



GOULBURN BROKEN
CATCHMENT MANAGEMENT AUTHORITY

ANNUAL REPORT 2003/2004



Goulburn Broken Catchment Management Authority www.gbcma.vic.gov.au

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About the Goulburn Broken CMA

Goulburn Broken Catchment Management Authority (CMA) is a Statutory Authority established by the Victorian Government to co-ordinate land, water and biodiversity management in the Goulburn Broken region that extends from the Great Dividing Range on the outskirts of Melbourne through to the Murray River in the north.

The Goulburn Broken CMA was established under the Catchment and Land Protection Act 1994 and Water Act 1989 and reports to the Minister for Environment and the Minister for Water the Hon John Thwaites.

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.

About 200,000 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, timber production are the main pursuits in the dryland areas of the catchment, along with tourism in the famous “high country”.

Partnerships

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, Goulburn Valley Water and Goulburn-Murray Water to create innovative solutions to land, water and biodiversity issues.

Funding, drawn primarily from State and Federal Governments and more than matched by landholders, 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.

Community Input

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, 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 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, the Mid Goulburn Broken and the Upper Goulburn.



Goulburn Broken CMA Board, Chief Executive Officer and Business Manager.

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.gbcm.vic.gov.au is a good starting point for more information about this and other programs.



Chair's Report



The Victorian Government's release of the White Paper – 'Securing our Water Future Together' was the important milestone event for the year. This visionary document represents the biggest step forward in environmental policy in my lifetime.

Water is unquestionably our greatest resource and the document clarifies and strengthens the future of the GB CMA which will have an important role in managing environmental water reserves and stream flows. The endorsement of the GB Regional Catchment Strategy (RCS) and release of the White Paper will form the platform for natural resource management activities in the Catchment for the coming five years. The importance of these strategic documents should not be underestimated. This will require even closer co-operation with partners such as Goulburn-Murray Water and sound planning to ensure effective roll out. The plan to decommission Lake Mokoan is a key element of the White Paper that will impact on this region along with river restoration works and smarter irrigation initiatives.

The irrigation futures project commenced this year to enable the regional community to make informed decisions and establish a shared vision for irrigation in the catchment. A feature of the project is extensive stakeholder involvement.

John Thwaites State Minister for Environment and Water and Federal Agriculture Minister Warren Truss were among the keynote speakers at the Australia National Committee on Irrigation and Drainage attended by some 360 people in Shepparton in October. The event was an opportunity to showcase the region's irrigation practices.

In March, 2004 Minister Truss again visited the South West Goulburn region while announcing \$12 million in NHT and NAP funding for the Goulburn Broken Catchment.

During 2002, the Goulburn Broken RCS was reviewed and a new RCS for the period 2002-2007 was developed with accreditation achieved in November 2003.

The document was launched by Minister Thwaites at a function attended by some 250 landholders, community and Landcare members, catchment partners and government representatives.

The accreditation process ensures that the strategy meets State and Commonwealth natural resource management plan criteria. The strategy is supported by a range of sub-strategies, investment plans and reports.

The Native Vegetation Plan was finalised in December, 2003, with the completion of Volume 2 – Guidelines for Native Vegetation Retention Controls in the Goulburn Broken Catchment. Volume 1 of the Plan, – the Goulburn Broken Native Vegetation Management Strategy (completed in August 2000) will undergo a five-year review in the coming 12 months.

Development of the "draft" Regional River Health Strategy was a major achievement in 2003/2004. The Strategy builds on existing river-related action plans, implementation plans and strategic documents and is supported by a series of sub-strategies and discussion papers. It will provide a framework for integrated works to enable high quality rivers to be protected and others to be improved for current and future generations.



Minister Truss is welcomed at Mangalore Airport.

The Strategy is the first attempt to combine all elements of river management under one integrated document providing direction for protection and enhancement of the region's river systems.

Links between the Goulburn Broken CMA and local government continue to grow, strengthened through the joint employment of a Municipal Catchment Co-ordinator. A major project this year resulted in the development a Matrix for Action Document to link the GB CMA RCS objectives and targets to municipal corporate plans.

A 'Memorandum of Understanding (MOU) for Irrigation Drainage and Water Quality' was signed by DSE, G-MW, GB CMA, North Central CMA and Environment Protection Authority (EPA) on June 22, 2004. This sets the framework for irrigation drain construction and management and defines the format for Surface Water Management Operational Plans. The MOU supports worlds best practice surface water management to minimise the impact of irrigation drainage on our river system.

The Goulburn Broken Region Landcare Forum held at Dookie College was another highlight of the year. It was attended by 220 people from across the Catchment. Landholders were presented with information about the past, present and future issues of the Catchment, with

workshops giving practical advice and a chance to hear how other landholders in the Catchment have been successful in balancing the management of environmental issues and productivity on their properties.

A Regional Landcare Strategy was developed which highlighted the important role of the Catchment community working together in the delivery of triple bottom line outcomes.

Attending the launch of the \$2.7 million Stage Two of the Muckatah Drainage Project in August 2003, international visitor Hans Jöehr, the Corporate Head of Agriculture (worldwide) for Nestle said that in his travels to more than 80 countries he had not seen anything that compared with the way the regional community in northern Victoria was working together to create a sustainable environment.

I would like to thank our CEO Bill O'Kane and our tremendous staff for their ongoing commitment to the delivery of natural resource management outcomes.

**Stephen Mills,
Chair
Goulburn Broken Catchment
Management Authority**



Chief Executive Officer's Report



In its best year ever of implementation, Goulburn Broken CMA delivered an impressive array of on-ground works achieving all key targets and reducing its carry forward by \$1.2 million.

In an Australian first, a new quarterly reporting system allowed the CMA to collate and uniformly communicate its works achievements against long-term targets.

Many of those targets relate to significant landscape change. It was pleasing to see that the "Monash International Report" released early in 2004 vindicated the GB CMA's position on the future management of the Lower Goulburn floodplain. Thankfully, some factual errors contained in the report have since been corrected. The CMA is in the process of collating additional information to be supplied to government early next year about the Lower Goulburn Floodplain Rehabilitation Scheme.

The success of our works programs is largely the result of strong and ongoing partnerships with the Department of Sustainability and Environment, the Department of Primary Industry, Goulburn-Murray Water, Goulburn Valley Water, local government and the EPA.

The high outputs of the CMA can also be attributed to our stable and experienced workforce committed to better environmental outcomes. A survey of staff morale showed satisfaction levels with the GB CMA as an employer and workplace to be significantly higher than most other organisations within our sector. The results were extremely satisfying across all areas and included improvements in a number of areas from the previous People Matters Survey, 2003. Since publication of the results, a follow up interview has been conducted by the Office of Public Employment recognising our performance.

As part of its duty of care to its staff, the CMA developed extensive OH&S policies and procedures which are currently being implemented. Ongoing training is planned to ensure implementation across workplaces.

A highlight of the year was the completion of a further 178 whole farm plan grants in the Shepparton Irrigation Region (SIR) covering a further 11,034ha and bringing the area under whole farm plans to 200,000ha. This project continues to exceed targets for the number and area of whole farm plans prepared.

Since the early 1990s there has been a steady reduction in the proportion of irrigation water entering surface water management systems. This is because of improvements in farm irrigation infrastructure and management.

Combined with improved drain management and some low allocation years, this has led to a major reduction in drain flows. Drain flow leaving the SIR in 2003-4 was about 3.4 per cent of water delivered into the region. Drain flow leaving the SIR is less than 1.5 per cent of available water in the SIR if we take rainfall into account. Significant rain fell in spring and early summer and did have impact on drain flows during those months. Despite that, only 45,000ML escaped the SIR drains for the full year.



Catchment partners attend the launch of the Muckatah Stage Two.

Local Area Planning (LAP) as a means of delivering strategic planning aligned to the Goulburn Broken RCS at a sub-catchment scale continues to gain momentum. This SIR project is a joint activity between the Goulburn Murray Landcare Network, DPI and the CMA with eight LAPs progressed through 2003/4.

The uptake of the Environmental Management Grants by landholders continues to deliver extensive works outcomes.

The Mid Goulburn Broken Implementation area has largely spent all available funds (\$738,000) resulting in:

- 264ha of remnant vegetation protection;
- 330ha of revegetation;
- 572ha of Lucerne/perennial pasture establishment;
- 250ha of erosion stabilisation;
- Landholder support of this program was nothing short of amazing and the program sourced additional funding to cover the high number of applications.

A further \$254,253 in environmental grants was paid in the Upper Goulburn Implementation area resulting in 22 ha of remnant native vegetation protection, 137 ha of revegetation, 54 ha of lucerne pasture establishment, 3 ha of discharge area management, and 449 ha of erosion stabilisation. A review will be carried out of the application of the grants in the dryland. There is a growing recognition that the changing demographics across much of this area will require a suite of approaches to service delivery.

Waterways grants also contribute towards the protection of the Catchment biodiversity assets by providing incentives to landholders for the fencing and revegetation of creek frontages and the installation of stock troughs or dams. The level of funding provided by the CMA depends upon the priorities of the waterway on which the works are planned and the setback of the fencing.

The waterways grants have been reviewed this year to ensure a higher level of funding is being directed towards high priority waterways identified in the Goulburn Broken Regional River Health Strategy 2004.

A number of major projects have started or progressed including the Broken Boosey Conservation Management Network. The network provides the framework for improved biodiversity outcomes in an area that includes the Broken Creek and its floodplain and farmland that is the largest remaining example of Plains Grassy Woodland in the Northern Plains.

The Commercial Environmental Forestry Project was established in the past year in the South West Goulburn part of the Catchment. The project aims to have forestry in low-medium rainfall areas generate both commercial and natural resource management provide benefits such as salinity mitigation and greenhouse abatement. It is a national pilot project involving CSIRO, DAFF, GB CMA, DPI, the National Association of Forest Industries (NAFI) and Murray Darling Basin Commission (MDBC). First year funding to the tune of \$1 million was provided through NHT and CSIRO.

The Murray Floodplain Rehabilitation Program is a successful joint initiative between DSE, North East CMA and Goulburn Broken CMA rectifying wetland flooding regimes towards more natural conditions. The program is also focussing revegetation of uncommon tree and understorey species. This year some 8000 understorey shrubs and Yellow Box were planted on sand hills.

Bill O'Kane,
Chief Executive Officer
Goulburn Broken Catchment Management
Authority



Project Actions and Outputs - Total Goulburn Broken Region 2003-04

		> 100% achieved	70 - 100 % achieved	25-69% achieved	< 25% achieved
Project Title (Standard GB Threat or Impact Managed)	Action Description (as per RCIP)	Current Outputs	Achieved Jul 03 - June 2004	% achieved July 03 - June 2004	
Threat					
Land and water use practices					
Stock grazing (ha = terrestrial; km = riparian)	Fence terrestrial remnant vegetation (ha)	464	511.7	110%	
	Fence wetland remnant(ha)	15	12.6	84%	
	Fence stream/river remnant (ha)	189	217.5	115%	
	Off-stream watering (no)	117	86	74%	
	Binding Management Agreement (license, Section 173, covenant) (no)	189	230.5	122%	
Induced Threat					
Saline water and high watertables					
<i>Surface water</i>	Landform/lasergrading (ha)	9000	9,000	100%	
	Drain – primary (km)	12	12	100%	
	Drain – community (km)	19	19.5	103%	
	Farm reuse system (no)	90	78	87%	
	Drain – divert water (ML)	500	320	64%	
	Irrigation systems – improved (ha)	10740	10,325	96%	
	Pasture – plant (ha)	450	330.1	73%	
<i>Sub-surface water</i>	New groundwater pumps – public (no)	4	3	75%	
	New groundwater pumps – private (new and upgrade no)	25.2	19	75%	
	Volume water pumped (ML)	2300	tba		
	Tile drains – install (ha)				
	Revegetation - Plantation / Farm Forestry (ha)	600	155.5	26%	
Nutrient-rich & turbid water & suspended solids	Stormwater management projects (no)	3	1	33%	
In-stream and near-stream erosion	Bank protection actions (km)	5.5	11.3	205%	
	In-stream & tributary erosion controlled (km)	42	83.1	198%	
Weed invasion	Weeds – woody weed management (ha)	68	79	116%	
	Weeds – aquatic weeds controlled/eradicated (km)	7	0	0%	
	Landholders complying with requirements under CALP Act in targeted areas (%)	96%	94%	98%	
	Targeted infestations of weeds in high priority areas covered by control programs (ha)	292,200	259,920	89%	
Pest animals	Landholders complying with requirements under CALP Act in targeted areas (%)	96%	95%	99%	
	Area of high priority rabbit infested land that are covered by control programs (ha)	58300	35700	61%	
Pest animals	Area of high priority fox infested land covered by control programs (ha)	60800	54200	89%	
Impact					
Habitat loss - terrestrial	Revegetation - plant natives within or next to remnants (ha)	380.1	458.5	121%	
	Revegetation - plant natives away from remnants (ha)	303.5	247.8	82%	
Habitat loss – in-stream	Fish release (nos)				
	Vertical slot fishway (no)	1	1	100%	
	Rock ramp fishway (no)				
	Fish barrier removal (no)				
	Establish SEAR (Significantly Enhanced Aquatic Refugia) (no)	9.3	10	108%	
Habitat loss – wetlands	Reinstate flood regime				
	Construct new wetland (ha)				
Habitat loss – Threatened species	Threatened Species Recovery Plan and Action Statements (no projects)	13	6	46%	
Planning	Whole Farm Plans (no)	319	363	114%	

Shepparton Irrigation Region

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 this Catchment.

- **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 GMLN and the 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 2003/4. Despite the extremely difficult year, the implementation of the SIR component of the RCS has progressed steadily. This is in part due to the continued commitment of my fellow IC members, Nick Roberts, Athol McDonald, Steve Farrell, Peter Gibson, Allen Canobie, Peter McCamish, Ann Roberts, Terry Hunter and Bruce Cumming.

Achievements

The partnership program with the Catchment and Water group of DSE is delivered with our regional partners in G-MW and DPI's Catchment and Agricultural Services business.

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.

Farm Program

A highlight in the works program was the completion of a further 178 whole farm grants covering 11,034ha. This project continues to exceed targets for the number and area of whole farm plans prepared.

A total of 199,780ha of the irrigated part of the region are now covered by whole farm plans. The plans prepared this year represent an increase of 3.5 per cent and the area now whole farm planned is 63.1 per cent 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 whole farm plan program in the SIR was conducted. The review demonstrated that the whole farm planning program is successful in terms of efficiency, effectiveness and appropriateness and there is a demonstrated case that it should continue to be supported with public funds. There are always areas for improvement and the review has identified some potential improvements.



Shepparton Irrigation Region

Environmental Incentives have provided support to protect nearly 73ha of remnant vegetation and 12ha of wetlands during the year. One wetland was a 6.6ha Red Gum complex. Some of the remnants protected include 4.5ha of Black Box/Grey Box Woodland, four different Plains Grassy Woodland remnants at and 21ha of Black Box Chenopod Woodland containing Grey Crowned Babblers. This woodland remnant has had a conservation covenant placed over it to further protect it. These results indicate a trend towards protecting and enhancing some of the larger remnants in the SIR.

The Environmental and Tree Growing Incentives have facilitated the revegetation of over 130ha of private land, with about half being sown by direct seeding, and over 34 kilometres of fencing for corridors and remnants. Early assessments indicate that quite good germination rates were achieved by the direct seeding. The use of the cost share matrices is proving successful and delivering more on-ground works.

Local Area Plan sub-catchments are now accounting for over a third of all incentives processed and on-ground works facilitated via incentives. Another encouraging trend is the ratio of incentives processed to incentives paid is now quite high. On average 70 per cent of incentives processed and approved are now resulting in some form of on-ground works.

Landholders in the region 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 has caused some reduction in landholder expenditure from previous years, our estimates of double the government expenditure are still valid. Works such as farm reuse and improved irrigation layout contribute significantly to the improvement in water use efficiency. These have both environmental and economic benefits. Each year in the SIR, a further three per cent of the irrigation area is laser graded.

Despite the drought conditions, the incentives for the construction of drainage reuse systems have continued to be strongly supported by landholders. Incentives were paid for seventy-three drainage reuse systems installed to drain 4,654ha, bringing the total number to 244 systems draining 17,448ha, which is six per cent of the irrigated area in the SIR.

Ten automatic irrigation systems have been installed with assistance and these systems service 909ha and include one further channel outlet that has also been automated under the scheme. The total number of automatic systems installed with assistance is now 76 serving an area of 4,513ha, just over one per cent of the irrigated area.

The key Private Forestry activities revolved around completion of the "Cooperative Mechanical Thinning of Farm Forests for Commercial Preservation Products" project. An additional 6ha was harvested (to a total of 40ha) and a number of products generated and sold. Products included 50m³ of preservative treated Eucalypt posts, found by CSIRO to have superior strength characteristics to pine. One sale for vineyard trellising on the Mount Camel Range has generated interest for further purchases. Around 75 tonnes of plantation firewood and 120 tonnes of export pulpwood were also sold.

The pest plant program focused primarily on priority species listed in the Goulburn Broken Weed Action Plan. These ranged from well established species such as blackberry, sweet briar and Paterson's curse, to new and emerging species such as St John's wort and African lovegrass.

In the blackberry, sweet briar and Paterson's curse programs, DPI pest management staff conducted 870 farm inspections covering 83,000ha. A total of 431 work plans were issued to landholders and in 93 per cent of cases, satisfactory compliance was achieved. This is an indication of the general preparedness of landholders to participate in co-ordinated control programs.

Where non-compliance occurred, twenty-nine Land Management Notices were issued, resulting in two prosecutions.

The Community Landcare Facilitator (CLF) Program, (formerly the Rural Extension Program) provided considerable support to compliance and enforcement efforts during the year, and eleven of the twenty-nine Land Management Notices were generated in CLF target areas.



Catchment partners at the RSC launch.

Late in 2003, all nurseries and retail plant outlets in the region were inspected to ensure the ten newly declared State prohibited species were not being offered for sale. Two cases were detected where prohibited plants were on sale and a number of plants were volunteered for destruction.

A revised edition of the booklet "Weeds of the Goulburn Broken" has been developed and will be published in August 2004. The booklet has been extremely popular and as well as being an excellent resource, is also a useful extension tool. The revised edition will include additional information on optimum treatment times and modes of weed spread.

DPI staff in the SIR conducted an intensive extension program as part of the Enhanced Fox Project during the autumn of 2004. Landcare groups were targeted in sheep farming areas. Despite constraints in relation to 1080 use, a number of co-ordinated baiting programs occurred in an effort to minimise lamb predation.

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

The important Irrigation Futures of the Goulburn Broken Catchment project aims to facilitate a shared vision of the future of irrigation in the Catchment, develop and understand the implications of future scenarios and establish a method for sustainable irrigation planning at catchment scale. Stage 1 of the project was successfully completed this year and Stage 2 community workshops have had strong regional stakeholder support.

A number of research projects directed at measuring and improving irrigation efficiency at paddock, farm and sub-catchment scales were supported. Projects included: Measurement of soil hydraulic properties and their variability across the region; comparison of check-bank 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 development of methods to measure regional crop water use with remote sensing.

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 co-ordinated land and water use planning.

Environmental Program

The Environment Program is an integral part of all the SIR Catchment Strategy programs with activities predominantly reflecting native biodiversity protection and enhancement and including both issue development and delivery of on-ground works.

Reviews were conducted for the sub-surface and surface water management Environmental Assessment processes to make them more efficient, focussed, and accurate and to make the reports more useful to stakeholders. Reviews of the Mosquito 36 and 40 environmental assessments were also undertaken.

This year's drainage infrastructure works program has led to the potential protection of 322ha of wetland and 171ha of remnant vegetation. Negotiations on final alignments for 18 Surface Water Management Schemes were held to ensure protection of natural features along the schemes. One sub-surface environmental assessment for a Public Salinity Control Pump was completed.



Shepparton Irrigation Region

A draft of a Scattered Tree Assessment Manual and a paper on Native Vegetation Retention along surface water management schemes, were prepared. They will further protect and enhance remnant vegetation along proposed schemes. Consultants working for G-MW will conduct channel remodelling environmental assessments in the future, with quality checks by the Environmental Assessment Co-ordinator.

A contractor was used for the first time to collect Mandatory Environmental Monitoring data from the seven sites.

Ninety-five Statutory Planning referrals were dealt with during the year involving extensive negotiations to minimise damage to native vegetation and provide for effective offset plantings.

Reedy and Kinnaird's Swamp environmental management plans were completed, with Mansfield Swamp close to completion. Work started on the One Tree, Two Tree, Wallenjoe Swamps complex. The management plan development process strengthened links with community and agency bodies. Their development also assisted funding applications and environmental water allocations.

Considerable effort has been spent on establishing and refining protocols for the need and use of environmental water flows from wetlands in the SIR. A report was prepared on the impact of the flow into Reedy Swamp and as a result an outfall control structure was built.



There was a major focus on promoting the management of native biodiversity in the SIR. This included visits to landholders, the Bush and Land column in the Country News, a biodiversity celebration at a covenanted site in Numurkah and progress in the development of Best Management Practices (BMPs) for natural features.

The BMPs are being developed to provide information on the most appropriate methods to manage wetlands, remnant vegetation and riparian zones in the SIR. The work is being undertaken in conjunction with a research project to develop an Environmental Management System for the dairy industry.

Waterways Program

The Waterways Program focused on specific reaches of rivers and streams to achieve multiple benefits in stream health, water quality, and biodiversity. The main targets were the Broken River downstream of the East Goulburn Main Channel; Sevens and Castle Creeks; Goulburn River; Broken Creek system; and the Murray River. A highlight was the community support for the works generated from LAPs, Landcare groups and development of waterway action plans.

Major projects included the implementation of the Broken River Action Plan through funding from the Healthy Rivers Initiative that resulted in significant community involvement. This led to the removal of exotic woody weeds, bank alignment and bed and bank stabilisation works. The Goulburn River between Nagambie and Loch Garry continued to be a primary focus for works especially in woody weed control and follow up work on sites from previous years' projects. Monitoring of completed works sites ensures follow up works such as weed control or modification of in-stream rock structures to improve fish passage occur as required.

The review of the 1998 Broken Creek Management Strategy began mid-year and will be finalised by September 2004. This will provide the GB CMA with a clear direction for works and activities on the Broken Creek over the next five years.



The launch of National Water Week in Goulburn Broken Catchment.

Fifteen outfall stabilisation structures to reduce erosion and improve water quality were built on the Goulburn and Broken Rivers and the Sevens and Honeysuckle Creeks.

The Murray River Project has continued over the last twelve months (with emphasis on the Tocumwal to Echuca reach) to improve the frequency of wetlands filling during flood events, and the overall health of the floodplain system. This year saw planning and appointment of contractors for the construction of a low-level bridge across Shier's Lagoon to replace part of the forest road network that was a potential fish barrier. Revegetation of uncommon sandhill species existing on the floodplain has also occurred, especially concentrating on former sand extraction sites within Bruce's Bend, with about 8000 understorey shrubs and Yellow Box being planted.

Implementation activities continued on the Kinnairds Wetland Recreation Master Plan, and work continued on the Gemmill's Swamp Recreation Plan.

Waterway grants to landholders helped fund 18.6km of fencing, two property outfalls and 24 watering points at a grant cost of \$103,876. Most were on the Broken and Nine Mile Creeks downstream of Katamatite and the Corop Lakes area. Appropriate trees and understorey species were planted in the riparian zone along with grasses and water plants. Planting remained lower than normal due to the dry conditions (10,000 plants this year). Plantations were watered to protect current and previous investments.

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). A major review of the reference sites (15 in the SIR) was completed in 2003/04, and this will provide a report card on the works carried out to date, and help in the planning of future priorities.

A wide range of research, evaluation and demonstration projects continued to be supported with a range of Catchment partners.

Surface Water Management Program

No primary drains were commissioned during 2003/04, however, an equivalent length of 12km was constructed on Muckatah Stages 3 and 4 and Muckatah Drains 3 and 8. G-MW consultants designed 12km of drain, and works continued, or began on a number of Drainage Course Declarations. As well, 19.5km of community drains were constructed and 32.1km were surveyed and designed. This provided a regional drainage service to another 2,815ha, protecting this area from waterlogging and rising watertables. Eight drains previously managed by local government are in various stages of transfer to G-MW under new management options.

Cost share arrangements for Community Surface Water Management Schemes are being reviewed and projects continue aimed at improving downstream water quality including drain monitoring, nutrient stripping and drain management.

A 'Memorandum of Understanding (MOU) for Irrigation Drainage and Water Quality' was signed by DSE, G-MW, GB CMA, North Central CMA and the EPA in June 2004. The MOU sets the framework for irrigation drain construction and management and defines the format for Surface Water Management Operational Plans.

Drain water quality management studies were initiated on three drains as a forerunner to Surface Water Management Operational Plans - Murray Valley Drain 6 (completed), Ardmona-Undera Drain and Shepparton Drain 12. Investigations also continued into wetland feasibility and retrofitting on Murray Valley Drain 13.

Phosphorus loads exported from irrigation drains continued to be low, with the five-year rolling average now well below the target value for 50 per cent reduction. Statistical analysis has shown that flows and nutrient loads are trending downward over time.

Shepparton Irrigation Region

A review of the Farm Dams Policy and the relevant guidelines was carried out and a question and answer paper developed to clearly define and illustrate the rules relating to the construction of new re-use dams in Victoria's northern irrigation districts.

The farm dams legislation and its potential implications have continued to interrupt the demand for the Nutrient Removal Incentive Scheme. This scheme helps fund large farm storages (greater than 50ML) to capture high flow diversions from major drains resulting in reduced nutrient outfalls from the region. Two new systems were completed with a total capacity of 320ML. There have been twenty-three systems built with assistance from this project with a total capacity of 4,363ML.

A survey undertaken over 2003/04 shows that even in this very dry year these storages were able to prevent five tonne of phosphorus from reaching the rivers of the region. The total over the last five years is 30 tonne of phosphorus prevented from reaching rivers.

Sub-Surface Drainage Program

2003/2004 was the first year of implementation of the Sub-Surface Drainage Program (SSDP) Strategic Research and Investigation Plan. A number of projects were initiated to address research and development issues associated with the program. Some of the projects undertaken were a framework for prioritising works and measures under the SSDP; a salt interception investigation on the Goulburn River; and the development of technical options for areas within the SIR.

Pasture Farm Exploratory Drilling Scheme (FEDS) investigations were completed on 67 properties with 10 declared successful and another 39 identified as having potential to be public pump sites. There are 35 investigations still in progress and 73 properties on the high priority waiting list.



Three horticulture FEDS investigations were completed and all were unsuccessful. There is one investigation still in progress.

Thirteen new private groundwater pumps were installed. This brings the cumulative total of new pumps to 249 with 69 existing pumps upgraded. The estimated area protected is almost 34,000ha. There are 18 pumps being installed.

Feasibility investigations were completed on three properties. Construction and handover of three Public Salinity Control Pumps was completed, bringing the total of public salinity control groundwater pumps to 40 protecting more than 5,700ha.

No winter/spring salt disposal under the Murray Darling Basin Salinity and Drainage Strategy was available from groundwater pumps last year due to low flows in the Murray River. The uptake of Salt Disposal Entitlement for private groundwater pumps is 1.007EC and 1.415EC for public groundwater pumps. Therefore, the uptake of SDE for the Sub-Surface Drainage Program is 2.422 of the SIR's total allocation to date of 4.9EC.

Implementation of the SIR Groundwater Management Plan continued with routine groundwater level monitoring, flow meter reading, pumped groundwater salinity sampling and basic analysis and reporting. New licensing guidelines for shallow groundwater bores in the SIR were introduced.

Community Engagement

The SIR IC worked closely with local Landcare groups and networks to ensure their input into and support of the catchment strategy. The SIR IC continued its commitment to the Community Salinity Grants program increasing the allocation to 32 groups in the SIR to \$36,000 for a range of projects.

Local Area Planning, as a means of delivering strategic planning aligned to the Goulburn Broken Catchment Strategy at a sub-catchment scale continues to gain momentum. This project is a joint activity between the Goulburn Murray Landcare Network (GMLN), DPI and the CMA with eight LAPs progressed through 2003/4.

The Cornella, Wyuna, Invergordon, Nanneella and the Nathalia LAPs are now well into implementation of the plans. During 2003/2004, the Bunbartha/Kaarimba/Zeerust and Muckatah/Katamatite/Naring LAPs were launched and the remaining group has almost completed developing their plan.

The SIR IC continues to have a close association with local government. Links have been maintained through the joint employment of a Municipal Catchment Co-ordinator.

Funding

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

The SIR component of the RCS 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 are declining.

In 2003/2004, the total SIR IC budget was more than \$17.7million comprising 73 per cent State funds, mainly from the National Action Plan (NAP), salinity and river health programs and 19 per cent Federal NAP and Natural Heritage Trust funds, much less than in the period prior to the NAP. The other eight per cent was from regional sources.

Seventy five per cent of fund were directed to works. Other components include research and investigation, extension, monitoring, planning and co-ordination.

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 the 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 put a major submission 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 establishment of the Memorandum of Understanding for Irrigation Drainage, the implementation of groundwater management plans, the review of Crown Frontage management and the reviews of our salt disposal entitlements.

A large input has also been committed to the new NAP processes. Unfortunately this has been unrewarding as yet and the introduction of the NAP has continued to slow the implementation of the RCS.

Implementation Committee member Athol McDonald retired from the SIR IC. His contribution to the Catchment has extended over 17 years since the formation of the Salinity Program Pilot Advisory Committee (SPPAC). He also represented our catchment on the Community Advisory Council (CAC) of the MDBC for a number of years. Current SIR IC member, Nick Roberts is currently representing environmental interests on the MDBC CAC.

Russell Pell
Chair
Shepparton Irrigation Region Implementation Committee



Case Study

Surface Water Management Success

Irrigators in the SIR have taken major steps to improve irrigation efficiency and reduce the environmental footprint of irrigation with benefits starting to show.

The community is demanding improved environmental management and the protection of environmental assets, such as our rivers and wetlands.

At the same time our irrigation farmers are striving to manage their land to its capacity. They have learnt from the mistakes of past irrigation practices. Irrigators are aware they need to protect our land and manage water to prevent the loss of native plants and animals and to continue to improve water quality.

The irrigation community in the SIR supports the goals of improved environmental management and the protection of environmental assets. For this important sector, to continue to improve productivity and growth in high value agriculture, it must also continue to improve the management of Victoria's water resources.

Sustainable irrigation requires salt export and the removal of excess water from below the ground, and in some catchments and in particular in the Riverine Plains of Northern Victoria, the removal of excess water from the surface. However, the State Government's support for drainage and salt disposal is limited to where there are overall economic, environmental, and social benefits.



The RCS aims to reduce waterlogging and salinisation and through improved water use efficiency to protect our key environmental features. The Surface Water Management Program is part of that strategy.

The Government expects the Surface Water Management Program to help restore catchment health, and repair environmental damage caused by ad hoc drainage and waterlogging. While there are still improvements to be made, an independent review of surface drainage in Northern Victoria (The Nolan Review 2001) concluded that many aspects of drain design and implementation in Northern Victoria are world best practice providing positive environmental outcomes.

The efficient use of water is essential to minimise the amount of irrigation run-off and salt leaving the catchment via our waterways and reduce any adverse environmental impact of irrigation. It is important that the adoption of efficient water use practice complements the implementation of irrigation drainage. The catchment works undertaken by agencies and irrigators and the change in

management have already led to a large improvement in catchment outcomes and a significant reduction in the impact of SIR irrigation on the Murray River.

The major investment by irrigators in improved irrigation infrastructure (whole farm plans, laser grading, upgrading farm channels and drains, introducing micro and sprinkler irrigation and constructing reuse systems) has led to a significant reduction in farm run off.

Since the early 1990s there has been a steady reduction in the proportion of irrigation tailwater getting into our surface water management systems. This is because of improvements in farm irrigation infrastructure and management. A total of 199,780ha of the irrigated part of the region are now covered by whole farm plans. The area now whole farm planned is 63.1 per cent of the irrigated area.

Combined with improved drain management and some low allocation years, this has led to a major reduction in drain flows.

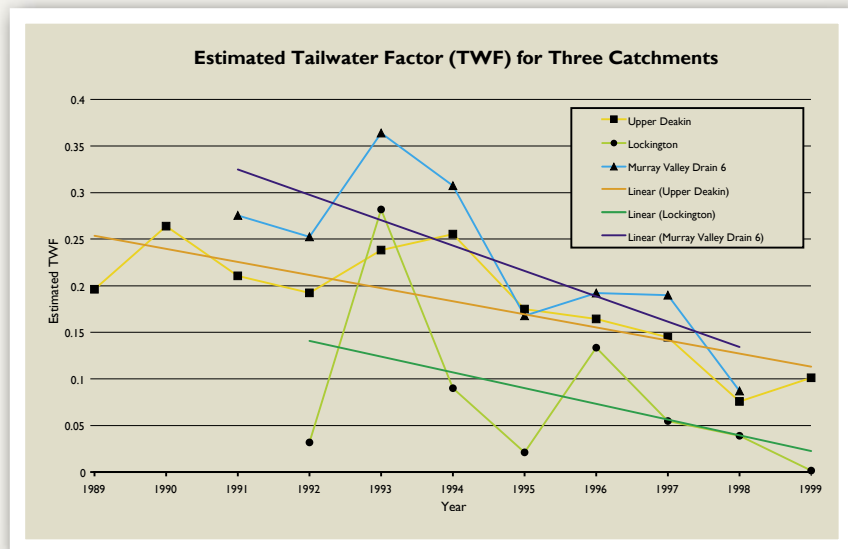
Drain flow leaving the SIR in 2003-4 was about 3.4 per cent of water delivered into the SIR. Drain flow leaving the SIR is less than 1.5 per cent of available water in the SIR if we take rainfall into account. Significant rain fell in spring and early summer and did have impact on drain flows during those months. Despite that, only 45,000MI escaped the SIR drains for the full year.

Channel outfalls into drains have been estimated at 120,000ML. Despite this, drain flows leaving the SIR for the year were only 45,000MI (about 35 per cent of the channel outfalls).

Improved drain management and better control of drain diversion reduce the impact of the reduced amount of water that still gets into the drains. This improvement in farm irrigation management and drain management is reflected in reduced phosphorus (from fertiliser, sediment and animal manure) leaving the SIR in drainage water. This means a big reduction in the impact of the SIR on the Murray River.

Effective catchment management requires the co-ordinated and co-operative effort of many thousands of landholders. Where appropriate this is underpinned by regulation. Based on this principle, Government's investment in sustainable irrigation is through community based land and water management plans which are prepared by the CMAs in partnership with the catchment community and Government agencies. Effective implementation of the plans requires clarity of agency roles and responsibilities, and for the agencies to work in partnership.

The recently signed Irrigation Drainage MOU is a landmark in land and water management in Northern Victoria. It provides a framework for implementing the Government policies and directions needed for effective surface water management. The MOU provides for better accountability for the environmental performance of the program.



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 (GM-W) and our own CMA staff to oversee the implementation of a \$6 million natural resource management program in the Mid Goulburn Broken region.

The 2003-2004 natural resource management program remained on target delivering improved outcomes in areas such as waterways, salinity and biodiversity. Despite the effects of the past drought and some late funding, all key projects delivered on expenditure and projected outputs.

Community Forums were held in Nagambie and Benalla with over 160 community members participating in discussion on issues important in their respective areas. The Mid Goulburn Broken Implementation Committee (MGBIC) continues to consult with and provide updated information to local people about local issues. Community members appreciate the opportunity to investigate better ways to reach their environmental goals. Intensive industries and water issues were on the agenda at Nagambie, while the Benalla community concentrated its attention to salinity, water quality and pest plants and animals.

Engagement and support of Landcare groups is a vital component of the Implementation Committee's role and this year has seen the development of several new initiatives. A catchment-wide Community Landcare Support Strategy was developed and is now ready for release. Landcare groups were closely involved in the process of developing this strategy which will act as a guide to grow the Landcare movement in the future.

Each year the MGBIC recognises the outstanding achievements and efforts of Landcare volunteers. This year's Landcare Award for Excellence was awarded to Russell Ellis from Chesneyvale. Russell's long involvement with Landcare in the Chesneyvale Landcare Group, the Warby Ranges Landcare Group and as a foundation member of the Upper Boosey Lake Mokoan Weed Action Committee has made him an outstanding spokesperson for natural resource management. On his own property Russell annually increases the amount of native vegetation and maintains a balance between biodiversity and sustainability.



Three geographically based Landcare Facilitators roles were established to provide service and assistance to MGBIC Landcare groups. A Landcare Steering Group supports the facilitators. The Goulburn Broken Landcare Co-ordinator, supported by the IC members, works with the facilitators to strengthen our partnership and help Landcare groups gain a better understanding of CMA priorities to maximise natural resource outcomes within the Catchment.

The combined efforts of the River Health and Water Quality and Salinity and Soils Programs successfully made improvements to land and water throughout the Mid Goulburn Broken catchment in priority areas identified by the Goulburn Broken RCS. Major improvements were made with 'in stream' works, revegetation and protection of biodiversity.

The waterways team carried out an impressive array of works supported by the community-based Waterways Working Group who actively engage local communities and provide a valuable connection between landholders and the CMA.

The Broken River catchment was recipient of funding through DSE to improve fish migration from the State Fishways Program. Two key projects will benefit from the funding:

- Gowangardie Weir – Study into environmental, social and economic impacts of improved fish passage; and
- Casey's Weir – design and approvals for the construction of a Vertical Slot Fishway. Works to be carried out in 2004/2005.



A number of local waterway activity plans were prepared this year to assist with planning of future works and activity programs. The plans encourage both community and agency involvement and include the Broken River (between Casey's Weir and Gowangardie Weir); and the Broken River (between Gowangardie Weir and the confluence with the Goulburn River). This information will provide a detailed and prioritised works program for the Healthy Rivers Initiative.

A number of research projects were undertaken in the Mid Goulburn region during the year including:

- Sevens Creek Sand Slug Monitoring (CRC Freshwater Ecology);
- Sediment Movement, physical habitat and water quality in large river systems (CRC for Catchment Hydrology);
- Management and Control of Arrowhead (G-M Water Aquatic Plant Services).

The CMA participated in a financial and technical audit of the 2002/2003 River Health and Water Quality Program. Twelve projects from the 2002/2003 financial year were identified and assessed by the auditors.

Establishing native grasses at sites following works such as willow removal, bank stabilisation and fencing is a continuing challenge in the Waterways program. Since 2001, the use of native grasses grown in Hiko cells has been trialled. While the planted sites have been successful, a number of issues have been identified. Extremely thorough pre-planting weed control is needed. Follow up weed control is usually necessary as well. Planting is time consuming and expensive. Because of these issues, intensive restoration of native riparian grasses is best suited to urban waterway environments such as Lake Benalla and Sevens Creek in Euroa. This provides opportunities for community involvement and awareness on top of the obvious biodiversity benefits.

Interest in Waterway Grants remains strong with total expenditure 03/04 \$141,000 resulting in 22km of fencing protecting 55ha of stream banks. Nineteen off stream watering systems were established to offset the loss of access to drinking water for stock.

The uptake of the Environment Management Grants (Environmental Incentive Scheme) saw the MGBIC spend all available funds (\$738,000) resulting in:

- 264ha of remnant vegetation protection;
- 330ha of revegetation;
- 572ha of Lucerne/perennial pasture establishment;
- 250ha of erosion stabilization.

Landholder support of this program was nothing short of amazing and the program sourced additional funding to cover the high number of applications.

Examples of outstanding programs in the Mid Goulburn Broken are the Heartlands project in the Honeysuckle Creek catchment, and the Broken Boosey project. Heartlands has been the recipient of funding from the Foundation for Rural and Regional Renewal for interpretation and implementation of airborne geophysics. This has been completed and a technical report is underway. The program has been responsible for large increases in remnant vegetation protection, establishment of perennial pasture, and fencing to manage Heartlands project sites.

The Broken Boosey Conservation Management Network which seeks to manage remnant vegetation across land tenure, has embarked on a project to protect the breeding grounds of the Bush Stone-Curlew. The program includes weed and pest animal control. Progress has been made to protect the Moodie Swamp from low water flows; a vital component of keeping the wetland viable as a breeding ground for the Brolga. Changes to flow patterns will deliver water to the Moodie Swamp by 2005.

There were significant changes within the Implementation Committee this year with former member Charles Jones elected to the CMA Board early in the year and the retirement of Jill Breadon and Chair Peter Robinson.

Two new members, Ken Whan, who joins the CMA with valuable experience in both natural resource issues and local government, and landholder David Dore from Goomalibee, who has a strong interest in Landcare, forestry and community concerns were welcomed to the committee.

Sally Simson
Chair
Mid Goulburn Broken Implementation Committee

Case Study

Heartlands

The Heartlands Initiative focuses on the 79,755ha Honeysuckle Creek catchment. Rainfall in the catchment varies from 500mm to 900mm and the landscape can be divided into four main areas: Southern highlands (Strathbogie Ranges); High alluvial plain (Violet Town Plain); Rising hills (Sheep pen hills); and low alluvial plains (Kialla East plains). The main land uses are dryland grazing (sheep, beef, dairy cattle) and dryland cropping.

Heartlands is now into its fourth year. The project integrates research with works to develop sustainable land management systems.

It offers landholders the opportunity to interact with researchers and for researchers to understand the problems and concerns from a landholder's point of view in their quest to arrest environmental degradation.

The FRRR funded project "Interpreting and Implementing the Airborne Geophysics" has been completed and the technical report is due for release shortly. The project benefited from knowledge exchange with local farmers and the direct link between the research and on-ground action strongly enhances the likelihood of adoption of management recommendations. This project has improved local community capacity to deal with the management of water and salt in the Honeysuckle Creek area.



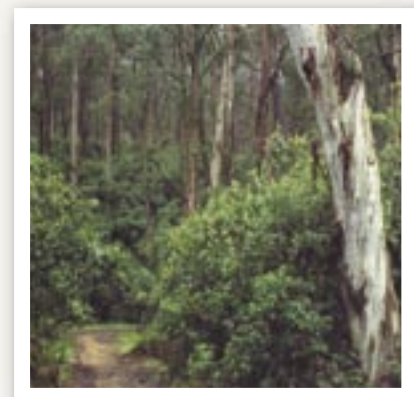
The Heartlands research team is following up by applying a planning process that will see knowledge on management for salinity, biodiversity, commercial forestry production, surface water yield, water quality and other themes integrated into maps prioritising land use change for multiple benefits. Most of this work is being carried out in the Sheep Pen Creek area.

Grants have been made available to landholders for the protection and enhancement of native vegetation, regeneration of areas, perennial pasture establishment, erosion control and fencing of wetlands. During this financial year works included 115ha of remnant protection and enhancement; 151ha of perennial pasture establishment; two stock containment areas; and 30.5kms of fencing. Erosion control along several creek lines in the area has been carried out with assistance from the Waterways Program.

Heartlands encourages and supports landholders to trial a variety of deep-rooted perennial pastures to assist with the lowering of ground watertables.

An application has been made for a grant to develop an area within Heartlands to trial sustainable grazing on saline land using salt bush as the prominent species. If successful, it is expected this site will be used as a model for landholders to make decisions about their salt affected areas.

Throughout the year there was a constant flow of visitors looking at the Heartlands project. Landholders, groups from various schools, universities and Landcare groups visited the area.



Upper Goulburn Implementation Committee

The Upper Goulburn Implementation Committee managed a \$4.3m program of natural resource management in the upper Goulburn River catchment in 2003/4. Many works programs exceeded initial targets set out in the Regional Management Plan.

The whole farm planning process was rejuvenated across the dryland to provide for sustainable production and enhanced protection of environmental assets. Interest in Whole Farm Planning (WFP) was strong with more than 80 WFPs developed in the Upper Goulburn region. These WFPs provide the informed basis necessary for landholders to develop the economic and environmental potential of their properties.

A total of \$254,253 in Environmental Management Incentives was paid for the year resulting in 22ha of remnant native vegetation protection, 137ha of revegetation, 54ha of lucerne pasture establishment, 3ha of discharge area management, and 449ha of erosion stabilisation. A review will be carried out of the application of the Environmental Management Incentives in the dryland. There is a growing recognition that the changing demographics across much of this area will require a suite of approaches to service delivery.

A \$1.7 million River Health Program was completed in the Upper Goulburn region. The past year has seen an increase in the control of exotic vegetation along waterways. The Waterways Grants scheme has been very well supported resulting in a 48 per cent increase in landholders taking up incentives for off stream troughs and dams and a 67 per cent increase with fencing and revegetation works. Restricting stock access to waterways has many water quality, stream health and environmental benefits.

River Health Investigations and studies completed this year will inform future river health programs on the King Parrot Creek and Sunday Creeks. Other studies relating to implementation of Stream Flow Management Plans on the King Parrot Creek and Yea River were also finished. A Regional Willow Strategy was completed.

The findings from the South West Goulburn study (completed in 2002/3) from the two sub-catchment study areas were reviewed, refined, and expanded to the entire 3000sq km South West Goulburn catchment. The finalisation of the study of the South West Goulburn salinity processes and the extent of remedial measures necessary to reduce salt export was important work completed this year. The information derived provides a solid basis to address the threats and risks facing natural resources in that area. The importance of taking these technical outputs, communicating them and developing regional strategies that are relevant to communities and municipalities at a local level has been recognised as critical to addressing the issues, engaging locals and ensuring their sustainable development. The Implementation Committee's focus on managing programs and engaging communities on a sub-catchment basis this past year have been important steps in this process.

Stream salinity monitoring studies have identified the South West Goulburn region as a major salt contributor to the Goulburn River. Whiteheads Creek, near Seymour, has recorded the highest areal salt contribution to the Goulburn River of approximately 400kg per hectare per annum. This is close to five times the salt generation rates of other lower Goulburn sub-catchments.





To combat this trend, a program of stream salinity monitoring is being conducted at seven sites within the Upper Goulburn catchment and a supporting brochure has been prepared to assist landholders understand the impacts of flow rates, salinity and salt loads. The information is based on a monitoring regime in place since 1990.

Groundwater pumping is offered as an option for landholders to control salt exports from private land. The Groundwater Pumping Incentive Scheme offers funding to locate and utilise suitable groundwater for irrigation development and provide salinity benefits.

More than \$22,000 was spent on three groundwater investigations and one capital grant to equip an irrigation bore at a vineyard in the Kilmore area. Several investigations have been started on other properties as a result of a promotional campaign to improve awareness of the scheme. Ten new landholders have applied to be included in the scheme.

The Draft North East Wild Dog Action Plan, which covers wild dog areas of the Goulburn Broken and North East Catchments was released for public comment late 2003, and is currently with DSE for finalisation.

The North East Wild Dog Management Group ran a field trip to the King Valley and met with local landholders and inspected wild dog fencing in the area.

The Draft Mansfield Wild Dog LACP is nearing completion and will be available to the community shortly. The plan will map out all wild dog control works over the next 12 months. The process has involved members of Mansfield Wild Dog Group and public land managers.

A three-year blackberry control program is underway south east of Alexandra as part of the Good Neighbour program. An extension officer is working in the 14,000 hectare area to identify and map priority weeds and develop workplans with landholders. There are numerous parcels of public land containing blackberry within this project area. A number of agencies have contributed to control works on the public land using Good Neighbour funds including Forest Management, Parks Victoria, Land Victoria and DPI.

Other highlights for the year included the:

- Acquisition of aerial and satellite digital imagery for use by CMA and DPI staff and Landcare.
- Accelerated uptake in the Farm Exploratory Drilling program to manage ground water for salinity outcomes.
- Staging an EnviroExpo to showcase the range of technology, information and tools available to plan and implement natural resource programs.

Chris Doyle

Chair

Upper Goulburn Implementation Committee

Case Study

Enhancing Recreational Fishing along the Goulburn

The Goulburn River between Eildon and Molesworth is one of the most popular inland recreational fisheries in Victoria with recreational anglers contributing substantially to the local economy.

The Goulburn Broken CMA is working to reduce the number of barriers to river access in this area to benefit both recreational users and the health of the rivers and streams. A major part of the funding for the works - \$215,000 - has been provided by Recreational Fishing Licences.

The first stage involved contractors stem injecting willows at 16 sites along 10.5km of frontage from Eildon Pondage to Alexandra.

In May 2004, the sites were cleared and the debris burned to stop regeneration.

Four of the biggest and most easily accessed sites have been fenced to exclude stock access to the river to allow for the planting of native vegetation.

Another four sites were chosen for a willow clearing program on the Goulburn River between Thornton and Eildon. Funded by the Fisheries Revenue Allocation Committee under its Recreational Fishing License Program, this project also aims to improve angler's access to the river, establish control over exotic vegetation (introduced species), and improve in stream habitat values and control of stock access – a cause of significant river health degradation.

Large Red Gum logs, stumps and rocks to the size of 1.5 metres were added to the river bed to improve habitat for native fish. Access points for fishermen were also built using rock groynes.



Revegetation

Grants are made available to landowners whose property adjoins waterways to help pay for works to fence and revegetate frontage.

One such grant saw works undertaken at Narbethong, where more than 5km of fencing was erected along wetlands, Bullock Yard Creek, Fishers Creek and Stoney Creek.

This site meets the CMA's River Health Strategy key objective; 'protection of ecologically healthy rivers'. Although the property had been predominantly grazed by cattle, it still contained high value stands of remnant vegetation both along the waterways and within the wetlands. The majority of the three waterways within the property have now been fenced, with 2.4km at a 10m setback, 0.7km at a 20m setback and 2km at a greater than 40m setback.

These wide setbacks along the waterways provide important habitat corridors for native wildlife and result in self sustaining vegetation communities. Works such as these achieve maximum outcomes for the public and the environment as well as the landowner. The landowner took the opportunity provided by the works to improve the set-up of property fencing, paddock and laneway arrangements, bridges and water points.

This year saw a marked increase in the amount of works completed and grant's issued.



Biodiversity

Strategic Direction

Native Vegetation Strategy

The Native Vegetation Plan was finalised in December 2003 with the completion of Volume 2 – Guidelines for Native Vegetation Retention Controls in the Goulburn Broken Catchment. Volume 1 of the Plan, – the Goulburn Broken Native Vegetation Management Strategy (completed in August 2000) will undergo a five-year review in the coming year.

Biodiversity Integration Strategy

From the Fringe to the Mainstream – A Strategic Plan for Integrating Native Biodiversity was endorsed by the Board. The strategic plan summarises the main native biodiversity issues and lists the Goulburn Broken CMA's strategic priorities and actions aimed at encouraging integration.

Biodiversity Integration Group (BIG)

The BIG was set up in late 2003 to facilitate communication between agencies and community organisations involved in biodiversity conservation. A major role of the BIG is to set strategic directions for biodiversity, putting the catchment in a better position to harness opportunities for funding or collaboration in biodiversity related activities.

The BIG is the primary forum for a range of biodiversity-related topics that are presented by its member organisations. BIG:

- Guides the implementation of the Strategic Plan for Integrating Biodiversity.
- Provides a forum for discussing information on biodiversity related activities throughout the catchment.
- Sets biodiversity priorities for the catchment on an annual basis.
- Reviews criteria, expressions of interest and grant applications in regards to these priorities.
- Disseminates relevant information on biodiversity issues and projects
- Provides direction and advice on current and upcoming projects.
- Provides support to biodiversity members of integrated groups such as the Dryland Support Team, SIR Technical Group and implementation committees.

Improving our Information

Biodiversity Action Planning (BAP) continues across the Catchment. Strategic overviews and landscape plans have been distributed widely on around the Catchment. These documents include useful information for planning where priority biodiversity conservation activities should take place.

Priority mapping began in the Upper Goulburn region with three BAP zones are currently being mapped. The Mid Goulburn region continues to be mapped, with seven BAP zones in progress including several nearing completion. The information collected as part of BAP zone priority mapping will be available to extension officers to help target their works.



Native Pasture mapping

The Native Pasture Mapping project aims to map native pastures in the Goulburn Broken Catchment. Local knowledge was used to identify 216 sites that possibly contained native pastures. Of these sites, 116 were surveyed and the three most dominant pasture species (both native and exotic) were recorded. By using satellite imagery, and assessing variations in the ways that different objects reflect light, it is hoped to distinguish between native and exotic pastures on a Catchment scale.

Biodiversity Risk Mitigation Protocols

Risk assessments have been carried out on a number of Waterways Program activities to assess the potential impact on remnant vegetation, flora and fauna species, river reaches and wetlands. The results of these risk assessments are being 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. By working together, the Waterways and Biodiversity teams will ensure waterways works do not have a negative impact on biodiversity assets.

Native Biodiversity Risk Mitigation Protocols are also being applied to raised-bed cropping in the Mid Goulburn Broken region. This cropping system is used in areas where soils are prone to waterlogging. Potential impacts on biodiversity assets from this cropping practice include the loss of native pastures through the development of previously unproductive land, the loss of fauna refuge such as rocks and fallen timber, and increases in sediment and nutrient loads entering waterways and wetlands. By applying the protocols to raised bed cropping during planning, we can ensure biodiversity assets are protected. Measures such as buffer zones between cropping paddocks and remnant vegetation, and sediment traps to stop nutrients and sediment entering waterways will help to ensure biodiversity assets are protected.

Best Practice Revegetation Project

This project encourages best practice revegetation methods across the Goulburn Broken Catchment. Literature reviews have been completed on new technological advances. This information has been presented to the Catchment's extension staff presentations and information sheets.

A focus of the project is to ensure that best practice methods are used in direct-seeding. More than 30 direct-seeding sites have been assessed. This information will be collated and presented in a report to enable extension officers to make informed choices on where to direct seed and ensure that best practice techniques are used.

A direct seeding demonstration site is also being set up showing a number of site preparation techniques. Many sites will be direct seeded with "Wattle Grow" this year. This is a Rhizobia Inoculant that significantly increases the germination and growth rate of Acacia species.



Native Vegetation Condition Model

The four northern Catchment Management Authorities, (Mallee; Goulburn Broken; North Central; and North East) have developed a project to gather data on the condition of native vegetation at a Catchment scale.

The project is in its final stages. At the completion of the project, the condition of all extant native vegetation in the four CMA regions (regardless of tenure) will have been modelled using the habitat hectare approach at the scale of the available Ecological Vegetation Classes mapping.

The project will develop a statistical model of vegetation quality that can be shown on a Geographical Information System (GIS) map. This mapping will help set conservation priorities across the regions. It should also provide a baseline for continued monitoring of native vegetation.

Implementation to Achieve Biodiversity Outcomes

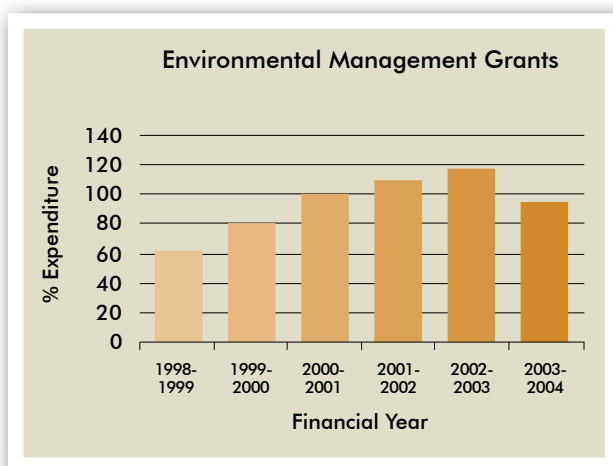
Grants

Environmental Management Grants assist landholders to protect and enhance large areas of existing remnant vegetation and establish new areas of indigenous vegetation in the Catchment. Landholders receive a percentage of the total cost of the works based on the conservation status of the Ecological Vegetation Class (EVC); the habitat quality of the area being protected; the size of works; and the salinity and nature conservation priority zones in which the works are planned.

Waterways grants also contribute towards the protection of the Catchment biodiversity assets by providing incentives to landholders for the fencing and revegetation of creek frontages and the installation of stock troughs or dams. The level of funding provided by the CMA depends upon the waterway on which the works are planned and the setback of the fencing.

The waterways grants have been reviewed this year to ensure a higher level of funding is being directed towards high priority waterways identified in the Goulburn Broken Regional River Health Strategy 2004.

Biodiversity



Landscape Restoration Trial

A Landscape Restoration Trial is being funded under the National Action Plan (NAP).

Increased regeneration of native vegetation on private land is the aim of the trial titled "Bush Returns". This is seen as a cost-effective way of achieving the landscape changes required to meet biodiversity, salinity and other Catchment health targets. Financial incentives will be offered to interested farmers who have suitable sites for regeneration and are willing to enter into a management agreement with the CMA. Annual management payments will be made for land use changes that encourage the regeneration of native vegetation, for example, changes to grazing patterns. The trial area will cover most of the Longwood and Violet Town BAP zones within the Mid Goulburn Broken region. There will be a competitive bidding process for the financial incentives.



Goulburn Broken Indigenous Seedbank

This year 140kg of seed passed through the Goulburn Broken Indigenous Seedbank. This figure was lower than expected due to drought and other weather conditions such as heavy frost during the critical seed development period.

Seed sales increased to \$85,000 compared to \$47,000 received the previous year. A series of woody plant seed production areas were set up in spring. They will help provide local seed to assist in meeting revegetation targets.

Communicating Biodiversity

After the success of the Wildlife Guide for Landholders in the Plains and Box-Ironbark Regions of the Goulburn Broken Catchment another guide is being developed. Once again the CMA, DPI, DSE and Trust for Nature in consultation with various Landcare groups are working in partnership to produce the Wildlife Guide for Landholders in the Foothills and Upper Regions of the Goulburn Broken Catchment. The guide will outline significant vegetation types and provide a description of a range of wildlife species and their habitat needs.



Partners in Biodiversity

Goulburn Broken CMA works closely with government, non-government and community organisations on biodiversity outcomes.

Goulburn-Murray Water (G-MW) developed and adopted a Biodiversity Strategy in January 2002 to establish and priorities biodiversity targets and provide a framework for implementing the Victorian Biodiversity Strategy.

Activities addressed through the Biodiversity Strategy include the preparation of water quality and biodiversity plans for water storages; revegetation of storage perimeter land; control of terrestrial and aquatic weeds; construction of fishways (in association with CMA's); and development of project assessment protocols to ensure biodiversity issues are considered during project planning and implementation.

Trust for Nature

Trust for Nature's activities this year concentrated on the Longwood Plains and the Broken Boosey Conservation Management Network area. The Longwood Plains Biodiversity Project has now been endorsed as one of the Trust's three major landscape projects in Victoria and will continue to be a major focus of effort, in partnership with the CMA, DSE, DPI, Parks Victoria and Nagambie Landcare Group. During the year this project saw the protection of 181ha of habitat through fencing incentives; revegetation of 105ha of habitat; one conservation covenant; one property purchase; and one long-term management agreement for remnant Buloke woodland. Several land purchases and changes in Crown Land status are being negotiated in the area.

Throughout the Catchment, Trust for Nature provided permanent protection to 885ha of land through twelve new conservation covenants, and purchased and re-sold a 70ha box-ironbark property through the Revolving Fund. All but one of these protected sites contained threatened vegetation types. Eleven management plans were developed during the year and four Honours projects investigating various aspects of on-ground management were initiated in partnership with Monash University and the University of Melbourne.

Local Government

The "Linking the Regional Catchment Strategy into Local Government Planning Processes" project is helping to raise the profile of biodiversity issues in local government. Through this project the Goulburn Broken RCS objectives and targets relating to native vegetation (biodiversity) have been linked to the council corporate plans being developed by each of the municipalities. Moira Shire has used the process to identify natural resource management gaps in their corporate plan. Campaspe, Mitchell and Strathbogie Shires are using the process to develop their environmental programs. As part of a current review process, Strathbogie and Mansfield Shires are incorporating vegetation management and natural asset protection into their new municipal strategies.



Landcare

Landcare groups contribute substantially to conserving the catchment's Biodiversity assets. For example, the Burramine, and Tungamah, South Yarrowonga and the Peechelba, Wilby and Boomahnoomoonah Landcare groups have undertaken projects to protect wetlands through fencing. They have also developed projects to link significant remnant sites and to provide protection for threatened fauna species with revegetation corridors. Extensive surveying of significant flora and fauna sites were undertaken to better target works. Funding was received through the NHT regional component and Envirofunds Grants.

Comprehensive LAP is leading to biodiversity awareness and outcomes in the SIR.

The Wyuna LAP staged two remnant vegetation field days to promote the importance of protecting and enhancing remnant vegetation. They also ran a "Babbler Bus tour" in November, 2003, at which Dr Doug Robinson highlighted the importance of protecting and enhancing remnant vegetation for local bird and animal species.

Invergordon and District LAP landowners along the Nine-Mile Creek are working with Parks Victoria and the CMA to protect the Broken Boosey State Park, through fencing and revegetation and installation of stock troughs and outfall structures into the creek.

Biodiversity

The Nathalia and District community is working to protect and enhance an area of Crown Land within the Catchment. The area has been leased by an adjoining landowner and grazed. It will now be fenced off and revegetated.

Muckatah, Katamatite, Naringaningalook LAP was launched in May, 2004. This LAP group has become the Committee of Management for a four hectare piece of Crown Land within the Muckatah catchment. The group has received \$21,000 from the Australian Envirofund and will use the money to rehabilitate the Muckatah Depression Drain.

Dhurringile and District LAP ran tours for local school children highlighting the importance of biodiversity in the environment. Students saw how biodiversity is affected by farming, industry and irrigation and how the RCS deals with these issues.

Monitoring and Reporting

Monitoring Framework for Biodiversity

A Framework for monitoring biodiversity progresses is being developed. A background document has been produced by the Northern CMA's, including the Mallee, North East, North Central and the Goulburn Broken. The Framework will outline what monitoring and evaluation is needed from the site level through to the strategic level.

Research

Biodiversity and Farm Business

Can landholders maintain profitability while managing for production and biodiversity goals? This Land and Water Australia funded project, Managing Landscapes to Meet Public Biodiversity and Farm Business Goals, is exploring the opportunities of managing for both production and better biodiversity on eight case study properties in the Broadford and Violet Town regions. Can farms still be profitable if greater than 10 per cent of the property is managed for biodiversity? Preliminary results indicate yes.

Successful strategies involve adopting low cost methods for managing native vegetation such as encouraging shelter trees through temporary fencing and deferred grazing of sensitive areas such as hill country. These methods both show benefits to biodiversity and farm profitability. Early results also show that farms can remain profitable (or even improve profits) if soil nutrient deficiencies are corrected on the most productive country, while 15 per cent of the least productive parts of the farm are managed for biodiversity. Using rotational grazing strategies to increase pasture use and improving pasture composition, have also been found to help farms increase profitability while managing 15 per cent of the farm for biodiversity.

Other research projects the CMA has been involved with include Landscape Patterns for Biodiversity (Deakin University); Biodiversity and Landuse Change in Honeysuckle Creek (DSE); Markets for Ecosystem Services (CSIRO); and The Role of shelterbelts in Biodiversity Conservation (ARI/DSE/DPI).



Case Study

The Broken Boosey Conservation Management Network

The Broken Boosey Conservation Management Network is a collective of remnant vegetation, the land managers empowered with the management of the remnants and other interested individuals. The aim is to co-ordinate management in the achievement of common biodiversity conservation goals. The CMN acts regardless of land tenure 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.

There are many environmental assets within the CMN area including:

- The Largest Victorian population of Bush Stone Curlew.
- The Broken Creek is classified within the Directory of Australian Important Wetlands.
- The Broken Creek floodplain supports national significant species such as:
 - Small Scurf Pea;
 - Australian Bittern;
 - Freckled Duck.

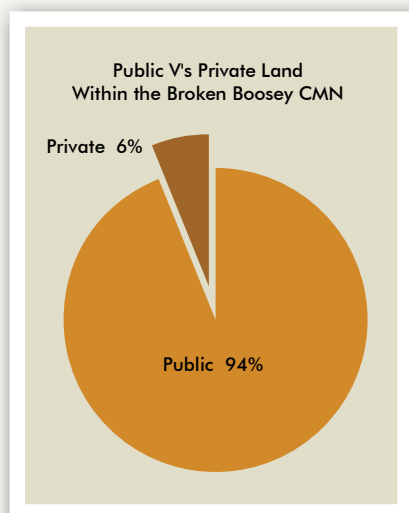
The area contains wetlands used by Brolga as breeding grounds and is the largest remaining example of Plains Grassy Woodland EVC in the Northern Plains. The Broken Creek System is of cultural significance to the local Aboriginal people. Approximately 10 per cent of Victoria's vascular plants have been recorded along the Broken Creek system in a recent survey.

Given the environmental importance of the area and the extent of private land within the landscape, working with the community to undertake works is vital to the survival of individual species and larger ecosystems. Over the past five years less than one percent of the private land has had biodiversity conservation works undertaken (CAMS:2004).

Development of Water Management Recommendations for Moodies Swamp

Moodies Swamp is a 180ha freshwater shallow marsh wetland located within the flood-plain of the Broken Creek. Due to the modification of the flood-plain and the modification of natural flow in the Broken Creek, the natural wetting regime has not been achieved, to the extent that the swamp has not received substantial water since 1994. This is having an effect on the flora and fauna that the swamp supports. This year the CMN has produced a document outlining the most appropriate wetting regime to support the values of the swamp. It is envisaged that Moodies Swamp will receive water in 2005.

The Broken Boosey CMN aims to highlight to the community the importance of the area and to facilitate works that are tenure blind to ensure the protection of the environmental values of the Broken Boosey Plains.



Case Study

The Broken Boosey Conservation Management Network

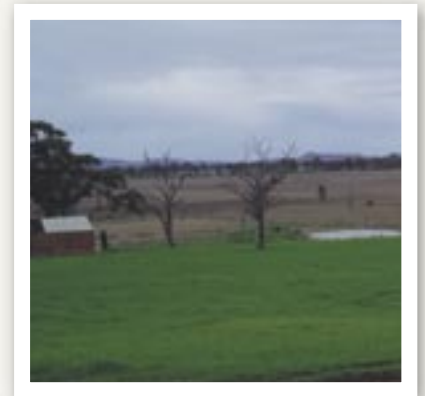


Predator Proof Fencing

The Broken Boosey CMN area supports the largest population of the Bush Stone-Curlew in the State. Being a ground-nesting species, the Curlew is extremely vulnerable to predation. Curlew chicks are commonly taken by foxes and cats.

In an attempt to increase breeding success, the CMN has constructed two predator proof fences around known breeding sites. Monitoring will occur to determine if the fences are successful in reducing juvenile mortality.

In the coming year the CMN aims to tackle landscape scale issues of pest plant and animal control. A major focus on fox control will have substantial follow on benefits of biodiversity conservation as well as having an impact on the farm by reducing lamb mortality rates.



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.
- Assisting with project management of floodplain management studies for Shepparton Mooroopna, Yea, Seymour, Tatura, Violet Town, Merrigum, and Nathalia.
- Starting the joint Victoria/NSW Murray River Regional Flood Study from Dicks/Seppelts Levees to Ulupna Creek and Murray River Junction; and modelling the Barmah-Millewa wetland systems from Tocumwal to Deniliquin to Barmah.
- Assisting with the implementation of approved schemes for Euroa, Benalla, and Shepparton Mooroopna Early Flood Warning Systems.
- Securing extra funding for new flood studies for Mansfield, Numurkah and the Murray River.
- Progressing floodplain management planning reforms and planning scheme amendments for Greater Shepparton, Murrindindi, Mitchell, Strathbogie and Moira Shires.

Major activities, such as those listed above are funded from Natural Disaster Risk Management or Regional Flood Mitigation Programs. Typically the Federal 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.

Floodplain management and ecological investigations

The announcement of the Victoria's White Paper has focused attention on the role of CMAs in managing environmental flows. This will link to the Living Murray Project where comprehensive flood analysis and ecological responses are in progress.



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 State and Federal Governments and landowners of the Catchment who invested millions of dollars in protecting and enhancing natural resources in 2003-2004.

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