

Pest Management Planning

Local Government pest assessment, prioritisation and planning framework

Appendix to the *Far North Queensland Local Government
Regional Pest Management Strategy 2010-15*

Version 1.4 (Sep 2011)



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Introduction

This guide is presented in two parts:

Part one: *Pest Assessment, Prioritisation and Planning Framework*

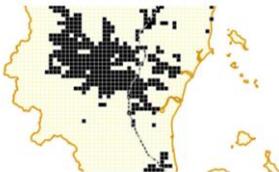
Part two: *Weeds of the FNQROC region*

Part one provides a framework for development of a zoned and prioritised Pest Management Plan.

The framework is divided into four steps.

Step one uses a one kilometre resolution mapping methodology from the Regional Mapping Project (FNQROC/Terrain NRM/CSIRO) to determine the current distribution.

Step one
Pest distribution is mapped across the target area



Step two determines priorities for inclusion in local and regional planning process and resource allocation. The framework provides scoring templates, methodology and process. This provides a template for the delivery of priorities determined in part one within a zoned pest management planning and reporting framework. The framework provides the template for the visualisation and communication of management priorities and the setting and reporting of management targets.

Step two
Priorities for management are determined in consultation with stakeholders using the *pest assessment and prioritisation framework*.

Existing priorities

Impacts/threats

Capacity to manage

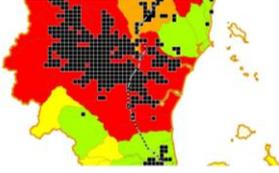
Step three creates management zones based on the accepted principles of pest management which are represented as a range of reporting, target setting and management categories.

Step three
Management targets are determined for each pest prioritised within step two.

DELIMITATION	The extent of the pest is determined
PREVENTION	Clean areas are kept clean
REMOVAL	All seeds (seedbank) and plants removed
INTENSIVE CONTROL	Infestations are reduced to a size that can be removed
IMPACT REDUCTION	Buffers maintained, important places protected

Step four combines steps one to three into a zoned, prioritised pest management plan. The plan is supported by a reporting matrix which allows the evaluation and revision of the management targets set. The final pest management plan is then presented as a range of products that can be used to communicate management priorities on a subcatchment scale.

Step four
A prioritised and zoned management plan delivers and communicates management priorities .



Part two is an inventory of plants within the FNQROC region considered to be weeds from a variety of sources, authorities and processes. The list should be used in conjunction with the scoring templates provided within the *Pest Assessment and Prioritisation Framework* in determining key priorities for management during the development and revision of Local Government Pest Management Plans and the deliberation of weeds of regional significance within the criteria identified the *Far North Queensland Local Governments, Regional Pest Management Strategy 2010-2015*.

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Part one: Pest Assessment, Planning and Prioritisation Framework

Step one: Mapping - existing data is collated from across the planning area and compiled into a regional one kilometre grid overlay. An expert panel is then engaged in a participatory mapping process and any additional records, alterations or omissions to the distribution are made (further information on the method are available in Sydes et al. 2009).

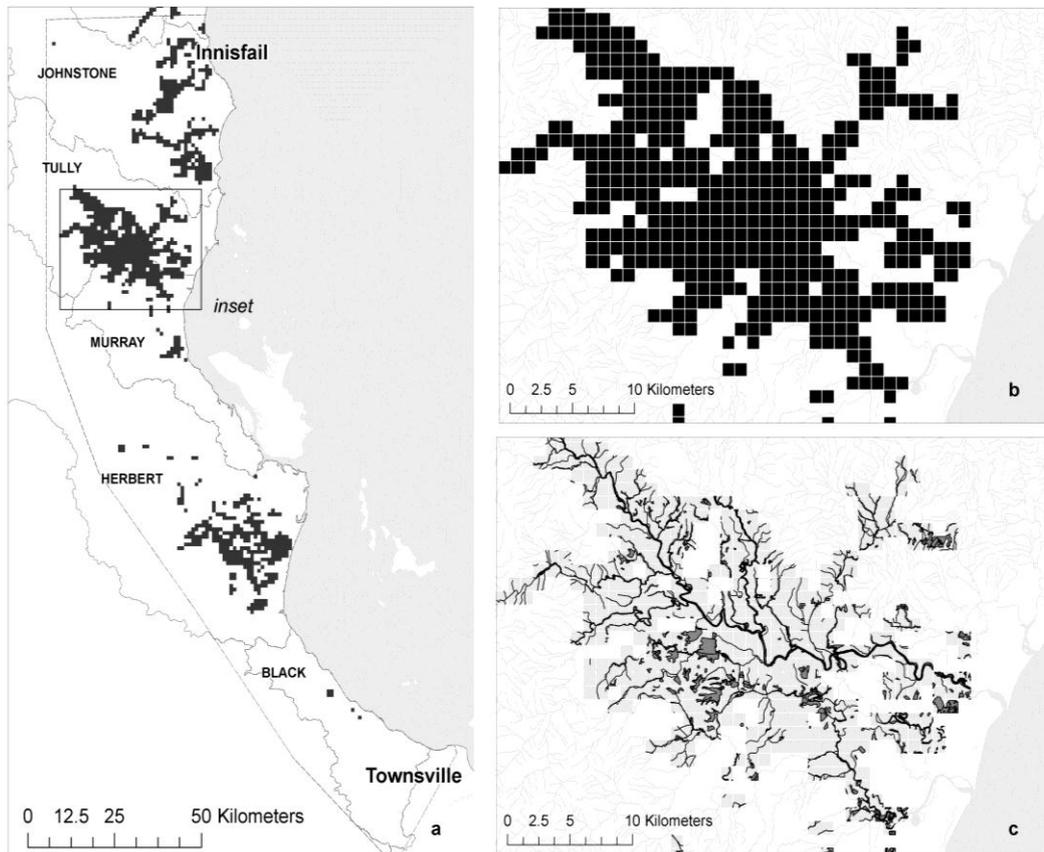


Figure 1 a) 1 km distribution mapping for *Hymenachne amplexicaulis*; b) Detail of 1 km grid map for the Tully River c) Riparian and wetland areas used to distinguish suitable habitat with the 1km grid

Step two: Prioritisation

(Adapted from Cairns Regional Council Pest Management Planning template, Birch, 2010).

The Pest Assessment and Prioritisation Framework is delivered in a facilitated session with stakeholders and representatives from the relevant pest management or natural asset management working group. Information on the current extent and management effort for each species are provided as part of the process.

Why prioritise?

A fundamental aspect of a pest management planning is determining and communicating priorities. Priorities assist in planning resources, aligning effort and communicating goals. Setting priorities allows stakeholders to establish and communicate the timelines and resources required to effectively manage pests and weeds with the resources available.

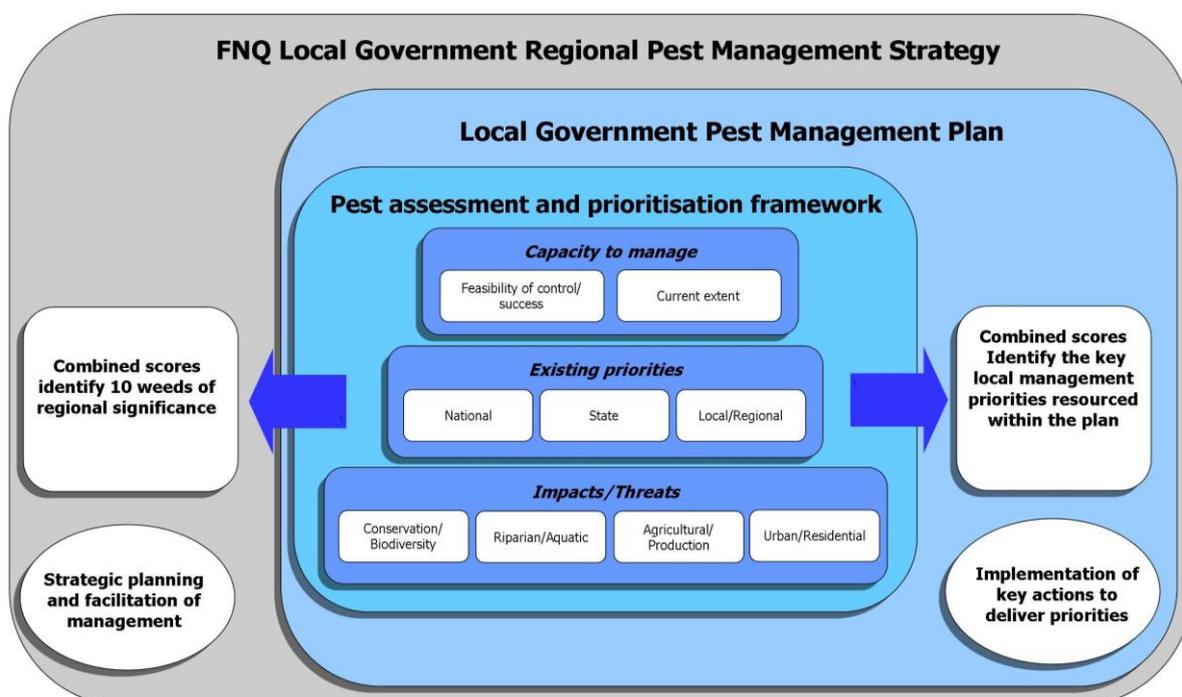


Figure 2. The pest assessment and prioritisation framework is a shared process between the regional strategy and member local government pest management plans.

Why use a system to make a decision?

Bringing together stakeholders to make collective decisions is a process of negotiation, collaboration and at times, compromise. In order for the decisions we make in pest management to be supported and the steps we went through to be both transparent and replicable, a decision support system helps map the decision making process.

Why is scale so important?

The scale of a planning and prioritising process will determine both the level of detail required and to a large extent the nature of the priorities which are able to be determined. A pest management planning process should have relevance whether applied at a property scale or a regional scale. It may be that several consultations and implementation plans are required across a Local Government area in order to accommodate the key differences in land use, demographic and landscape.

What scale will the Regional Pest Management Strategy use?

The Regional Pest Management Strategy will identify key priorities from across the FNQROC administrative region. The priorities determined at this scale will be pests which will benefit most from regional coordination and facilitation of management across multiple local government area i.e. WONS species, or pests of which current distribution is limited, yet pose a significant threat across all or part of the administrative area. All other species will be catalogued within the *Schedule of Far North Queensland Local Government Regional Priority Weeds for consideration in Pest Management Plans* http://www.fnqroc.qld.gov.au/pest/pest_management.html.

Who will determine priorities?

Stakeholder consultation is a vital component of initiating and maintaining a pest planning and management program. Targets, goals and priorities determined through a process of consultation will have much greater relevance if they are determined by those who will be implementing them. Establishing or utilising existing advisory groups and getting the community involved is fundamental to this process. The determination of regional priorities for Local Government will be determined by the *FNQ Natural Asset Management Advisory Committee* (NAMAC) in consultation with stakeholders (pest advisory groups, natural asset management advisory groups and catchment management groups from across each administrative area).

What measures can we use?

The process outlined draws on a large body of existing principles and processes for determining priorities. The determination of species listed in National (WONS) and State (Land Protection Act 2002/Biosecurity Act pending) processes have gone through a thorough analysis and prioritisation process. This strategy builds upon the foundations for pest management prioritisation within Werren 2004. In order to accommodate newly arrived species, or species whose impact may differ in a local context, a range of existing priorities, impact and capacity to manage measures are used.

Can this process be applied to both pest animals and weeds?

The framework can be applied to both weeds and vertebrate pests.

How will the process work?

The consultative group will be asked to score against the categories listed below for each species. At the end of the process the pests and weeds can be ranked in accordance with their individual scores.

The scoring process will respond to the following criteria across three themes:

Existing priorities

National - *Weeds of National Significance, National Cost Shared Eradication Programs*¹

State – Class 1, Class 2, Class 3 Declared Pests

Local/regional – Regional plans and strategies, local declaration,

Impacts/threats

Conservation/biodiversity

Riparian/Aquatic

Agricultural/Production areas

Urban/Residential

Capacity to manage

Achievability/feasibility of success

Current extent

Determining priorities on a local scale

Consultation with stakeholders identified that a barrier to a successful uptake of priorities determined on a regional scale was that they often did not reflect on the immediate and local priorities at a locality level. For example, the priority for management of a weed like navua sedge, *Cyperus aromaticus* within the Cairns coastal lowlands where it is very widespread will be less (based on its broad distribution and stakeholders capacity to manage) than on the southern Atherton Tablelands where it is still establishing and steps can still be taken to prevent further spread.

All pests and weeds regardless of classification will be included in the pest assessment and prioritisation framework deliberations on a local scale. The responsibility for coordinating and leading management effort will reflect the responsibilities outlined in the Land Protection MOU (and any further iterations of the same under the pending Biosecurity Act).

Determining priorities on a regional scale

Pests and weeds selected within the category of regionally significant pests are those which require coordination, strategic planning and support from a regional level and as such will receive a dedicated resource from the Regional Natural Asset Management Coordination role. The priorities determined under this category reflect the agreed responsibilities under the Land Protection MOU (and any further iteration of the same under the pending Biosecurity Act).

There are three criteria for determining regionally significant pests and weeds within the pest assessment and prioritisation framework:

- (i) Pests and weeds declared under existing legislation (class 2 or 3 LP Act 2002) elsewhere in the state which are of a higher concern in the region because of limited distribution or recent introduction and as such are the subject of intensive control or eradication programs (e.g. Fireweed, *Senecio madagascariensis*)
- (ii) Pests and weeds which are not declared under state legislation, are unique or novel to the region, limited in their distribution and as such are the subject of intensive control or eradication programs (e.g. Hiptage, *Hiptage benghaliensis*)
- (iii) Pests and weeds (including WONS) which have significant impacts across the region and require a regional level of coordination, facilitation and strategic planning across stakeholders (e.g. Pond apple, *Annona glabra*)

Pests and weeds that are not eligible under these criteria include:

- (i) Pests and weeds which are the subject of national cost shared eradication programs (e.g. Miconia, *Miconia calvescens*)

Regional support will be delivered to these species through existing advisory and support structures (e.g. National Tropical Weeds Management Committee).

The scores

Existing priorities

(These fields are automatically assigned a rating)

National	
Weeds of National Significance	5
National Eradication Programs	5
Other	0

State	
Class 1	5
Class 2	4
Class 3	2
Environmental	1

Local	
High	5
Medium	4
Low	3
None	1

Impacts and threats

Conservation/Biodiversity	
Potential to drastically out-compete native species and impact on biodiversity in a broad range of natural areas including sensitive areas.	5
Potential to drastically out-compete native species and impact on biodiversity limited to the pest's suited habitat.	4
Potential to invade edges and disturbed systems and destroy established ecology which is already threatened.	3
Potential to develop a presence in natural areas without widespread out-	2

competition of species.	
Unlikely to establish effectively in conservation areas unless by isolated infestations, dumping or urban escapes. Unlikely to penetrate undisturbed areas.	1

Riparian/aquatic	
Will form monocultures; out-compete native species and impact on biodiversity. Limits access to creek banks. Chokes waterways. Affects fish ecology. Promotes vertebrate pest infestations. Can lead to reduction of desirable plant and animal species, siltation and bank erosion.	5
Will drastically out-compete native species and impact on biodiversity limited to the pest's suited habitat.	4
Will invade edges and disturbed systems/banks and destroy established species which are already threatened. Limits the recruitment of desirable species.	3
Will develop a presence in natural areas without widespread out-competition of species. Unlikely to result in reduction of native tree species.	2
Unlikely to establish effectively in riparian/aquatic areas unless by isolated dumping or urban escapes. Not adapted to succeed/survive annual flood events.	1

Agricultural and production areas	
Major threat to productivity by way of reduced output with increased control expenses. Control is added to existing routine pest management practices. Chokes drainage lines and creeks.	5
Moderate reduction in output, increased control expenses. Control is added to existing routine pest management practices for crop or pastures.	4
Moderate threat to Agricultural endeavours. Increased maintenance including drainage lines and creeks. Pest threat to crop/pasture can be abated as part of routine pest management practices.	3
Moderate threat to farm assets and visual amenity throughout the property including farm assets, natural assets. Will lead to reduction in natural vegetation in non productive areas over time.	2
Not of major concern to agricultural endeavours under good land management practices.	1

Residential/urban	
<p>Potential to form monocultures, out-compete native species and impact on biodiversity in <u>urban natural areas</u> particularly urban riparian areas and forest/urban transition areas. Will lead to reduction in tree species in areas which are already threatened by urban pressures.</p> <p>Threatens “significant areas” as defined in LP (SPM) Act 2002.</p> <p>If left untreated will lead to risk to private and public assets or high repair costs to repair or revegetate natural assets.</p>	5
<p>Potential to drastically out-compete remnant native species in <u>urban areas, parks drainage lines and esplanades</u>. These areas have lesser conservation values due to higher population density. May affect access, amenity, or increase maintenance costs to Council. May harbour vermin and vertebrate pests. May inhibit recruitment of remnant native tree species over time, and lead to absence to tree vegetation over time.</p>	4
<p>Potential to invade <u>edges and disturbed systems/banks</u> and destroy established species which are already threatened. Includes hill slopes and riparian areas. High potential for pest to be replaced with other pests or undesirable exotics after treatment.</p>	3
<p>Likely to affect <u>visual amenity</u> or bring about complaints from residents with limited land management knowledge. Can cause low-level land management response from landholder or Council maintenance crew such as extra gardening responsibilities.</p>	2
<p>Unlikely to affect urban areas due to limited habitat or due to routine maintenance. May exist due to isolated dumping or urban escapes, but may not be suited to conquering the urban environment.</p>	1

Capacity to manage

Achievability/feasibility of success	
Infestation is small and/or contained such that eradication is highly achievable if resources and control methods permit. There may also be aligned efforts towards particular control, and appropriate funding opportunities. Eradication achievability applies to the whole Local Government Area with a long-term goal in mind.	5
High achievability may apply to a particular catchment or geographic region that is agreed to be unlikely to become reinfested. This may apply to satellite infestations as per aligned efforts or existing management plans.	4
Potential for Council to satisfy basic strategic control targets with appropriate funding resources. May involve buffer spraying or satellite control.	3
Achievability is heavily reliant coordinated action from all landholders. Management without universal commitment will not succeed.	2
Pest is widespread covering various tenures and eradication is not possible. There is no universal effective control available.	1

Extent (current)	
Localised - Occasional	5
Localised - Common	4
Localised - Abundant	3
Widespread - Occasional	2
Widespread - Common	1
Widespread - Abundant	0

Step three: Setting management targets

The framework for a zoned and prioritised pest management program sets clear, measurable and easily communicated management targets. These targets should be viewed as a hierarchy of actions which are part of the ongoing effort rather than a one-off investment. This approach demonstrates that a transition from one phase of management to another may be required to reach a target and provides a means of communicating both wins and losses in management as well as the relevant timelines and spatial scales.

The fundamental principle of this approach is that short term planning and resourcing should be avoided wherever possible. It can create negative or repetitive management outcomes which fail to protect management investment. Poorly identified and communicated management goals can influence the prospect of future funding opportunities or create conflict or disillusionment amongst stakeholders (Sydes 2009).

Management aims and measures of progress against them are delivered through a colour-coded management zone approach. The zone approach is part of the regional methodology for pest management planning and will be consistent across boundaries.

DELIMITATION	The extent of the pest is determined
PREVENTION	Clean areas are kept clean
REMOVAL	All seeds (seedbank) and plants removed
INTENSIVE CONTROL	Infestations are reduced to a size that can be removed
IMPACT REDUCTION	Buffers maintained, important places protected

Step four: Combining the steps

A management aims matrix is then used to determine and demonstrate the management aim for each pest and weed within each management zone. The matrix sets clear and measurable targets which will enable the setting of realistic goals as well as meaningful reporting on wins and losses in management.

Management Target	Key actions	Success indicators	Transition	Reporting & evaluation
MANAGING INCURSIONS		MANAGEMENT TARGET	BIOLOGICAL TARGET	+ -
DELIMITATION	Targeted survey in areas of presumed but unconfirmed absence Implementing weed hygiene measures	Absence confirmed within zone	No infestation found	Number of zones surveyed Number of zones transitioned to prevention
PREVENTION	Ongoing targeted and opportunistic surveillance Implementing weed hygiene measures Reporting on prevention activities	No new incursions within zone	No new introductions	Number of new detections Number of zones maintained Number of zones lapsed to eradication
ERADICATION	Targeted control program timed to prevent all reproductive events Implementing weed hygiene measures	No recruitment for five years	No seed produced	Number of zones with no recruitment Number of zones maintained Number of zones transitioned to prevention Number of zones lapsed to intensive control
MANAGING INFESTATIONS				
INTENSIVE CONTROL	Targeted control program to systematically reduce the scale of the infestation	Infestation reduced to scale that can be eradicated	Decrease in infested area	Number of zones maintained Reduction in infested area Number of zones transitioned to eradication Number of zones lapsed to impact reduction
IMPACT REDUCTION	Containment of major infestations Reduction of risk of spread through buffers and weed hygiene measures Protection of key assets within core areas	Buffers maintained Key assets protected Hygiene measures maintained	No increase in infested areas	Number of zones maintained Number of zones transitioned to intensive control Status of infested area

Figure 3 Management matrix for guiding the delivery of a zoned and prioritised pest management plan

In the development of the plan for adoption, all the elements are combined to clearly identify the scale and distribution and management target for each identified priority pest. These steps can then be used to in the development of communication products and tools to inform stakeholders, Council and the public of the priorities determined within the planning process. The information can be further integrated into operational and works plans as well as being consumed in various on-line and social media formats.

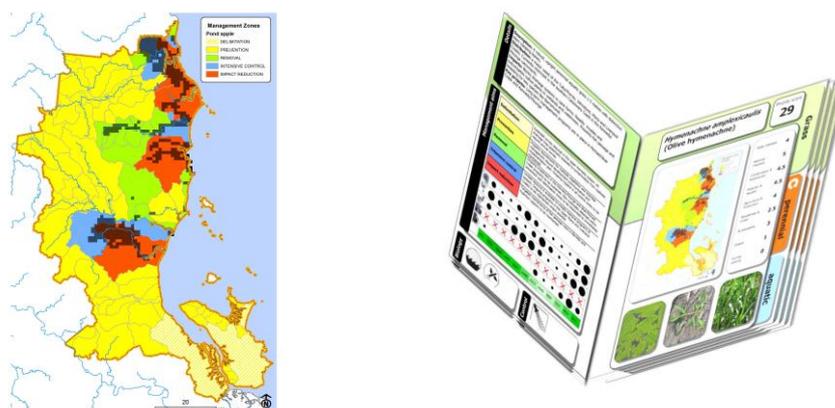


Figure 4 The final zoned and prioritised plans provide management maps as well as communication tools

Monitoring, evaluation and reporting

With the addition of two further steps to incorporate monitoring and evaluation the planning process becomes an active adaptive management cycle determined and administered by the respective local government in consultation and collaboration with relevant stakeholders. Annual review of the progress against the targets set and the wins and losses in management can be evaluated and renegotiated as required. New issues as they arise can be evaluated and if necessary, incorporated into operational and works planning and communication products.



Figure 5 The planning framework allows for the adoption of an adaptive management cycle to deliver, evaluate and adjust the ongoing delivery of the plan over time.

Case study – Revision and development of the Wujal Wujal Pest Management Plan

In 2010 a collaborative project between Wujal Wujal Aboriginal Shire Council (WWASC) and regional stakeholders facilitated by FNQROC conducted a pest mapping exercise across the WWASC area. The work was conducted as part of a workshop within the Wujal Wujal Aboriginal Shire Council Natural Asset Planning Project and mapped priority pests and weeds using a 100 metre grid mapping technique adopted from the Regional Mapping Project (Terrain NRM, CSIRO, FNQROC). The results are included in the work-plan and strategies for individual species.



Figure 6 Examples of the 100 metre grid map results. (from left to right) sicklepod, navua sedge and singapore daisy

In order to deliver and measure progress on delivering priorities of this plan the area contained within Wujal Wujal Aboriginal Shire Councils boundary was divided into four distinct management zones.

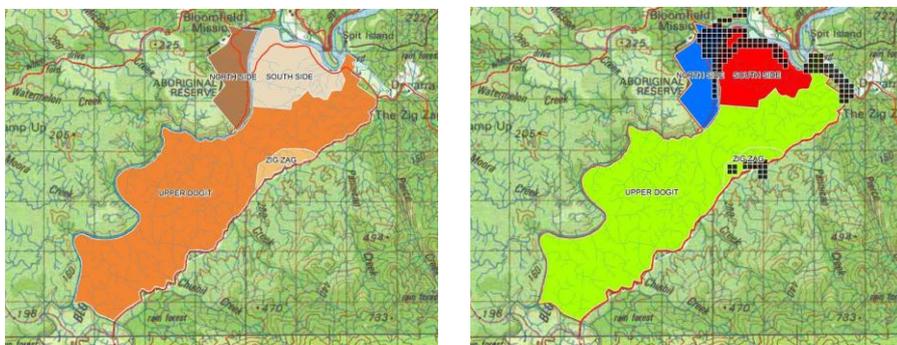


Figure 7 (left) Management zones follow land use and physical boundaries and (right) the final product. A graphic based management plan which communicates pest distribution and management aims.

The knowledge of distribution of individual pests was then combined with the management zones to create a prioritised and zoned pest management plan. The implementation of this plan will be delivered and reported on within this framework.

Part three: Weeds of the FNQROC Region

How to use the guide

The species and categories represented within this guide are compiled from a variety of sources and authorities from national, state, regional and local weed prioritisation processes. The principal weeds included within this guide are extracted from Werren (2004). Newer additions and recent arrivals to the region are sourced from Goosem (2007) and the NGIA (2009) *Grow Me Instead* initiative. State authorities are derived from the *Land Protection Pest and Stock Route Management Act 2002* and *regulations 2003*. National environmental alerts are sourced from the *National Alert List for Environmental Weeds*.

For further information on the *Pest Risk Assessment and Prioritisation Framework* refer to the *Far North Queensland Local Governments, Regional Pest Management Strategy 2010-2015* pp.13-20.

The categories:

RPMS 2004	(1-4)	Werren 2004
LP Act	(1-3)	<i>Land Protection Pest and Stock Route Management regulations 2003</i>
WONS	(N)	Weeds of National Significance
ENV	(E)	<i>National Alert List for Environmental Weeds</i>
GMI	(G)	<i>Grow Me Instead, Wet Tropics</i>
WTMA	(W)	Naturalised Plant List - Wet Tropics Bioregion
NEW	(R)	Recently detected weeds and alerts from a variety of sources

Scientific name	Common name	Family	RPMS 2004	LP ACT	WONS	ENV	GMI	WTMA	NEW
<i>Acacia currasivica</i>	Acacia currasivica	Mimosaceae		1					
<i>Acacia nilotica</i>	Prickly acacia	Mimosaceae	3	2					
<i>Ageratina riparia</i>	Mistflower	Asteraceae	4						
<i>Allamanda cathartica</i>	Yellow allamanda	Apocynaceae	4				G		
<i>Alternanthera philoxeroides</i>	Alligator weed	Amaranthaceae	1	1					
<i>Amrosia artemisifolia</i>	Annual ragweed	Asteraceae	3						
<i>Annona glabra</i>	Pond apple	Annonaceae	2	2	N				
<i>Anrodpogon gayanus</i>	Gamba Grass	Poaceae	2	2					
<i>Ardisia crenata</i>	Coral berry	Myrsinaceae	4				G		
<i>Ardisia elliptica</i>	Shoe button	Myrsinaceae	4				G		
<i>Aristolochia spp (non-native.)</i>	Dutchman's pipe	Aristolochiaceae	4						
<i>Barleria prionitis</i>	Barleria	Acanthaceae							
<i>Bauhinia monandra</i>	Bauhinia	Caesalpiniaceae	4				G		
<i>Brillantaisia lamium</i>	Brillantaisia	Acanthaceae	2						
<i>Bryophyllum spp.</i>	Mother-of-millions	Crassulaceae	3						
<i>Cabomba caroliniana</i>	Cabomba	Cabombaceae	2	2	N				
<i>Caesalpinia decapetala</i>	Caesalpinia	Caesalpiniaceae	4						
<i>Cascabela thevetia</i>	Yellow oleander	Apocynaceae	3						
<i>Castilla elastica</i>	Panama rubber	Moraceae	1						
<i>Cecropia spp.</i>	Mexican Bean tree	Cecropiaceae	1	1					
<i>Chromolaena odorata</i>	Siam weed #	Asteraceae	1	1		E			
<i>Cinnamomum camphora</i>	Camphor laurel	Lauraceae	4						
<i>Clidemia hirta</i>	Koster's curse #	Melastomataceae	1	1					
<i>Cryptostegia grandiflora</i>	Rubber vine	Asclepiadaceae	2	2	N				
<i>Cyperus aromaticus</i>	Navua sedge	Cyperaceae	4						
<i>Datura stramonium (and related species)</i>	Thornapples	Solanaceae	3						
<i>Echinichloa polystachya</i>	Aleman grass	Poaceae	4						
<i>Eichornia crassipes</i>	Water hyacinth	Pontederiaceae	2						
<i>Elephantopus mollis</i>	Tobacco weed	Asteraceae	3						
<i>Emex australis</i>	Spiny emex	Polygonaceae	3						
<i>Euphorbia heterophylla</i>	Milkweed	Euphorbiaceae	4						
<i>Flacourtia jangomas</i>	Flacourtia	Flacourtiaceae	1						
<i>Grewia asiatica</i>	Grewia	Sparrmanniaceae	1						
<i>Harungana madagascariensis</i>	Harungana	Clusiaceae	3						
<i>Hiptage bengalensis</i>	Hiptage	Malpighiaceae	1						
<i>Hygrophylla costata</i>	Hygrophylla	Acanthaceae	1	1					
<i>Hymenachne amplexicaulis</i>	Hymenachne	Poaceae	2	2	N				
<i>Hyptis capitata</i>	Knobweed	Lamiaceae	4						
<i>Jatropha gossypifolia</i>	Bellyache bush	Euphorbiaceae	3						
<i>Lantana camara</i>	Lantana	Verbenaceae	2	2	N				
<i>Leonotis nepetifolia</i>	Lion's tail	Lamiaceae	4						

<i>Leucaena leucocephala</i>	Leucaena	Mimosaceae	3						
<i>Ligustrum spp.</i>	Privets	Oleaceae	4						
<i>Limnocharis flava</i>	Limnocharis#	Alismataceae	1	1					
<i>Macfadyena unguis-cati</i>	Cats-claw creeper	Bignoniaceae	3						
<i>Macrotyloma axillare</i>	Perennial horse gram	Fabaceae	4						
<i>Miconia spp.</i>	Miconia (all species)#	Melastomataceae	1	1					
<i>Mikania micrantha</i>	Mikania vine#	Asteraceae	1	1					
<i>Mimosa diplotricha</i>	Giant sensitive weed	Mimosaceae	2						
<i>Neptunia oleracea</i>	Water Mimosa	Mimosaceae	1	1					
<i>Opuntia spp.</i>	Prickly pears	Cactaceae	4						
<i>Parkinsonia aculeata</i>	Parkinsonia	Caesalpiniaceae	2	2	N				
<i>Parmentiera edulis</i>	Cucumber tree	Bignoniaceae	1						
<i>Parthenium hysterophorus</i>	Parthenium	Asteraceae	2	2	N				
<i>Paspalum virgatum</i>	Clyde grass	Poaceae	4						
<i>Pennisetum purpureum</i>	Elephant grass	Poaceae	4						
<i>Phyllostachys bambusoides</i>	Bamboo	Poaceae	4						
<i>Phytolacca rivinoides</i>	Venezualan pokeweed	Phytolaccaceae	1						
<i>Pistia stratiotes</i>	Water lettuce	Araceae	4						
<i>Praxelis clematidea</i>	Praxelis	Asteraceae	4			E			
<i>Prosopis spp.</i>	Mesquites	Fabaceae	3						
<i>Protoasparagus spp.</i>	Asparagus fern	Asparagaceae	4						
<i>Psidium guajava</i>	Guava	Myrtaceae	4				G		
<i>Ricinus communis</i>	Castor oil plant	Euphorbiaceae	3						
<i>Rottboelia cochinchinensis</i>	Itch grass	Poaceae	4						
<i>Rubus alceifolius</i>	Giant bramble	Rosaceae	4						
<i>Salvinia molesta</i>	Salvinia	Salviniaceae	2	2	N				
<i>Sansevieria trifasciata</i>	Mother-in-law's tongue	Agavaceae	3				G		
<i>Schinus terebinthifolius</i>	Broad-leaved pepper	Anacardiaceae	4						
<i>Senecio madagascariensis</i>	Fire weed	Asteraceae	2	2					
<i>Senna hirsuta</i>	Hairy senna	Caesalpiniaceae	4						
<i>Senna obtusifolia and related species</i>	Sicklepods	Caesalpiniaceae	3	2					
<i>Solanum maruritianum</i>	Tobacco bush	Solanaceae	4						
<i>Spathodea campanulata</i>	African tulip	Bignoniaceae	4						
<i>Sphagneticola trilobata</i>	Singapore daisy	Asteraceae	3	3					
<i>Sporobolus jacquemontii</i>	American rats-tail grass	Poaceae	3						
<i>Sporobolus pyramidalis</i>	Giant rats-tail grass	Poaceae	3						
<i>Stachytarpheta spp.</i>	Snakeweeds	Verbenaceae	4						
<i>Stevia ovata</i>	Sweet Leaf	Asteraceae	1						
<i>Syngonium podophyllum</i>	Goose's foot	Araceae	4				G		
<i>Themeda quadrivalvis</i>	Grader grass	Poaceae	4						
<i>Thunbergia grandiflora</i>	Blue thunbergia	Acanthaceae	2						
<i>Thunbergia laurifolia</i>	laurel clock vine	Acanthaceae				E			
<i>Thunbergia laurifolia, T. annua</i>	Thunbergia	Acanthaceae	1	1		E			

<i>Tithonia diversifolia</i>	Japanese sunflower	Asteraceae	4				G		
<i>Tribulus terrestris</i>	Caltrop	Zygophyllaceae	3						
<i>Triplaris surinamensis</i>	Triplaris	Polygonaceae	1				G		
<i>Turbina corymbosa</i>	Turbine vine	Convolvulaceae	3						
<i>Xanthium occidentale</i>	Noogoora burr	Asteraceae	4						
<i>Ziziphus mauritiana</i>	Chinee apple	Rhamnaceae	2						
<i>Anredera cordifolia</i>	Lambs tail	Basellaceae							
under consideration									
<i>Anredera cordifolia</i>	Madeira vine	Basellaceae						W	
<i>Coccinia grandis</i>	Ivy gourd	Cucurbitaceae						W	
<i>Coffea arabica</i>	coffee	Rubiaceae						W	
<i>Coffea liberica</i>	Liberian coffee	Rubiaceae						W	
<i>Chukrasia velutina</i> (<i>C. tabularis</i>)	East Indian mahogany	Meliaceae						W	
<i>Azadirachta indica</i>	Neem tree	Meliaceae						W	
<i>Syzygium cumini</i>	Java plum	Myrtaceae						W	
<i>Pueraria lobata</i>	Kudzu	Fabaceae							R
<i>Heteranthera reniformis</i>	Kidneyleaf mudplantain	Pontederiaceae							R
<i>Magnolia champaca</i>	Himalayan Magnolia	Magnoliaceae							R
<i>Mayaca fluvatis</i>	Bog moss	Mayacaceae							R
<i>Cedrela odorata</i>	Cigar Box Cedar	Meliaceae							R
<i>Thunbergia alata</i>	Black eyed Susan	Acanthaceae					G		
<i>Eugenia uniflora</i>	Brazilian cherry	Myrtaceae					G		
<i>Canna indica</i>	Canna lily	Cannaceae					G		
<i>Agave americana</i>	Century plant	Agavaceae					G		
<i>Nephrolepis cordifolia</i>	Fishbone fern	Davalliaceae					G		
<i>Phyllostachys aurea/nigra</i>	Golden/black bamboo	Poaceae					G		
<i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae					G		
<i>Syzygium cumini</i>	Java plum	Myrtaceae					G		
<i>Hedychium gardernarium</i>	Kahili ginger	Zingiberaceae					G		
<i>Ochna serrulata</i>	Mickey mouse plant	Ochnaceae					G		
<i>Murraya paniculata</i>	Mock orange (introduced)	Rutaceae					G		
<i>Tradescantia spathacea</i>	Moses in the cradle	Commelinaceae					G		
<i>Azadirachta indica</i>	Neem tree	Meliaceae					G		
<i>Heliconia psittacorum</i>	Parrots beak heliconia	Heliconiaceae					G		
<i>Catharanthus roseus</i>	Pink periwinkle	Apocynaceae					G		
<i>Duranta erecta</i>	Prickly duranta	Verbenaceae					G		
<i>Alternanthera brasiliana (dentata)</i>	Purple joyweed	Amaranthaceae					G		
<i>Sanchezia parvibracteata</i>	Sanchezia	Acanthaceae					G		
<i>Pennisetum alopecuroides</i>	Swamp foxtail grass	Poaceae					G		
<i>Tradescantia zebrina</i>	Silver inch plant	Commelinaceae					G		
<i>Tradescantia fluminensis</i>	Wandering jew	Commelinaceae					G		

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'To foster collaboration and resource sharing between councils and effectively advocate on agreed regional positions and priorities'