

REVISED
INTEGRATED CATCHMENT
MANAGEMENT PLAN
MARY RIVER



January 2001
Northern Territory of Australia

TABLE OF CONTENTS

Introduction	1
Resource Management Issues	3
Responses and Current Status	
1. Saltwater Intrusion	4
2. Aquatic Habitat	6
3. Weeds	7
4. Fire	10
5. Grazing	11
6. Pastures	13
7. Nature Conservation	15
8. Clearing	17
9. Water Quality	18
10. Erosion	20
11. The Visitor Experience	21
12. Feral Pests	23
Abbreviations and Acronymns	24
List of Projects	25
Terms of Reference - Appendix A	
Catchment Map – Appendix B	



MARY RIVER CATCHMENT ADVISORY COMMITTEE

REVISED INTEGRATED CATCHMENT MANAGEMENT PLAN

Introduction

The Northern Territory Government formed a Wetlands Taskforce in late 1995, principally to develop an Integrated Catchment Management Plan (ICMP) for the Mary River catchment. The Taskforce delivered its report in September 1998. The following year the Hon Tim Baldwin MLA, Minister for Lands Planning and Environment approved establishment of a 'Water Advisory Committee' pursuant to section 23 of the *Water Act* to be known as the 'Mary River catchment Advisory Committee' (MRCAC).

The principal purpose of the Committee is to foster ecologically sustainable multiple-use of the Mary River catchment. The Committee is also required to complete a fully revised ICMP for the Ministers approval by end of the year 2000. That is the purpose of this revised ICMP. Full 'Terms of Reference' of the Advisory Committee are set out at **Appendix A**.

Members of the Committee are:

Member	Sponsoring organisation
• Mr Mike Burgess, Assistant Secretary Natural Resources, Department of Lands Planning and Environment (Chair)	
• Mrs Clair O'Brien	Mary River Landcare Group
• Mr David Walker	NT Cattleman's Association
• Ms Fay Lawton	NT Minerals Council
• Mr John Harrison	Amateur Fisherman's Association of the NT
• Mr Andrew Grant	Darwin Region Tourism Association
• Lt Col Peter Sims	Department of Defence
• Mr Tony Law (alternate)	
• Mr Manfred Haala	Parks Australia (Kadadu National Park)
• Mr Roland Griffin	Department of Primary Industry & Fisheries
• Mr Dave West	NT Parks & Wildlife Commission

The Department of Lands Planning and Environment provides support services to the Advisory Committee through the Natural Resources Division.

The Mary River Catchment Advisory Committee met for the first time on 20 October 1999. The committee's focus has been on revising the original ICMP and associated works programs.

A Technical Working Group has been retained to assist with this objective and to be a resource that can consider and advise on any other technical or scientific aspects of protecting the environment, resolving land-use conflicts and promoting sustainable use of the rich biological and commercial diversity of the catchment.

This document is the first update of the ICMP. The original remains intact and further revisions will be produced and ultimately be reported to the Minister.

Resource Management Issues

Twelve priority land and water management issues were identified in the ICMP. The same classification has been retained for the purposes of this report as they are still considered to be highly relevant to land management issues in the catchment.

There are many current and potential land management problems arising from conflicting interactions that are possible between each type of land use. Key resource management issues are:

- 1. Saltwater Intrusion***
- 2. Aquatic Habitat***
- 3. Weeds***
- 4. Fire**
- 5. Grazing**
- 6. Pastures**
- 7. Nature Conservation**
- 8. Clearing**
- 9. Water Quality**
- 10. Erosion**
- 11. The Visitor Experience**
- 12. Feral Pests**

(Identified by the MRCAC as having highest priority)*

These are key issues being addressed to achieve ecologically sustainable multiple-use in the Mary River catchment. They are described in detail in the original ICMP and summarised in this document. Each issue must remain an inseparable part of the global approach in the catchment to ensure sustainable multiple use.

In the original ICMP, 'Issue Strategies' were developed for the key resource management issues. Each Issue Strategy defines the issue, summarises the current situation, outlines the necessary response or strategy to address the issue, and details a timetable for implementation. The review by the MRCAC has confirmed that these strategies are still appropriate and details are contained in the ICMP.

A 'Work program' has also been evaluated and costed to ensure budget or project funding is available to support the wide range of remedial activities. These financial details together with an updated statement on the current status of each resource management issue is set out in the following section of this revised ICMP.

Responses & Current Status

1. SALTWATER INTRUSION

ISSUE

“The breakdown of remnant sand dunes (cheniers) over many decades and tidal channels along the coastal area of the catchment have allowed saltwater to enter freshwater areas of the floodplains. This event has significantly changed the wetlands and reduced land use options. Unless saltwater intrusion is controlled more damage will occur.”

CURRENT STATUS

A review by the MRCAC has confirmed that the saltwater intrusion issues are still relevant. However, as a result of a recent investigation by the Australian Marine and Offshore Group of engineering consultants, the response to the issue of saltwater intrusion is undergoing review.

The consultant’s report concludes that directing the efforts to the mouths of the creeks may not prove effective or efficient. The technical problems that would need to be satisfactorily addressed in partially closing the mouths of Tommycut and Sampan Creeks are immense and would be extremely expensive to resolve. In addition, such works if constructed could not be guaranteed from failure in extreme storm or flood conditions and liability issues are created.

The consultants propose an alternative strategy including:

- Upgrading and construction of a barrage from Shady Camp to Alligator Head to provide long term protection for the wetlands upstream.
- Installation of submerged weirs and barrages/spillways at strategic locations downstream of Shady Camp.
- Adoption of management practices that prolong the life and utility of the freshwater wetlands.

The NT Government, in considering this alternative strategy, will consult wider afield to obtain other expert opinions.

In the meantime, \$500,000 has been allocated in 2000/01 to progress repairs of barrages at critical locations, complete construction of the Tommycut submerged weir and install a new submerged weir in Deadfish Creek in the Conservation Reserve adjacent to Carnor Plains.

WORK PROGRAM

Saltwater Intrusion	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01
Economic Analysis	Preliminary investigations undertaken by Department of Primary Industries and Fisheries. To be reviewed in 2000/01			2,000
Investigation into tidal control on Tommycut & Sampan Creeks	Sinclair Knight and Merz – Tidal Choke Study Sampan and Tommycut Creeks. Report Investigates construction methods and cost options for tidal chokes at the mouths of Sampan and Tommycut Creeks. Acer Vaughan – Tidal control study – Tommycut and Sampan Creeks. Report on geo-technical studies and hydrological surveys in Tommycut and Sampan Creek. Monash University – Review on previous saltwater intrusion works and techniques used to date. Recommend the future direction on saltwater intrusion control works to be undertaken.	50,000 100,000	23,000	20,000
Capital works commitments for Tommycut & Sampan Creeks	Tidal block at mouth of Tommycut Creek. Approximately 55000 cubic metres of fill used to try to block the mouth of Tommycut Creek. Construction of 45 earthen barrages across all flow lines west of Tommycut Creek, Repair barrage 45 near Shady Camp by installing a rock lined spillway. Install rock lined spillway on barrage at Carmor Creek. Repairs to barrages that were damaged during wet season floods. Install a concrete fishway at Carmor Creek designed by an interstate consultant. Trial submerged weir below barrage 16 using 1500 1 tonne bags. Repair critical barrages on Tommycut Creek and install geo textile spillways to be trialed in 2000 wet season. Raise level of submerged weir constructed below barrage 16 to approximate of 0 AHD. Begin installation of a large trial submerged weir in upper reaches of Tommycut Creek. Repair works: take into account trial work success and Monash University report.	300,000 1,000,000 500,000	500,000	500,000
Assessment of 1996 control works & ongoing monitoring	DLPE & T&W internal reports on saltwater intrusion structure success or failures. Review on saltwater intrusion trials – Submerged weirs, fishways, geo-textile spillways undertaken by DLPE and T&W. Inspect and analyse current works.	15,000	50,000	20,000
Promotion of saltwater intrusion control plan	Promote saltwater intrusion works to interested stakeholders. Production of Saltwater Intrusion information video. Provide information to interested stakeholders, media – regional and national, conduct forums and presentations to user groups.	15,000	50,000	15,000
TOTAL		1,980,000	623,000	555,000

2. AQUATIC HABITAT

ISSUE

“Fishery resources depend on the health of aquatic habitats and ecosystems. In particular, the floodplains host a valuable barramundi fishery. Rapid changes to aquatic habitats and ecosystems as a result of saltwater intrusion and the impacts of some forms of land use in the catchment could threaten or impact on the sustainability of this fishery. Many of the processes involved are not adequately understood.”

CURRENT STATUS

A review by the MRCAC has confirmed that the aquatic habitat issues are still relevant, as are the following strategies.

Vital habitat elements must be identified and protected from damage, interference or isolation. This particularly relates to saltwater intrusion and/or measures undertaken for its control. Outcomes of the habitat study must include a thorough understanding of the requirements of all fish for two-way access. Barramundi population studies will continue in order to maximise the likelihood that changes due to any potential threat are detected.

Monitoring of existing water quality and investigation into short and long term trends is required to assess the potential impacts of development on water quality in the catchment. Alternatives should be found to any current (or proposed) practices, which significantly affect water quality. Control of feral pigs by landholders and government agencies is required to minimise damage to nursery habitats.

WORK PROGRAM

Aquatic Habitat	STATUS	Funds Expended 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Habitat Identification and Assessment of SWI impact	1 ST 2-yr NHT/NT funded program completed; final report in preparation. 2 ND 2-yr program commenced to experimentally evaluate wetland ecology before and after spillway construction. Stage one completed. (Refer NHT Project 990017)	\$436,000 *	\$298,000 *	\$295,000 *
Barramundi Population Monitoring	Basic population monitoring ongoing. Generally increasing populations with evidence of strong cycling of recruitment to Corroboree Billabong. Shady Camp recreational fishery monitoring to be resumed if funding available.	\$450,000 **	\$100,000 **	\$125,000 ** \$25,000 ***
TOTAL		\$886,000	\$398,000	\$445,000

* Includes NHT funds, dedicated NT funds, and “in-kind” contributions. ** Whole of NT with focus on Mary River (75%). *** Funding source yet to be identified.

3. WEEDS

ISSUE

“Mimosa pigra is the major weed problem. Weeds reduce land productivity, increase production costs of agricultural enterprises, reduce wilderness areas, affect tourism and recreational fishing and hunting, reduce biodiversity and often harbour feral animal infestations. Weeds also spread to previously clean areas.”

CURRENT STATUS

A review by the MRCAC has confirmed that the issues related to weed management in the catchment are as reported in the original ICMP. Long term commitment and a strategic approach are still required if major weed threats are to be controlled and new introductions prevented. Two responses are particularly relevant:

- 1) Strategic management of weeds in the Mary River catchment requires the development and implementation of a Mary River Weed Management Plan by all stakeholders. The formation of a Weeds Advisory Committee under the *Weeds Act* would be an appropriate mechanism to progress this Plan. The spatial distribution of *Mimosa* needs to be accurately determined in order to develop the Management Plan. Also trials into more effective control and management practices should continue to provide landholders with the best management practice for a particular infestation.
- 2) Individual property weed management plans should be developed and implemented in conjunction with the Mary River Weed Management Plan. Economic analysis of an individual's weed problem would support decision making and planning. Both the Mary River Weed Management Plan and Individual Plans should address the following:

Management of existing weeds through:

- definition of weeds that need to be targeted and mapping these target weeds;
- identifying a priority order for the management of target weeds;
- identifying integrated management options for target weeds in specific areas including herbicide application, mechanical and biological control, fire, revegetation using both native and introduced species and stock management;
- monitoring impact of control operations on sustainability of other land uses;
- application of research into revegetation, biological control and integrated control.
- preventing further infestation through the development and implementation of strategies designed to reduce disturbances that lead to weed invasion; and
- minimising the movement of weeds within, into and from the catchment.

WORK PROGRAM

Weeds	STATUS	Funds Expended 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Mimosa Control Assistance Scheme	The Mimosa Control Assistance Scheme is now called the Weed Management Assistance Scheme. In 1998/99 \$222,669.79 of a total \$345,933.93 was provided by DPIF to properties in the Mary River catchment	96/97: 70,221 97/98: 68,966 98/99: 222,670	171,000	171,000
Herbicide Subsidy (per property)	A total of \$61,519.54 was paid under the Herbicide Subsidy Scheme in 1998/99, of which \$793.71 was paid to properties in the Mary River catchment.	96/97: 2,753 97/98: 1,978 98/99: 794	1,000	1,000
Sampan Creek Mimosa Control	This project controlled dense mimosa along a corridor below Shady camp barrage on Sampan Creek. It was aimed at reducing the spread of mimosa to clean areas, locally and interstate; protecting Swim Creek Station from mimosa; providing a wildlife corridor along the river; and reducing the impact of mimosa on Melaleuca Station. The cost over 5 years was \$649,474. A review panel concluded that the project achieved its objectives and recommended that the project continue for another five years. This was not approved and the project is no longer funded by DPIF.	96/97: 117,543 97/98: 82,367 98/99: Nil	Nil	Nil
Other Mimosa Control	Biological control (DPIF and CSIRO): Four agents are established in the catchment; The seed-feeding weevil <i>Acanthoscelides puniceus</i> is widespread and destroys a low proportion of seeds; The tip boring moth <i>Neurostrotta gunniella</i> and the flower and bud feeding weevil <i>Coelocephalapion pigrae</i> , are widely distributed and abundant throughout the catchment. The stem boring moth <i>Carmenta mimosa</i> is expanding its distribution and increasing in density although still patchy; Monitoring sites for litter and seed fall will be established in 2000/2001. Implementation of PWCNT Weed Strategy on Conservation Land Corporation estate within the catchment.	30,000	7,000	12,000
		500,000	191,000	210,000
Mimosa mapping & database development & monitoring	Development of the Weed Mapping System is continuing at DPIF. This is for the NT, and is not specific to the Mary River catchment. Development of PWCNT GIS data-base for mapping, distribution and control of mimosa on Conservation Land Corporation estate within the catchment	500	2,000	2,000
		30,000	10,000	9,000

Weeds	STATUS	Funds Expended 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Monitoring mimosa invasion of reclaimed saltwater intruded areas	Monitoring activities by Dept Lands, Planning and Environment include mimosa invasion of saltwater intrusion areas. (Refer NHT Project 97152)	NA	63,000	60,000
Trials into integration of revegetation & impact of competitive grasses	PWCNT project to assess the factors affecting the establishment of Gamba grass in pastoral situations as opposed to natural seed establishment and to establish an ongoing monitoring program within the Wildman sector of the proposed Mary River National Park.	18,000	5,000	5,000
Weed observation trials	DPIF is conducting observation trials on zamia, senna, sida, calopo, and hyptis.		1,500	1,500
Development of Mary River Catchment <i>Mimosa pigra</i> Weed Management Plan	DPIF has produced a discussion draft of a plan to manage mimosa in the Mary River catchment. The draft plan was tabled for comment at the Landcare meeting on 8 May 2000. Feedback from stakeholders will be taken into account to produce a revised plan.		4,500	3,000
Development of Property Weed Management Plans	Development of PWCNT Weed Strategy for the management of mimosa on Conservation Land Corporation estate within the catchment – Review 2000/01.	5,000	5,000	8,000
Extension/advice	DPIF provides an extension service on weed management on request.	6,000	6,000	7,000
Landholder weed control	Control of mimosa and other weeds. Landholder cost = Subsidy paid plus unknown extra costs.	367,382 +	172,000 +	172,000 +
Roadside Weed Control	T&W contractor.	N.A.	N.A.	N.A.
TOTAL		1,524,174 +	576,000 +	601,500 +

4. FIRE

ISSUE

“Effective fire management in the Mary River catchment is required to minimise loss from uncontrolled fire and to ensure that purposeful or strategic use of fire achieves land management objectives.”

CURRENT STATUS

The Volunteer Bushfire Brigade is formed and operating well within the lower catchment area. Ongoing operational funding will be provided through BFC, and through contribution from local fund raising. The VHF repeater has been relocated to the Mt Balkannini site and provides effective communication for the catchment in line with the other repeaters covering the area.

The annual fire management planning meeting has been completed through the Volunteer Brigade and most hazard reduction and ground-controlled operations are complete for the 2000 fire season.

Formation of a strategic fire management plan for the catchment is coordinated through the Volunteer Bushfire Brigade with assistance and recommendations coming from the Arafura Regional Committee.

WORK PROGRAM

Fire	STATUS	Expenditure 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Formation of Volunteer Brigade	Point Stuart Volunteer Bushfire Brigade Established in 1998.	113,000	14,050	14,050
Fire Impact Research	PWCNT/Greencorps project completed to establish 50 long-term monitoring plots on Conservation Land Corporation estate within the catchment.	25,000	5,000	5,000
Improved Communication Network	BFC VHF radio repeater relocated to MT Balkannini. Combined with Mt Bundy, Communications for landholders and Volunteer Brigade members now allows 100% coverage.	6,000	7,000	R & M – T&W
Coordinated detection & suppression effective liaison & communication	Regional Fire Control Officer, planning, prevention and wildfire control activities.	50,000	50,000	50,000
E: Develop Fire Management Plan	Implementation of PWCNT Fire Management Strategy on Conservation Land Corporation estate in conjunction with the BFC and neighbouring landholders	225,000	75,000	77,000
TOTAL		419,000	151,000	146,050

5. GRAZING

ISSUE

“Effective grazing management is important to long-term sustainability and profitability of pastoral activities and to retaining vegetation and habitat for wildlife conservation.”

CURRENT STATUS

A review by the MRCAC has confirmed that the grazing issues within the catchment are still relevant.

Landholders need to keep floodplains in a healthy state for the good of domesticated stock and native wildlife. Two landholders have established 'grazing management' agreements with PWCNT.

Under the agreements, access can be obtained to pastures in some reserves in the dry season and areas within their own properties identified as important wildlife breeding or nursery habitat are managed conservatively, fuel loads are reduced and more effective weed control is achieved.

Stocking rates are based on inherent carrying capacity and pastures. A mix of pasture species, density of plants and growth of the pastures determines safe stocking rates. If this is exceeded, overgrazing and the subsequent problems may result. Careful management prevents overgrazing and overcomes ad hoc short-term influences and problems.

A sudden reduction in market outlets, low prices, floods, un-seasonal weather, bushfires, light or heavy wet seasons, or long dry seasons are all factors which can impact on grazing and require an effective grazing management response if overgrazing of pastures is to be avoided.

Monitoring is a key factor in understanding responses to grazing. Landholders need effective monitoring systems to provide a warning when pastures are being over utilised. The Department of Lands Planning & Environment has developed a regional terrestrial monitoring program as an alert mechanism and through extension services work with landholders to rectify any problems.

The Pastoral Land Board has established an onsite monitoring system to assist landholders in monitoring individual paddocks and provide assessment of change in pasture on a paddock, property and regional basis.

Provision of extension advice from Government agencies is important for the long-term sustainability of grazing in the Mary River. Government agencies have a wide range of information that is updated regularly as research and development activities yield results.

Coordinated extension services that provide landholders with information on their property and assist with grazing management strategies, remain a priority in addressing grazing and grazing management in the Catchment.

WORK PROGRAM

Grazing	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Grazing Management Plans				
Monitoring	1) PWCNT study on impact of cattle grazing on Mary River Conservation Reserve ongoing. Expected completion 30 June 2001.	36,000	17,000	17,000
	2) DLPE Tier 1 Monitoring program (Woolner, Murrumbidgee, Mary River East Stations)	80,000	83,000	83,000
Extension Services	DPIF On-going	50,000	10,000	10,000
TOTAL		166,000	110,000	110,000

6. PASTURES

ISSUE

“Improved pastures enhance animal nutrition, live weight gain and carrying capacity. It is a key productivity management component, which is critical to rehabilitating degraded lands. Pastures may reduce bio-diversity and change the natural values of an area. A balance of natural and improved/introduced vegetation, acceptable to all stakeholders, must be maintained.”

CURRENT STATUS

The review by the MRCAC has confirmed that the analysis of this issue is still current.

The greatest extent of improved pastures are on the floodplains and bordering upland country, which are normally exotic or introduced species. The native hymenachne (*Hymenachne acutigluma*) is generally regarded as a useful “improved” pasture for grazing stock.

On the floodplains, hymenachne is the most dominant and widespread native 'improved' pasture, while Para grass (*Brachiaria mutica*) is the most predominant exotic species. Other species on the floodplains include Tully (*Brachiaria humidicola*) on fringe country and shallow floodplains, Aleman grass (*Echinochloa polystachya*) and Olive hymenachne (*Hymenachne amplexicaulis*). Because of the conditions on the floodplains, moisture is not normally a problem and there is no need for “ponded pastures”.

Native pastures on the uplands have poor nutritional value and low carrying capacities. Pastoralists can double productivity on uplands by improving pasture species and using good management techniques. This is particularly important for properties with limited upland country, because floodplain country cannot be sustainably grazed all year round.

Improved pastures are a powerful management tool in the rehabilitation of pastures infested with weeds such as *Mimosa pigra*, *Hyptis suaveolens* and *Senna obtusifolia*, *Senna alata* and *Senna occidentalis*.

Upland species currently used include Tully, Verano stylo (*Stylosanthes hamata*), Kent gamba grass (*Andropogon gayanus*), pangola grass (*Digitaria eriantha*), Jarra grass (*Digitaria milanijana*), Wynn cassia (*Chamaechrista rotundifolia*), Glenn and Lee joint vetch (*Aeschynomene americana*) and Seca stylo (*Stylosanthes scabra*). Pastoralists in the catchment reassess the range of improved pastures by suitability of soil type, nutrition, and propensity to spread.

In the upper catchment, that mainly feature drainage flats and levees, the sowing of improved pastures is not extensive. These areas have the potential to support improved pastures and greatly increase productivity. 'Ponded pastures' are one option of providing quality livestock feed for longer periods in the dry season.

In some areas in the lower catchment, exotic pastures have spread to conservation areas within the properties or into neighbouring properties including conservation reserves.

WORK PROGRAM

Pastures	STATUS	Funding 96/97 to 98/99 \$	Current Budget \$	Draft Budget 2000/01 \$
Property Development Plans	DPIF on-going extension	15,000	2,000	2,000
Voluntary Guidelines	DPIF – completed			
Management Agreements/ Incentives	PWCNT and Annaburroo Station access and grazing Agreement for Tourism Access Corridor through Annaburroo Station completed.	45,000	6,000	10,000
Extension Services	DPIF – Improved pastures and extension	60,000	20,000	20,000
TOTAL		120,000	28,000	32,000

7. NATURE CONSERVATION

ISSUE

“Sustainability depends on natural values and processes, which rely on there being a variety of land uses. Base data on the catchment’s natural environment is not well enough known to accurately predict relationships between patterns of land use and processes in natural systems. A Nature Conservation Strategy that improves and enhances application of knowledge is vital.”

CURRENT STATUS

In conservation terms, the special character of the Mary River catchment derives from its unusually high natural productivity. The wetlands support very large breeding colonies of magpie gees and major rookies for other waterbirds. For magpie geese and crocodiles, the levels of understanding are now well enough advanced that both are recognised as offering potential for managed wildlife harvesting.

Other less conspicuous elements of the catchment’s natural resources, however, are not so well understood. Relationships between most wildlife and habitat condition, the ecological processes that sustain them and potential and cumulative impacts from the wide range of possible land uses are poorly known.

Commensurate with the ICMP the Parks and Wildlife Commission NT has focussed attention on cataloguing the biological diversity within the catchment. Extensive field sampling has been undertaken to identify the conservation values providing the basis upon which to develop further the relationships of species to environmental patterning and predictions of species loss or gain with land use changes. A comprehensive report on the outcomes is scheduled for completion in June 2001 providing indicator targets for the maintenance of biological diversity and recommendations for practical management.

WORK PROGRAM

Nature Conservation	STATUS	Expenditure 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Inventory of Biological Diversity	Existing information on the flora and fauna of the catchment has been collated by PWCNT and field sampling is now complete. Field sampling was undertaken at more than 150 sites within the lower catchment, with additional sampling undertaken at sites within the coastal fringe and parts of the upper catchment area. More targeted sampling was undertaken at a number of sites selected to represent major distribution classes, eg saltwater intrusion and weeds. This information will be used to identify the conservation values.	71,000	13,000	15,000

Nature Conservation	STATUS	Expenditure 96/97 to 98/99 \$	Current Budget 99/2000 \$	Draft Budget 2000/01 \$
Targets for Maintenance of Biological Diversity	PWCNT in association with the Strategic Partnership with Industry Scheme is undertaking wildlife distribution modelling through a range of land use scenarios based upon the Inventory of Biological Diversity.	31,000	\$40,000	Nil
Assessment of Strategic Options for Conservation & Develop Nature Conservation Plan	PWCNT draft report, including details of the flora and fauna, analysis of distributional results and predictions of changes associated with a range of land use scenarios, is scheduled to be completed by June 2001.	N/A	18,000	10,000
TOTAL		102,000	71,000	25,000

8. CLEARING

ISSUE

“Clearing is necessary for upland agricultural and infrastructure development. Clearing impacts should be minimised where development is necessary. Poorly planned and managed clearing can result in land degradation, loss of biodiversity and damage to, or destruction of, cultural heritage sites.”

CURRENT STATUS

The review by the MRCAC confirms that the earlier analysis of the issues is still relevant. The Department of Lands Planning and Environment will soon release new Clearing Guidelines, which apply to all land in the NT. These will be widely distributed and promoted as they will assist landholders in meeting their duty of care in managing their land.

Land capability assessment of the upper catchment is well underway and improved land unit mapping will be the resultant product in 2002.

Current clearing controls on pastoral land are adequate; however the Pastoral Land Board's Clearing Guidelines are being reviewed to ensure consistency with the generic NT Clearing guidelines. Fact sheets on aspects of clearing will be produced after the Guidelines are released.

Monitoring of land clearing in the greater Darwin and lower Mary River will be progressed this year with an up to date assessment provided to Government by the end of 2000.

WORK PROGRAM

Clearing	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Voluntary Guidelines	Guidelines have been produced by the MRLG.	MRLG	MRLG	MRLG
'No Clear' Area Identification/Land Capability Assessment	As part of the NHT proposal – see (10) Erosion			
Legislative Review	Review of clearing policy started, including legislative controls and Land Resource Conservation Bill. Budget implications unknown - DLPE	2,000	1,000	1,000
Clearing Fact Sheets	<i>Clearing Guidelines for the NT</i> are expected to be produced by early 2001. Fact Sheets will then be produced.	1,000	5,000	5,000
Monitoring	Relevant dataset identified. End of 2000 will see the completion of a project to aid in addressing restoration from saltwater intrusion and control of <i>Mimosa</i> .	10,000	10,000	10,000
TOTAL		13,000	16,000	16,000

9. WATER QUALITY

ISSUE

“Quality dictates economic, environmental and social uses of water. Surface water quality varies naturally, groundwater quality is more stable. Water resources can be degraded by inappropriate waste disposal and land management practices and effective controls should be applied to protect water quality. Water quality management is based on an understanding of the effects of natural catchment processes and land use practices.”

CURRENT STATUS

The review by the MRCAC has confirmed that water quality issues identified by the ICMP remain relevant. These issues focus broadly on the potential impact land activities may have on the aquatic environment. The principal water quality activities currently being undertaken in the catchment are: Licensing of wastewater discharges under the *Water Act 1992*; licences have been issued to Toms Gully and Union Reef mines; Defence Department has a water quality-monitoring program in place for the Mt Bundy Defence Training Area; an NHT/DLPE water quality project is assessing water quality data for the catchment, identifying information gaps, collecting baseline information and developing a water quality monitoring system; a Waterwatch Group has been established, with several monitoring sites and investigation of fish-kills.

WORK PROGRAM

Water Quality	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Declaration of Beneficial Use/ Public Consultation	Beneficial use declaration for catchment not yet commenced. Education program for catchment stakeholders being devised. Recommendation from MRCAC on Beneficial Uses to be developed.	Nil	Nil	5,000
Waste Discharge Licensing Control	Licence issued for Toms Gully Mine.	15,000	3,000	3,000

Water Quality	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Water Quality Research	NHT/DLPE funded project started September 99. Variability of water quality in the floodplain billabongs assessed. Low dissolved oxygen concentrations at Shady Camp (caused fish kill November 99), investigated. Hydrographic and catchment data compiled for select monitoring sites, have been visited May-August 00. Monitoring activities with Waterwatch being integrated. (Refer NHT Project 98081)	15,000	107,000	130,000
Establishment of Community Based Waterwatch	Mary River Waterwatch Group formed 1997. 22 sites selected to monitor nutrients and water chemistry. Most on small watercourses north of Arnhem Highway with a range of nearby land-uses. Assistance provided by Wilderness Work Camp. (Refer NHT Project 97044)	44,000*	22,000	37,000
TOTAL		74,000	132,000	175,000

*NHT project

10. EROSION

ISSUE

“Erosion is natural but it can be accelerated by inappropriate land use practices. Sheet, rill, gully and streambank erosion has occurred in the catchment through the impact of water, and inappropriate recreational vehicle use. Areas inappropriately cleared, overgrazed or with poorly managed fire regimes are susceptible to erosion, that degrades the land and impacts on water quality.”

CURRENT STATUS

A review by the MRCAC has confirmed that the erosion issues are still relevant. The Department of Lands Planning & Environment is conducting a Land Degradation Survey as part of the land resource assessment program. New Erosion and Sediment Control Guidelines are expected to be published by DLPE in November 2000 and widely distributed and promoted among all stakeholders and land managers.

WORK PROGRAM

Erosion	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Land Degradation Survey & Mapping	Land Degradation Survey and Mapping to be derived from resource assessment survey. Current status: Preliminary air photo interpretation to locate sampling sites complete; Land unit data over lower catchment being digitised; Data entry system for storage/manipulation of ecological field data (Resource Assessment Vegetation System:RAVS) near completion. Major field operations started April 2000. (refer NHT project 97140)	46,803	138,102	136,605
Soil Conservation Guidelines	Guidelines currently being compiled and expect to be completed by early 2001.	1,000	2,000	2,000
Appropriate Land Management Practices	DLPE assists with dedicated extension services for landholders and T&W with information on drains/stabilising areas; Landholders undertake works when required.	252,000	25,000	10,000
Monitoring	Sites for Lower Mary established. A season of data collected and final sampling to occur in dry season 2001.	208,195	63,902	60,000
TOTAL		507,998	229,004	208,605

11. THE VISITOR EXPERIENCE

ISSUE

“The catchment uniquely offers a wide range of visitor experiences. Quality of this experience is inextricably linked to ecosystem health, which relies on maintenance of wildlife and fish habitats and the natural landscape. Maintenance and management of these environments is integral to providing worthwhile visitor experience.”

CURRENT STATUS

The potential remains constant for a wide variety of visitor experiences and adventure activities throughout the whole catchment. PWCNT manages ten areas within the proposed Mary River National Park which feature a wide diversity of habitats including freshwater and tidal wetlands, monsoon rainforests, vine thickets, upland forests, rocky outcrops and coastal communities. The expansive floodplain of the Mary River is traversed by a variety of attractive waterways and billabongs, some of which are navigable for considerable distances.

The range of visitor activities includes bushwalking, camping, four wheel driving, mountain-bike riding, fishing, boating and wildlife observation. A major part of the upper catchment is enveloped in Kakadu National Park.

The Capital Works program for the area is complete, providing a range of facilities and visitor experiences designed to complement those already available within Kakadu National Park. These include visitor information bays, 4WD track network, day use picnic areas, toilets, walking tracks, boat launching facilities and a bush camping area.

A network of roads and tracks is continuing to be maintained for access throughout the catchment, and provision of interpretive information enhances understanding of catchment environments and their management.

The spread of weeds and exotic plant species, impact of feral animals, land degradation and soil erosion, and uncontrolled burning all impact on the ability of parks, reserves and waterways in the catchment to contribute to the quality of visitor experiences.

Access to the bulk of the Mary River catchment has predominately been restricted to 4WD and/or boats, although with the New Discovery Trails and the imminent opening of Mary River National Park, a surge of visitor numbers venturing into these areas is anticipated. Up until now, visitors utilising private (tourist) facilities fall into two categories :-

- . Interstate and intrastate fishermen staying for periods of 2-14 days;
- . self drive tourists, backpackers and local trade generally staying overnight due to lack of access and promotion of the area.

A third group – organised coach groups from interstate and overseas – currently do not venture off the Arnhem and Kakadu Highways, until they reach their stopover in Kakadu National Park.

Private landholders and tour operators currently contribute to work programs via the following:

- . Assistance and fundraising in the establishment and ongoing expenses of the Mary River Volunteer Fire Brigade;
- . Involvement in Mary River Landcare group;
- . Visitor education on access, fishing regulations, environment etc.

WORK PROGRAM

The Visitor Experience	STATUS	Expenditure 96/97 to 98/99 \$	Budget 99/2000 \$	Draft Budget 2000/01 \$
Plan of Management – Mary River National Park	Draft Plan of Management for proposed MRNP presented to MRLG for comment and endorsed by PWCNT Board. Public comment and declaration of Park to proceed when Native Title issues resolved.	65,000	Nil	Pending – Budget to be determined
Visitor Management – Lower Mary Reserves	Staff structure for proposed Park reviewed. Additional position appointed. Projects completed at Mount Bundy, Delta, Wildman and Shady Camp include: info shelters, orientation/directional signage, improved access, car parking, day use sites, toilets, bird viewing shelters, boat ramps and campground.	511,000	179,000	36,000
Tourism Infrastructure & Promotions Concessionaries	PWCNT and Annaburroo Access Agreement completed - links 4WD-adventure track through Mount Bundy, Delta and Wildman sectors. 5 commercial operators offer visitor facilities/services – guided boat tours, wildlife viewing tours, campground management and boat hire.			N/A
Visitor Use Surveys	Visitor Monitoring Strategy scheduled for proposed MRNP in consultation with Tourist Commission. Strategy proposes to: Provide a system of traffic counters at selected locations; develop qualitative surveys of visitor preferences, expectations and attitudes; and develop a visitor impact monitoring system. Visitor Monitoring Manual drafted to outline standard methods to collect and manage data, includes formats for development of a visitor monitoring strategy for the proposed Park as outlined in the draft Plan of Management.			Budget to be determined
Assessment for appropriate tourism opportunities within whole catchment	Refer above.			
TOTAL		576,000	179,000	36,000

12. FERAL PESTS

ISSUE

“Feral animals damage pasture or crops, degrade wildlife habitats, kill native wildlife, accelerate spread of weeds, degrade landscapes and make control of introduced stock diseases difficult. Feral animals are present throughout the catchment and a strategic control and management strategy is required.”

CURRENT STATUS

A strategic approach to the control and management of feral pests was identified as a key outcome within the ICMP. However, through the implementation of the Works Program, it was clearly identified that a coordinated approach to feral animal control will be extremely difficult, if not impossible, to achieve. This is due in part to the differing views on the economic viability or otherwise feral pigs among landowners and managers throughout the catchment. It is proposed to place this matter before the Mary River Landcare Group for their consideration and further action.

WORK PROGRAM

Feral Pests	STATUS	Funds Expended 96/97 to 98/99	Current Budget 99/2000	Draft Budget 2000/01
Formulation of Feral Pig Control Strategy	PWCNT survey undertaken to determine landholders' attitudes to feral pig control. Research shows wide opinions/perceptions of economic value of feral pigs and environmental impact. Variety of control methods used.	\$5,000	Nil	Budget to be determined
Implementation of Controls through PMP	PWCNT Handbook developed on formulating control programs, as part of research on impacts, distribution and control for feral pigs. Feral Animal Control Program implemented on Conservation Land Corporation estate.	65,000	14,000	14,000
Monitoring of Control Strategy – Annual Reporting	Land managers monitor effectiveness of control methods on a property/paddock basis. Coordinated monitoring/reporting strategy within the catchment to be further developed.	Nil	Nil	Budget to be determined
Studies of Feral Pig Impacts on Production & Environment	PWCNT research gave details of perceived impact of feral pigs, seasonal distribution, control methods, costs and success on properties within catchment. Report tabled at 20/10/99 MRCAC meeting.	15,000	Nil	Budget to be determined
TOTAL		85,000	14,000	14,000

ABBREVIATIONS AND ACRONYMS

AHD	Australian Height Datum
BFC	Bushfires Council
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DLPE	Department of Lands Planning & Environment
DPIF	Department of Primary Industry and Fisheries
FPCS	Feral Pig Control Strategy
GIS	Geographical Information System
ICMP	Integrated Catchment Management Plan
MRCAC	Mary River Catchment Advisory Committee
MRLG	Mary River Landcare Group
MRNP	Mary River National Park
NA	Not available
NHT	Natural Heritage Trust
NT	Northern Territory
PWCNT	Parks & Wildlife Commission NT
T&W	Department of Transport and Works

NHT PROJECTS 2000/01

Project No	Project Title	Organisation	Project Officer
97044	Mary River Catchment and Adjacent Catchment Waterwatch Coordinator	The Mary River Landcare Group	
97140	Mary River Catchment - Resource Assessment & Degradation Survey	Dept of Lands Planning & Environment	Dianne Napier
97152	Monitoring system for the Mary River Catchment Management Plan	Dept of Lands Planning & Environment	Jane Hosking/ Christine Bach
98045	Revegetation following clearance of Mimosa infestation	The Mary River Landcare Group	Joye Maddison
98048	Woodland and Riparian communities protection in the Mary Catchment	The Mary River Landcare Group	Joye Maddison
98081	Adaptive Water Quality Management - Mary River ICM	Dept of Lands Planning & Environment	Cyrus Edwards
990017	Assessment of fish passageways on fish migration	Department of Primary Industry and Fisheries	Roland Griffin



MARY RIVER CATCHMENT ADVISORY COMMITTEE

TERMS OF REFERENCE

Purpose of Committee

The purpose of the committee is to foster ecologically sustainable multiple-use of the Mary River catchment as determined by the following objectives:

- By prudent land use enhance economic productivity while avoiding habitat degradation.
- Determine land allocation and tenure systems, which suit current and anticipated future needs.
- Use natural renewable resources to ensure their continuing availability and to maintain their quality.
- Maintain and conserve wildlife communities and necessary ecological processes through the retention, protection and rehabilitation of natural terrestrial and aquatic habitats both through the reserve system and through private landholder cooperation.
- Maintain the functional integrity and uniqueness of the Mary River system while encouraging multiple land use throughout the catchment.
- Work cooperatively between interested parties, both government and private, to achieve the above objectives.

Functions of Committee

- Oversight and ensure coordination of the work programs which are set in the approved Mary River Integrated Catchment Management Plan;
- Provide a forum to consider issues brought forward by Government and/or stakeholders relating to ecologically sustainable multiple-use of the catchment and recommend the means for their resolution either by direct local action or through government support as appropriate.
- Advise the Minister in accordance with the provisions of the *Water Act*.
- Advise the Minister on all other responsibilities and duties as are conferred on the committee for the purpose of ICM through legislation other than the *Water Act*.
- Monitor and report on the success of the work programs as measured against the objectives set in the ICMP.
- Report to the Minister on the achievements of the ICMP through an annual progress report at the end of 1999, including recommendations for interim amendment to the ICMP.
- Complete for the Ministers approval by end of year 2000 a fully revised ICMP based on the knowledge gained in respect of ecologically sustainable multiple-use of the catchment.

Powers of Committee

The committee will:

- Advise the Minister in accordance with the provisions of the *Water Act*.
- Exercise responsibilities and duties under legislation other than the *Water Act* only after approval by the Minister and then in strict accordance with the relevant legislative requirements.
- Determine the manner in which it conducts its business subject to satisfying provisions under the *Water Act* that proper records of all meetings are maintained and administrative budgets are adhered to and fully accounted for.
- Seek any information, comment, advice and opinion it considers relevant to achieving the goals and objectives set in the ICMP subject only to budgetary limitations.

Accountability of Committee

The committee will:

- Seek the involvement of all stakeholders it deems relevant to the matters placed before it and record their views in the decisions taken and advice given by the committee.
- Provide an annual progress report by end of 1999 to the Ministers satisfaction.
- Receive by end of year 2000 the Ministers approval for a fully revised ICMP.

Membership of Committee

Membership - subject to appointment by the Minister under the *Water Act*:

Chairperson

Mary River Landcare Group

Pastoral Industry

Fishing Industry

Tourism Industry

Mining Industry

Department of Primary Industry and Fisheries

Parks and Wildlife Commission of NT

Department of Lands, Planning and Environment

Commonwealth Representation

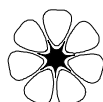
Support and Linkages

The committee will receive administrative support from the Department of Lands, Planning and Environment within prescribed budgetary limits for secretarial services and costs of meetings; support from other sources may be received subject to conditions prescribed by the Minister.

The Mary River Technical Working Group will provide technical and scientific input to the committee in accordance with the objectives and work programs set in the approved ICMP.

The committee must maintain effective linkages with all landholders in the Mary River and all other industry and association groups across the full range of interests in ICM for the Mary River catchment.

16 May 1999



Northern Territory Government