



Townsville City

Biosecurity Plan 2020 – 2024

September 2020



Executive Summary

The Townsville City Biosecurity Plan provides a foundation for a coordinated approach to the management of pest plants and animals within the Townsville Local Government Area (LGA). The plan focuses on supporting existing programs and advances new and cost effective solutions to enhance the values of the landscape, amenities and economy by minimising the impacts of pest species within the LGA.

The goals of this Biosecurity Plan are to:

1. Engage all stakeholders within the Townsville LGA on priority biosecurity issues.
2. Provide a collaborative approach in the implementation of ongoing, coordinated and effective management of all pests.
3. Set achievable objectives to manage pest plants and animals in the LGA.
4. Prioritise management of pest plants and animals known and potentially present in the LGA.
5. Identify the roles and responsibilities of all stakeholders and provide a mechanism to inform, support and integrate pest management activities.
6. Outline processes to monitor and evaluate the effectiveness of the plan.

The development of the above goals were guided by the principles of effective pest plant and animal management as identified in the *Queensland Invasive Plants and Animals Strategy 2019 – 2024* prepared by the Queensland Department of Agriculture and Fisheries.

The implementation of this plan will also ensure that the Townsville City Council meets their obligations under the *Queensland Biosecurity Act 2014*.



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1 Introduction

1.1 Townsville Local Government Area

The Townsville Local Government Area (LGA) covers an area of approximately 3,736 km² within the Dry Tropics Region of North Queensland and is the largest urban centre north of Brisbane, with a major industrial and transport hub and a population of 180,346 (ABS 2019). Important land uses within the Townsville LGA include:

- urban properties (residential, commercial and industrial);
- larger peri-urban properties surrounding urban areas;
- industries (including refineries, cattle processing, the port and other transport facilities);
- hrazing (primarily beef cattle);
- intensive agriculture (including sugar cane, horticulture and intensive animal production);
- conservation (national parks, world heritage, conservation parks, state forests); and
- defence infrastructure (training areas, barracks).

The introduction and dispersal of pests in the region are influenced by a variety of natural and human processes. The introduction of new pests is predominantly influenced by human factors, with Townsville being a transport and industry hub this risk is particularly valid for this region. Natural dispersal process such as wind, water and movement via birds are impossible to restrict. However, dispersal caused by human activities can be managed through the implementation of coordinated strategies at local, regional, state, national and international levels.

Pest plants and animals can impact on:

- the economy (e.g. reduce productivity and profitability of grazing, agriculture, transport and exports);
- human/animal health (e.g. toxicity, allergens, increased risk of fire, spread of disease, public safety risk); and
- environmental values (e.g. compete with native species, predation of native species, alter ecosystem function, integrity and species composition and degrade physical landscape features) and social amenity (e.g. reduced aesthetics and impeded access in recreational areas).

Some features of the Townsville LGA that affect the introduction and spread of pest plants and animals include the following:

- The presence of different bioregion's that support a wide variety of ecosystems, providing suitable conditions for a diverse range of pest plants and animals.
- As Townsville is a major industrial and transport hub, weed propagules may be introduced from overseas and other parts of Queensland and spread along major transport corridors. Carriers include boats, vehicles, machinery, plant and animal material, soil, and other contaminated matter in cargoes.
- Townsville contains large areas of conservation areas, including national parks. These properties often have limited access and may require a specialised approach to managing biosecurity risks.
- The large peri-urban fringe around urban areas form a significant area of disturbed landscape that provides ideal habitat for numerous pest plants and animals. The large number of landholders can complicate coordinated management across the peri-urban landscape.
- Many weeds in the region are horticultural escapees from urban and peri-urban gardens. The large urban and peri-urban population increases the risk of horticultural escapees.
- Domestic animal escapees and roaming pets can have the same negative impacts as pest animals, and can also contribute to the growth of pest animal populations.
- Primary production in the Townsville LGA is principally grazing, but also includes a range of agricultural crops such as mango, lychee, pineapple, sugar cane, various herbs and vegetables. The LGAs to the north, south and west of Townsville also support large areas of intensive agriculture, including sugar cane, vegetables and cattle production. Townsville can therefore assist in managing the spread of agricultural weeds across LGA boundaries.
- Townsville and surrounds offer many tourist attractions. Biosecurity measures are critical in managing the threat of associated travel spreading or introducing pest plants and animals.

Figure 1 and 2 provide an outline of the Townsville area and catchments including the impact zones of critical species.

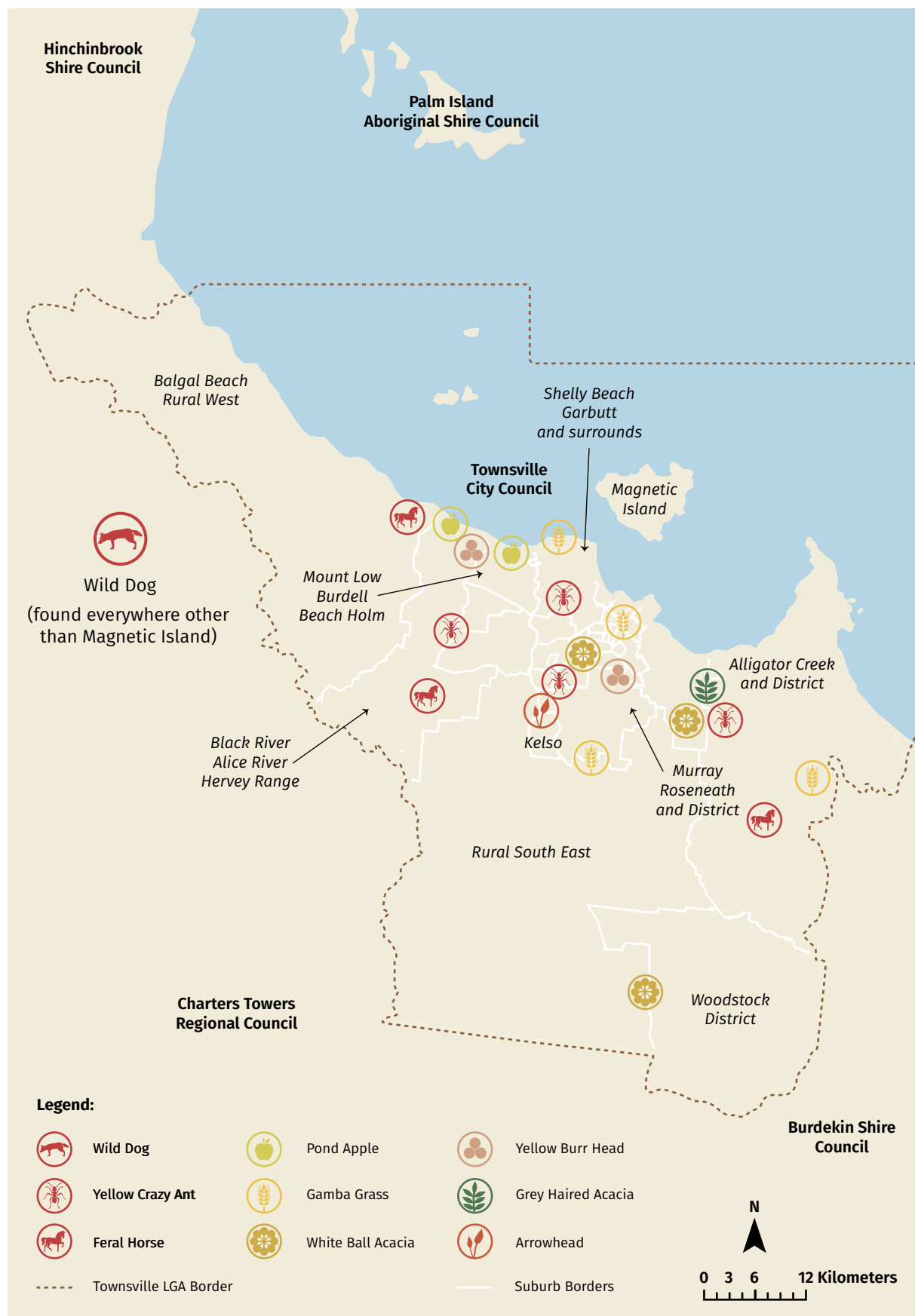


Figure 1. Townsville LGA including divisions and impact zones of critical species.

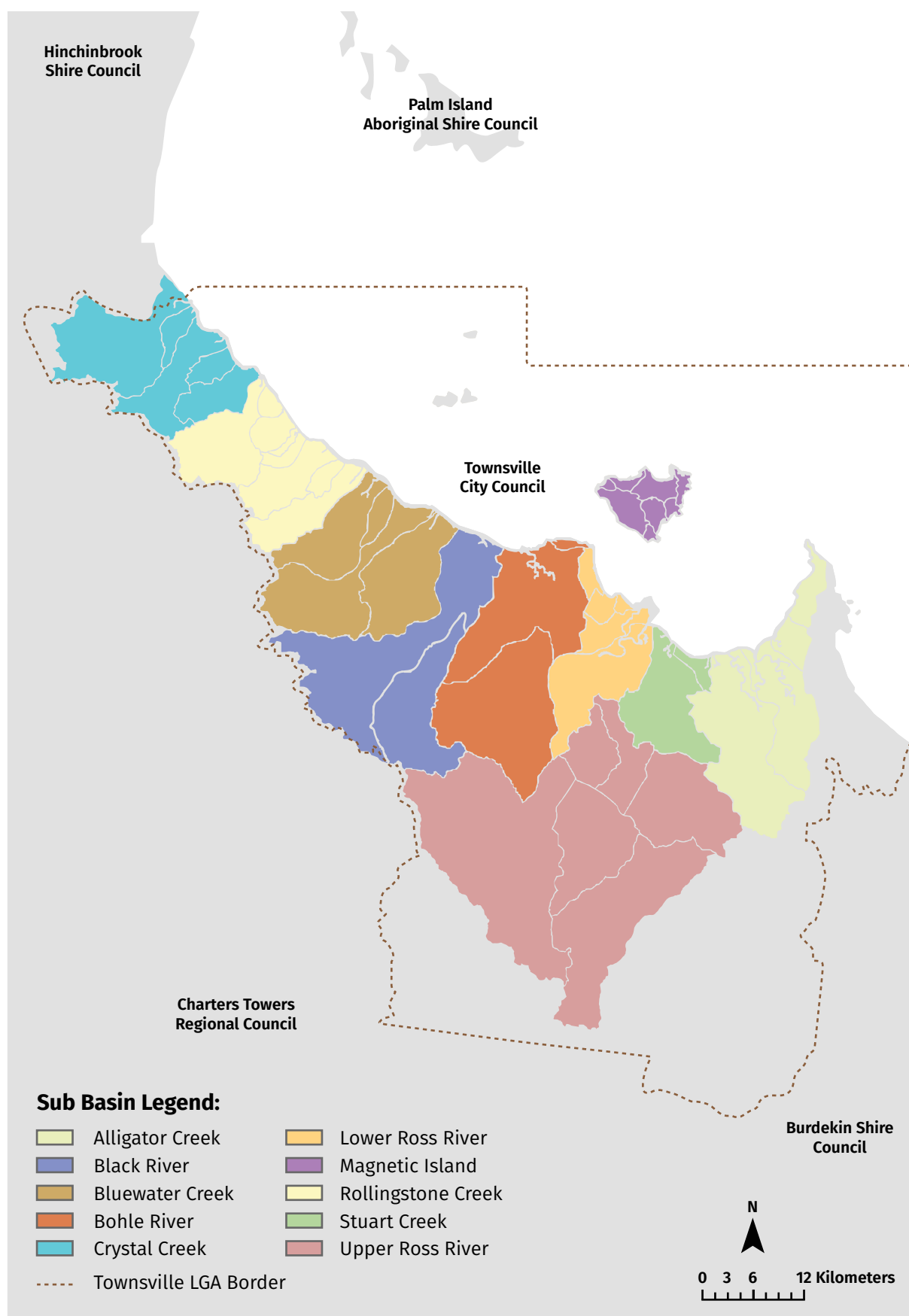


Figure 2. Townsville catchments.

1.2 The Queensland Biosecurity Framework

The *Queensland Biosecurity Act 2014* commenced in July 2016 and establishes an effective biosecurity system that aims to minimise biosecurity risks and facilitates a coordinated response to biosecurity events. The Act imposes a General Biosecurity Obligation (GBO) on persons to prevent or minimise the impact of biosecurity risks on human health, social amenity, the economy and the environment.

This legislation replaced six acts, made amendments to three others and integrated 11 pieces of subordinate legislation. Most relevant to local government is the replacement of the *Land Protection (Pest and Stock Route Management) Act 2002* and the *Plant Protection Act 1989*.

In accordance with Section 53 of the Act, Townsville City Council must develop and make publicly available its Biosecurity Plan, outlining priorities for managing invasive species.

1.3 Invasive Species Terminology

While the Act covers a range of biosecurity matters (including contaminants, diseases, pathogens and living things other than humans), the obligations for a local government are limited to invasive biosecurity matter.

The term “Biosecurity Matter” is used to describe any living thing that isn’t human that has or is likely to have, an adverse impact on human health, social amenity, the economy or the environment. The Act further breaks down biosecurity matter to prohibited matters and restricted matter:

- Prohibited matter is one not currently established in Queensland but would have a detrimental impact on human health, social amenity, the economy and natural environment. Prohibited matter is listed in Schedule 1 of the Act. It is illegal to deal with prohibited matter and if prohibited matter is found, it must be reported to an inspector or local government authorised person within 24 hours.
- Restricted matter is a biosecurity matter that is present in Queensland and likely to have a detrimental effect. Restricted matter is listed in Schedule 2 of the Act.

The Act identifies seven categories of restricted matter, which must be managed in specific ways. Categories relevant to invasive biosecurity matter are shown in Table 1.

Table 1 – Categories of Invasive Restricted Matter Under the *Queensland Biosecurity Act 2014*

Category	Description
Category 1	This restricted matter must be reported to the Queensland Government.
Category 2	This restricted matter must be reported to an inspector or local government authorised person within 24 hours of becoming aware of its presence.
Category 3	This restricted matter must not be distributed or disposed of. This means it must not be given as a gift, sold, traded or released into the environment unless the distribution or disposal is authorised in a regulation or under a permit.
Category 4	This restricted matter must not be moved, to ensure that it is not spread into other areas of the state.
Category 5	This restricted matter must not be possessed or kept under your control unless authorised under a permit of the Act or another Act. These pests have a high risk of negatively impacting on the environment.
Category 6	This restricted matter must not be possessed or kept under your control. This category of restricted matter must not be fed, except for the purpose of preparing for or undertaking a control program.
Category 7	Must be destroyed as directed.

Under the Act a local government can declare a pest species using a local law under the *Local Government Act 2009* to manage invasive animals and plants species that are not declared under the Act.

1.4 What is the General Biosecurity Obligation?

All Queenslanders have a 'general biosecurity obligation' (GBO) under the *Queensland Biosecurity Act 2014*. This means that everyone is responsible for managing biosecurity risks that are:

- under their control; and
- that they know about, or should reasonably be expected to know about.

Under the GBO, individuals and organisations whose activities pose a biosecurity risk must:

- Take all reasonable and practical steps to prevent or minimise each biosecurity risk.
- Minimise the likelihood of causing a 'biosecurity event' and limit the consequences if such an event is caused.
- Prevent or minimise the harmful effects a risk could have, and not do anything that might make any harmful effects worse.

1.5 What Biosecurity Risks are you Expected to Know About?

You are responsible for managing biosecurity risks that you know about or could reasonably be expected to know about. You are not expected to know about all biosecurity risks, but you are expected to know about risks associated with your day-to-day activities and your hobbies.

For example:

- If you are a commercial grower, you are expected to stay informed about the pests and diseases that could affect or be carried by your crops, as well as weeds and pest animals that could be on your property. You are also expected to manage them appropriately.
- If you are a livestock owner, you are expected to stay informed about pests and diseases that could affect or be carried by your animals, as well as weeds and pest animals that could be on your property. You are also expected to manage them appropriately.
- If you are a landowner, you are expected to stay informed about the weeds and pest animals that could be on your property. You are also expected to manage them appropriately.
- If you transport agricultural produce, you are expected to check whether transportation could spread diseases or pests. If it could, you are expected to manage this appropriately.
- If you live or work in a highly promoted biosecurity zone (e.g. are a builder or developer in a fire ant biosecurity zone), you are expected to know what you can and cannot move into and out of the zone, and what other precautions are required.
- If you are a residential gardener, you are not expected to know about all the biosecurity risks that might affect plants. However, you are expected to know basic information about how to reduce the risk of spreading a pest or disease, as well as the problem pests in your local area.

References to useful online information sources can be found in Appendix 2.

1.6 What are Reasonable and Practicable Steps?

The steps that are considered 'reasonable and practical' will vary depending on the situation and the risks involved. Key factors include:

- How likely an activity is to pose a risk—the more likely it is, the more action you are expected to take.
- How harmful an activity could be (e.g. whether it could cause human deaths, extensive productivity losses or other significant economic or community losses)—the more potentially harmful it is, the more action you are expected to take.
- How much the person managing the activity knows, or should reasonably be expected to know, about the risk (e.g. how dangerous it is and how it is spread)—the more you know, or should be expected to know, the more action you are expected to take.
- What methods are available to minimise the risk (e.g. equipment and work practices)—the more readily available a method is, the more action you are expected to take.

1.7 What Does This Mean for You?

The *Queensland Biosecurity Act 2014* shifts the management of pests and other biosecurity risks from a prescriptive approach to a risk-based system that considers the likelihood and consequences of biosecurity risks. In practical terms, this means that a person or organisation must:

- understand the biosecurity risks associated with their activities; and
- take all reasonable and practical steps to prevent or minimise these biosecurity risks.





2 Plan Development and Implementation

2.1 Plan Development

This plan has been developed to manage biosecurity matters relevant to the Townsville LGA. The plan has been developed following review of relevant legislation, plan strategies and guides in the Local Government area, state and Australia. The plan was developed in consultation with:

- Townsville City Council (TCC);
- Queensland Department of Agriculture and Fisheries (DAF);
- Queensland Department of Natural Resources, Mines and Energy (DNRME);
- Queensland Department of Transport and Main Roads (TMR);
- Ergon Energy;
- Commonwealth Department of Defence;
- NQ Dry Tropics Ltd (NQDT);
- Coastal Dry Tropics Landcare Inc.;
- Conservation Volunteers Australia; and
- Ecosure Pty Ltd.

This plan was reviewed following a two week public submission period from 6 November – 20 November 2017 to refine and more succinctly present TCC's biosecurity management. Following this submission period, a restructure of TCC occurred delaying the review and adoption of this plan. This plan has been internally reviewed by appropriate TCC departments and adopted by Townsville City Council.

2.2 Prioritisation of Risks

To ensure species that pose the greatest risk across Queensland are appropriately managed, the biosecurity framework allows the application of a risk-based methodology that considers current and inherent risks to identify priorities for management.

Pests were prioritised using a scoring system aligned with other regional and local plans in the area. Each species was scored using eight attributes within three categories (pest status, potential impact of the pest and capacity to manage the pest). Riparian areas are of particular concern in supporting biodiversity within the region and as such have emphasis within the risk scoring matrix. Attributes and associated scores are shown in Table 2.



Table 2 - Pest Prioritisation Scoring System used in Townsville LGA

Attribute	Score			
	3	2	1	0
Pest Status				
National status.	National alert list or national eradication program.	Weed of National Significance (WoNS) or national feral animal list.	Not scored.	Not scored.
State or local declaration.	Invasive prohibited matter.	Invasive restricted matter.	Priority species in neighbouring Pest Management Plan, Biosecurity Plan, or regional pest strategy.	Not scored.
Potential impact				
Environmental impact.	Major impact on biodiversity and major impact on riparian areas.	Major impact on biodiversity and minor/no impact on riparian areas.	Minor impact on biodiversity.	No impact.
Social impact.	Major risk to public health or safety (e.g. fatality).	Moderate risk to public health, safety or amenity.	Minor annoyance.	No impact.
Economic impact.	Major threat to primary production, industry or transport.	Moderate threat.	Minor threat.	No impact.
Capacity to manage				
Current or potential distribution.	Localised with high potential to spread further in or beyond LGA.	Widespread with moderate potential to spread further.	Widespread with little risk of further spread.	Not scored.
Invasiveness.	Rapid dispersal mechanisms and high population growth rate.	Moderate dispersal and population growth rate.	Slow dispersal and population growth rate.	Not scored.
Achievability.	Population small and can be effectively contained or eradicated.	Population large but can be effectively contained/reduced OR population small but no effective control.	Population large and difficult to contain with current controls.	Not scored.

Scores for each attribute were combined to provide a total prioritisation score, which was used to categorise each pest species as High, Medium or Low priority as shown in Table 3. A high priority pest species was upgraded to critical priority if:

- it is the target of an active eradication program in the Townsville LGA; or
- it poses significant risk to human health if unmanaged.

Table 3 - Prioritisation Categories

Priority	Score
Low	0-9
Medium	10-14
High	15+
Critical	15+ and either: <ul style="list-style-type: none"> • species with active eradication program in Townsville LGA; or • species that pose significant risk to human health if unmanaged.

The risk categorisation tables below outline the inherent risk posed by each species listed in the Townsville LGA.

The tables below also identify the category for each species so that the statutory responses in addition to the GBO can be identified in table 1 above.

Table 4 - Prioritisation of Pest Plants

Common name	Scientific name	Priority	Status*	Category
Arrowhead	<i>Sagittaria platyphylla</i>	Critical	R	3
Gamba grass	<i>Andropogon gayanus</i>	Critical	R	3
Grey-hair acacia	<i>Vachellia gerrardii</i> (syn. <i>Acacia g.</i>)	Critical	P	
Pond apple	<i>Annona glabra</i>	Critical	R	3
White ball acacia	<i>Acaciella angustissima</i> (syn. <i>Acacia a.</i>)	Critical	P	
Yellow burr head	<i>Limnocharis flava</i>	Critical	R	2, 3, 4, 5
Amazon sword	<i>Echinodorus grisebachii</i> (syn. <i>E. amazonicus</i>)	High	R	3
Athel pine	<i>Tamarix aphylla</i>	High	R	3
Bellyache bush	<i>Jatropha gossypifolia</i>	High	R	3
Blue thunbergia / laurel clock vine	<i>Thunbergia grandiflora</i> (syn. <i>T. laurifolia</i>)	High	R	3
Cabomba / fanwort	<i>Cabomba caroliniana</i>	High	R	3
Cat's claw creeper	<i>Dolichandra unguis-cati</i> (syn. <i>Macfadyena u.</i>)	High	R	3
Chinee apple	<i>Ziziphus mauritiana</i>	High	R	3
Chinese lantern	<i>Dichrostachys cinerea</i> subsp. <i>malesiana</i>	High	R	3
Giant Paramatta grass	<i>Sporobolus fertilis</i>	High	R	3
Giant rat's tail grass	<i>Sporobolus pyramidalis</i> and <i>S. natalensis</i>	High	R	3
Hairy cassia	<i>Senna hirsuta</i>	High	R	3
Hymenachne	<i>Hymenachne amplexicaulis</i>	High	R	3
Lantana	<i>Lantana camara</i>	High	R	3
Mesquite	<i>Prosopis</i> spp.	High	R	3
Parkinsonia	<i>Parkinsonia aculeata</i>	High	R	3
Parthenium	<i>Parthenium hysterophorus</i>	High	R	3
Prickly acacia	<i>Vachellia nilotica</i> (syn. <i>Acacia n.</i>)	High	R	3
Purple / ornamental rubber vine	<i>Cryptostegia madagascariensis</i>	High	R	3
Rubber vine	<i>Cryptostegia grandiflora</i>	High	R	3
Salvinia	<i>Salvinia molesta</i>	High	R	3
Siam weed	<i>Chromolaena odorata</i>	High	R	3
Sicklepod	<i>Senna obtusifolia</i>	High	R	3
Water hyacinth	<i>Eichhornia crassipes</i>	High	R	3
African fountain grass	<i>Cenchrus setaceus</i> (syn. <i>Pennisetum setaceum</i>)	Medium	R	3
African tulip tree	<i>Spathodea campanulata</i>	Medium	R	3
American rat's tail grass	<i>Sporobolus jacquemontii</i>	Medium	R	3
Basket asparagus fern	<i>Asparagus aethiopicus</i>	Medium	R	3
Brazilian pepper tree	<i>Schinus terebinthifolius</i>	Medium	R	3
Camphor laurel	<i>Cinnamomum camphora</i>	Medium	R	3

Common name	Scientific name	Priority	Status*	Category
Dutchman's pipe	<i>Aristolochia elegans</i>	Medium	R	3
Gaping Dutchman's pipe	<i>Aristolochia ringens</i>	Medium	R	3
Harungana	<i>Harungana madagascariensis</i>	Medium	R	3
Mother of millions	<i>Bryophyllum</i> spp.	Medium	R	3
Prickly pear	<i>Opuntia</i> spp, <i>Cylindropuntia</i> spp.	Medium	R	3
Round leaf cassia	<i>Chamaecrista rotundifolia</i>	Medium	N	
Setaria / pale pigeon grass	<i>Setaria pumila</i> subsp. <i>subtesselata</i>	Medium	N	
Singapore daisy	<i>Sphagneticola trilobata</i>	Medium	R	3
Water lettuce	<i>Pistia stratiotes</i>	Medium	R	3
Yellow oleander / Captain Cook tree	<i>Cascabela thevetia</i> (syn. <i>Thevetia peruviana</i>)	Medium	R	3
Yellow bells	<i>Tecoma stans</i>	Low	R	3

* Status under the *Queensland Biosecurity Act 2014*: P = invasive prohibited matter; R = invasive restricted matter; N = not listed.

Table 5 - Prioritisation of Pest Animals

Common name	Scientific Name	Priority	Status*	Category
Feral horse	<i>Equus caballus</i>	Critical	N	
Wild dog (other than domestic dog)	<i>Canis</i> spp.	Critical	R	3, 4, 6
Yellow crazy ant	<i>Anoplolepis gracilipes</i>	Critical	R	3
Cat (other than domestic cat)	<i>Felis catus</i>	High	R	3, 4, 6
European fox	<i>Vulpes vulpes</i>	High	R	3, 4, 5, 6
European rabbit (domestic and wild breeds)	<i>Oryctolagus cuniculus</i>	High	R	3, 4, 5, 6
Feral chital deer	<i>Axis axis</i>	High	R	3, 4, 6
Feral pig	<i>Sus scrofa</i>	High	R	3, 4, 6
Rusa deer	<i>Cervus timorensis</i> (syn. <i>Rusa t.</i>)	High	R	3, 4, 6
Cane toad	<i>Rhinella marina</i>	Medium	N	
Gambusia / mosquitofish	<i>Gambusia holbrooki</i>	Medium	R	3, 5, 6, 7
Tilapia	<i>Oreochromis</i> , <i>Sarotherodon</i> and <i>Tilapia</i> spp.	Medium	R	3, 5, 6, 7
Apple snail	<i>Pomacea bridgesii</i>	Low	N	
Peafowl	<i>Pavo cristatus</i>	Low	N	
Indian Myna^	<i>Acridotheres tristis</i>	Low	N	
Domestic Pigeon	<i>Columba livia domestica</i>	Low	N	

* Status under the *Queensland Biosecurity Act 2014*: P = invasive prohibited matter; R = invasive restricted matter; N = not listed.

^ High priority on Magnetic Island

The following table provides weed species which have been identified in the Townsville region but are not listed in the Biosecurity act.

Table 6 – Other weed species in the Townsville region.

Common name	Scientific Name	Common name	Scientific Name
African mahogany	<i>Khaya senegalensis</i>	Knobweed	<i>Hyptis capitata</i>
Amazon sword	<i>Echinodorus grisebachii</i> (syn. <i>E. amazonicus</i>)	Kyasuma grass / deenanth grass	<i>Cenchrus pedicellatus</i> subsp. <i>unispiculus</i>
Bamboo	<i>Phyllostachys</i> and <i>Bambusa</i> (exotic spp.)	Leucaena	<i>Leucaena leucocephala</i>
Bauhinia / butterfly tree	<i>Bauhinia variegata</i> (syn. <i>B. alba</i>)	Mango	<i>Mangifera indica</i>
Buffel grass	<i>Cenchrus ciliaris</i> (syn. <i>Pennisetum c.</i>)	Mexican poppy	<i>Argemone mexicana</i>
Butterfly pea	<i>Clitoria ternatea</i>	Mimosa	<i>Vachellia farnesiana</i> (syn. <i>Acacia f.</i>)
Castor oil plant	<i>Ricinus communis</i>	Mintweed / hyptis	<i>Mesosphaerum</i> <i>suaveolens</i> (syn. <i>Hyptis s.</i>)
Centro / butterfly pea	<i>Centrosema molle</i>	Mock orange	<i>Murraya paniculata</i> cv. <i>Exotica</i>
Cherry guava	<i>Psidium cattleianum</i>	Molasses grass	<i>Melinis minutiflora</i>
Chinese burr	<i>Triumfetta rhomboidea</i>	Morning glory	<i>Ipomoea cairica</i> , <i>I. carnea</i> subsp. <i>fistulosa</i> , <i>I. indica</i>
Chinese lantern	<i>Dichrostachys cinerea</i> subsp. <i>malesiana</i>	Mother-in-law's tongue	<i>Sansevieria trifasciata</i>
Chinese violet	<i>Asystasia gangetica</i>	Navua sedge	<i>Cyperus aromaticus</i>
Coffee senna	<i>Senna occidentalis</i>	Neem tree	<i>Azadirachta indica</i>
Easter cassia	<i>Senna pendula</i>	Noogoora burr	<i>Xanthium occidentale</i>
Elephant grass	<i>Cenchrus purpureus</i> (syn. <i>Pennisetum purpureum</i>)	Orange buddleja	<i>Buddleja</i> <i>madagascariensis</i>
Florida beggar weed	<i>Desmodium tortuosum</i>	Para grass	<i>Urochloa mutica</i>
Giant reed	<i>Arundo donax</i>	Poinciana	<i>Delonix regia</i>
Giant rubber bush	<i>Calotropis</i> spp.	Porcupine flower	<i>Barleria prionitis</i>
Gliricidia	<i>Gliricidia sepium</i>	Praxellis	<i>Praxellis clematidea</i>
Golden cassia	<i>Cassia fistula</i>	Sisal hemp	<i>Agave sisalana</i>
Grader grass	<i>Themeda quadrivalvis</i>	Snake weed	<i>Stachytarpheta</i> spp.
Grewia	<i>Grewia asiatica</i>	Stinking passionfruit	<i>Passiflora foetida</i>
Guinea grass	<i>Megathyrsus maximus</i>	Stylo, Townsville lucerne	<i>Stylosanthes</i> spp.
Hiptage	<i>Hiptage benghalensis</i>	Swamp foxtail / marsh foxtail	<i>Alopecurus geniculatus</i> (syn. <i>Pennisetum</i> <i>alopecuroides</i>)
Hop-headed barleria	<i>Barleria lupulina</i>	Tamarind	<i>Tamarindus indica</i>
Hygrophila	<i>Hygrophila triflora</i>	Thatch grass	<i>Hyparrhenia rufa</i> subsp. <i>rufa</i>
Indian siris	<i>Albizia lebbek</i>	Umbrella sedge	<i>Cyperus involucratus</i>
Itch grass	<i>Rottboellia</i> <i>cochinchinensis</i>	White thunbergia	<i>Thunbergia fragrans</i>
Ivy gourd	<i>Coccinea grandis</i>	Yellow guava	<i>Psidium guajava</i>
Japanese sunflower	<i>Tithonia diversifolia</i>		
Johnson grass	<i>Sorghum halepense</i>		
Kalanchoe	<i>Bryophyllum pinnatum</i>		

2.3 Management Requirements for Listed Biosecurity Matters

The Act includes provisions to undertake additional actions in each LGA to manage invasive species.

The determination of the most suitable management actions for invasive species is based on a methodology that considers the size and distribution of an infestation. This can be represented on an invasion curve.

GENERALISED INVASION CURVE SHOWING ACTIONS APPROPRIATE TO EACH STAGE

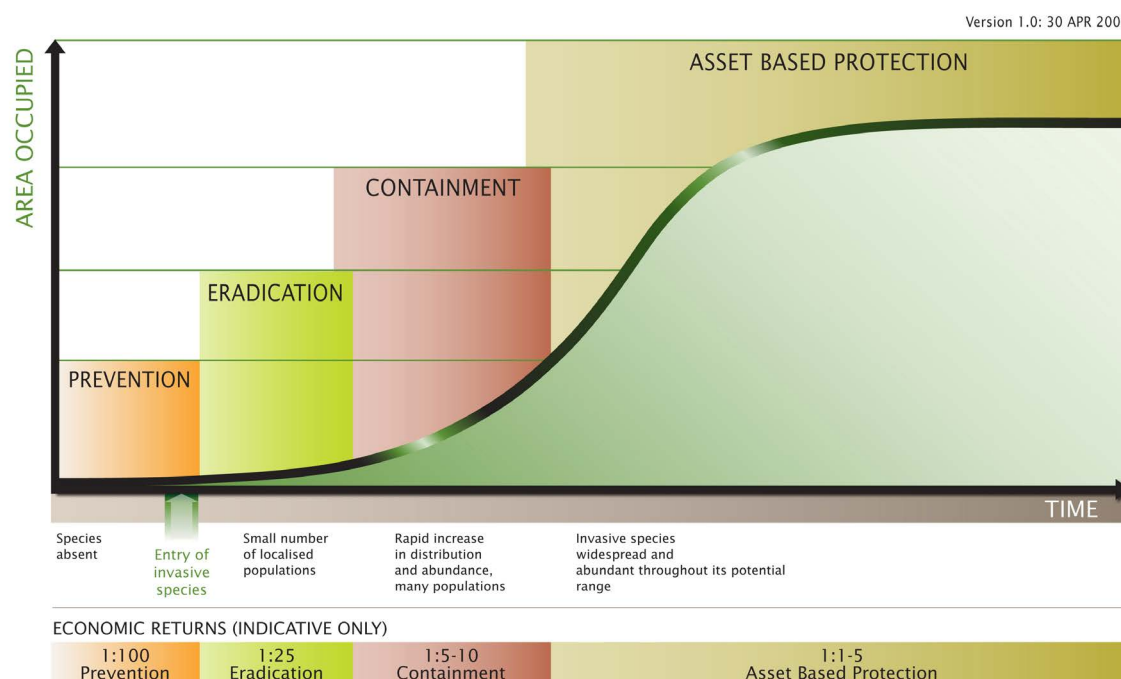


Figure 3. Generalised invasion curve showing appropriate management actions. (Source: Invasive Plants and Animals Policy Framework, Agriculture Victoria)

Dependent on its distribution and density at a location, and the potential impact of the species, the most suitable management action can be selected. Proposed management actions to be considered are shown in Table 7. As can be seen in the invasion curve, the most cost effective option is to prevent weeds from in the first place, followed by eradication when populations are still small. This is where TCC focuses most of its resources.

The management approaches are similar to those used in the Far North Queensland Local Government Regional Pest Management Strategy 2010-2015 (Far North Queensland Regional Organisation of Councils 2010) and the *Hinchinbrook Pest Management Plan 2014-2019* (Hinchinbrook Shire Council 2014).

Table 7 - Management approaches with Associated Actions and Targets

Management Approach	Key Actions	Target
Delimitation	Targeted surveys to determine distribution of pest species.	Distribution maps of all high priority pest species updated every five years.
Prevention	Effective weed hygiene. Targeted and opportunistic surveys.	No incursions within LGA.
Eradication	Targeted control program timed to prevent all reproduction of the pest species.	No adults present in LGA. No recruitment present in LGA (e.g. species can be moved to prevention category).
Intensive control	Targeted control program to systematically reduce the scale of infestations or strategic control program to reduce severe impacts (eg feral horse management to limit exposure and risk to high speed motorists).	Infestations reduced or contained to scale that can be eradicated, slow the speed of spread or limit severe impacts (e.g. Loss of life or property). No new infestations.
Impact reduction	Control to maintain and protect assets .	Key assets protected.

2.4 Stakeholders

Table 8 identifies the relevant stakeholders and their roles and responsibilities for monitoring and managing pests in the Townsville LGA and region.

Table 8 – Biosecurity Plan Stakeholders

Area	Stakeholder and Role
Federal Government	<p>The Department of Agriculture and Water Resources coordinates the management of biosecurity and quarantine systems across Australia. It directs national responses to outbreaks of new pest species using the Biosecurity Incident Management System. It develops and coordinates emergency response plans, including guidelines, templates and standard operating procedures.</p> <p>The Northern Australia Quarantine Strategy (1989) was developed to address biosecurity risks in this region. The strategy includes regular surveys and the development of target lists of weeds, insect pests and diseases that pose the highest risk of entry, establishment and impact on Australian agriculture and the environment.</p> <p>The Department of Defence manages large properties within and adjacent to the Townsville LGA, including Townsville Field Training Area, Mount Stuart Training Area and Lavarack Barracks. Defence has developed strategies and plans that coordinate pest management on these properties and when travelling between sites.</p>
State Government	<p>Biosecurity Queensland is an agency within the Department of Agriculture and Fisheries that coordinates efforts to prevent, respond to, and recover from pests and diseases that threaten Queensland's economy and environment. It works closely with local governments, communities and other stakeholders to minimise impacts of weeds and pest animals.</p> <p>Numerous other agencies within Townsville are involved in the management of land or infrastructure in the LGA, including:</p> <ul style="list-style-type: none"> • Department of Agriculture and Fisheries; • Department of Natural Resources, Mines and Energy; • Department of Transport and Main Roads; • Department of Environment and Science; • Queensland Rail; • Ergon; • Powerlink; and • Port of Townsville. <p>State agencies operating within Townsville LGA are reasonably expected to have knowledge on biosecurity risks that affect people, economy and the environment. Reasonable and practical measures must be taken to reduce risks of invasive biosecurity matter under their control.</p>
Local Government	<p>Local government authorities in and adjoining the Townsville LGA, including:</p> <ul style="list-style-type: none"> • Townsville City Council; • Burdekin Shire Council; • Hinchinbrook Shire Council; • Charters Towers Shire Council; and • Palm Island Aboriginal Shire Council. <p>Local governments are required to develop, adopt and implement Biosecurity Plans and manage pests within their LGA.</p>
Biosecurity Plan Review Panel	<p>The Biosecurity Plan Review Panel (BPRP) will be established by TCC and will comprise a group of key stakeholders with knowledge and expertise in the management of pests in the Townsville LGA. The BPRP will assist in the implementation and review of the Biosecurity Plan.</p>
Industry	<p>Businesses operating within Townsville LGA are reasonably expected to have knowledge on biosecurity risks that affect people, the economy and the environment. Reasonable and practical measures must be taken to reduce risks of invasive biosecurity matter under their control.</p>

Area	Stakeholder and Role
Regional Organisations	<p>Numerous regional organisations are involved in natural resource management (including pest management) within Queensland.</p> <p>NQ Dry Tropics (NQDT) is a non-government natural resource management (NRM) body operating in the Burdekin Dry Tropics region, which includes the Townsville LGA. NQDT has developed the “regional pest management strategy for the Burdekin Dry Tropics NRM region 2014-2019”, which aims to reduce the impacts of pest species in the region through cooperative partnerships. NQDT has also produced “weed free”, a useful identification guide for common weeds in the region. Both documents are available from: nqdrytropics.com.au.</p> <p>Terrain NRM is the equivalent body within the Wet Tropics region, which lies just north of Townsville.</p> <p>The Local Government Association of Queensland (LGAQ) is the peak body for local government in Queensland. It is a not-for-profit association that assists local councils in their dealings with state and federal government, business and the community. The LGAQ supports Regional Organisations of Councils (ROCs), including the North Queensland ROC and Far North Queensland ROC.</p>
Local Community Groups	<p>Numerous community groups undertake natural resource management activities within the LGA.</p>
Private Landholders and Occupiers	<p>Members of the local community who own and occupy land in the Townsville LGA, including urban, peri-urban and rural areas. Reasonable and practical measures must be taken to reduce risks of invasive biosecurity matter under their control. Having a property pest management plan in place helps to prioritise pests, and is one way to show commitment to the general biosecurity obligation.</p>



3 Management Actions

3.1 Vision

The Biosecurity Plan provides for the management of pest plants and animals in the Townsville LGA. It covers a period of five years and is consistent with principles of pest management, state pest management strategies, guidelines for pest management and Townsville's community interest.

3.2 Objectives

The Biosecurity Plan will target the five objectives in Table 9.

Table 9 - Biosecurity Plan Objectives

	Desired Outcome	Objective
1	Education and Awareness	The community (including local businesses and government) is informed, knowledgeable and have ownership of pest plant and animal management.
2	Commitment, Roles and Responsibilities	The community is committed to, and enabled to participate in the coordinated management of pest plants and animals.
3	Monitoring and Assessment	Reliable information is available as a basis for decision making.
4	Prevention and Early Intervention	Prevent the introduction, establishment and spread of pest plants and animals.
5	Integrated Management Systems	Integrated systems for managing the impacts of established pest plants and animals are developed and widely implemented.

The Infrastructure and Operations Division of TCC incorporates the Environmental Restoration team including two Biosecurity Technical Officers. This team will be responsible for the implementation of the management actions outlined in Table 10 below. This table provides an outline of the holistic management actions which will be undertaken to manage biosecurity risk by TCC.



Table 10 – Biosecurity Management Actions

Education and Awareness	Continue productive working relationships with all stakeholders (Council Departments, Councillors, volunteers and relevant agencies) supporting their participation and input, connecting them with areas of community concern / focus, pest management coordination, legal responsibilities and resourcing.	Provide information regarding current best practice control methods to the community.	Raise community awareness of potential introduction of pests and appropriate hygiene protocols through establishment of community access points to obtain pest information.	Ensure relevant local landholders and businesses (e.g. animal retailers, aquariums, transport companies, tree loppers) are aware of current and potential pests and associated legislation.	Increase community awareness of wild dog impacts on urban areas and methods to minimise these impacts.	Educate the community about restrictions on keeping pest animals as pets and benefits of responsible pet ownership.	Educate the community about restrictions on planting / growing pest plants and benefits of planting natives (e.g. Grow Me Instead program).
	Continue to seek in-kind and financial sponsorship to resource implementation of the plan.	Ensure Council has sufficient operational resources to implement the plan (funds, staff, equipment, etc.) and undertake compliance activities if required (e.g. issue Biosecurity Order notices).	Establish Biosecurity Plan Review Panel to promote effective communication between Council and stakeholders and to evaluate the effectiveness of the plan.	Review local laws and investigate need for additional regulation of any pest species (e.g. local declaration of species, restrictions on certain pets).			
Commitment, Roles and Responsibilities	Review and evaluate the implementation of the Biosecurity Plan and report progress annually .	Encourage community to report sightings of pest plants and animals to local government.					
	Develop an Invasive Plants and Animals Surveillance and Control Program for the Townsville Local Government Area (emergency response plan) that ensures rapid and effective response to discovery of pest species in Townsville LGA (including local alert species identified in Appendix 3).	Identify quarantine areas within the LGA and implications for the community.	Institute a regular monitoring and inspection program of nurseries, pet shops and markets selling plants and / or animals in conjunction with DAF.				
Prevention and Early Detections	Develop a rapid investigation and response procedure for reports of public safety risk (e.g. feral horse).	Develop specific management plans for critical priority pest species.(See Appendix 2).	Review and continue to support the incentive schemes for landholders (including Pest Management Subsidy Scheme) to manage pest animals and weeds on their land.	Develop strategy for incentivising weeds to soils program by June 2022.			
Integrated Management Systems							

3.3 Invasive Species Management

It is not feasible for TCC to eradicate all pest species within the LGA which is why a prioritisation approach has been identified. It is critical that pest species are managed with an integrated approach involving all parties not only TCC. The sections below identify the management actions for the pest species within each risk category.

Management strategies for Critical species have been identified and are provided in Appendix 2. In addition to the critical species, management strategies for different types of weeds have been provided in Appendix 3.

These management strategies are further supported by quick reference guides on the management of species in the Townsville LGA.

In addition, it needs to be recognised that plants which have agricultural benefits when well managed can represent a significant weed issue in the natural landscape when they escape from an agricultural environment. Whilst these weeds are generally not listed in the Biosecurity Plan, the management of these species in natural landscapes is a priority for Townsville City Council.

3.3.1 Critical Risk Species Management

Critical risk species are species where eradication is possible or species which pose a significant risk to our community. These species are priority for management by the Council. Fact sheets on the proposed management of these species are provided in Appendix 2.

3.3.2 High Risk Species Management

High priority species are likely to be well established in the Townsville region. While their eradication is no longer feasible, these species have significant impacts on our community and are priorities for localised eradication, intensive control or asset protection. Key actions for these species will be prioritised on the risks posed to the community, the local economy and high value natural assets.

Key actions for high priority species are:

- Intensive control on high value natural assets (e.g. Oak Valley Nature Refuge).
- Localised eradication (e.g. Siam Weed on Magnetic Island).
- Reducing the abundance of known infestations on Council managed assets.
- Targeted control programs to reduce the risk of spread into areas where they are currently not present.

- Educate residents and the community about the impacts of environmental pests on the natural environment and management options.
- Assist landholders to manage pests through the property pest management subsidy scheme.
- Enforce compliance on serious breaches of the Biosecurity Act or failure to meet the GBO.

3.3.3 Medium risk Species Management

Medium Priority species are well established in the Townsville region with widespread and abundant distribution or the species have not been identified as significant threat at a state level. The management of these species will be focused on asset protection/ impact reduction and maintenance of infrastructure and public assets (parks, botanic gardens and sports fields).

Key actions for this species are:

- Strategic control and containment to maintain any required buffers for asset protection.
- Reducing the abundance of known infestations on Council managed assets.
- To educate residents and the community about the impacts of environmental pests on the natural environment and management options.
- Targeted control programs to reduce the risk of spread into areas where they are currently not present.
- Assist landholders to manage pests through the property pest management subsidy scheme.

3.3.4 Low Risk Species Management

Low priority species are mostly common garden plants and are not considered to have severe impacts to the Townsville LGA. Some of these species can have severe impacts on a particular property or industry. The management of these species is focused on impact reduction.

Key actions in the impact reduction category are:

- Strategic control and containment to maintain any required buffers and for asset protection.
- To educate residents and the community about the impacts of environmental pests on the natural environment and management options.
- Targeted control programs to reduce the risk of spread into areas where they are currently not present.
- Assist landholders to manage pests through the property pest management subsidy scheme.

3.4 Local Alert Species

Local alert species are not currently known from the Townsville LGA but could cause significant impacts if introduced. An Invasive Plants and Animals Surveillance and Control Program (emergency response plan) will be developed to respond to the discovery of any local alert species within the Townsville LGA.

Table 11 – Local alert species in the Townsville LGA

Common name	Scientific Name	Status*
Acacias (non-indigenous spp. Other than listed priority spp.)	Non-indigenous <i>Acacia</i> , <i>Acaciella</i> and <i>Vachellia</i> spp. (other than listed priority spp.)	P
African boxthorn	<i>Lycium ferocissimum</i>	R
Alligator weed	<i>Alternanthera philoxeroides</i>	R
Anchored water hyacinth	<i>Eichhornia azurea</i>	P
Annual ragweed	<i>Ambrosia artemisiifolia</i>	R
Badhara bush	<i>Gmelina elliptica</i>	R
Balloon vine	<i>Cardiospermum grandiflorum</i>	R
Brillantasia	<i>Brillantasia lamium</i>	N
Christ's thorn	<i>Ziziphus spina-christi</i>	P
Eurasian water milfoil	<i>Myriophyllum spicatum</i>	P
Fireweed	<i>Senecio madagascariensis</i>	R
Giant mimosa	<i>Mimosa pigra</i>	R
Giant sensitive plant	<i>Mimosa diplotricha</i> var. <i>diplotricha</i>	R
Glush weed / hygrophila	<i>Hygrophila costata</i>	R
Harrisia cactus	<i>Harrisia</i> spp.	P or R
Kochia	<i>Kochia scoparia</i> (syn. <i>Bassia scoparia</i>)	P
Kosters curse	<i>Clidemia hirta</i>	R
Kudzu	<i>Pueraria montana</i> var. <i>lobata</i> (syn. <i>P. lobata</i> , <i>P. triloba</i>)	R
Lagarosiphon	<i>Lagarosiphon major</i>	P
Lions tail	<i>Leonotis nepetifolia</i>	N
Madras thorn	<i>Pithecellobium dulce</i>	R
Mesquite	<i>Prosopis</i> spp.	P or R
Mexican bean tree	<i>Cecropia peltata</i>	P or R
Miconia	<i>Miconia</i> spp.	P or R
Mikania vine	<i>Mikania micrantha</i>	P or R
Mist flower	<i>Ageratina riparia</i>	N
Mysore thorn	<i>Biancaea decapetala</i> (syn. <i>Caesalpinia d.</i>)	N
Parramatta grass	<i>Sporobolus africanus</i>	N
Peruvian primrose bush	<i>Ludwigia peruviana</i>	P
Prickly pears	<i>Opuntia</i> spp. (excluding <i>O. ficus-indica</i> , <i>O. stricta</i> , <i>O. aurantiaca</i> , <i>O. monacantha</i> , <i>O. tomentosa</i> and <i>O. streptacantha</i>)	P or R
Red sesbania	<i>Sesbania punicea</i>	P
Red witch weed	<i>Striga asiatica</i>	R
Salvinia	<i>Salvinia</i> spp. (other than <i>S. molesta</i>)	P
Senegal tea	<i>Gymnocoronis spilanthoides</i>	R
Sicklepod	<i>Senna tora</i>	R
Spiked pepper	<i>Piper aduncum</i>	P
Triplaris / mulato tree	<i>Triplaris surinamensis</i>	N
Venezuelan pokeweed	<i>Phytolacca rivinoides</i>	N
Water mimosa	<i>Neptunia oleracea</i> and <i>N. plena</i>	R
Willow	<i>Salix</i> spp.	R

* Status under the Queensland Biosecurity Act 2014: P = invasive prohibited matter; R = invasive restricted matter; N = not listed.

3.5 Plan Implementation and Review

TCC will coordinate the implementation of the Biosecurity Plan and will review the Plan on an annual basis, with the assistance of the Biosecurity Plan Review Panel (BPRP). The BPRP will comprise of a group of key stakeholders with knowledge and expertise in the management of pests in the Townsville LGA. The BPRP will:

- communicate issues raised by stakeholders;
- communicate outcomes of BPRP meetings to stakeholders;
- regularly review and update list of new pests in the “prevention” category;
- review the need for quarantine measures required to manage priority pests in the “prevention” and “eradication” categories;
- review annual progress reports;
- assist in the review of Annual Work Plans;
- assist in the development of new Annual Pest Action Plans as required;
- advise on new and emerging weeds;
- advise of any new pest control and monitoring techniques; and
- recommend a species for declaration under a local law.

3.6 Plan Duration

The duration of the Plan is five years (2020-2024), after which time it will be reviewed by Townsville City Council.



4 Monitoring and Reporting

In order to review the effectiveness of the implementation of the Biosecurity Plan, TCC will prepare any annual progress report on its implementation which will assist in the annual review.

The following metrics in Table 12 will be used in order to assess the success of the biosecurity plan.

Table 12 – Monitoring metrics

Education and Awareness	Information on best practice control is available on TCC website by 31 January 2021.	Biosecurity Plan endorsed and available on TCC website by 31 December 2020.	At least 2 community events held annually where information on a range of biosecurity issues are available.
Commitment Roles and Responsibility	Biosecurity Review Panel established by 3 months after Council endorsement.		
Monitoring and Assessment	At least 12 inspections undertaken of local nurseries, pet stores, and markets annually.	Biosecurity Plan reviewed annually by the Biosecurity Review Panel.	Customer Service Requests are used to monitor invasive matter spread, quantity and/or location annually.
Prevention and Early Detection	Invasive Plants and Animals Surveillance and Control Program for the Townsville Local Government Area established by 31 December 2021.	New pest species to the Townsville LGA are categorised in the priority matrix and reasonable and practical management actions taken to work towards a goal appropriate for the pest species within 3 months of identification.	
Integrated Management Systems	Rapid investigation and response procedure developed for reports of public safety risk by 31 December 2021.	Specific management plans developed for critical priority species as required.	

Currently there is insufficient data to review the effectiveness of the Biosecurity Plan on restricting the spread of pests within the Townsville LGA. During the period of this plan TCC will endeavour to collect sufficient baseline data to allow evidence based reporting in future plans.

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Appendix 1:

Relevant Legislation and Planning Instruments

Australia	
Australian Weed Strategy 2017-2027	These strategies provide guides for the consistent management of pest plants and animals across the country. Stages of management identified in these strategies include: <ul style="list-style-type: none"> • prevention of species not yet established in Australia; • eradication of a newly arrived species at either a local, regional, state or national scale; • containment of a species that cannot be completely eradicated to reduce or limit its spread into at-risk areas; and • asset protection, which may be applied to manage threats of species that have spread too far to be eradicated or contained, with the aim of strategically minimising economic, environmental and social impacts.
Australian Pest Animal Strategy 2017-2027	
Weeds of National Significance (WoNS)	WoNS are high impact, established weeds for which targeted, strategic co-investment in a nationally coordinated manner will deliver long-term benefits across Australia. The Australian government has developed national management strategies and manuals for 32 WoNS.
National Environmental Alert List	The alert list lists 28 weed species that are in the early stages of establishment and have the potential to become a significant threat to biodiversity if they are not managed.
Feral animals in Australia	The Australian government lists ten feral animal species that are recognised as threats to native animals and plants.
Threat Abatement Plans	These plans aim to reduce the impact of listed threatening processes on native species and ecological communities. Plans have been developed for threatening pests including rabbits, foxes, feral cats, feral pigs, tramp ants, cane toads and specific grasses.
National Four Tropical Weeds Eradication Program	This program targets five weed species that have been introduced into North Queensland (<i>Limncharis flava</i> , <i>Miconia calvescens</i> , <i>M. nervosa</i> , <i>M. racemosa</i> and <i>Mikania micrantha</i>).
Commonwealth agency plans	Defence has developed strategies and plans that coordinate pest management on Defence properties within and adjacent to the Townsville LGA. The Commonwealth has also developed the Australian Emergency Plant Pest Response Plan that provides nationally consistent guidelines to manage response procedures for Emergency Plant Pests affecting Australia's agricultural industries.
Queensland	
Queensland Biosecurity Act 2014	This Act establishes an effective biosecurity system that minimises biosecurity risks and facilitates a coordinated response to biosecurity events across Queensland.
Queensland Biosecurity Strategy 2017-2022 (draft)	The Department of Agriculture and Fisheries has developed this draft strategy in collaboration with over 30 partner organisations. It aims to promote effective management of Queensland's biosecurity risks, including weeds, pest animals and diseases, through collaborative partnerships between government, industry and communities.
State Agency Pest Management Plans	A number of state agencies (e.g. Ergon, Department of Transport and Main Roads, Department of National Parks, Sport and Racing) have plans and strategies in place to manage pests within lands under their control.
Regional	
Regional Pest Management Strategy for the Burdekin Dry Tropics 2014-2019	This strategy was developed by North Queensland Dry Tropics to coordinate a regional approach to pest management in the Burdekin Dry Tropics region. It forms part of a broader natural resource management strategy for the region.
Far North Queensland Regional Pest Management Strategy 2010-2015	The Far North Queensland Regional Organisation of Councils developed this strategy to integrate PMPs throughout the far North Queensland region. This region adjoins Townsville's northern border.

Local	
Townsville City Council Pest Management Plan 2004-2008	Pest management in the Townsville LGA was guided by the previous Pest Management Plan. The Biosecurity Plan will supersede this plan when adopted by Council.
Neighbouring PMPs / BPs	Neighbouring plans include: <ul style="list-style-type: none"> • Burdekin Shire Council Biosecurity Plan 2016-2019; • Charters Towers Regional Council Pest Management Plan 2013-2017; and • Hinchinbrook Local Government Area Pest Management Plan 2013-2017.
Townsville City Council Land Protection Strategy	This document was prepared following the amalgamation of the Townsville and Thuringowa LGAs to assess existing pest management capabilities and recommend strategies to enhance future management.
Townsville LGA Wild Dog Management Plan	This plan is aligned with this Biosecurity Plan and will continue to provide a framework for coordinated control of wild dogs in the Townsville LGA.
Townsville LGA pest management programs	Examples include: <ul style="list-style-type: none"> • Gamba grass eradication program; • Ross River aquatic weed removal; • Siam, Thunbergia, Common Myna control on Magnetic Island; • Sagittaria control in Ross River; and • Annual wild dog management program.
Property	
Property Pest Management Plans	TCC assists landholders to develop Property Pest Management Plans (PPMPs) for the strategic management of pest plants and animals on their property. It also qualifies landholders for assistance through the Pest Management Subsidy Scheme.
Natural Assets Management Plan - James Cook University Townsville Campus	This plan aims to protect natural assets on the 380 ha James Cook University Townsville campus grounds, including sections on weed and pest animal management.
Protected area management plans	The Department of National Parks, Sport and Racing has developed management plans to maintain the natural and cultural values of protected areas within the Townsville LGA.
Species Management	
Management guides for specific pest species	Examples include: <ul style="list-style-type: none"> • Technical report and future management options for Delta arrowhead (<i>Sagittaria platyphylla</i>) in the Burdekin dry tropics NRM region; • Grader Grass (<i>Themeda quadrivalvis</i>) management guide; • Bellyache bush (<i>Jatropha gossypifolia</i>) management manual; • Weed Management Plan for Neem (<i>Azadirachta indica</i>); • Feral Pig Control - A practical guide to the management of feral pigs in the North Queensland dry tropics; • Wild Dog Control - A practical guide to the management of wild dogs in the North Queensland dry tropics; • Species management guides for WoNS; and • Commonwealth Threat Abatement Plans.

Additional online information sources include:

- Biosecurity matters in Queensland including weeds and pest animals
<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases>
- Weed and pest animal fact sheets
<https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/fact-sheets>
<http://keyserver.lucidcentral.org/weeds/data/media/Html/index.htm>
- Australian invasive species
<http://www.environment.gov.au/biodiversity/invasive-species>
- Interactive maps of weed distribution in Queensland
<https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/pest-mapping/distribution-maps>
- Interactive identification key for weeds of Australia
<https://weeds.org.au/identify>

*Whilst care was taken to ensure web links were current at the time of publishing, these web links are maintained by other organisations, and may change over time. Information can be found through navigating each organisation's website (e.g. <http://www.business.qld.gov.au>).



Appendix 2:

Critical Priority Pest Management Plans

Feral Horse *Equus caballus*

Critical priority in the Townsville LGA.

Description:

Unowned free-roaming horse of domestic ancestry. Average size 1-1.6m shoulder height, average weight 350-450kg. Coat colour varies, ranging from bay (brown body with black mane and tail) to chestnut (orange), black, brown and grey. Coat hairs are short and fine, growing longer in cooler climates.

Queensland Distribution:

Widespread and abundant across western and north-western parts of state, with smaller populations scattered across bushland areas in eastern Queensland.

Townsville Distribution:

Widespread in Bluewater Park, Alligator Creek through to Mt Elliot, and Black River through to Hervey Range.

Reproduction and dispersal:

Breed in spring to summer and on average produce one foal every two years. In good conditions, population growth be up to 20% per year. Travel up to 50 km per day.

Queensland & Local Government declarations:

By state law, everyone has a General Biosecurity Obligation (GBO) to take reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control.



Management	Purpose of Management
	<ul style="list-style-type: none"> Manage the risk to human life from large animals within road corridors.
Management	Best Practice
	<ul style="list-style-type: none"> Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
TCC Focus	Management Actions
	<ul style="list-style-type: none"> Continue to be an active member of the multi-agency Large Animals on Roads Stakeholder Group (LARSG). This group consists of Department of Transport and Main Roads, Department of Environment and Science (National Parks), Department of Queensland Police, and Department of Natural Resources, Mines and Energy. Assist residents with feral horse control in complex situations where Council understands the landowner needs additional capacity to undertake control safely and humanely, and/or disposal of carcass. Control actions are prioritised on a road user safety risk basis. Undertake humane euthanasia of feral horses on Council land. Enable residents in feral horse control by offering the Property Pest Management Subsidy Scheme to residents with land 2ha and greater. Maintain communication and a working relationship with key landholders in strategic feral horse control sites.
	Monitoring
	<ul style="list-style-type: none"> Continue monitoring customer reports. Motion camera monitoring to establish pattern and lack of ownership.
Level of Expectation	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> At minimum, maintain fence fronting a sealed road, and keep the gate shut if there is no grid. Keep domestic horses adequately contained. Humane control where safe to do so. Council recognizes not every property is suitable for undertaking control safely, however it can be if neighbours cooperate together.
	Industry
	<ul style="list-style-type: none"> Consider how your actions, or lack of action, may impact on human safety. Develop a pest management plan to minimise associated impacts. Keep up to date with changes to biosecurity regulations. At minimum, maintain fence fronting a road, and keep the gate shut if there is no grid. Control feral horses as per your pest management plan.

Gamba grass *Andropogon gayanus*

Critical priority in the Townsville LGA.

Priority weed in Hinchinbrook LGA, & High priority Charters Towers LGA.

Weed of National Significance.

Description:

A perennial, tall grass that grows up to 4 m tall with tussocks up to 70 cm in diameter. Leaves are 30-60 cm long and up to 3 cm wide, with a distinctive white midrib and covered with soft hairs. The stems are robust and covered in soft hairs and the root system spreads up to 1 m from the tussock close to the soil surface. Seeds are contained in a fluffy V-shaped seed head consisting of up to six groups of branches, each containing 2-18 primary branches.

Queensland Distribution:

Scattered sites across NQ, most in Cape York Peninsula and Atherton Tablelands. Burdekin site borders Mt Elliot.

Townsville Distribution:

Isolated infestations in Kelso, Mt Elliot and Castle Hill.

Reproduction and dispersal:

Seeds spread rapidly where vegetation is disturbed. Historically dispersed by distribution as a pasture plant, spread is now assisted by machinery & 4wds.

Queensland & Local Government declarations:

Gamba grass is a restricted invasive plant under the Act, Category 3.



Images above: Hosted by the SDA-NRCS PLANTS Database. Photographer: Jose Hernandez

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Management	Purpose of Management
	<ul style="list-style-type: none"> • Protection human life and infrastructure by eliminating or decreasing the intensity of fires. • Avoid Gamba Grass fires changing the ecosystem's plant communities. • Maintain Townsville's open woodland health and biodiversity. • Minimise the risk of the weed's spread, and adverse impacts.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
TCC Focus	Management Actions
	<ul style="list-style-type: none"> • Control plants as they are identified in known locations. • Spread Awareness to the community through events. • Encourage industry, graziers and community to report sightings of this species. • Respond to reports of plants suspected to be Gamba Grass. • Work with residents, graziers and industry on managing reported Gamba Grass. Council prefers working with people on solving biosecurity issues. A biosecurity order may be issued if Council or Biosecurity Queensland deems in necessary to effectively solve or reduce serious biosecurity impacts.
Level of Expectation	Monitoring
	<ul style="list-style-type: none"> • Continue monitoring known locations on Castle Hill from February to April. • Continue liaising with key stakeholders through the regional pest management group to monitor existing infestations in surrounding LGAs that may impact Townsville. • Monitor Kelso site when the Ross Dam water level is low enough to expose the weed. • Investigate reports of plants suspected to be Gamba Grass. • Maintain communication and a working relationship with Burdekin Shire Council.
Level of Expectation	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Report suspected Gamba Grass to Council and follow advice. • Be aware of regulations around the sale and distribution of restricted invasive material. • Start 4wd and motorcycle trips clean, and washdown before the next adventure. • Brushing horses thoroughly and clean their hooves before and after travel.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving. • Keep up to date with changes to biosecurity regulations. • You must report sightings of plants you suspect is Gamba Grass to Council and follow advice. • Gain written permission from Council's Bushfire Officer for planned Gamba Grass burns. • Maintain quarantine yards for incoming and outgoing stock. • Avoid growing Gamba grass as a pasture crop.

Pond Apple *Anonna glabra*

Critical priority in the Townsville LGA.

Priority weed in Hinchinbrook LGA.

Weed of National Significance.

Description:

A semi-deciduous perennial tree that usually grows between 3 and 6 m tall, but can reach up to 15 m. Leaves vary from light to dark green but may go yellow in the dry season. They are 7 - 12 cm long with a prominent midrib. Leaves are arranged on alternate areas of the stem. Flowers are creamy-white opening from a three-angled bud, with 3 outer petals marked with a bright red spot on the inner surface near the base.

Queensland Distribution:

Coastal areas of Northern Queensland from Cape York to Mackay.

Townsville Distribution:

Localised infestations in Ross River, Bushland Beach, and previously one mature plant in Saunders Beach.

Reproduction and dispersal:

Dispersal down waterways, as seeds float and can survive long periods of immersion, enabling the plant to spread over very long distances. Seeds also spread by feral pigs, wallabies, cassowaries and other fruit eating animals.

Queensland Government declarations:

Pond Apple is a restricted invasive plant under the Act. It falls under Category 3.

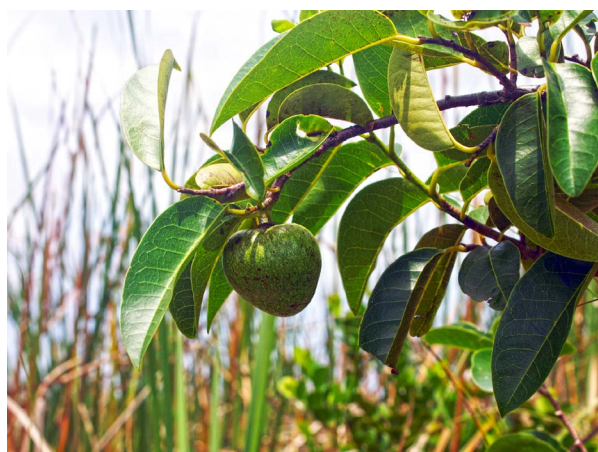


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Photographer: Alex Popovkin, Bahia, Brazil

Management	Purpose of Management
	<ul style="list-style-type: none"> • Avoid localized flooding caused by dense infestations restricting water flow. • Maintaining wetland, riparian, mangroves, and saltwater stream health and biodiversity. • Minimise the risk of the weed's spread.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
TCC Focus	Management Actions
	<ul style="list-style-type: none"> • Continue control actions 2 times a year in Bushland Beach. • Control if required biannually in Saunders Beach. • Maintain communication and working relationships with NQDT and adjacent local governments • Delimit the species in Ross River to determine extent, control known patches.
Level of Expectation	Monitoring
	<ul style="list-style-type: none"> • Continue monitoring biannually in Saunders Beach. • Monitor control effectiveness in Bushland Beach.
Level of Expectation	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Check that your dam or fruit orchard doesn't contain Pond Apple. Plants on residential properties can escape in floodwater into natural waterways. • Do not grow, gift or sell <i>Annona glabra</i> plants, fruit, nor seeds. • Report suspected Pond Apple plants to Council • If you have this plant, please contact Council, and follow advice.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving the job. • Keep up to date with changes to biosecurity regulations. • Report sightings of plants you suspect is Pond Apple to Council on 13 48 10 or enquiries@townsville.qld.gov.au and follow advice.

Arrowhead *Sagittaria platyphylla*

Critical priority in the Townsville LGA.

High Priority in the Burdekin LGA.

Priority pest in Burdekin Dry Tropics Regional Pest Management Strategy.

Weed of National Significance.

Description:

A perennial aquatic herb with both a submerged and emergent form. Leaves are glossy green, broadly elongated. Triangular leaf stalks are 200-800 mm long, leaves have a prominent parallel vein. Flowers have three white petals and yellow centres, growing on a leafless erect stem arising from the base of the plant.

Queensland Distribution:

Found in south-east Queensland,

Townsville Distribution:

Localised in the Ross River catchment.

Reproduction and dispersal:

Spread by seed, rhizomes, tubers and floating entire plants. Cultivated as an ornamental.

Queensland Government declarations:

Arrowhead is a restricted invasive plant under the Act. It falls under Category 3.



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Management	Purpose of Management <ul style="list-style-type: none"> • Reduce impacts to Ross River recreation by preventing Sagittaria from causing sediment buildup, restricting water flow. • Avoid causing regional impacts to cane growers through Sagittaria reducing the efficiency of irrigation networks. • Maintaining Ross River's stream health and biodiversity. • Minimise the risk of the weed's spread. <p>Townsville is currently the only area in Queensland where eradication is considered viable, owing to Townsville City Council's early detection, and action. Sagittaria is recognized as a regional priority by the Regional Pest Management Group, and a Regional Sagittaria Working Group (RSWG) was formed to manage the weed. The working group consists of Townsville City Council, NQ Dry Tropics, Burdekin Shire Council, Biosecurity Queensland and Coastal Dry Tropics Landcare.</p>
	Best Practice <p>Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.</p>
TCC Focus	Management Actions <ul style="list-style-type: none"> • Continue adaptive control actions as the species has proven to be adaptive to conditions. Currently control occurs 1-4 times a month. • Further delimit the species to build a map of known locations in the catchment. • RSWG's Operational Lead role in learning the weed's behavior and adaptation to Dry Tropic conditions, and adapting on-ground control to mitigate adaptation. • Undertake inspections and enforcement action if necessary conjunction with Biosecurity Queensland at nurseries and markets for the sale of restricted matter. • Spread Awareness to the community through events.
	Monitoring <ul style="list-style-type: none"> • Inspect Ross River weekly/fortnightly in summer, once a month in winter for active growth. • Investigate reports of plants suspected to be Arrowhead. • Maintain communication and a working relationship with bordering LGs, NQDT and BQ.
Level of Expectation	Residents, Community Groups, and hobbyists <ul style="list-style-type: none"> • Check that your pond, dam or aquarium doesn't contain Arrowhead. Plants on residential properties can escape in floodwater into natural waterways. • Do not gift or sell Sagittaria platyphylla. • Never dump aquarium plants, water or contents down drains or into waterways. • Report suspected Arrowhead plants to Council on 13 48 10 or enquiries@townsville.qld.gov.au • If you have this plant, please contact Council for mapping, and follow advice.
	Industry <ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving the job. • Keep up to date with changes to biosecurity regulations. • Report sightings of plants you suspect is Sagittaria to Council on 13 48 10 or enquiries@townsville.qld.gov.au and follow advice.

White ball acacia *Acaciella angustissima*

Critical priority in the Townsville LGA.

Description:

Perennial thornless shrub or small tree growing 2-7m tall. It has a single short trunk. Leaves are fern-like with narrow leaflets. Flowers are clustered and white. Seed pods are oblong shaped, flat, thin-walled and papery.

Queensland Distribution:

Recorded from Cook, North Kennedy and South Kennedy pastoral districts.

Townsville Distribution:

Previously trialled as a fodder plant near Woodstock. Plants existed on Campus Creek near the Townsville General Hospital, and roadsides near Rollingstone and Alligator Creek, but infestations appear to have been significantly reduced, and eradicated at Rollingstone.

Reproduction and dispersal:

Seed dispersal possibly by water and ants.

Queensland Government declarations:

White Ball Acacia is a prohibited invasive plant under the Act.



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Photographer: Joozwa



Image right: *Acacia angustissima* fruit collected by C. H. Muller from Jimenez, Mexico. USDA ARS/GRIN Database. Photographer: Tracey Slotta

Management	Purpose of Management
	<ul style="list-style-type: none"> • Safeguard Townsville's agricultural interests. • Maintaining savannah and open woodland health and biodiversity. • Minimise the risk of the weed's spread.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
Monitoring	Management Actions
	<ul style="list-style-type: none"> • Continue assisting DAF with on-ground and drone delimitation in Woodstock. • Continue to assist DAF in treating infestations in Woodstock. • Maintain communication with Department of Transport and Main Roads • Assist DAF in developing a management plan for the Woodstock infestation. • Investigate reports of plants suspected to be White Ball Acacia. • Report sightings to DAF within 24 hours of discovery.
Level of Expectation	Monitoring
	<ul style="list-style-type: none"> • Monitor efficacy of control treatment in Woodstock. • Monitor for reproductive flower stage to plan treatment timing.
Industry	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Report suspected White Ball Acacia plants to Department of Agriculture and Fisheries within 24 hours, and follow advice. • Do not buy, sell, trade, nor grow the prohibited matter, <i>Acaciella angustissima</i>. • Start 4wd and motorcycle trips clean, and washdown before the next adventure. • Brushing horses thoroughly and clean their hooves before and after travel.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving the job. • Keep up to date with changes to biosecurity regulations. • Sightings of plants you suspect is White Ball Acacia must be reported to Department of Agriculture and Fisheries within 24 hours and follow advice given. • Maintain quarantine yards for incoming and outgoing stock. • Must not grow White Ball Acacia as a pasture crop.

Grey-Haired acacia

Vachellia gerrardii (syn. *Acacia g.*)

Critical priority in the Townsville LGA.

Description:

Small tree with ascending branches. Young branches densely covered in tufted leaves and grey velvety hairs with paired 1.5 cm spines, mostly straight but some curved. Sickie-shaped, narrow, rounded pod covered in grey velvety hairs up to 15 cm. Clusters of white round flowers.

Queensland Distribution:

Only record is in Townsville.

Townsville Distribution:

Only record off Southern Port Road near the Cape Cleveland Water Treatment Plant, Stuart.

Reproduction and dispersal:

Pollinated mainly by insects and spread by water.

Queensland Government declarations:

Grey Haired Acacia is a Prohibited invasive plant under the Act.



Management	Purpose of Management
	<ul style="list-style-type: none"> • Safeguard Townsville's agricultural interests. • Maintaining savannah and open woodland health and biodiversity. • Eradicate from Townsville.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
TCC Focus	Management Actions
	<ul style="list-style-type: none"> • Survey the infestation biennially. • Report findings to DAF. • Assist DAF in the event of another infestation being discovered. • Investigate reports of plants suspected to be Grey-Haired Acacia. • Report sightings to DAF within 24 hours of discovery.
Level of Expectation	Monitoring
	<ul style="list-style-type: none"> • Monitor germination of seedbank of controlled mature plants in Stuart.
Level of Expectation	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Report suspected Grey-Haired Acacia plants to Department of Agriculture and Fisheries within 24 hours, and follow advice. • Do not buy, sell, trade, nor grow the Prohibited matter, <i>Vachellia gerrardii</i>. • Start 4wd and motorcycle trips clean, and washdown before the next adventure. • Brushing horses thoroughly and clean their hooves before and after travel.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving the job. • Control vegetation and discard top 50cm of soil where extracting soil and rock material. • Keep up to date with changes to biosecurity regulations. • Sightings of plants you suspect is Grey-Haired Acacia must be reported to Department of Agriculture and Fisheries within 24 hours, and follow advice given. • Maintain quarantine yards for incoming and outgoing stock.

Wild Dog (other than domestic) *Canis spp.*

Critical priority in the Townsville LGA.

Priority pest in Burdekin Dry Tropics Regional Pest Management Strategy.

High priority pest in Charters Towers LGA, and Priority pest in Hinchinbrook LGA.

Description:

Wild dogs include dog/dingo hybrids and domestic dogs that have gone feral and are no longer dependent on humans. Pure dingoes generally only occur in very remote locations & on Fraser Is.

Queensland Distribution:

Found throughout Queensland.

Townsville Distribution:

Widespread on mainland Townsville.

Reproduction and dispersal:

Generally breed once a year in April-June, with 4-6 pups born following a 9 week gestation. Travel across large home range and easily disperse.

Queensland Government declarations:

Canis spp. are restricted invasive animals under the Act, Categories 3,4, 5 and 6.



Management	Purpose of Management <ul style="list-style-type: none"> • Reduce risk of attacks and disease transmission to humans, pets, poultry and livestock. • Reduce economic impacts on graziers. • Maintain a balance between apex predator and other wildlife.
	Best Practice <p>Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.</p>
TCC Focus	Management Actions <ul style="list-style-type: none"> • Encourage community to report sightings and impacts of wild dogs. • Control action is prioritized on a community safety risk basis. • Encourage responsible pet ownership. • Awareness to the community through events. <p><u>Urban Areas</u></p> <ul style="list-style-type: none"> • Undertake trapping and humane euthanasia of wild dogs where wild dogs are displaying aggressive or dangerous behaviour. In some situations, control may not be able to be safely undertaken. <p><u>Peri-urban Areas</u></p> <ul style="list-style-type: none"> • Biannual trapping program in strategic urban fringe and peri-urban areas to reduce the risks to the majority. • Enable residents in wild dog control by offering the Property Pest Management Subsidy Scheme to residents with land 2ha and greater. <p><u>Rural Areas</u></p> <ul style="list-style-type: none"> • Free 1080 bait injection service for eligible people. Contact TCC's Biosecurity Team to see if your property is eligible. Biannual baiting program is generally held April/May & Sep/Oct. • Offer Property Pest Management Subsidy Scheme to residents with land 2ha and greater.
	Monitoring <ul style="list-style-type: none"> • Continue monitoring customer reports. • Maintain communication and a working relationship with key landholders in wild dog control sites. • Motion camera monitoring prior to trapping to determine risk to wildlife and pets.
	Residents, Community Groups, and hobbyists <p><u>Urban Areas</u></p> <ul style="list-style-type: none"> • Keep pets adequately contained within property, and leashed when walking. • Avoid attracting wild dogs with water, food, or smells (e.g. dispose of dog scat over the fence). <p><u>Peri-urban Areas</u></p> <ul style="list-style-type: none"> • People with lifestyle properties are at minimum capable of protecting pets from attack, for example, have wild dog proof enclosures. • Humane control is possible on some properties. Council recognizes not every property is suitable for undertaking control safely, however can be if neighbours cooperate together. <p><u>Rural Areas</u></p> <ul style="list-style-type: none"> • Integrated management – baiting, shooting, trapping, guardian animals and/or wild dog fencing targeting impacts to your, or neighbouring, stock.
	Industry <ul style="list-style-type: none"> • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Keep up to date with changes to biosecurity regulations. • Integrated management – baiting, shooting, trapping, guardian animals and/or wild dog fencing.
Level of Expectation	

Yellow Burr Head *Limnocharis flava*

Critical priority in the Townsville LGA.

Priority weed in Hinchinbrook LGA, & High priority Charters Towers LGA.

Weed of National Significance.

Description:

A robust, erect, clump-forming, perennial aquatic weed that is attached to the waterway floor. It can grow up to 1 m tall and its stem has a milky sap. Leaves grow in opposite pairs along the stem and are pale green, velvety and up to 28 cm long and 20 cm wide with parallel veins. The leaf blade is narrow when young and becomes more oval with age. Flowers are cup shaped and have three yellow petals. They are borne in small clusters from a long flower stalk that is triangular in cross section.

Queensland Distribution:

Scattered localized infestations around Townsville, Cairns and Atherton Tablelands.

Townsville Distribution:

Localised infestations in Anderson Park, Bush Gardens and Black River.

Reproduction and dispersal:

Reproduces from cuttings, detached leaves or stems, and by numerous small seeds. Seeds are spread by water, birds and other animals.

Queensland & Local Government declarations:

Yellow Burr Head is a restricted invasive plant under the Act, Categories 2,3,4 and 5.



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Photographer: Vengolis

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Photographer: Michael Wolf

Management	Purpose of Management
	<ul style="list-style-type: none"> • Avoid Yellow Burr Head restricting or changing directional water flow through silt buildup. • Maintain health and biodiversity of Ross River. • Minimise the risk of the weed's spread, and adverse impacts.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
Level of Expectation	Management Actions
	<ul style="list-style-type: none"> • All known sites are controlled during monitoring if required, on a monthly basis. • Assist DAF in responding to reports of plants suspected to be Yellow Burr Head. • Reporting to DAF monthly on monitoring and control. • Report any new infestations to DAF within 24 hours of knowledge of the weed. • Spread Awareness to the community through events. • Encourage community to report sightings of this species. • Undertake inspections and enforcement action if necessary conjunction with Biosecurity Queensland at nurseries and markets for the sale of restricted matter.
Residents, Community Groups, and hobbyists	Monitoring
	<ul style="list-style-type: none"> • Continue monitoring known locations monthly. • Maintain communication and a working relationship with DAF.
Industry	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Check that your pond, dam or aquarium doesn't contain Yellow Burr Head. Plants on residential properties can escape in floodwater into natural waterways. • Do not gift or sell <i>Limnocharis flava</i>. • Never dump aquarium plants, water or contents down drains or into waterways. • Must report suspected Yellow Burr Head plants within 24 hours to Department of Agriculture and Fisheries on 13 25 23, and follow advice.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Must report suspected Yellow Burr Head plants within 24 hours to Department of Agriculture and Fisheries on 13 25 23, and follow advice. • Consider how your operations impact social, economic and environmental impacts. • Develop a pest management plan to minimise impacts associated with your activities. • Clean machinery and equipment prior to starting a job, and clean when leaving the job. • Keep up to date with changes to biosecurity regulations. • Report sightings of plants you suspect is Sagittaria to Council on 13 48 10 or enquiries@townsville.qld.gov.au and follow advice. • Seek advice from DAF or TCCs Biosecurity team prior to beginning work at the Anderson Gardens ponds.

Yellow Crazy Ant *Anoplolepis gracilipes*

Critical priority in the Townsville LGA.

Priority pest in Burdekin Dry Tropics Regional Pest Management Strategy.

Description:

Yellow to brownish ant with a 5 mm long body. Abdomen is dark brown, sometimes striped, with very long legs and antennae. Walking style is erratic.

Queensland Distribution:

Regularly detected and eradicated from port areas. Infestations have been recorded in Cairns, Hervey Bay, Townsville, Whitsundays, and various locations in south east Queensland.

Townsville Distribution:

Large infestation in Nome. Three previous colonies in the Townsville region – Nome, Mt St John and Douglas. Delimitation required of historic sites and elsewhere.

Reproduction and dispersal:

Worker ants (life cycle of 76-84 days) produced throughout the year, especially 1-2 months prior to the rainy season. Can be easily translocated in soil, produce and timber as well as transported on vehicles, machinery, boats and aircraft. Ants raft in floodwater.

Queensland Government declarations:

Yellow Crazy Ants are a restricted invasive matter under the Act. It falls under Category 3.



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Image top right: Public domain image.
Photographers: Forest & Kim Starr (USGS)

Image left: Licensed under CC BY 2.0.
Photographer: John Tann

Management	Purpose of Management
	<ul style="list-style-type: none"> • Avoid pets succumbing to burning and irritation of skin and eyes by Yellow Crazy Ants. • Avoid electrical and other damage to infrastructure. • Maintain animal biodiversity and plant health. • Avoid large scale spread, minimise or eradicate where able.
TCC Focus	Best Practice
	Refer to Queensland Government, Business Queensland website www.business.qld.gov.au for up to date information on Best Practice Methods and factsheets.
TCC Focus	Management Actions
	<ul style="list-style-type: none"> • Continue to delimit the Douglas infestation. • Respond to reports of Yellow Crazy Ants throughout the Local Government Area. • Spread mitigation treatments in Douglas and Mt St John. • Treat any Yellow Crazy Ants found in the Nome infestation. • Work in partnership with Invasive Species Council (ISC). • Assist ISC in the development of a Yellow Crazy Ant Management Plan. • Maintain communication with Wet Tropics Management Authority, CSIRO, DAF and Whitsundays Regional Council.
Level of Expectation	Monitoring
	<ul style="list-style-type: none"> • Continue monitoring customer reports. • Sight, lure and sticky trap monitoring in Nome and Douglas.
Level of Expectation	Residents, Community Groups, and hobbyists
	<ul style="list-style-type: none"> • Report ants suspected to be YCAs to either TCC, or the Invasive Species Council, including a good photo or ant sample. • Follow advice given by TCC's Biosecurity Team / ISC. • Do not sell produce nor items that contain Yellow Crazy Ants.
Level of Expectation	Industry
	<ul style="list-style-type: none"> • Consider how your actions, or lack of action, may impact on social, economic and environmental impacts. • Develop a pest management plan to minimise associated impacts. • Keep up to date with changes to biosecurity regulations. • Report ants suspected to be YCAs to TCC, and follow advice. • Treat areas where the risk of spread is heightened (e.g. stored pallets, crushing plants, etc).



Appendix 3:

Management Plans for Other Species

High Priority Pasture Plants Management Plan



Images from left: parthenium, sicklepod, giant parramatta grass, grader grass, and giant rat's tail grass. Photos © Queensland Government.

Purpose

- Maintain health and biodiversity of Townsville's Local Government Area.
- Minimise the risk of adverse impacts.
- Maintain safety of road users.

Species

Hyparrhenia rufa subsp. *Rufa* (thatch grass), *Parthenium hysterophorus* (parthenium), *Senna obtusifolia* (sicklepod), *Sporobolus fertilis* (giant parramatta grass), *Sporobolus natalensis* (giant rat's tail grass), *Sporobolus pyramidalis* (giant rat's tail grass) and *Themeda quadrivalvis* (grader grass).

Description and Issues

Pasture plants are grasses, herbs or forbs that grow in grassland, paddocks and natural areas. They can decrease productivity of paddocks, poison stock, prevent regeneration of native vegetation. Parthenium weed is an allergen, which can have significant health impacts to prone people.

Methods of Reproduction and Dispersal

Seeds, water, vehicles, machinery, stock, birds, native animals, manure and dumped vegetation.

Environmental, Social and Economic Impacts of the Townsville Local Government Area

- Easily invades disturbed areas.
- Outcompetes native vegetation.
- Prevents natural regeneration of native species.
- Drops production of fodder grasses.
- Parthenium weed causes allergies in some people.

Legal Requirement

Parthenium, sicklepod, giant parramatta grass and giant rat's tail grass are all listed as restricted invasive plants under the *Queensland Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO).

Thatch grass and grader grass is not listed as a prohibited nor restricted plant under the *Queensland Biosecurity Act 2014*. Everyone has a general biosecurity obligation to minimise risk associated with invasive plants under their control.

Queensland Distribution - Common or widespread across north Queensland.

Townsville Distribution - Common or widespread across Townsville.

Townsville City Council, Management Actions

- Investigate reports of plants suspected to be high priority pasture weeds.
- Respond to reports of plants suspected to be high priority pasture species.
- Spread awareness to the community through events.
- Control infestations to minimise impacts to public assets under Council's control.
- Control infestations to reduce impacts to revegetation and regeneration sites under Council's control.
- Control infestations effecting human safety.
- Assist land occupiers with properties 2ha or greater in controlling high priority pasture species through the Property Pest Management Subsidy Scheme.
- Maintain communication with local, regional and state stakeholders.

Townsville City Council, Monitoring

- Monitor efficacy of control treatment.
- Compliance monitoring for restricted, high priority pasture plants in nurseries, markets and other sellers.

Residents, Community Groups and Hobbyist

- Do not buy, sell, trade, propagate, nor give away high priority pasture weeds.
- Clean down vehicles, machinery after use.
- Do not dump vegetation into natural areas.

Industry

- Consider how your operations impact social, economic and environmental impacts.
- Develop a pest management plan to minimise biosecurity risks associated with your activities.
- Clean machinery and equipment prior to starting a job, and clean when leaving the job.
- Keep up to date with changes to biosecurity regulations.

Treatment

- Treatment of pasture weeds should be undertaken using integrated weed management approach.
- Refer to Department of Agriculture and Fisheries factsheets and website for up to date best practice methods for control.

Useful Resources

Queensland Government, Business Queensland

www.business.qld.gov.au

Townsville City Council, Pest Management Subsidy Scheme

<https://www.townsville.qld.gov.au/water-waste-and-environment/pests-and-weeds/property-pest-management>

Weed Spotters Network Queensland, Department of Agriculture, Fisheries and Forestry

<https://play.google.com/store/apps/details?id=knightwing.ws.weedspotter>

This management plan has been developed to assist landholders to manage pest plants and animals. The document is supporting documentation to the Townsville City Biosecurity Plan. This document should be used in conjunction with the federal, state and local government laws. While every care has been taken to ensure the accuracy of the information Townsville City Council does not invite reliance upon it, nor accept any responsibility for any losses or damage caused by actions based upon it.

High Priority Aquatic Weeds Management Plan



Images from left: cabomba, water hyacinth, hymenachne, and salvinia. Photos © Queensland Government.

Purpose

- Avoid aquatic weeds restricting recreational use in Ross River
- Avoid aquatic weeds restricting or changing directional water flow through silt build-up.
- Maintain health and biodiversity of Townsville's waterways.
- Minimise the risk of the weeds spread, and adverse impacts.

Species

Cabomba caroliniana (cabomba), *Echinodorus grisebachii* (syn. *E. amazonicus* (amazon sword), *Eichhornia crassipes* (water hyacinth), *Hymenachne amplexicaulis* (hymenachne) and *Salvinia molesta* (salvinia).

Description and Issues

Aquatic weeds can be emergent, free floating, anchored and submerged. They can decrease dissolved oxygen levels of waterways, restrict or change the flow of water leading to flooding, restrict the movement of fauna, prevent native regeneration, and restrict recreational use.

Methods of Reproduction and Dispersal

Plant fragments, seeds, rhizomes, water birds and dumped aquatic plants.

Environmental, Social and Economic Impacts of the Townsville Local Government Area

- Form thick mats covering water surface.
- Degrades water quality.
- Destroys wildlife habitats.
- Reduces water flow.
- Prevent access to drinking water for fauna.
- Restricts recreational use of waterways.

Legal Requirement

Cabomba, water hyacinth, hymenachne and salvinia are all listed as restricted invasive plants under the *Queensland Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO).

Amazon sword is not listed as a prohibited or restricted plant under the *Queensland Biosecurity Act 2014*. Everyone has a general biosecurity obligation to minimise risk associated with invasive plants under their control.

Queensland Distribution - Cabomba, water hyacinth, hymenachne and salvinia are wide-spread across north Queensland. Amazon sword is known in Townsville.

Townsville Distribution - Cabomba, water hyacinth, hymenachne and salvinia are wide-spread in the Townsville Local Government Area. Amazon sword is found in the Ross River.

Townsville City Council, Management Actions

- Control high priority aquatic weeds in the Ross River to maintain recreational use in Blacks and Aplins weirs.
- Respond to reports of plants suspected to be high priority aquatic species.
- Spread awareness to the community through events.
- Assist land occupiers with properties 2ha or greater in controlling high priority aquatic species through the Property Pest Management Subsidy Scheme.
- Maintain communication with local, regional and state stakeholders.

Townsville City Council, Monitoring

- Monitor efficacy of control treatment in the Ross River.
- Monitor coverage of floating aquatic plants on the Ross River.
- Compliance monitoring for restricted, high priority aquatic species in nurseries, markets and other sellers.

Residents, Community Groups and Hobbyist

- Do not buy, sell, trade, propagate nor give away High Priority Aquatic Weeds.
- Clean down boats, trailers and vehicles after use and before entering other waterways.
- Do not dump aquatic plants into waterways.
- Consider how your pond or dam plants may enter the natural environment in rain and flooding events.

Industry

- Consider how your operations impact social, economic and environmental impacts.
- Develop a pest management plan to minimise biosecurity risks associated with your activities.
- Clean machinery and equipment prior to starting a job, and clean when leaving the job.
- Keep up to date with changes to biosecurity regulations.

Treatment

- Treatment of aquatic weeds should be undertaken using integrated weed management approach.
- Refer to Department of Agriculture and Fisheries factsheets and website for up to date best practice methods for control.

Useful Resources

Queensland Government, Business Queensland

www.business.qld.gov.au

Townsville City Council, Pest Management Subsidy Scheme

<https://www.townsville.qld.gov.au/water-waste-and-environment/pests-and-weeds/property-pest-management>

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High Priority Woody Weeds Management Plan



Images from left: calotrope, neem tree, athel pine, lantana, and mesquite. Photos © Queensland Government.

Purpose

- Maintain health and biodiversity of Townsville's Local Government Area.
- Minimise impacts to assets
- Maintain safety of road users.

Species

Azadirachta indica (neem tree), *Barleria prionitis* (barleria), *Calotropis spp* (calotrope), *Chromolaena odorata* (siam weed), *Dichrostachys cinerea subsp. Malesiana* (chinese lantern), *Gliricidia sepium* (gliricidia), *Jatropha gossypifolia* (bellyache bush), *Lantana camara* (lantana), *Parkinsonia aculeata* (parkinsonia), *Prosopis spp* (mesquite), *Senna hirsute* (hairy cassia), *Tamarix aphylla* (athel pine), *Vachellia nilotica* (syn. *Acacia n.*) (prickly acacia) and *Ziziphus mauritiana* (chinee apple).

Description and Issues

Woody weeds come in different shape and sizes they can establish quickly and create monocultures that restrict native regeneration growth.

Methods of Reproduction and Dispersal

Seeds, reshooting from cut roots, birds, wildlife, stock, water and dumped garden waste.

Environmental, Social and Economic Impacts of the Townsville Local Government Area

- Reduces biodiversity.
- Prevents natural regeneration.
- Thick weeds can prevent movement of fauna.
- Increase fuel loads of bushfires.
- Provides habitat for feral animals.
- Reduce pasture production.
- restrict movement of stock, preventing access to food and water.

Legal Requirement

Siam weed, athel pine, bellyache bush, chinee apple, lantana, parkinsonia and prickly acacia are all listed as restricted invasive plants under the *Queensland Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO).

Neem tree, barleria, mesquite, calotrope, Chinese lantern, gliricidia and hairy cassia are not listed as prohibited nor restricted plants under the *Queensland Biosecurity Act 2014*. Everyone has a general biosecurity obligation to minimise risk associated with invasive plants under their control.

Queensland Distribution - Woody weeds are wide-spread across north Queensland.

Townsville Distribution - Most woody weeds are wide-spread in the Townsville Local Government Area. Chinese Lantern is known in Kelso.

Townsville City Council, Management Actions

- Spread awareness to the community through events.
- Respond to reports of plants suspected to be high priority woody weed species.
- Spread awareness to the community through events.
- Control infestations to minimise impacts to public assets under Council's control.
- Control infestations to reduce impacts to revegetation and regeneration sites under Council's control.
- Control infestations impeding road safety.
- Assist land occupiers with properties 2ha or greater in controlling high priority woody weeds through the Property Pest Management Subsidy Scheme.
- Maintain communication with local, regional and state stakeholders.

Townsville City Council, Monitoring

- Monitor efficacy of control treatment.
- Compliance monitoring for restricted, high priority vines in nurseries, markets and other sellers.

Residents, Community Groups and Hobbyist

- Do not buy, sell, trade, propagate, nor give away high priority woody weed species.
- Do not dump garden waste into natural areas.
- Clean machinery, vehicles and equipment after use.

Industry

- Consider how your operations impact social, economic and environmental impacts.
- Develop a pest management plan to minimise biosecurity risks associated with your activities.
- Clean machinery and equipment prior to starting a job, and clean when leaving the job.
- Keep up to date with changes to biosecurity regulations.

Treatment

- Treatment of woody weeds should be undertaken using integrated weed management approach.
- Refer to Department of Agriculture and Fisheries factsheets and website for up to date best practice methods for control.

Useful Resources

Queensland Government, Business Queensland

www.business.qld.gov.au

Townsville City Council, Pest Management Subsidy Scheme

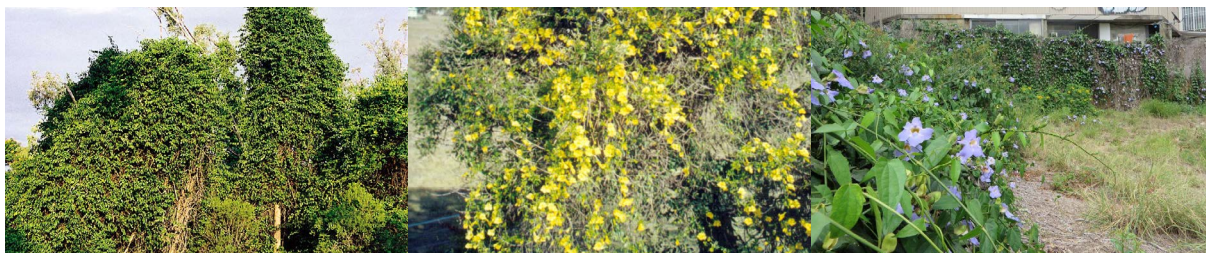
<https://www.townsville.qld.gov.au/water-waste-and-environment/pests-and-weeds/property-pest-management>

Weed Spotters Network Queensland, Department of Agriculture, Fisheries and Forestry

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High Priority Vines Management Plan



Images from left: Rubber vine, cats claw creeper, and blue thunbergia. Photos © Queensland Government.

Purpose

- Maintain health and biodiversity of Townsville's Local Government Area.
- Minimise the impacts to assets
- Maintain safety of road users.

Species

Cryptostegia grandiflora (rubber vine), *Cryptostegia madagascariensis* (purple rubber vine), *Dolichandra unguis-cati* (syn. *Macfadyena* u.) (cats claw creeper) and *Thunbergia grandiflora* (syn. *T. laurifolia*) (blue thunbergia).

Description and Issues

Woody vines that can establish quickly smothering native vegetation or structures which they grow on. Many of the species are garden escapees degrading natural environments.

Methods of Reproduction and Dispersal

Seeds, tuberous roots, water, wind, birds and dumped vegetation.

Environmental, Social and Economic Impacts of the Townsville Local Government Area

- Smothers native vegetation.
- Change soil chemistry.
- Overtakes waterway vegetation and vine forests.
- Reduces biodiversity.
- Some are poisonous to animals.
- Capable of rapid growth and colonisation.

Legal Requirement

Cats claw creeper, rubber vine, purple rubber vine and blue thunbergia are all listed as restricted invasive plants under the *Queensland Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO).

Queensland Distribution - Common or wide-spread across north Queensland.

Townsville Distribution – Most high priority vines are common or wide-spread across Townsville Local Government Area. Purple Rubber Vine is known in Bluewater. Cats Claw Creeper's known presence is predominantly in urban gardens.

Townsville City Council, Management Actions

- Respond to reports of plants suspected to be high priority vine species.
- Spread awareness to the community through events.
- Control infestations to minimise impacts to public assets under Council's control.
- Control infestations to reduce impacts to revegetation and regeneration sites under Council's control.
- Control infestations impeding road safety.
- Assist land occupiers with properties 2ha or greater in controlling high priority vines through the Property Pest Management Subsidy Scheme.
- Maintain communication with local, regional and state stakeholders.
- Townsville City Council, monitoring
- Monitor efficacy of control treatment.
- Compliance monitoring for restricted, high priority vines in nurseries, markets and other sellers.

Residents, Community Groups and Hobbyist

- Do not buy, sell, trade, propagate nor give away high priority vine species.
- Do not dump garden waste into natural areas.
- Clean vehicles and equipment after use.

Industry

- Consider how your operations impact social, economic and environmental impacts.
- Develop a pest management plan to minimise biosecurity risks associated with your activities.
- Clean machinery and equipment prior to starting a job, and clean when leaving the job.
- Keep up to date with changes to biosecurity regulations.

Treatment

- Treatment of vines should be undertaken using integrated weed management approach.
- Refer to Department of Agriculture and Fisheries factsheets and website for up to date best practice methods for control.

Useful Resources

Queensland Government, Business Queensland

www.business.qld.gov.au

Townsville City Council, Pest Management Subsidy Scheme

<https://www.townsville.qld.gov.au/water-waste-and-environment/pests-and-weeds/property-pest-management>

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