



Annual Report 2006



The Mary River Catchment Coordinating Committee acknowledges the support of the following organisations:



Australian Government

Department of Agriculture, Fisheries and Forestry
National Landcare Programme



**Burnett Mary
Regional Group**

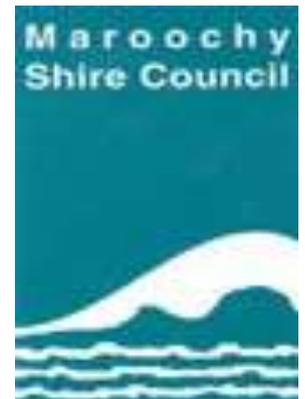
...for Natural Resource Management Inc



Australian Government

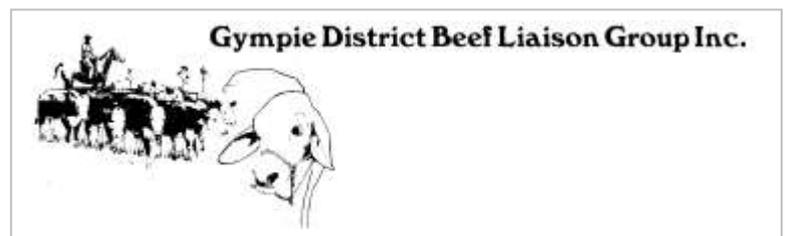
Department of Agriculture, Fisheries and Forestry

Recreational Fishing Community Grants Programme



Australian Government Water Fund

Community Water Grants



TOSHIBA

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Committee and staff

MRCCC Delegates 2005-2006

Interest Sector	Name	Position
Beef/Grazing	Harry Jamieson	Chair
Dairying	Michelle Anderson	
Dept of Primary Industries	Graeme Elphinstone	
Education	Mark Cridland	
Environment	Vacant	
Extractive Industries	Vacant	
Fishing	Vince Collis	
General Community Lower Mary	Debbie Hawes	
General Community Upper Mary	Dave Sands	
Horticulture	Jim Buchanan	Executive Member
Irrigation	Brian Thomas	
Landcare, Lower Mary	Paul Marshall	Vice-Chair
Landcare, Upper Mary	Mim Coulstock	
Local Government Lower Mary	Cr Jenny Burton	
Local Government Middle Mary	Cr Peter McIntosh	
Local Government Upper Mary	Cr Ray Kelly	
Rural Women	Rosemary Burnett	
Special Member	Nai Nai Bird	
Special Member	Margaret Thompson	Secretary/Treasurer
Special Member	Lin Fairlie	
Special Member	Angus Hutton	
Sugar	Trevor Crook	

MRCCC Staff 2005 - 2006

Brad Wedlock	Operations Manager
Eva Ford	Catchment Officer Threatened Species
Dale Watson	Catchment Officer
Lee Field	Maryborough Waterwatch and Water Education
Ruth Hutchison	Noosa Festival of Water Coordinator
Debbie Seal	Administrator

Front cover images:

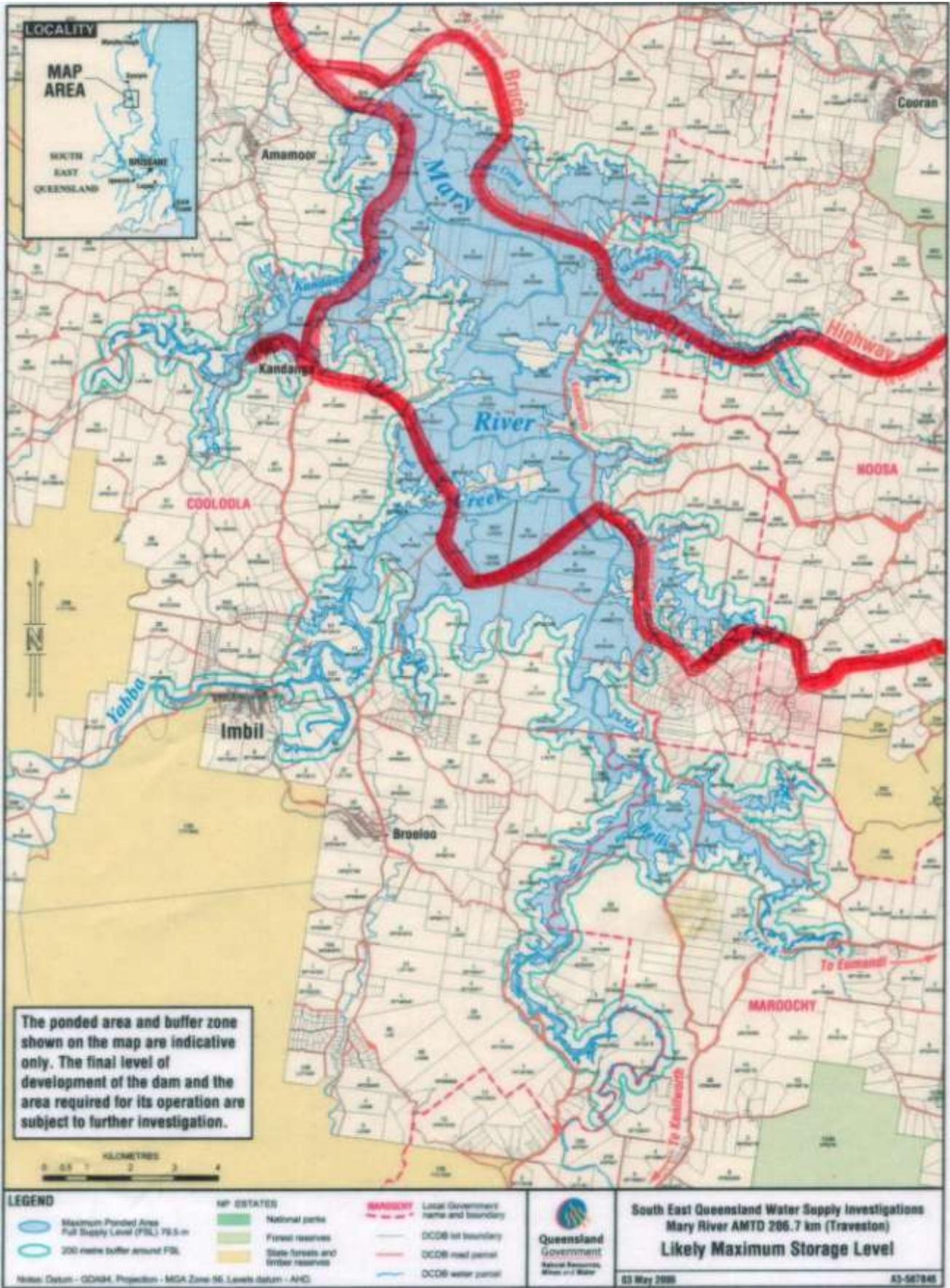
The valley of the damned

Top and inset middle left: Glenda Pickersgill at her 170 acre grazing property on the bank of the Mary River at Kandanga, where extensive riparian rehabilitation was undertaken in 1996 along a 1 km stretch of river frontage to exclude cattle, reduce erosion and improve water quality. Most of this property will be inundated if the proposed Mary River dam is constructed.

Bottom and inset bottom right: Victor and Helga Hill at their 250 acre grazing and farm forestry property on Happy Jack Creek, Ridgewood. For almost 40 years, the Hills have sustainably worked this land, rehabilitating creek banks, establishing two farm forestry plantations and a green corridor to link remnant vegetation. Happy Jack Creek, (which had no vegetation when the Hill's moved on to the property) is habitat for the Giant Barred Frog and the Tusked Frog. Happy Jack Creek will be inundated and this habitat destroyed if the Mary River Dam goes ahead.

2006 Annual General Meeting Agenda & Coach Tour Itinerary

9.30 am	Depart Gympie from DPI Donga. Travel along the Mary Valley Highway to Kandanga.
10 am	Arrive at Kandanga Information Centre, collect morning tea then take a seat
10.10 am	Meeting commencement - Welcome from MRCCC Chair, Harry Jamieson
10.12 am	Welcome to Country - Beverly Hand, Gubbi Gubbi representative
10.18 am	AGM Apologies
10.20 am	Minutes of previous AGM - Business arising
10.30 am	2005-2006 Chairman's Report
10.35 am	2005-2006 Project Reports – MRCCC Operations Manager, Brad Wedlock
10.45 am	Auditors Report
10.50 am	Election of Delegates –All positions declared vacant. David Gibson to take the Chair for the election of Delegates. List of nominations to be tabled including special member nominations. Motion to include Paul Marshall as a Special Member of the MRCCC
10.55 am	Election of Office Bearers
	Chair
	Vice Chair
	Secretary
	Treasurer.
11.00 am	Appointment of Auditor
11.02 am	Other Business
	Next General Meeting 29 th November 2006
11.10 am	Meeting close
11.20 am.	Coach departs Kandanga
	Drive through Bollier and Ridgewood to Cooroy
12 noon	BBQ Lunch followed by a tour of the Gerry Cook Hatchery Tour and demonstration of Cabomba Harvester
1.30 pm	Depart Gerry Cook Hatchery
2.10 pm	Arrive at Traveston Crossing - Guest Speaker from Save the Mary River Group
2.30 pm	Depart Traveston Crossing
3:00 pm	Gympie



The heavy line follows the MRCCC's 2006 AGM Coach Tour through the proposed Traveston Dam site

Mary River Catchment Coordinating Committee

Minutes of MRCCC Annual General Meeting 10th October 2005

Held at the Donga, DPI, cnr Cartwright Rd and Louisa Sts, Gympie

1. Opening and welcome: Harry Jamieson opened the meeting at 10.00 am

Harry welcomed all Delegates and guests. Guest Speaker Olwyn Crimp was unable to attend, but had indicated she would be happy to speak with us in the near future.

Apologies: Beryl Spencer, Brian Thomas, Ray Kelly, Peter McIntosh

Moved Dave Sands, seconded Jim Buchanan that apologies be accepted. Carried.

2. Minutes of previous AGM

Moved Jim Buchanan, seconded Vince Collis that the minutes of the previous AGM of 29 Sept 2004, reconvened 6th December 2004 confirmed as read. Carried.

2.1 Business arising: Nil

3. Correspondence: Nomination of Delegates

4. Chairman's Report

Harry spoke of difficulties in obtaining ongoing funding

Sale of Dairy Farmers building brings our long association to an end. Many thanks to Dairy Farmers for their support

Harry moved the adoption of his report, seconded Graeme Elphinstone, who then spoke of the sterling job Harry has done this year. Carried by acclamation.

5. Staff reports

Brad Wedlock commenced outlining the year's activities including:

- the PAP 2 project
- MO-5 Project submission to BMRG for 53 projects in the Mary

Dale Watson continued with a wrap up of Waterwatch networks. MRCCC has coordinated with EPA on water quality objectives.

Eva Ford then continued with information on the Living with Threatened Species Project including:

- Frog Forum at Belli
- Frog surveys in conjunction with local government
- Richmond Birdwing Butterfly as well as creating habitat which assists in the recovery of many other threatened species
- After surveying comes monitoring (long term)

Graeme Elphinstone spoke glowingly of the capabilities and professionalism of the Project Officers and moved a vote of thanks. Seconded Lin Fairlie. Carried.

6. Auditors Report

Margaret Thompson moved the adoption of the auditors report. Seconded Vince Collis. Carried.

7. Guest Speaker

Jim Buchanan was asked to give a report on the Water Resource Plan and some of the issues arising in the interim. He then went on to present a futuristic scenario by Bob Fredman. Jim also mentioned the Water Supply discussion day at Sunshine Coast Uni.

8. Election of Delegates

Harry Jamieson stood down and the Gympie Landcare vice-Chair, Lyn Browne took the Chair for the election of Committee Delegates and Office Bearers.

List of nominations tabled.

Moved Paul Marshall, seconded Rosemary Burnett that the nominations be received and accepted as listed. Carried.

Special Member nomination tabled for Margaret Thompson. Moved Vince Collis, seconded Dave Sands. Carried.

Proxies. Moved Michelle Anderson, seconded Lin Fairlie that proxies be accepted as per list. Carried.

Election of Office Bearers

Harry Jamieson elected as Chair

Paul Marshall elected as Vice Chair

Margaret Thompson elected as Secretary/Treasurer.

Harry called for a nomination for a fourth member of the Executive.

Vote of thanks to retiring Delegates. Moved Dave Sands, seconded Rosemary Burnett. Carried.

9. Appointment of Auditor

Moved Margaret Thompson, seconded Paul Marshall that Michael T Harper be appointed as Auditor for the 2005-2006 financial year. Carried.

10. Constitutional amendment.

Moved Margaret Thompson, seconded Paul Marshall that the Constitutional Amendment as tabled be approved. Carried.

The meeting concluded with an update of coming events.

Meeting closed 12.15 pm.

Chairman's Report 2005 – 2006, Harry Jamieson

Of critical importance to the Mary Catchment was the announcement of Beattie's Dam at Traveston in April 2006. While we were all expecting a new dam announcement in the Mary Catchment during 2006, the selection of Traveston Crossing for a dam site came from left field and has left those who will have properties resumed, mostly angry and determined to oppose the proposal. The majority of concerned citizens who also oppose the dam construction are bewildered and dismayed by a Government determined to proceed when alternatives are available at less cost, economically, environmentally and socially.

Research undertaken by our Future Water Options sub-committee, involving Jim Buchanan, Jenifer Simpson and Des King, together with research by other eminent engineers and scientists, has indicated that water recycling, demand management, provision of rainwater tanks and education campaigns would obviate the need for any storage on the Mary River – even with the extra million people allegedly coming to SEQ in the next 25 years. However, the Beattie Government appears determined to proceed, notwithstanding the compelling evidence presented to them. The major hope for stopping construction of the dam lies with the Federal Government through the Environment Protection, Biodiversity and Conservation Act and through continuing public pressure.

As many of you would be aware, a number of MRCCC Delegates were involved with community consultation stakeholder groups for the draft Mary Basin Water Resource Plan. At no time during the consultation period was there any mention of a proposal to construct a dam on the Mary River at Traveston Crossing, yet the final subordinate legislation for the Mary Basin WRP released in August 2006, announces a 'strategic reserve' (or unallocated water) of 150,000 megalitres per year to provide urban water supplies to Brisbane via Traveston Dam. In addition, where the draft WRP stated that something "must be adhered to", the final WRP is now considerably weakened through the constant use of "to minimise the extent". This is akin to simply indicating what should happen, but "if we can't do it, we don't have to". This provides the State Government with an "out clause" when downstream environmental flows cannot be met due to the operation of the Traveston Dam.

Last year, I mentioned that we would most likely be relocating to Cooloola Shire Council's Tozer Park Depot. This did not eventuate, as we moved immediately to the Queensland Rail premises we currently occupy in Tozer Street. We have now been informed that we will have to vacate our current premises by the end of November 2006. Suitable long term accommodation for our Resource Centre and staff is imperative. The Executive has been exploring all avenues to overcome this problem, however we face a difficult task. Our Project Funding so far has not allocated money for rental or lease purposes. From now on, we have to highlight the need for funding to provide adequate accommodation. All future projects will need to provide an accommodation cost component in their budget.

Momentous changes occurred within the Burnett Mary Regional Group early this year. Our concerns, widely canvassed during the past two years, were vindicated. A new Chairman, Chief Executive Officer and a restructured administration have resulted in an organisation more attuned to the need of the wider NRM community. A more open and transparent relationship with stakeholders has now emerged. NRM should be the beneficiary of this new cooperative arrangement.

In 2006, the MRCCC received Regional Group funding for the Mary Program of Rivercare, the first significant on-ground funds received since 2002. This project has enabled strategic riparian restoration works to be targeted throughout the Catchment. We are currently negotiating with the BMRG to continue this program into 2007 &



2008. Local government has also contributed significantly to on-ground works, particularly in Maroochy Shire through their Waterways Management Plan, and in Noosa and Cooloola Shires through their Annual Grants Program.

During 2006 the Federal Government, through the National Landcare Program, approved the “Western Mary Catchments Grazing Landscapes Project”. This project targets the western Mary Catchments incorporating the Munna, Wide Bay and Widgee Creek sub-catchments. These sub-catchments contain the highest percentage of commercial grazing enterprises in the Mary Catchment, and will be targeted for sustainable grazing projects and workshops over the next 3 years.

The BMRG has also recently negotiated a contract with MRCCC for funding and in-kind support for the Codline publication, which will now be mailed to over 1000 households and individuals, with an additional 1000 copies distributed through Landcare group Resource Centres and produce stores in the catchment. Continuation of the Codline is integral to dissemination of information to a wide range of readers.

The BMRG also supported this year’s Noosa Festival of Water at Lake Macdonald, which will now be held annually on the Sunday closest to World Environment Day. This year, the Festival attracted over 2000 people, offering a wide range of activities and entertainment suitable for all age groups. I encourage you to come along on Sunday 3rd June 2007 to enjoy the Festival, the Lake and Noosa Shire’s Botanic Gardens.

Disturbingly, the Cabomba Bio-control Project has not been refunded under the Defeating the Weeds Menace Program. This is a major blow to the program and to the hard work of the CSIRO, and the huge range of stakeholders involved, given that the research is yet to be completed. However, the MRCCC will work with the stakeholders and CSIRO to lobby the Federal Government to enable this vital research to continue.

Once again, I pay special tribute to our staff. Our thanks go to Operations Manager, Brad Wedlock, to Catchment Officers Dale Watson and Eva Ford, and to our Administrator, Debbie Seal who manages to keep the wheels turning. Thanks also to Lee Field at Maryborough for her Waterwatch and educational work with school children and a special thank you also to Ruth Hutchison, who came on board as a Community Jobs Plan trainee for the Lake Macdonald Catchment Care Group to coordinate this years extremely successful Noosa Festival of Water. A very special thank you to the Waterwatch volunteers, who are the backbone of the Waterwatch program, and also to the on-ground project participants who are out there actively working to improve the condition of the catchment.

To my fellow Committee members, and to the members of the Executive, Paul Marshall, Jim Buchanan and Margaret Thompson, I thank you for your support, and your dedication to the MRCCC and to the Mary Catchment. Your advice and your help have been invaluable.

Project Reports 2005-2006

Mary Program of Rivercare (M-05)

The Mary Program of Rivercare commenced in January 2006. This 12 month project funded by BMRG, local Government and Landcare Groups is rehabilitating riparian areas at 48 strategic project sites throughout the Mary Catchment and involves revegetation, streambank fencing, off-stream watering and environmental weed control.

This project incorporates almost \$1 million of in-kind contributions from partners, \$94 522 cash from local Government, \$44 048 cash from MRCCC and \$302 560 BMRG funding.

In February 2006, each project site was assessed for its riparian condition and followed up with rehabilitation recommendations. A “Pre-implementation Report” has been completed and much of the on-ground work is now nearing completion with the project due to be finished in December 2006.

M-05 has been separated into eight geographic or thematic sub-programs as follows:

- Cooloola Rivercare Program
- Six Mile Creek Rivercare Program



*MRCCC
Operations Manager,
Brad Wedlock*

- Lake Macdonald Rivercare Program
- Living with Threatened Species Rivercare Program
- Upper Mary Rivercare Program
- Western Mary Rivercare Program
- Walli Creek Property Cluster Project
- Maryborough, Woocoo and Tiaro Waterwatch Program



Western Mary Catchment Grazing Landscapes Project

Funded by the National Landcare Program, this project targets the largest conglomeration of commercial grazing enterprises in the Mary River catchment along Widgee, Wide Bay and Munna Creeks. This project heralds the commencement of a partnership between the Gympie & District Beef Liaison group and the MRCCC, and will work with local graziers to investigate ways to improve grazing land condition, sustainability and productivity of their grazing enterprises.



In March 2006, the MRCCC assisted the Gympie District Beef Liaison Group with a “Grazing Landscapes” Field-day at Widgee which attracted a staggering 74 attendees. This was followed by a Grazing Land Management Field Day at Teebar Hall in April and a Fire Workshop held in conjunction with the Queensland Forest Research Institute in September. The highest priority ‘topic’ for future field-days/workshops was “Healthy Soils”.

Left: 74 Participants attended the Widgee Grazing Landscapes Field Day in March 2006

Frog season 2005/06

Early frog surveys from August 2005 ensured that many sites could be surveyed throughout the season. Visits to 107 sites were carried out with 1199 frog records of 23 frog species collected. Of those, 354 were records of the three threatened stream frogs found in the Mary catchment; the Vulnerable Tusked frog (*Adelotus brevis*), Endangered Cascade treefrog (*Litoria pearsoniana*) and the majestic but unfortunately Endangered Giant barred frog (*Mixophyes iteratus*). Surveys continued through until May 2006 when the weather became too cold for much activity in the amphibious world. Of course there are a few species that like the cold and choose this time to reproduce. I for one am grateful that they are in the minority and that getting wet in the middle of the night is only called for in the warmer months.

Most surveys were conducted in the Maroochy and Noosa Shires with a smattering in Cooloola and Caloundra. We had an adventurous evening in October 2005 travelling through Woocoo and Kilkivan Shires, stopping at 9 creek crossings following torrential rain that caused many a dry creek to flow steadily. The frogs were making the most of the conditions and 13 species were recorded in one evening. This is where the stream-dependant species are less common and the dry-tolerant ones dominate – a nice change in frog scenery for us humans.

Some surveys provided great opportunities for groups such as Green Corps to learn about the environmental workings of their project sites at night-time. In conjunction with Noosa Land Care several surveys were held with the teams at sites along Happy Jack and Cooroy Creeks. The frogs turned it on and the nights became



*MRCCC
Catchment Officer
Eva Ford*

excellent educational moments. One outing with 30 Cubs from Cooroy was not so productive and much straining was exerted to hear a single frog! I find it a challenge to keep one small child quiet for a minute let alone 30 of them!

We hope to venture further north this coming season to cover more of Cooloola Shire in particular and the Wallum country east and north where a whole suite of threatened species awaits. The upper catchment won't miss out though – there's always just another site that I must investigate!

The 'off' months when frog activity slows down provide an opportunity to collate and check records from the previous season. All MRCCC fauna data is provided to the EPA for storage in their WildNet database. As part of this process, all records and site details are verified with the collector and the data entry person. 3 days have been spent with QPWS staff recently to verify all our records collected over the past 3 ½ years. This means that the data can be entered as 'Confirmed' instead of 'Unconfirmed' - adding reliability to our records.

It's a First ! - Frog Monitoring in the Upper Catchment

Funding is a beautiful thing and if it comes with some sort of long-term security then it enables us to plan far into the future. Such is the exercise of long-term monitoring. Unlike surveys, monitoring involves revisitation many times over a long period to the same location measuring the same conditions and activities. The foresight of Maroochy and Noosa Shire Councils has provided support for 3 frog-monitoring sites (two in Maroochy and one in Noosa – soon to be two). The sites are known threatened frog habitats along Cedar, Belli and Cooroora Creeks. All are monitored in the same way regardless of the level of disturbance and threat occurring at or near the site.



In October 2005, 100 metres of stream length at each site was marked off in 10 metre sections. A reflector was posted on a nearby tree at each 10-metre point so it could be easily located at night by torchlight. Prior to the commencement of the monitoring program an assessment of the stream condition is carried out and reference marks installed for future re-assessment. Assessment involves investigating the composition and quality of the riparian vegetation, water quality, stream stability, weed incursion and stock access.

Water quality, weather conditions and stream flow are assessed at each 6 weekly visit during Spring and Summer. Starting at the 0 metre point all frogs seen and heard are recorded as well as all other incidental fauna. The information is passed on to EPA and the SEQ Frog Recovery Team. After a few years of data collection comparisons will be able to be made between seasons and sites.



Maroochy Shire Community Waterway Grant and Powerlink projects

Maroochy Shire Council has funded a group of riparian rehabilitation projects in the Mary catchment for the period to June 2007. Strong linkages exist between the Maroochy Waterway Grant and the BMRG funded "M-05" project. Most of the riparian rehabilitation projects in Maroochy Shire are half funded by the "M-05" and the Maroochy Waterways Grant.

The project sites are located on private (24 properties) and council reserve (5 sites) land along Obi Obi, Walli, Gheerulla, Belli and Cedar Creeks according to the priorities formulated in the Maroochy Waterways Rehabilitation Plan. The projects involve riparian fencing, off stream watering infrastructure, weed control and/or revegetation.

With funding being received in early 2006 there was a great rush to get some of the planting projects underway before the cooler months set in. This proved to be a good decision as there have been sufficient follow-up rain events to keep young seedlings alive without needing to hand water. The

Council reserve sites on Belli Creek have been very successful for tree planting. With enthusiastic assistance from Green Corps teams from Noosa and Maroochy the project work has involved removal of Lantana and planting native seedlings to extend the existing riparian zone. The revegetation areas are adjacent to mature trees which provide shade and good micro climates for young plants. Accompanied with heavy mulch, no follow-up watering and minimal weeding has been required while the plants thrive under the ideal conditions.

Other sites are somewhat more exposed, as is the case with properties on Obi Obi Creek where riparian vegetation is all but absent. Conditions are harsh and preparation more involved. We have re-learned that Thistles love disturbed areas and have grown healthy crops as a result of preparation techniques for revegetation! However, as bad as the Thistle patch looks, survival of seedlings has been good due to high soil moisture and perhaps a bit of protection by the Thistles themselves from harsh sun, wind and the odd frost. Some weed control has been carried out but, once removed in comes the next suite of weed species. In time the seedlings will emerge above the weed layer and dominate the area. It is a reminder that revegetation sites are not very pretty and that results must be awaited with patience.

Obi Obi Crossing No. 2 has been restored again with Madiera well under control and stage 2 revegetation completed. The site was rehabilitated some years ago but, with the lack of follow-up funding for maintenance, the site was rapidly being reclaimed by the ever insidious Madiera vine. As a demonstration and educational site this area has a great deal to offer. It is a Large Woody Debris reinstatement, revegetation and weed control site and good for interactive activities with school students such as fish ecology, water quality and riparian processes.

2000 trees have been planted throughout the Browns Road property cluster adding to the revegetation work that has been in progress for the past 3 years. Some small-scale fencing and revegetation are still to be completed.

Two project sites involve large groups of neighbouring property owners:

- 14 property owners along Walli Creek to control and hopefully eradicate, the destructive Madiera vine that has taken hold along the whole length of creek from State Forest to the Mary River confluence and
- 6 property owners along Cedar Creek tackling Blue morning glory which has taken hold over past years and threatening existing riparian vegetation.



Too big for property owners to deal with on their own (not through lack of trying), funding has been made available to enlist the help of contractors at both sites and work has begun this Spring after the dormancy of the weeds through Winter. Three different contractors have been used along Walli Creek, which will serve as an experiment in the use of different control techniques for Madiera. Field days have been well attended at both sites to pass on techniques to residents, enabling them to take over the task of follow-up control of the weeds. Revegetation projects are planned at both project sites to replace lost canopy trees and to start the long process of shading out weeds in the future.

Powerlink funding to extend the scope of the rehabilitation work also supports two of the Maroochy project sites on Obi Obi Creek. The funding provides for extended fencing and revegetation following recommendations made in the Environmental Management Plans (EMP) prepared by MRCCC for Powerlink in 2005.

Two other properties (Blackfellow and Cedar Creeks) that had EMPs developed by MRCCC have also received funding from Powerlink to carry out weeding and revegetation. The work will restore past tree clearing under transmission lines according to tree height guidelines provided by Powerlink.

MRCCC and Gympie and District Landcare are currently jointly developing an additional EMP for Powerlink for a property in Gympie that is bordered by the Mary River and Six Mile Creek

Lungfish Recovery Plan

In late 2005, MRCCC was invited to join the team to develop a recovery plan for the Queensland lungfish (*Neoceratodus fosteri*). The Lungfish was listed as Vulnerable under the Environment Protection and Biodiversity Conservation Act of 1999 (EPBC) in 2003 due to its restricted distribution and a decline in the quality and extent of breeding habitat due to impoundments. Once a species is listed by the Commonwealth Department of Environment and Heritage a Recovery Plan must be developed within 5 years. A Recovery Plan addresses the biology and habitat requirements of the species, threats to its survival in the wild and management actions that should be carried out to maximise the long-term survival.

The Lungfish is currently protected from fishing, and collection requires a permit in Queensland under the *Fisheries Act 1994*. Under the EPBC Act activities that are likely to trigger referral include:

- activities that flood, degrade or involve significant disturbance to Lungfish spawning or nursery habitat areas;
- activities that disrupt the breeding cycle of important populations of Lungfish; and
- activities that restrict access of adult Lungfish to suitable spawning sites.

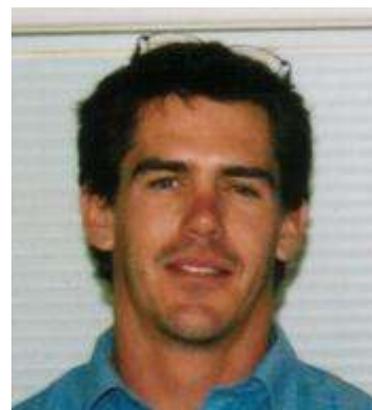
Given the probable effects on future populations by the recently completed Paradise Dam on the Burnett River it has become critical that the Recovery Plan be developed as quickly as possible given the potential threats to large sections of its breeding area within the Traveston Dam footprint.

Eva Ford was honoured to be selected to represent MRCCC on the Recovery Team. The team also consists of DPI&F staff and Lungfish experts Peter Kind and Steve Brooks, representatives from SunWater, BMRG, Burnett Catchment Care Association, EPA and DNRM&W. To date we have held two meetings and have formulated the objectives (both short- and long-term) of the Plan, threatening processes to eggs, juvenile and adult Lungfish, and a list of stake holders to be consulted. Management actions and community consultation are still to be finalised. At this stage the Plan is scheduled for completion to draft stage by February 2007.

Mary River Community Waterwatch Networks

Waterwatch activities occurred across the Mary River Catchment in 2005 – 2006. The activities were generally held in conjunction with other community organisations, such as the Lower Mary Landcare Group in Hervey Bay, or Gympie Landcare for Kidzone.

School-based Waterwatch activities were also undertaken across the Mary Catchment in 2005 - 2006. In November 2005 all the Tiaro Shire Primary schools were visited with the MRCCC's "Turn off the Tap" presentation, and activities that included aquatic macro-invertebrate sampling and identification. Maryborough state schools participated in the Maryborough Waterwatch Program, as well as other schools across the catchment.



*MRCCC
Catchment Officer
Dale Watson*

Community Waterwatch Networks Training Workshops

Waterwatch Network	Date	Workshop Location	Attendees
Hervey Bay	10 April 2006	Botanical Gardens	15
Munna Creek	28 April 2006	Teebar Hall	30
Wide Bay / Widgee	12 May 2006	Kilkivan Showgrounds	15
Kenilworth & District	27 May 2006	Walli Creek property	15
Conondale (Upper Mary)	6 June 2006	Conondale School	5
Maleny (Upper Mary)	15 June 2006	Maleny Neighbourhood Centre	25
Amamoor Creek	21 June 2006	Amamoor Station Craft Shop	25
Gympie & District	26 June 2006	Albert Bowls Club	8

MRCCC Community Waterwatch Volunteers 2005-2006

First Name	Surname	Stream		First Name	Surname	Stream
Susan & John	Bailey	Skene Ck		Noo	Dye	Mary River
Karen	Maher	Skene Ck		Bob	Fredman	Kybong Creek
Ravina	Thompson	Skene Ck		Eddie	Gresham	Mary River
Russ	Davies	Little Yabba Ck		Eddie	Gresham	Pie Creek
Russ	Davies	Booloumba Ck		Harry	Day	Scrubby Creek
Russ	Davies	Lobster Ck		Angus	Hutton	Scrubby Creek
Natasha	Roberts	Obi Obi Ck		Will	Middleton	Mary River
Phil	Vickers	Gerhatys Ck		Will	Middleton	Deep Creek
Scott	Woolbank	Mary River		Bob	Hood	Six Mile Creek
Scott	Woolbank	Kilcoy Ck		Dave McMullen		Comm Gully
Scott	Woolbank	Balgowlah Ck		Dave McMullen		Deep Creek
Gordon	Agnew	Walkers Ck		Dave McMullen		Mary River
Denise	Johnson	Mary River		Dave McMullen		Eel Creek
Denise	Johnson	Fryers Creek		Graeme	Draper	Dry
Denise	Johnson	Obi Obi Ck		Brian & Cam	Hughes	Teebar Creek
Robert	Simpson	Mary River		Brian & Cam	Hughes	Sandy Creek
Peter & Elke	Watson	Mary River		Ross	Kinbacher	Eel Creek
Di	Collier	Gerhatys Ck		Spencer	Innes	Teebar Creek
Di	Collier	Ken Dollier Ck		Malcolm	Booth	Kolbor Rd
Di	Collier	Mary River		Kev	Rogers	Munna Creek
Di	Collier	Scrub Ck		Harry	Jamieson	Munna Creek
Katherine	Nieminen	Scrub Ck		Iain	Lewis	Clifton Creek
Kath	Nash	Trib of Baxter Creek		c/o Lesley Innes	Broweena State School	Munna Creek
Barung	Landcare	Wide Bay Crk		Mark	Bews	Ramsey Creek
Brian	Thomas	Wide Bay Crk		James (JU & CA)	Hansen	Ramsey Creek
Vern & Dee	Berry	Wide Bay Crk		Melissa	Zulpo	Cedar
Mick	Bambling	Fat hen Crk		Melissa	Zulpo	Belli
Narelle	Hall	Wide Bay Crk		Peter	Turner	Belli
David & Rosemary	Burnett	Wide Bay Crk		Elvira	White	Mary River
Erol	Janke	Mary River		Elvira	White	Walli
Widgee School	Robert Lonergan	Widgee Crk		Doc	Eckley	Mary River
Ted	Tame	Wonga Crk		Graeme & Julie	Eales	Mary River
Gillian	Crossley	Wonga Crk		Ian	Mackay	Mary River
Gillian	Crossley	Widgee Crk		Ian	Mackay	Gheerulla
Brian	McMahon	Widgee Crk		Des & Colleen	King	Gheerulla
Brian	McMahon	Glastonbury Crk		Des & Colleen	King	Mary River
Rob	Kerle	Wide Bay Crk		Des & Colleen	King	Obi Obi Ck
Carol	Payne	Amamoor		Mark	Seijbel	
Cath & Colin	Robinson	Amamoor		Dennis & Lyn	Ryan	
Phil	Metz	Amamoor		Michael	Pheiffer	
Trevor	Lund	Amamoor		Gavin	Pearce	
Ted & Pat	Douglas	Amamoor				
Lorne & Ross	Maitland	Amamoor				

Waterwatch Munna Creek - Munna, Eel, Teebar, Clifton, Sandy Creeks

The Munna Creek Waterwatch Network has seen another very successful year of water quality testing. This year one of our original founding volunteers– Malcolm Booth – left the district. We wish Malcolm all the best in his new endeavours and thank him for his tremendous time and effort. We also have some new Munna Waterwatch volunteers. We warmly welcome James Hansen and his wife Cassandra to the group, and look forward to working with them.

The Munna Creek Waterwatch Network is still monitoring water quality with a TPS WP81 Dissolved Oxygen and Temperature unit, Hanna HI98 pH and Electrical Conductivity probe and a turbidity tube, which are performing well thanks to monthly calibrations.

The Munna Creek volunteers received a report in May 2006 on the water quality data they have been collecting over the past three years. The report illustrated results for temperature, pH, electrical conductivity, dissolved oxygen and turbidity in graphs from for each site, with a written analysis of the data under each graph. The report highlighted a couple of salinity hot spots in the Munna Creek Catchment, where stream salt levels were above expected levels.

A Waterwatch workshop was also held at the Teebar Hall in conjunction with a NLP Grazing Land Management workshop in April 2006. The volunteers were given a refresher on the water quality parameters they test for, what they are, and what they mean, as well as an analysis of all of the water quality data collected by the volunteers to date. Refresher training on the quality assured use of the water testing equipment was also given. Those attending who were not already Waterwatch volunteers found the information very interesting and the existing volunteers stated that the presentations were extremely useful, and that they really appreciated the style of data presentation.

With the activity being generated in the Munna Catchment area by the new NLP Grazing Land Management Project, the Munna Waterwatch Networks data will be even more highly sort after in order to monitor any changes in water quality that may be a result of the improved land practices bought about by the project.

Waterwatch Widgee/ Wide Bay - Widgee / Wide Bay Creek

The Widgee and Wide Bay Catchments Waterwatch Network is the newest member of the Mary River Catchment Waterwatch Program. The networks formation was made possible with funding from the National Landcare Program 2005/2006 and from Kilkivan Shire Council.

The local community of the Widgee and Wide Bay Catchments had expressed interest in forming a Waterwatch Network for some tim. To kick start the process, two Widgee and Wide Bay Creek Catchment Crawls were held in November 2005 and March 2006. Around 20 sites were tested on each crawl, mostly on local properties. A report for each Catchment Crawl was also produced, detailing and analysing the results of the water testing.

The TPS 90FLT water testing equipment was purchased for the Widgee & Wide Bay Waterwatch Network. Operating instructions, maintenance and calibration procedures and logs had to be developed for the new equipment.

An “Information and Training Day” was held in May 2006 for the network’s new volunteers. The volunteers learnt about the water quality parameters they were testing for and what they meant along with the quality assured procedures for using the equipment.

In June and July 2006 each of the new Waterwatch sites was visited, and logged (photographs, site description, GPS points etc), volunteers received their final training, the Waterwatch Calender was circulated and



Above: The TPS 90FLT water testing equipment

the Monitoring plan and quality assurance manual for the new Widgee & Wide Bay Creek Waterwatch Network was completed.

In August 2006 the Widgee Wide Bay Catchments Waterwatch Network began operation, with 18 volunteers monitoring 17 sites. Irrigators are also using the water quality data to assist them in their irrigation management.

The NLP project was also funding the continuation of the Macadamia Irrigation Water Use Efficiency projects, being run by Australian Macadamia Management and originally established under the Envirofund Wonga Drought Recovery Project. The data being collected as part of this project is invaluable to the efficient management of water usage for the Macadamia industry. The data will be used to ensure the responsible, but profitable use of water for irrigation in the Macadamia industry within the region. Important data is still being collected by dendrometers and irrigation water use efficiency monitoring and a workshop on the WUE monitoring findings is planned for 2007, when sufficient data exists.



The final component of the NLP project was the continuation of the Fodder Growers Water Meter Monitoring established under the MRCCC's 2004 Envirofund Drought Recovery Project. This component of the project will eventually produce information on the quantity of water being utilised by fodder irrigators in the Widgee and Wide Bay Creek catchments. There is very little known about the irrigation requirements of fodder

crops in this area, and the water metering monitoring will ensure accurate data is produced.

Unfortunately, due to the severe drought in the Kilkivan area (where most of the grant recipients are located) the fodder producers have not been able to irrigate, and so obviously have not had the chance to monitor their water usage. The water meters are in place, and when rainfall occurs and the creek levels are sufficient irrigation will likely begin again, and water meter data will be collected.

Waterwatch Tiaro, Maryborough & Hervey Bay - Mary River

The focus for the Maryborough Waterwatch Program in 2006 has been working with schools in the area to incorporate water quality into their curriculum. The schools participating are:

- St Helens State School
- St Mary's College
- Maryborough State High School
- Riverside Christian College
- Maryborough Special School

Data logging of water quality with Tiaro Landcare in the ponded section of the Mary River near Tiaro was conducted during a small fresh in December 2005. Dissolved oxygen, pH, electrical conductivity and temperature were recorded on an hourly basis for 6 days.

Salt levels were compared with river flow over 6 days which revealed that salt levels increased with increased flow – which is not normal as river flows generally dilute salt-level. Presumably increased flow into the river came from 'saltier' tributaries – Wide Bay, Munna, Gutchy Creeks above the sampling site.

At the Tiaro Landcare Field-day in June 2006, the MRCCC conducted approximately 70 bore/dam/creek water tests (electrical conductivity & pH tests). A special thank you to Ernie Rider who also helped out on the day. MRCCC also helped provide activities for kids at the Field Day, helping them to decorate artwork which was included on a mural of depicting Bauple Mountain and the Mary River.

In Hervey Bay, a Waterwatch workshop was held at the Botanical Gardens in April 2006, in conjunction with the Lower Mary River Landcare Group. The MRCCC also attended the Yagubi Festival in May 2006, in conjunction with the Lower Mary River Landcare Group and conducted bore/dam water tests, as well as the "Hervey Bay Seafood Festival" in July 2006, where bore/dam water tests were conducted in partnership with the Coastal Alliance.

Waterwatch Gympie/Amamoor - Mary River, Six Mile, Deep, Amamoor, Pie, Eel, Scrubby Creeks

The Gympie and Amamoor Waterwatch Network has now been operating since 2003, and 2006 was another successful year of water quality data collection. The steadfast group of volunteers in this network has not changed this year, with all volunteers continuing to provide much appreciated commitment and support.

The Gympie & Amamoor Waterwatch Network volunteers monitor water quality with a TPS WP81 Dissolved Oxygen and Temperature unit, Hanna HI98 pH and Electrical Conductivity probe and a turbidity tube, which are performing well thanks to monthly calibrations. However the Hanna HI98 will be replaced by the end of this year with a more durable TPS Temperature, pH and EC probe.

The Gympie & Amamoor volunteers received a report in July 2006 on the water quality data they have been collecting over the past three years. The report illustrated results for temperature, pH, electrical conductivity, dissolved oxygen and turbidity in a graph form for each site, with a written analysis of the data under each graph. The report highlighted some interesting results, however the majority of results were within guideline levels. Three years of collecting water quality data has also allowed local water quality guidelines to begin to be set for each site, and the report also details these.

Two Waterwatch Information workshops were also held this year for the Gympie Amamoor Waterwatch Network, one in Amamoor and one at the Albert Bowls Club in Gympie. At both presentations the volunteers were given a refresher on the water quality parameters they test for, what they are, and what they mean, as well as an analysis of all of the water quality data collected by the volunteers to date. Refresher training on the quality assured use of the water testing equipment was also given.

The MRCCC also had a presentation this year at the Gympie Kidzone 2006 Expo. A Waterbug display was set up and enjoyed by the 1000 children attending. Students from schools around the Gympie area rotated between the different displays at the Expo, and all enjoyed the hands-on MRCCC Waterbug display. The Kidzone Expo is an excellent way of reaching many children over the two day period.

Waterwatch Upper Mary (Caloundra) - Mary River, Kilcoy, Obi Obi, Baxter, Skenes, Walker, Fryers, Little Yabba, Booloumba, Gerhatys, Scrub Creeks

2006 has seen another successful year of water testing for the Caloundra Upper Mary Catchment Waterwatch Network. This year has seen the inclusion of a couple of new Waterwatch volunteers. We would like to thank Kath Nash and Ravina Thompson for putting their time and effort into monitoring the waterways of Mapleton and Montville. Through Ravina, the Montville State School is now also involved in the program, assisting with the monitoring of the headwaters of Skene Creek.

The network is still using a Horiba U-10, which thanks to monthly calibrations is still performing very well. The network has also started using nutrient test strips to monitor the creek's nutrient levels. Although the nutrient test strips are not extremely precise, they can provide us with an early warning mechanism when nutrients in the creek reach high levels.

Two reports were produced this year for these network volunteers, one in a graph format, and the latest in a GIS map format, detailing the results of the networks water quality data. The reports highlighted some consistently low dissolved oxygen levels at some sites, and some interestingly low pH levels at the new Mapleton sites. However, overall the reports showed that there are no major problems with the water quality of the upper catchment.

Two Waterwatch Information workshops were also held this year for the Caloundra Upper Mary Catchment Waterwatch Network, one in Maleny Neighbourhood Centre and one at Conondale State School. At both presentations the volunteers were given a refresher on the water quality parameters they test for, what they are, and what they mean, as well as an analysis of all of the water quality data collected by the volunteers to date. Refresher training on the quality assured use of the water testing equipment was also given. The volunteers stated that the presentations were extremely useful, and that they really appreciated the style of data presentation.



The Upper Mary Waterwatch Network data is being utilised by the wider community and government. The EPA recently used Waterwatch data to aid in setting the new Water Quality Objectives (freshwater guidelines for healthy aquatic ecosystems) for the upper Mary River Catchment. The Caloundra City Council also collects the Waterwatch data to aid in future planning for the area and monitoring water quality issues.

The Upper Mary Waterwatch Network is also involved in the Groundwater Investigation Group (GIG) in the Maleny area. This group utilises volunteers with bores on their property to monitor bore water levels and some groundwater quality data. The information is being used to help the community understand the dynamics of the groundwater systems on the Maleny plateau. There is also a focus on the effects of household septic systems on the bacteriological quality of groundwater. The GIG steering group meets every couple of months to discuss the results of the monitoring and the future directions of the project.

Waterwatch Kenilworth district (Maroochy) – Mary River and Cedar, Belli, Gheerulla and Obi Obi Creeks

Kenilworth Waterwatch volunteer network has been active for another 12 months collecting valuable baseline data. Some newcomers have begun measurements at a few new sites such as Houston Bridge on Obi Obi Creek and the Mary River at the Kenilworth Bridge. The network now consists of 9 volunteers monitoring 15 sites. The Kenilworth Post Office, Kenilworth Garage and the Belli Store provide essential drop-off/pick-up stations for gear transfer between volunteers.

A Waterwatch report was prepared to present and discuss the data that has been collected to date. This was presented to the volunteers as a re-training workshop held in May this year. Property owners are keen to see how their water quality changes over time and graphical representation of data certainly helps to visualise the trends. It was observed that Dissolved Oxygen (DO) is very variable over time depending on time of day (and hence temperature), aquatic plant growth and sediment load. Volunteers at the workshop were instructed in use of the DO instrument to log DO over a 24-hour period to provide data that will be more meaningful.

In conjunction with the Waterwatch network data collection Maroochy Shire Council Waterways staff have developed a monitoring program to collect data at 14 sites along the Mary River and tributaries within Maroochy Shire. The aim of the project is to collect ambient water data for DO, pH, turbidity, electrical conductivity and temperature, with 24-hour logging of DO occurring at each visit. The sites have also been assessed for aquatic life such as fish, macro-invertebrates and aquatic plants.

All staff at MRCCC have been assisting the Maroochy officers with the field work component of this project, venturing to the sites on several occasions throughout the year. The project is due for completion by mid-2007 and the data will go towards developing a Report Card assessment for the Mary River, as is applied to other River in SEQ such as the Maroochy River.

Recreational Fishing Program Grant – “Improving Recreational Fishing Opportunities in the Mary Catchment”

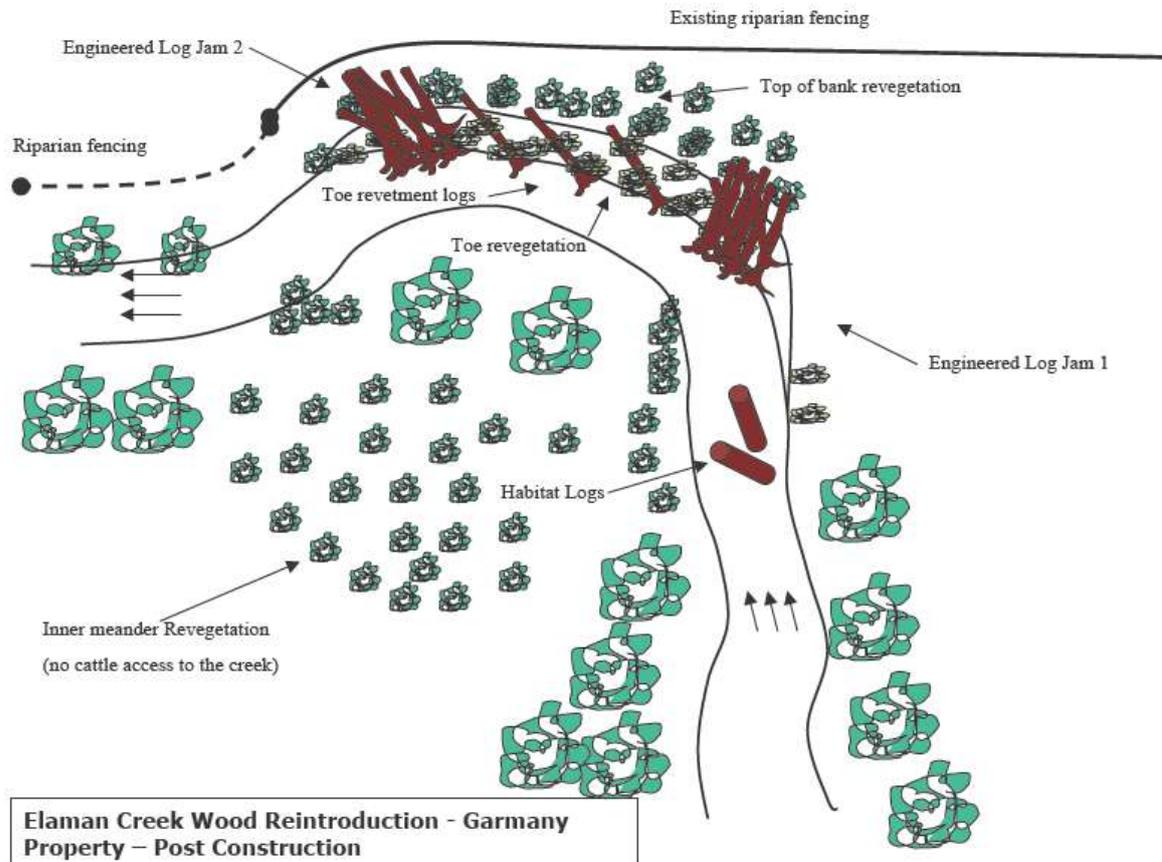
This project aims to improve native recreational fishing habitat and raise community awareness of recreational fishing in the Mary River Catchment. This will be achieved through three project components:

1. Fish Habitat Improvement through the reintroduction of large woody debris (LWD) as fish habitat and sediment control structures on lower Elamon Creek. The sites will also involve streambank fencing and riparian rehabilitation.
2. Community and School Education: Three separate field days have been held with the Conondale State School, Widgee State School and Maleny River School with the assistance of the Barambah Environmental Education Centre. This proposal will link with the QDPI Recreational Fishing Program operating through the Environmental Education Centres.
3. Mary River Cod fingerlings raised by the Gerry Cook Fish Hatchery at Cooroy, will be released along Elaman Creek, with the involvement of school children.



Local landholders report that the Mary River Cod was once abundant in Elamon Creek: “Sunday’s in

Conondale involved playing cricket on the Conondale oval all morning, then heading down to Elamon Creek to sit on the shady bank and catch some Mary River Cod”. With the reintroduction of the LWD, riparian revegetation and education of sustainable fishing it is hoped that a scene such as this may be painted by the community again.



Project Partners for the Recreational Fishing Grants Program include the Department of Agriculture, Fisheries and Forestry, Maleny River School, Conondale State School, Widgee State School, Department of Primary Industries & Fisheries (DPI&F) Queensland, Barung Landcare, Department of Main Roads (DMR) Queensland, Barambah Environmental Education Centre, Gerry Cook Fish Hatchery.

Community Water Grant – Kilcoy Creek

This project targets 3 properties for on-ground work along Kilcoy Creek, which are Nature Refuges. These projects are linking with existing properties that have participated in Envirofund or NHT#1 projects. Government in March 2006.

On-ground outcomes include:

- 5000 seedlings planted (mulched and tree guards)
- Weed control
- 1 km fencing
- 2 off-stream watering



The MRCCC commends this dedicated group of landholders who are producing excellent on-ground results

Mary River Cod Envirofund Project

The MRCCC’s Envirofund Project, “Implementing the Mary River Cod Recovery Plan”, was completed in April 2006. The project targeted sub-catchments identified in the Mary River Cod Recovery Plan with revegetation and streambank fencing at 9 project sites including:

- Mary River
- Six Mile Creek
- Obi Obi Creek
- Belli Creek
- Amamoor Creek
- Elamon Creek
- Widgee Creek

Community tree-planting events were organised at 3 sites and DPIF assisted with release of 5,000 Cod fingerlings provided by the Gerry Cook Fish Hatchery. Over \$150,000 of in-kind contribution was provided to the Mary River Cod Envirofund project from project collaborators.

The Mary Catchment SedNET Model 2006 - Department of Natural Resources and Mines

The SedNET model is used to predict the sources and loads of sediments and nutrients throughout a catchment. The SedNET modelling system was first seen in the Mary River Catchment in 2000. Water quality data, local knowledge and various other data sets were used to predict the amount of sediment and nutrients that may be generated in the Mary River Catchment, and perhaps more importantly, where the majority of sediments and nutrients were coming from. Findings from the original SedNET modelling (such as 87% of sediment delivered to the mouth of the Mary River was derived from stream bank erosion) have guided many of the MRCCC's on-ground actions.

In 2005 and 2006 the SedNET model has undergone some improvements in the sediment modelling components, with the addition of improved data being entered into the model. In October 2005 the first "SedNET Scenarios in the Mary" workshop was held in the DPI Donga in Gympie. This workshop was attended by DNR staff, DPI&F staff, MRCCC members, MRCCC staff, local graziers and local horticulturalists, all interested in the sediment processes of the Mary River. The workshop began with a presentation from DNR staff involved in the new SedNET modelling, explaining the basics of the modelling system and discussing the improved data that has now been entered into the SedNET model.

The results of the SedNET model were then presented, and the attendees discussed and questioned the results. On the whole, there were no major changes in outcomes compared to the original SedNET modelling. At the close of the workshop the attendees asked the SedNET team if the following scenarios for the Mary River Catchment could be further investigated:

1. Demonstration of what effects riparian revegetation may have on sediment loads,
2. Improving the data used to estimate groundcover across the catchment to improve accuracy of hillslope erosion contribution,
3. Investigate the effects of improvement of land management practices (eg. zero tillage) in intensive cropping areas of the Mary Catchment.

In June 2006 the second "SedNET Scenarios in the Mary" workshop was held. At this workshop, the modelling team detailed the results from the scenarios listed above.

The final SedNET 2006 Report is due for release in October 2006, and will be a valuable tool for the planning of MRCCC's on-ground actions in order to ensure we are working to reduce sediment and nutrient loads in the Mary River Catchment.

The two scenarios discussed in the second workshop will be published as attached fact sheets to the final 2006 SedNET report, and these will prove to be valuable extension tools, allowing the community to understand the improvements to the SedNET modelling and to illustrate the effectiveness of MRCCC's on-ground actions for sediment reduction.

Moy Pocket Mary River Fish Kill – January 2006

In early January 2006 the Mary River Catchment suffered a great loss. Four endangered Mary River Cod along with thousands of other native fish were found dead in a section of the Mary River below the township of Kenilworth.

So what happened?

The Mary River Catchment Coordinating Committee (MRCCC) was notified of the fish kill by a local landholder (unfortunately the landholders had been away and had not noticed the dead fish until approximately three days after the fish had died). A MRCCC Catchment Officer and Environmental Protection Agency (EPA) staff immediately went to investigate. Although fish tissue samples could not be retrieved as the fish had already started to decay, water quality samples were taken. These initial water quality samples were analysed in the laboratory, however there was no sign of any pesticides and nutrient levels were within the guideline values.

In the week following the fish kill, the MRCCC deployed a 24 hour Dissolved Oxygen logger just downstream of the fish kill site for a period of five days. The data from this logging showed extremely low levels of Dissolved Oxygen at the site, compounded with extremely high water temperatures. The fish kill site is also heavily infested with an invasive aquatic weed known as Dense Waterweed (*Egeria densa*). Dense Waterweed has recently spread from Obi Obi Creek to the Mary River. It is a highly invasive weed, which thrives when nutrients are present and there is no shade from streamside vegetation. Dense Waterweed is also known to cause severe oxygen depletion in streams. Based on these results and observations the EPA and MRCCC staff came to the initial conclusion that the fish kill was most likely the result of Dissolved Oxygen depletion at the site due to the extreme water temperatures and outbreak of Dense Waterweed.



Recent developments in water quality testing have resulted in a new method of water quality testing, known as “passive sampling”. The results from the passive sampler found that the water quality was remarkably free of contaminants, apart from the presence of a chemical known as Chlorfenvinphos. This chemical was given restricted registration in Australia in 2000 following a review of its application relating to its high toxicity to birds and aquatic organisms, especially fish. The warning “*DO NOT use this product in a manner which causes the product or used container to enter streams, rivers or waterways*” is a requirement on the labels of products containing Chlorfenvinphos..

Although the passive sampler detected Chlorfenvinphos, it would only be the presence of this chemical in fish tissue samples that would enable the fish kill to be directly attributed to Chlorfenvinphos.

The MRCCC has encouraged landholders to restrict product usage and methods of disposal of all herbicides and pesticides to the registration requirements for each particular product. The EPA encourages landholders to be aware of their general environmental duty regarding the use of chemicals, including herbicides and pesticides, in farming activities. Landholders are obliged to use and store farm chemicals in a manner that prevents their release to the surrounding environment.

MRCCC Geographic Information System (GIS)

In April 2005 MRCCC staff attended a two-day GIS training course conducted by the department of Natural Resources and Mines – Regional Information Services Framework Project. Since then the MRCCC GIS capability’s have continually grown, and we have now become proficient GIS users. Now almost all of our projects have a GIS component.

So what is GIS? A GIS is a “database system for the management of mappable spatial objects, their relationship to each other and the information that is linked to them”. The MRCCC GIS allows us to produce accurate up-to-date maps showing a large number of features managed in managed layers.

In August 2006 the MRCCC applied for and received the new ArcGIS 9 Program through the ESERI Conservation Grants Program.

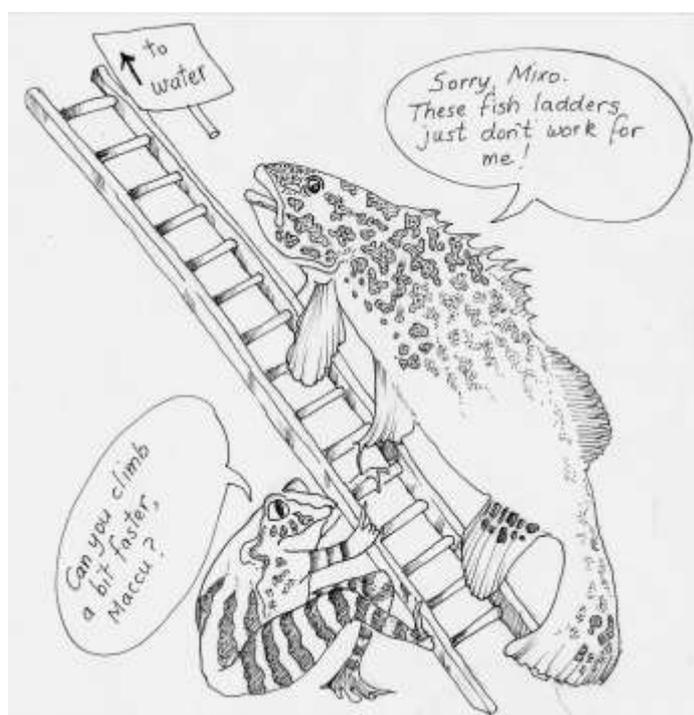
The following is a list of examples of how the we have used GIS in our projects:

- Property maps for landholders, using aerial photography showing property boundaries, fencing, off-stream watering, location of revegetation plots and other property management features.

- Waterwatch Reports, showing location of Waterwatch sites with symbols illustrating the water quality data that the Waterwatch volunteers collected at each of the sites.
- Mapping of Waterway Management Units to determine priority for Rivercare works. Much data was compiled to assess the bio-physical condition of the riparian zones of the catchment. These were then rated for priority for Rivercare work, and mapped given a clear picture of our priority reaches.
- Mapping of Waterway Management Units to determine water quality condition. Much water quality data was compiled for the catchment and was then compared against guideline levels. Maps were then produced clearly illustrating the areas of poor and healthy water quality in the catchment.
- Mapping of weed infestations along riparian zones. GPS points were taken along weed infested areas of local creeks, and then transferred into GIS format to produce maps giving a great birds eye view of the weedy areas and its spread. This allows to better plan strategies for attacking these weed areas.
- Rivercare project sites, illustrating the spatial location of our Rivercare sites, which allows us to visualise their placement in the catchment and how the project may connect with other projects or parts of the landscape in the area.

Traveston Dam

- Traveston Dam (660 000 megalitres capacity) announced on April 27 2006, in the middle reaches of the Mary River at Traveston Crossing.
- Approximately 7600 hectares of prime agricultural land will be inundated, effecting over 900 properties.
- Traveston Dam is estimated to provide 150 000 megalitres/year to supply urban water in Brisbane.
- The inundation area will directly effect the habitat of four threatened species:
 - Mary River Cod
 - Mary River Turtle
 - Lungfish
 - Giant-barred Frog



Cartoon from local artist and Jones Hill Primary School Teacher, Zela Bissett

- The Save the Mary River Group has produced a report called “Save the Mary River” –on the State Government’s Proposal to Dam the Mary River at Traveston. MRCCC contributed a section of this report titled “How the Proposed Traveston Dam on the Mary River will affect our Endangered (EPBC Act) Aquatic Species”.

Some interesting figures about the dam proposal:

- **18% of days will have low flow (less than 1 megalitre per day) at Fishermans Pocket (Gympie), Home Park (Tiaro) and the Mary River mouth at River Heads. Currently the driest month of the year (November) is 171 meg/day at Fishermans Pocket (Gympie).**
- 38% of the time there will only be 30cm or less river height (flow) at Fishermans Pocket (Gympie).
- The SEQ Water Supply Strategy has estimated if current consumption (per person) is reduced to 230 litres/person/day there is enough water currently available to meet demand until 2035, or with drought conditions until 2025. Thus preventing the need to construct Traveston Dam.
- Estimates of evaporation using Bureau of Meteorology figures for the dam site are 1440mm/year of evaporation equating to 110 000 megalitres/year or approximately 80% of annual yield.
- The WRP lists the locations in the river (nodes) where river flows must be measured and managed to comply with the legislation. The closest point to the proposed dam where river flows need to be

comply with the draft legislation is at Fisherman's Pocket (node 3 – 170.4 km from river mouth). This is approximately 35 km downstream from the dam wall, and after significant influence of inflows from the major sub-catchments of Amamoor Creek, Six Mile Creek, Deep Creek and Pie/Eel creeks.

- Over 536 hectares of “endangered” vegetation communities will be flooded
- 672 residential homes; 36 business premises; 18 dairy-farms; 20 small crop / horticulture properties; 144 grazing properties will be inundated.



Newspapers across the country have registered the widespread outcry against the Traveston Dam proposal. Cuttings courtesy of the Weekend Australian, Courier Mail, Noosa Journal, Noosa News, Eco, Range News, Fraser Coast Chronicle and Gympie Times.

Lake Macdonald Catchment Care Group

Noosa Festival of Water – 4 June 2006

The Noosa Festival of Water aimed to increase community awareness of the need to conserve and protect Noosa Shire's water supplies, by:

- Improving community awareness of the origins of Noosa's reticulated water supply in the Lake Macdonald sub-catchment of the Mary River Catchment
- Increasing community awareness of the need for high water quality for urban use and for aquatic biodiversity
- Increasing community awareness of activities aimed at water conservation and water recycling
- Increasing community awareness of environmental and aquatic weed problems in the Lake Macdonald sub-catchment which impact upon water quality and aquatic biodiversity, particularly the endangered Mary River Cod.

The Lake Macdonald Catchment Care Group hosted the Noosa Festival of Water at Lake Macdonald on 4 June 2006 to coincide with World Environment Day.

With ideal weather, the Festival attracted over 2000 people, and the day was considered to have successfully promoted the significance of water to our community. Entry to the Festival was free, and offered patrons a range of activities and displays, a number of which highlighted the aims of the day as follows:

Scull racing on the lake by Noosa, Sunshine Coast and Coomera Yacht and Rowing Clubs, highlighted the recreational capacity of the waterway as a result of the management by Noosa Shire Council, of the massive inundation of one of Australia's top 20 weeds, *Cabomba caroliniana*. Winners of the races received a souvenir medallion depicting the Festival's logo.



Free boat tours to the Gerry Cook Fish Hatchery where patrons were given an informative presentation on the breeding program for the endangered Mary River Cod. The tours to the Cod Hatchery were extremely popular again this year. This tour highlighted the fact that Cod live and breed in the Lake and in the Mary River system and are in danger of becoming extinct in the wild, as a result of habitat loss and poor water quality. Free boat tours were also offered to the Noosa Water Treatment Plant, operated by Veolia Water. The tours informed patrons of the methodology used to treat Lake water for reticulated use and highlighted the high quality of reticulated water currently supplied to Noosa residents from Lake

Macdonald. Both tours attracted approximately 150 people over the day.

A "Take a Kid Fishing" program was run throughout the day involving DPI Fishcare representatives, staff from Barambah Environmental Education Centre and individual fishing clinic specialists. The program aimed at improving children's knowledge of sustainable recreational fishing practices in freshwater creeks and impoundments in the Mary River Catchment and focused on a range of factors which have the potential to affect waterways and biodiversity through fishing practices including: use of environmentally friendly fishing tackle; correct techniques for catch and release; identification of aquatic species; size and catch limits; appropriate disposal of refuse associated with recreational fishing, e.g. bait bags; endangered aquatic species including the Mary River Cod; catchment health, water quality and aquatic biodiversity including identification of aquatic weeds and pest species. Hand out material was available and fishing gear was provided to approximately 80 children throughout the day.

The “Arting About” Family Fun Day hosted by the Noosa Regional Gallery again proved popular with 100 children taking part in the construction of a mural depicting the symbolic war against Cabomba.



Noosa & District Landcare again handed out two free trees to Noosa ratepayers as well as informing Festival patrons on their various activities.

Free guided bird walks with Noosa Parks Association Bird Observers Group members Cecily Fearnley and Valda McLean attracted a large number of people. These tours highlighted the diversity of birdlife living on and around the Lake, and reinforced the need for habitat to be protected for these species.

Free water quality testing by Mary River Catchment Coordinating Committee was available for Festival patrons who brought water samples from their dams and bores. This proved to be a very popular activity with well over 100 samples being tested. This activity highlighted aspects of water quality to local landholders, increasing their awareness of the impacts of land-use upon water quality, and through provision of information aimed at improving water quality.



A program of musical entertainment, including several school and community groups was presented in the Amphitheatre overlooking the Lake, again reinforcing the nature of the surrounds and the need to protect and preserve Lake Macdonald as an environmental and recreational asset to Noosa Shire. “Turn off the Tap” was performed by Eva Ford and Lee Field from the Mary River Catchment Coordinating Committee targeting the younger audience to increase awareness of the importance of healthy waterways.

Street entertainment and refreshment stalls operated by the Noosa Sea Scouts and Noosa/Tewantin Lions Club, as well as private vendors were also available.

Other displays included the Burnett Mary Regional Group, Camphor Laurel Group, Healthy Waterways, Noosa Integrated Catchment Association, Travelsmart Noosa, Noosa Council Plumbing Section, Tradelink Environmental Solutions and Action Tanks. All participants reported positive feedback and are keen to take part in next year’s Festival.

Several informative and lectures were provided in a special lecture tent including Don Sands – Richmond Butterfly Recovery Network; Phil Moran – Aquatic & Terrestrial Weeds; Jo Turner – Living Smart with Water; Dave Burrows – Land for Wildlife and Protection of Biodiversity in Noosa Shire; Kamal Singh – Bio-diesel Program; Eva Ford – Threatened Species and Cecily Fearnley – Common Birds of Lake Macdonald. Ron West of the historic Majestic Theatre ran a silent movie in the lunch break.



Additional support was provided to the festival this year, which enabled a greater program of events. Sponsors and supporters included Noosa Council, Burnett Mary Regional Group, Lake Macdonald Catchment Care Group, Mary River Catchment Coordinating Committee, Noosa and District Landcare, Noosa Community Radio, Clearmake Environmental and Wastewater Equipment, Action Tanks, ABC Sunshine and Cooloola Coasts Queensland, Tradelink, Australian Water Services, Veolia Water, Suttons Cleaning Service and Cooroy Mountain Natural Springwater.



Tradelink Environmental Solutions kindly donated approximately \$500 worth of bathroom water saving fittings as the prize for a competition, whereby patrons of the Festival had to guess the amount of drinking quality water flushed down the nation's toilets each year. The success of the Festival was partly due to the location, which is not only a well known and very suitable venue for such an event, but also very aesthetically pleasing, with a great deal to offer for future events.

Planning is already underway for the next Noosa Festival of Water, which will be held at the Noosa Botanic Gardens on Sunday 3rd June 2007.

Cabomba Reconnaissance of Lake Macdonald

Brad Wedlock, Phil Moran, (Noosa Landcare) and Geoff Black (Noosa Council Weeds Officer) conducted the annual inspection of creek/dams/wetlands close to Lake Macdonald for new introductions of cabomba in August 2006.

A new reconnaissance route (with new sites) was trialled, based on inspecting creek crossings/dams/wetlands within a 2.5km /5km /7.5km radius (concentric circles) from the centre of Lake Macdonald. No new infestations were found.

Progress Toward Management of Cabomba: Biological control and ecology

Research conducted by CSIRO Entomology

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Executive Summary

Surveys for potential biological control agents continue in the native range of *Cabomba caroliniana*. We have identified the most promising collection sites and have re-sampled these throughout the year to ensure that we do not miss insects with differing life cycles. Through this process we have found three potential agents. We are currently studying insect life-cycles, identifying methods to rear insects under laboratory conditions, and conducting preliminary host specificity tests at a USDA-ARS lab in Buenos Aires, Argentina. Surveys in Argentina are reaching fruition and we expect to finish the surveys and begin importing insects, starting with the weevil (*Hydrotimetes natans*) into quarantine in Australia in mid-2007. If testing indicates that the weevil is sufficiently host specific, we would request permission to release, mass rear the weevils, and possibly begin making releases at cabomba infested sites in SE Queensland in the spring of 2008. This continued research depends on receiving funding from stakeholders and the federal government.

We have also begun surveying populations of four closely related cabomba species for additional biological control agents. Since there are no native or agricultural species of cabomba in Australia we may find good agents that are host specific to the cabomba genus and thus constitute low risk of off target effects. In 2005, we located three species of cabomba in Venezuela and identified a number of herbivorous insects including two weevils and one moth. Specimens are currently housed at the CSIRO Mexican Field Station and are in the process of being identified. Additional surveys are planned for Costa Rica, Mexico, and Puerto Rico. We expect these surveys will continue for an additional two years.

A number of ecological projects are in progress in Australia. Projects include (1) ongoing surveys of cabomba populations at four ponds and dams in SE Queensland, (2) experiments to determine the impact of cabomba on native plant communities, (3) experiments to determine how light intensity affects cabomba growth, (4) experiments to examine whether native herbivores prefer native plants over cabomba, (5) surveys to study effect of substrate on cabomba growth, and (6) experiments to examine the effect of desiccation on fragment survival. We have found that cabomba maintains high biomass throughout the year, which is conducive to establishment and impact of biological control agents. Light intensity and substrate seem to be major factors that influence

cabomba abundance, information which may help control cabomba and reduce spread. In addition, we continue to identify and map new cabomba infestations for potential use as biological control release sites and collect baseline data to assess the future impact of agents when released. Recent maps of updated cabomba infestations indicate that the distribution of cabomba is increasing, particularly in Queensland, Victoria and New South Wales.

I. Progress Toward Biological Control of Cabomba

Cabomba surveys in Argentina

During the last year, we have re-surveyed *Cabomba* sites seven times to capture the seasonal variation in insect life cycles (Table 1). In addition, we have made three exploration trips to the north and north east. Thus far, no new *Cabomba* sites have been found in Argentina, although we have checked virtually every catchment and wetland in the country. Exceptions are (1) a few lakes in the north-western provinces of Tucuman, Salta and Jujuy, where the plant has never been cited, and (2) the inner areas of the Paraná/Uruguay that are not accessible by land. Our surveys indicate that the plant is mostly limited to the distribution depicted in former reports, in the provinces of Corrientes, Entre Ríos, and Chaco.

Date	Survey location
Jan 5 - 7, 2005	Corrientes and Entre Ríos provinces
Feb 15 - 21	Corrientes, Santa Fé, Chaco, Formosa and Entre Ríos provinces
March 11 - 14	Misiones province
March 21 - 29	Corrientes, Misiones and Entre Ríos provinces
Aug 29 - Sept 1	Corrientes and Entre Ríos provinces
Oct 31 - Nov 3	Corrientes and Entre Ríos provinces
Nov 28 - Dec 1	Corrientes and Entre Ríos provinces
Jan 2 - 6, 2006	Corrientes and Entre Ríos provinces

Natural Enemies

Hydrotimetes natans. This Bagoini weevil feeds on plant tips while the larvae mine the plant stems. It develops in about 40 days in the laboratory. At high densities it can cause extensive tip damage with its adult feeding, as well as stem pruning and rotting from the larval mines. In the field, the adults are present all year round, and survive for approximately one year in the laboratory. During the mating season, which lasts from the end of December to February, the adults are found at dusk on plant flowers. During the rest of the year they remain under water. The larvae have been found in the stems from October to May, with populations peaking at the beginning of summer. This same behaviour has been observed in the laboratory in 3-litre containers, at stable ambient temperatures, suggesting it responds to photoperiod. So far *H. natans* larvae have only been found in *C. caroliniana*. A few adults (< 3%) were found on another submerged plant species, *Egeria najas*, which frequently grows intertwined with *C. caroliniana* in the field.

Paracles sp. The aquatic caterpillar was collected in several locations of Corrientes province. This caterpillar causes heavy defoliation on *Cabomba*, and seems to prefer the leaves near the terminal shoots. It feeds underwater, keeping air bubbles amidst the short hairs on its dorsum. Further laboratory experiments contest results reported before, and show this species can feed from instar 1 on *Egeria densa* (Hydrocharitaceae), but not on the other plants tested. We still do not know, however, if it can complete its development on this plant species.

Paraponyx sp. The gilled larva of this pyralid feed on the terminal shoots of *C. caroliniana*, causing a characteristic damage that stunts stem growth. The larva itself, however, is very hard to detect, although it is over 15 mm long, because of its cryptic habits. At the end of its larval stage, which lasts about 45 days, it spins an irregular 15 mm cocoon attached to the plant tips and wrapped with living leaves. In the field it is quite common during winter and spring (up to the end of November) but it has rarely been found during the summer. This may explain why we had not observed this insect before, since we have made most trips during summer and fall. This species has not been found on other plants collected together with *Cabomba*. Both lepidopteran species mentioned above are currently in the hands of taxonomists specialized in these families, but we have not yet received species identifications.

Cabomba surveys in Venezuela

We travelled through 3 areas of Venezuela (Lower Orinoco River and Delta, Gran Sabana, and Lago Maracaibo) and one area of Mexico (Veracruz) looking for cabomba species and associated herbivores. We located 6 populations of cabomba in Venezuela, including 3 species (*C. furcata*, *C. aquatica*, and *C. haynesii*) (Map 1, Table 2). Cabomba (*C. paleoformis*) was not found in Mexico.

When we found cabomba we first looked for herbivores *in situ* and then collected material to examine more thoroughly later. Two weevil species were found on *Cabomba furcata* (two adult individuals of a small black weevil with striations on its elytra and one adult individual of a larger grey weevil with sediment caked on its elytra and specialized ridges along the underside of its tibia). Herbivore damage was apparent in the form of stem mining and pupal cases formed from the fusing of fruits. Insect larvae were associated with both types of damage. There were also pupal cocoons (on *C. haynesii* and *C. furcata*) that were within stems that had sand/sediment attached to the outside with fine hairs emerging from the sediment. These are probably made by lepidopteran larvae.

Plant	Location	Notes	Lat	Long	Insects
<i>C. furcata</i>	Piar	pond, flowering	7°26.778N	63°19.872 W	2 adult weevils, flower damage, pupal cases in fruits
<i>C. furcata</i>	Gran Sabana 1 (C20)	river, flowering	7°36.449N	63°15.862 W	did not sample
<i>C. furcata</i>	Gran Sabana 3 (C21)	pond, flowering	7°32.549N	63°15.862 W	emergence holes of stems flower damage
<i>C. furcata</i>	Gran Sabana 3 (C23)	pond, flowering	7°26.778N	63°14.506 W	emergence holes of stems flower damage
<i>C. furcata</i> <i>C. aquatica</i>	To Soledad	river, flowering	8°17.336N	63°26.504 W	1 adult weevil, multiple pupal cases in fruits
<i>C. haynesii</i>	El Muerto	Lagoon, not flowering	9°17.642N	71°45.926 W	lots of stem damage, larva emerging from stem, pupal cocoons in stems (lep?)

Insect and plant damage specimens were preserved in 70% EtOH and taken back to the Mexican Field Station for further examination, curation, and identification. Voucher collections of cabomba were taken from each site and are currently housed at the Mexican Field Station. Plant material was also collected in 70% EtOH for use in future genetic studies.

Researchers at the Mexican Field Station are continuing these surveys that will include all of the four additional species in the cabomba genus (*C. furcata*, *C. paleoformis*, *C. aquatica*, and *C. haynesii*). The surveys will include (1) searches of literature and herbarium records for information on the distribution of *Cabomba* sp., (2) surveys in tropical South America, Central America and the Caribbean for plants and herbivores, (3) preservation and species-level identification of plants and herbivores, (4) acquiring permits to transport and study live specimens in the laboratory and (5) propagation of plants and herbivores in the laboratory along with preliminary host-specificity testing.

II. *Cabomba* Ecology

Cabomba in Argentina

A definite succession has been observed within the submerged plant community in the *Cabomba* environments sampled in the province of Corrientes. In the large lakes, such as Iberá and Santa Lucía, we have observed that the coverage of *Egeria najas*, as measured by point intercept samplings, tends to increase during the summer from almost 0% in early spring, to 20 - 40% by fall. This correlates with increasing water turbidity and temperature during the summer. Increased shade appears to benefit the shade tolerant *E. najas* plants. Likewise, the *Cabomba* stands found in more open and clear waters rarely have *E. najas* mixed with them, even during the summer.

Cabomba in Australia

We continue to study the ecology of cabomba in Australia to better understand how cabomba invades and spreads and how to manage existing infestations and reduce spread to new areas. Projects include (1) ongoing surveys of cabomba populations at four ponds and dams in SE Queensland, (2) experiments to determine the

impact of cabomba on native plant communities, (3) experiments to determine how light intensity affects cabomba growth, (4) experiments to examine whether native herbivores prefer native plants over cabomba, (5) effect of substrate on cabomba growth, and (6) effect of desiccation on fragment survival. In addition, we continue to validate and map new cabomba locations, take water quality data at sites with and without cabomba, take sediment samples to look for cabomba seeds, and develop research projects with interested students and research partners.

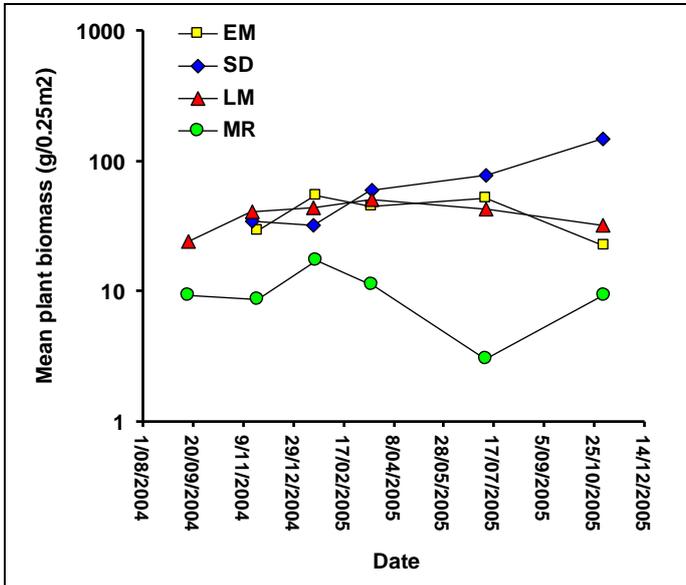


Figure 7. Biomass of cabomba remains stable throughout the year. Data are mean biomass taken from 2 and 3 m depth at each site (n=6).

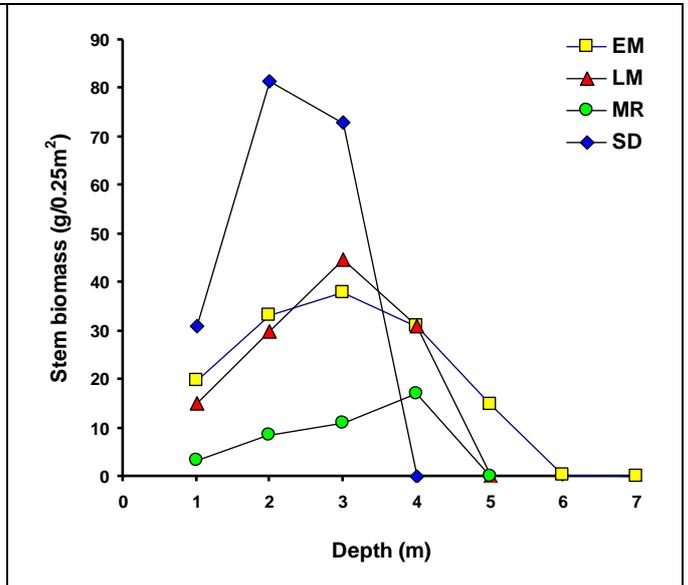


Figure 8. Biomass of cabomba peaks in 2 to 3 meters of water. Biomass is mean stem dry weight taken. Seasonal data was pooled for each site at each depth.

All of the surveys and experiments are still in progress. Repeated surveys at sites in SE Queensland found that cabomba biomass remains relatively stable throughout the year (Fig 7). Therefore, habitat and host plant material is available year-round for biological agents. Biomass exhibits a hump-shaped relationship with water depth where greatest biomass at 2-4 m of water (Fig 8). The site with low abundance of cabomba (MR) is a small excavated pond (approx 2 ha) with a hard clay bottom and steep sides. Nutrients and turbidity are similar between the sites and do not explain the difference. It appears that cabomba roots cannot anchor in the hard substrate (cabomba is only found in the trenches where sediment accumulates). Therefore, it is likely that the design of the pond restricts the abundance of cabomba.

Observations and experiments indicate light availability is a factor that greatly influences cabomba distribution and abundance. Shade may reduce downstream spread if cabomba propagules are forced to travel down water courses covered with a dense riparian canopy. We studied how the amount of light reduction affected cabomba biomass at a dam in SE Queensland. High reduction of light (99%) eliminated cabomba with 2 months under floating shade fabric (5 x 5 m) plots. Moderate light reduction (75%) reduced biomass but did not eliminate the plant (Fig. 9). We are currently designing laboratory experiments to better predict what level of light reduction is needed to impede plant growth. We are also

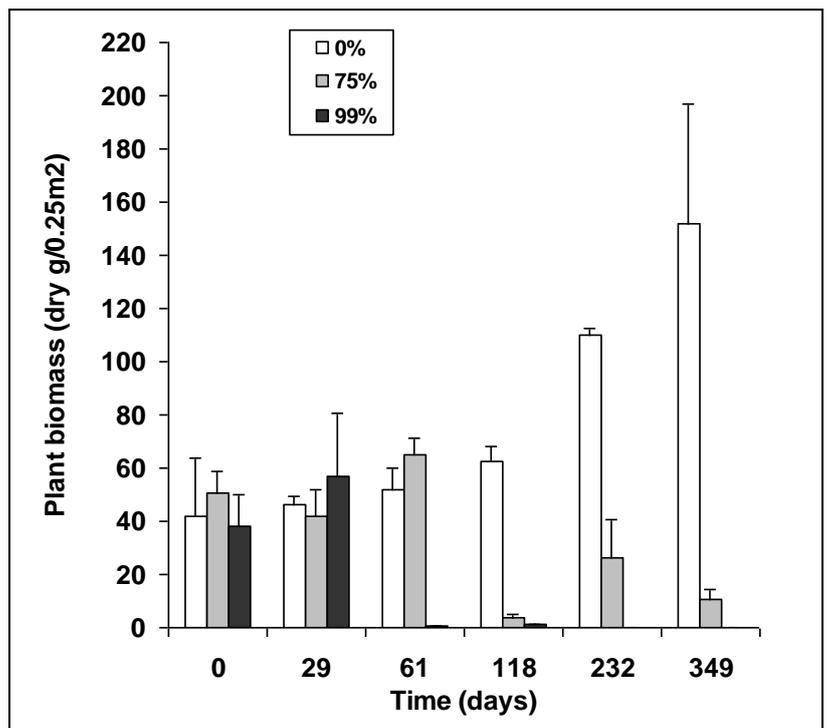


Figure 9. Shade reduces biomass at moderate levels and eliminates plants at high levels. Each treatment was replicated three times.

measuring how light availability is reduced in the water column to see if that explains the population fluctuations of cabomba at the four field sites.

Current distribution of cabomba in Australia

We have continued to collect data on the distribution of cabomba in Australia. Many new locations have been reported in the past year, both directly to Shon Schooler and WONS Aquatic Weed coordinator Andrew Petroschevsky, and from specimens submitted to Australian herbarium collections. In addition to the known infestation sites, there are several more reported infestations that need to be verified and coordinates collected.



Above: Looking for herbivores on C. furcata in Morichal vegetation, Gran Sabana (near Ciudad Piar)

