



**Goulburn Broken**  
Catchment Management Authority

**Annual Report**  
2004-2005



**GOULBURN  
BROKEN**  
CATCHMENT  
MANAGEMENT  
AUTHORITY

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## About the Goulburn Broken CMA

**G**oulburn Broken Catchment Management Authority is a Statutory Authority established by the Victorian Government under the Catchment and Land Protection Act 2004 to co-ordinate land, water and biodiversity management in the Goulburn Broken region which extends from the Great Dividing Range on the outskirts of Melbourne through to the River Murray in the north. The CMAs objectives, functions, powers and duties are further defined in the CaLP Act 1994.

Goulburn Broken is one of ten Catchment Management Authorities across Victoria that play a lead role working with the community, Government and funding organisations to protect and enhance land, water and biodiversity resources. It reports to the Hon John Thwaites, MP Minister for Environment and Minister for Water.

About 185,000 people live in the Catchment that covers 2.4 million hectares across the municipalities of Campaspe, Moira, Strathbogie, Mansfield, Mitchell and Murrindindi, the City of Greater Shepparton and the Rural City of Benalla.

The Catchment takes in the Shepparton Irrigation Region known as the food bowl of Australia for its dairy, horticulture and food processing. Cropping, grazing and timber production are the main pursuits in the dryland areas of the Catchment, along with tourism in the famous "high country".

The Goulburn Broken CMA works in partnership with all tiers of government, landholders (current and traditional), universities and research organisations, and other authorities and agencies such as Landcare, the Department of Primary Industry, the Department of Sustainability and Environment and Goulburn-Murray Water to create innovative and practical solutions to land, water and biodiversity issues.



Funding, drawn primarily from the State and Australian Governments, is targeted to achieve integrated works identified as the highest priorities for the region. The works are underpinned by collaborative research which at its best leads to multiple benefits by, for example, combining the best available science with the practical challenges of running a productive farm or maintaining a waterway for environmental and tourism benefits.

On-ground works aim to improve the region's social wellbeing, environmental quality and productive capacity in a sustainable manner.

Landholder investment in onground works more than matches the government contributions.

This is a great testament to the confidence that landowners have in the process and the solutions.

Members of the Goulburn Broken CMA Board of Directors are drawn from within the region. Together they have extensive experience and knowledge of primary industry, land protection, water resource management, waterway and floodplain management, environmental conservation, local government, business and financial management.

Under the direction of the Board, the Goulburn Broken CMA has developed detailed environmental management strategies. Issues such as biodiversity, salinity, water quality and waterway management, floodplain management, pest plants and animals and greenhouse are the focus of the Goulburn Broken Regional Catchment Strategy which sets out priorities and goals for policy, funding and works.

This integrated approach to natural resource management ensures that issues are not looked at in isolation, but on a Catchment-wide scale with outcomes designed to achieve multiple benefits. All of the works undertaken within the Catchment fit within State, Murray Darling Basin and National and State strategies.

Implementation Committees drive the works programs to ensure the activities of the Goulburn Broken CMA reflect the views of local communities. The Committees comprise community members with wide knowledge and experience in areas such as agriculture, food processing, salinity, waterway and floodplain management and biodiversity.

They are responsible for setting priorities for works in three geographical areas within the Catchment – the Shepparton Irrigation Region (SIR), the Mid Goulburn Broken and the Upper Goulburn.

These committees act as a valuable link between the community and the CMA Board and staff. A River Health and Water Quality Committee and individual Waterway Working Groups for each of the implementation areas also draw in the skills and networks of community members.

Goulburn Broken Catchment Management Authority offers an array of incentives to landholders wishing to undertake environmental works. The Goulburn Broken CMA website [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au) is a good starting point for more information about this and other programs.

# Goulburn Broken CMA Chair's Report

More than ever this year the focus of the Goulburn Broken Catchment Management Authority (GBCMA) has been on water.



A major milestone achieved in 2004/2005 was the refinement and final preparation of the Goulburn Broken Regional River Health Strategy. The need to protect and enhance the condition of our river environments is widely recognised. The aim of this strategy is to identify rivers of high value for protection and enhancement and to identify opportunities for restoration or improving the environmental condition of other rivers throughout the Catchment.

The Strategy is the first attempt to combine all elements of river management under one umbrella document, and provides direction for the protection and enhancement of the region's river systems for the next ten years.

The Victorian Government's White Paper initiatives have been embraced in the Catchment and a range of strategic and works projects are well advanced. Large scale river restoration initiatives include year one of a comprehensive integrated program involving many catchment partners on the Broken River and a lower Broken Creek action plan was developed and works commenced. At the farm scale, we are investing in water use efficiencies including automatic irrigation initiatives, recycle dams and whole farm plans.

At a strategic level we are working to develop protocols for the management of the Environmental Reserve and to develop a Sustainable Water Strategy for the region. The GBCMA is also working closely with the Department of Sustainability and Environment (DSE) and Goulburn-Murray Water (G-MW) to manage the decommissioning of Lake Mokoan and the future land use process for the wetland.

Under the Living Murray Initiative, the GBCMA developed the Barmah Significant Environmental Asset Environmental Management Plan. We have also commissioned a number of studies to ensure maximum benefits are achieved from environmental flows to this icon site.

Goulburn Broken CMA has worked with Murray CMA in New South Wales to develop the Draft Barmah Millewa AEMP Plan and has commenced the Barmah Forest Water Management Plan due to be finished in 2006. It has also contributed to the Victorian Environmental Assessment Council Red Gum Study. Barmah Wetland is of enormous ecological and cultural significance and any management systems for Barmah Wetland must be designed to achieve ecological benefits and be supported by the Indigenous land owners.

The Irrigation Futures project in the Shepparton Irrigation Region has involved a major consultative process to determine a shared vision for the future management of irrigation in the region.

Initiatives in place for 15 years in the SIR to manage salinity including whole farm planning and irrigation re-use and improvement incentives are now proving their worth as water savings initiatives.

These works have been driven by the Shepparton Irrigation region Implementation Committee which oversees an annual budget of more than \$17 million. Our three geographically placed implementation committees supported by technical groups and waterway working groups and committees have proved enormously successful for many years in delivery extensive works programs that reflect government and community priorities.



The study on the south west Goulburn has highlighted the trade off between vegetation and salinity. By increasing vegetation from 24 per cent to 50 per cent salt loads will be reduced by 22000 tonnes per year and yields by 132 GI per year.

I would like to take this opportunity to thank members of our community committees along with my Board for their tireless commitment to improved environmental outcomes in the Goulburn Broken Catchment.

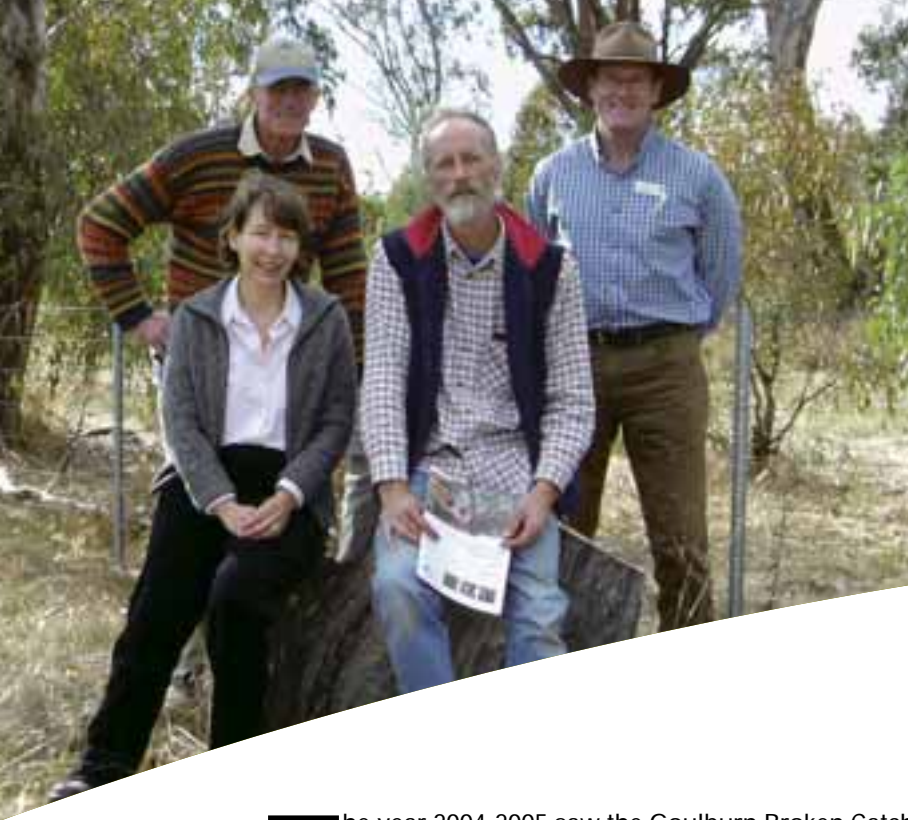
In particular, I would like to acknowledge the Chairs of our Implementation Committees Russell Pell (Shepparton Irrigation Region), Chris Doyle (Upper Goulburn) and Sally Simson (Mid Goulburn Broken).

I would also like to thank Goulburn Broken's CEO Bill O'Kane, the management team and staff for their efforts in delivering an impressive array of strategic works under the Regional Catchment Strategy.

**Stephen Mills**

Chair  
Goulburn Broken  
Catchment Management Authority





## Chief Executive Officer's Report

The year 2004-2005 saw the Goulburn Broken Catchment Management Authority achieve an extraordinary level of works thanks to strong and enduring relationships with partner organisations. The Projects Actions and Outputs table following my report details on ground works delivered. The table shows that in many cases these works exceeded projected targets. We have also made good progress in linking our outputs to outcomes with the use of "O'Kane's" formulae.

### Outcomes = Outputs X Assumptions

The Department of Sustainability and Environment, the Department of Primary Industry, Goulburn Valley Water, Goulburn-Murray Water, the Environment Protection Authority, Landcare, local government and landholders are to be congratulated for their commitment to delivering environmental outcomes under the GB Regional Catchment Strategy.

It was pleasing this year to note the increased level of trust and involvement between the GBCMA and the Indigenous community. This was greatly assisted by the appointment of Neville Atkinson to the role of indigenous facilitator.

Our success was also due to the commitment and expertise of our staff. In the People Matters Survey prepared by the State Services Authority, GBCMA staff recorded far above the water industry sub sector averages across the board in job satisfaction, leadership, supervision/manager, public sector values, and employment principles.

The GBCMA has recruited this year to meet its new obligations as the caretaker of river health under the State Government's White Paper initiatives. Geoff Earl brings a wealth of experience and knowledge to his role of Environmental Flows Co-ordinator and complements our existing wetlands, stream health and floodplain management skills.

In May I was pleased to launch the Goulburn Broken Community Landcare Support Strategy 2005. The strategy was developed in close consultation with the Catchment's 92 Landcare groups. It recommended greater promotion of Landcare successes; support for the development of urban Landcare; administrative support and training opportunities for community Landcare members and the promotion of stronger links with business.

Local Area Planning (LAP) is proving an enormously effective mechanism for community driven environmental outcomes and these areas are attracting greater levels of works and investment.

The Catchment's water quality data is excellent. Phosphorous exports are well below our targets. The management of azolla (duck weed) in the lower Broken Creek is still a challenge particularly in years when catchment flows are very low.

A highlight for 2004/05 was the completion and celebration of 200,000 hectares whole farm planned (WFP) in the Shepparton Irrigation Region (SIR) through the WFP Incentive Program. A further 130 Whole Farm Plan grants covering 8299ha were completed in the SIR over the year. A total of 208,079ha or 65.7% of the irrigated area is now covered by WFPs. These results are particularly pleasing in the context of the continued difficult seasonal and financial conditions that irrigators contended with.





In the Mid Goulburn Broken region a multi-partner project is delivering river restoration works along the Broken River. The project aims to “Bring Back the Broken”, for current and future generations. It includes an array of monitoring, research, community activities and river health works including:

- Construction of a fish ladder at Casey’s Weir;
- Improved stormwater quality through the design and construction of gross pollutant traps and wetlands in Shepparton and Benalla;
- Protection and enhancement of Crown land;
- Enhancement and protection of riparian land through fencing and revegetation;
- Instream habitat improvement through the construction of slack water habitats; and
- Improving community understanding and involvement through an interactive website, and field days.

Significant investment has been attracted for Upper Goulburn rivers under the Restoring Riparian Corridors program. There has been a high level of engagement with the relevant communities through a series of meetings. The associated investment has resulted in significant extra waterway works undertaken on the King Parrot Creek and Upper Goulburn, Howqua and Jamieson Rivers.

The Goulburn Broken CMA and the Greater Shepparton City Council are hosting the bi-annual State Flood Conference at Shepparton from October 11-14. Plans are well underway to host a successful conference with the focus on flood prevention, response and recovery. A highlight will be a community expo focusing on flood planning and response.

Planning is also well underway to deliver an enormous array of activities during National Water Week from October 16 to 22, 2005. In October 2004, 5325 people participated in Goulburn Broken Water Week activities ranging from movie nights and wetland walks, to writing

and photographic competitions and water Olympics. These activities, delivered with our catchment partners, resulted in 28 newspaper articles, one radio interview and two television segments.

Reflecting on another successful year it is more apparent than ever that the strong relationships with our people, our partners and our community are the catalyst for delivery of our extensive natural resource management works.

The GBCMA recognises it’s moral and legal responsibility to provide a safe and healthy work environment for employees, contractors, customers and visitors. This commitment extends to ensuring that the organisation’s operations do not place the local community at risk of injury, illness or property damage.

The new OHS Act 2004 came into force on July 1st 2005. A review was undertaken of the GBCMA OHS Procedures to reflect the new Act.

The GBCMA develop a number of OHS Procedures applicable across all operations and functions.

I would like to take this opportunity to thank my managers and staff for their dedication. New head offices in Shepparton are nearing completion and our personnel are looking forward to working in larger and more comfortable surrounds.

**Bill O’Kane**

Chief Executive Officer  
Goulburn Broken  
Catchment Management Authority

## Project Actions and Outputs

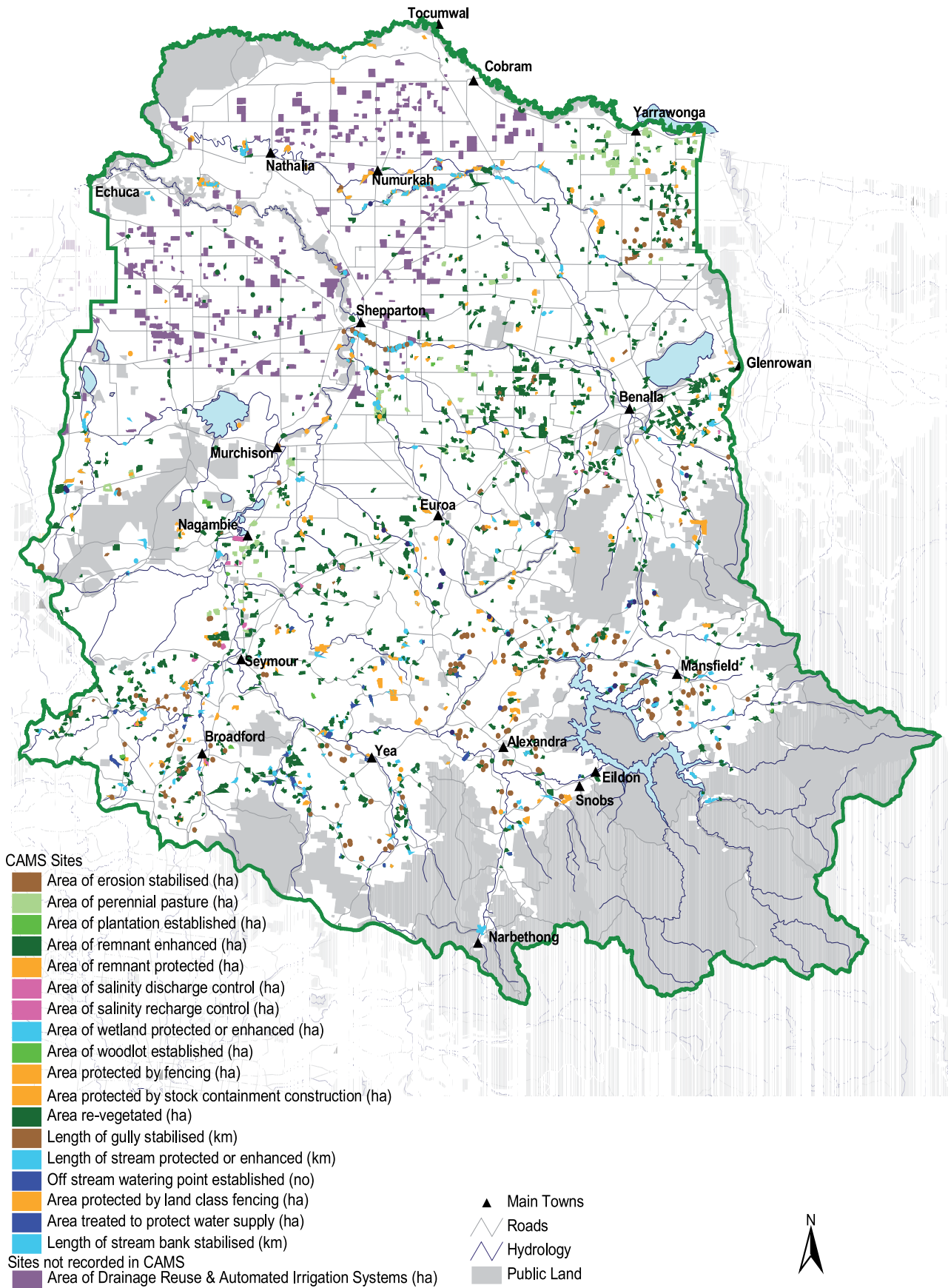
### Total Goulburn Broken Region 2004-05



Standard GB Threat or Impact Managed	Action Description (as per RCIP)	Current Output Targets	Achieved July 04 - June 05	% Achieved July 04 - June 05
<b>THREAT</b>				
Land and water use practices				
Stock grazing (ha = terrestrial; km = riparian)				
	Fence terrestrial remnant vegetation (ha)	252	771.0	306%
	Fence wetland remnant(ha)	46	24	52%
	Fence stream/river remnant (ha)	145	91	63%
	Off-stream watering (no)	113	74	65%
	Binding Management Agreement (license, Section 173, covenant) (ha)	862	797	92%
<b>INDUCED THREAT</b>				
Saline water and high watertables				
Surface water	Landform/lasergrading (ha)	7700	7700	100%
	Drain – primary (km)	8	8	100%
	Drain – community (km)	12	0	0%
	Farm reuse system (no)	45	65	144%
	Drain – divert water (ML)	500	1350	270%
	Irrigation systems – improved (ha)	490	1532	313%
	Pasture – plant (ha)	450	544.1	121%
Sub-surface water	New groundwater pumps – public (no)	2	3	150%
	New groundwater pumps – private (new and upgrade no)	14	10	71%
	Volume water pumped (ML)	1400	1071	77%
	Revegetation - Plantation/Farm Forestry (ha)	109	128.7	118%
Nutrient-rich & turbid water & suspended solids	Stormwater management projects (no)	2	2	100%
In-stream and near-stream erosion	Bank protection actions (km)	68	40.6	60%
	In-stream & tributary erosion controlled (km)	170	916.41	539%
Changed flow pattern	Water allocated - eg wetlands (ML)	0	266	
Weed invasion	Weeds – woody weed management (ha)	85	70	82%
	Weeds – aquatic weeds controlled/eradicated (km)	25	21	84%
	Landholders complying with requirements under CALP Act in targeted areas (%)	95%	95%	100%
	Targeted infestations of weeds in high priority areas covered by control programs (ha)	522,258	281,200	54%
Pest animals	Landholders complying with requirements under CALP Act in targeted areas (%)	96	96	100%
	Area of high priority rabbit infested land that are covered by control programs (ha)	95,700	56,800	59%
Pest animals	Area of high priority fox infested land covered by control programs (ha)	48,050	53,000	110%
<b>IMPACT</b>				
Habitat loss - terrestrial	Revegetation - plant natives within or next to remnants (ha)	2409	981.1	41%
	Revegetation - plant natives away from remnants (ha)	126	74	59%
Habitat loss – in-stream	Vertical slot fishway (no)	2	3	150%
	Rock ramp fishway (no)	6	5	83%
	Fish barrier removal (no)	2	0	0%
	Establish SEAR (Significantly Enhanced Aquatic Refugia) (no)	11	17	154%
Habitat loss – wetlands	Construct new wetland (ha)	3	3	100%
Habitat loss – Threatened species	Threatened Species Recovery Plan and Action Statements (no projects)	16	15	94%
Planning	Whole Farm Plans (no)	275	262	95%

# Goulburn Broken On-ground Works Sites

June 2001 – June 2005





## Shepparton Irrigation Region Implementation Committee



The continued progress in the implementation of the Shepparton Irrigation Region (SIR) component of the Regional Catchment Strategy (RCS) was due to a number of strengths in the IC region:

- Strong links with the catchment community through the Implementation Committee (IC) members and members of the various working groups that report to the IC.
- A strong and vigorous partnership with Landcare groups, the Goulburn Murray Landcare Network (GMLN) and Local Area Plan (LAP) groups.
- A strong partnership between key agencies and authorities.
- A strong technical support network to all aspects of the plan.
- An integrated approach to tackling the key natural resource issues and protecting our important natural assets.

The members of the SIR IC continued to effectively carry out their role in 2004/5. Despite a continuing difficult period, the implementation of the SIR component of the RCS has progressed steadily. This is in part due to the commitment of IC members, Nick Roberts, Steve Farrell, Peter Gibson, Allen Canobie, Peter McCamish, Ann Roberts, Nick Ryan, Terry Hunter, and Bruce Cumming.

Athol "Doc" McDonald retired from the SIR IC this year. Athol has been an active contributor to our catchment since the days of Salinity Program Pilot Advisory Committee (SPPAC), 17 years ago. He also represented our catchment on the Community Advisory Council (CAC) of the Murray Darling Basin Commission (MDBC) for a number of years. John Avard retired from the Sub Surface Working Group after a 15 year involvement in our forums and also deserves recognition. I would also like to recognise the role of Denis Flett. As the CEO of G-MW he has led one of our main partner organisations in an enlightened fashion until his recent retirement.



## Achievements

The partnership program with the Catchment and Water group of DSE is delivered with our regional partners in G-MW, Department of Primary Industry's (DPI's) Catchment and Agricultural Services (CAS) and PIRVIC. A reflection of the successful partnership is seen in the Research Reporting and the Partnership Reporting Days held during the year.

More than 80 people from the Catchment and beyond attended the Research Reporting Day in July to discuss updates of research activities underway. The Partners Reporting Day was held in November and about 100 people discussed current implementation issues from a range of programs.

The progress towards our targets for on-ground works and the high level of activities have occurred in a climate of continued low water allocations, widespread drought, reduced funding and the ever-changing political and institutional arrangements.

These difficulties make the achievements all the more meritorious. The support given to the program by agency staff and the regional communities has been tremendous.

This year saw the completion of the review of the Broken Creek Management Strategy. This will provide the GBCMA, partners and the community with a clear direction for works and activities on the Broken Creek over the next five years. The review has highlighted several significant achievements since 1998, and has identified a range of social, economic and environmental values which the community wishes to protect.

A highlight for this program in 2004/05 was the completion and celebration of 200,000 hectares whole farm planned in the SIR through the WFP incentive program. A celebratory event was held on the property of Frank and Maureen Leyden who have participated in a number of the incentive programs.

The Dhurringile and District LAP was launched in April 2005 by Bill O'Kane, Chief Executive Officer of the GBCMA. The launch marked the end of three

years of hard work by members of the Dhurringile and District community to develop a 20-year plan for their community. The celebration also marked the completion of development of eight LAPs across the SIR. The LAP process is a joint activity between the GMLN, DPI and the GBCMA and a means of delivering strategic planning at a sub-catchment scale aligned to the GB RCS. The eight LAPs are well into implementation.

## Farm Program

A further 130 Whole Farm Plan grants covering 8299ha were completed over the year.

A total of 208,079ha of the irrigated part of the region is now covered by WFPs. The plans prepared this year represent an increase of 2.6% and the area now whole farm planned is 65.7% of the irrigated area.

These results are particularly pleasing in the context of the continued difficult seasonal and financial conditions that irrigators were dealing with. This continued high level of activity in whole farm planning shows that landholders are committed to planning for catchment works on their properties.

A major review of the SIR whole farm plan program was published demonstrating its efficiency, effectiveness and appropriateness. The review also identified some areas for improvements.

Environmental Incentives have provided support to protect over 180ha of remnant vegetation. This is more than twice the annual target. Some of the remnants protected include:-

- 80 ha of Riverine Grassy Woodland, near Koonoomoo, this site also has a Trust for Nature Conservation Covenant;
- 20 ha of Yellow Box and Grey Box remnant near Stanhope;
- 12.68 ha of Riverine Chenopod Woodland near Yalca; and
- 43.3 ha of Plains Grassy Woodland, where also covered by a Trust for Nature Conservation Covenant.



These are valuable remnants within the SIR and the two most significant have been fully protected with covenants.

Environmental and Tree Growing Incentives have seen the revegetation of over 63ha, with about one third planted by direct seeding and over 21km of fencing to protect remnants and fence corridors.

Local Area Plan sub-catchments are still accounting for over one third of all environmental incentives processed and on ground works facilitated by incentives. This figure is very similar to last year and seems to be settling into a pattern for activity in LAPs.

An Environmental Incentives Monitoring Report was produced which assessed the condition of remnants previously protected by incentives. The report demonstrated that the remnants were generally well managed and had improved in habitat quality since the initial incentive was implemented.

Landholders have continued to implement salinity mitigation works, encouraged by the public expenditure in infrastructure such as surface drains and public ground water pumps. Although the drought and reduced terms of trade have caused some reduction in landholder expenditure, estimates of double the government expenditure remain valid. Works such as farm reuse and improved irrigation layout contribute significantly to the improvement in water use efficiency and have both environmental and economic benefits. Each year a further 3% of the irrigation area is laser graded.

Despite the continued drought conditions, incentives for the construction of drainage reuse systems have been strongly supported by landholders. Incentives were paid for 65 drainage reuse systems installed to drain 3,626ha bringing the total number to 309 systems draining 21,074ha or 7.6% of the irrigated area.

Eighteen automatic irrigation systems were installed servicing 1530ha. The total number of automatic systems installed with assistance is now 94 serving 6043ha or nearly 2% of the SIR.

In the SIR during 2004/05, the pest plant program focused primarily on priority species listed in the Goulburn Broken Weed Action Plan.

A revised edition of the booklet "Weeds of the Goulburn Broken" was developed and published in 2004. The booklet has been extremely popular as a resource and extension tool.

With DSE taking responsibility for the Victoria's Native Vegetation Framework, in September 2004, the DPI/CAS role in Statutory Planning Referrals focussed on referrals and recommendations to protect soil, water quality, groundwater and prevent salinity. Forty one cases have been dealt with since that time.

A wide range of research, evaluation and demonstration projects continue to be supported within the catchment with a range of catchment partners.

The Irrigation Futures of the Goulburn Broken Catchment project aims to facilitate a shared vision of the future of irrigation in the catchment and establish a method for catchment wide irrigation planning. Stage 2 was finished and the report has been widely circulated. The Technical Working Group met to implement Stage 3 and briefings were undertaken for the boards of GBCMA, G-MW and municipalities.

Several research projects looked at measuring and improving irrigation efficiency at paddock, farm and sub-catchment scales. They included measurement of soil hydraulic properties and their variability across the region; comparison of checkbank and pressurised irrigation system efficiencies; studies to improve the beneficial use of groundwater and waste water on farms; salt and waterlogging tolerance in plants; and remote sensing to measure regional crop water use.

Social research projects to understand the processes of change in natural resource management were supported, with the aim of developing improved strategies for implementation of appropriate market mechanisms.

The RCS also supported the further development of Geographic Information Systems (GIS) for LAP support, catchment monitoring and reporting, and coordinated land and water use planning.

## Environmental Program

The Environment Program is an integral part of all the SIR RCS programs. The environment program has continued to build on the solid foundation established in the previous years by improving the quality of processes and the commitment to service to clients and stakeholders.

Three new strategic projects began:-

- Biodiversity Action Planning (BAP),
- High Value Environmental Features for Sub-surface Drainage,
- Performance Standards for Natural Features in the SIR.



These projects will provide valuable information on the highest value biodiversity assets in the SIR and how to manage them to best practice.

Biodiversity Action Planning is a landscape scale approach to conservation planning and prioritising. The Central Creeks (between the Broken and Nine Mile Creeks) and Yarrowonga Zones are close to completion. The SIR has six landscape zones.

The High Value Environmental Features for Sub-surface Drainage project is assessing over 100 remnant sites in the SIR for habitat quality. The data will then be overlain with salinity and watertable information and put through an Environmental Risk Assessment to establish which high value sites would most benefit from groundwater control. This project is approximately 50% completed.

Developing Performance Standards for Natural Features in the SIR will enable the implementation of best management practices to be applied to a range of environmental assets. The operational guidelines information is currently being developed.

The Environmental Management Plan for Inglis Bushland Reserve was completed and signed off in March and a draft management plan for Kanyapella Basin has been completed.

Implementation works for wetlands have resulted in an Environmental Water Allocation for Brays Swamp, construction of an upgraded inlet structure for Reedy Swamp, and commencement of a boundary fence around Mansfield Swamp. These works have been coordinated and facilitated by DPI/GBCMA and carried out by Parks Victoria and G-MW.

The Murray Valley Drain 11 VCAT panel hearing prompted the production of a Net Gain Analysis report. This demonstrated how the natural features in the drain catchment had been identified and prioritised and how water tables impacted upon them.

A major effort has been made to promote the management of native biodiversity in the SIR. This included visits to landholders, the Bush and Land column in the Country News and presentation of a 'Best

Management Practices for Natural Features in the SIR' workshop.

This year's Environmental Assessments for the drainage infrastructure works program has led to the identification of 334ha of wetland and 295ha of remnant vegetation for potential protection.

### Waterways Program

The 2004/2005 Waterways Program focused on Priority Rivers and streams as identified within the "draft" Regional River Health Strategy. The objectives of the program are to:

- Enhance and protect the rivers that are of highest community value;
- Maintain the condition of ecologically healthy rivers (as defined in the VRHS);
- Achieve an 'overall improvement' in the environmental condition of the remainder of rivers; and
- Prevent damage from inappropriate development and activities.

The main targets for works were the lower Broken River, Seven and Castle creeks, the Goulburn River, the lower Broken Creek, streams in the western catchment and the River Murray. Continued support for the program from local government, agencies, Landcare groups and individuals were instrumental in its success.

Major projects included the implementation of the Broken River Action Plan through funding from the "Protecting and Repairing Our Water Resources Initiative". Works included removal of woody weeds, bank alignment and stabilisation.

The Goulburn River between Nagambie and Loch Garry was a major focus for works especially in woody weed control and follow up work on sites from previous actions.

A joint stream protection project was undertaken along the upper Cornella Creek catchment supported by Cornella LAP Implementation Committee. Works included control of bed, bank and gully erosion along Sheepwash and Lady's creeks. Protective fencing and revegetation followed.



The program supported works within the mid Goulburn Broken region through undertaking works along the mid/lower Broken River. This was again funded under the "Protecting and Repairing Our Water Resources Initiative".

Following a stream assessment along gullies in the upper Gobarup Creek catchment, a number of priority works (gully control, fencing and revegetation) were identified and undertaken.

Works continued along the River Murray Corridor to improve the frequency of wetlands filling during flood events (Goose Swamp and Red Tank Lagoon), and to improve the overall health of the floodplain system.

The works program supported the implementation of wetland plans. This included support for the management and protection of Kinnairds Wetland and Gemmill's Swamp. A joint project to protect Mansfield Swamp was initiated in partnership with Parks Victoria and DPI.

In 2004/2005, 21 waterway grants were initiated with the managers of river frontage. The grants have resulted in the protection of approximately 21km of stream frontage. Grant works in the SIR consisted of: protecting 105ha of remnant vegetation; enhancing 104.4ha of frontage including the planting of 27,200 seedlings; and establishment of 58 off-stream watering points.

Another 19 grants approved in 2004/2005 will be finished in 2005/2006. They comprise 23.7km of fencing and the protection of 156ha of stream frontage. A further 41 grant offers were made in 2004/2005 that are still awaiting approval and support.

A number of local waterway activity plans and strategies were completed during the 2004/2005 works program. These assist with planning of future works and activity programs and encourage both community and agency involvement in their development. This year, plans were undertaken on the Goulburn and Broken River (urban zones) and the Mid Goulburn River (Goulburn Weir to the Broken River confluence).

The success of the river health program is monitored and evaluated using the State-wide Index of Stream Condition. This index reflects the various aspects of river health (water quality, in-stream habitat, river hydrology, riparian condition and river channel form) and will be undertaken again in 2009. Data was collected to assess both channel form and riparian condition at a range of sites throughout the SIR and will be reassessed in future years to test the effectiveness of on ground works.

In addition further 'new' sites were assessed within the region to extend on the base assessment.

### **Surface Water Management Program**

The Surface Water Management Program continues to progress. 17km of primary drains were commissioned in 2004/05. G-MW consultants designed 25km of drain, and works continued on two drainage course declarations. No community drains were built and only 2km were surveyed and designed. The regional drainage service was extended across 1700ha, protecting this area from waterlogging and rising watertables. Eight drains previously managed by local government are being transferred to G-MW.

Progress continued in including drain monitoring, nutrient stripping and drain management, to keep the SIR at the leading edge of best practice. All of these developments are aimed at improving downstream water quality.

A 'Memorandum of Understanding for Irrigation Drainage and Water Quality' was signed by DSE, G-MW, GBCMA, NCCMA and the EPA in June 2004. This sets the framework for irrigation drain construction and management and defines the format for Surface Water Management Operational Plans.

Significant progress has been made on Murray Valley Drain 13 in identifying potential sources of nutrient and sediment flows into the system.



A week long planning panel was required to achieve planning approval to start building Murray Valley Drain 11. This process vindicated the environmental and social sensitiveness of processes to expand the surface water management network.

Phosphorus loads exported from irrigation drains continued to be low, with the five-year rolling average still well below the target value for 50% reduction.

The Nutrient Removal Incentive Scheme continued to perform. This scheme is aimed at building large farm storages (greater than 50ML) to capture high flow diversions from major drains resulting in significantly reduced nutrient outfalls from the region.

Seven new systems were completed with a capacity of 1,350ML. There have been 30 systems built under this project with a total capacity of 5,493ML.

### Sub-Surface Drainage Program

The year saw 24 projects implemented under the Sub-Surface Drainage Program (SSDP) Strategic Research and Investigation Plan. This included the initiation of 10 new projects. Three projects and three sub projects were completed. The projects address research and development issues associated with the program.

The three completed projects are:

- A Transparent Framework for Prioritising Works and Measures under the SSDP.
- The Development of Key Performance Indicators for the SSDP.
- The Relationship between On-Farm Management Practices and Groundwater.

The three completed sub projects are:

- Investigation of New Technologies (Ohm Mapper).
- Investigation of New Technologies (High Resolution Geophysical Technique).
- Investigation of Watertable Behaviour in the Dhurringile Landcare Area.

Pasture Farm Exploratory Drilling Scheme (FEDS) investigations were completed on 50 properties with 13 declared successful and another 22 identified as having potential to be public pump sites. There are 33 investigations still in progress and eight properties on the high priority waiting list.

Eight new groundwater pumps were installed along with one upgraded under the pasture private groundwater pumping program. This brings the total of new pumps to 257 with 70 existing pumps upgraded. The overall plan targets to the end of 2004/2005 was for 274 new installations and 63 upgrades. The estimated area protected is around 35,700ha. There are 16 pumps in the process of being installed.



Construction and handover of three public salinity control groundwater pumps brings the total of public salinity control groundwater pumps to 43 protecting more than 6,400ha. The overall Plan target to the end of 2004/2005 was for the installation of 55 public salinity control groundwater pumps.

No winter/spring salt disposal under the Murray Darling Basin Salinity and Drainage Strategy was available from groundwater pumps in 2004/2005 due to low flows in the River Murray. The uptake of Salt Disposal Entitlement (SDE) for private groundwater pumps is 1.279 EC and 1.494 EC for public groundwater pumps. Uptake of SDE for the Sub-Surface Drainage Program is 2.929 (also includes 0.156 EC for Tile Drains in Horticultural areas) of the SIR's total allocation to date of 4.9 EC. We have sought a further allocation of 2EC from the State Government.

Monitoring under the SSDP includes:

- Groundwater level monitoring of approximately 3500 bores across the region, and for special projects.
- Salt load monitoring at 33 drain and stream sites.
- Groundwater chemistry at 19 public pump sites.

The 2004/2005 monitoring program saw the completion and release of the August 2004 watertable study, the completion of a review of SIR salt load monitoring and an analysis of groundwater data from Barmah Forest.

The Barmah Forest analysis found that since the mid 1990's, groundwater levels have fallen, due mainly to dry conditions and increased groundwater pumping on nearby farmland.



Implementation of the SIR Groundwater Management Plan has continued with routine groundwater level monitoring, flow meter reading, pumped groundwater salinity sampling and basic analysis and reporting. The following activities were also undertaken:

- Development of systems and staff capacity to support irrigation licence renewal.
- Development of regional salinity limits for lucerne.
- Methodology for productivity assessments developed.
- Drought strategy developed.
- Review of volumetric usage monitoring completed.
- Extension of SIRGMP and SSDP advice to approximately 250 groundwater users, 130 groundwater user surveys completed.

### **Community Engagement**

The SIR IC continues to work closely with Landcare groups and networks to ensure their input into the support of the RCS. The GBCMA Community Landcare Support Strategy 2005 was developed in 2004/2005. A detailed consultation process was undertaken over five months through interviews with Landcare and other community groups. The GMLN worked in partnership with DPI in coordinating this process for the 42 Landcare groups and LAP groups within the SIR.

One of the actions identified in the Strategy was to develop an annual award to recognise Landcare volunteer accomplishments. As a result, the SIR Landcare Award for excellence and service to Landcare was established. The winner of the inaugural 2004 SIR Landcare Award was Collier McCracken of the Arcadia and District Landcare Group. Collier is a dedicated Landcare volunteer with over a decade of voluntary service to Landcare.

Saltwatch was very successful in 2005. Program staff and the GMLN visited 15 schools with over 700 school children participating in Saltwatch activities throughout May.

The SIR IC continued its commitment to the GB Community Salinity Grant program, which offers funds for community groups and schools for projects to increase awareness and understanding of salinity. There were 33 successful applications for the \$50,000 available, with 19 from the SIR.

Over the last 12 months LAP community action groups have taken the lead in developing and implementing many activities including:

- The launch of the Broken Creek Drive;
- Establishment of a multiple ground water use saline aquaculture project;
- A large number of environmental education days aimed at school students;
- Waterways protection works;
- Environmental enhancement and community tree planting days.

The SIR IC continues to have a close association with local government. Links have been maintained with the assistance of the jointly employed Municipal Catchment Co-ordinator.

The SIR IC has begun a process of reviewing its communication strategy. Catchment partners are participating in the process.

### **Funding**

The implementation of the SIR component of the RCS is funded jointly by the regional community and the Victorian and Australian Governments.

The SIR has continued to attract significant Federal funding - a reflection of our ability to implement well planned, environmentally sensitive and cost effective works. However Federal allocations continue to decline.

In 2004/05, the total SIR IC budget was over \$17.7million. This was composed of 73% State funds, mainly from the National Action Plan (NAP), salinity and river health programs, 22% of Federal NAP and Natural Heritage Trust (NHT) funds – much less than in the period prior to the NAP. The other 5% was from regional sources.

The majority of funds (75%) were directed to works. Other components include research and investigation, extension, monitoring, planning and coordination.



## Policy and Planning

The SIR IC and its working groups continued to have a major input into review of its strategy to align with a number of State activities and the NAP. This includes ongoing reviews of Surface, Farm, Environment, Waterway and Sub-Surface Programs. These activities have provided the opportunity to reflect on our progress in implementing the RCS and develop programs to take these activities into the future.

The SIR IC and its working groups had significant input into the review of the broader GBCMA River Health and Water Quality Strategy and the review of the Broken Creek River Health Strategy.

The SIR IC had a significant input into the consultation process for the Victorian Government's White Paper- 'Securing our Water Future Together'. Major contributions were made by the SIR IC and our staff to a number of important issues. These included the implementation of the Farm Dams legislation in the SIR, the implementation of the Memorandum of Understanding for Irrigation Drainage, the implementation of groundwater management plans, the review of Crown Frontage Management, the reviews of our salt disposal entitlements, the VEAC River Red Gum Study, the GB Monitoring Evaluation and Reporting Strategy and the Living Murray Barmah SEA plan.

The SIR IC had a significant input into the Irrigation Futures project by acting as its Steering Committee. Individual members have been heavily involved in the community engagement process of the project.

The SIR IC prepared its Business Plan as a component of the Goulburn Broken CMA Regional Management Plan (RMP). The SIRIC prepared quarterly reports on implementation of the RMP for the funding bodies. Individual communication strategies are being developed for each new or amended policy issue as the Committee endorses it.

## Conclusion

It is essential that the SIR program continues to attract substantial government funding in order to maintain landholder confidence in the program. Our ability to implement well planned, fully integrated, environmentally sensitive and cost effective works, ensuring the future of the SIR, is dependent on this.

I am certain that one of the great strengths of the program in the SIR is the continuing strong and healthy partnerships which have been established between the community, agencies and government at all levels.

In conclusion I wish to acknowledge the contribution of the GBCMA staff and our agency and community partners, in particular members of the various catchment forums.

Outcomes for the individual programs will be further detailed in the SIR IC Annual Report.

### **Russell Pell**

Chair

Shepparton Irrigation Region Implementation



## Mid Goulburn Broken Implementation Committee



A very close working relationship has been developed over past years with the Department of Primary Industry (DPI), Department of Sustainability and Environment (DSE), Goulburn-Murray Water (G-MW) and GBCMA staff to oversee the implementation of a natural resource management program approaching \$6.6 million in the geographic region overseen by the Mid Goulburn Broken Implementation Committee.

A highlight of the year was the high uptake of both Environmental Management Incentives and Waterways Grants.

Many of the IC aims and activities cannot be realised without the work of the Landcare groups, and working with these groups forms a major element of the IC function.

The IC initiative of employing three Landcare facilitators has proven to be most effective in providing Landcare groups with welcome support for their activities and administration assistance.

The development of the Regional Landcare Strategy has provided a framework for the future direction of the Landcare movement, and will also be a great support for activities of groups within the Mid Goulburn Broken region.

This year has seen the MGBIC Waterways team focus on the Broken River. The near completion of the Casey's Weir fish ladder is a major achievement and ongoing structural works will help control bank erosion and provide stream stabilisation.

The Mid Goulburn Broken Waterways Working Group continues to provide a valuable contribution and is an avenue for communication and advice from local landholders on the waterways works programs. Moving the meetings around the region and inviting additional interest groups from the local areas has improved communication and consultation with local communities. The process has been well received by the community and the sitting members alike as a way of sharing information on the waterways program and receiving information from the local community about



their perceptions of the program. Membership of the Waterway Working Group has grown resulting in better representation across the region.

The introduction of the Bush Returns Program heralds a new direction in landscape management for the IC. With the pilot program in the Violet Town area seen as a success, the program has now been extended across the Goulburn Broken Catchment with a large number of initial expressions of interest received.

### Waterways

Thirty two grants were paid in the Mid Goulburn Broken. Grant works consisted of 53.9 km of fencing to exclude stock access to waterways, protecting 49.6 ha of remnant vegetation. A further 51.7 ha were enhanced or revegetated with 31,150 seedlings planted. Twenty two off-stream watering points were also established.

In addition, there are 37 committed (approved) grants in the Mid Goulburn equating to \$197,157 to be progressed and paid in 05/06. Grant commitments consist of 40.6 km of fencing, 136.6 ha protected, 26,450 seedlings to be planted for revegetation and enhancement works, and establishment of 30 off-stream watering points. A further, 16 grant offers have been made in 04/05 that await sign off by landowners.

The success of the river health program was measured, using the Statewide Index of Stream Condition which reflects the various aspects of river health, at a number of sites including the Broken River Basin. Improving the health of our rivers is a key objective of the Victorian Government's "Our Water Our Future" plan.

As part of this plan, the Victorian Government has committed \$940,000 to the "Improving Flow and Habitat in the Broken River" project.

The multi-partner project is a strategic and integrated approach that will deliver river restoration works and ultimately help "Bring Back the Broken". The project has been showcased on an interactive website. The website, which can be accessed via the GBCMA website [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au) outlines the history and geography of the river and plants and animals that can

be found along its banks. It also explains some of the threats that are undermining the Broken River as well as actions such as fencing and revegetation that will improve its condition. Community stories and photos depicting Broken River experiences are featured on the website.

A willow eradication and blackberry poisoning program has been underway on the Broken River, downstream of Lake Nillahcootie since 2002. Target species of willow were stem injected, including Golden Upright, Pussy Willow and Basket Willow. Lake Nillahcootie forms a barrier against the spread of willow from upstream so the poisoning program was concentrated downstream of the wall to avoid possible reinfestation.

With support from the adjacent landowner and the Crown Lands Department, a blackberry control program has been undertaken along the river, where much of the riparian area is unlicensed Crown frontage. The spraying program will continue into 2006/07 and is funded by the Crown Lands Department.

Around 7km of the reach between the Nillahcootie wall and Yellum track has been previously fenced, which has been beneficial for river banks but a major contributor to the blackberry and willow infestations.

To date, around 6.5km of willow, at a cost of \$36,000, and 2km of blackberry, at \$12,000, have been treated in this area, with additional poisoning planned over the next two years to eradicate re-growth.

Run off from rain dumps eroded soil into our rivers, impacting on water quality and aquatic life downstream. In an effort to prevent bank erosion, several construction techniques have been used to in recent years, including rock beaching, thatching following bank battering, rock bars or sediment traps and revegetation.

These techniques are costly and efforts have been made to identify cheaper ways to manage small erosion problems before they escalate into major erosion heads.

A simple and cost efficient method of controlling erosion is the use of French Drains. A horizontal trench is constructed to capture incoming water upstream, channelling it into a rock filled drain, lined and covered with filter cloth encasing fine rock fill. This method cuts the cost of traditional erosion control methods and inspections after rain events have justified the use of the French Drain where it has been trialled.

## Grants

Seasonal conditions during the 2004/05 year were quite favourable for revegetation and other environmental works compared to recent years.

Landholder uptake of Environmental Management Incentives (EMI's) was very strong in the Mid Goulburn Broken area. Works include revegetation and protection of existing vegetation. Works are targeted towards priority areas and all activities have some biodiversity benefits. Overall, Environmental Management Incentives totalling \$568,069 were paid to landholders, resulting in 381.9 ha of remnant native vegetation protection and enhancement, 316.9 ha of indigenous revegetation, 108.1 ha of private forestry plantation, and 540.6 ha of lucerne establishment.

Some \$13,454 in Off-stream Erosion Management Incentives were provided to landholders in the Mid Goulburn Broken area to assist implementation of soil conservation works. This resulted in 96.5 ha of erosion stabilisation. Considerable assistance was also provided to soil conservation projects in the Wilby-Almonds area funded through Landcare group projects.

A concerted effort was put into developing a coordinated approach to Whole Farm Planning in the GB Dryland under the banner 'My Farm Our Landscape' and Farm Planning is now occurring at three levels:

- Level One - a basic introduction to Whole Farm Planning issues, delivered by extension staff as a pre-requisite to accessing incentives. This is done with lap-top computers and digital aerial photography, and covers basic soils, salinity, and biodiversity information.
- Level Two - a four-day Whole Farm Planning course accredited through University of Melbourne. Participants cover a broad range of issues and develop a detailed farm plan using aerial photographs and overlays. Whole Farm Plans for 97 properties were completed during the year.
- Level Three - specialist Whole Farm Plans (eg. irrigation design or raised bed cropping layout) and advanced specialist modules (eg. soil or biodiversity management). Discussions have commenced with local Shires on the use of Level Three Whole Farm Plans as a requirement for approval of Planning Permit Applications.

Surveys of previous participants of Level Two Whole Farm Planning courses has shown over 90% have committed to catchment works through take-up of Environmental Management Incentives.



Several reviews to emerging issues were undertaken – the Impacts of Raised Bed Cropping, Soil Health and Land Condition, Revegetating Steep Slopes, and Discharge Management.

A Native Pastures project began to deliver extension services related to native pasture management in priority areas across the Goulburn Broken Dryland, along with some incentives for land class fencing.

Incentives to promote sustainable irrigation practices, funded through the Water for Growth program, were provided to a number of landholders offering incentives for irrigation drainage and environmental plans, purchase of soil moisture monitoring equipment, and to assist change of irrigation system from flood to pressure systems. Several irrigation management courses and Irrigation Information days were run.

Responses were provided to around 52 statutory planning referrals from local government.

The efforts of DPI Catchment Management Officers and the Community Links Officers have been instrumental in the successful delivery of these grants programs, and the myriad other natural resource management extension services provided across the catchment.

## Trust for Nature (TfN)

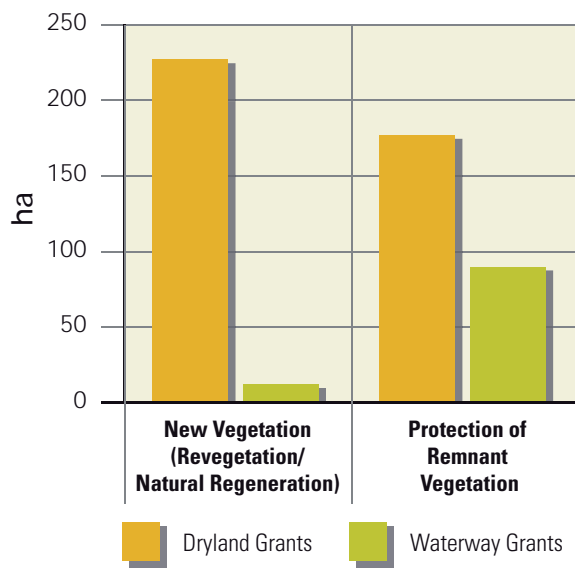
The 2004/05 year marked a significant point in Trust for Nature's organisational development within the Goulburn Broken catchment, with the employment of two additional staff through NHT funding. As a result, Trust for Nature has been able to protect significantly more land this year and implement more management plans.

Trust for Nature's activities in the Mid Goulburn this year continued to concentrate on the Longwood Plains Biodiversity Project and the Broken Boosey Conservation Management Network. In addition, the trust took on a major role in co-ordinating management actions and habitat restoration activities for the Grey-crowned Babbler.

In addition to this, 461.75ha were permanently protected through the TfN covenant program and other permanent protection schemes.



**Vegetation Works in the Mid Goulburn Broken Catchment funded through grants**



**Biodiversity Action Planning**

Biodiversity Action Planning (BAP) is a data collection and collation process that brings together information on flora and fauna values of all known remnant vegetation in designated areas (Landscape Zones). Priority mapping is close to completion in all of the Mid Goulburn BAP Zones.

The maps and associated information will be available to extension staff, Landcare groups and landholders in the near future. The BAP steering committee has focused on how the BAP information can be used and how the information is best presented to stakeholders. As a result, a trial was undertaken in the Mid Goulburn Catchment.

An existing Links Officers was given access to BAP information and was asked to target high priority BAP sites within the Chesney BAP Zone. As a result of this several high priority sites for the rare Carpet Python have been targeted and a coordinated effort by DPI, DSE and Parks Victoria to raise awareness is underway in the Zone. A Carpet Python Field Day will also be undertaken in the near future.

**The Future**

Over the next few years there will be a major change of focus in activities in the IC. As funding for the Heartlands program nears completion, the process of decommissioning and rehabilitation of the wetlands and Lake Mokoan site will become an important role of the IC.

There are many issues the IC needs to face over the next year, and weeds continue to be a major concern of landholders. The IC was disappointed to be told of the reduction in funding for pest plants and animals and will continue to work closely with the community and landholders to try to bring attention to this ongoing problem.

The development of better communication between the GBCMA and landholders is seen as a priority and the IC will be working towards achieving this outcome. We will also work more closely with the Upper Goulburn IC to develop combined activities and a more co-ordinated program between the IC's.

I would like welcome Bernie Ryan as a new member of the team. Bernie has replaced the previous Chair Peter Robinson who served on the Implementation Committee for more than six years.

And finally, thanks to the IC Executive Officer Phil Stevenson, all IC members for their support and commitment, and CMA staff and our partners for their invaluable work throughout the year.

**Sally Simson**

Chair  
Mid Goulburn Broken Implementation Committee



## Upper Goulburn Implementation Committee

**D**uring 2004-5 implementation of natural resource management programs has seen almost \$6million spent in the Upper Goulburn catchment. On ground activities for waterways grants and projects plus environmental management incentives exceeded agreed targets and most other projects areas met targets and goals set in the Regional Catchment Strategy (RCS).

The implications of the White Paper "Securing our Water Future together" on the South West Goulburn project were identified, and initiated broad discussion on water yield issues between GBCMA, Victorian Government departments, the Australian Government and CSIRO. The research and modelling will be further tested to determine the extent of accelerated revegetation projects on catchment and downstream water supply reliability. Evaluating multiple outcomes and offsets will assist in determining sustainable options in this rapidly developing area.

Following the introduction of the sub-catchment programs aligned with the three local municipalities, meetings have been held at, and with, Mansfield, Murrindindi and Mitchell Shire staff and councillors. These meetings have allowed discussion on local implementation issues and areas for continued project development. The program has also been supported by the alignment of the Landcare coordinators with the three areas. Close working relationships have been developed through the development and publication of Sustainable Land Management Directories in Mansfield and Murrindindi shires, and with 'new landholder' welcome packs with all three shires.

Strong relationships continue with the three Landcare networks through regular roundtable discussions on RCS direction and priorities for investment opportunities and communication needs. Highlights this year have been the launch of the Goulburn Broken Community Landcare Support Strategy and the Regional Landcare Forum in Seymour. Displays, presentations, workshops and snapshots were held on the first day followed by the Forum Dinner. A regional bus tour on the second day showcased some Landcare projects, land management techniques and tastes of the Highlands.





Significant investment has been attracted for Upper Goulburn rivers under the Restoring Riparian Corridors program. There has been a high level of engagement with these communities through a Upper Goulburn Waterway Working Group meeting in Mansfield and well attended community meetings at Howqua, Jamieson and Woods Point. The associated investment has resulted in significant extra waterways works being undertaken along the King Parrot Creek and Upper Goulburn, Howqua and Jamieson Rivers.

For the first time this year, the Upper Goulburn Implementation Committee (UGIC) has been involved in an arts program initiated by the Tallarook Arts Society. Together with the Shires of Mansfield, Mitchell and Murrindindi, the IC has recently acquired four artworks capturing the natural beauty and high environmental values of our landscape. The artworks have been formed into a travelling exhibition shown in prominent positions throughout the Upper Goulburn catchments.

Other achievements from this last year include:

- Extension into the Upper Goulburn of the Bush Returns project where landholders can be offered ongoing payments to manage large areas of land for regrowth and natural regeneration.
- Preparation and launch of a Wildlife Guide for the Upper Goulburn which will assist in identifying native animals and birds through the foothills and upper catchment.
- Sponsorship of the Wallaby Creek restoration project with Murrindindi Shire and local schools.
- Sponsorship of an Australian Master Tree Growers program, convened by Rowan Reid (Senior Lecturer in Forestry and Agroforestry at the University of Melbourne) with over 40 landholders participating in an eight day program which commenced in June 2005.

During the year Bob Dare resigned after five years service on the Upper Goulburn Implementation Committee. It has been difficult to find a suitable replacement to such a dedicated community member. Other changes during the year have seen the Executive officer Russell Wealands retire to be replaced by Lillian Parker in late January. Our new Community Program Manager, Katie Brown, commenced in February and Lillian and Katie have progressed many current and new programs with Landcare networks, South West Goulburn communities, Murrindindi schools cluster, the Lower Hume Primary Care Partnership, and Taungurung Clans Aboriginal Corporation.

Finally I offer my sincere appreciation to fellow committee members as I step down from the Chair of the UGIC. A great deal has been achieved since the formation of the GBCMA, however there is still much to achieve in the future. In standing down I have confidence in the ability of our new Chair, Neville Barwick, to take the UGIC forward to a greater level of community influence on natural resource programs in the Upper Goulburn.

**Chris Doyle**

Chair

Upper Goulburn Implementation Committee



## River Health and Water Quality



A major milestone achieved in 2004/2005 was the refinement and final preparation of the Goulburn Broken Regional River Health Strategy. The need to protect and enhance the condition of our river environments is widely recognised. The aim of this strategy is to identify rivers of high value for protection and enhancement and to identify opportunities for restoration or improving the environmental condition of other rivers throughout the Catchment.

The Strategy is the first attempt to combine all elements of river management under one umbrella, document and provides direction for the protection and enhancement of the regions river systems for the next ten years.

The success of the river health program is monitored and evaluated using the Statewide Index of Stream Condition. This index reflects the various aspects of river health (water quality, in-stream habitat, river hydrology, riparian condition and river channel form) and will be undertaken again in 2009. Data was collected to assess both channel form and riparian condition at a range of sites throughout the Catchment including 36 reaches and 96 sites in the Broken Basin and 75 reaches and 175 sites in the Goulburn River Basin.

A further 46 'new' sites were assessed within the Goulburn Broken Catchment region to extend on the base assessment. These sites are on tributaries of waterways that were assessed in the 2004 round of ISC assessments. The information collected from these assessments will be used to benchmark the condition of additional reaches of stream not previously assessed within the Goulburn Broken Catchment. This information will provide a more comprehensive overview of Catchment condition and help in the prioritisation of stream health works under the draft Regional River Health Strategy.

Sentinel sites were also assessed. These sites were last assessed in autumn 2004 by GBCMA staff and consultants. The reassessment of these sites detects any potential annual variations in condition scores due to climatic variation, land use change etc. The assessments form part of a State-wide initiative.



A number of local waterway activity plans were prepared. The plans encourage community and agency involvement and identify priority works and activities within the targeted stream areas.

A review of the 1998 Broken Creek Management Strategy began in 2004, with the input of the community and a range of supporting agency groups. This revised strategy will provide the GBCMA, partner agencies and the community with a clear direction for works and activities on the Broken Creek over the next five years.

The review has highlighted several significant achievements since 1998, and has identified a range of social, economic and environmental values which the community wishes to protect.

Crown Land, adjoining the region's waterways provides environmental, economic and social values. They are subject to a variety of threatening processes that have the ability to impact on the values of these areas. A case study to assess the condition and threats to Crown Land within an urban environment began this year along the Goulburn and Broken Rivers between Shepparton and Mooroopna.

Sixty-five individual parcels of Crown Land were identified ranging in size from more than 170 ha to less than 1 ha. These Crown Land parcels have a variety of land tenure types and consequently are formally managed by several agencies. This has resulted in a mosaic of land management responsibility and management regimes. Appropriate management of these areas of urban Crown Land will allow for threats to be minimised or removed and the values of the land parcels to be maximised.

### **Stream Flow Management Planning**

The "White Paper – Our Water Our Future" identified 21 unregulated catchments across the State as priorities for the development of Stream Flow Management Plans (SFMP's). Three of the priority catchments are in the Goulburn Broken, these include the King Parrot Creek, Yea River and Seven Creeks.

Stream Flow Management Plans are aimed at creating a balanced and sustainable sharing of available water between all stakeholders in the catchment including the environment, licenced diverters, and non-consumptive water use (recreation and aesthetics).

Draft SFMPs were completed for both the King Parrot Creek catchment and Yea River catchments in 2001 but were not endorsed by the Minister.

Since then, there have been several changes in the legal process for declaring Water Supply Protection Areas (WSPA's) and appointing Consultative Committees. In addition, the SFMP Guidelines have been revised. As a result of the changes, the King Parrot Creek and Yea River Catchments SFMPs will be completed again. This will include declaring the areas a WSPA and appointing a Consultative Committee. Existing flow studies will be used as the basis for developing the SFMPs. It is estimated the SFMP process will take about 12 to 18 months to complete.

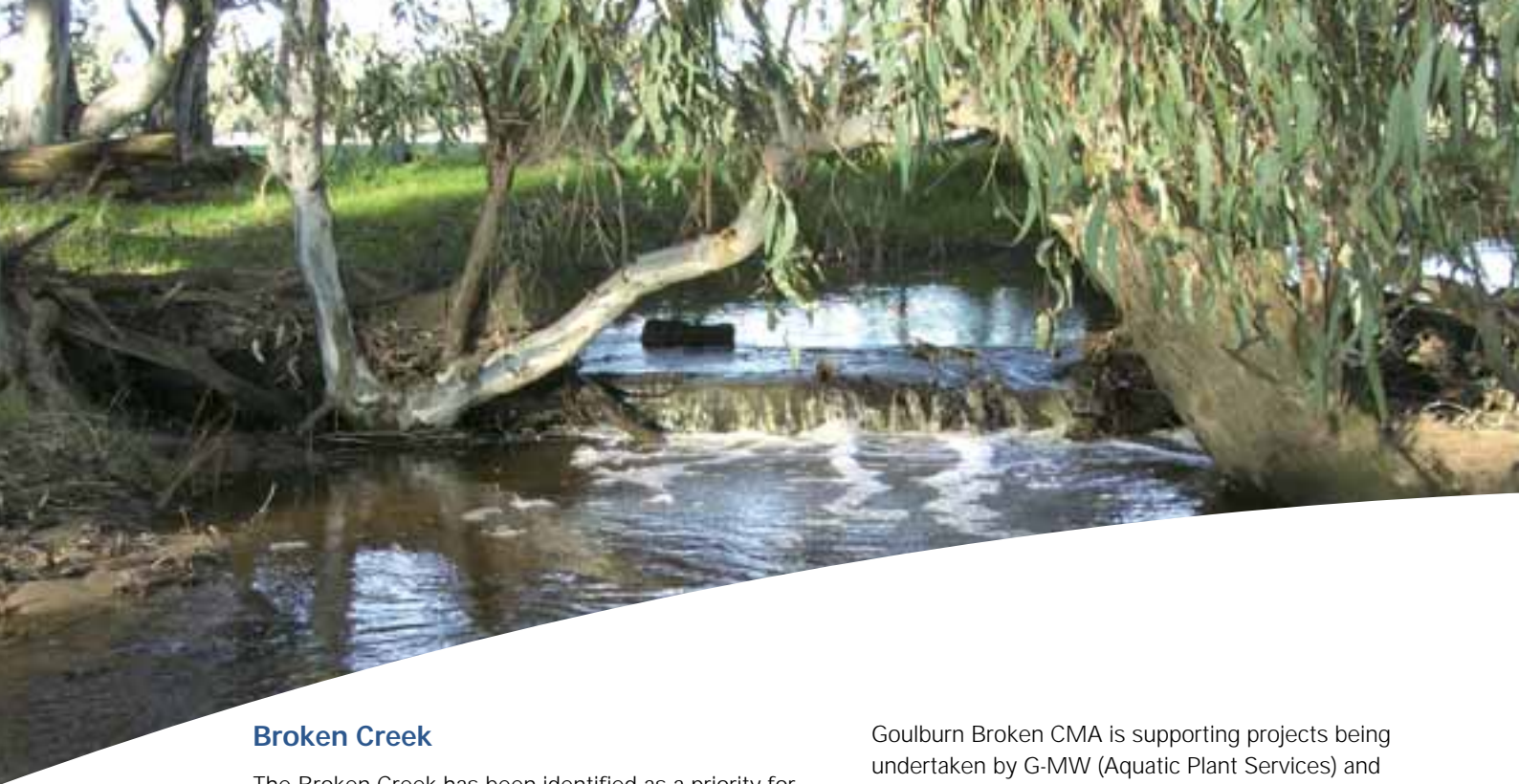
### **Seven Creeks**

Planning is underway for a Seven Creeks catchment flow determination using the "FLOWS Methodology 2002". The FLOWS methodology is Victoria's endorsed method for determining environmental water requirements. The study will identify environmental assets, propose ecological objectives and recommend flow requirements to meet the objectives.

A project brief has been developed and is currently being advertised, a consultant will be appointed by mid August. Expressions of interest will be sought from landholders in the Seven Creeks catchment interested in participating on the Consultative Committee for the flow determination process.

It is estimated that the flow determination process will take seven to eight months to complete. A key input into the flow determination process is a current and natural daily flow data series. The data is measured at key locations throughout the catchment using several modelling techniques. The project brief has been advertised and a consultant will be appointed shortly.

Once the flow determination has been completed a decision will be made on whether or not to complete a SFMP for the catchment.



## Broken Creek

The Broken Creek has been identified as a priority for an environmental flow determination. The current flow regime of the Broken Creek system has been significantly altered from its natural flow regime. An environmental flow determination will be carried out to establish what the minimum environmental flow requirements of the system should be. A project brief has been developed and will be advertised later in 2005.

## Environmental Water Reserve (unregulated) Sub Committee

The EWR Sub Committee was established to assist the Statewide planning, priority setting, development and implementation of Water Supply Protection Areas and Streamflow Management Plans. The Committee has been working on a number projects related to the improved management of unregulated rivers in Victoria. In particular the major projects include:

- The Review of SFMP Guidelines;
- A Communication Strategy;
- State Management Rules for unregulated rivers; and
- Cost Share Principles for implementation of SFMPs.

## Research

The Seven Creeks Sand Slug Monitoring project was co-funded by the GBCMA along with the Cooperative Research Centre for Freshwater Ecology. The project will assess the impact of response to installation of large woody debris within sand bed streams along the Granite Creeks system.

Tungamah Piplining proposal will see the Broken, Boosey and Major Creeks change from seasonally-stable, perennial streams to intermittent and seasonally variable streams. This project has initiated a literature review to draw upon existing scientific literature to evaluate the likely impacts of flow regime reversal and establish a monitoring program to enable an assessment of stream change.

Goulburn Broken CMA is supporting projects being undertaken by G-MW (Aquatic Plant Services) and DPI to look at the control of Arrowhead, a water weed invading irrigation channels and wetlands in the Catchment.

CSIRO Land and Water concluded a project that involved applying the catchments assessment tool in the Goulburn Broken Catchment to identify river recovery potential (using software including SEDNET). The project is helping the GBCMA to determine priorities in river restoration and improve understanding of what actions over time will improve water quality and riparian condition.

## Healthy Rivers Healthy Communities Conference

In association with the University of Melbourne, a successful research conference was held in November 2004 at the Dookie Campus of the University of Melbourne, attracting more than 120 participants.

Highlights of the workshop included panel sessions looking at the short and long-term outlook for the Goulburn River and the region. The panel debated the impacts of water reform, global warming, population changes and environmental demands.

Presentations of water and waterway research underway in the catchment brought together researchers, community representatives, agency staff and waterway managers from around Victoria and interstate.

The launch of an interactive website by University of Melbourne's Centre for Water and Landscape Management featuring cutting edge research also created considerable interest.

## Riparian Protection

Following a successful application for funding under the State's "Protecting and Repairing Our Water Resources Initiative" a range of activities were initiated in the Upper Goulburn catchment to target high priority riparian zones.

Key initiatives included:

### Understanding changes to riparian health

The objective of the project is to assess the current condition of riparian sites to enable an assessment, in the future, of the success of protection and enhancement initiatives.

Thirty sites, where riparian actions are proposed or underway were assessed using the 2004 Index of Stream Condition (ISC); Rapid Habitat Assessment (RHA) and Vegetation Quality Assessment (VQA) methodologies. The assessments will provide the basis for calculation of comparative condition scores. The three assessment methods are well documented and repeatable and may also provide a useful tool for discussion of the riparian attributes with landholders.

Targeted works were a key component of this program. High priority streams, including the Goulburn River, Howqua River, Jamieson River and King Parrot Creek became the focus of intensive riparian activity.

### Crown Frontages review

A review of Crown water frontages was commissioned in 2000 by the Department of Natural Resources and Environment (now DSE) and managed by GBCMA. In 2000 25 licensed frontages were assessed on the Howqua and Jamieson Rivers. In 2005 a total of 35 frontages were assessed on these rivers including 28 licensed frontages and a sample of seven unlicensed tenures.

## Waterwatch

The Waterwatch program continues to build successful relationships with schools and community groups throughout the catchment.

In 2004/2005 Waterwatch presented to more than 8000 students across the Catchment, including 32 schools that participated in Catchment Capers. It also expanded its monitoring program in the community and there are now 14 networks operating in the Goulburn Broken. As a result over 200 sites in the Catchment were monitored by Waterwatch in 2004/2005 with more than 800 of the results entered on the Waterwatch database through its website.

The GBCMA is supporting an oral histories project being undertaken under the Waterwatch program. Waterwatch Coordinators will interview community members, landholders and employees of natural resource agencies to gain a broader picture of the history of our waterways. The project is being trialled in the Lower Broken and Mid Goulburn areas with a CD of the narratives to be released later in 2005.

Goulburn Broken CMA, Goulburn-Murray Water, Goulburn Valley Water, City of Greater Shepparton, Campaspe Shire and Goulburn Murray Landcare Network joined forces to stage another highly successful National Water Week in October 2004 with activities ranging from competitions for schools (murals and posters) and the community (photographic and writing) to boat cruises, river walks and movie nights. Planning for the 2005 National Water Week festival is well underway, building on the success of the previous years' programs it will host a broader range of activities with a theme of "Water: The Future is in our Hands".

## Nutrient Program

Following on the progress achieved during 2003 and 2004 the Nutrient project presented recommendations to SIRIC on the development and implementation of nutrient budgeting and mapping concepts including a detailed cost/benefit analysis on the concept compared to traditional fertiliser practices.

The uptake by dairy farmers of the nutrient mapping and budgeting techniques has been slow in the pilot project area and some of the focus in the next twelve months will be to determine why farmers are not readily adopting this concept. Farmer surveys, and the expansion of the cost/benefit analysis to include more farms will help in the development of a booklet of case studies profiling the mapping and budgeting work. This information can then be utilised throughout the Goulburn Broken Catchment.

After an extensive review of the nutrient component of the Soils and Fertiliser program, a successful program was run in the Tatura/Toolamba district, building on the nutrient related issues identified by the Dhurringile LAP group.

The whole farm nutrient mapping concept has progressed using GIS information to assist in the delivery of a more comprehensive Effluent Management Plan product for farmers. These plans are now being standardised across the State to ensure alignment and cohesion.

March saw the release of the Nutrient Booklet which is being utilised across the Catchment and in other regions. The content has been received positively with feedback from farmers, industry and government agencies.

The Goulburn Broken Nutrient Water Quality Project has seen a significant increase in the number of dairy effluent and feedpad inquiries. There have also been an increased number of Blue-green algae inquiries received.

## Nutrients in Drains

The nutrients in drains monitoring program provides information on nutrient loads discharged from surface drains in the SIR. The results of the monitoring show the effects of implementation of the Goulburn Broken Water Quality Strategy and related strategies.

Data is collected from 15 drain sites across the Broken, Goulburn and Campaspe catchments. Results show that water in drainage channels continues to be degraded compared to that of rivers. The drainage water generally has higher total nitrogen, total phosphorus and filtered reactive phosphorus. The 2003/2004 results show that while loads were lower than previous years, flows, which are the determining factor in calculating loads, were also lower. Graphical results show a declining trend in loads that is below the target nutrient load reduction value for irrigation drains. However, a series of wet years could see this trend change.

## Urban Stormwater

The majority of councils in the Goulburn Broken catchment have finalised and adopted their stormwater management plans. The rate of implementation varies across the region depending on the priorities of the plans and pressing concerns of the municipality. For example, Campaspe Shire Council has been working closely with industry to improve on-site practices and treatment of stormwater. Moira Shire and Greater Shepparton City Councils have recently employed a part-time stormwater education officer to develop training programs for council staff. Moira Shire Council is also developing a community stormwater monitoring program at Yarrawonga in conjunction with Waterwatch.

Councils are also implementing some of the structural measures recommended in their stormwater management plans. Benalla Rural City Council recently installed a gross pollutant trap (GPT) at Lowry Street with the support of the "Improving Flow and Habitat in the Broken River" project, and Greater Shepparton City Council also put in a large GPT at the Vaughan Street stormwater outfall.

The management approach to urban stormwater is experiencing a change in direction with a focus now on innovation, recycling and sustainability rather than treatment to improve water quality. The GBCMA hosted an information session for councils to learn more about funding opportunities available through the Our Water Our Future action plan (the White Paper).

Fund managers from the DSE presented information on the Sustainable Water Use Plans (SWUP) and Stormwater and Urban Water Conservation Fund. A number of councils in the Catchment have submitted expressions of interest in the SWUP funding and some are also developing proposals for innovative water reuse projects. The GBCMA will be working with the councils to support the implementation of the SWUPs and projects as well as continuing to support the implementation of priority actions in the stormwater management plans.

## Ecological Risk Assessments

A recent assessment of water quality data for the Regional River Health Strategy found that 15 out of the 19 management units in the Goulburn Broken Catchment failed to meet SEPP (WoV) water quality objectives. To further investigate the nature and extent of the water quality threat to river health, SEPP (WoV) requires an Ecological Risk Assessment to be undertaken for those waterways that did not meet all the objectives.

An Ecological Risk Assessment is a process that summarises complex ecosystems and provides a transparent decision-making process by clearly defining problems and desired outcomes. It allows managers to better target activities to alleviate environmental stressors to achieve and to focus research on identified knowledge gaps.

The Environment Protection Authority (EPA) has developed a three-step process for risk-based assessment of ambient waters.

The GBCMA, in partnership with the EPA, is undertaking an ecological risk assessment of water quality in the Delatite River. The Delatite has been selected as a pilot study due to the large amount of information and local knowledge available, the variety of land-uses supported by the catchment and the changing pressures on the environment.

To date, a Steering Committee of agency and community stakeholders has provided a raft of local and expert knowledge on the values of, and threats to the Delatite River ecosystem. Combined with spatial information available through GIS, a detailed conceptual model of the Delatite catchment can be developed, providing insight to processes affecting water quality, identifying knowledge gaps and targeting management actions to where they'll be most effective.

As the Ecological Risk Assessment process is developed for the Delatite, it will be rolled out in other areas of the Catchment. The process will be adapted depending on the water quality issues, current understanding of the processes involved and the threats and values of different management units.



## Land Use and Development Guidelines

The Guidelines for the Protection of Water Quality (2000) produced by the North East Planning Referrals Committee are being updated to meet current standards, policies, statutory rules and regulations relating to land use and development and the protection of surface water and groundwater.

The Guidelines provide developers and local government planners with guidance on the roles and requirements of other agencies, including the GBCMA, in the protection of catchments and river health, and the supporting legislation and documentation.

## Regional Water Quantity and Water Quality Monitoring Partnerships

The GBCMA, along with the North East CMA, G-MW, the EPA, some local councils and other agencies are participants in the Regional Water Quantity and Quality Water Quality Monitoring Partnerships agreement.

The partnership arrangements have been formalised with DSE managing the contract.

The partnership has developed a monitoring network program that meets the needs of participating organisations while ensuring equitable cost sharing. The agreement was implemented on March 1st 2005 and provides the GBCMA, and other agencies with standard high quality data, and data management and reporting processes.

The GBCMA uses this data to report against resource condition targets, assess water quality trends and ensure compliance with regulations.

## Barmah Wetland

Barmah Forest was identified as an icon site under the Living Murray Business Plan. There is enormous interest in the wetland within the scientific and wider community. A Barmah Wetland Annotated Bibliography completed this year by the GBCMA

has over 400 entries that relate to Barmah Forest including reports, journal articles, newspaper articles, briefing notes and meeting minutes.

The CMA is overseeing a number of research projects and investigations to guide and inform the management of environmental flows to improve the condition of the wetland.

CSIRO Sustainable Ecosystems has been engaged to prepare the Barmah Wetland Issues and Options Report. The report will provide independent expert advice to the GBCMA on the efficacy of different water management approaches to sustain the floodplain vegetation communities supported by Barmah Wetland and their ecological, social, cultural and economic functions.

The Murray Darling Freshwater Research Co-operative was engaged to prepare the Barmah Wetland Environmental Monitoring Program. The program will incorporate adaptive management principles to meet current policy and management requirements.

Together with the Barmah Wetland Hydrological Model these projects will provide the necessary information to facilitate the development of the new Barmah Forest Water Management Plan. The will also inform the review of the Barmah-Millewa Forest Significant Environmental Asset Environmental Management Plan.

Impress Publicity was engaged to prepare a Barmah Wetland Communication Strategy to inform stakeholders of the projects and how they relate to the Barmah-Millewa SEA Asset Environmental Management Plan and the Barmah Forest Water Management Plan.



## Case Study

### Improving Flow and Habitat in the Broken River

Improving the health of our rivers is a key objective of the Victorian Government's "Our Water Our Future" action plan, an innovative strategy to enable smarter water use and management across the State. As part of this plan, the Victorian Government has committed \$940,000 to the "Improving Flow and Habitat in the Broken River" project.

The Broken River rises in the Wellington-Tolmie highlands and flows in a westerly direction to Lake Nillahcootie. The river then flows north to Benalla and west again before it discharges to the Goulburn River near Shepparton. The main tributaries of the Broken River include Holland's Creek, Ryan's Creek, and Lima East Creek (formerly Moonee Moonee Creek).

The Broken River is highly valued for irrigation, industry, urban water supply, stock and domestic water supply, recreation, habitat for threatened and vulnerable native plants and animals, biodiversity and aesthetic beauty. Further, it provides us with somewhere to relax in a natural environment and enjoy recreational pursuits including swimming, fishing and bushwalking.

The multi-partner project is a strategic and integrated approach that will deliver river restoration works based on previous activities carried out along the Broken River by the GBCMA and affiliated agencies.

This project will ultimately help "Bring Back the Broken", and enable the river to be improved in quality for current and future generations.

The project has supported a comprehensive range of monitoring, research, community activities and river health works. Key individual projects include:

- Implement scientific panel recommendations for improved environmental flow regime for the Broken River.
- Increase fish passage to the upper Broken River through the construction of a fish ladder at Casey's Weir and structural works at other fish barriers;
- Improvement in stormwater quality through the design and construction of gross pollutant traps and wetlands in Shepparton and Benalla;
- Protection and enhancement of Crown land through direct on-ground initiatives or improved management arrangements;
- Enhancement and protection of riparian land through fencing and revegetation;
- Improve instream habitat through the construction of slack water habitats using large woody debris;
- Improving community understanding of the social, economic and environmental values of the Broken River;
- Delivering accelerated rate of community involvement in waterway grant program; and
- Protection of social and economic values associated with the Broken River. These values were identified through community workshops in the region in 2003.

The project is ongoing and builds on the successes in the current year.



# Floodplain Management



**F**loods occur naturally. The inherent functions of the floodplains to convey and store floodwater should be recognised and preserved to minimise the deterioration of environmental values, the long term flood risk to floodplain production, assets and communities.

Flooding imposes substantial costs on individuals and the community. The damage bill within the Goulburn-Broken Catchment, on an average annual basis, is \$30 million, and is the highest of all CMA's in Victoria.

While significant costs are incurred by direct damage to public and private property, indirect costs to the community such as loss of productivity, displacement of residents, closure of roads, trauma and ill health are also significant. Notwithstanding these significant impacts, natural flooding of floodplains and their associated wetlands provides essential breeding habitats for bird and aquatic species, and promotes the health of rivers and floodplains.

Sound floodplain management is the critical means by which the economic, social and environmental risks associated with floodplain use and development can be minimised.

## **Floodplain management functions**

The Goulburn Broken CMA is the floodplain management authority for the Goulburn Broken region with functions set out under section 202 of the Water Act, 1989.

Major activities include:

- Provision of timely and accurate floodplain management advice under the Planning and Environment Act, 1987 and Water Act, 1989.
- Progressing the lower Goulburn Floodplain Rehabilitation Project in terms of addressing the recommended tasks contained within the Monash Review.
- Assisting with project management of floodplain management studies for Shepparton Mooroopna, Yea, Seymour, Tatura, Violet Town, Merrigum, Mansfield and Nathalia.
- Progressing the joint Victoria/NSW Murray River Regional Flood Study from Dicks/Seppelts Levees to Ulupna Creek and Murray River Junction;

- Progressing the hydrodynamic modelling for the Barmah-Millewa wetland systems from Tocumwal to Deniliquin to Barmah, which is part of the Living Murray project.
- Assisting with the implementation of approved schemes for Euroa, Benalla, and Shepparton-Mooroopna Early Flood Warning System.
- Progressing floodplain management planning reforms and planning scheme amendments for Mitchell, Strathbogie and Moira Shire Councils.

Major activities, such as those listed above are funded from Natural Disaster Risk Management or Regional Flood Mitigation Programs. Typically, the Australian and State Government contribute two-thirds toward these programs with one-third sourced locally.

## **Statutory Planning Referrals**

The Goulburn Broken CMA is a referral authority under section 55 under the Planning and Environment Act, 1987 providing binding advice to nine municipal councils within its region.

The CMA is frequently approached for advice and information from the community, consultants and developers before formal applications are made to municipalities. The CMA provides this direct advice under the Water Act, 1989 for a flat fee of \$132. Application forms are available on the CMA website or from the CMA offices.

About 1100 referrals, including direct inquiries, were processed this financial year.

## **4th Flood management conference – 11th to 14th October 2005**

The Goulburn Broken CMA and the Greater Shepparton City Council are hosting the bi-annual State Flood Conference. Plans are well underway to host a successful conference with the focus on flood prevention, response and recovery.



# Biodiversity

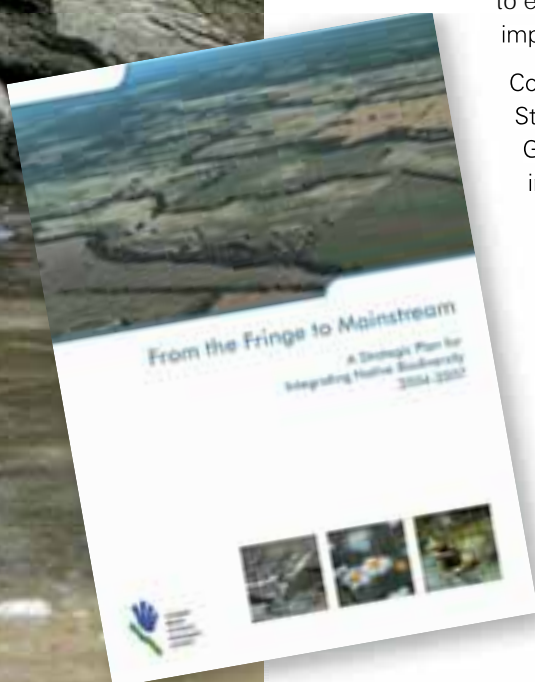
## Biodiversity Integration Strategy

“From the Fringe to the Mainstream: A Strategic Plan for Integrating Native Biodiversity” was published and distributed this year. This strategy is about bringing biodiversity issues to the core of decision-making and program implementation. Since biodiversity is potentially affected in both positive and negative ways by everything we do, it is essential that biodiversity impacts are routinely considered in our decisions and programs. This document outlines strategic priorities to guide actions that enable the objectives to be achieved.

Priorities include:

- Developing strong strategic partnerships;
- Setting priorities for allocating resources based on rigorous methodologies;
- Fair and equitable cost-sharing arrangements;
- Focusing efforts to achieve results at large scales;
- Ensuring cultural heritage issues included in decision making;
- Developing a clear understanding among stakeholders about respective and shared responsibilities;
- Having adaptive management systems in place to enable continuous learning and improvement.

Copies of the Biodiversity Integration Strategy are available from the GBCMA on request, or via the internet at [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au)





## Native Vegetation Management Strategy

Final release of the Native Vegetation Management Strategy for the Goulburn Broken Catchment has been delayed at State level by issues surrounding the development of the Operational Guidelines for Achieving Net Gain in Planning Decisions. The Guidelines and the Native Vegetation Management Strategy are currently with the Minister for Sustainability and Environment awaiting endorsement.

### Biodiversity Integration Group (BIG)

The Biodiversity Integration Group continues to provide direction and support from a range of key organisations to enable the GBCMA to reflect agreed priorities and principles in the biodiversity program. The group's main activity this year was to provide feedback and prioritisation of funding applications for the Regional Catchment Investment Planning (RCIP) processes.

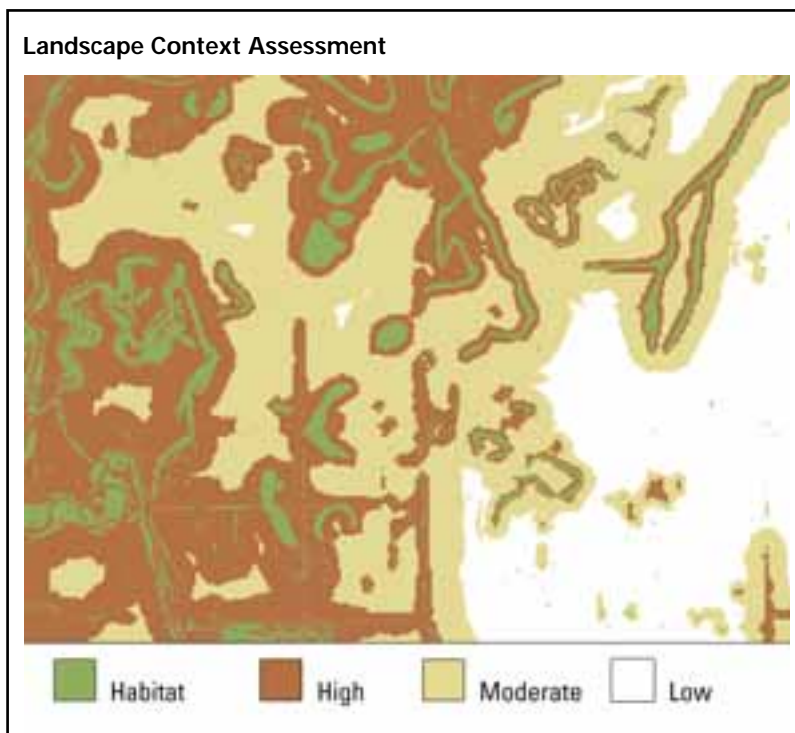
### Improving our Information and Technical Resources

#### Planning for biodiversity conservation using the Landscape Context Model

Landscape-scale restoration is required in the Goulburn Broken Catchment to conserve biodiversity and restore ecological function in fragmented landscapes, particularly on private land. A GIS-based model, 'The Landscape Context Model' (LCM) has been developed using the latest scientific approaches to develop priorities for restoration in the landscape. The model uses tree cover, grasslands waterways and wetlands models to map habitat for a range of flora and fauna, and applies size and distance parameters to identify larger habitat areas and linkages across landscapes, as well as identifying areas where habitats are small and isolated. The Landscape Context Model is being used by the GBCMA (and elsewhere in Victoria) in identifying target areas for biodiversity conservation.

The development of the LCM has resulted in a more strategic and effective method of biodiversity management, and more cost-efficient use of limited funds. The mapped outputs help extension staff to explain concepts of landscapes, connectivity and habitat size to landowners so that they can make better informed decisions about the location and nature of works.

The LCM is being used to inform other projects that utilise GIS models, such as a hydrological model (Catchment Analysis Tool) to determine the effects of increased vegetation cover in priority areas on rising water-tables. The LCM can be used to achieve multiple outcomes, such as targeting revegetation works in areas of both high value for biodiversity conservation and high salinity risk. Similarly, it can inform where low (habitat) priority areas are that may be used for non-indigenous plantings (e.g. farm forestry, lucerne).



## Biodiversity Action Planning

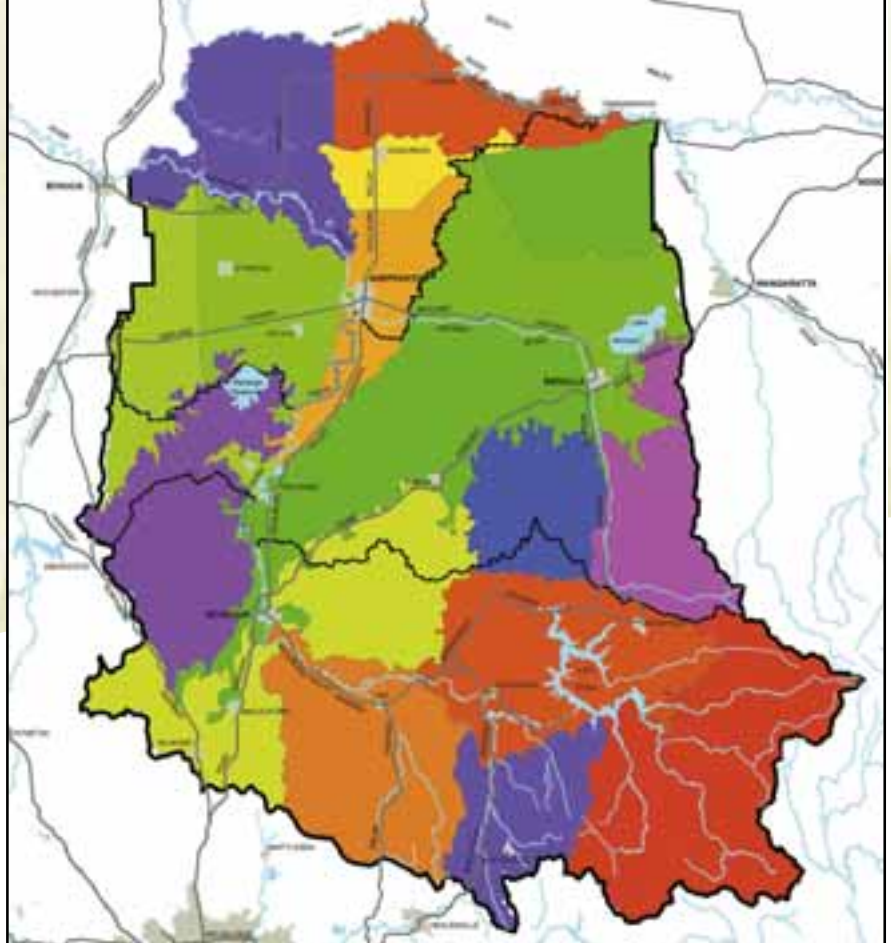
Biodiversity Action Planning (BAP) is a data collection and collation process that brings together information on flora and fauna values of all known remnant vegetation in designated areas (Landscape Zones). By combining this information (including priority species for conservation management, and pest plant and animal species) with Landscape Context analyses, it provides an essential and valuable information resource to drive natural resource management across the Catchment. Priority mapping is close to completion in all of the Mid Goulburn Broken and Upper Goulburn BAP Zones. The SIR will complete the process by the end of 2005/2006.

The maps and associated information will be available to extension staff, Landcare groups and landholders in the near future. The BAP steering committee has focused on how BAP information can be used and how the information is best presented to stakeholders. As a result, two trials were undertaken in the Upper Goulburn and Mid Goulburn Broken regions of the Catchment. Links Officers provided with BAP information were asked to target high priority BAP sites within two selected zones. This trial enabled the BAP steering committee to gather information on how the information can be used effectively and to achieve positive on-ground results.

The BAP steering committee will ensure BAP is available to all relevant stakeholders and develop a method to allow information to be added to the BAP database as it is collected in the field. The challenge over the next couple of years will be to make this a dynamic, web-enabled tool that can be routinely updated as new information comes to hand, and accessed by extension staff on a daily basis, whether in the office or in the field.

## Ecological Vegetation Class (EVC) Information Cards

The Biodiversity Program is committed to ensuring that land management activity is achieving the best biodiversity outcomes possible. To assist this, a series of Ecological Vegetation Class (EVC) Cards have been developed to assist landholders and Extension Officers to recognise different EVC's, to guide revegetation activity so that it is ecologically accurate, and to develop appropriate management activities to maintain or improve the condition of vegetation. Cards have been produced for the 25 most commonly revegetated and protected EVC's in the Catchment. The cards consist of several photos of the vegetation in differing condition, descriptions of the EVC, fauna species that rely on the EVC's for habitat and recommended management actions.



### Median Condition Score (BAP Zones)

— Goulburn Broken CMA Boundry	Median Vegetation Condition Score			
Waterbody	24	29	34	43
Urban Centre	25	30	38	44
Major Roads	26	31	39	
	28	33	41	

**RCS reference: Biodiversity Targets – Management Actions.** “Expand coverage of Biodiversity Action Planning so that it is available for decision making at the farm, local and sub-catchment levels” and “Develop and promote priorities derived from biodiversity action planning information in holistic local landscape plans such as Local Area Plans”.



## The Missing link – Soil Ecosystems

The RCS highlights the need to develop a better understanding of the role non-vascular plants, invertebrates and soil micro-organisms play in the Catchment's bushland and agricultural ecosystems. Recent research has identified some very strong relationships between the health of the terrestrial environment and soil biodiversity. The GBCMA, along with DPI at Rutherglen, held four field days covering the beneficial role soil microbes play in revegetation. Approximately 120 people attended the field days, which were developed to increase the understanding of landholders and extension officers on the importance of soil biodiversity. A brochure was also developed to outline the crucial role soil microbes play in the health of native biodiversity.



## Training – Greening Australia

Greening Australia held a number of successful five day and one day courses in the Goulburn Broken Catchment. Five accredited Diploma in Conservation and Land Management courses, and three one-day courses were held in conjunction with the University of Melbourne (at the Dookie campus).

More than 150 landholders, government agency and local government staff attended the courses. Topics covered include wetlands management, remnant

vegetation management, seed collection, storage and propagation, and native grassland management. Experts from the University of Melbourne, GBCMA, DPI and DSE assisted in the organisation and running of field trips and presentations.

**RCS reference: Biodiversity Targets – Management Actions.**  
“Develop a better understanding of the forgotten ‘flora and fauna’ (non-vascular plants, invertebrates and micro-organisms) including the relationship between above and below ground native biodiversity.”

## Biodiversity Risk Mitigation Protocols

Risk assessments have been carried out on a number of Waterways Program works activities to assess their potential impact on remnant vegetation, flora and fauna species, river reaches and wetlands. The results of these risk assessments have been used to develop a range of mitigation measures, based on the significance of the biodiversity assets at a particular site, for the waterways team to consider during the planning stage of a project.

An electronic reach assessment form has been produced using InfoPath™. This form is linked to a database and allows employees of the Waterways team to identify biodiversity assets in a particular river reach. Mitigation and enhancement measures are automatically generated based on the significance of biodiversity assets in the reach, and the type of works planned by the team.

Native Biodiversity Risk Mitigation Protocols have also been applied to the Dryland Salinity Program of DPI. Raised bed cropping, exotic perennial pasture establishment and revegetation were assessed to determine the potential impact of these activities on native biodiversity assets. Recommendations from risk assessments will be included in DPI guidelines to ensure potential risks to biodiversity assets are considered prior to works commencing and measures are to taken to mitigate against these risks.

## Achieving Biodiversity Targets

### Threatened Species Program

A high proportion of indigenous flora and fauna currently present in the Catchment is threatened with extinction. In fact, some of these species, such as the Trout Cod and Violet Town Spider-orchid, occur nowhere else outside of the Goulburn Broken catchment. The Spotted Tree-frog has its stronghold in the Goulburn Broken (six populations), having already gone extinct in NSW.

A range of projects indirectly contribute to the conservation of threatened species, but there is also a significant direct investment in projects, mostly undertaken by scientists from DSE, aimed at threat abatement (eg weed competition and predation; increasing awareness of the role community people can play; population monitoring; re-establishing populations at sites where species previously existed; collecting, storing and propagating seed; and preparing recovery plans which determine when, where and what actions are required).



## Bush Returns

Bush Returns is a landscape restoration trial that aims to develop a new, 'market-based' (tendering) incentive mechanism for achieving large-scale increases of native vegetation cover.

The first phase of the trial began in October 2004 when Bush Returns was launched at Balmattum Conservation Reserve near Violet Town. The Expression of Interest period was open for 10 weeks, followed by assessment of proposed sites. Management plans were prepared for nine sites, and five landholders submitted bids detailing how much money they were seeking to implement their plan over a five or ten year period. Bid assessment took place at the end of February resulting in success for four or the five landholders, with 168 hectares being secured for regeneration of native vegetation.

Phase Two of Bush Returns began in April 2005 opening up the opportunity to all private landholders within the Catchment. The Expression of Interest period closed on the 5th August 2005. To date, over 900 hectares have been assessed.

A landholder's 'bid' is assessed against other criteria such as conservation significance, regeneration potential and landholder commitments, in order to determine value for money. All bids are ranked according to a Restoration Benefits Index and landholders with proposals that fall within the available pool of funding are successful.

Incentive payments are made on an annual basis for five or 10 years, based on performance against agreed actions within the management plan. A formal contract is secured with an agreement on land-title that binds the contract, adding economic value to the property and enabling subsequent landholders to take-over the contract should the land be sold.



## Community Group Projects

Four community groups that are funded through the RCIP Biodiversity Program are making important contributions to our targets for vegetation protection and enhancement, as well as increasing community awareness of biodiversity issues. These groups identify relevant 'flagship' species to mobilise community support for habitat restoration.

The Regent Honeyeater project focuses on protection and restoration of Box-Ironbark vegetation, which the Regent Honeyeater and other threatened species depend on. Sixty-three hectares of revegetation were achieved by this project during the year.

Another two threatened species of the Box-Ironbark ecosystem, the Squirrel Glider and the Brush-tailed Phascogale, are the icons of the Warrenbayne – Boho Land Protection Group. With the assistance of an ecologist, Rodney van der Rees, the group has run a very successful program involving revegetation (10ha), protection (4ha) and enhancement (33ha). In addition, the group has run spot-light nights and involved a number of schools in the construction and placement of new nest-boxes for these two threatened species.

Less than 250 Superb Parrots have been recorded in the Barmah Forest. This species only occurs along the Murray and Murrumbidgee Rivers, where it breeds using hollows in old River Red Gums. A key habitat requirement is access to adjacent Plains Woodland dominated by Grey Box for feeding. The Superb Parrot Group has been revegetating this type of vegetation for many years, including no less than 48ha during 2004/05.

The Euroa Arboretum provides an educational facility of 70ha of land on the outskirts of Euroa. This group propagates tens of thousands of plants for Landcare groups, conducts its own enhancement program for the site (a significant Plains Woodland remnant), provides valuable work experience for unemployed people, and has recently embarked on an ambitious program to recreate examples of a number of EVCs for the education of visitors to the site.



## Trust for Nature

The 2004/05 year marked a significant point in Trust for Nature's organisational development within the Goulburn Broken Catchment, with the employment of two additional staff through NHT funding. As a result, Trust for Nature has been able to protect significantly more land this year and implement more management plans.

Altogether, Trust for Nature provided permanent protection to 1440 ha of land through 23 new conservation covenants (mean size of 42 ha), one permanent purchase, three Revolving Fund purchases and one brokered Crown land purchase in partnership with the State Government. Additionally, Trust for Nature identified 1400 ha of land at Kanyapella Basin which Goulburn-Murray Water wishes to transfer to the Crown for conservation.

One of the year's highlights was the success of the Upper Goulburn rate rebate project. Five shires were approached about the possibility of introducing rate rebates for covenanted land. So far, the Mansfield Shire and Mitchell Shire have decided to participate in this program and will now offer rate rebates for all covenanted land in their municipalities.

## Goulburn Broken Indigenous Seedbank

An on-going, reliable supply of quality indigenous seed is critical to the implementation of our revegetation program. Based at the University of Melbourne's Dookie Campus, the Seedbank co-ordinates the collection of required seed across the Catchment by seed collectors working to Flora Bank seed collection ethics. Seed is purchased from the collectors, cleaned, sorted, stored and catalogued. Orders are taken from those involved in revegetation, whereby seed orders are made up, treated, and distributed to revegetators as required.

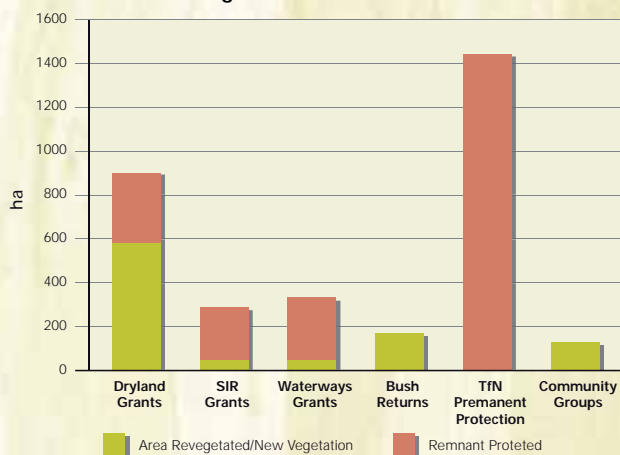
Figures for seed bought and sold over the past year are less than the previous year (140 kg sold) due to the undesirable seasonal conditions for direct seeding (see figures next section). As a result, a \$30,000 deficit was experienced. We are especially grateful to Kraft Foods P/L for fantastic sponsorship which has been critical to fund the Seedbank's research and development program. Particular recognition goes to Paul Wilson, of Kraft's Strathmerton plant, who has provided substantial and enthusiastic support to the Seedbank.

## Waterways and Dryland Salinity Programs

The Waterways and Dryland Salinity Programs both deliver a grants system to assist landholders to protect and restore (revegetate) indigenous vegetation, in line with RCS targets. Landholders share a percentage of total cost of the work according to the relevant EVC, habitat quality, area, and landscape priority.

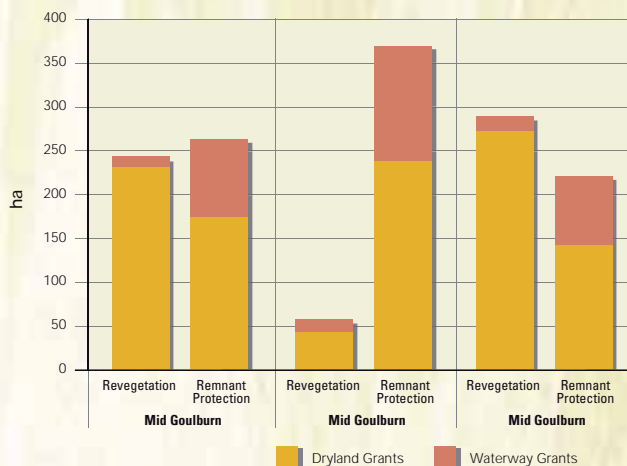
During 2004 – 05, a total of 435 ha of vegetation was either protected through fencing and associated works (852 ha), or revegetated using direct seeding or tubestock techniques (583 ha).

**Vegetation Works in the Catchment funded through the RCIP Process**



A target of 1200 ha of remnant vegetation to be protected this year, was more than doubled (2664 ha). In contrast, of our revegetation target (1600 ha), only 815 ha was achieved due to the dry conditions during spring and autumn, which caused a number of revegetation projects to be deferred.

**Vegetation Works funded through Grants/Incentives**



## Conservation Broker - Real Estate Industry project

The real estate industry has the potential to lever investment in, and appropriate management of, land holdings to achieve biodiversity and natural resource management targets. A pilot project initiated during the year aims to build the capacity of the industry to effectively market environmentally significant land to an appropriate audience, assess environmental values of properties, identify and build the market for conservation land, and to advise clients of regulatory constraints on natural resource management issues and the availability of environmental management incentives.

The project achievements to date have included undertaking 23 workshops in the project area, developing a land assessment sheet and associated agents manual and the initial design of a 'conservation brokers' website.

Feedback from the industry has been positive and the project intends to develop a strong partnership with the real estate industry of Victoria, Trust for Nature and a number of other private organisations.

**RCS reference:** Biodiversity Targets – Management Actions “Develop a better understanding of the value of biodiversity assets so that the market mechanisms can be used as a tool for delivering biodiversity outcomes”

## The Broken Boosey Conservation Management Network

The Broken Boosey Conservation Management Network (CMN) is a collective of remnant vegetation and the land managers empowered with the management of the remnants and other interested individuals. The aim is to coordinate management in the achievement of common biodiversity conservation goals. The CMN covers all land tenures and aims to achieve multiple benefits from individual projects.

The Broken Boosey CMN extends from Barmah Forest in the West along the Broken, Boosey and Nine-Mile Creek systems to link with the Warby Ranges in the East. It has a total area of 350,000ha, the majority of which is private land (94%).



The Bush Stone-Curlew is an iconic fauna species in this district, severely threatened by fox predation. The CMN has implemented a highly successful fox control program for the lower Broken Creek area. A mail survey identified over 20 sites where Curlews existed within the project area. Through a comprehensive extension program, 50 landowners covering 19,000ha undertook a fox baiting program in May.



Participants were provided the appropriate training and support to run the program and DPI provided the on-farm support with field bait sales and advice. There has been substantial support for a continued program which clearly benefits both significant biodiversity assets and farm production values.

**RCS reference:** Biodiversity targets – Resource Condition Targets. The CMN addresses all the biodiversity resource condition targets relating to maintaining, improving and increasing native vegetation and where applicable assists in implementing Recovery Plans and Action Statements.





## Biodiversity Research

### Tradeable Offsets

Ecosystem services are the essential functions that support life – clean air and water, biodiversity, soil health, and landscape function. These services are not ‘priced’, and so receive little or no tangible value in our economic system. As a result, the production of these services continues to decline.

The CSIRO, in conjunction with the GBCMA and Shire of Murrindindi, is investigating ways of sustaining the production of environmental services in a rapidly changing landscape. As well as improving current land management practices, we are researching the idea of ‘tradeable offsets’. Essentially, the idea is that development is required to offset any impact it may have so that environmental services are maintained or, preferably, enhanced. A market is created elsewhere in the landscape for the provision of these services. This research is very much in its infancy, but offers an interesting and challenging means of achieving sustainable development. For further information, see [www.ecosystemservices.org](http://www.ecosystemservices.org)

Other research activity the GBCMA is involved in includes salinity impacts to biodiversity; biodiversity and farm businesses; the ecology of soil invertebrates; native pastures and farm production; promoting natural regeneration; modelling threatened species habitats; and landscape patterns and biodiversity - monitoring and reporting.

### Biodiversity Monitoring Framework

The Biodiversity Monitoring Framework outlines monitoring requirements in order to provide an enhanced level of information and feedback on biodiversity condition and trends. The framework assists in the coordination of existing monitoring programs, so that the achievements of landscape outcomes in the RCS can be clearly demonstrated.

The framework identifies biodiversity reporting requirements and detail methods to monitor the progress towards the Biodiversity Resource Condition Targets. Action plans for implementing the framework will be developed following the completion of the framework.

### Biodiversity Condition Report

The GBCMA's Biodiversity Condition Report provides a snapshot of the condition of Biodiversity across the Catchment. This first Biodiversity Report also aims to provide information for providing data to the Biodiversity Monitoring program.

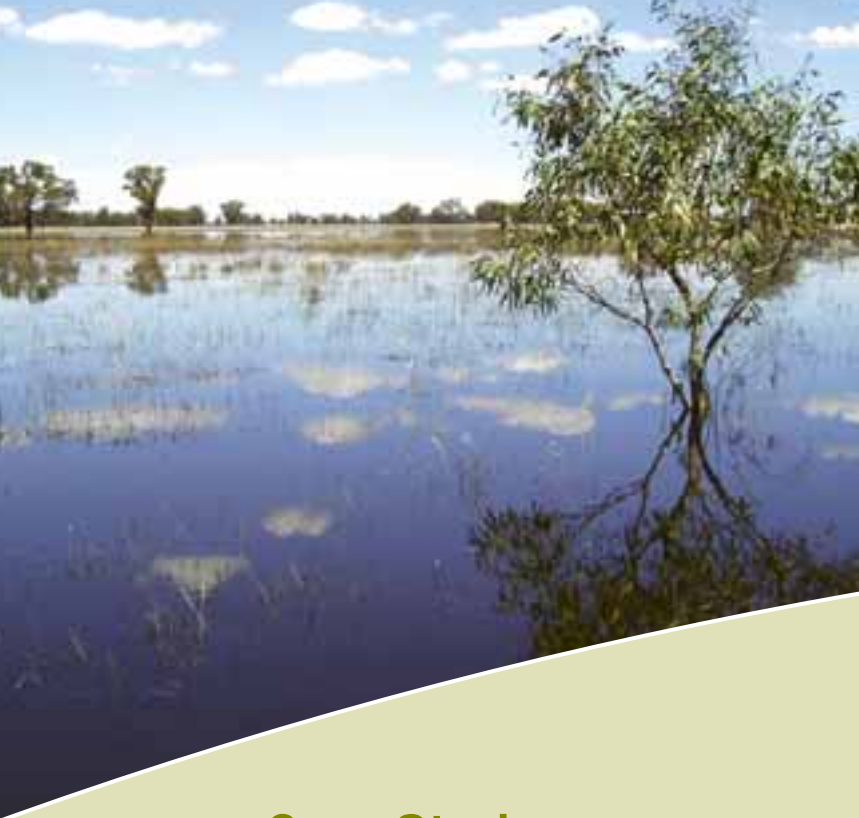
Relevant information is held in a number of different locations and formats. This is an attempt to bring this information together to provide a meaningful overview of the condition of biodiversity within the Catchment.

The report provides a simple representation of the current condition of a number of biodiversity assets relating to the biodiversity Resource Condition Targets. It uses a series of indicators to represent the condition of assets in relation of the targets. It is anticipated that this information will help in informing decision makers about where biodiversity investment is currently achieving agreed outcomes, and where additional investment is needed.

The information is presented under three themes

- Native Vegetation Cover
- Native Vegetation Condition
- Threatened Flora and Fauna.

Each of these themes has a series of indicators used to describe the condition of the themes.



## Case Study

### Goulburn Broken Biodiversity Condition Report

This year the Biodiversity Program has endeavoured to collate the available information and report on the condition of biodiversity in the catchment in a meaningful way. This report aims to provide a snapshot of the condition of biodiversity to provide a baseline for measuring trends in biodiversity and fulfilling the GBCMA's reporting obligations under the CALP Act. The Biodiversity Condition Report will also provide a basis for the Goulburn Broken Biodiversity Monitoring Framework.

In order for the information collected on biodiversity condition to be valuable at a number of levels, the information will be displayed in direct relation to the Catchment Biodiversity Resource Condition Targets, as outlined in the RCS.

The report uses a series of indicators to represent the condition of the assets in relation to the resource condition targets.

#### Method

The GBCMA collaborated with the other northern CMAs to sponsor a research project conducted by scientists from the Arthur Rylah Institute. This project involved the carrying out of hundreds of habitat quality assessments, and data was then used to develop condition models. The model has been stratified according to Biodiversity Action Zones and a median score derived.

#### Outcome

A key Biodiversity Resource Condition Target is to "improve the quality of 90% of existing (2003) native vegetation by 10% by 2030". The model can be refined over time as new information becomes available, but it already provides a clear picture, when combined with Biodiversity Action Plans (BAPs), as to where gains in condition can be made to maximum economic and ecological efficiency.

**Photo acknowledgements**

Tony Kubeil, Keith Ward, Poppe Davis and Sue Botting



The Goulburn Broken Catchment Management Authority gratefully acknowledges the support of the Natural Heritage Trust, the National Action Plan for Salinity and Water Quality, the Victorian and Australian Governments and landowners of the Catchment who invested millions of dollars in protecting and enhancing natural resources in 2004-2005.