PEST MANAGEMENT PLAN

2002 – 2005

TOWNSVILLE CITY

Contents

EXECUTIVE SUMMARY

The Townsville City Pest Management Plan aims to benefit the city through:

- Better use of resources available within the community and Council
- Better involvement of the community in pest management
- Addressing local government responsibilities under the Lands Protection (pest and stock route management) Act 2002.
- Providing a guide to Council staff involved in pest management
- Better coordination between all stakeholders, including integrated catchment management approaches, statewide land protection strategies and management of conservation areas.
- Increased Council effectiveness in meeting community needs
- Ensuring Local Government accountability

The plan identifies the goals for pest management in the region as:

"All stakeholders are working together to implement ongoing, coordinated and effective pest management."

Strategies under nine objectives are recommended to ensure the goal is achieved so as to:

- Increase community awareness and understanding of pests, their impact and how to manage them;
- Ensure all stakeholders accept their pest management responsibilities and are committed to implementing effective pest management;
- Establish a system to identify, map, report and monitor pests;
- Gain the financial and human resources necessary for effective pest management;
- Prevent the introduction of new pests;
- Eradicate critical pests and isolated outbreaks of pests, and to reduce or contain the extent and impact of other pests;
- Encourage and support best practice pest management;
- Encourage and support research into more effective controls on pests;
- Regularly monitor and review the implementation of the Pest Management Plan.

Stakeholder input required

This Draft is now available for public consultation and comment until (DATE)
When the public consultation period is concluded, the Draft will be reviewed and the final Draft presented to the Council for endorsement.

Submissions should be addressed to:

Environmental Health Services
Townsville City Council
PO Box 1268
TOWNSVILLE 4810

It is important that all stakeholders in the Townsville City area read the draft and provide their comments to the working group. In this way, the Council will have the maximum chance of success in managing pest species for productive and sustainable land management.

1. INTRODUCTION

On the 18th of April 2002, Queensland parliament passed the *Land Protection (Pest and Stock Route Management) Act 2002,* replacing the *Rural Lands Protection Act 1985.* Under this new legislation Local Governments are required to develop a Pest Management Plan to assist in the effective control of declared pests (plants and animals).

The development process involved in the establishment of Local Government area Pest Management Plans involves a contribution of a number of stakeholders within the community. To ensure an effective and practical plan, stakeholders need to become an integral part of the process.

Council will sponsor the development of the plan inviting input from landholders, industry, community and those government agencies managing large areas of State & Commonwealth land. Prior to Council's adoption of the draft it will be made available for public consultation and written submissions.

Following proclamation (of the new Act proposed December 2002) the plan will be reviewed by the Minister of Natural Resources and Mines to ensure the plan is consistent with State Pest Management strategies, principles and guidelines.

2. BACKGROUND

2.1 LAND MANAGEMENT IN TOWNSVILLE CITY

Land in Townsville City is primarily managed for one or more of the following range of values:

- Residential
- Tourism and recreation
- Agriculture
- Grazing
- Cropping and horticulture
- Nature Conservation
- Cultural Heritage, and
- Mining
- Industrial and Commercial
- Defense

The pest plants and animals that are present are seen to be more or less of a threat depending on the primary values for which a landholder is managing the land. For example, Hymenachne is a useful pasture plant but is a serious threat to nature conservation and Chinee Apple may be nice to eat, but easily gets out of control in grazing, conservation and unmanaged areas.

The Pest Management Working Group has considered all pests in relation to the range of land management priorities in the Townsville City area. The challenge for the Working Group was to consider the varied land uses and needs of the rural parts of the region and the needs of urban residents. When conflicting needs were evident, the group made recommendations based on its knowledge of the pest's ecology, rate of spread, invasion potential, control methods available and other factors, while keeping in mind the needs for long-term sustainability of the range of land uses in our area. Some weeds are considered important not because they are currently present, but for the huge cost that may be incurred should the current controls on their distribution fail. The cost of keeping these as potential weeds must be taken into account.

2.2 LEGISLATIVE REQUIREMENTS REGARDING PESTS

The Land Protection (pest and stock route management) Act 2002 provides for the control of declared pest plants and animals and the management of stock routes throughout Queensland. The Act also recognizes pests (plants and animals) and their economic, environmental and social impacts. In it, landholders, Local Governments and the Department of Natural Resources have clearly defined responsibilities.

Townsville City Council is responsible for:

- The development a Pest Management Plan in accordance with Chapter 1 Part 4 of the Land Protection (pest and stock route management) Act 2002
- Ensuring that declared plants and declared animals are controlled within its area (Chapter 1 Part 8) and on lands under its control (Chapter 1 Part 8).
- Preventing the introduction into and spread within its area of declared plants and animals and, enforcing relevant provisions of the Land Protection (pest and stock route management) Act 2002.

To fulfill these responsibilities, the Council is expected to[1]:

- Control declared plants and animals on land under its control;
- Inspect private property to determine the presence of declared plants and animals;
- Provide advice to landholders on appropriate pest control options;
- Carry out procedures to ensure control of declared pests on private property[2]

The Department of Natural Resources is responsible for:

- Identifying areas to which Council should direct their efforts;
- Providing technical and management information and staff training to Council personnel;
- Controlling pests on Unallocated State Land
- Ensuring that declared pest plants and animals are controlled on land under the control of other Government Departments.
- Ensuring lease conditions are consistent with this Pest Management Plan

Landholders are responsible for:

- Controlling declared plants and animals on their own land

The Queensland Local Government Act (Council Local Laws)
Under this Act, Council can declare pests additional to those declared under *The Land Protection (Pest and Stock Route management) Act 2002*. This declaration only applies to the local government area of the declaring Council. A declaration under this Act brings with it the same responsibilities for Council and Landholders in respect to the declared pest as under *The Land Protection (Pest and Stock Route management) Act 2002*.

Other relevant legislation (although not a conclusive list)
Workplace Health and Safety Act ,Land Act - Tree Clearing Guidelines, Nature Conservation Act 1992, Agricultural Chemicals Distribution Control Act and Health Regulations 1996

[1] Council will be guided in its approach to pests by the priorities outlined in this Pest Management Plan.
[2] The cost of this work will be borne by the landholder

2.3 DECLARED PESTS

2.3.1 Declared Plants

A declared plant (formerly termed “noxious plant” or “noxious weed”) is a plant considered a serious enough pest (could have a serious economic, environmental or social impact) to warrant its control being enforced under legislation.

This legislation is Land Protection (pest and stock route management) Act 2002. Declaration is used as a preventative measure and there is no point in declaring a plant that has already spread to the limit of its habitat.

Declaration imposes legal responsibilities for control. Under the Act, all landholders, Local Governments and State Government agencies are required to control declared plants under their control. The categories of declaration are:

CATEGORY	DESCRIPTION
Class 1	Not Generally established In Queensland and has potential to cause adverse economic, environmental or social impacts.
Class 2	Established in Queensland and can cause significant adverse economic, environmental or social impacts (including in another State)
Class 3	Established in Queensland and has or could have an adverse economic, environmental or social impacts (Including in another State)

2.3.2 Declared Animals

Under the *Land Protection (pest and stock route management) Act 2002*, several animals have been declared as pests. Such animals represent a threat to agriculture, the environment and/or the land itself. Species are categorised according to the degree of control required. Restrictions are placed on the introduction, keeping and sale of non-native reptiles and mammals.

CATEGORY	DESCRIPTION
Class 1	Not Generally established In Queensland and has potential to cause adverse economic, environmental or social impacts.
Class 2	Established in Queensland and can cause significant adverse economic, environmental or social impacts (including in another State)
Class 3	Established in Queensland and has or could have an adverse economic, environmental or social impacts (Including in another State)

2.4 PEST MANAGEMENT PLANNING

A program to stop land degradation by exotic pest invasion is a major undertaking. It can't be achieved simply by allocating finance in the annual budget. Without setting goals and defining the means of achieving them, any gains will be due to good luck rather than good management.

When no clear guidelines are set down, progress on pest control is continually set back by staff having to refer back to Council for decisions or instructions. The Pest Management Plan will form a policy document that in effect is a reference for field and administrative staff, as well as a guide for the complementary involvement of ratepayers in a coordinated approach to pest management across the City.

This pest management plan will provide the following benefits:

- Better use of resources available within the community and Council;
- Improved community appreciation of Council's efforts;
- Better basis for making resource allocations;
- Addresses local government responsibilities under the *Land Protection (pest* and stock route management) Act 2002
- Evidence of Local Government accountability;
- Increased Council effectiveness in meeting community needs;
- Better coordination between all stakeholders, including integrated catchment
- Management approaches, statewide land protection strategies and
- Management of conservation areas.

2.5 ROLE OF PEST MANAGEMENT COMMITTEE

The Pest Management Committee is a Townsville City Council working committee comprising a core membership of representatives from Council with NR&M and key stakeholders from the community invited to participate as required. They established their role in relation to pest management as the following:

- To develop a Draft Pest Management Plan and consider public consultation outcomes
- To review the final plan in accordance with Objective 9
- To monitor implementation of the plan
- To provide a forum for community input (2-way information flow)
- To be a focus for submissions for additional funding to implement the Plan.

2.6 ISSUING OF NOTICES

Under Chapter 2 Part 8, (Division 2 - controlling pests) Section 78, of the *Land Protection (Pest and Stock route Management) Act 2002.* Council may serve notice in writing to an owner and / or occupier of land to control declared plants and declared animals on, or on any specified part of, the land, and specify a completion date for the person to carry out the required control.
Property inspections will be the responsibility of a City Council employee who will be appointed as an Authorised Person under Chapter 7, Part 2 Section 244 of the *Land Protection (pest and stock route management) Act 2002*. The powers of an Authorised Person and Inspectors are laid out in Chapter 7 Part 3 – Power of Authorised persons, of the Act.

Prior to Townsville City Council issuing a notice, it is important that all procedures leading up to and including the issuing of a Notice be detailed and clearly set out for the benefit of all Council employees participating in this program.

Notices under the *Land Protection (pest and stock route management) Act 2002* are to be issued on defaulting landholders after exhaustive consultation, and then only if all avenues have been pursued. Prior to the issuing of a Section 78 Notice, Council Officers are to consider the correct time for the Notice to be served on the Landholder, the area of land and density of the infestation that the notice is to cover, and the expected operation and financial resources required to undertake the work designated within the Notice.

The Pest Management Officer is to accompany the Landholder on an inspection of the designated Notice area to ascertain control levels immediately after the notice expires. If the Landholder's activity does not comply with the Notice requirements, the Pest Management Officer is to prepare a report to the Local Authority detailing their findings, the Landholders comments, and their recommendation for further action.

Extensions of time can be given when a Landholder has made a genuine attempt to control the situation. The Local Authority only on advice will grant the Extension of time from the Pest Management Officer (or designated authorised officer) and after consultation with the Landholder. A cover letter and map of the property showing infestations and area to be controlled should be attached to the Section 78 Notice.

If the infested land is owned or managed by a State or Federal Government agency, then Council will refer the matter to the Department of Natural Resources and Mines which has the power to take action on the matter.

3. CURRENT SITUATION WITH PESTS

Pest infestation in the Townsville City area is to a large extent unknown. These pests have been dealt with in an uncoordinated approach by various agencies, landholders and Council. To be effective, an integrated approach to pest management needs to be taken. This plan provides the necessary framework for the integration of efforts by all stakeholders. It is important to note that the control of some pests (eg. The cane toad) are currently beyond the ability of any agency. This plan concentrates on achieving realistic outcomes using present technology.

3.1 PEST PLANTS

Over forty (40) introduced plant species were identified by the Pest Management Group as current or potential pests to one or more of the various land uses in the City. These pests have been prioritised.

3.2 PEST ANIMALS

Pest animals have been identified and are prioritised in this plan.
Introduced rats, mice and mosquitoes are subject to health legislation and will not be dealt with in this pest management planning process.

4. GOALS AND OBJECTIVES

4.1 GOAL

The Goal Statement for Pest Management in Townsville City is:

> "All stakeholders are working together to implement ongoing, coordinated and effective pest management"

4.2 Objectives

The objectives for Pest Management in Townsville City are:

1. To increase community awareness and understanding of pests, their impact and how to manage them;
2. To ensure all stakeholders accept their pest management responsibilities and are committed to implementing effective pest management;
3. To establish a system to identify, map, report and monitor pests in the Council area;
4. To gain the financial and human resources necessary for effective pest management;
5. To prevent the introduction of new pests;
6. To eradicate isolated populations of pests and reduce or contain the extent and impact of other pests;
7. To encourage and support best practice pest management;
8. To encourage and support research into more effective controls on pests and
9. To regularly monitor and review the implementation of the Pest Management Plan.

5. STRATEGIES

OBJECTIVE 1

To increase community awareness and understanding of pests, their impact and how to manage them			
Action	**Agency**	**Target Date**	**Performance Indicator**
Provide Draft PMP for public consultation	Council	Sept 2002	Public submissions received
Submit PMP for final Council approval after incorporation of public submissions	Council	Jan 2003	PMP adoption
Develop press articles.	Council, DNRM	ongoing	Press articles developed.
Design, fund & conduct a statewide TV advertising program	DNRM	ongoing	TV ads aired.
Conduct information sessions & competitions at schools.	Council, DNRM	ongoing	Sessions prepared & presented
Obtain & publicise successful case studies.	Council	ongoing	At least 2 success stories published each year.
Develop & distribute user-friendly information about pests to the community.	Council, DNRM	ongoing	Materials produced
Do strategic mail-outs of pest information.	Council, DNRM	ongoing	Mail-outs completed
Encourage DNRM to provide a pest kit to local government Councilors.	Council, LGAQ	2002 ongoing	Kits received from DNRM.
Educate stakeholders about their responsibilities, including pet shops, plant nurseries & other suppliers.	Council, DNRM	2002 ongoing	Education program developed & implemented annually.
Educate urban communities about their contribution to the weed problem	Council, DNRM	2002 ongoing	Program being delivered locally
Develop a “travelling road show” of displays & education materials to be used throughout the city.	Council, DNRM	2002 ongoing	Displays produced & a display schedule developed & implemented
Promote the control of pests at horticultural shows etc.	Council, DNRM	ongoing	Events held annually
Further continued support of “Land for Wildlife” program	Council	ongoing	Events held annually
Organise a “weedbuster” event.	Council, DNRM	ongoing	Events held annually.
Organise field days & trips to view the impacts of pests & their successful control	Council, DNRM	2002 ongoing	Events held annually
Resources			
Staff - To be determined	Operating funds - To be determined		

OBJECTIVE 2

To ensure all stakeholders accept their pest management responsibilities and are committed to implementing effective pest management.			
Action	**Agency**	**Target Date**	**Performance Indicator**
Educate Council & Council staff regarding Council's legal responsibilities in relation to pests & pest management practices.	Council, DNRM & LGAQ	2002	Strategy for informing Councilors developed & implemented.
Ensure Council's legislative responsibilities are carried out by the appointment of trained staff.	Council, DNRM	2002	Sufficient & appropriate staff is employed.
Include the Pest Management Plan as part of the Council ' Corporate Plans.	Council	Feb 2003	PMP is incorporated
Enforce legislative requirements of the Land Protection (Pest and Stock Route Management) Act 2002 through serving notices when necessary	Council, DNRM	Ongoing	No cases needing notices are brought to the attention of the PWG
Contact landholders to explain pest management & assist them in developing property pest management plans	Council, DNRM	Ongoing	A plan of action for approaching strategic landholders is developed & implemented
Develop Pest Management Plans for properties in the City in conjunction with landholders.	Council	Mar 2003	A program for visiting landholders is prepared & implementation commenced
Ensure pest management is a component of DPI's "future profit" project.	LGAQ, DNRM	To be determined	Pest management is included.
Quantify the costs of pests to Council & ratepayers.	Council	To be determined	Costings are prepared.
Publicise examples of "Good" management of pests & the benefits arising from it	Council, DNRM & LGAQ	Ongoing	At least 2 success stories published each year.
Develop a monitoring program for pest management.	Council	2003	Effective monitoring program in place.
Organise field days & trips to view the impacts of pests & successful control measures.	Council, DNRM & LGAQ	Ongoing	At least 2 events held annually
Resources			
Staff - To be determined		Operating funds - To be determined	

OBJECTIVE 3

To establish a system to identify, map, report and monitor pests.			
Action	**Agency**	**Target Date**	**Performance Indicator**
Set up a weed reporting system – eg "weedstoppers".	Council	ongoing	Reporting system in place.
Produce & circulate a standard form on which landholders can report information on weeds – species, area, density, treatment & its success, description of the environment in which the weed is growing, etc.	Council, DNRM & LGAQ	2003	Form distributed to all field staff & community.
Encourage Council staff to use the pest reporting form.	Council	ongoing	Council staff are using the form.
Investigate the feasibility of a web site for weed information & reporting.	Council, DNRM & LGAQ	ongoing	Report on feasibility produced & presented to PWG.
Investigate establishing a pest hotline.	Council	2003	Report on feasibility produced.
Encourage landholders to complete property pest reports.	Council	ongoing	Letter & a copy of this plan & reporting forms provided to all groups.
Solicit the assistance of community groups, landcare, birdwatchers etc to report pests.	Council, LGAQ	2003	Technique employed that will enable PWG to monitor on-ground works.
Develop an appropriate pre- & post-treatment survey / monitoring technique.	Council	2003	Ongoing.
Allocate staff to physically (footwork or aerial photos) ground truth reports.	Council	ongoing	Ground-truthing of reports is done
Use aerial photography or surveillance for weed mapping.	Council, DNRM	2002	Maps are available.
Map weeds in the Council area.	Council	ongoing	Maps are available.
Create & maintain a GIS system for weed mapping which is compatible with the currently available NRM system Pestinfo	Council, DNRM	2002	GIS established & maintained.
Produce a yearly report or update on the progress with weed reduction (could be distributed with the rate notices).	Council	2003	Report written & distributed to the community.
Provide a Gaant chart on activities for the year.	Council	2003	Chart provided as part of report to PWG
Resources			
Staff - To be determined	Operating funds – To be determined		

OBJECTIVE 4

To gain the financial and human resources necessary for effective pest management			
Action	**Agency**	**Target Date**	**Performance Indicator**
Identify the scope of the problem & the resource shortfall (more detail is needed in baseline data).	Council	2003	Report produced with recommendations.
Present successful case studies to Council via the Environment Services Committee to demonstrate that pest management works & request further funding.	Council	2002	Presentation undertaken & funding request made.
Educate Councilors on the cost of pests & the benefits of control.	Council	2002 Ongoing	Education process documented & undertaken.
Highlight legal obligations & community support to Council to encourage further funding.	Council	2002	Nil.
Support the development of property pest management plans.	Council, DNRM	2003	Written request made.
Seek funding from DNRM's Local Government Assistance Program.	Council, LGAQ	2002	Application made.
Seek funding from the Natural Heritage Trust for employment of project officers to start the program.	Council	2002	Applications made.
Explore the possibility of assistance through labour market programs & utilise this for field works, including management & survey.	Council, DNRM	2002	Requests written
Investigate other sources of external funding.	Council, DNRM	Ongoing	Report on options for external funding written for PWG.
Consider a rates levy to fund pest management.	Council	2003	Proposal to /approval from Council
Consider using contractors for pest control work (do a cost-benefit analysis).	Council	2002	The use of contractors has been accepted
Seek sponsorship from industry (eg Agricultural Chemical Manufacturers) for community awareness & employment programs.	Council, DNRM & LGAQ	2003	Approaches made to industry.
Lobby for removal of taxes etc on weedicides	Council, DNRM & LGAQ	2003	Lobbying methods reported to PWG
Resources			
Staff - To be determined	Operating funds - To be determined		

OBJECTIVE 5

To prevent the introduction of new pests			
Action	**Agency**	**Target Date**	**Performance Indicator**
Identify any necessary quarantine areas within the city & the ramifications for all stakeholders.	Council, DNRM	2003	Quarantine measures needed are considered by PWG.
Verify that Parthenium is coming into the area in poultry feed.	Council, DNRM	2004	Investigations undertaken.
Alert landholders to weed seeds in grains or hay.	Council	2002	Voluntarily undertaken only
Educate the community to be selective when buying stock feed from external areas.	Council, DNRM	2004	Included in education program.
Control stock feed movements from external identified weed problem areas.	Council, DNRM	2003	Control procedures in place.
Alert landholders to best practice of purchase & feed out of fodder. Monitor. Ensure AQIS provides sufficient education materials at local airports to alert people to potential pests.	Council, DNRM, AQIS &LGAQ	2004	Education material available at airports.
Lobby for a statewide generic advertising campaign for pest prevention targeting the travelling public – eg road signs, ads on RACQ maps etc.	Council, DNRM, Main Roads	2004	Information available & distributed to the travelling public.
Ensure international & interstate visitors are informed of potential pests & how to prevent inadvertently transporting them.	Council, DNRM, AQIS, Main Roads	2004	Education program developed & implemented.
Mount a public awareness campaign on potential pests, including the message not to dump plants & animals.	Council, DNRM, AQIS	ongoing	Pest awareness included in information for potential staff.
Ensure migrating defence force families are aware of potential introduction of pest plants & animals.	Council, DOD, DNRM	2003 ongoing	These target groups are addressed in Council education program.
Ensure plant / animal / fish retailers are aware of current & potential pests.	Council, DNRM	2003	Meeting held
Inspect nurseries.	Council, DNRM	2002 ongoing	Nurseries inspected.
Convene a meeting of Dry Tropics Councils to discuss mutual concerns / solutions.	Council	2002	Meeting held
Liaise closely with neighboring authorities.	Council	2002 ongoing	Meeting held
Discuss at North Queensland Local Government conference as a segment	Council	ongoing	Conference held
Resources			
Staff - To be determined	Operating funds To be determined		

OBJECTIVE 6

To eradicate critical pests and reduce or contain the extent and impact of other pests

METHODOLOGY

The priorities and strategies for pest management were worked through according to the following process.
Based on the pests' biology, ecology and distribution, each pest plant and animal was rated according to its "strategic importance" – its potential threat to areas of high natural value or agricultural importance. The rating categories were:

1 = Critical
2 = Threatening
3 = Moderately threatening
4 = Little threat

An "achievability" rating was then assigned to each pest as follows:

A = Could be eradicated from the City / specific area
B = Could be significantly reduced in area (plants) or numbers (animals) in the city / specific area
C = Could be contained / prevented from spreading (plants) or could prevent major/ rapid increase in numbers (animals)
D = Could be managed effectively with an acceptable level of biocontrol

Each species was prioritised for future action as high, medium or low priority. This rating reflected:

- Achievability rating
- Strategic importance
- Declaration category (if any)
- Operational, technical, administrative, financial and social feasibility

(NB No further action will be taken on LOW priority pests.)

For each high and medium priority pest species, the following details were completed:

- Description of the pest or issue, and relevant species ecology (eg dispersal mechanisms of a weed).

- Description of the impact of the pest species or issue, and why it is a problem (for pests, how threatening it is to natural communities, farming, horticulture, other land uses / values). This must include biological, economic and social impacts.

- Goal or Goals – what we want to achieve in the City regarding this pest / issue within the next 3 years.

- Description of performance indicators - how we would know that Council has achieved the goal for this pest, eg: number of properties inspected for rubber vine distribution, line surveys for weed abundance.

- List of what might constrain or prevent the achievement of our goal (obstacles) eg: length of wet season, support from adjoining landholders.

- Description of specific, achievable actions that will address the obstacles and achieve the goals. Nomination of whom will undertake the action and when it will be undertaken.

- Description of the monitoring process to be used.

- List of the resource requirements for achieving each goal.

DETAILING CONTROL STRATEGIES

Pest Animals

Audit of pest animals:
Pest animals in the City are listed below along with the land management objectives that they threaten achievability of their control and their priority for management.

Table 1 – Pest Animals of Townsville City

Note: Declaration classes of the below pest species will be determined following proclamation of the Lands Protection (Pest and stock route management) Regulations 2002.

Threat
1 = Critical
2 = Threatening
3 = Moderately threatening
4 = Little threat

Achievability
A= Could be eradicated from the City / specific area
B = Could be significantly reduced in area (plants) or numbers (animals) in the City / specific area
C = Could be contained / prevented from spreading (plants) or could prevent major / rapid increase in numbers (animals)
D = Could be managed effectively with an acceptable level of biocontrol
E = No acceptable control method available

		Strategic Importance							Achievability	priority	declaration
Scientific Name	Common Name	G	Res	Cons	Rec.	Hort	USL, U'man, Infra-struc	Waterway & Wetland			
Vulpes vulpes	Foxes	3	4	1	4	4	4	4	B	HIGH	
	Cats	4	2	1	2	4	4	4	C	HIGH MAG. IS LOW CITY	
	Tilapia	4	4	1	1	4	2	1	E	-	
	Cane Toads	4	3	1	3	3	4	1	E	-	
Sus scrofa	Pigs	2	3	1	3	2	1	1	B	HIGH	
Canis australis Canis familiaris	Dingoes / Wild Dogs	1	3	Dingoes – 4 Wild dogs - 1	3	4	3	4	B	HIGH	
Oryctolagus cuniculus	Rabbits / Hares	3	3	2 localised	4	2 localised	4	4	D	LOW	

G = Grazing Res = Residential Cons = Conservation Rec = Recreation Hort = Horticulture U'man, Infra-struc Waterways

Wetl Threat
1 = Critical
2 = Threatening
3 = Moderately threatening
4 = Little threat

Achievability
A= Could be eradicated from the City / specific area
B = Could be significantly reduced in area (plants) or numbers (animals) in the City / specific area
C = Could be contained / prevented from spreading (plants) or could prevent major / rapid increase in numbers (animals)
D = Could be managed effectively with an acceptable level of biocontrol
E = No acceptable control method available

		STRATEGIC IMPORTANCE							ACHIEV-ABILITY	PRIORITY	DECLA R-ATION
Scientific Name	Common Name	Graz-ing	Resid -ential	Cons	Recre -ation	Hort	USL, U'man, Infra-struc	Waterw ays / Wetl			
	Indian Mynah Bird	4	3	2	4	4	3	4	E	MEDIUM/ city High / mag. Is	
Migratory : Locusta migratoria Spur Throat : Austracris guttulosa	Locusts (Irregular)	2	2	2	2	2	2	2	B and D	HIGH	Class 2

EUROPEAN FOX (Vulpes vulpes)				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Conservation	1	B	Class 2	HIGH
Grazing	3			
Others	4			

The European Fox

Description: The European Fox was introduced to Australia in the middle of last century for sport. Our unique Australian environment is an ideal habitat – the fox had very little competition from native predators & plenty of susceptible prey in the form of native wildlife. Foxes spread quickly through much of the Australian mainland. Breeding can begin in their first year, females having an average of four cubs. Dens are established in late winter for birthing & cub rearing. Sometimes up to 3 dens can be used at a time. The young first appear in late Spring & begin to disperse in late summer. Foxes are usually nocturnal. They are opportunistic feeders, eating a wide variety of foods depending on what is available. Residential areas can become important food sources for the fox – rubbish bins, picnic & refuse sites, domestic animal food left outside, compost heaps, stock etc.

Control methods: Shooting & poisoning with 1080 (sodium monoflouroacetate)

Impact: Kills small ground-dwelling native animals & stock.
Distribution: Rocky Springs, Bowling Green Bay, old meat works, Mt Stuart

Goal: To significantly reduce the number of foxes in the City.	**Performance Indicators:** Fewer sightings, scats & road kills Number of foxes shot Number of foxes that take poison baits

Obstacles: Scattered population of foxes, using poisons near suburban areas, limited control options, as foxes are shy animals.

Actions:	**By Whom**	**When**
Encourage reporting of sightings, road kills by the community to monitor distribution.	TCC, DNRM, EPA	Ongoing
Undertake & education program drawing attention to the presence & distribution of foxes & what the community can do.	TCC, DNRM	2003
Apply for NHT funding to : Organise volunteers to monitor areas of potential habitation Survey for fox scats	TCC	2003

Pest Monitoring Process: Sightings, road kills, scats, habitat surveys

Resources	
Staff	Operating funds

FERAL CATS				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Conservation	1	C	Class 2 Will be declared under new Act as:	HIGH FOR MAGNETIC ISLAND MEDIUM FOR THE CITY
Residential	2			
Agriculture	4			

Feral Cats

Description: Feral Cats probably arrived in Australia with the first white explorers & since then have adapted to life in many different habitats. The term feral applies to those animals which do not live closely with or depend on humans. There are also semi-domestic rural cats & stray urban cats, which have some degree of dependency on humans, & domestic cats that roam. Feral cats are able to increase numbers quickly under favorable conditions – female cats have three litters per year with an average of five kittens per litter. Domestic cats are continuously adding to the stray & feral cat population numbers (a cat's status is not constant – an owned cat may become feral). In urban areas, some feral cats are abandoned strays that may interbreed with household pet cats that are allowed by their owners to roam. Feral cats survive on native wildlife, especially a wide range of birds & ground-dwelling mammals & reptiles.

Control methods include trapping in some areas, shooting, poisoning, and neutering. Control methods currently being researched through DNRM Inglewood.

Impact: Cats kill many different species of wildlife in large numbers. The domestic cat population continually replenishes & increases the feral cat population. Roaming pet cats also prey on native wildlife, especially birds & ground-dwelling mammals & reptiles. They also carry the disease toxoplasmosis. In the community, stray, feral & roaming pet cats can all have the following additional impacts: excessive noise; fighting & spread of disease both between cats & potentially to humans (eg unvaccinated, undesexed animals); odour / diggings in gardens.

Goal: To prevent an increase in number of stray cats.	**Performance Indicator(s**): No increase in the number of complaints about cats.

Obstacles: Attitude of residents that allows owned cats to roam freely in the day & night. Reluctance of owners to desexed cats. Lack of controls on numbers & movements of cats. Expense of dealing with the stray / feral cat problem.

Actions:	**By Whom**	**When**
Organise a joint forum to determine community interest in further local government controls on cats.	TCC	2002-2003
Implement an education program on responsible pet ownership & the needs of pet cats.	TCC	Annual & ongoing
Encourage a "Cat Watch" program.	Community groups	ASAP
Continued implementation of the catscan program on Magnetic Island		

Pest Monitoring Process: Records of EPA rangers' sightings. Complaints to Council.

Resources	
Staff	Operating funds

FERAL PIGS (Sus scrofa)				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Conservation	3	B	Class 2	HIGH
Residential	4			
Agriculture	3			

Feral Pigs

Description: Introduced to Australia by early settlers, accidental & deliberate releases of pigs resulted in the wild (feral) populations. Feral pigs are more like their Eurasian cousins than domestic pigs. Colouring is usually black, buff or spotted black & white. Juveniles are often striped. Growth is similar to domestic pigs, though environmental conditions may stunt development. Their main requirements are water, food & cover. Pigs are nocturnal & camp during the day under cover wherever possible. They are omnivorous (eat both plants & animals) & can have a home range of 5-50 square kilometers. Under favourable conditions, breeding can occur throughout the year & sows can produce two weaned litters (on average 6 piglets per litter) every 12-15 months. This gives pigs the ability to recover quickly from management programs**.**

Control: needs to be carried out over a large area due to the big home range of pigs. 70% of the population should be removed each year to offset reproduction rate. There are four basic methods of feral pig control: trapping, poisoning, hunting & fencing. Trapping is most effective in areas of high conservation value, as traps are relatively safe for non-target species. However, care must be taken due to the presence of cassowaries which are attracted to commonly used baits like bananas & other fruits & may get stressed or seriously injured, or die if traps are not inspected at least daily. There are several trap designs, but all are principally steel mesh with a one-way gate. Free feeding prior to activating traps is an essential prerequisite to successful trapping. Poisoning: 1080 is recommended. Phosphorus-based poisons are available but not recommended as they are unnecessarily inhumane. Free feeding with unpoisoned bait is the most important step in effective poisoning campaigns. Shooting & the use of dogs: Helicopter shooting is effective in inaccessible areas where pigs exist in fairly high numbers & are visible from the air. Gground shooting is not effective unless it is extremely intense on a small, isolated but accessible pig population. Trained dogs may be useful to flush out the last few pigs in this situation, however dogging is not an effective pig control technique– it changes pig behaviour, disrupts trapping programs & cannot be used in conjunction with poisons. Fencing: Though an expensive option, fences can offer effective pig control.

Impact: Feral pigs damage crops, stock, property, natural habitat (through trampling, rooting for ground parts of plants & invertebrates & wallowing) & native wildlife (through eating eggs as well as predation on, competition with or disturbance of a range of native animals, & destroying habitat). They cause an economic loss to the sugar industry & dig up pasture areas. Pigs transmit disease & could spread exotic diseases such as foot & mouth disease if this was introduced to Australia. Diseases carried which are likely to affect people are: Sparganosis (a parasite that can affect the muscles of humans); Brucellosis (a bacterial disease which causes severe illness, undulant fever & possible infertility); Melioidosis (a serious bacterial disease which causes abscesses); Leptospirosis (a serious illness which causes very high temperatures, kidney trouble & jaundice) & Q Fever.

Distribution: Main problem areas are Pallarenda, Rowes Bay,Stuart, Alligator Creek, Upper Ross River ,Woodstock & Majors Creek

Goals:	**Performance Indicators**:
To significantly reduce the number of feral pigs.	Level of damage to conservation & production area. Level of complaint.

Obstacles: Cost of control methods, access to habitat.

Actions:	**By Whom**	**When**
Trap concertedly	EPA, Landholders	2002-2003 & ongoing
Bait in a coordinated campaign.	DNRM, Landholders & Council	Ongoing as required
Enforce requirement not to keep wild pigs.	DNRM & Council	Ongoing
Pest Monitoring Process: Survey of damage caused by pigs		
Resources		
Staff	Operating funds	

RABBITS **Oryctolagus cuniculus**				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Conservation	3	B	Class 2	HIGH
Residential	3			
Agriculture	3			

Rabbits

Description: Introduced in 1859 in Victoria for sport hunting. The domestic varieties and the wild variety of rabbits are the same species, however domestic rabbits have been cross-bred and selected heavily by rabbit enthusiasts. Although most escaped domestic rabbits are probably killed by cats and dogs, there is evidence that a small proportion of escaped female domestic rabbits can breed successfully with wild male rabbits. It is an offence to keep a rabbit of any variety as a pet, and a maximum penalty of $2,000 applies.

Breeding: The rabbit gestation period is 28-30 days and the doe may mate again about the time of birthing. Average litter is 3-4. In good seasons, young can commence breeding at 4 months.

Control: Susceptible to poisons and biological controls (Myxomatosis, spread by mosquitoes and rabbit fleas and rabbit calicivirus, a new viral disease specific to rabbits, which kills them quickly (<48 hours)

Impact:

In nature conservation areas - destruction of native vegetation, subsequent erosion, competition for food and shelter with native animals

Tourism – visual impact

Distribution: Along the Ross River, Beck Drive area and at the racetrack. Most don't use warrens but shelter in logs, long grass and other debris.

Goal:	**Performance Indicators:**
To significantly reduce the number of rabbits in the Townsville City area	Rabbit counts record lower numbers.

Obstacles:

Residential ownership of rabbits. Rate of reproduction. Success of Calici -virus

Actions:	**By Whom**	**When**
Bait with Pindone	NRM	As necessary
Release calici virus and monitor the transfer of the virus amongst the rabbit population	NRM & Council	2002 - 2003
Educate the community about the restriction on the keeping of rabbits as pets	NRM and Council	Ongoing

Pest Monitoring Process:

On-ground monitoring of known invasion area and reports of sightings. Reports of damage to the environment and cropping.

Resources	
Staff	Operating funds
Vehicle	Equipment

WILD DOGS (Canis familiaris/hybrids) AND DINGOES (Canis lupis dingo)				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Conservation	3 (wild dogs only)	C	Class 2	HIGH
Residential	2 (health)			
Agriculture	2			

Wild dogs & Dingoes

Description: Wild dogs are domestic dogs that have gone wild & are no longer dependent on humans. Dingoes are a primitive dog related to wolves & coyotes. The dingo was not part of the ancestral fauna of Australia &, though its origins are not clear, it is thought to have arrived in Australia 3,500 to 4,000 years ago. It is the largest mammalian carnivore remaining in mainland Australia, & as such fills an important ecological niche. Yellow & black-tan are the dominant coat colours, though dingoes can vary from pure white to black. It is very difficult to distinguish between dingoes & hybrids. The presence of domestic genes is suggested by broken colours – eg brindling & patchiness in the normally pure white feet & chest patch. Dingoes have a more heavily boned skull & larger teeth (especially the canine) than domestic dogs of similar size. Closer to settled areas, a greater number of feral domestic dogs produce a generally crossbred population. The home range of dingoes in coastal areas is around 9 square km. It is acknowledged that control of wild dogs in an urban situation is difficult.

Control methods: A planned strategy that uses a combination of trapping, shooting, fencing & poison baiting, as well as considering dingo/wild dog behaviour, will enable effective management. 1080 can only be handled by licensed operators & cannot be used in urban areas. DNRM & Council provide a baiting service to rural areas on a coordinated basis

Impact: In nature conservation areas – wild dogs cause loss of native fauna.
Cattle areas - loss of livestock & income.
Residential – destruction of pets, danger to humans.

Goal: To significantly reduce numbers of all hybrids & manage numbers of pure bred dingoes	**Performance Indicators**: Impact & complaints by staff / residents/graziers are reduced.

Obstacles: Irresponsible pet ownership. Limited number of control methods in urban areas.

Actions:	**By Whom**	**When**
Trap, shoot or bait on an identified needs basis.	TCC, DNRM	20002 ongoing
Develop a wild dog / dingo education program	TCC, DNRM	2002 & ongoing
Investigate the use of snares.	TCC, DNRM	2002
Request further research on pest animal control in urban areas.	TCC, COT, NRM & other major stakeholders	2002
Participate in regional strategy planning for wild dog control		

Pest Monitoring Process: Sightings, surveys, complaints.

Resources	
Staff	Operating funds

LOCUSTS **Locusta migratoria & Austracris guttulosa**				
Management area	**Strategic importance**	**Achievability**	**Declaration Category**	**Priority**
Sugar	3	C	Class 2	HIGH
Horticulture	3			
Cattle	3			
Residential	4			

Locusts

Description: Spur-throated Locust (Austracris guttulosa), the Migratory Locust (Locustamigratoria) & the Yellow-winged Locust (Gastrimargus musicus)
When rain is widespread, the majority of locusts breed successfully, & population increase is very rapid. If this occurs for 3 or 4 generations, a plague can develop.

Impact:
Plagues denude vegetation
Loss of improved pastures
Loss of lawn & shrubs

Control: Chemical control - Use of misting machines are used on small bands of juvenile Locusts. Mature flying Locusts can only be treated with fixed wing aircraft. Biological – Mettariziam which is a naturally occurring fungus is being trialled & further developed as an alternative to chemical

Goal: To minimise the occurrence & impact of plagues.	**Performance Indicator(s):** Minimal impact on vegetation.

Obstacles:
Weather cycles are uncontrollable.

Actions:	**By Whom**	**When**
Pursue Australian Plague Locust Commission forecasts.	TCC.	As notified
Program spray as required.	Landholders, DNRM & Council .	As required
Provide information regarding control methods to the community.	DNRM, Council .	2003

Pest Monitoring Process Environmental condition monitoring.

Resources	
Staff	Operating funds

Table 2: Pest Plants of Townsville City

Note: Declaration classes of the below pest species will be determined following proclamation of the Land Protection (Pest and Stockroute Management) Regulations 2002.

Threat	Achievability
1 = Critical	A = Could be eradicated from the City / specific area
2 = Threatening	B = Could be significantly reduced in area (plants) or numbers (animals) in the City / specific area
3 = Moderately threatening	C = Could be contained / prevented from spreading (plants) or could prevent major / rapid increase in numbers (animals)
4 = Little threat	D = Could be managed effectively with an acceptable level of biocontrol

		STRATEGIC IMPORTANCE							ACHIEV-ABILITY	PRIORITY	DECLAR-ATION
Scientific Name	Common Name	Grazing	Resid-ential	Cons	Recre-ation	Hort	USL, U'man, Infrastr ucture	Waterways / Wetlands			
Brachiaria mutica	Para grass	-	3	1	2	3	3	1	B (In recreational & residential areas)	HIGH	
Cryptostegia grandiflora	Rubber Vine	1	-	1	3	-	2	1	B	HIGH	
Acacia nilotica	Prickly Acacia								B (in conservation areas) C in others	HIGH	
Cabomba caroliana	Cabomba	4	-	2	3	-	-	1	B	HIGH	

		STRATEGIC IMPORTANCE							ACHIEV-ABILITY	PRIORITY	DECLAR-ATION
Scientific Name	Common Name	Grazing	Resid-ential	Cons	Recre-ation	Hort	USL, U'man, Infrastr ucture	Waterways / Wetlands			
Eichhornia crassipes	Water Hyacinth	3	-	2	2	-	-	2	B	HIGH	
Euphorbia heterophylla/cyaghora	Milkweed	-	-	3	-	2	3	-	A	HIGH	
Hymenachne amplexicaulis	Hymenachne	-	-	1	1	3	2	1	B	HIGH	
Jatropha gossypifolia	Bellyache Bush	1	2	2	4	-	3	-	A	HIGH	
Lantana camara	Lantana	2	3	1	3	3	2	-	A	HIGH	
Leucaena leucocephala	Leucaeana	-	-	1	3	-	3	1	A	HIGH	
Parthenium hysterophorus	Parthenium Weed	2	1	2	2	3	2	3	C/D	HIGH	
Prosopis spp.	Mesquite	1	-	1	1	-	1	-	B	HIGH	
Salvinia molesta	Salvinia	-	-	-	2	-	-	2	B	HIGH	
Thungeria grandiflora	Thunbergia	-	-	-	-	-	-	-	A	HIGH	
Xanthium occidentalis/pungin	Noogoora Burr	2	-	3	3	3	-	-	B	MEDIUM	
Ziziphus mauritiana	Chinee Apple	2	-4	2	3	4	2	-	B	HIGH	
Pennisetum setaceum	Fountain Grass	-	3	2	-	-	3	-	C	MEDIUM	

Table 3 Additional Pest Plant Species

Table 3 is a listing of additional pest plant species within Townsville (most with primary conservation significance) that are to be reviewed by the relevant stakeholders prior to inclusion in the final plan.

Pest Plant	Current listing	Previous listing (earlier drafts)
Green Panic	Potential	Medium priority
Guinea grass	Removed from the plan	Previously listed as medium priority overall, critical in conservation areas
Grader grass	To be listed as potential threat to conservation and grazing areas	Listed as medium overall and is threatening for conservation and grazing areas.
Captain cook	Removed from plan	Listed as high in most areas and a safety concern for residential
Para grass	declared	
Singapore Daisy	Listed as potential	Listed as medium priority
Castor oil	Potential	Listed as a high priority over most land uses
Sisal Hemp	Listed as potential	Listed as high priority
Aleman	Removed from plan	Listed as a High priority
Mother in laws tongue	Potential	Listed as high for Magnetic Island (achieveability A) and medium for elsewhere.
Roed spataecea		Listed as high for the island (achievability A) and low elsewhere.
Siratro	Potential	Listed as Medium
Water Lettuce	Removed from the plan	Listed as a high priority
Tecoma	Potential	Listed as medium priority
Brazilian pepper	Removed from plan	Medium
Girenia	Removed from plan	Medium in conservation areas

Morning Glory	Removed from plan	Medium in conservation areas
Tamarind	Removed from plan	No priority given, moderately threatening for conservation areas and waterways/wetlands.
Custard Apple	Removed from plan	No priority listed moderately threatening for conservation areas and waterways/wetlands
Pink Periwinkle	Potential	No priority listed, little threat in most areas except conservation

Table 4: Recommendations for Low Priority Species

Table 4 is a listing of low priority species within Townsville that are to be reviewed by the relevant stakeholders prior to inclusion in the final plan.

Pest Plant	Scientific Name	Characteristics
Blue Top	Ageratum conyzoides	Horticultural and pastoral weed
Allamanda	Allamanda cathartica	Toxic, invasive vine
Red Natal	Melinis repens	Grass that out competes native grasses
Butterfly Pea /Clitoria	Clittoria ternatea	Invasive smothering vine
Molasses grass	Melinis minutiflora	This weed has the potential to spread during very wet years, it should be monitored closely.
Prickly Pear	Opuntia	Some are declared as P3 depending on species Action should be considered for coastal conservation areas
Wild Tobacco Tree	Solanum mauritianum	
Snake Weed	Stachytarpheta sp	this weed has the ability to smother other native herbs.
Bull rushes	Typha sp	
Mexican poppy	Agremone sp	Invasive herb in disturbed areas
Sensitive plant	Mimosa pudica	Invasive herb
Chinese burr	Triumfetta rhomboidea	Invasive herb
Pink Burr	Urena labota	Annual invasive herb
Coral vine	Antigonon leptopus	action to be considered for conservation areas
Stinking passion fruit	Passiflora Foetida	Invasive vine

Hyptis	Hyptis suaveolens	
Java Plum	Syzygium cumini	Invasive tree in riparian areas and suppresses native vegetation
Merremia	Merremia quinquefolia	
Japanese Sunflower	Tithonia diversifoloa	Invasive shrub (thickets on Castle Hill)
Disecta centrosema		
Corky passionfruit		
Feral Mango		
Bauhinia Alba		action for plants within conservation areas.
Albizza lebbek		
Tithonia		

PRICKLY ACACIA (Acacia nilotica)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Prickly Acacia	Conserv – 1 Grazing – 1 Recr – 1 USL –1	A	Class 2	HIGH

Description: This weed is targeted by the National Weeds Strategy and is now classed as a Weed of National Significance. It is a thorny tree growing to 10m high, but usually only 4-5 metres. It has ferny leaves, & is usually single-stemmed except when damaged by fire or frost when it becomes multi-stemmed at the base. Young plants are very thorny but older plants tend to lose most thorns. Thorns are in pairs along the stem & are usually 5-10m long

Flowering: Ball-shaped golden yellow flowers about 1cm across in April-May. Pods are usually 10-15cm, flatish, have constrictions between the seeds & are greyish when ripe in Oct-Dec.

Dispersal: By cattle & Water

Control: Basal Bark and Cut Stump techniques using herbicides

Impact: Forms impenetrable thickets. Once there is 30% canopy cover, no herbs can grow due to lack of light.

Distribution: Scattered infestations around racecourse, Pony Club yards on the Ross River and at Alligator Creek, Vantassel Road, Stuart, Oak Valley, Nome & towards Phantom Retreat. Isolated populations only due to over 3 years of control by DNRM. At the conclusion of the current eradication program, Council will assume responsibility for monitoring & control.

Goal: To eradicate all plants.	**Performance Indicator:** No further populations or seedlings found in the City areas.

Obstacles: Longevity of seed / Access to plant leases

Actions:	**By Whom**	**When**
Inspect known invasion sites regularly & spot spray any seedlings present.	Council	Annually
Alert landholders to report any new invasions immediately, & treat these.	Council	2003 & annually
Ensure all SWEEP projects are followed up Past Actions: – SWEEP Education & Eradication Program $150,000	Council	2002 & Ongoing

Pest Monitoring Process: Known sites to be inspected

Resources	
Staff	Operating funds
Vehicles	Equipment

CABOMBA (Cabomba caroliniana)			
Strategic Importance	**Achievability**	**Declaration category**	**Priority**
Waterways / wetlands – 1 Grazing 4 Recreation - 3	A	Class 2	High

Cabomba

Description: Flowering Cabomba is a native of the Americas & was introduced into Australia in 1986 as an aquarium plant. It is a fully submerged aquatic plant except for flowers & occasional floating leaves. Roots on creek bottom & grows upward. Stems may be up to 10m long.

Dispersal: Through dumping of aquarium plants in water. This weed can grow from a fragment as small as 1cm.

Control: Effective control may be difficult. Some chemicals mixed with diatomaceous earth has proven effective in still waters, but may not be acceptable in some situations. The only control method that has been effective to date is shading out the area (with revegetation or 50-90% shadecloth). Treat small areas at a time.

Impact: Slows down water flow in water / irrigation channels. Displaces indigenous flora & fauna in wetland areas. Dangerous for recreationists.

Distribution: Various sections of Ross River. Complete distribution unknown, but it is believed to be sold in pet shops for aquarium tanks.

Goals: To eradicate from the city & prevent re-occurence.	Performance Indicators: No infestation of this weed is found.

Obstacles: Continued use as an aquarium plant. No known biocontrol.. Growth habits make mechanical removal difficult.

Actions:	**By Whom**	**When**
Educate the community & pet suppliers not to use this plant in aquariums.	Council & NRM	2003 - ongoing
Visit all pet shops in the city to ensure none are selling this weed.	Council & NRM	2002 - ongoing
Survey Ross River & other creeks & dams in the City to identify existing infestations & the extent of coverage.	NQ WATER	2002 & annually
Investigate all control / eradication techniques – physical, chemical & cultural.	Council	2003
Apply best control technique to any infestations found.	Council	2002
Monitor known infestations.	Council & Landholders	2003 & ongoing as required
Dispose of any plants appropriately (dry out).		
Request finalisation of trials / registration of SONAR.	DNRM.	2002

Pest Monitoring Process: Waterways survey

Resources	
Staff Already targeted for survey	Operating funds

RUBBER VINE (Cryptostegia grandiflora)			
Strategic Importance	**Achievability**	**Declaration Category**	**Priority**
Grazing – 1 Conservation 1-2 Recreation – 3 USL eTCC - 2	B	Class 2	High

Rubber Vine

Description:

Rubber Vine is a native of Madagascar & was introduced to Australia as an ornamental shrub in 1875. It is a vigorous climber with twining, whip-like shoots which can grow unsupported as an untidy many-stemmed shrub 1-2 m high or scramble to a considerable height in trees. Leaves are dark-green & glossy, 6-10 cm long, 3-5cm wide & in opposite pairs.

Flowering: Large flowers with white to light purple petals in a funnel shape in mid-late summer, though flowering can occur at any time if sufficient moisture is available.

Dispersal: Seed pods are rigid & grow in pairs at the end of a short stalk March-May. The pods are 10-12 cm long & 3-4 cm wide, each containing up to 350 seeds. Each seed has a tuft of long white silky hairs which enable easy dispersal by wind & water. Approximately 95% of the seed is viable. Seeds last no more than one year in the soil, however there is often a source of seed to blow back into weed-free or treated areas.

Impact:

Rubber Vine first invades creeks & river systems where it smothers other vegetation to form dense impenetrable thickets. It then spreads over hillsides & through pastures. Rubber Vine has the potential to invade much of this region, especially along waterways. Its impacts include:

Invasion & replacement of native flora & wildlife habitat.

Prevention of cattle accessing watering points along rivers & creeks.

Prevention of mustering, as cattle hide in thick infestations & are impossible to move.

Poisonous to stock.

Reducing access to fishing holes & camping areas.

Distribution: Along most coastal creeks & widespread throughout City, including Magnetic Island.

Control methods: Control of rubber vine can be achieved by a number of methods alone or in combination depending on the situation & severity of the infestation (scattered, medium density or dense). See DNRM's Rubber Vine Pest Fact for further information. All areas must be periodically checked & any regrowth treated.

Prevention (1 year's seeding = seven year's weeding).

Rust (Maravalia cryptostegiae) from Madagascar seems to be reducing spread rate by prevention of flowering.

Fire – if there's sufficient fuel (keep stock out for 12 months to allow sufficient fuel to accumulate). Kill rate 50-70%.

Mechanical options: Suitable for medium to dense infestations, but must be followed up with repeated treatment foliar spraying, basal bark spraying or fire. Use cutter bars, blade ploughing or discing (kill rate of 90% possible), bulldozing (not recommended as low (10%) kill rate & kills native vegetation), slashing using a heavy duty slasher with blunt blades (50% kill rate).

Herbicides: Foliar spray, basal bark, cut stump, aerial application using different chemicals & treatment types depending on density & preference.

Follow up treatments & other management practices to prevent new infestation.

Goal: To reduce the area of rubber vine in the City by removing scattered & isolated populations.	**Performance Indicator:** Mapped area reduced.	
Obstacles: Floods spread seed, difficult to get enough fuel for a fire to burn, many seeds per seed pod, wide spread & intensity of the invasion.		
Actions:	**By Whom**	**When**
Map extent & coverage of existing populations.	Council & Landholders.	20023
Identify isolated outbreaks in sub-catchments for targeted control from upper catchment to lower areas.	Council, NRM & Landcare groups.	20023 & annually
Encourage landholders to develop a Property Pest Management Plan.	Council & NRM	2002 & ongoing
Seek funding & resourcing opportunities to provide control incentive to landholders	Council, NRM, Landcare	2002
Pest Monitoring Process: Survey		
Resources		
Staff	Operating funds	
Vehicle	Equipment	

WATER HYACINTH (Eichhornia crassipes)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Water Hyacinth	Grazing – 3 Recreation, Waterways, Wetlands – 2	B	Class 2	HIGH
Description: Originally from Brazil, Water Hyacinth was introduced as an ornamental for ponds. Flooding then spread the plant into creeks, rivers & lagoons. This plant is a floating water weed with dark-green round curved leaves up to 5 cm across & a fibrous root system. The leaf stalks are swollen into spongy fibrous structures **Flowers**: Light purple flowers with darker blue-purple & yellow centre borne in dense spikes projecting above the plant. Seeds are produced in capsules at the base of each flower. Daughter plants, produced by vegetative reproduction, remain attached to the parent plant until broken off by wind or other physical damage. When all the flowers on a plant have withered, the stalk gradually bends into the water. Seeds are released from capsules at the base of each dead flower after about 18 days. Vegetative reproduction is rapid, forming large, dense rafts of plants within a short time. Dispersal: Water **Control:** The best approach is to combine different methods. Physical removal is most effective for small infestations & should be done before flowering & seed set in October. Follow up with drying & burning. Biological control agents – 2 weevils & 2 moths – have been released since 1975. One of the weevils has been most successful. Ensure the weevils are established before any spraying. Use a selective herbicide spraying sections of the infestation at one time to concentrate the weevils on the remaining weed which they may destroy. Spraying an entire heavy infestation can cause the water hyacinth to sink resulting in pollution from the rotting weed. This will use all the oxygen in the water leading to fish & wildlife kills.				
Impact: Rampant growth of water hyacinth can destroy native wetlands & waterways, killing native fish & other wildlife, as well as reduce recreational (eg swimming, canoeing) amenity. **Distribution**: In all major waterways throughout the City.				
Goal: To reduce the area of this weed.		**Performance Indicator**: Rafts broken up & reduced in size.		
Obstacles: Location, susceptibility of the water environment to herbicides. More clean water.				

Actions:	By Whom	When
Survey waterways to determine the extent of the problem.	NRM, NQ WATER, Council	2002 & regularly afterwards
Request appropriate authorities (eg NQ WATER) to develop an appropriate pest management plan for all water weeds in the dams, weirs & other waterways managed by them.	Council	2002
Ensure that follow up is continued taking advantage of the “wash out” each wet season	All stakeholders.	Ongoing
Follow up treatments are done strategically taking advantage of wet season.	Council & Landholders	Ongoing As required.
Enforce the Land Protection Act (under this Act, a landholder is responsible to mid-way across the waterway).	Council	2003 – Ongoing
Eradicate Water Hyacinth from private dams. Aim to eradicate through implementation of a PMP.	Landholders, Council	2003 – Ongoing

Pest Monitoring Process: Survey of waterways	
Resources	
Staff	Operating funds

MICONIA (Miconia calvescens)				
Weed	**Strategic Import**	**Achievability**	**Declaration Category.**	**Priority**
Miconia	Conservation – 1	A	Class 1	HIGH

Description: Native to tropical America and other tropical areas but not Australia, this plant has become a major pest in Hawaii and Tahiti. This plant has become a problem in the wetter tropical areas of north Queensland and although it is more prevalent in the wet tropics, it is believed that it can grow in any areas with suitable moisture and shade. The plant . Miconia is an aggressive shrub and has the capacity to grow to 4 metres high. They are commonly grown in gardens for their large attractive foliage and key identification features include purple underleaf and three prominent veins on each leaf.
Dispersal: Miconia are prolific seeders and produce hundreds of small berries that can be spread many kilometers by birds.
Control: The best approach is to combine different methods. Physical removal is most effective for small infestations & should be done before flowering & seed set. Follow up with drying & burning. Chemical control is also effective through a variety of techniques.

Impact: Rampant growth of Miconia can quickly take over environmentally sensitive areas including vine scrubs within the dryer tropical areas. Areas along Ross River would also lend itself to invasion by this plant
Distribution: Currently no infestations known within the Townsville City Council area

Goal:	**Performance Indicator:**
To retain the Townsville Ciity Council area free of this weed.	No reports or sightings of Miconia in Townsville City.

Obstacles: Considered a most desirable garden plant.

Actions:	**By Whom**	**When**
Undertake periodical inspections of all plant nurseries within the Townsville City area.	Council & NRM	2003 & regularly afterwards
Carry out joint publicity campaigns with Thuringowa City Council to ensure the general public are able to identify this plant	Townsville City Council, Thuringowa City Council & NRM	2003

Pest Monitoring Process: Survey of all plant nurseries on an annual basis

Resources	
Staff:	Operating funds:
Vehicle:	Equipment:

MIKANIA VINE (Mikania micrantha)				
Weed	**Strategic Import**	**Achievability**	**Declaration Category.**	**Priority**
Mikania Vine	Conservation – 1	A	Class 1	HIGH

Description: Mikania Vine is known as Mile-a-Minute because of its tendency to rapidly choke and smother newly invaded areas. It prefers rich, damp soil and thrives in open disturbed areas and partial shade. Mikania is a much branched scrambling perennial vine with heart shaped leaves which taper to an acute point. Clusters of white to greenish flower heads are borne at the end of the many stems.
Dispersal: Mikania Vine are prolific seeders and produce tens of thousands of small fluffy seeds that can be wind blown or carried by water, vehicles or animals. Recent movement of this plant has been traced to the sale of pot plants which had been contaminated with seed.
Control: The best approach is to combine different methods. Physical removal is most effective for small infestations & should be done before flowering & seed set. Follow up with drying & burning to ensure all seed is destroyed. Chemical control is also effective through a variety of techniques. Please contact the Townsville City Council Technical Officer for further advice.

Impact: Mikania is extremely aggressive climbing vine that is a major environmental weed and can quickly take over back yards, fences and environmentally sensitive areas including vine scrubs and riverine areas within the dryer tropical areas.
Distribution: Currently no infestations known within the Townsville City Council area, however urgent inspections of all nurseries needs to be undertaken. Closest infestations are in Ingham.

Goal:	**Performance Indicator:** No reports or sightings of Mikania Vine in Townsville City.
To retain the Townsville City Council area free of this weed.	

Obstacles: Considered a most desirable garden plant.

Actions:	**By Whom**	**When**
Undertake periodical inspections of all plant nurseries within the Townsville City area.	Council & NRM	2002 & regularly afterwards
Carry out joint publicity campaigns with Thuringowa City Council to ensure the general public are able to identify this plant	Townsville City Council, Thuringowa City Council & NRM	2003

Pest Monitoring Process: Survey of all plant nurseries on an annual basis

Resources	
Staff:	Operating funds:
Vehicle:	Equipment:

MILKWEED
(Euphorbia heterophylla)

Weed	Strategic Importance	Achievability	Declaration Category	Priority
Milkweed	Conservation – 3 Horticulture – 2 USL / Unmand - 3	A		HIGH

Description: A milky sapped annual capable of growing more than 4 m high. The hollow main stems have side branches from almost every node. Leaves are opposite at the lower nodes then alternate over most of the stem. They have oval blades, pointed at the apex & rounded at the base.
Flowering & fruiting: Creamy-yellow flower heads are clustered at the tops of stalks. Globular fruits contain 3-4 grey-brown seeds. These germinate deeply in the soil & plants can grow in light beneath the canopy. Seed remains viable for up to 12 months.
Dispersal: Spread is by seed, the ripe fruit bursts open explosively scattering seeds over several metres. Also spread by birds & other animals, water & in mud on vehicles/machinery.
Control: Control by mechanical cultivation is poor because of the strong root system. Spray with starane before seed set. This should be followed by revegetation in riparian & other natural / disturbed areas. Thoroughly clean all machinery that have worked in infected areas.

Impact: Competes vigorously with sugar cane in the early growth stage when it can overtop cane in height
Distribution: Small areas limited to roadside & rail infestations (transport corridors & along Ross River. It is not a major problem weed, but because of its limited distribution, it can be eradicated.

Goal: To eradicate from the City.	**Performance Indicator:** No further populations of this weed identified.

Obstacles: Can germinate any time in the growing season. Seedlings able to emerge from depth.

Actions:	By Whom	When
Survey & map distribution.	Council	2003
Spray before flowering.	Council & Landholders	As required before seedset.
Follow-up regularly.	Council & Landholders	As required before seedset.

Pest Monitoring Process: Inspection of treated sites.

Resources	
Staff	Operating funds
Vehicles	Equipment

HYMENACHNE
(Hymenachne amplexicaulis)

Hymenachne's potential impact to natural & agricultural values is enormous & a concerted effort by all stakeholders to reduce the spread of this weed is imperative

Strategic Import	Achievability	Declaration Category	Priority
Conservation – 1 Waterways / Wetlands 1-2	A	Class 2	HIGH

Description: A robust, rhyzomatous, perennial deep water grass introduced from South & Central America to provide pasture for cattle. It is 1 – 1.5 metres tall & can grow in water up to 1.5 metres deep. Stems are either erect or ascending from a prostrate base, & leaf blades strongly clasp the stem at their base (hence the name).
Flowering: April – May
Dispersal: Hymenachne is a prolific seeder & seeds are spread by water (floodwater & irrigation water), human activity & water birds. Also spreads by broken segments of the brittle stem & roots.
Control: . There are several chemicals registerd for use to control Hymenachne. Landholders are advised to contact the Councils Technical Officer for precise information on the most suitable chemical for the situation.

Impact: Invades waterways, including drains, lagoons, creeks & edges of mangroves. Its effect can be to completely choke these areas, displacing indigenous vegetation, increasing flooding, stagnating water & reducing oxygen levels in water which, in turn, reduces fishery values. Hymenachne also reduces access to waterways for recreation & wildlife. Potentially big economic impact on sugar growers.
Distribution: Threat of invasion to local wetlands by localised plantings on grazing properties. Known infestations at Cungalla & Oak Valley

Goal	Performance Indicator
Goal: To eradicate from the City .	**Performance Indicator**: No new invasions found in the City.

Obstacles:. Planting is currently supported by some people in the cattle industry. Hard to control when well established or in large quantities

Actions	By Whom	When
Investigate ability to use the range of control measures that have been tested by DNRM.	Council & NRM	2003
Survey the local waterways & dams for presence	NRM, Council, EPA	2003

Pest Monitoring Process: Existing infestations will continue to be mapped & should reduce in area as a result of controls. New infestations will be reported on "Pest monitoring sheets" (attached), added to the map & targeted for immediate eradication.

Resources	
Staff	Operating funds
Vehicle	Equipment

BELLYACHE BUSH (Jatropha gossypifolia)				
Weed	**Strategic Import**	**Achievability**	**Declaration Category**	**Priority**
Bellyache Bush	Grazing – 1 Conservation – 2 Recr – 4 USL –3	A	Class 2	HIGH

Description: A native to the Caribbean, Bellyache Bush was introduced to northern Australia as an ornamental. It is an erect shrub or small tree, 2-3m high. Reproduces from seed & suckers from the root. Leaves are deeply divided into 3 lobes & are deep purple & sticky when young & bright-green when mature.
Flowering: Flowers are purple with yellow centres, small, in clusters on branch stalks in upper leaf axils. Fruit is an oblong 3-lobed capsule about 1.2cm long & 1cm wide.
Dispersal: Major spread is by seed, though it also suckers. The capsules split open when ripe, sometimes explosively, throwing seed for some distance. Longer distance spread is in water flow or mud carried by animals or vehicles. Long lived seeds.
Control: Dig out & burn single plants, especially seedlings, taking care to remove as much of the tuberous root system as possible. With the larger colonies, slash close to the soil surface & swab the cut surface with an appropriate herbicide. Can also basal bark.

Impact: Fruits are extremely poisonous to humans and animals. Colonises natural areas', replacing native vegetation.
Distribution: Scattered infestations in grazing areas & along creeks. This weed is colonising natural areas along the Ross River, & the northern base of Castle Hill, Oak Valley, Roseneath & Palleranda & Many Peaks & Alligator Creek area.

Goal: To eradicate from the area Plant will be automatically declared on a statewide basis when the new Land Protection Act comes into force in December 2002.	**Performance Indicator:** Present infestations are removed & no further populations are found.

Obstacles: Perceived an attractive pot / garden plant

Actions:	**By Whom**	**When**
Spot spray	Relevant Landholders.	2003
Pasture Management.	Landholders DNRM, & Council	Ongoing
Follow up with an inspection annually.		Annually

Pest Monitoring Process:
Inspection of known infestation sites for further germination or regrowth.
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Resources	
Staff	Operating funds
Vehicles	Equipment

LEUCAENA (Leucaena leucocephala)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Leucaena	Conservation – 1-2 USL / U'md - 3	B	Needs local Declaration	HIGH

Description: A native of Central & South America, at least 3 cultivars of this plant have been introduced into Australia as a browse shrub. Perennial woody shrub or small tree to 9 metres tall, with alternate "feathery" leaves & white flowers in rounded heads. Pods are arranged in clusters, flattened, 8-20 cm X 1.5-2.0, brown when mature & containing numerous (15-30) oval brown seeds.
Dispersal: Shattering of the pods causes local dispersal of seeds in the vicinity of the parent plant, while vehicles & flowing water are probably responsible for longer distance dispersal. Presumably, dispersal by grazing cattle is also possible. Cool fires may result in thickening of Leucaena stands due to development of coppice shoots.

Impact: An unsightly weed of roadsides & other disturbed areas, & potentially a serious environmental weed. Dense stands inhibit growth of other species & reduce ground cover, potentially leading to soil erosion. Plants may be toxic to some livestock.
Distribution: Scattered & isolated plants occur along most creeks & drainage lines in the area (eg Stuart, Peewee & Louisa Creeks & Angus-Smith Drive), with heavy infestations along Stuart Creek & Angus-Smith Drive. Magnetic Island – Nelly Bay - Ross River – lower slopes of Castle Hill, & drains in Townsville.

Goal:	**Performance Indicator:**
To ensure the distribution of this weed is reduced.	Decrease in the current distribution in known areas.

Obstacles:
Industry continues to recommend this pest as a fodder crop in regions where it can become a serious environmental weed. Commonly grown in gardens. Differentiation of varieties. Difficulty in controlling the current density.

Actions:	**By Whom**	**When**
Survey to identify isolated outbreaks & hot spots to determine species.	DNRM, & Council	2003
Eradicate isolated infestations from the top of the catchment down.	Relevant Landholders	2003 & ongoing
Educate the community about the impact of this plant.		
If negative, educate landholders to ensure this plant confined to property through appropriate management.	DNRM, & Council	2002 & ongoing

Pest Monitoring Process: Inspect treated areas annually.

Resources	
Staff	Operating funds
Vehicles	Equipment

PARTHENIUM (Parthenium hysterophorus)				
Weed	**Strategic Import**	**Achievability**	**Declaration Category**	**Priority**
Parthenium	Conserv – 3 Grazing – 2 Rec – 3 USL – 2	B	Class 2	HIGH
Description: A native of subtropical south & north America, Parthenium will grow virtually anywhere. Parthenium is an annual herb with a deep taproot & erect stem that becomes woody with age. As it matures, the plant develops many branches in its top half & may eventually reach a height of two metres. Leaves are pale-green, lobed & covered with soft fine hairs. **Flowering:** Small creamy white flowers occur on the tips of the numerous stems. Seeds are 2mm long, black with two thin white scales. **Dispersal:** Spread easily by water, machinery, feral animals, humans, vehicles, chook & stock fodder, stock movement, & pasture seeds. **Control:** Prevention is better than cure. Pastures maintained in good condition with high levels of ground cover will prevent Parthenium from colonising. Control of any infestation should revolve around pasture management & timely herbicide treatment. This requires rehabilitation of poor pastures, followed by sound grazing maintenance program. Burning is generally not a management option. Parthenium can be sprayed early before it can set seed. A close watch needs to be kept on treated areas for at least two years.				
Impact: Reduced pasture production potential. Invades brigalow, gidgee & softwood scrub soils. Any disturbed soil situation – overgrazed. Also a health problem as contact with the plant or pollen can cause serious allergic reactions such as dermatitis & hay fever **Distribution**: A total of around 20 hectares of isolated infestations at Stuart Creek, Alligator Creek, AMH, Roseneath, Oak Valley & top of Ross River Dam. This weed is just starting to take off.				
Goal: To reduce the area of this weed to eradicate plant.		**Performance Indicator:** Progressive reduction in area.		
Obstacles: Easily transported & will grow anywhere, produces large quantities of seed, seeds very early.				

Actions:	By Whom	When
Map distribution.	NRM, & Council	2002
Utilise current NRM herbicide subsidy for control projects.	NRM, Council	2002 to 2003
Encourage & assist Landholders to participate in property pest Management Plans.	Council & NRM	2002 & Ongoing
Control known infestations.	Council & Landholders	Ongoing
Monitor & maintain treated areas.	Council & Landholders	Ongoing
Issue notices as necessary.	Council	2002 Ongoing
Educate landholders on risk.	Council & DNRM	2002 Ongoing
Educate landholders on plant identification & report new infestations to Council .	Council & NRM	Ongoing
Investigate possible joint projects between Council & state agencies & landholders.	DNRM	2003

Pest Monitoring Process: Visit treated areas & survey for seedlings at regular intervals to ensure timely & effective control.	
Resources	
Staff	Operating funds
Vehicle	Equipment

MESQUITE:(Prosopis spp)				
Weed	**Strategic Import**	**Achievability**	**Declaration Category**	**Priority**
Mesquite	Conserv – 1 Grazing – 1 Rec - 1 USL – 1	A	Class 1 & Class 2	HIGH

Description: Introduced to Australia from the USA, Central America & northern South America for home gardens, as shade, shelter & feed for stock & to stabilise mine dumps. Deciduous shrubs or small trees, with bipinnate leaves. Stipules may or may not be present.
Flowering: Greenish-yellow flowers on short stalks & grouped into spike-like racemes in the leaf axils. Burning enhances germination.
Dispersal: Native animals & livestock eating the pods & voiding the seeds.
Control: Best results from a combination of mechanical, cultural, chemical & biological.

Impact: Forms impenetrable thorny thickets & crowds out more useful pasture species. Invades bushland.
Distribution: All known infestations at Cluden have been treated previously by DNRM.

Goal: To eradicate mesquite from the area.	**Performance Indicator:** No further outbreaks identified. No regrowth in treated areas.

Obstacles: NIL

Actions:	**By Whom**	**When**
Monitor known location. Treat any seedlings or regrowth on existing plants.	Council Landholders	2002 & Ongoing Ongoing

Pest Monitoring Process: Survey existing sites.

Resources	
Staff	Operating funds
Vehicle	Equipment

BLUE THUNBERGIA (Thunbergia grandiflora)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Blue Thunbergia	Residential – 2 Conservation –2	A	Class 2	HIGH

Description: Introduced from northern India into Australia as garden ornamentals, Blue Trumpet Vine is a vigorous, perennial twining vines, with choko-like leaves up to 15 cm long & 10 cm broad. Hanging groups of large, trumpet-shaped flowers with a short, broad tube, white on the outside, yellowish inside which expands to five rounded pale lavender-blue petals, one larger than the others. Seedpod is inconspicuous & is cone-shaped with a rounded base. The seed is flat, up to 1cm long & covered with brown scales. The plant develops a very tuberous root system, some tubers being as large as 70 kg. The root system when cut persistently sprouts.
Flowering: August – September
Dispersal: Initially it was believed that Thunbergia did not set viable seed, but this has now been disproved. Dispersal is mainly by transport of root pieces along river banks during floods, or by earth removed for fill or other purposes. The dumping of garden cuttings in the bush is another spread source.
Control: In the home garden – Garden specimens should be destroyed & replaced with other species. Dispose of by placing in a black plastic garbage bag, sealing & taking to the dump.
In the bush – The cutting of the vines at ground level often gives a smothered tree a reprieve, but regeneration from tubers will occur. Small plants can be dug out, but established plants usually have extensive underground tubers, so spraying with herbicides is the best option. Arsenal is the only chemical registered for Thunbergia control. It is a "systemic" herbicide & is transported within the plant to kill the underground tubers.

Impact: This plant climbs & smothers native vegetation, killing & often pulling down mature trees with the weight of the vine.
Distribution: In many home gardens.

Goal: To eradicate from the area.	**Performance Indicator:** No further reports of Thunbergia. Current populations are controlled.

Obstacles: The size, physiology & resilience of the tuber (it can be dormant). Labour intensive control methods. Access.

Actions:	**By Whom**	**When**
Ensure nurseries in the area are not selling this plant.	Council / NRM	2003
Monitor natural areas for invasions.		Ongoing
Ensure home gardeners know how to properly dispose of this weed.	Council & NRM.	2003 & annually. Ongoing
Council to offer free plant substitute to landholders who eradicate Thunbergia.	Council	

Pest Monitoring Process: Annual survey.

Resources	
Staff	Operating funds
Vehicle	Equipment

CHINEE APPLE (Ziziphus mauritiana)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Chinee Apple	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	High

Description: Chinee Apple is from Mauritius, India & southwest China. It is a large shrub or small spreading tree up to 8 m high & 10 m in canopy diameter. The plants are densely branched, from ground level in some cases. They grow as open forests or thorny thickets along waterways. Branches are zig-zag in shape & have a leaf & a thorn at each angle. Leaves are rounded, glossy green above & almost white underneath. Flowers are small, greenish-white & have an unpleasant smell. The edible fruit are like a cherry but pale yellow or orange when ripe. During the dry, Chinee Apple drops most of its leaves due to water stress. It shows no marked preference for any soil type or vegetative association, but does not grow beneath the canopy of other vegetation.
Dispersal: Trees produce large quantities of fruit, which is readily eaten by stock, birds & humans, although spread seems to be slow. Trees, which are damaged at the top, can regrow from lignotubers or cut roots.
Control: Large infestations can be knocked down with a bulldozer, pushed into a heap & burned. This should be followed up with chemical control of seedlings & suckers.
Small areas can be controlled with basal bark treatment. The cut stump method is also successful with some chemicals.

Impact: Dense infestations produce impenetrable thickets that seriously hamper stock management & reduce pasture productivity & accessibility. This weed also devastates native plants & animals.
Distribution: Throughout the City. Particularly infestation in Town Common & Alligator Creek, Stuart, Toonpan Conservation Park & roadside verges

Goal:	**Performance Indicators:**
To reduce the area of Chinee Apple.	Mapped area is reduced by strategic removal of isolated populations.

Obstacles: The scale of infestation. Most situations can only be controlled using basal bark technique – very manually intensive

Actions:	**By Whom**	**When**
Map the invaded area.	NRM & Council	2003
Ensure Chinee Apple is eradicated on small blocks & government lands.	NRM, Council landholders.	2002 & ongoing.
Eradicate isolated infestations on larger blocks & ensure follow-up treatments.	NRM, Council landholders.	2002 & ongoing.
Ensure eradication on Council & State controlled road reserves	NRM, DMR, TCC	Ongoing

Pest Monitoring Process: Property pest Management Plans & associated Annual Maintenance Inspections

Resources

LANTANA **(Lantana camara – non sterile forms)**				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Lantana	Grazing – 2 Residential – 3 Conservation 2 Recreation – 3 Horticulture-4	B	Class 3	Medium

Description: Lantana is native to tropical and sub-tropical regions of Central & South America and is now found throughout most coastal & subcoastal areas of Queensland. Lantana grows in a wide variety of habitats from exposed dry hillsides to wet heavily shaded gullies. It is a heavily branched shrub, which can grow as clumps, dense thickets, or as a rambling and climbing vine.
The stems are square and backwardly curving prickles along the edges. Leaves are bright green, mostly 6 cm long with rounded toothed edges. Flowers appear through -out most of the year in clustered compact heads about 2.5 cm across. Flower colours can vary from pale cream to yellow, white, pink, orange, red, lilac, & purple. Many Lantana types are poisonous to stock and young animals recently introduced to it are at most risk.
Dispersal: Spread by seed.
Control: There are many forms of control available for the control and/or management of Lantana from mechanical clearing, burning, chemical application and biological control. Usually a multi technique control phase is needed to manage extensive areas of this weed. Further information on the most effective control for individual situations is available from Councils Technical officers or NRM Land Protection officers.

Impact: The full impact of Lantana in the Townsville City area has not yet been reached. Dense infestations produce impenetrable thickets that seriously hamper stock management & reduce pasture productivity & accessibility. This weed also devastates native plants & animals.
Distribution: Throughout the City. Particular infestations in Town Common & Alligator Creek, Conservation Park & roadside verges

Goal:.	**Performance Indicators:**
Reduce the extent of this weed	Mapped area is reduced by strategic removal of isolated populations.

Obstacles: The scale of infestation. Most situations can only be controlled using foliar spraying techniques or mechanical clearing in the first instance – very manually intensive.

Actions:	**By Whom**	**When**
Map the invaded area.	NRM & Council	2003
Ensure Lantana is eradicated on small blocks & government lands.	NRM, Council landholders.	2002 & ongoing.
Eradicate isolated infestations on larger blocks & ensure follow-up treatments.	DNRM, Council landholders.	2002 & ongoing.
Ensure eradication on Council & State controlled road reserves	DNRM, DMR, TCC	Ongoing

Pest Monitoring Process: Property Pest Management Plans

Resources

SICKLEPOD (Senna obtusifolia)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Sicklepod	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	High

Description: A vigorously growing, very competitive woody shrub to 1.5 meters tall. It is normally an annual, though plants that have been slashed or survive chemical treatment often reshoot and survive another year dependent on weather conditions. Leaves are divided into 3 opposite pairs about 4 cm long and 2 cm wide, rounded at the end and wedge shaped at the base. Flowers are small and yellow, about 1 cm across and have 5 petals. The seedpod is 10 to 15 cm long and 3 to 5 mm wide and sickle shaped. Seeds are flat, shiny and brown.

Dispersal: When ripe, the pods burst open shedding the seeds which can remain viable for up to 15 years. Up to 2,000 seeds per m2 can build up in the soil. Spread is usually by cattle or horses eating mature seed and spreading in their dung. Vehicles & machinery are also responsible for much of the spread.

Control: Control should aim at preventing any further seed production and replacing with suitable competitive pasture species. Slashing is only recommended in large extensive infestations but care must be taken not to further spread the plant into clean areas on the property. Chemical application will give the best result however, the effectiveness of herbicides is optimized with sound pasture management.

Impact: Sicklepod can invade and completely dominate pastures. It can become a major weed of cropping areas within 2 to 3 seasons. Sicklepod usually only invades natural areas after significant disturbance.

Distribution: There are currently no known Sicklepod infestations within the Townsville City area. There are confirmed recordings of sicklepod in the Thuringowa City area and also in the northern parts of Burdekin Shire within close proximity to the City boundary.

Goal: To retain the Townsville City area free of Sicklepod.	**Performance Indicators:** No infestations reported and none recorded.

Obstacles: Contaminated stock feed being brought in to the area**.**

Actions:	**By Whom**	**When**
Implement a media package to ensure that the Community can positively identify new infestations.	NRM & Council	2003
Monitor high-risk areas and produce merchants to maintain the weed free status.	Council	2002 & Ongoing
Immediately map and control any new recordings.	Landholders, Council, NRM	2003 – Ongoing

Pest Monitoring Process: Reported sightings from Community – roadside inspections in highly prone areas.

Resources	
Staff	Operating funds
Vehicles	Equipment

LYMNOCHARIS (Lymnocharis flava)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Lymnocharis	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	High

Description: Lymnocharis is a perennial aquatic weed native to the West Indies & South America. It roots in mud but emerges from the water to a height of 20 to 100 cm. It is a robust erect plant with a milky sap.
The leaves originate from the base of the plant and are smooth, with long petioles that are triangular in cross-section, and thickly sheathed at the base. The yellowish-green leaves are oval shaped, 5 to 30 cm long and 4 to 25 cm wide.
The flower heads arise from the base of the plant, are 10 to 90 cm long and contain a cluster of 5 to 15 flowers per stalk. The flowers can be quite large with three pale yellow petals. The fruit is 1.5 to 2 cm in diameter and made up of many segments, each containing numerous tiny dark brown seeds, which are 1 to 15 mm long. After fruiting, the flower stalk bends downwards until it reaches the water surface where they float for 3 to 4 days before beginning to release their seeds. Dispersal: One single fruit is capable of producing 1,000 seeds and one plant may yield up to 1,000,000 seeds per year. Extensive vegetative multiplication also takes place by means of detachable buds. Humans predominantly introduce plants to an area. Running water will spread the seeds and it is also believed that horses and cattle will feed on the plants and help to spread the plant. This may also be the case with native and feral animals, which may spread the seed in mud, attached to their bodies.
Control: Hand pulling of individual infestations gives the most effective control. Formulations of Glyphosate also give excellent control rates. Follow up is also necessary due to the quick resurgence of this plant

Impact: Lymnocharis has the potential to spread widely throughout the Tropics. It can interfere with irrigation and drainage systems and water storage areas. It is reported to be one of the 3 most troublesome weeds in Sri Lanka and is a severe problem in the rice growing areas and is a serious weed in Malaysia & Indonesia. Lymnocharis out-competes native aquatic plants and has the potential to seriously displace food for fish and other wildlife.
Distribution: Lymnocharis has only been recorded in 2 places in Australia. One at Centenary Lakes in Cairns and the other in the Black River district of Thuringowa City.

Goal:	**Performance Indicators:**
To retain Townsville City free of this weed.	No infestations reported or located.

Obstacles: Community members not reporting infestations.

Actions	By Whom	When
Participate in a joint media program with adjoining local Governments. Participate in ongoing survey and control of known infestation at Black River. Carry out random inspections of private dams and waterways. Ensure all control is timely and effective.	(Townsville City, Thuringowa City, Hinchinbrook and Burdekin Shires, NRM). NRM & respective Council Council	Late 2002 Ongoing Late 2002 & Ongoing Ongoing
Pest Monitoring Process: Continued inspections and Property Management Plans		
Resources		
Staff	Operating funds	
Vehicles	Equipment	

GIANT RATS TAIL GRASS (Sporobolus pyramidalis, Sporobolus natalensis, Sporobolus jacquemontii)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Giant Rats Tail Grass	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	High

Description: Giant Rats Tail (GRT) is an aggressive grass that can reduce pasture productivity and outcompete most other desirable species. Introduced from Africa and America during the 1960's in contaminated pasture seed, it has now adapted well to large areas of Queensland, in particular the Burdekin district, Mareeba, Mirani, Rockhampton, & Bundaberg districts. Giant rats tail is very similar to some native Sporobulous species and it can be very difficult to distinguish between the native and exotic species.

Giant Rats Tail is a robust, tufted, perennial grass growing to 1.7 meters tall. Plant height from the base to the seed head is 1 to 1.5 meters and the seed head can be 40 cm long and 3 cm wide. Seed heads change shape from "rats tail" spike when young to an elongated pyramid shape when flowering. Native Sporobulous species tend to be shorter and have less dense seed heads than GRT grasses. Mature leaf blades are tough and difficult for stock to graze.

GRT grass sets large quantities of seed throughout the frost free periods of the year provided soil moisture is available. Research has indicated that seed banks of up to 80,000 seeds m2 per year with predictions indicating that some seed may be viable up to 10 years.

Dispersal: Seeds are commonly spread by water, machinery, vehicles, animals, and in pasture seed or hay. Landholders should minimize the movement of stock and vehicles in GRT infestation particularly when there are heavy dews or wet conditions as the seed sticks quite readily to anything when wet.

Control: Always work from heavily infested areas to light to minimize spread. There are a number of control options available from fire through to cultivation and reeding with more desirable pasture species. Where plants are extremely isolated, digging up and bagging and then burning is the preferred control. Isolated plants can be treated with Glyphosate formulations. In the first instance, it is strongly suggested that advice is sought from Councils Technical Officer or NRM Land Protection Officers.

Impact: Cattle grazing GRT dominant pastures can take up to 12 months longer to reach equivalent weights to those grazing clean pastures. Experiences of some Graziers indicate that stocking rates on pasture with heavy GRT need to be halved to maintain production per animal.

Distribution: Unknown distribution within Townsville City area. Believed to have various outbreaks of the American Rats Tail Grass in the Woodstock, Toonpan areas. Urgent inspections are required to ascertain the complete distribution.

Goal:	**Performance Indicators:**
Minimise the impact and prevent further spread within the Townsville City area.	All landholders continuing with adequate control and management practices. No new outbreaks recorded.

Obstacles: Easy spread nature of this plant eg native & feral animals

Actions:	By Whom	When
Map the invaded area.	NRM & Council	2002 & Ongoing
Maintain an active education program to ensure the Community are conversant with identification.	NRM, Council	2002 & ongoing.
Ensure Giant Rats Tail Grass is effectively controlled on small blocks & government lands.	NRM, Council, and Landholders Landholders & Council.	2002 & ongoing.
Adequately control isolated infestations on larger blocks & ensure follow-up treatments.	DNRM, DMR, TCC	2002 & Ongoing
Ensure eradication on Council & State controlled road reserves	Council, NRM, Landcare,	2002 & Ongoing
Examine avenues for provision of broad acre control equipment.	Graziers	2002-03
Pest Monitoring Process: Property pest Management Plans, Roadside Weed Management Plans – Annual Maintenance Plans		
Resources		
Staff	Operating funds	
Vehicles	Equipment	

SALVINIA (Salvinia molesta)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Salvinia	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	High

Description: Salvinia is a native of Brazil and can grow rapidly, forming dense mats that completely cover water storages affecting water quality, water flow, wildlife and recreational activities. Salvinia is spread largely by people through careless emptying of aquariums and ponds into waterways. It is suspected that some salvinia is actually farmed in natural waterways for harvest and sale. Salvinia are free floating aquatic ferns that have small spongy green leaves. It has no flowers and the long roots resemble wet hair. The young leaves are about 12 mm across, oval and lie flat on the water surface. As the leaves mature, they become thick and folded at the mid-rib and are positioned in pairs along the stem. A root trails from each pair of leaves. Salvinia do not release fertile spores and all reproduction is vegetative.

Salvinia produces little growth in the Winter months and it is able to survive the winter months. Summer temperatures produce rapid vegetative growth and plants can double in volume in two to three days. High rates of transpiration through the leaves during summer can cause up to 4 times the loss of water from normal water surface evaporation.

Dispersal: Salvinia is commonly moved by human intervention. Floodwaters will also break up the infestations and start rafts in new areas.

Control: A combination of mechanical, chemical and biological control techniques has provided some outstanding achievements. Removal by hand is practical for small areas only. Before using herbicide, read the label thoroughly, only treat a small area at a time.

Impact: Salvinia has the ability to completely choke waterways, dams, lakes & rivers. Thick infestations can stop fishing and other recreational activities. Children & livestock may drown if they become entangled in the roots and stolons of heavy bodies of the plant.

Distribution: Most waterways around Townsville and adjoining Shires

Goal: Minimise the impact while containing the current distribution to known areas.	**Performance Indicators:** Decrease in the amount of infested areas. Decrease in complaints from recreational users.

Obstacles: Use of chemicals – access to known infestations – resourcing

Actions:	**By Whom**	**When**
Map the currently known infestations and record on Pestinfo.	NQ Water, Council, & NRM.	2003
Ensure sufficient bio control agents are available in all areas of infestation.	NQ Water, Council, & NRM.	2003 & Ongoing.
Carry out releases where no bio control activitiy is known.	Landholders, Council.	2003.
Carry out inspections of private dams and smaller waterways where the plant may be found.	Council & Landholders.	2003 & Ongoing.
Carry out media activities to ensure the media is conversant with problems associated with illegal dumping.	Council & NRM	2002.

Pest Monitoring Process: Riverine management plans – Property Management Plans

Resources

Staff	Operating funds

MOTHER OF MILLIONS (Bryophyllum spp)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Mother of Millions	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	B	Class 2	Medium

Description: Mother of Millions are erect smooth, fleshy succulent plants growing to one meter or more high. Five species are commonly naturalized in Queensland. It is believed that they originate from Madagascar. Mother of Millions is highly toxic to stock and because of its succulent features, it is well adapted to the dry areas.
All species form tall flower spikes in winter with clusters of bell shaped flowers. Depending on the species, flowers can be yellowish green to orange-red in colour. Each species has a distinctive leaf shape, but all produce small plantlets along the edges of the leaves. These plantlets drop readily, develop roots, and establish quickly to form a new colony.
Dispersal: As the name suggests, one plant can reproduce a generation from masses of plantlets, which are formed, on the leaves. Predominantly, the plant is spread by water but quite often by dumping of the garden cuttings in vacant land or along riverine areas.
Control: The best form of control is prevention. In small infestations, hand pulling, bagging and burning is the preferred method. For larger infestations, consideration should be given to burning and the use of herbicides. Herbicide treatment in the cooler months has the benefit of preventing new seeds from developing.

Impact: Mother of Millions can completely take over and choke out all grasses.
Distribution: Current distribution in the Townsville City area is unknown and requires urgent surveys to ascertain the true picture.

Goal:	**Performance Indicators:**
To maintain low level infestation of this plant	No large outbreaks reported

Obstacles: Growing in a number of house yards in the City

Actions:	**By Whom**	**When**
Map the current infestations and record on Pestinfo.	Council & NRM	2003
Encourage Landholders to commence control programs.	Council	
Encourage ratepayers to start removing this plant from environmentally sensitive areas.	Council	2003
Undertake media release to educate the general public on the problems associated with this weed.	Council & NRM	2003

Pest Monitoring Process: Property Pest Plans & Annual Maintenance Plans

Resources	
Staff	Operating funds
Vehicles	Equipment

MIMOSA PIGRA (Giant Senitive Tree)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Giant Sensitive Tree	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	A	Class 1	High

Mimosa Pigra

Description: A native of Brazil, and is regarded as one of the worst weeds in a number of tropical countries. It is regarded as an 'extraordinarily noxious plant' because of its longevity and the effect on crop and pasture production. The Giant sensitive tree may be confused with the Giant Sensitive plant (*Mimosa invisa*) It is classed as a Weed of National Significance.

When mature, mimosa is an erect much branched prickly shrub reaching a height of 3-5 m, reproducing by seed and suckers. The stem grows up to 3 m covered with randomly positioned recurved prickles 5 – 10 mm long. Mimosa has bright green leaves 20 – 25 cm long, consisting of about 15 pairs of opposite segments. It has pink or mauve flowers, regular, numerous and grouped into globular heads about 1-2 mm.

It is an aggressive prickly shrub which forms impenetrable thickets 4 – 5 m high making infested areas inaccessible.

Dispersal: Mimosa reproduces by seed and vegetativley from cut stems. A mature plant may produce up to 90,000 seeds annually. Flood water, animals and machinery commonly spread the seedpods.

Control: Cut stump and basal bark application give good control for moderate infestation. Chemical and mechanical methods can be effectively conducted. Council Technical officer should be contact if identified.

Impact: Dense infestation produce impenetrable thickets that seriously hamper stock management and reduce pasture productivity and accessibility.

Distribution: there is only one known infestation out side of Northern territory and that was at the Peter Faust/Proserpine dam.

Goal: to retain Townsville City free of Mimosa pigra	**Performance Indicators:** No infestation reported and none recorded

Pest Monitoring Process: Continued inspections and property management

Resources	
Staff	Operating funds
Vehicles	Equipment

PARKINSONIA (Parkinsonia aculeate)				
Weed	**Strategic Importance**	**Achievability**	**Declaration Category**	**Priority**
Parkinsonia	Grazing – 2 Residential – 4 Conservation 2 Recreation – 3 Horticulture-4	A	Class 2	High

Description: Parkinsonia is thought to be a native of tropical America. It is a fast growing and may flower in early summer of its second or third year of growth. Once established, flowering can occur opportunistically to exploit variable seasonal conditions. Parkinsonia is a small tree usually to 3 meters high and has slender green zigzag branches armed with sharp spines. Leaves with a short spine tipped stalk, are flat with small, oblong leaflets along each edge. Flowers are yellow, fragrant, five petalled on a large drooping stalk. Seeds are oval, hard and about 15 mm long and are borne in pencil like pods 5 to 10 cm long.

Dispersal: Cattle and horses eat the pods and scatter the seeds. Flood water is also a great spreader of the pods and seeds.

Control: A mixture of control techniques are available for the control of Parkinsonia. In most situations, herbicide will be required whether to mop up after mechanical control has been undertaken or as a stand alone using the basal bark or cut stump technique. Foliar spraying is an alternative on younger trees. It is suggested that contact is made with Council Technical officers to discus the most practical technique for specific situations.

Impact: Parkinsonia can quickly colonise and take over extensive black soil flats and riverine areas choking out all grass and other native ecosystems. Such infestations provide a harbour for feral pigs.

Distribution: Infestations can be located along Ross River, and throughout the Cluden, Nome & Alligator Creek, Cungalla, Pallarenda & Garbutt areas.

Goal:	**Performance Indicators:**
Reduce the current level of infestation	Decrease in the current level and distribution.

Obstacles: Access to some infestations

Actions:	**By Whom**	**When**
Map all currently known infestations and record in Pestinfo.	Council & NRM	2002
Determine priority areas for treatment.	Council.	2002
Encourage landholders to initiate control programs.	Council & Landholder.	2003 & Ongoing
Consider the provision of chemical subsidy as an incentive to control.	Council	2003 & Ongoing
Use legislation as a last resort to ensure effective control.	Council	2003 & Ongoing

Pest Monitoring Process: Property pest Management Plans & Annual Maintenance Plans.

Resources	
Staff	Operating funds

Vehicles	Equipment

OBJECTIVE 7

To encourage & support best practice pest management			
Action	**By Whom**	**When**	**Performance Indicator**
Provide technical information & other assistance to all landholders & other stakeholders.	DNRM, Council	As requested	Information sourced or produced & provided as needed.
Offer assistance with pest management planning at the property level to help compliance with Local Government & lease conditions.	Council DNRM	Ongoing	Assistance provided to landholders & Property pest management Plans are developed.
Define best practice for the various stakeholders & pests.	DNRM, All Stake-holders	2003	Best practice for all land uses in the city is defined.
Publicise/Facilitate local examples of best practice pest management.	Council, DNRM	Ongoing	Publicity generated.
Develop & provide a system of incentives for best practice.	Council	2003	Report on potential incentive measures provided to Council .
Recognise efforts of landholders for best practice pest management	Council	2003, Annual	Preferred methods implemented. Recognition given
Resources			
Staff	Operating funds		

OBJECTIVE 8

To encourage & support research into more effective controls on pests			
Action	**By Whom**	**When**	**Performance Indicator**
Identify all pest research needs.	All stake-holders	2002 & ongoing	Specific research needs are canvassed & listed.
List priority research needs & provide this to DNRM, RLPB, & State & Federal Government regularly.	All stake-holders	2002 & ongoing	Priority list forwarded.
Organise LGAQ to lobby for pest research.	Council	Ongoing	LGAQ becomes active in this area..
Seek representation on DNRM's Research Advisory Committee.	Council	2002	Representation sought by letter.
Use Local Government representatives on the Rural Land Protection Board to lobby for pest research needs.	Council	2002 & ongoing	Support sought when required.
Conduct more research on environmental weeds such as Allamanda & Pangola Grass.	DNRM, EPA	2003 & ongoing	Research undertaken.
Share research out comes / knowledge through forums.	Council, DNRM	Ongoing	Forums held as required.
Encourage implementation of research out comes	Council, DNRM	Ongoing	Research results are being used by landholders
Resources			
Staff	Operating funds		

OBJECTIVE 9

To regularly monitor & review the implementation of the Pest Management Plan			
Action	**By Whom**	**When**	**Performance Indicator**
Produce an annual report to Pest Working Group, relevant Council committees & Council .	Council	2002, & Ongoing	Reports produced.
Ensure there is annual ground truthing of strategic pest information.	Council	Annual	Ground truthing of main priority reports complete.
Update pest mapping regularly.	Council	Twice per year	Updated maps produced.
Hold six monthly Pest Working Group meetings	Council & group members	Twice per year	Meetings called
Resources			
Staff	Operating funds		

6. WORK PROGRAM

Years for finalisation of actions are provided in the strategies for pest plants & animals in Objective 6 above. These can be summarised as follows over the next 2 years:

2002 – 2003 – Completion and implementation of the Pest Management Plan.

2003 – 2004 – Assessment and review of key strategies and achievement of the stated objectives.

7. CO-ORDINATION OF IMPLEMENTATION

To ensure the successful implementation of the plan Council will investigate the possibility of entering into contractual arrangements with suitably qualified Pest officers, or alternatively seek to employ a full-time Pest Management Officer (PMO). The PMO will work closely with NRM Land Protection Officers, and all land managers and residents to achieve a cooperative, coordinated and efficient approach to pest management in the City. The PMO be responsible to:
plan and supervise the pest management works program for Councils works crew;
carry out inspections and enforcement duties as they relate to pest management;
assist landholders with developing property pest management plans.

The Pest Working Group, comprising representatives from Council and a range of other stakeholder groups, will continue to be a forum for problem-solving, advice and assistance, as well as fulfilling the monitoring and review role outlined in 8 below.

8. MONITORING AND REVIEW

The Pest Working Group will monitor and review progress against stated performance indicators for the implementation of this three-year plan. Initially the group will meet twice per year with the PMO and works crew foremen, however, when appropriate planning processes and staff is in place, the group may review the frequency of its meetings.