee

Resource Centre	25 Stewart Terrace, Gympie <i>(from January 2015)</i>
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The MRCCC gratefully acknowledges the support of the Australian Government Department of Environment, the Queensland Department of Transport and Main Roads, the Queensland Department of Environment and Heritage Protection, the Department of Science, Information Technology, Innovation and the Arts, the Burnett Mary Regional Group, Sunshine Coast Council, Gympie Regional Council, Noosa Council, Fraser Coast Council and landholders throughout the Mary Catchment

DONATIONS TO THE MARY CATCHMENT PUBLIC FUND ARE TAX DEDUCTIBLE

Front cover graphics: Glenbo Craig

Front cover image: The Mary River at Walker Road, Moy Pocket.

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MRCCC STAFF 2013-2014

Brad Wedlock	Operations Manager
Eva Ford	Catchment Officer Threatened Species
Steve Burgess	Catchment Officer Hydrology, Data cruncher
Dr Tanzi Smith	Catchment Officer Recovery Plan
Caitlin Mill	Project Support Biodiversity Fund
Jenny Whyte	Waterwatch Coordinator
Chris Rosin	Catchment Officer Aquatic Ecology
Dale Ricketts	Casual Administration and Events Assistant
Debbie Seal	Administration Manager / Event Coordinator
Glenbo Craig	CodLine Editor/Project Support
Kelvin Neilsen	Project and Office Support (Mutual Obligation)
Ruth Hutchison	Volunteer Project and Office Support
Lauren McVicar	Volunteer Project Support

MRCCC DELEGATES 2013-2014

Interest Sector	Name	Title
Beef/Grazing	Graeme Elphinstone	Delegate
Dairying	Rob Priebe	Deputy Chair
DEHP	Renae Cabrie	Delegate
QDAFF	Graeme Elphinstone	Delegate
Education	Sue Gibson	Delegate
Environment	Emma-Kate Currie	Delegate
Fishing	Chris Mangold	Delegate
Forestry	Ernie Rider	Delegate
General Community Lower	Ross Smith	Delegate
General Community Middle	Ray Zerner	Delegate
General Community Upper	Dave Sands	Delegate
General Community Western	Peter Hughes	Delegate
Horticulture	Vacant	
Irrigation	Vacant	
Landcare, Lower Mary	Carol Neilson	Delegate
Landcare, Upper Mary	Phil Moran	Delegate
Landholder/Project Participant	Elke Watson	Treasurer
Landholder/Project Participant	Helen Lofthouse	Assistant Secretary
Life Member	Margaret Thompson	Secretary
Life Member	Jim Buchanan	Delegate
Fraser Coast Council	Cr James Hanson	Delegate
Gympie Regional Council	Cr Wayne Sachs	Delegate
Noosa Council (to 30 June 2014)	Ben McMullen	Delegate
Sunshine Coast Council	Denise Lindon	Delegate
Seqwater	Michael Fiechtner	Delegate
Special Member	Nai Nai Bird	Delegate
Sugar	Chris Coutts-Smith	Delegate
Waterwatch	Ian Mackay	Chairman

CHAIR'S REPORT – IAN MACKAY

It is my great pleasure to make this annual report.

A year ago, I recall reflecting on a year that was heavily impacted by a couple of sizeable floods. How different these past twelve months have been. Some long-term landholders believe it was the driest summer they had seen in their life-time. The long and very dry summer tested all kinds of resilience. For some Mary River Cod in Six Mile Creek it was nearly too much as very low oxygen levels, zero creek flow and extremely high temperatures placed them in severe stress. Thanks to the dedication of Glen Dicker, a riparian landholder on Six Mile Creek and the involvement of MRCCC's Chris Rosin, an attempt was made to aerate the pool for the cod to get them through till the rain came late in March. These late rains left precious little of the growing season before heading into winter so the effects of this dry spell linger on.

It's been a busy year on so many fronts. It was almost the year where MRCCC moved to its own premises. I say almost, as most of the leg work has been done, to purchase a building in Stewart Terrace, Gympie, to apply for and get the Material Change of Use permission, seek building approvals for modifications and to have work commence. All this was set against a backdrop of our lease at Tozer Park Road expiring at the end of September.

We've been deeply grateful to Gympie Regional Council for allowing us the use of its old depot (a building the Gympie Times describes as "derelict"), to be our home for the best part of a decade, and extremely appreciative of their extending the lease to the end of the year, when our new home will be ready.

I'd like to particularly record our gratitude to the Executive committee for the forethought of past members in establishing the Public Fund to attract tax-deductible donations for precisely this purpose and to pay tribute to the diligent, tireless and painstaking role played by Jim Buchanan firstly in seeking out potential premises and then steering the Stewart Terrace plan through Council and builders. We made a special presentation to Jim at a dinner a few months back. While the new premises, and the contemplation and enabling thereof, has required a deal of our energy, its certainly not been at the expense of our more usual MRCCC roles.

This year will see the completion of the Main Roads Bruce Highway upgrade (Section B) monitoring for the new highway in the Federal and Coles Creek district, a task that has pretty well consumed Chris Rosin's time since he joined us mid-way through last year.



MRCCC Chair Ian Mackay with "Mr T" the bronze statue of the Mary River Turtle, now a major roadside tourist attraction in Tiaro.



The MRCCC's future home at 25 Stewart Terrace, Gympie prior to renovations commencing.



Brad Wedlock, Steve Burgess and Tanzi Smith standing in what's left of the Mary River at Petrie Park, Tiaro, in March 2014. The water level in this reach of the Mary is usually about 2 metres, indicating the extent of the drought in the lower Mary.



It's been a major year for the Biodiversity Fund with a host of projects being supported. Not without hiccups though, as the floods last year set back a number of projects while this year's summer drought delayed others.

The Biodiversity Fund is aimed to support the implementation of the Mary River Threatened Species Recovery Plan which continues to inch towards completion. The

Federal government has now received official comments from the State government on the plan which need to be incorporated, and then it can be released for public comment.

Our Waterwatch networks comprise over 80 volunteers which are supported by the Gympie and Sunshine Coast Council's environment levies, plus last year we received a grant from the State government's Everyone's Environment Grant to revitalise the networks and facilitate further training and reporting. Thanks to wonderful volunteers and Jenny's organisational talents, we receive over 600 water sample results taken by volunteers from creeks throughout the catchment as well as the river itself.

We were involved in the Federal Government Reef Rescue Grazing Lands program through a partnership with BMRG for the next 2 years. Our indomitable team of Brad and the recently-retired Graeme Elphinstone do such a sterling job of managing the program that they are always

oversubscribed with interested graziers, predominantly in the Western Mary catchments.

Given that the link with BMRG works really well in the Reef Rescue program, we were disappointed that the BMRG did not consult with MRCCC when developing the funding application for the Queensland Government NRM funding for the next 3 years. Although the Queensland Minister for Natural Resources announced just over \$2m for the Burnett and Mary catchments, we were advised that the BMRG had allocated less than \$200,000 to the Mary River Catchment. Whilst a suitable explanation from the BMRG board has not been forthcoming, the MRCCC scientific staff and Delegates are contributing to planning in relation to climate change, flood recovery, weed and pest management, and the Water Quality Improvement Plan (WQIP) currently being developed by BMRG. The draft recommendations from this Plan show that the Mary Catchment is the biggest contributor of sediment to the southern Great Barrier Reef in the Burnett Mary region. The WQIP identifies that adoption of best land management practice will address reef plan targets if a 20 year program is implemented.

MRCCC enjoys great relationships with the Landcare groups in the catchment. This is no coincidence, for it was realised long ago that the best way to take better care of our catchment was to have strong Landcare groups and to work closely with them. To this I'd also add that an active Land for Wildlife scheme in each of the councils in the catchment would be another wonderful asset. We had that, but sadly in our catchment only the Noosa and Sunshine Coast Council (along with a whole suite of councils in south-east Queensland) has continued Land for Wildlife as part of its very successful Community Conservation Partnerships program.

We surveyed the Gympie and Fraser Coast Land for Wildlife participants (some 400 in total in both Gympie Region and Fraser Coast) and held an Open day at Goomboorian in June and found all were keen to continue even in the absence of formal Council support. It was resolved to hold a property visit or a workshop on the first Sunday of each season.

We've developed some great partnerships during this last year, with University of Sunshine Coast, with Australian Rivers Institute at Griffith University and with the State Governments Department of Science, Innovation, Technology, Information & the Arts (DSITIA) to carry out detailed water monitoring (including flood monitoring) at Home Park on the Mary River near Tiaro and the Tinana Creek barrage near Maryborough.

Similarly, we are playing a lead role in a rewarding collaboration with SEQWater, Sunshine Coast Council, BMRG and consultants Alluvium in relation to recovery actions in the Kenilworth reach of the Mary River following some major flood impacts over the past few years. Our AGM guest speaker Ross Hardie of Alluvium will speak more of this.

And speaking of partnerships, we were part of a roundtable of a number of groups (Gympie Landcare, Gympie Regional Council, Conservation Volunteers Australia) that successfully applied for a Green Army project for Gympie. It was a great example of working together; no one of the groups could have delivered the project by itself, yet collectively it became possible. MRCCC also assisted Noosa Landcare with their Green Army proposal for work in the Noosa hinterland, we are awaiting confirmation of this proposal.

The public face of MRCCC has been enhanced by a number of events over the past year. The first was the launch of “In Retrospect; Looking Forward, looking Back”, the DVD of the Oral History project led by Tanzi Smith in collaboration with filmmaker Luke Barrowcliffe. Originally intended as a short 20 minute film, it ended as 2 forty-five minute presentations which have now been screened at a number of venues throughout the catchment.

On a beautiful winter’s day in June, the rain held off and the gardens at Lake Macdonald near Cooroy came alive for the Noosa Festival of Water and a great crowd turned out to participate. We value the support of our sponsors for this event and hope it can continue into the future.

A riparian revegetation bus trip of sites in the upper catchment proved very popular, with the resolve that it become an annual event. And speaking of the public face of MRCCC, our well-received publication “Codline” had a change of editorship. Having done a sterling job for so many years, Eve Witney handed over the reins to Glenbo Craig, a well-known graphic artist and long-time friend of the Mary.

As we approach the fifth anniversary of Peter Garrett’s Remembrance Day reprieve for the Mary (something that the Mary River Festival in Kandanga on November 8 is certain to celebrate), we have a Mary River Threatened Species Recovery Plan almost in place and a large number of properties purchased for the ill-advised dam now back in private ownership.

As for this organisation, we have a diverse and cooperative group of delegates, a wonderful staff team whose commitment is truly outstanding and a whole gamut of water testers, project participants and rivercarers who work in diverse locations towards the same end. I’d like to thank you all for your involvement over the past year. I’d like to thank, too, our local councillors, our State and Federal members who have always been helpful and supportive.

I also thank Peter and Bevy Hughes for their coverage of meetings, and other stories, in the Gympie Times and Rural Weekly, and also HQ Plantations for allowing us to hold our meetings in their meeting room. And finally I thank the members of our Executive Committee for their tireless dedication.

VALE – PERCY BISHOP

In September 2013 Gympie and the Mary Catchment farewelled the remarkable Percy Bishop, who died at his Kandanga property “Garglen”, aged 85 years old. Percy was a true pillar of the community, a gentleman and an innovator in many ways.

A quiet and hard working man, Percy was a pioneer of the brahman cattle breed in Australia. He will also be remembered for his community work as the founder of the pony club movement and Riding for the Disabled in Gympie, as well as his work with the Endeavour Foundation at Spring Valley.

Percy was the first full term President of the Gympie & District Landcare Group, as well as being Chair of the Gympie District Beef Liaison group for 15 years.



VALE – DON WHITE

The MRCCC would like to recognise the efforts of Don White of Hancock Queensland Plantations, who passed away in September after battling liver cancer. Don was the main waterwatch sampler for a number of important sites in the Tinana/Coondoo creek system, helping us to understand the unique qualities of this creek system about which we previously had little data. He was a quiet, keen observer who showed a deep appreciation of the natural beauty of many of these sites.

MARY RIVER WATERWATCH

Steve Burgess and Jenny Whyte Waterwatch Officers

It's been a big year for MRCCC's Waterwatch program. We've expanded the networks into some important waterways where we had been lacking data, and have been blessed with an influx of new volunteers who have entered the program. We've steadily been working towards standardising our data collection, equipment and sampling procedures across all the Waterwatch networks in the catchment. Assisted by funding from a State Government Everyone's Environment Grant and our important ongoing support from Gympie and Sunshine Coast Regional Councils we managed to visit and reassess nearly all of our current sites post the 2013 floods, ran a series of 8 community workshops and retrained all our volunteers in the new sampling and data collection procedures. We've also assisted Cooloola Coastcare establish their new coastal Waterwatch programme operating in the Cooloola Cove, Tin Can Bay and Rainbow Beach area in conjunction with Noosa Integrated Catchment Association and Noosa Landcare.



A formidable-looking posse of new Gundiah Waterwatch volunteers with Caitlyn Mill (MRCCC student placement) on the right.



With the help of Hancocks Queensland Plantations (HQP) staff and landholders upstream and downstream of the forestry area we are now collating some good data from the Tinana Creek system, an important area where we previously had little consistent long-term information. HQP are also collecting data from forestry sites in the Yabba Creek catchment, an area which we also had little previous data. This information adds to the excellent long term data that has been collected by National Parks staff in the adjacent Little Yabba catchment over the last 10 years.

We've also established a new network in the Tiaro-Gundiah-Gunalda area, looking at some waterways on both sides of the river about which we had almost no previous data about water quality, as well as beefing up our information about the main trunk of the river in that important part of the catchment which is likely to be subject to increasing adverse impact over the next few decades. Local businesses Maryborough Sugar, Wide Bay Seedlings and B&H Rural, Tiaro are part of this new network and their practical assistance is greatly appreciated.

In addition to the physical/chemical data collected by volunteers, we are putting increased emphasis on what people observe and learn from regular visits their 'spot' in the creek in terms of wildlife and general waterway health. We are linking some of these observations into other programmes such as WildNet so that these observations can tell us more about the distribution and habitat of some of our threatened wildlife species which may help in possible recovery actions. One observation becoming apparent is that many people notice and appreciate 'their' resident platypus in their local sampling spot.

Thank you to all the people who have helped out with this program over the last year: the sterling efforts of landholders and volunteers, local businesses who help with hosting and transporting equipment, councils and other organisations who support the program financially and in kind and MRCCC staff and committee members.

Waterwatch statistics at a glance (since September 2013)

- More than 670 samples from 98 sites
- 74 Currently active volunteers
- 75 post-2013 flood site assessments/reassessments with on-site training
- 8 community workshops

CURRENT WATERWATCH VOLUNTEERS

Upper Mary Waterwatch Network

Susan & John Bailey
Eric Anderson
Barung Landcare – Matt and Kelly
Scott Woolbank
Di Collier

Jo-anne Ferrier

Kacey Walker

Chris Lee

QPWS - Bronwyn McAdam

Brooloo to Belli Waterwatch Network

Kathleen and Steve Dennis

Bec Owen

Ian Mackay

Mary Ann and Don Law

Geoff and Marie Farr

Matt Baxter

Graeme White

Nina Cox

Des King and Colleen Ryan

Kestrel Maher

Phil and Laney Groves

John Mayze

Gympie to Kandanga Waterwatch Network

Jason Buckley

Bob Fredman

Lorne and Ross Maitland

Noo Dye

Leslie and Craig Hanson

HQPlantations

Tim and Amber Scott

Cath and Colin Robinson

Will Kingham

Eastern Gympie Catchments Waterwatch Network

Steve Husband, HQPlantations

Jeff Clifton

Les and Inge Giegler

David Wilson

Widgee & Wide Bay Catchments Waterwatch Network

Brian Thomas

Mick Bambling

Stephen Horseman

Errol and Barbara Janke

Ruth Machen, Widgee State School

Gillian Crossley

John and Yvonne Crossley

Keith and Christine Bagnell

Anette Bambling

Rob Kerle

Tiaro to Lower Munna Waterwatch Network

Adrian Ross

Vicki and Rob O'Farrell

Isaac Schmidt

Harry Jamieson

Garth Jacobsen

Noel Dean

John Williams

Virginia Wright

Gavin Rock

Marilyn Connell

Ras Carney

Owen and Lynda Thompson

Brian Thompson

Ross Smith

Ron Black

Munna Waterwatch Network

Jill Harvey

Malcolm Beresford

Ross and Michelle Kinbacher

Spencer Innes

Cam and Lisa Hughes

Dione Williams and Carol Hinton

Kev and Helen Rogers

Brett and Tammy Marsh

Neville and Joy Turner

Iain Lewis

Gympie to Scotchy Pocket Waterwatch Network

Bob and Lorraine Hood

Phil Herrington

Mara Vucak

Graeme Draper

Annette Bourke

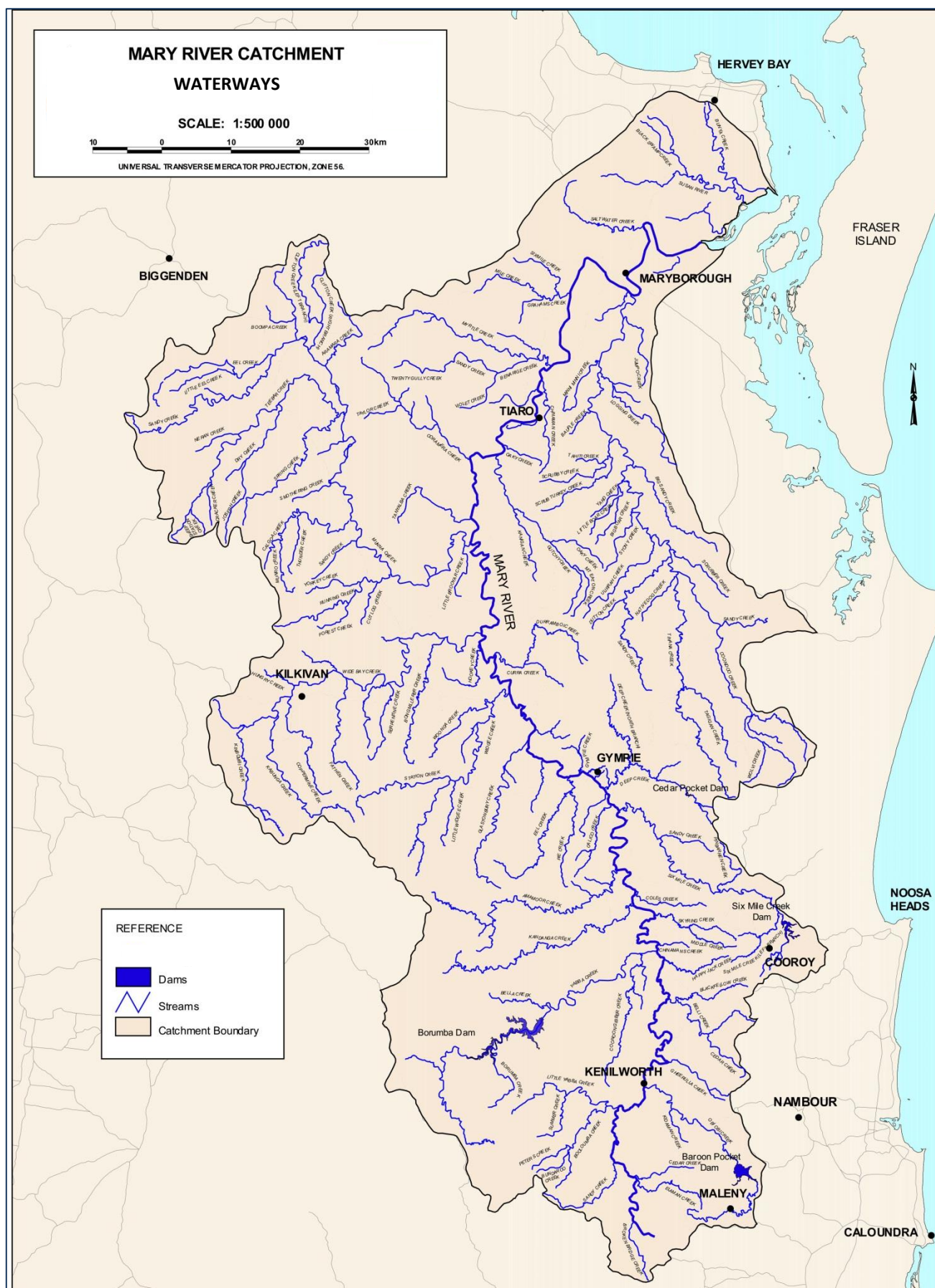
Wendy Macpherson

Bruce McCulloch

Alan and Tracey Peterson

Karen Flynn

Rob Kerle



REEF PROGRAM, GRAZING LANDS

Brad Wedlock, MRCCC Operations Manager

The “Great Barrier Reef Water Quality Improvement Plan” was released by the Federal Government in 2003, in recognition of the important role of grazing landholders to improve the quality of water entering the barrier reef lagoon. The Mary River is the southern-most catchment which discharges into the Great Barrier Reef lagoon, and the Mary’s grazing sector is the largest freehold land use i.e. about 70% of the catchment area.

Graziers within the Mary River catchment can now access a new round of Reef Program funding. The Burnett-Mary Reef Partnership successfully accessed 3 years of funding from the Reef Program funded by the Australian and Queensland Governments, commencing in 2014.

The Burnett Mary Reef Partnership is a consortium comprised of MRCCC, BMRG, Burnett Catchment Care Association, Queensland Dairy Organisation and the Maryborough, Isis and Bundaberg Canegrowers. This partnership successfully delivered the Reef Rescue program between 2010 and 2013.

Investment from the Reef Program will provide local graziers with advice and financial support to implement eligible on-ground projects that can demonstrate a contribution to Reef water quality outcomes. Improving downstream water quality and reducing sediment and nutrient losses to the Mary River system by improving grazing land and riparian zone condition through better land management practices is the focus of the project.

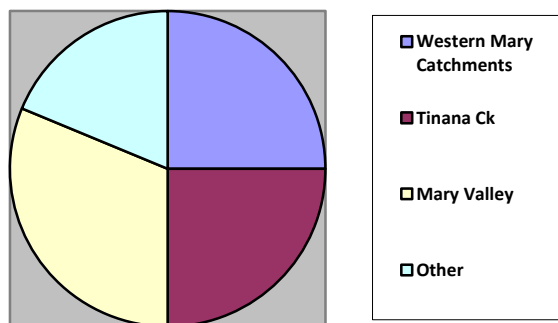
In May 2014, 16 Reef Rescue on-ground projects were approved by an independent assessment panel comprised of representatives from the Gympie District Beef Liaison Group, Landcare and BMRG. The representatives are:

1. Wayne Carlson – Gympie District Beef Liaison Group
2. Phil Moran – Noosa & District Landcare Group
3. Mike Moller – BMRG

Priority was given to on-ground projects that addressed:

- riparian zone management
- hillslope erosion management (potential landslip areas)
- districts that contributed high sediment loads (according to the Sednet modelling)

A delay with the approval of funding by the Australian Government resulted in a late start to the project. This was compounded by the summer drought, with the attention of the grazing community turned towards more pressing issues.



Location of approved Reef Rescue projects

Below: Strategic water management involves locating troughs and tanks higher in the landscape



Fortunately some rain fell late in March 2014 resulting in more interest in Reef Program projects. Although now retired from the DPI, Graeme Elphinstone continues to assist the MRCCC with Reef Program, providing valuable advice to the grazing community.

A significant focus of the project is to provide financial incentives to shift cattle camps adjacent to riparian zones to appropriate sites higher in the landscape. This is achieved on the ground through strategic stock water management by locating troughs and tanks high in the landscape, thus creating new watering points and cattle camps away from riparian zones. In doing so, the accumulated manure from the new cattle camp is filtered through pasture before reaching the riparian zone.

The MRCCC will assist graziers wanting to access the incentive funding to undertake an assessment of their current grazing land practices using an A, B, C, D report card system. This review process will identify potential on-ground projects that could contribute to improved grazing land practices and a higher report card rating.

Improved grazing land condition leads to greater pasture productivity and enterprise profitability, whilst reducing the loss of valuable sediments and nutrients from our grazing lands. Wetland systems such as billabongs, marshes and riparian zones are a particular focus due to their important function of filtering nutrients and sediments from grazing landscapes, before they reach the river systems.

Examples of eligible on-ground projects could include:

- fencing and off-stream watering to reduce bank erosion and manage cattle access to creeks and wetlands to improve water quality
- fencing and off-stream watering of wetlands to encourage natural regeneration of aquatic vegetation to filter sediments and nutrients
- sub-division fencing and troughs to separately manage different grazing land types, to improve grazing land condition
- fencing to restore groundcover and encourage the natural stabilisation of eroding gullies and scalds



Above: Black soil wetland fenced to manage stock access at Widgee
Right: Wolvi Creek at Coondoo protected by riparian fencing



Above left: Mary River Pioneers Rest (barrage) February 2014 during the dry.
Above Right: Yards Creek Waterhole in the Toolara State Forest, on the eastern most edge of the Mary River Catchment. HQPlantations test water quality at this site.

BIODIVERSITY FUND (2013-2014)

“Restoring riparian resilience: implementing the Mary River Threatened Aquatic Species Recovery Plan” is supported through funding from the Australian Government’s **Clean Energy Future Biodiversity Fund**

The MRCCC’s Biodiversity Fund project passed the official half-way mark of its 6 year program on the 30th June 2014. The project targets on-ground actions in threatened aquatic species habitat, in particular the rehabilitation and protection of the key threatened species of the Mary River Threatened Aquatic Species Recovery Plan :


1. Mary River Cod
2. Mary River Turtle
3. Queensland Lungfish
4. Giant barred Frog
5. Freshwater Mullet



This financial year saw a burst of activity in the 10 demonstration reaches that contain habitat for these threatened species. Demonstration reaches are composed of property clusters ie neighbouring or adjacent properties, within a specified reach of the Mary River or a tributary. The demonstration reaches are:

1. Conondale - Cambroon, Mary River
2. Kenilworth, Mary River
3. Moy Pocket, Mary River (including Oakey Creek)
4. Goomong, Mary River (including Kandanga Creek)
5. Netherby, Mary River
6. Tiaro, Mary River
7. Belli – Cedar Creeks
8. Ridgewood, Blackfellows Creek
9. Pomona – Cooran, Pinbarren, Cooroora and Six Mile Creeks
10. Upper Munna Creek and tributaries



 Demonstration Reach	Properties engaged	Riparian revegetation (ha)	Riparian fencing (km)	Off-stream watering points	Chinese Elm control(ha)	Cats claw creeper control (ha)	Cats claw creeper bio-agent releases	Madeira vine control (ha)	Blue morning glory control (ha)	New properties engaged
Mary River, Conondale – Cambroon Including Chinaman’s and Booloumba Creeks	11	4	3	-	-	-	-	10	-	1
Mary River, Kenilworth, including Obi Obi and Walli Creeks	21	4	2	3	-	5	-	9	-	1
Mary River, Moy Pocket, including Oakey Creek	5	3	-	-	-	9	-	-	-	3
Mary River, Goomong, including Kandanga Creek	5	4	-	-	14	-	-	-	-	2
Mary River, Netherby (Home Park)	2	-	3	3	-	-	8	-	-	-
Mary River, Tiaro	8	2	-	3	-	2	8	-	-	1
Belli – Cedar Creeks	17	5	1	-	-	7	-	-	13	-
Cooroora, Pinbarren, Six Mile Creeks, Cooran	10	2	1.5	3	-	5	2	-	-	2
Blackfellows Creek, Ridgewood	2	2	-	-	-	1	1	-	-	-
Upper Munna Creek and tributaries	10	1	-	-	-	-	6	-	-	4



Ross Smith discusses cats claw creeper biological controls with Harry Jamieson at Tiaro

The demonstration reaches have established good partnerships with the local Landcare and community groups and landholders. Noosa & District Landcare Group have partnered with MRCCC for the Noosa hinterland demonstration reaches at Ridgewood, Cooran and Belli - Cedar Creek providing revegetation services. Barung Landcare Group has partnered with MRCCC at the Mimburi Aboriginal Association property at Carters Ridge for cats claw creeper control, and Walli Creek properties undertaking Madeira vine control. Strong partnerships have been formed with the Greater Mary Association, Tiaro and District Landcare Group and the Gympie and District Landcare with the supply of cats claw creeper biological control agents and assisting with releases in the Tiaro, Netherby and Munna Creek project sites.

In a number of demonstration reaches partnerships have been formed with SEQwater (Goomong and Kenilworth) and the Sunshine Coast Council (Kenilworth and Moy Pocket). The project intends to build on these partnerships and extend the work beyond the demonstration reaches over the next 3 years (up to June 2017).

The past year posed some difficulties, which were overcome by the weather and the persistence and dedication of the MRCCC staff. The unusual extended dry period between October 2013 and March 2014 meant many activities (riparian revegetation projects in particular) in key demonstration reaches had to be postponed until suitable weather conditions prevailed. This year some significant riparian revegetation projects were planned but the weather was set to challenge us. Fortunately decent rain fell in late March breaking the 1 in 50 year summer drought which enabled these activities to re-commence. The catchment then experienced an unseasonal warm May and June which enabled these activities to continue into a period of the year when revegetation and environmental weed control is generally not possible. As predicted, due to low summer rainfall levels, frosts were severe this year in July, but due to good species selection and an unseasonal rainfall event in August most revegetation sites have had excellent survival rates. Periodic rainfall events in August and September have helped progress.

The Stakeholder group at the Seqwater off-take, Mary River, Kenilworth



A number of environmental weed control activities within some of the demonstration reaches were undertaken during the dry summer period. Activities focused on eradicating very small infestations of cats claw creeper, blue morning glory (Cedar Creek) or Madeira vine in key species habitat, or commencing control on strategic infestations e.g. cats claw creeper at the Kenilworth Homestead which is the uppermost significant infestation that is starting to smother the canopy and produce seed. Chinese Elm control was also undertaken in the Goomong demonstration reach. Riparian fencing and off-stream watering points were installed in key habitats, in particular in Mary River Turtle habitat in the Tiaro and Netherby reaches.

The project now enters into the next 3 years of implementation with new sites and a new project plan developed. Hopefully the weather will be a little kinder.



ON-FARM PRODUCTIVITY AND RIPARIAN RECOVERY PROGRAM (FLOOD RECOVERY)

Funding from the Queensland Government's On-farm Productivity and Riparian Recovery Program via BMRG was negotiated for the Mary River Catchment following the extensive and destructive flooding that occurred throughout the Mary River Catchment on Australia Day 2013.

After a series of meetings during 2013 it was decided that the funding allocated to the Mary River Catchment should be directed to riparian recovery projects in priority areas. Priority 1 was identified as the Maryborough reach, Mary River (predominantly caneland) and the lower Munna Creek, Glen Echo area (grazing). Flooding in the Maryborough area was the 4th highest on record, while flooding in the Munna Creek was 0.5 m higher than the previous 1955 record. Priority 2 was earmarked for the Kenilworth reach, Mary River (dairy and grazing).

To date, 82 properties have received on-property advice from the MRCCC on restoring or stabilising erosion caused by the 2013 Australia Day floods. The majority of this advice has involved techniques for stabilising riparian areas and gully erosion problems.

In February 2014 a steering group decided on the following:

- Two riverbank stabilisation projects were approved on cane-farms in the Maryborough reach of the Mary River. Currently Department of State Development Infrastructure and Planning approvals are being sought to commence these projects.
- Four riparian fencing and creekbank stabilisation projects on grazing properties were approved in the lower Munna Creek, Glen Echo district. One of these projects also includes a wetland aquatic weed management project at Marodian waterhole. The following projects are now completed:
 - two riparian fencing projects on Munna Creek, approximately 2 km in length
 - creekbank stabilisation project of a slip circular failure using rock on Munna Creek at Glen Echo
 - an aquatic weed (*Salvinia*) project in the Marodian waterhole was completed
 - riparian revegetation of a slip circular failure on Munna Creek, Glen Echo

In March and July 2014 stakeholder meetings were held at Kenilworth to discuss options for river stabilisation in this reach of the Mary River. The investigation reach was identified as the Mary River from the upstream of Walli Creek confluence (Bellbird gauging station) downstream to Moy Pocket. Stakeholders involved are:

- BMRG
- MRCCC
- Sunshine Coast Council
- Seqwater
- Dept of Natural Resources & Mines
- Alluvium Consultancy

*Below: The Kenilworth reach of the Mary River
after devastating floods*

Each of the stakeholders outlined their involvement in managing the reach:

- BMRG – flood recovery funding
- MRCCC – integrated catchment management, threatened aquatic species habitat, existing engagement with riparian landholders, funding for weed control and revegetation.
- Sunshine Coast Council – council managed park / recreation area, river rehabilitation demonstration program.
- Seqwater – Kenilworth township urban water off-take
- DNRM – permitting and approvals, sustainable river management
- Each of the stakeholders outlined their possible funding contributions and their timelines for funding delivery.

Each of the partners agreed that an investigation study for the reach was required to understand river processes, build a business case, and develop rehabilitation options. Each partner has contributed to funding the study.



In July, Ian Mackay and Brad Wedlock participated in an inspection tour of a number of sites in the Kenilworth district with Misko Ivezich (Fluvial Geomorphologist with Alluvium). Misko had identified the sites during desktop surveying as displaying significant or interesting fluvial geomorphic features. This tour helped to better understand the dynamics of the river system in the Kenilworth study reach.

Alluvium has prepared a draft study, project designs and an estimated cost of implementing the project designs for river stabilisation in these severely damaged reach of the Mary River.

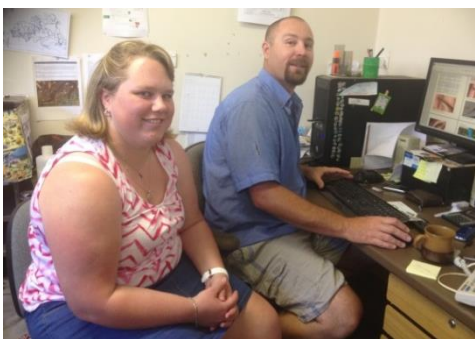


LIVING WITH THREATENED SPECIES

Eva Ford – Project Officer, Threatened Species

Workplace Learning Students

Two Workplace Learning students undertaking placements through the University of the Sunshine Coast joined MRCCC last summer. Caitlin Mill started her placement on the 26th November 2013 and Joel Crampton commenced his placement on the 6th January 2014. Each student completed 96 hours of work, both in the field and in the office, which contributed towards their degrees. While on placement, Joel was kept very busy accompanying us on property visits, frog surveys and kids' activities. Joel also assisted with



the setup of the acoustic monitors for frog surveying and with the Waterwatch data preparation for a children's event in Hervey Bay in February. Caitlin completed her placement with us in December 2013, and has since provided assistance to Brad and Tanzi to develop and implement a monitoring program for the Biodiversity Fund program.

Recently, the MRCCC has been fortunate to receive voluntary assistance two days a week from Lauren McVicar, a Sunshine Coast University planning graduate. While with us Lauren has helped summarise and understand the planning documents relating to the new quarry developments at Mt Scotchy, collated information about past Gympie riverbank tree plantings for the new Green Army project and helped us summarise and interpret the various local government planning codes relating to waterway management.

Acoustic monitors

A meeting was held with Michael Towsey, a researcher from Queensland University of Technology to set the foundations for an acoustic monitoring project in the Mary Catchment this year. Michael's team have already been recording sounds from the Conondale and Blackall Ranges in the hope of detecting presumed extinct frog species. MRCCC supplied local recordings of three frog species so that QUT could develop auto recognisers. 'Listening to the Mary' acoustic recordings can collect information on vocal fauna in an area during both the day and the night, and alleviates the need to have a person on the ground for lengthy periods to collect the same data. Michael Towsey and his team from QUT in Brisbane have been experimenting with acoustic monitoring of different landscapes under various conditions to investigate how the data relates to environmental conditions. Sounds come from insects, frogs, birds, mammals and from the built environment. From the variety of calls, inferences may be possible as to the biodiversity and health of an area. Funding was sought for work in the Mary catchment and a meeting was held to discuss project ideas, partnerships and funding possibilities.



Top: Joel Crampton frogging at the long term monitoring site at Cooroora Creek Park, Pomona.

Middle: Volunteer Planning Graduate, Lauren McVicar teaches MRCCC's aquatic ecologist, Chris Rosin to plan.

Below: An Acoustic monitor set to collect data on fauna species composition and diversity.

Two acoustic monitors were purchased under the Sunshine Coast Council Community Partnership Funding Program and were deployed in early February on Obi Obi Creek and a tributary of Obi Obi Creek. It was hoped that the frog breeding season had improved by then and that there would be some frog sounds to record.

The two acoustic monitors were retrieved from the field with six weeks of recordings on them. The data was then analysed to determine species composition and diversity in the area.

Frog roundup 2013-14 season

Frog monitoring of Council and Main Roads sites was completed for the 2013-14 season. This included initial monitoring surveys on Tinana Creek at Kachel Bridge where the bridge was being prepared for replacement. These frog surveys were undertaken in accordance with a Giant Barred Frog Species Management Plan developed for the site. The work was commissioned by Gympie Regional Council in recognition of the habitat value and due to the likely presence of threatened frog species in the area. Tusked frogs, *Adelotus brevis*, which are identified as vulnerable were found on the site. The frog surveys at Kachel Bridge on Tinana Creek were also attended by two environment staff from Gympie Regional Council. Further frog surveys were also completed under Sunshine Coast, Noosa and Gympie Council funding, as well as for the Maleny Community Precinct.

Following the sighting of two male Giant Barred frogs during a preliminary survey at the Maleny Community Precinct last year, a further juvenile and female have been sighted during the monitoring visits along Obi Obi Creek.

Jono Hooper found both these individuals at the downstream end of the site, which is a wonderful sign of successful breeding of this endangered species.

The following is a record of frog monitoring and survey activities that occurred throughout the catchment from October 2013 to January 2014:

- 17 October 2013 – frog survey along Blackfellow Creek (north branch)
- 28 November 2013 – frog monitoring at Coles and Skyring Creeks for Bruce Highway environmental monitoring program
- 5 December 2013 – frog monitoring at Traveston and

Coles Creeks for Mary Valley Link Road environmental monitoring program

- 17 December 2013 – frog monitoring at Mary River for Mary Valley Link Road environmental monitoring program
- 18 December 2013 – set up Maleny Precinct frog monitoring transects and conduct the first frog monitoring surveys at the Maleny Precinct
- 15 January 2014 – frog survey at 'Golden Gully' on Pinbarren and Six Mile Creeks
- 16 January 2014 – frog monitoring at Belli and Cedar creeks for Sunshine Coast Council biodiversity monitoring program
- 21 January 2014 – frog monitoring at Cooroora and Six Mile Creeks for Bruce Highway environmental monitoring program
- 30 January 2014 – frog monitoring at Obi Obi Creek for Maleny Community Precinct environmental monitoring program



Above: Juvenile Giant barred frog on Obi Obi Creek.

Photo courtesy Jono Hooper

Centre: The Emerald Spotted Tree Frog (*Litoria peronii*)

Below: Mary Catchment champion frog spotter, Eva Ford

SUNSHINE COAST COUNCIL COMMUNITY PARTNERSHIP PROGRAM

The application for the Community Partnership Funding Project with Sunshine Coast Council was submitted on the 27th May 2013 for the 2013-2014 financial year. The application included:

- *Rivercare extension in the Sunshine Coast hinterland (including property planning, assistance with Landholder Environment Grants, and the initiation of two sub-catchment care groups)
- *Biodiversity monitoring (including acoustic monitoring and analysis of data from the previous eight years)
- *Maintenance of the Upper Mary and Kenilworth Waterwatch networks
- *Support for two student work experience placements
- *Noosa Festival of Water 2014
- *CodLine production

A grant was approved by Sunshine Coast Council for the Community Partnership Funding Program for the 2013-2014 financial year, for a total of \$72,493 (incl GST). This fund enabled environmental community engagement and assistance in the hinterland, water quality monitoring, biodiversity surveys and monitoring, two student placements and the production of Codline. A grant was also approved by Sunshine Coast Council for the Noosa Shire Council Community Partnership Funding Program for the 2013-2014 financial year, for a total of \$25,882 (incl GST). This fund enabled biodiversity surveys, monitoring and analysis of data collected to date, acoustic monitoring and the Noosa Festival of Water. Linkages with the Land for Wildlife program in Noosa were also reinforced.



A full bus toured the upper Mary in July 2014 looking at riparian project sites and rehabilitation techniques

Under the Community Partnership Funding Program and the Biodiversity Fund Project, a Riparian Restoration bus trip was organised, which followed on from a previous trip organised last November. Feedback from the participants on the trip and Landholder Environment Grant surveys indicated that there was a strong interest in viewing and learning from other riparian restoration project sites. The tour was organised in conjunction with Karen Shaw from Brush Turkey Enterprises, and travelled from Gympie to Maleny, Belli, returning to Gympie.

An application was submitted for the next three years for funding under the Sunshine Coast Council's Environment Levy Partnerships Program. Although we requested \$106,600/year, competition for the grant funds was strong, resulting in approval of \$66,601/year for the next three years. This grant will provide assistance to landholders submitting applications under the

Landholder Environment Grants program, water quality monitoring in the Upper Mary, the continuation of biodiversity monitoring and surveys in the Upper Mary, education programs for the Upper Mary, and another professional development bus trip in 2015 identifying river processes.

Sunshine Coast Council Landholder Environment Grants

The Sunshine Coast Council Landholder Environment Grant applications closed on the 23rd April 2014. MRCCC assisted with the submission of 14 Expressions of Interest and 23 grant applications. The types of projects requesting funding ranged from fencing, off-stream watering, environmental weed control for regeneration, revegetation and gully erosion control. A summary of the projects is provided in the table on the following page.

The applications were assessed and 21 out of the 22 applications were approved (one application was withdrawn by the landholder). A total of \$59,300 was approved from the \$62,043 applied for. Mid-project survey forms were also sent out to the relevant Landholder Environment Grant recipients.

Summary of Sunshine Coast Council Landholder Environment Grants assisted by MRCCC

Activity type	Number of properties undertaking the activity
Fencing	12
Off-stream watering	5
Environmental weed control	23
Revegetation	18
Gully erosion control	5



Funds sought (SC Council)	Funds allocated (MRCCC Biodiversity Fund)	In-kind support from landholders	Total \$ for projects for 2014-15
\$62,043	\$176,632	\$132,570	\$371,245
Ratio = 1 : 3 (SCC:BF)			1 : 5 (SCC:BF+Landholder)
Ratio = 1:2 (SCC:Landholder)			1 : 1 (BF:SCC+Landholder)

Neighbourhood gatherings

A group of landholders who have been undertaking riparian restoration projects has been meeting regularly. The Belli/Cedar group met first at Onyx Park, a biodynamic cattle property on Belli Creek. This was an opportunity for most of the 12 attendees to meet each other. A range of issues were discussed including their individual projects, what was important to them and how they would like to move forward as a group. The consensus was that they would like to have some time to grow as an informal group before anything formal is generated. Eight people came to the next gathering held on the 25th May at John Mayze's property on Cedar Creek. As requested by the group, MRCCC covered the various types of weeds found in the area, the threats that they pose and the treatment required. We had a walk along the creek to observe the work that John has undertaken over the past four years to protect and enhance the riparian zone of his section of creek. This stretch of Cedar Creek is home to all threatened stream frog species of the Mary River and boasts one of the highest densities of Giant Barred frogs in the catchments.

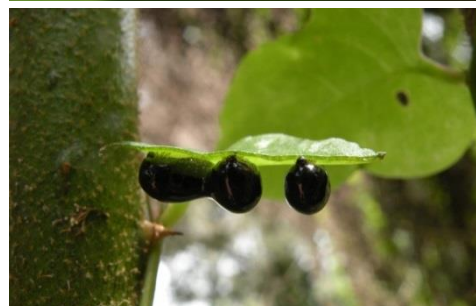
A third gathering of the Belli/Cedar neighbourhood group was held in July at the Risby-Jones property on Cedar Creek. Ben and Andrea have been rehabilitating the riparian zone along the creek on their property for approximately fifteen years.

Invitations were sent out for the first neighbourhood meeting in the Upper Mary under the Living with Threatened Species program. The event was for Rivercare landholders in the Belli/Cedar Creek sub-catchments. The meeting was held to determine the future of the group, and it is hoped that a landcare node will develop.

Control of Madeira Vine

Madeira vine bio-control agents have been seen at Walli Creek after their release over 12 months ago, despite previous searches in the area. This was fantastic for the prospects of Madeira control, and the site may see a further release in the future with beetles supplied from Gympie Landcare.

Madeira bio-control agents (50 x *Plectonycha correntina* beetles from the Gympie Landcare rearing facility) were again released at Walli Creek in the vicinity of beetles and larvae previously found. These were offspring of the beetles released in March 2013. Through this additional release we hope to introduce new genetic material and create a larger and stronger colony. The site at Walli Creek will be regularly monitored.



Plectonycha correntina – the Madeira vine biocontrol agent larvae and adult alive and well at Walli Creek.

THE 7TH AUSTRALIAN STREAM MANAGEMENT CONFERENCE

The MRCCC is fortunate to have delivered papers at successive stream management conferences for some years now. MRCCC registered to provide a paper and presentation at the 7th Australian Stream Management Conference in Townsville on the 18th July and was again accepted. The paper, titled 'Frogs – weapons of mass rehabilitation in the Mary River catchment' co-authored by Eva Ford, Brad Wedlock, Deb Seal and Dale Watson was delivered to the Conference by Steve Burgess. The underlying premise of the paper is that as bio-indicators of river health, the presence of frogs, particularly the threatened stream frogs of the Mary River Catchment, has in some areas galvanised community action to rehabilitate and protect frog habitat, which is invariably also the habitat of other aquatic species.

A full copy of the paper is included at the end of this report.

MAIN ROADS HIGHWAY CONSTRUCTION MONITORING PROGRAM

Chris Rosin – Catchment Officer / Aquatic Ecologist



Marjories Hardyhead



Crimson spotted Rainbow Fish



Purple spotted Gudgeon



It's hard to believe that it's been over a year since I joined the crew at MRCCC. It's been a full on year with the Main Roads monitoring work drawing to a close plus I have been busy with several other tasks including Higher Ground Education Days, Gympie Regional Council evaluation of bridge repairs and working with Seqwater on improving water quality at the raw water intake within the Goomong Reach of the Mary River. Currently I am also involved with a feral pig reduction project in partnership with some of the region's farmers.

Department of Transport and Main Roads Waterway Monitoring

As the project draws to a close we have been able to identify the short and long term impacts of the new highway construction on some of our local waterways including Coles and Skyring Creeks as well as the Mary River.

Overall many of the impacts such as higher turbidity levels caused by increased sediment loads from the construction sites, local disturbance of the aquatic biota and a general decline in water quality have proven to be ephemeral with all parameters returning to normal levels as the construction finished and areas stabilised. Revegetation works have generally progressed well with some sites growing at a rapid rate and starting to have a positive impact on the creek in relation to shade, organic input and stabilisation, particularly along the Skyring Creek meander reinstatement.

The bridge and meander realignments in both Skyring and Coles Creek have proven to be acceptable habitat for many of our aquatic creatures and have been inhabited by turtles, waterbirds, reptiles, frogs and fish. We were even able to record a platypus at the Coles Creek Bridge alignment tie-in during the final fyke net survey.

In general the artificial habitat devices reintroduced into the built sections of the creeks have performed adequately though some issues with placement and also the placement as individual rather than as a series of devices has resulted in the artificial habitat logs not quite reaching expectations. The rock substrates of the creeks are also steadily infilling with sediment and with the thick algal coating most are proving to be valuable for habitat, providing a source of food and shelter for many species of fish and invertebrates.

Fish surveys have shown the fish assemblages within the built environments are stable in the pools within the realignments providing

valuable refugia during dry periods.

Of concern however within both the Coles and Skyring Creek Bridge realignment sections are areas of debris that are causing bio passage issues.

These areas are preventing passage during ambient flows and would ideally be remediated to some degree to lessen the impact. A negative feature of the Skyring Creek works is also the large amount of Camphor Laurel seedlings that have germinated. Significant resources have been used to clear these sections of mature trees and native vegetation has been replanted, however if the seedlings now present are not treated this will have been a wasted effort.

Likewise the work on the Mary Valley Link Road which included two bridges over Coles Creek and the Mary River has also had generally ephemeral effects with Index of Stream Condition data showing an upward trend after each assessment and turtle monitoring consistently identifying several turtle species, including the Mary River Turtle, in the pool directly downstream of the construction activities.

Left from top: Mary River turtle downstream from the link road bridge

White throated snapping turtle downstream of the link road bridge

Queensland lung fish captured during fyke survey

Mouth Almighty captured in trap during survey

As with the creek works there are several issues, the major one being the opening up of access to vital sandbanks downstream of the bridge to vehicles.

These sandbanks, used by the Mary River turtles for egg laying have proven to be popular with a certain breed of 4wd enthusiast who enjoy trashing the banks and beds of waterways as a form of enjoyment.

Unfortunately the damage that can be done by one or two of these motorists in a very short period of time is significant and the potential of the loss of an entire season of Mary River turtle eggs on one of these banks cannot be underrated.

Discussions are ongoing as to the best way of eliminating this threat.



Gympie Regional Council

Biodiversity Survey Works

This year biodiversity surveys were conducted on two of the region's bridges prior to bridge construction and repairs. The bridges at Wide Bay and Six Mile Creeks were assessed for fish species as well as essential habitat.

The survey results led to recommendations on how construction activities were undertaken. The council should be commended for such a proactive approach to planned works with the results of the survey proving that such surveys are a valuable tool with the presence of Mary River Cod and the Queensland Lungfish being established.

Additionally, valuable habitat features such as woody debris and macrophyte beds were identified and strategies introduced to protect these features.



Right top: Macrophyte bed containing Valisneria nana, Ottelia alismoides, Potamogeton crispus, Chara sp and Nitell sp, left bank, downstream pool Wide Bay Creek Bridge Macrophyte survey, November 2013

Below: Downstream reach of Bridge Pool highlighting woody debris, bank undercuts and riparian shading

Higher Ground Outdoor Education Group

Higher Ground have contracted the MRCCC to provide several weed education days at their Kenilworth, Tuckekoi and Mary Valley Centres with students from both Hong Kong and Brisbane based schools.

These days have proven to be a lot of fun with students actively involving themselves with the theory and practical side of weed control as well as establishing a firm understanding of the threats weeds are to waterways and riparian areas, particularly in the Mary River.

Students were involved with the control of many species of weeds including Cats Claw, Lantana, Yellow Bells, Devils Apple and Camphor Laurel. The students also gain an appreciation of the effects of riparian clearing, stock accessing the river banks and pollution during the process.

The feedback from both students and staff was very positive and hopefully these education days will continue into the future.



Higher Ground students carry an army of Cat's Claw Creeper Biocontrol agents to a heavily infested site at Kenilworth. The students plant the infected vines and also undertake manual control, cutting the vine off the trees to prevent flowering and seeding

Goomong Reach Water Quality Improvement

In partnership with Seqwater, the MRCCC has begun work on several properties to improve the quality of water running into the Mary River in proximity to the Seqwater raw water intake in the Mary River.

To date, an effluent trap preventing nutrient rich runoff entering the river has been installed with several other projects in the planning stage.

This work is a progression from extensive works undertaken already within this reach by landholders and will be complemented by the extensive amount of data and information garnered during the Main Roads monitoring program.





MARY RIVER THREATENED AQUATIC SPECIES RECOVERY PLAN

Dr Tanzi Smith – Catchment Officer/ Recovery Plan

The 2013 Annual Report explained that the recovery team had endorsed the plan and it had been handed back to the Department of Environment to be taken through the final stages before being presented to the Threatened Species Scientific Committee and to the Minister. One year on things have progressed more slowly than we hoped but important steps toward the endorsement of the plan have been made. The State Government reviewed the plan over a period of about 3 months and at the time of completion of this report

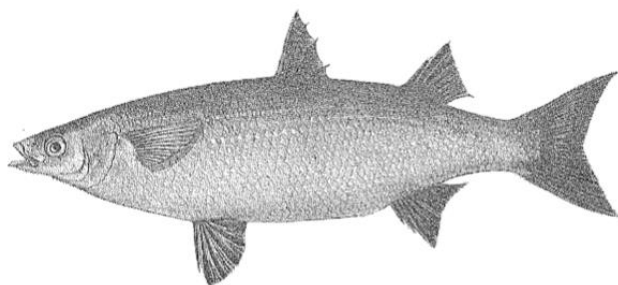
the Australian Government staff had addressed these comments, in consultation with MRCCC in some cases, and returned the plan to the Queensland State Government for final endorsement. The best case scenario at this stage is that the plan will be presented to the March 2015 Threatened Species Scientific Committee meeting for their endorsement. MRCCC undertook an important adjunct to the recovery plan this year by submitting a nomination for the Freshwater mullet (*Trachystoma petardi*) to be listed as vulnerable under the *Environment Protection and Biodiversity Conservation* (1999) Act. Freshwater mullet (*Trachystoma petardi*) is one of the five priority species in the recovery plan and although it is not listed it is clearly in decline in our region which is historically the northern end of its range. The freshwater mullet breeds in the estuary and spends much of the rest of its life in freshwater. Once common in rivers from the Burnett south to southern New South Wales, its numbers are in decline, particularly at the northern end of its range. It is easily mistaken for the ubiquitous sea mullet (*Mugil cephalus*) which also moves between fresh and saltwater as part of its life cycle.

How to tell the difference between the fresh and sea water mullet.....

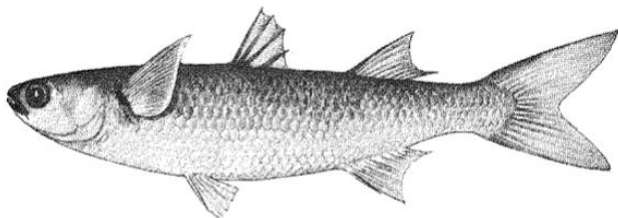
If in doubt... check the snout!

Broad and flat, don't worry about that

Pointy as hell, give us a bell!



Above: Fresh water mullet
Below: Sea Mullet



The Freshwater mullet was included as a priority species in the Recovery Plan because it was in decline and because it represents the importance of connectivity between the freshwater and saltwater that is so crucial for many other species of fish and also for overall river health. This connectivity is also very important for local recreational and commercial fishing industries because so many of the species on which they depend need both freshwater flows from the Mary and access to freshwater parts of the river system.

Species that move between fresh and salt water include barramundi, bass, eels and bony bream. This connectivity can be broken completely by barriers which prevent or restrict fish passage. The Threatened Species Scientific Committee reviewed the nomination and notified MRCCC that, although the freshwater mullet may satisfy the criteria for listing, the lack of sufficient quantitative data meant it did not make the cut this time. They advised that we should send any new information to them so that this can be taken into account when the nomination is automatically reconsidered next year.



The Launch of In Retrospect: the Mary River at the Discovery Sphere, Pialba, Hervey Bay.

From left to right: Dr Tanzi Smith, Nai Nai Bird, David Barrowcliffe, Harry Jamieson, Ailsa Head, Mark Singho, Lindsay Titmarsh, Lawrie Wilson and the film's Producer, Luke Barrowcliffe

IN RETROSPECT: THE MARY RIVER

This year, Goorie Vision and MRCCC completed the “*Looking Forward, Looking Back: learning from the past to create a better future*” project. An ambitious idea, originally intended as a 10-20 minute film, this production grew into a feature length one and half hour film starring local identities telling stories about the Mary River catchment. In addition to the creation of the film, an archive of interviews of 35 local identities and hundreds of historical photos have been collected. This archive is available for use by the broader community with permission of the individual interviewees.

The film has been screened at eight locations throughout the catchment, with another screening planned at Kenilworth in November. Over 300 people have now seen the film and many copies have been purchased and distributed far and wide.

Understanding of this history generates insights regarding so many activities that are relevant to the decisions made about catchment management today. For example, the historical photos and stories of the river in Gympie during the Gold Rush, reveal that it was used as a tailings dump and the banks were clear of vegetation. This section of the river certainly still has its issues however it looks so much healthier than it did in the late 1800s, demonstrating the resilience of the river and providing hope for improvement in the next 100 years.

Copies of the film are available for sale at MRCCC. Please contact the office if you are interested in accessing the archive created as part of the project.

In Retrospect screenings to date

Date	Location	Number of people
29 th March	Brooweena	~20
11 th April	Gympie	~60
19 th April	Dagun	~30
30 th April	Maryborough	~110
5 th May	Kilkivan	~20
22 nd May	Pomona	~80
14 June	Conondale	~20
1 st October	Kandanga	~57
5 th Nov	Kenilworth	



Luke Barrowcliffe, Tanzi Smith and members of the Historical Society

GREAT BARRIER REEF SEDIMENT AND PESTICIDE MONITORING IN THE LOWER MARY

Late in 2013 MRCCC commenced a partnership with the Queensland Government Department of Science, Information Technology, Innovation and the Arts (DSITIA) as part of the Great Barrier Reef Catchment Loads monitoring program. The Mary River is the southern most Great Barrier Reef catchment and the data being collected as part of this program will be used to calibrate models which will predict how loads to the Reef are changed by modified management practices.

Reef Plan

Long Term Goal

To ensure that **by 2020 the quality of water** entering the reef from broadscale land use **has no detrimental impact** on the **health and resilience** of the **Great Barrier Reef**.

A team of locally based samplers are performing monitoring of Tinana Creek (at the barrage) and Home Park (on the Mary River). The monitoring includes monthly samples and sampling of flood events. The flood events are sampled using an automatic sampler which DSITIA have installed at the gauging stations at Home Park. The timing of the flood event sample is controlled remotely by DSITIA and this enables good coverage of the flood peak. The samples are tested for nutrients, pesticides and sediments. Sampling of the flood peaks is an essential component of understanding the loads of these pollutants coming from the catchment. All analysis is paid for by DSITIA with the exception of the pesticide samples from Tinana Creek which have been paid for by the Burnett Mary Regional Group.

After ten months of monitoring we have received an overview of the results based on concentrations measured at each site. Pollutant loads, which are calculated using concentration and flow rate, are likely to be available late this year or early next year.



Ross Smith and Marilyn Connell with collect samples from the automatic samplers

BIODIVERSITY FUND MONITORING

As part of the “*Restoring Riparian Resilience: implementing the Mary River Threatened Aquatic Species Recovery Plan*” MRCCC has been undertaking monitoring of a range of sites where on-ground work is happening for this project. The purpose of this monitoring is to track the change brought about by this project and to also evaluate the effectiveness of the revegetation, fencing and weed control strategies being used. Caitlin Mill, MRCCC’s project support officer, and Tanzi Smith have undertaken the monitoring and report writing.

It has been fascinating to visit so many parts of the catchment and look closely at the vegetation and the way the sites are changing in response to different kinds of project activities. One thing that has really stood out is the ubiquitous nature of the sandpaper fig. Sandpaper figs seem to be coming up almost everywhere from the Mary Headwaters near Policeman’s Spur to Tiaro. It’s great to see this important species recolonising areas. We are a little perplexed as to why these species are popping up more than others. One theory is that the fig fruit are able to be transported downstream and distributed into the riparian zone during floods more than smaller seeds or seeds that do not float. The findings from the monitoring program are detailed in a report that is available from MRCCC on request.



*Top: Sally Mackay identifying species
Below: The Mary River and the Sandpaper Fig*

THE NATIONAL LANDCARE CONFERENCE, MELBOURNE 2014

In September 2014 Tanzi attended the National Landcare Conference which celebrated 25 years since the beginning of the Landcare movement. Well attended by Landcare groups from Victoria and New South Wales in particular, it was an interesting event with some great keynote speakers. The biggest highlight was the keynote presentation by Dr Stefan Hajkowicz from CSIRO outlining the “megatrends” affecting the global community and the opportunities these trends represent for Landcare. His presentation was quite a whirlwind, jam packed full of information. One of the megatrends,



called “Great Expectations” refers to the fact that as people get richer across the world they will increasingly look for higher quality in their consumption of food and other products. According to this trend, there will be a greater demand for sustainable, fair trade produced food. As was discussed, this is a space where Landcare can make a great contribution by helping to define and foster more sustainable food production. Hearing Bob Hawke repeat parts of his speech that kicked off Landcare 25 years ago was also pretty amazing. Compared to the political rhetoric of today, it is incredible to think that 25 years ago, our Prime Minister proclaimed that caring for the environment needed to be an integral part of our future and that is the foundation of not only our agriculture, but our wellbeing as a community. To quote a section of Mr Hawke’s 1989 speech which he repeated at the Landcare Conference: “When the earth is spoiled, humanity and all living things are diminished. We have taken too much from the earth and given back too little. It’s time to say enough is enough.” No matter what you think of Bob Hawke or what side of politics you lean toward, the contrast with current day political sentiment about the role of the environment in our lives gives a lot of food for thought.

Collaboration with Australian Rivers Institute

The Australian Rivers institute at Griffith University has been active in the Mary River catchment for decades. This year we took a step toward a more formal partnership through inclusion of MRCCC as a partner organisation on an Everyone’s



Environment Grant application which Dr Mark Kennard submitted to the Queensland Government in August 2014. If successful, this project titled “Science - community partnership to maximise effectiveness of threatened species management in the Mary River catchment”, will address research gaps identified in the Mary River Threatened Aquatic Species Recovery Plan. It will also involve collaboration with researchers at the University of Queensland under the banner of the Australian Water and Environment Research Alliance (AWERA), a joint initiative of these two Universities. Griffith University has contracted MRCCC to assist with the development of this project and to facilitate future research collaboration as well.

MRCCC’s connection with the Australian Rivers Institute is also being strengthened by the River Listening project run by Dr Leah Barclay and Dr Simon Linke. Numerous River Listening workshops have been held in the catchment including two associated with World Rivers Day at the end of September. This project has huge amounts of potential for developing methods of non invasive

monitoring of aquatic creatures and for encouraging community connection to this mysterious aquatic environment.

Top Left: Celebrating World Rivers Day at Tiaro and Moy Pocket with Griffith University’s Leah Barclay and the river listening device. Below: The Mary River at Home Park near Tiaro in December 2013



NOOSA FESTIVAL OF WATER

The tenth annual Noosa Festival of Water was held at the Noosa Botanic Gardens and Lake Macdonald Amphitheatre on Sunday 29th of June 2014. This year's festival attracted a record crowd with an estimated 2000 + people enjoying the beautiful weather, activities, displays and entertainment in the magnificent Grecian style Amphitheatre overlooking Lake Macdonald.

The Lake Macdonald Catchment Care group stages the Noosa Festival of Water each year to raise awareness and improve understanding of biodiversity and ecological issues in the Lake Macdonald sub catchment and Noosa Biosphere region. Activities, presentations and displays organised for the Festival are mostly associated with environmental care, sustainability and ecological issues.

The Festival also showcases Lake Macdonald and the Noosa Botanic Gardens as a recreational destination with a wide range of facilities suitable for all age groups. Partnerships with Sunshine Coast Council, Noosa Council and Seqwater facilitate the success of the Festival each year. In 2014, the Lake Macdonald Group also welcomed support from Unity Water, who brought their Hydration Station to the Festival to enable patrons to fill their own water bottles, reinforcing the Festival's move away from plastic water bottles.

The Lake Macdonald Catch and Release Bass Fishing Competition is an added attraction on the Lake on Festival Day. In 2014 the competition attracted 30 participants, all eager to win some of the fantastic prizes on offer from Hooked on Angling and Outdoors in Tewantin. The Fishing Competition reinforces sustainable fishing techniques and further showcases the recreational attributes of Lake Macdonald.

Additional support was provided by Hooked on Angling and Outdoors Tewantin, the Noosa Landcare Group, Noosa Council's Bushcare team, staff at the Noosa Botanic Gardens and the staff and Committee of the Mary River Catchment Coordinating Committee, which is the overarching group for the Lake Macdonald Catchment Care group.

Top: Caitlyn Shadbolt belts it out in the Amphitheatre

Middle: Free boat trips are the most popular activity at the Festival

Middle: Michael Fiechtner providing information about Seqwater

Below: The Amphitheatre complete with stunning water views



CODLINE NEWSLETTER

Long term CodLine editor, Eva Witney has moved on to greener pastures and we wish her all the best. Fortunately for the MRCCC, local graphic artist Glenbo Craig has stepped into the void with his impressive desk top publishing skills and given the CodLine a new lease of life.

In 2014, Sunshine Coast Council and the MRCCC funded publication of the CodLine, which is sent to over 2000 catchment residents by email, hard copy and also distributed to produce stores throughout the Mary Catchment. At this stage, funds are only available to print one copy per year, although there is usually a great deal more material available than room to publish it. This year's edition included a focus on the drought and an opportunity to hear from one of the Mary Catchment's living legends, Ted Dray who has been farming his Wooolooga property with his family for almost 100 years. Copies of the CodLine can be downloaded from the MRCCC's website at www.mrccc.org.au

VALLEY BEES

Valley Bees has had an enormously successful year promoting the nurturing of all bees and their habitat. Our monthly meetings are still very well attended, with lively and informative discussions on All-Things-Bees.

We have now established honeybee interactive sites at both the Gympie Landcare Nursery and the Honeybee Farm at Kandanga. Experienced beekeepers are available to mentor intending beekeepers (we like to call 'em Wannabees) through on-site hive inspections, honey extractions, hive splits, equipment making and bee biology - depending on the season of course. Landcare is on the first Saturday of every month, and Honeybee farm on the third Saturday of each month, both from 10am through to 12noon plus. Anyone with an interest in bees is welcome to attend (which includes morning tea).

We also have native stingless hives and solitary bee walls and gardens at land care, and plan to have these very soon at the Honeybee Farm. So you are welcome on the mornings to be active in the native bees as well, with information also available on bee trees and planting gardens for enticing pollinators.

Workshops on native bees have been well attended, with the likes of Chris Fuller, Tim Heard, Rob Raabe, Bob Luttrell and friends offering invaluable advice and experience.

A highlight was the launch of the bee Book "Nature's Gifts" at our November meeting. It has been a calculated 50 years in the making, and has been well received by the bee fraternity.

CodLine 2014 featured an article focused on bees in the riparian zones, and we look forward to developing and exploring this aspect of bees and the rivers / waterways further. Keep in contact with us on this one!

Our next major event is this coming weekend 12 October, at Kandanga Hall, with our annual Bee Open Day. All are welcome, as it is a fund raising venture, with all money raised going direct to current local research on the threats of Small Hive beetle incursions - with emphasis on a trap situated outside of the actual hives. Bee Inspired! Athol Craig, Chair Valley Bees.



JACK-IN-THE-BOX IDEAS FEST

On the 22nd June 2014, the MRCCC was pleased to auspice the inaugural Jack-in-the-Box Ideas Fest at the Tewantin Primary School Hall. The Ideas Fest began as an idea by MRCCC staff member Eva Ford for a project to be delivered as part of a Self-Expression and Leadership course through Landmark Education. The project was to be a not-for-profit community event that would require the involvement and cooperation of the local community. The theme of a Healthy and Natural Environment was created to give the event a focus and the target audience was chosen to be the Sunshine Coast and surrounds. The event was designed to be duplicated following the same or alternate themes, ideally related to improving our future through community based change.

People were invited by Eva to join a team to plan and deliver the event. The organising group, known as TeamJack, consisted of around 30 people and was led by local Environmental Engineer, Dallas Frazier.

Aims of the event:

- To provide a platform for members of the community (no particular sector) x 50 to voice their idea to a large audience x 500
- To allow connection between people to further their ideas
- To give life to an idea that was previously 'stuck'
- To give exposure to local businesses and artists
- To provide benefits in unknown ways to our environment, the local community and beyond



As the planning progressed the members of TeamJack determined to hold an event that consumed minimal resources and created minimal waste, using recycled and/or natural materials where possible.

The Jack-In-The-Box Ideas Fest was a one-off event lasting 3 hours (12 noon until 3 pm). Ideas needed to be related to the theme, lawful, ethical, non-prejudicial, non-violent, non-destructive, non-political and respectful of people and animals.

Presenters were required to submit their ideas to TeamJack two weeks prior to the event to ensure no breach of the guidelines. The goal was to have 50 ideas presented, each idea allocated 2 minutes (90 seconds for presentation and 30 seconds for turn-around). The program was designed to allocate the first two hours to people presenting their idea to an audience with a 10 minute break after the first hour, followed by one hour of connection between people around that idea.

On the day, 38 Ideas were presented covering a wide range of issues including recycling, banning or paying for plastic bags, fruit trees and edible gardens for schools, sustainable populations, environmental eldership, local native seed bank registers, and so on. Although there were some un-anticipated teething problems, the Ideas Fest was considered to be a resounding success and it is expected that the event will be held again, this time with a longer lead time for organisation and promotion of the event to ensure greater participation.



*The pitfalls of channel cross section monitoring at the Mary River, Tiaro during the drought.
Brad Wedlock and Steve Burgess donating their boots to science?*

POLICY & PROJECT SUBMISSIONS

Mary River Threatened Aquatic Species Recovery Plan development (Federal Govt Dept Env)	On-going
Burnett-Mary Water Quality Improvement Plan development	On-going
BMRG Organisation Reform submissions	July 2013
Queensland Plan – a 30 year vision, submission to Qld Government	Aug 2013
EPBC Act draft assessment bilateral agreement submission to Federal Government	Dec 2013
Great Barrier Reef Strategic Assessment submission to Qld Government	Dec 2013
EPBC Act bilateral agreement Senate Standing Committee Inquiry submission	May 2014
White throated snapping Turtle threatened species nomination submission to Federal Government	July 2014
Freshwater mullet threatened species nomination to Federal Govt	July 2014
Mary Valley Landholdings – Guidelines for the distribution and sale of water allocations	July 2014
Everyone's Environment Grant Rd3 funding submission to Qld Govt	Aug 2014

REPRESENTATIONS

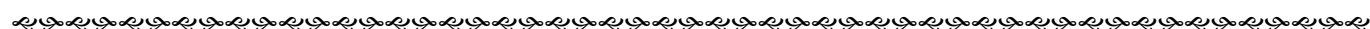
Mary Valley Economic Development Stakeholder Reference Group for the Mary Valley Lands	On-going
Gympie Council Pest Management Committee	On-going
Burnett-Mary Water Quality Improvement Plan	On going
Representation to Cr Ron Dyne, 25 Stewart Terrace building plan	Mar 2014
Representation to Member for Wide Bay, Hon Warren Truss MP – Biodiversity Fund project	Mar 2014
Representation to Qld Minister for Environment and Heritage – Mary River Aquatic Threatened Species Recovery Plan	May 2014
Representation to Qld Minister for Natural Resources & Mines – NRM funding	May 2014
Submission regarding the Mineral and Energy Resources (Common Provisions) Bill 2014	June 2014
7th Australian Stream Management Conference, Townsville - Steve Burgess presented a paper titled "Frogs – Weapons of mass rehabilitation in the Mary River Catchment" authored by Eva Ford, Brad Wedlock, Dale Watson, Deb Seal and Steve Burgess	July 2014
Noosa Council Pest Management Plan	Aug 2014
Burnett Mary NRM & Climate Adaptation Plan 2015	Aug 2014

WORKSHOPS, FESTIVALS & FIELD-DAYS

Tiaro Waterwatch workshop	Sept 2013
Teebar, Gympie, Kenilworth, Maleny Waterwatch workshops	Oct 2013
Mary River Festival, Kandanga	Nov 2013
Gundiah Waterwatch workshop	Dec 2013
Tiaro Waterwatch and Water Quality Improvement Plan sampling training	Dec 2013
Mary River Kids Day Out Queens Park Maryborough	May 2014
Mary Valley Country Harvest Summer School – irrigation and farm planning workshops	Feb 2014
Vegetation soil and landscapes of the Gympie District bus tour	May 2014
Cooloola Coastcare Waterwatch workshop	Apr 2014
Get to Know Mary day, Tiaro, hosted by Greater Mary Association	May 2014
Land for Wildlife Field Day, Nils Buchanan Park and Tinana Creek	June 2014
Noosa Festival of Water, Lake Macdonald	June 2014
Riparian revegetation bus-trip, Maleny, Kenilworth	July 2014
Land for Wildlife Biocontrol Workshop and National Threatened Species Day at Gympie Landcare	Sep 2014

SCHOOL ACTIVITIES

"Smart Steps" expo (6 primary schools) Gympie	July 2014
Kenilworth Homestead, annual Hong Kong student outdoor education program Kenilworth	July 2014
Sustainable Futures Forum Imbil	Sept 2014
School curriculum planning –using materials from "looking forward looking back" project Imbil	Oct 2014



PAPER DELIVERED TO THE 7TH ANNUAL STREAM MANAGEMENT CONFERENCE IN TOWNSVILLE,
JULY 2014

Frogs – Weapons of mass rehabilitation in the Mary River Catchment

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Key Points

Knowledge gaps in information on threatened species can provide an opportunity to involve local communities in research.

Fauna species can attract funding that assists communities to rehabilitate essential habitat.

The presence or likely presence of threatened species can encourage an ethic of care as well as contributing to planning schemes and influencing the manner in which development projects are carried out.

Abstract

Since 2002 the Mary River Catchment Coordinating Committee (MRCCC) has enlisted the federally endangered Giant barred frog *Mixophyes iteratus* to promote restoration of ecologically sensitive riparian zones amongst the local catchment community. While other threatened species are present in the aquatic ecosystems of the catchment, frogs are more easily detected thereby readily available for community involvement in research. They have been instrumental in inspiring an ethic of care and providing access to funding to assist landholders carrying out rehabilitation work. Rehabilitation activities have been extensive within the range of the Giant barred frog, an outcome that is attributed to the MRCCC's long-term extension and engagement in the upper catchment and the funding opportunities that have been accessed. The benefits of addressing the requirements of the Giant barred frog are shared by other species and whole ecosystems. This approach can be readily adopted by other environmental management groups.

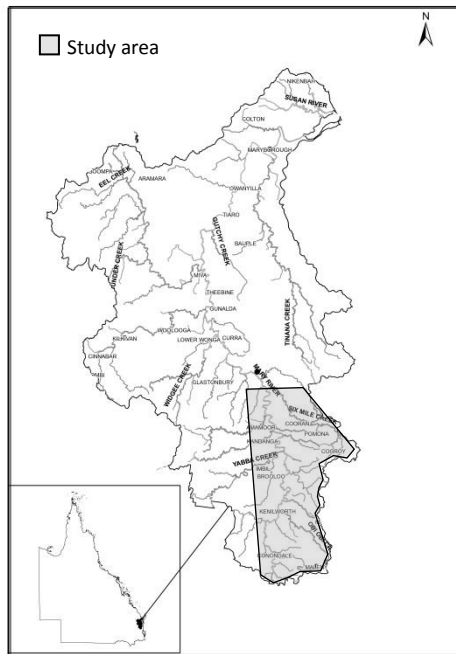
Keywords

Giant barred frog, Mary River catchment, threatened species, community, riparian, rehabilitation

Introduction

The Mary River catchment in South East Queensland is a river system of high ecological value (Mary River Catchment Coordinating Committee *et al.*, 2014) located close to heavily populated and expanding regions of the state (see Figure 1). Degradation of the river and tributaries is severe along many reaches. Loss of riparian vegetation, riverbank erosion and associated sedimentation has been highlighted as major issues of concern (DeRose *et al.* 2002). The Mary River catchment has recently been listed at the 4th worst source of sediments out of 35 sub-catchments that flow into the Great Barrier Reef lagoon (Caring for our Country, 2013).

Figure 1. Location of the Mary River catchment in Queensland, Australia and MRCCC threatened frog project area.



The Mary River Catchment Coordinating Committee's (MRCCC) aim of 'working towards a sustainable and productive catchment' (MRCCC, 2014) is largely addressed through landholder engagement in undertaking on-ground river restoration activities to improve habitat value and water quality. With worldwide frog decline and disappearance high on the conservation agenda over the past several decades (Campbell, 1999; Hines *et al.*, 2002; Stuart, 2004) improved knowledge of local frogs and their potential as flagship species became apparent to the MRCCC. This paper provides a case study of how a community catchment organization has utilised an iconic species to arouse interest of the catchment community and attract supportive funding to address catchment condition issues that relate to the requirements of the species.

In developing the 'Living with Threatened Species' program in 2002, the MRCCC focused their attention on the Giant barred frog *Mixophyes iteratus* (listed as endangered under the Environment Protection and Biodiversity Act 1999) due to its dependence on threatened ecosystems, limited distributional information in the Mary River catchment, recorded declines from parts of its range (Hines *et al.*, 2002), potential as a bio-indicator (White, 2006) and its potential to engage with landholders of the upper catchment in areas less likely to be utilised by other iconic, stream-dependent species.

Through provision of frog-related activities such as a local Frog Forum for landholders attracting experts in frogs and their decline, development of educational material, displays at events and offering frog surveys to volunteers and landholders, a groundswell of community interest in the plight of frogs in this region led to a significant increase in the number of people wishing to be involved in activities which addressed declining frog populations.

Methods

Approach

The approach taken by the MRCCC is captured in the following flow chart (Figure 2). This has enabled the organization to gain a solid understanding of the natural values of the catchment, and to recognise the potential of natural assets in recovery and opportunities for projects and funding.

Through activities to increase current knowledge of the catchment's natural assets, community involvement has expanded greatly over the past 10 years. The increase in knowledge of species and of the condition of the catchment through this interaction with landholders has provided valuable input into the recently drafted Mary River Threatened Aquatic Species Recovery Plan developed by the MRCCC and the Australian Government (MRCCC *et al.* 2014). Documents such as this increase the potential to attach funding to address the issues outlined for the catchment.

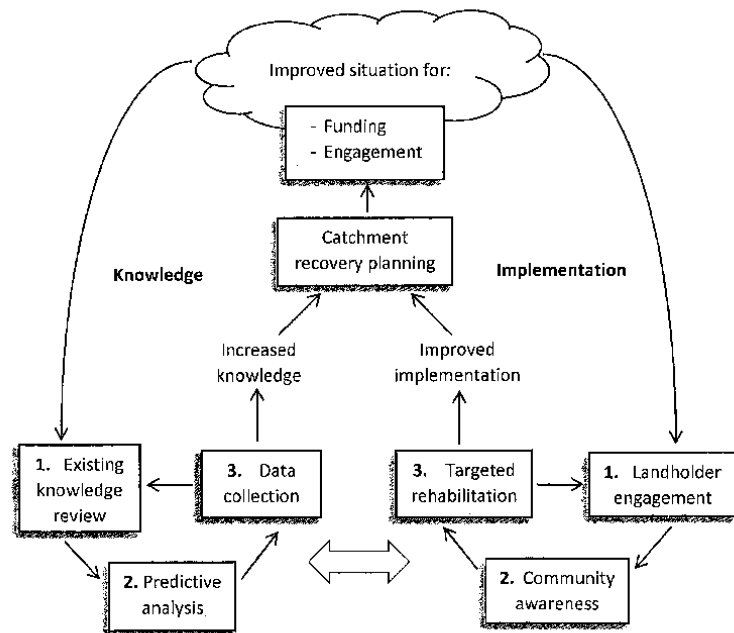


Figure 2. Approach to waterway recovery through use of a catchment natural asset.

Target species for restoration of ecosystems

In line with the recommendations of the Recovery Plan for Stream frogs of South East Queensland (Hines *et.al.*, 2002), which addresses the threats and recovery actions for three threatened frog species in the Mary River catchment known and likely habitat areas were chosen for frog-targeted surveys, with emphasis on the Giant barred frog. This species was chosen as the umbrella species to protect and rehabilitate riparian rainforest due to its known distribution and strong dependence on permanent and semi-permanent streams and their associated riparian vegetation (Hughes, 2005). In this way the endangered Regional Ecosystem 12.3.1; 'Gallery rainforest (notophyll vine forest) on alluvial plains' (Department of Environment and Heritage Protection, 2014) and the critically endangered Lowland Rainforest of Subtropical Australia (Department of the Environment, 2014) could be promoted in the community as discrete habitat types worthy of protection and expansion, not only for the Giant barred frog but for all stream associated species and for the quality of the waters locally and downstream. With regard to this approach, all other frogs and fauna would be recorded while undertaking surveys and monitoring.

Study area

Most of the current knowledge in the early 2000s, when this project began, had been gathered from protected areas (Hines *et.al.*, 2002). Some information was also available indicating that Giant barred frogs utilise habitats of the valley lowlands (Barden, 1999; H. Hines, 2003 pers. comm.). Based on this information the study area focused on freehold land and road reserves in the upper Mary River catchment south and east of Gympie (see Figure 2). Riparian vegetation along tributaries of stream order 3 to 5 were identified due to their high conservation value (MRCCC, 2001) and likely habitat for the target species (Hughes, 2005). The selected area and targeted waterways would also align with local planning schemes and satisfy funding provider guidelines (e.g. Hydrobiology *et. al.*, 2005).



Giant barred frog Mixophyes iteratus
(photo E. Ford, MRCCC)

Data collection

Riparian sites were surveyed at night during the breeding season for most of the frog species of South East Queensland (September to March). The duration of each survey was variable up to three hours as was the length of waterway surveyed. During surveys all fauna species and their abundance were recorded as well as location, habitat condition, water quality and weather information. Species data was collected through call, eyeshine and observational detection. These activities, while collecting essential data for species protection and management, provided an invaluable opportunity to involve landholders and interested community members in an activity that was both novel and educational.

With some experience of the local distribution of the Giant barred frog four long-term, 100 metre monitoring transects were installed between 2005 and 2007. The sites were chosen for their low level of disturbance, good connectivity to large tracts of remnant vegetation and minimal likelihood of direct human impact in the future. The sites were visited for one hour, three times each frog breeding season with no bias for weather conditions. The aim of monitoring these sites was to gather information on stream frog habitat use and population dynamics under varying climatic conditions; knowledge gaps highlighted by Hines *et. al.*, 1999. This data would enable determination of 'baseline' trends over a long period for all species present and indicate the possibility of environmental changes.

Data was also collected as part of community training workshops using surveys to assist the training and engagement of community and land managers. 32 dedicated frog workshops and numerous other threatened species, water quality and restoration related workshops and forums have been held in the Mary River catchment over the past 10 years.

All surveys and monitoring visits have involved the participation of landholders, community volunteers, community groups, tertiary and school students and agency staff. Hundreds of participants have been involved in surveys during the life of the Living with Threatened Species program. All data collected from surveys, monitoring visits and incidental data collection was entered into the WildNet database administered by the Queensland Government Department of Environment and Heritage Protection.

Results

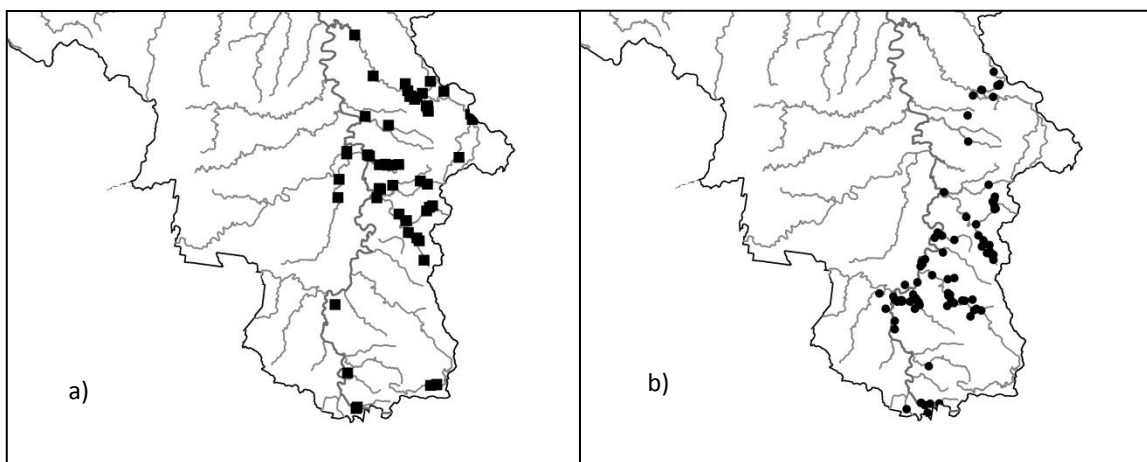
Since 2003 the following data in Table 1 has been collected through the MRCCC Survey and Monitoring program expanding the knowledge of frog species distribution and population status in the area. The upper Mary River catchment has emerged as a stronghold for the endangered Giant barred frog in terms of the number of sites and streams supporting the species (H. Hines, 2014 Pers. Comm.).

Parameter	Number
Frog-targeted incidental and monitoring surveys	993
Sites surveyed	339
Frog species recorded	34
Frogs recorded	13,865
Threatened frog species recorded	6
Giant barred frog records	511
Giant barred frog locations	58
Giant barred frog locations on freehold	35
Giant barred frog locations on road reserve	10
Giant barred frog locations on Council or state reserve	13

Table 1. Summary data for MRCCC frog surveys from 2003 to 2013.

The following map shows the locations of Giant barred frog records collected during surveys in the upper Mary River catchment.

Figure 3. Recorded Giant barred frog locations a) and MRCCC restoration project sites b) within the study area.



Application of knowledge in protection and rehabilitation

While data collection is vital to increasing knowledge of threatened and currently secure fauna of any species, without application of that knowledge the exercise is of little value. Patterson *et. al.* (1999) emphasises the importance of riparian management to the future of threatened frog species in the Belli Creek system of the Mary. The MRCCC has utilised the survey and monitoring program and the knowledge gained to engage with landholders and land managers, and to influence the level of protection and restoration that occurs within riparian ecosystems.

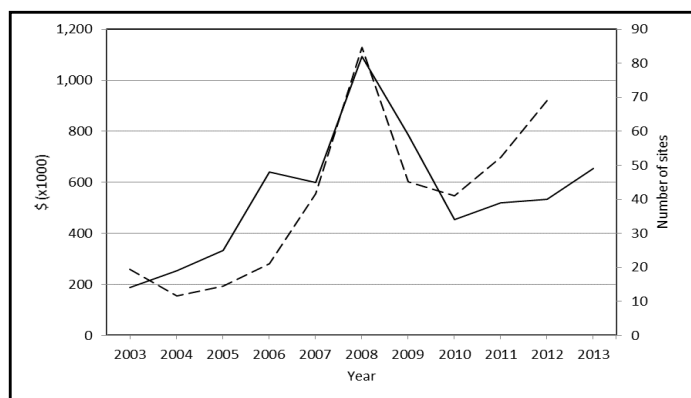
While site selection for on-ground works is often a direct result of Giant barred frog presence or likelihood, investment in site rehabilitation is also influenced by other factors such as:

- the funding available through other MRCCC programs such as Waterwatch, Healthy Habitats, Rivercare, Reef Rescue, and by programs of other organisations such as Land for Wildlife and voluntary covenanting of land,
- the availability of landholders who make long term commitments to improving and protecting ecological conditions in priority reaches in the catchment on their own properties.

Figure 4 shows how threatened species funding, with emphasis on threatened frogs, has been secured since 2002 and how, correspondingly, the number of restoration sites has increased since the inception of the Living with Threatened Species program. There is a direct relationship between on-ground action and funding obtained as a result of frog presence, in this case the Giant barred frog. Figure 4 shows how the distribution of project sites correlate with Giant barred frog locations.

The presence of frogs allows catchment and extension staff to utilise a species that captures the empathy of people rather than relying on the potential appeal of ecosystem conservation alone. The use of a particular species as a flagship and umbrella species as well as a bio-indicator (White 2006, Caro *et. al.*, 1999) provides a multi-use tool with which to attract funding, attention, and a desire for action. As suggested by (Ehman, 1999) 'While the wider community does not distinguish between threatened and "non-threatened" frogs they can contribute significantly to the recovery of threatened species.' Anecdotally the frog fauna of the Mary River catchment and in particular the Giant barred frog, has continued to arouse enthusiasm for waterway restoration and helped to nurture a strong community ethic of care.

Figure 4. Funding obtained (—) and number of project sites undertaking habitat restoration for threatened frog species (- - -) in the Mary River catchment.



Projects developed with landholders to target habitat critical to the Giant barred frog and supported through funding have included fencing to exclude stock from riparian zones, provision of off-stream watering infrastructure to control stock movement, and environmental weed control, encouragement of natural regeneration and revegetation to strengthen riparian vegetation and protect waterway integrity. Essential habitat features such as canopy cover, undercut banks and abundant leaf litter have been preserved, enhanced and created. Projects have also included management of nutrients and sediments coming off farms through

stock movement control, dairy effluent management and pasture management.

Over the past 10 years the MRCCC has witnessed a dramatic increase in landholder involvement in conservation through the blending of research with community engagement. Sub-catchment property 'clusters' have become common where aggregations of landholders in close proximity are undertaking similar activities. This has paved the way for the formation of neighbourhood groups and Landcare champions that will further provide momentum to catchment health projects.

Level	Activity examples
MRCCC	<ul style="list-style-type: none"> Professional development to increase knowledge Development of locally relevant educational material Funding acquisition
Community	<ul style="list-style-type: none"> Forums, workshops, extension, landholder incentives
Other Non-government organisations	<ul style="list-style-type: none"> Project partnering
Local councils	<ul style="list-style-type: none"> Planning scheme development Land for Wildlife support through workshops Involvement in planning and monitoring of major projects e.g. road and bridge construction Bushland and road reserve management
Regional groups	<ul style="list-style-type: none"> Contribution to planning and prioritisation projects e.g. Great Sandy Links
State Government	<ul style="list-style-type: none"> Contribution to planning and prioritisation projects e.g. Back on Track Involvement in planning and monitoring of major projects e.g. road and bridge construction
Federal Government	<ul style="list-style-type: none"> Development of Mary River Threatened Species Recovery Plan

Table 2. Examples of engagement opportunities with all levels of the community in protection and restoration of species.

In addition to restoration project development the Giant barred frog and other threatened species have provided many opportunities to contribute to planning schemes at all levels of government. The above table provides some examples of the types of activity that have been available during the Living with Threatened Species program period. It can be seen that there are ample opportunities for involvement in community activities that help to protect ecosystems and species other than on-ground projects. One key application of species distribution information is that of input into the planning and monitoring of major works projects carried out by all levels of Government.

Conclusions

Frog surveys are useful to initiate contact with landholders while increasing knowledge of species' distribution, population levels and persistence.

Flagship and umbrella species can be successfully utilised to obtain funding and provide experiential learning that engages landholders in restoration activities that benefit other species and whole ecosystems.

The Giant barred frog has directly and indirectly accelerated waterway protection and restoration through a long-term program of education, extension and landholder involvement in frog distribution research.

This approach can be utilised by many catchment management organisations through investigating the possibilities available to their particular region, and by maintaining an advocacy and extension presence in the community for the benefit of that community and the natural assets.

Acknowledgments

The authors wish to acknowledge all the landholders, volunteers and students who have been part of the Living with Threatened Species program and for their care and consideration in managing our natural environment. Gratitude is given to the past and present local councils (Maroochy, Caloundra, Noosa, Sunshine Coast and Gympie) that have supported the program through funding over many years. Harry Hines, Ed Meyer and Rowena Thomas have been generous with their endless and valuable knowledge and advice regarding frogs. Barung, Noosa and Gympie Landcare and Tin Can Bay Coastcare are respected for their collaborative projects with the MRCCC. Dale Ricketts and Kelvin Nielsen are deeply thanked for their tireless data entry and Chris Rosin for his mapping assistance.

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MARY RIVER



C A T C H M E N T

COORDINATING COMMITTEE
