Cook Shire COUNCIL

Biosecurity Plan 2022–2026

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Introduction

Invasive plants and animals have various impacts across the Cook Shire local government area (LGA). These include disturbance of natural environmental systems, reduced productivity within the agricultural sector, increased costs to all land managers and negative effects on the amenity of public spaces. As a consequence, the management of invasive species is a matter of high priority to numerous stakeholders across our region.

As Queensland covers a large geographic area with a variety of ecosystems and land uses the impact of invasive species varies greatly by region. As a means of apportioning management to regional areas the *Biosecurity Act 2014* (the Act) places responsibility for management of invasive plant and animal species with local governments. This approach allows local governments officers with established community relationships to collaborate with interested stakeholders in developing local priorities and programs specific to their respective areas. This has various benefits and provides regions a degree of autonomy as to how to approach natural asset management related issues.

To assist in this regional approach to biosecurity management the Act requires each local government authority to develop a biosecurity plan. Although the content of biosecurity plans is not specified by the Act the intent is for all stakeholders affected by biosecurity issues to be able to participate in the prioritisation and coordination of management within their respective areas.

Developing such a plan for the Cook Shire local government area presents some specific challenges. Being the largest LGA in Queensland and one of the least densely populated, resources are scarce and our population sparsely distributed. In addition, the varying ecosystems, land uses and vested interests makes a comprehensive plan that satisfies all stakeholders difficult to develop. Despite this, the need to limit the impact and spread of invasive species means that a core document that attempts to facilitate a coordinated approach to management is all the more important.

Figure 1: Sicklepod near the Morehead River

What are invasive plants and animals?

The Act defines an invasive plant or animal as:

> *A species … that has, or is likely to have, an adverse impact on a biosecurity consideration because of the introduction, spread or increase in population and size of the species in an area*.

As is evident from the description above the term "invasive plant or animal" has an extremely broad definition under the Act that is described by a species' impact rather than its inherent characteristics. This focus on the impact of individual species is intentional and can refer to effects on a variety of factors including the economy, social amenity, environment and human health. Within the Cook Shire LGA the impacts of concern are most likely to be economical and/or environmental.

While all biosecurity matter should be carefully monitored and managed the Act places particular emphasis on certain species using a classification system that consists of prohibited matter, restricted matter and seven categories that describes the obligation of a person on interacting with or becoming aware of restricted matter. The determination as to which of the seven categories to assign to an individual species is risk based and dependent on a variety of factors including potential impacts, current distribution and feasibility of control. A simplified breakdown of this classification system is included in Table 1.

Although a local government area biosecurity plan is only required to include restricted matter and prohibited matter there is provision to include additional species. Criteria that are considered when determining whether to include additional species include community sentiment, local declarations, potential impacts and distribution (both potential and actual). Examples of additional species included in this plan that are not restricted or prohibited species include grader grass, thatch grass and Navua sedge.

Table 1: Invasive plant and animal classification framework – Biosecurity Act 2014

CLASSIFICATION		DEFINITION/ACTION	REGIONAL EXAMPLES
Prohibited matter		Biosecurity matter that is not found in Queensland, but would have a significant adverse impact on health, social amenity, the economy or the environment if it entered the state.	
Restricted matter		Biosecurity matter found in Queensland that has a significant impact on human health, social amenity, the economy or the environment.	
Category	**1**	Restricted matter that must be reported to a Department of Agriculture and Fisheries inspector within 24 hours	Electric ant Asian honey bee
	2	Restricted matter that must be reported to an authorised person (state or local government officer) within 24 hours	Koster's curse Limnocharis
	3	Restricted matter that must not be distributed (i.e. gifted, sold, traded, released into the environment etc.)	Gamba grass Deer
	4	Restricted matter that must not be moved	Mimosa pigra Feral pigs
	5	Restricted matter that must not be kept under the control of a person	Rabbits Wild dogs
	6	Restricted matter that must not be fed by a person	Feral cat Feral goat
	7	Restricted matter that must be killed by a person if within their possession	Tilapia

Who does invasive plant and animal biosecurity apply to?

The *Biosecurity Act 2014* places responsibility for managing risks associated with biosecurity (biosecurity risks) on any person that deals with biosecurity matter where it is reasonable to assume the person knows the consequences of their activities. While biosecurity matter is a broad term, within the context of a local government area biosecurity plan it encompasses all invasive plants and animals. The responsibility to manage risks associated with biosecurity matter is referred to in the Act as a general biosecurity obligation.

As the description, biology and impacts of invasive species are the subject of various awareness and education campaigns, and appear in a variety of promotional materials, general awareness regarding biosecurity matter is continually increasing. It is therefore largely expected that all individuals and stakeholders are familiar with biosecurity issues, their general biosecurity obligation and the role they can play. From a visiting family reporting a suspect plant growing in a campground to extensive property owners developing comprehensive plans detailing the management of biosecurity matter on their property, we all have a contribution to make.

If invasive plant and animal biosecurity is recognised as a shared responsibility it is necessary to identify and include all relevant stakeholders in the development and implementation of local area biosecurity plans. All of those indicated in Figure 2 have been invited to play a role in the development and ongoing review of this document.

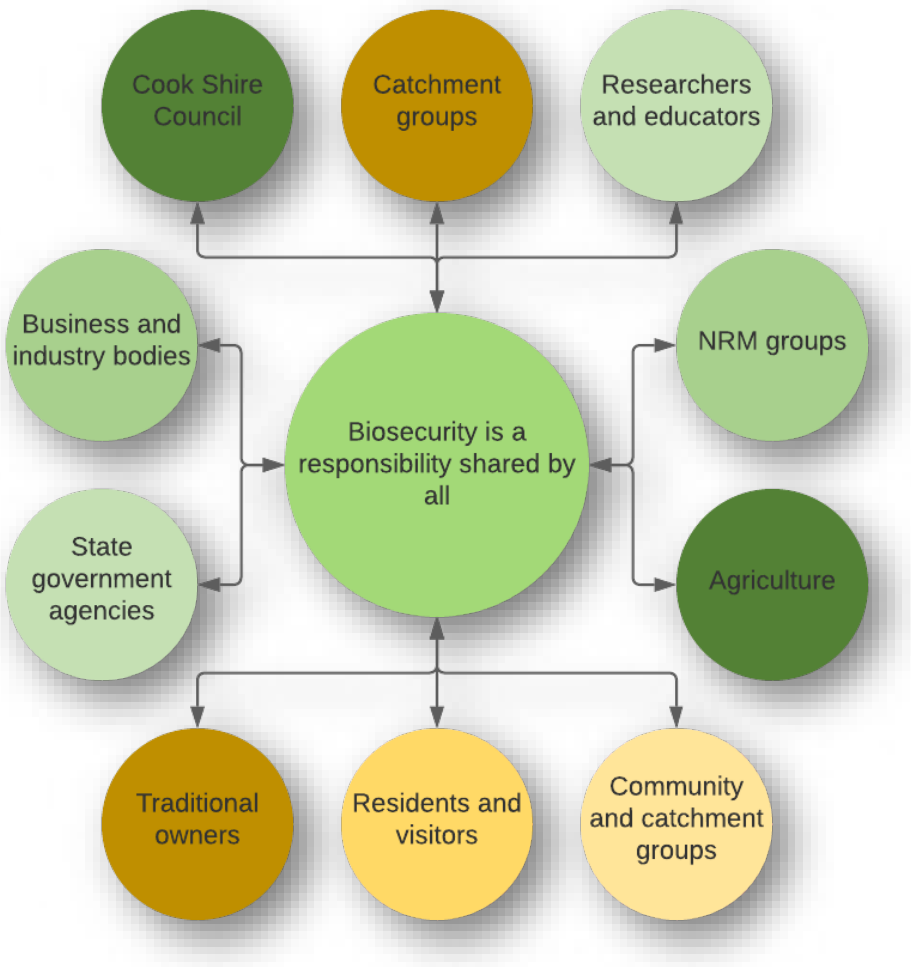


Figure 2: Stakeholders responsible for invasive plant and animal management within the Cook LGA

What is a biosecurity plan?

A biosecurity plan is a document designed to guide the management of invasive species. The benefits of a biosecurity plan stem from the fact that it is rarely possible to adequately manage all invasive species present within a defined area. Additionally, ecological diversity and varying land uses often results in diversity of opinion as to what species should be subjected to targeted management. The purpose of a biosecurity plan is to sort through these competing interests in an attempt to achieve consensus as to what species should be prioritised.

In accordance with the *Biosecurity Act 2014* Cook Shire Council (Council) coordinate development, implementation and review of a biosecurity plan for the Cook Shire LGA, known as the Cook Shire Local Area Biosecurity Plan (the Plan). This does not mean that Council is the author of the Plan or that the Plan is a Council document. Rather authorship and ownership of this document should be considered as collective. To ensure that the Plan is relevant, reflects community priorities and has widespread acceptance with regards to objectives, strategies and programs the drafting process has been collaborative and involved contributors from a diverse range of backgrounds.

Management of invasive species within the Cook Shire LGA is intended to be achieved under the Plan by:

1. identifying priority species;
2. defining key objectives and a series of strategic actions;
3. implementing five management objectives developed to complement the strategic actions;
4. partitioning the LGA by catchment and applying management objectives according to the distribution of specific invasive matter within these defined areas; and
5. identifying various performance indicators to assess success of the Plan in realising strategic actions.

It should be noted that a biosecurity plan is intended to be a "living" document, something that can be modified and updated according to circumstances. The use of performance indicators to assess success or otherwise enables identification of strategic deficiencies and provides an opportunity to strengthen the Plan accordingly.

In summary, if successfully implemented the Plan is intended to:

- reduce the occurrence and distribution of priority invasive matter within the LGA
- prevent the incursion of new species
- provide landholders with specific goals relevant to their area
- encourage community members to collaborate to achieve improved outcomes across a local area
- align with existing catchment group based activities

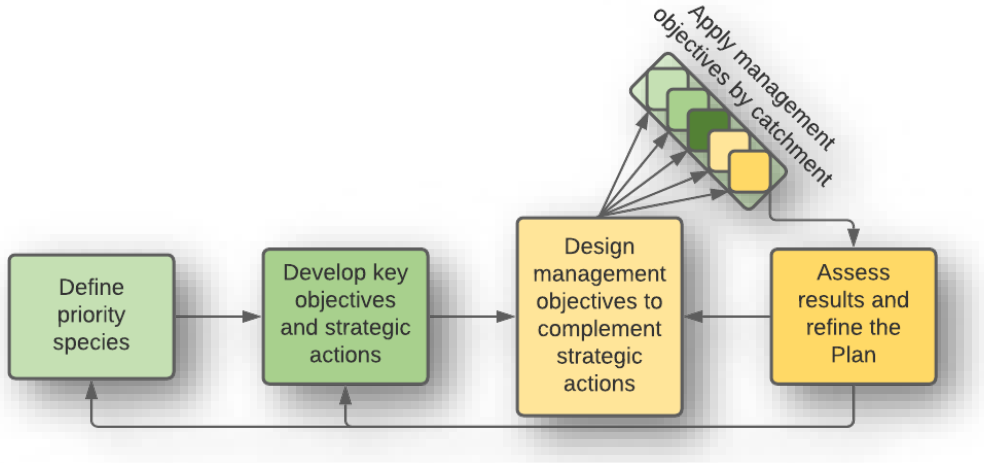


Figure 3: Design and functions of the Biosecurity Plan

How is the Cook Shire Local Area Biosecurity Plan developed?

As indicated above the development of a local government area biosecurity plan is intended to be a collaborative exercise that prioritises the management of certain invasive species through development and implementation of various strategic actions and management objectives. To provide a forum that enables all stakeholders to participate in this process the Invasive Plants and Animals Advisory Committee (IPAAC) was established in 2016. Attendance at IPAAC committee meetings is unrestricted and open to any individual or organisation with an interest in biosecurity management.

A barrier to participation in IPAAC meetings, and consequently development of the Plan, is the geographic size of the Cook Shire LGA and the distances required to travel to meetings. To ensure that those unable to attend meetings are able to contribute to the drafting process other methods of obtaining input are utilised including online surveys, the presence of committee members at local events and individual consultations with landholders.

Among IPAAC's various functions is the development of a priority invasive species list for the Cook Shire LGA. This list is critical to regional biosecurity management planning and is created using feedback obtained from the local community and industry representatives. IPAACs role in this process is to assess the species nominated and develop a priority invasive species list. This assessment is made according to various criteria, notably impact, invasiveness and potential distribution, and results in each species being allocated a ranking that is used to:

1. Determine the projects undertaken according to the biosecurity plan;
2. Set targets that can be measured to assess the effectiveness of invasive plant and animal management in the region;
3. Establish a consensus about which invasive species should be the focus of control activities;
4. Provide a reference to external agencies regarding research priorities that would be supported by the local region;

The key objectives, strategic actions and performance indicators, adopted and explained in greater detail within the Plan, are derived from the *Queensland invasive plants and animals strategy 2019–2024* and have been modified by IPAAC to suit local requirements. In addition, the management objectives and the species specific Action Plan templates that comprise the second half of this document are based on a management zoning approach to broad scale biosecurity management developed by the FNQROC in consultation with member councils. Similar to the priority invasive species list, each of these components has been reviewed by IPAAC and are subject to ongoing revision in response to community feedback and assessments of the Plan's effectiveness.

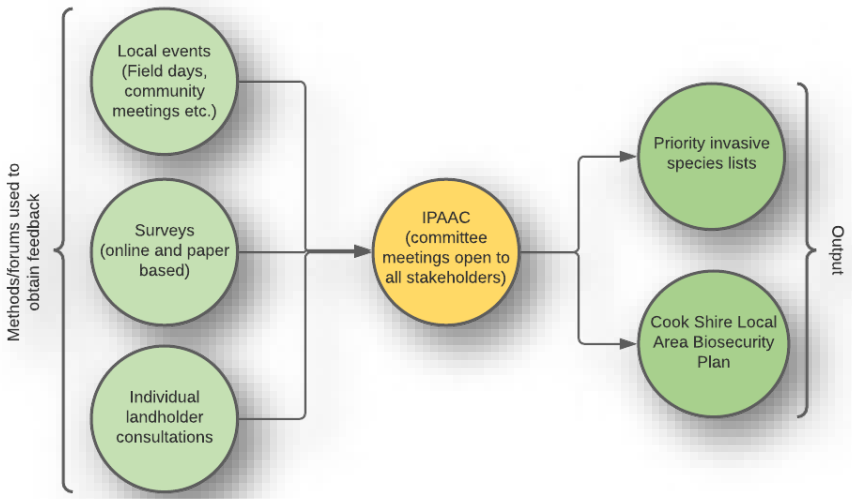


Figure 4: Development of the Cook Shire Local Area Biosecurity Plan

Cook Shire local government area priority species

The requirement for a priority invasive species list stems from the vast number of invasive species present within the Cook Shire local government area. Any attempt to prescribe management activities or objectives for all invasive species within our region would be needlessly complex and likely result in limited resources being thinly applied across too many projects. To ensure that local control efforts are effective it is best to apply resources to a narrow selection of projects and be realistic about what can be achieved.

To make an initial determination as to which species to include in the priority invasive species list stakeholders were invited to complete an invasive species survey. Respondents were asked to nominate five invasive plant species and three invasive animal species of greatest concern. The results of this survey, as refined by IPAAC using a risk prioritisation process developed for local government, are presented in Table 2.

Two invasive plant species, hyptis (*Hyptis suaveolens*) and snakeweed (*Stachytarpheta* spp.), and one invasive animal species, the cane toad (*Bufo marinus*), were excluded from the priority list despite scoring highly. This decision was based on the near ubiquity of these species across the LGA and the inherent difficulty this posed for the development of feasible management programs.

Table 2: Priority invasive plants and animals

Priority invasive plants
Sicklepod (*Senna obtusifolia*)
Grader grass (*Themeda quadrivalvis*)
Gamba grass (*Andropogon gayanus*)
Rat's tail grasses (*Sporobolus* spp.)
Rubber vine (*Cryptostegia grandiflora*)
Thatch grass (*Hyparrhenia rufa*)
Salvinia (*Salvinia molesta*)
Pond apple (*Annona glabra*)
Hymenachne (*Hymenachne amplexicaulis*)
Mission grass (*Cenchrus polystachios*)
Lantana (*Lantana camara*)
Calotrope (*Calotropis procera*)
Bellyache bush (*Jatropha gossypiifolia*)
Navua sedge (*Cyperus aromaticus*)

Priority invasive animals
Feral pigs (*Sus scrofa*)
Feral cats (*Felis catus*)
Wild dogs (*Canis familiaris*)
Feral cattle (*Bos taurus*)
Feral horses (Equus caballus)
Tilapia (*Oreochromis mossambicus*)

It is important to note that the priority invasive species list is not intended to dictate which species should be targeted by individual landholders. This is a decision best made at a property level according to local circumstances and in accordance with the obligations placed on landholders by the Act and local laws. Rather, this list is intended to define regional priorities that are better managed collaboratively and across tenures. In addition, identifying priority species allows stakeholders to identify where knowledge gaps and research opportunities exist and provides external agencies with a reference that details what species are deemed of primary concern by the local community.

In addition to the nominated priority species a list of alert species has been included in the Plan. Alert species are those that do not have a confirmed presence within the Cook LGA but are present in neighbouring regions and have the potential to spread rapidly should they establish.

These alert species are listed in Table 3. As is clear from current knowledge new incursions are likely to originate from local government areas to the south. The potential for incursions by new species is acknowledged within the Plan through an emphasis on prevention and surveillance. Further information relating to the alert species can be found on the Queensland Government's website.

Table 3: Cook Shire local area alert species

ALERT INVASIVE SPECIES NAME	*BIOSECURITY ACT 2014* CLASSIFICATION (PROHIBITED[1] OR RESTRICTED CATEGORY NUMBER/S)								MECHANISM OF SPREAD
	P[1]	1	2	3	4	5	6	7	
Siam weed (*Chromolaena odorata/squalida*)				■					Wind, water, human and animal facilitated dispersal
Limnocharis (*Limnocharis flava*)			■	■	■	■			Hydrology (e.g. flooding), vehicles, water birds and gardeners
Cat's claw creeper (*Macfadyena unguis-cati*)				■					Seed adapted to wind dispersal. Tubers by floods and human
Mikania vine (*Mikania micrantha*)			■	■	■	■			Wind, water, machinery, animals or floods
Miconia (*Miconia* spp.)	■								Gardeners, fruit eating birds, floods and via mud on animals/machinery
Koster's curse (*Clidemia hirta*)			■	■	■	■			Birds, feral pigs, water and human dispersal (machinery, footwear etc.)
Parkinsonia (*Parkinsonia aculeata*)				■					Floods, mud on carriers, livestock, native and feral animals
Parthenium (*Parthenium hysterophorus*)				■					Water, vehicles, machinery, stock, animals and in feed and seed
Mimosa (*Mimosa pigra*)			■	■	■	■			Water movement and seed stuck to humans and animals
Electric ants (*Wasmannia auropunctata*)		■							Movement of vegetative material such as green waste and pot plants
Yellow crazy ants (*Anoplolepis gracilipes*)				■					Movement of vegetative material such as green waste and pot plants
Rabbits (*Oryctolagus cuniculus*)				■	■	■	■		Deliberate release, escaped pets and accidental transport

The above is far from an exhaustive list of invasive species found in or near our local government area. There are a variety of species that landholders may determine to manage according to specific needs. The table below lists species that were nominated by stakeholders for the priority invasive species lists but were assessed as being of lower importance for targeted management using the risk prioritisation process.

Table 4: Environmental invasive species

SPECIES NAME	BRIEF DESCRIPTION (for more information contact Council on 4082 0500)
Thunbergia (*Thunbergia grandiflora*)	Category 3 restricted invasive plant. Vigorous growing vine capable of smothering vegetation. Localised in Cooktown and Rossville.
Hyptis (*Hyptis suaveolens*)	Herbaceous annual invasive plant commonly found across the Cook LGA. Characterised by a distinctive smell, lavender flower and burred seed pod.
Common sida (*Sida acuta*)	Woody perennial shrub that grows to 1.5 metres and has a yellow flower. Commonly found in paddocks particularly when overgrazed.
Guinea grass (*Panicum maximum*)	Robust high bio-mass grass species growing to 3 metres. Mostly found on roadsides (particularly drains) and around towns.
Snakeweed (*Stachytarpheta* spp.)	Woody perennial shrub potentially growing to 2 metres with a "snake" like flower spike. Generally found in the southern half of the Cook LGA.
Pannicle jointvetch (*Aeschynomene paniculata*)	Spindly, erect, perennial legume with pinnate leaves growing to 1-2 metres. Infestations found near Batavia Downs, Mary Valley and Strathmay Station.
Feral deer (various genera and species)	Thought to be restricted to areas south of the Hann River although reports exist further north. Report all sightings to Council on 4082 0500.

What actions are already being undertaken?

Invasive plant and animal management is a constant undertaking across the entire local government area. Landholders, community groups, business, government agencies and others are engaged in constant activity designed to minimise associated impacts. This takes the form of various projects that are currently underway, several of which closely align with the strategic actions and performance indicators discussed below. Projects of relevance are recognised within the Plan and updates are reported to IPAAC on an annual basis. Each of these projects is briefly summarised in the charts below.

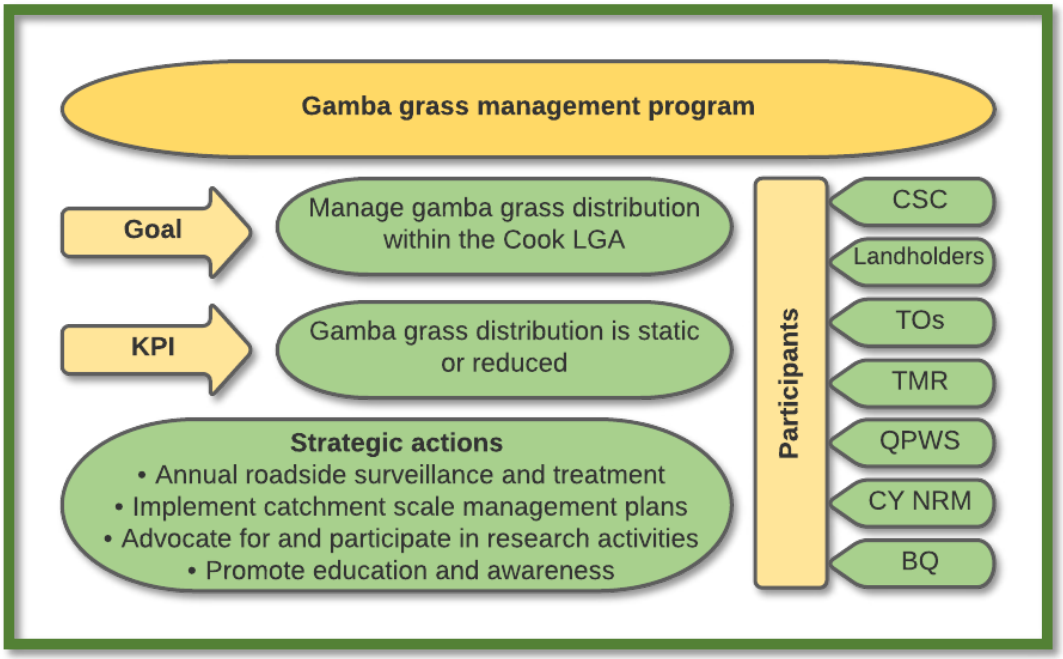


Figure 5: Gamba grass management program

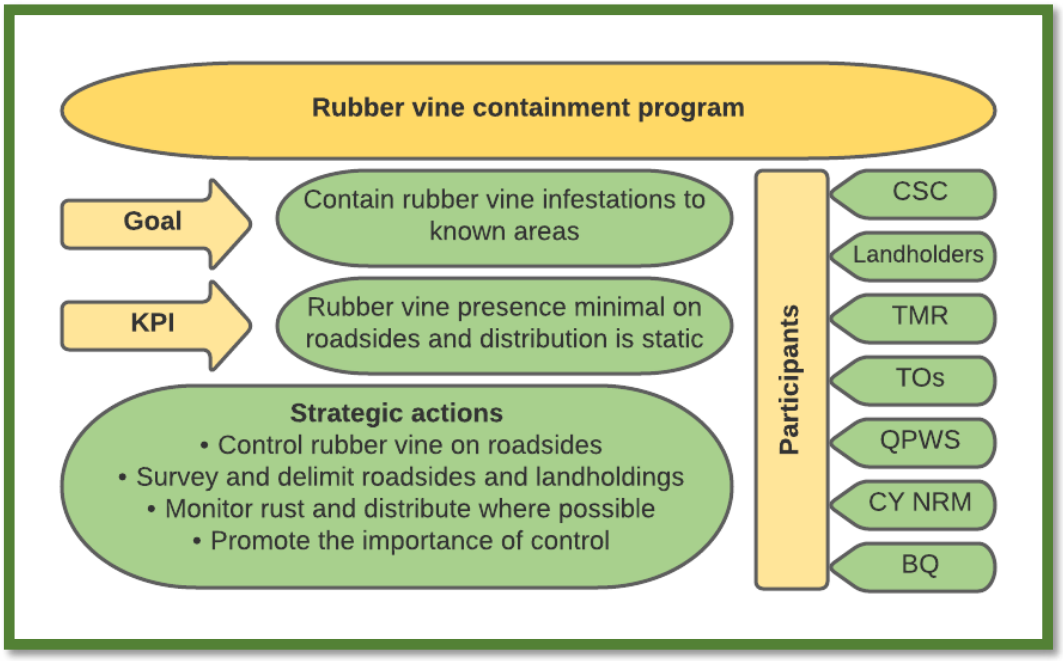


Figure 6: Rubber vine containment program

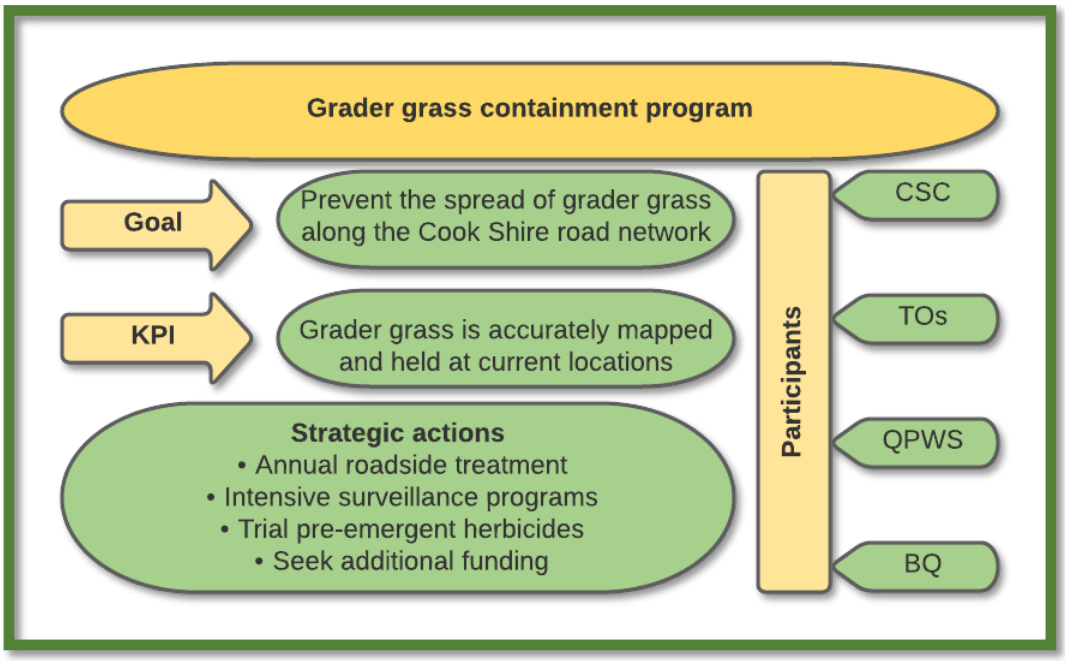


Figure 7: Grader grass containment program

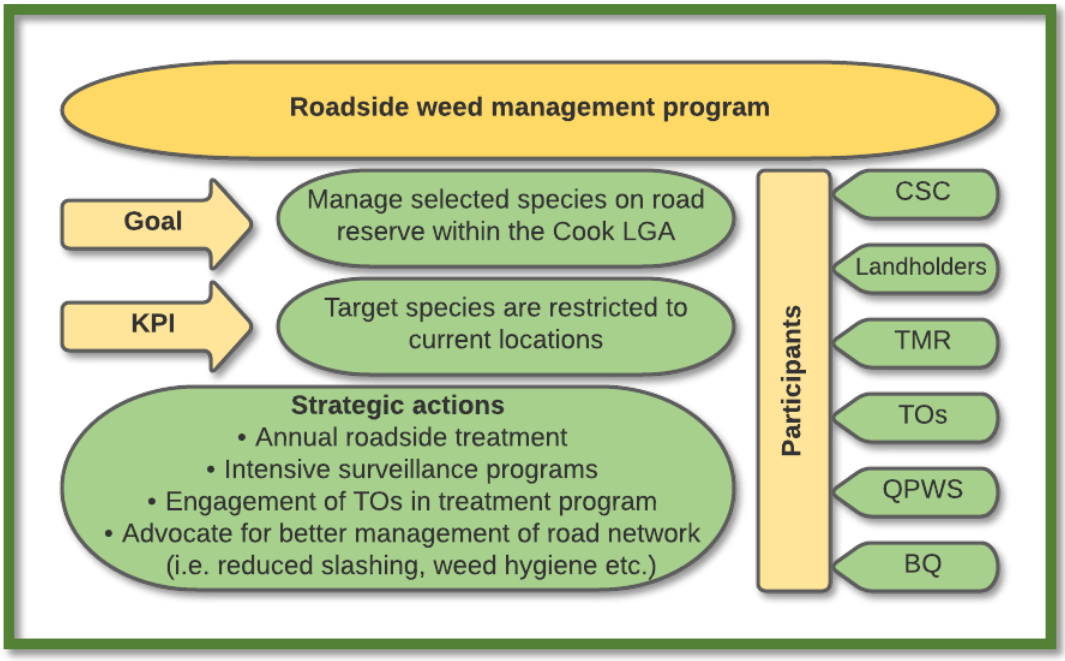


Figure 8: Roadside weed management program

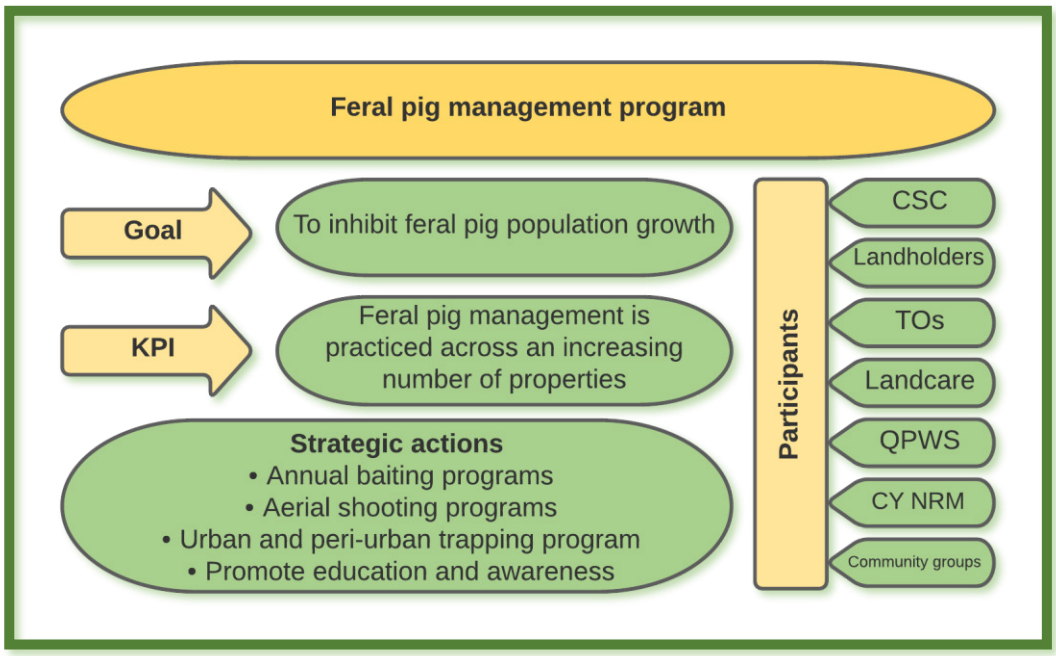


Figure 9: Feral pig management program

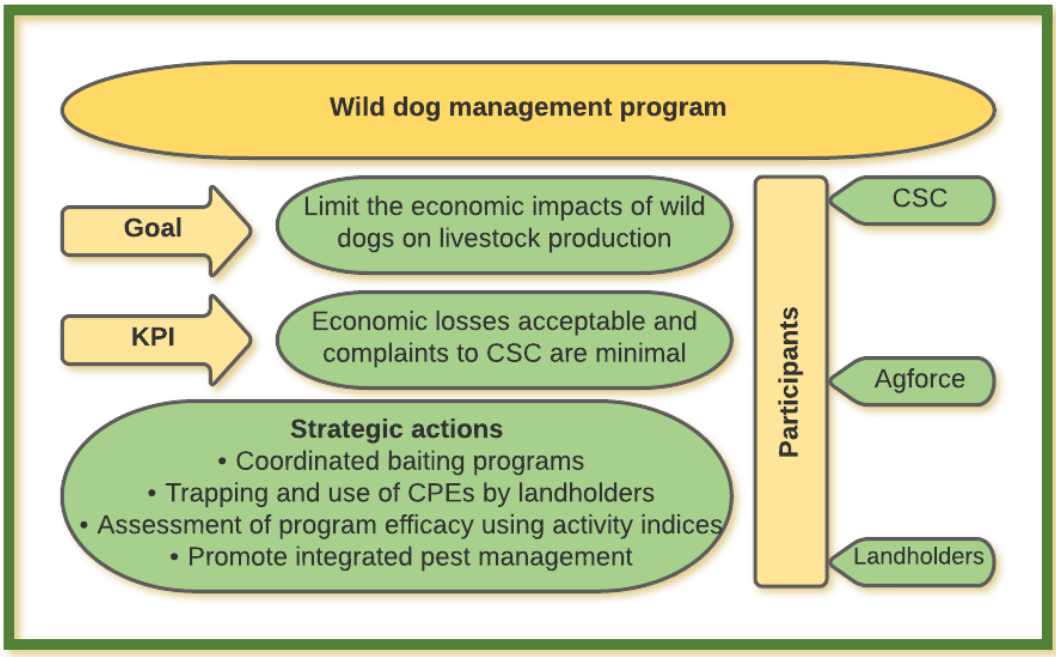


Figure 10: Wild dog management program

Cook Shire local area key objectives and strategic actions

The *Biosecurity Act 2014* identifies several potential inclusions for a local area biosecurity plan. To maintain consistency with the Act the Plan identifies six themes and related objectives as outlined in Table 4. Each of the themes and objectives are derived from those found within the *Queensland invasive plants and animals strategy 2019–2024* and are intended to guide management of invasive plants and animals within our local government area. Should the activities of stakeholders align with each of these objectives regional biosecurity management will be significantly enhanced. As a result, promotion of the objectives is a core function of this document.

Table 5: Themes and key objectives

	THEME	KEY OBJECTIVE
1	**Prevention and early detection**	Establishment and spread of invasive species is prevented
2	**Monitoring and assessment**	Systems are in place to ensure that surveillance activities are undertaken and effective
3	**Awareness and education**	Stakeholders are aware of their role in managing invasive plants and animals and the best methods of doing so
4	**Effective management methods**	Integrated management techniques are identified and applied to minimise the impacts of invasive plants and animal
5	**Strategic planning and management**	Strategic programs and directions are in place to enhance stakeholder involvement in biosecurity management
6	**Commitment, roles and responsibilities**	Management of invasive plants and animals is recognised as a shared responsibility of importance to all stakeholders

To aid implementation of these objectives ten strategic actions have been developed as listed in Table 5. While broad in scope they have been drafted to be readily accessible and easily integrated in to planning processes by regional stakeholders when drafting programs and projects. Should a project be designed to achieve one or more of these actions it will concurrently implement the Plan's objectives resulting in beneficial consequences for stakeholders and positive environmental outcomes.

An additional inclusion in Table 5 is the definition of a series of performance indicators. The purpose of the performance indicators is to assess the degree to which regionally developed management activities are incorporating the strategic actions and by association meeting the Plan's objectives. In essence, this is a means of determining acceptance, relevance and success of the Plan itself. Assessment of performance indicators is a core function of IPAAC and will be undertaken on an annual basis.

Table 6: Strategic actions and performance indicators

STRATEGIC ACTION	KEY OBJECTIVES						PERFORMANCE INDICATORS
	1	2	3	4	5	6	
Develop and implement co-ordinated and effective preventative surveillance programs to maximise early detection and minimise the spread of invasive matter							• sentinel programs are undertaken • invasive species distribution pathways are subject to surveillance • surveillance has been promoted as a shared responsibility
Increase awareness of priority plants and animals, related impacts and the most effective control measures available							• presentations are provided at field days and meetings • development of fact sheets, signage and other resources • education opportunities are developed and implemented
Identify incentives and assistance that increase the capacity for landholders to manage invasive plants and animals							• incentive programs are available • biosecurity related extension support is available • grant funding is identified and applied for
Improve understanding of invasive species' biology, ecology and identify information gaps that could be addressed though the development of targeted research							• research questions identified • relevant research projects undertaken • training opportunities are available and promoted
Foster increased collaboration, co-ordination and stakeholder relationships to assist with biosecurity management across the LGA							• number of joint programs underway • increased cross agency representation on local committees • register of all local biosecurity management activities is developed
Improve collection, presentation and sharing of data that reflects the distribution and management of invasive species within the LGA							• data collected is readily assimilated • data is presented where possible • all information is shared between relevant agencies
Collect more detailed data that describes the current distribution of priority invasive species							• landholders are participating in surveillance • a consensus as to how to collect distribution data is agreed upon • baseline distribution data is collected for certain species
Reduce the distribution, density and spread of priority species within the Cook local government area							• priority invasive animal management is undertaken across the LGA • invasive plant distribution pathways are managed • containment zones are identified
Programs are developed to assess the effectiveness of priority invasive plant and animal control methods							• invasive animal activity pre and post treatment is assessed • invasive plant distribution trends are assessed temporally • research projects are identified and/or underway
Integrate the content of the Cook Shire Local Area Biosecurity Plan into procedures, policies and planning of all agencies operating within the LGA							• all agencies are made aware of the Plan • grant applications have an emphasis on priority species • civil works projects integrate the Plan's objectives

What are our management objectives?

Management of priority invasive species in most contexts is a complicated task and this is compounded within the Cook Shire LGA as a result of geographic size. To simplify this task and make resolution of what may seem an overwhelming problem appear achievable the Plan partitions our LGA in to management zones that correspond directly with river catchments. Figure 12 shows that use of this method results in sixteen distinct management zones most of which are only partially located within Cook and shared with neighbouring local governments.

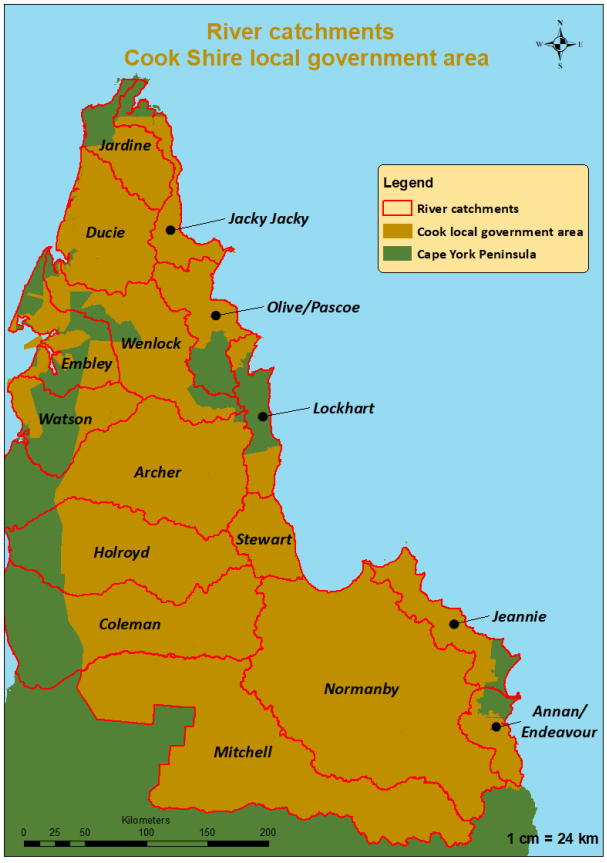


Figure 11: Management zones

The use of catchments to define management zones is convenient as many invasive plants spread through the landscape when seed is carried by water. It is also quite common for individual species to be catchment specific. In addition, many landholders identify with major river systems, are already aware of the catchment within which their landholding exists and often share this as a common point of interest with their neighbours. This means that catchment based management objectives can be similarly shared. Finally, this approach allows for flexibility by varying management actions according to the distribution of specific invasive matter within defined areas.

To determine how a priority invasive species is to be treated within each management zone an assessment was undertaken using existing data and local contributions to determine what control outcomes were achievable. This decision was largely dependent on the distribution of a species, pathways of spread and the feasibility of control. By way of example, our management goals for a catchment will differ greatly depending on whether a species is widespread, as would be the case with wild dogs, or localised and potentially eradicable.

The management zoning approach identifies five management objectives. The objectives are designed to guide both the management target (activities and actions) and biological target (the desired outcome). The first three objectives (delimitation, prevention and eradication) are grouped under the theme of ***incursions*** and aimed at detecting, preventing and eradicating the target species from the designated zone and are specifically targeted at managing the seeds and seed bank (or reproductive capacity in animals). The final two (containment and asset protection) identify the options for managing established ***infestations*** to reduce their impacts and limit opportunities for further spread. Each of the management objectives are defined in more detail in the Table 6.

Various components outlined and defined within the body of this document have been combined to develop detailed Action Plans for each priority invasive species that outline:

1. biology, distribution and impacts;
2. management objectives by catchment;
3. management techniques; and
4. biosecurity obligations.

A detailed description of the various management objectives is provided in table 7. Use of the Action Plans is described in Figure 13 and is followed by a key to interpreting various icons related to control methods and mechanisms of spread.

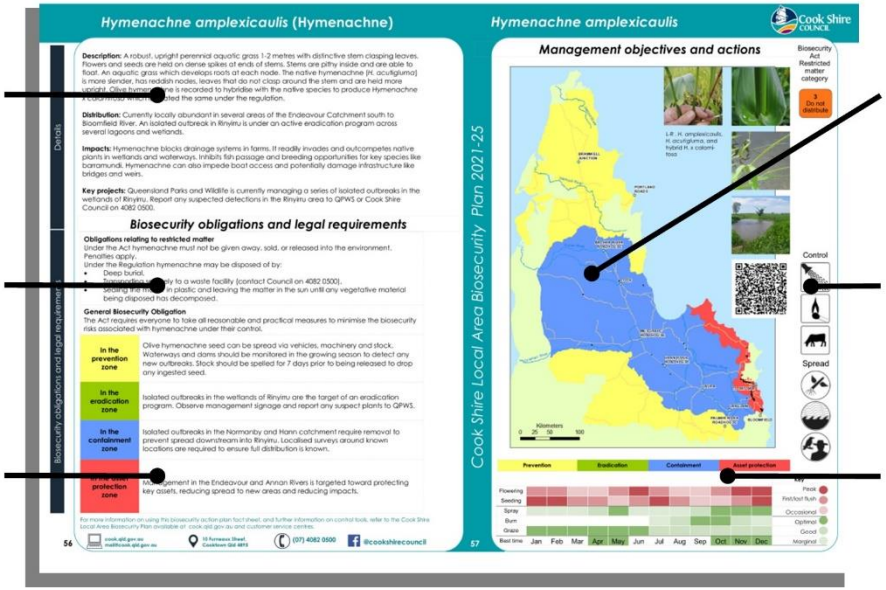
Table 7: Management objectives

MANAGEMENT OBJECTIVE	DEFINITION	CIRCUMSTANCE WHERE APPLIED	CURRENT EXAMPLES	BIOLOGICAL OBJECTIVE
Delimitation	Determining whether an invasive species is present or absent within a defined area	Knowledge of distribution is incomplete	High bio-mass grass surveys	Stop introduction and/or reproduction of an invasive species
Prevention	Preventing the establishment of a certain invasive species within a defined area	An invasive species is known to be present in an adjoining catchment or area and measures are available to minimise the potential for the species to translocate	Contractual weed hygiene protocols for civil contractors	
Eradication	Removal of an invasive species and its reproductive capacity from a defined area	An invasive species is present in an area that is both well-defined and limited, and is potentially eradicable with existing resources	Salvinia eradication - Mt Poverty	
Containment	Containment of an invasive species to a defined area	The distribution of an invasive species is beyond eradication however is well-defined and the pathways of spread can be readily managed to prevent the species moving beyond its existing range	Grader grass containment program	Contain or reduce distribution, spread and associated impacts of an invasive species
Asset protection	Identification and protection of a defined area from incursion of an invasive species	The distribution of an invasive species is widespread to the extent that containment is not possible with the feasible option to identify assets and implement control methods to protect them	Co-ordinated wild dog management program	

Details: a brief description of the pest, its distribution, impacts and key projects underway.

Legislated requirements under the *Biosecurity Act* or *Local laws.*

Biosecurity obligations: what do you need to do to meet your obligations within each zone.



Management objectives and actions: designated management zones and distribution map.

Control methods and methods of spread : recommended methods of control and primary methods of spread. See plan for icon descriptions.

Management calendar: peak flowering and fruiting times and when types of control activities are recommended. The green bar indicates when peak management activities should take place.

Figure 12: Outline of the information contained within the priority invasive species action plans

Table 8: Key to control method icons

KEY TO CONTROL METHODS		
	**Frill or stem injection**	Herbicide can be applied to woody weeds and trees via cuts or frills made close to the ground around the trunk or stem. This approach is best used when it is ok to leave the dead plant standing.
	**Basal bark**	Herbicide can be applied to woody weeds or vines with a low pressure spray (which usually includes diesel or synthetic oil) to the lower stem. This method is not suited to use near or in water ways.
	**Cut stump**	Many vines, trees and woody weeds can be controlled by applying herbicide to the freshly cut stem. The application is made quickly with a dabber or spray before the plants vascular tissue closes over.
	**Chop or grub**	Many weeds can be selectively managed manually by grubbing or chopping. This approach is useful for reducing the competition from weeds while native vegetation or desirable plants re-establish.
	**Drill/stem injection**	Herbicide can be applied as a measured dose into evenly-spaced, downward-facing holes drilled near the base of each stem. Cordless or petrol- powered drills are usually used due to their portability.
	**Best practice grazing**	Carefully managing stocking rates will keep healthy ground-cover which provides competition for many weeds. Grazing can also be used in some situations to knock weeds down prior to control.
	**Hand removal**	Many weeds can be removed manually, particularly when they are at a seedling stage. Hand weeding is very selective and can be used where as little as possible disturbance is required.
	**Foliar spray**	Most weeds can be controlled at various life stages by applying herbicide via a spray. Sprays applicators can be low or high pressure and are suited to covering larger areas or dense infestations.
	**Biocontrol**	The release of carefully selected natural pests or diseases of plants and animals can control them, or to interrupt their reproduction. Biocontrol is most effective when integrated with other control tools.
	**Slashing**	Slashing can often be used to reduce the growth or reproduction of many weeds and is particularly useful before other control actions. Timing is critical in order to prevent the spread of seeds or fragments.
	**Mechanical removal**	Large scale infestations may require mechanical removal or control. Machinery can also be used to clean up after control activities but will usually require follow-up to control and prevention work.
	**Fire**	A well planned and timed fire can be a very effective management tool which can reduce or stimulate dormant seeds or control living plants. It is most suited to fire adapted vegetation types.

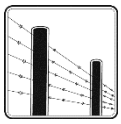
	**Exclusion fencing**	There are a wide range of fencing materials and designs to protect domestic and agricultural assets. Fencing can also be used manage grazing pressure or access to reduce weed or disease spread.
	**Pesticide**	Pesticides are used in certain situations to control anything from ants to wild dogs. There are strict usage and permitting requirements for many pesticides. They can be an effective tool over large areas.
	**Trapping**	Trapping is widely used for feral pigs but can also be used to control wild dogs, feral cats and feral deer. Trapping is labour intensive but can very target specific when conducted using best practice tools.
	**Shooting**	Shooting or hunting is sometimes used to control individual animals. It is less usually less effective and even disruptive to other control strategies, but is a useful tool to supplement trapping and baiting.

Table 9: Key to mechanism of spread icons

KEY TO MECHANISM OF SPREAD		
	**Droppings**	Many plants have evolved to use animals to spread seeds by producing a tasty fruit. Seeds are eaten along with the flesh of the fruit and can be dispersed in droppings up to kilometres away.
	**Illegal dumping**	Deliberate or accidental spread of many plants can occur when green waste is not disposed of responsibly. Areas of bushland, creeks and farmland often suffer impacts from dumped garden plants.
	**Machinery and vehicles**	Slashers and earthworks equipment are most commonly blamed, for moving pests, but cars, 4wds, motorcycles, boats and caravans are all capable of moving pest plants and animals great distances.
	**People and animals**	Some plants have seeds adapted to stick to and hitch a ride on passing animals and can move long distances attached to animals, fur or peoples clothing.
	**Stock, raw materials & produce**	Raw materials and produce including hay, animal feed, seed mixes and even livestock can contain or carry weed seed or other biosecurity risks like invasive ants, pathogens or diseases.
	**Vegetative**	Many plants can spread from cuttings, stem or root fragments. For some species this is their primary means of reproduction but for others it is in addition to producing seeds or spores.
	**Water**	Many aquatic plants rely entirely on water to spread their seeds. Others have seeds or fragments which can float for long distances and move during regular flows or on flood events.
	**Wind**	Many plants have seeds which are lightweight with attachments to help them glide or float on the air or in the wind. The lightweight seeds can also get caught on vehicles and clothing.

Bellyache bush & Physic nut (*Jatropha* spp.)

Details

Biosecurity obligations and legal requirements

Description: Squat, thick stemmed shrub 2.4-4m tall. Seedlings single stemmed with deeply divided purple leaves. Mature leaves brighter green with up to 5 lobes and coarse dark brown hairs on the margins. Small red flowers followed by green fleshy pods. Physic nut (*J. curcas*) is a similar plant to *J. gossiypiifolia* with pale veined large green leaves that are less deeply lobed.

Distribution: Bellyache bush is currently restricted to riparian areas of the Palmer River where it is widespread and abundant. Isolated occurrences of physic nut have been collected near Cooktown and Weipa. Both are expected to be associated with older or abandoned settlements, camps or stock movement.

Impacts: The fruits are poisonous to humans and livestock which when eaten lead to symptoms of gastroenteritis and sometimes death. Bellyache bush has a devastating impact on rangeland river systems and pastures.

Key projects: Neighbouring programs in the Mareeba Shire area have removed Bellyache Bush from 70 kilometres of the upper Walsh and Mitchell River.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act bellyache bush must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation bellyache bush may be disposed of by:

- Deep burial,
- Transporting to a waste facility securely (contact Council on 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with bellyache bush and physic nut under their control.

In the prevention zone	To prevent spread to new locations or introduction from known infestations ensure machinery, vehicles and raw materials are free from soil which may contain seed. Spell stock in holding yards for 7 days prior to releasing to pasture/rangeland to allow for seed to pass through the gut or fall from hooves and hide. Ensure quarry and raw materials are free of seed. Report any suspect plants to Council on 4082 0500.
In the containment zone	Landholders downstream of the Palmer River infestations should be on the look out for new or established infestations to assist the management response. To prevent spread to new locations ensure machinery, vehicles and raw materials are free from soil which may contain seed. Spell stock in holding yards for 7 days prior to releasing to pasture/rangeland to allow for seed to pass through the gut or fall from hooves and hide. Ensure quarry and raw materials are free of seed. Regularly check for recruitment along tracks, fence lines and in areas adjacent to known infestations. Report any suspect plants outside of the Palmer River system to Council on 4082 0500

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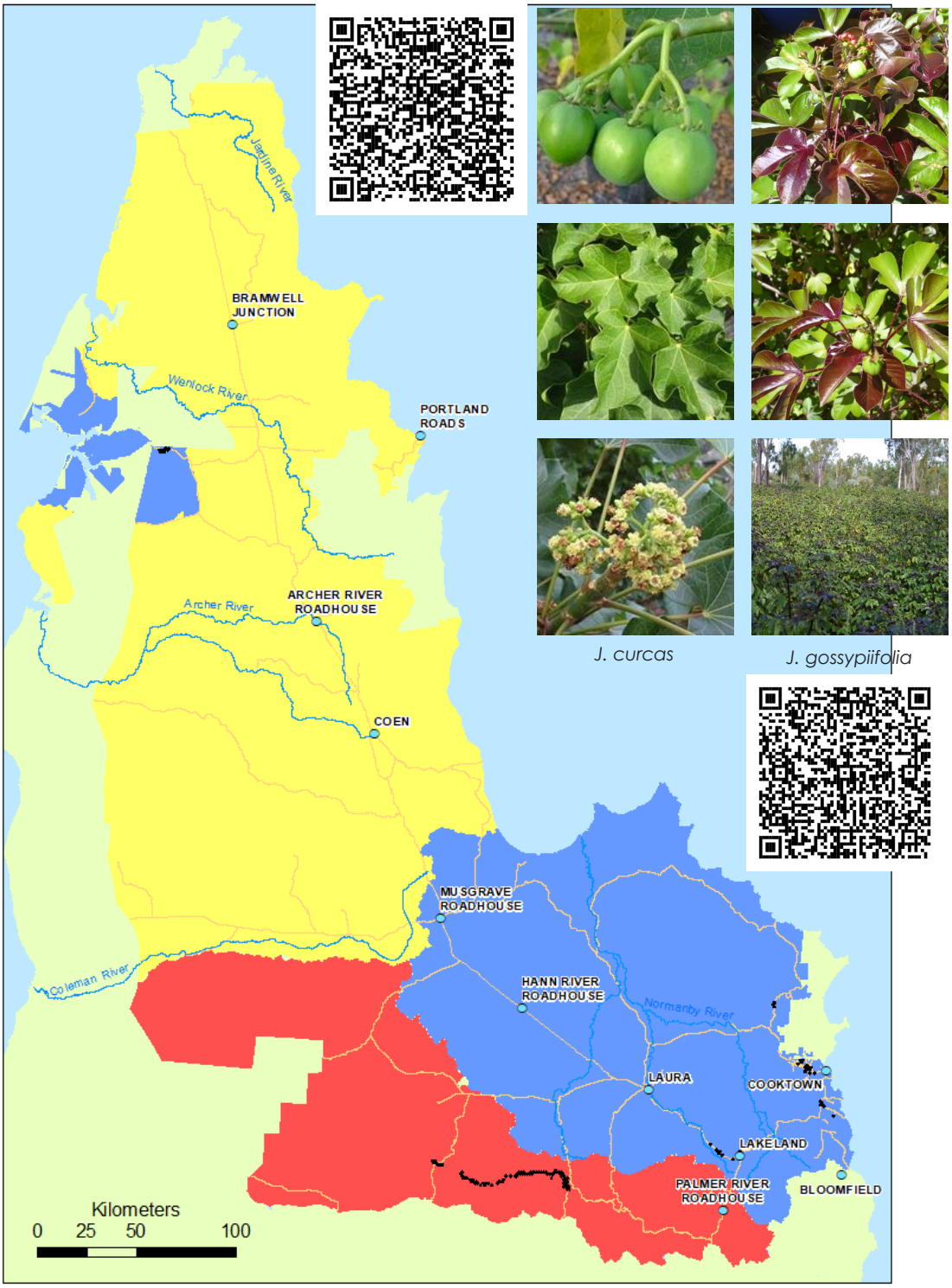
Bellyache bush & Physic nut

Cook Shire COUNCIL

Management objectives and actions

Biosecurity Act Restricted matter category

3
Do not distribute



J. curcas *J. gossypiifolia*

Control

Spread

Prevention	Eradication	Containment	Asset protection

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flower	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal	Marginal
Seed	First/last flush	Occasional	Occasional	Occasional	Occasional	Occasional	Occasional	Marginal	Marginal	First/last flush	First/last flush	First/last flush
Herbicide	Marginal	Marginal	Marginal	Marginal	Marginal	Good	Good	Good	Good	Good	Good	Marginal
Manual	Marginal	Marginal	Marginal	Optimal	Optimal	Good	Good	Good	Good	Marginal	Marginal	Marginal
Best time												

Key
- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Calotrope (*Calotropis procera*)

Details

Description: A spreading shrub or small tree to 4 m with distinctive, cupped large grey/green leaves attached at the base to the stem. Small white and purple flowers produce a mango shaped fruit which splits open to release wind –borne seeds with long white silky hairs.

Distribution: Calotrope prefers semi-arid to dry tropical environments. Current infestations are located from Lakeland south into the ranges and the Mitchell /Normanby catchments. The full distribution within the Cook LGA is not known.

Impacts: Calotrope readily invades water courses and grazing lands where it outcompetes native plants and pastures. It is poisonous to humans and may also poison stressed stock.

Key projects: Targeted roadside treatment is undertaken annually to prevent spread of the species along the road network.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to local laws
Calotrope is a declared local pest under Cook Shire Council's local laws. It is an offence to introduce, harbour or propagate this species within the Cook LGA. Penalties apply.

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with Calotrope under their control.

In the prevention zone	Familiarise yourself with this species and treat isolated plants. Contact Council on 4082 0500 to report calotrope to increase knowledge of distribution.
In the containment zone	Know the distribution of this species on your property and take measures to prevent spread. Monitor areas surrounding known infestations and waterways. Treat all outlying plants. Do not disturb or remove soil and plant material from a known infestation location, even if no plants are visible. You are responsible for ensuring machinery and vehicles avoid known infestation areas *or* undertake appropriate wash down procedures prior to leaving the site.

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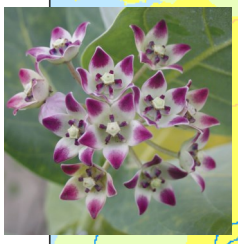
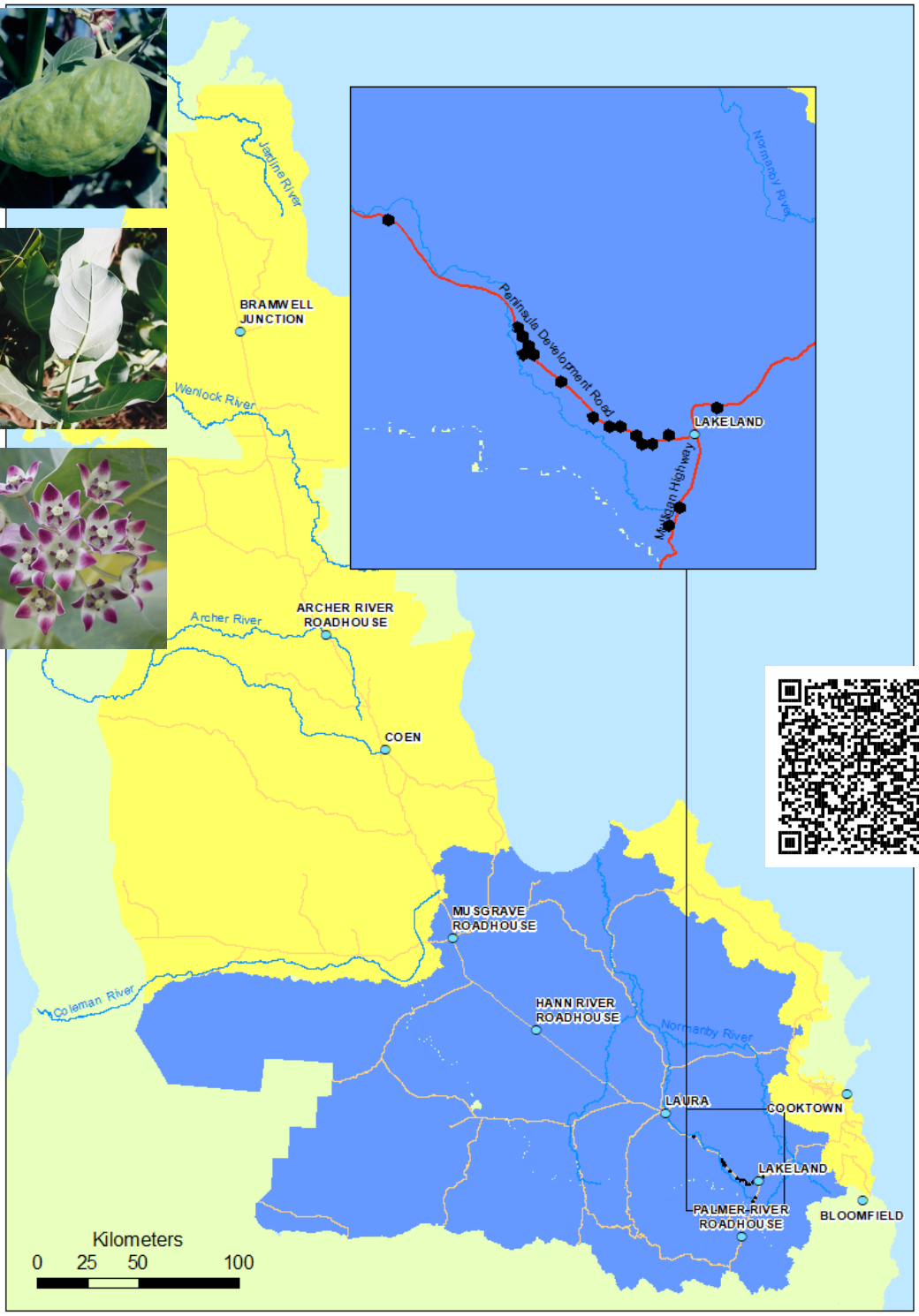
Calotrope (*Calotropis procera*)

Cook Shire COUNCIL

Management objectives and actions





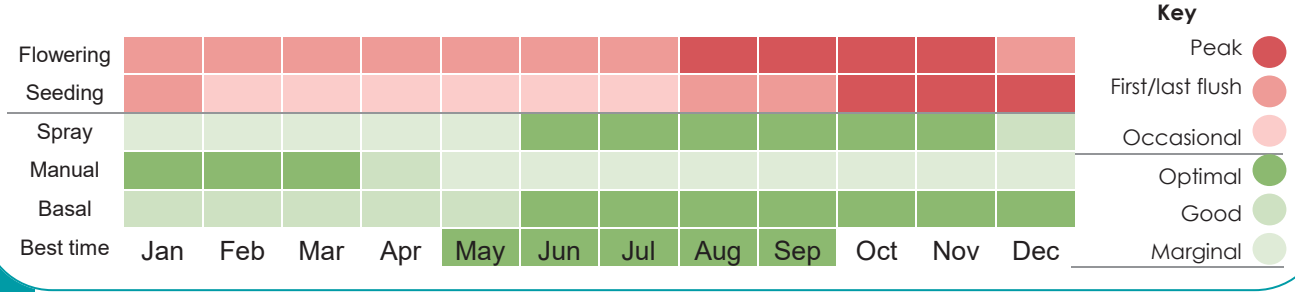
Local laws apply

- Must not breed
- Must not propagate
- Must not introduce
- Must not sell or supply
- Must not provide harbour

Control

Spread

Prevention	Eradication	Containment	Asset protection



Gamba grass (*Andropogon gayanus*)

Details

Description: A robust, upright perennial grass that grows between 2-4 metres tall with distinctive plumed seed heads. Gamba grass forms a thick and strong tussock which remains upright even when fully cured in the dry season.

Distribution: Gamba grass was promoted and planted as a tropical pasture species up until it's declaration as a weed. It is now present on and around a variety of grazing properties throughout Cape York where it is still valued as a pasture and hay species. A targeted management program has concentrated efforts on the removal of outlier infestations along the road network. Major infestation areas which remain are located near Weipa, Coen, Poison Creek, and Silver Plains. Persistent smaller infestations occur at Lakeland and the Annan River.

Impacts: Gamba grass was planted as a tropical pasture but has escaped from intensively managed grazing systems and outcompetes native pastures and fuels intense fires. Late season gamba fires are very difficult to manage and pose a significant threat to life and property.

Key projects: A cross regional plan and management project is underway for gamba grass. A multi-agency management approach is being developed for management of the species within the Annan-Endeavour catchments.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act gamba grass must not be given away, sold, or released into the environment. Penalties apply.

- Under the Regulation gamba grass may be disposed of by:
- Deep burial,
- Transporting securely to a waste facility (contact Council on 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with gamba grass under their control.

In the prevention zone	Report any suspected outbreaks or detections to Cook Shire Council on 4082 0500. Ensure any machinery or vehicles moving from the infested areas are free from plant material and soil. Do not cart, introduce or transport contaminated hay or silage.
In the eradication zone	Undertake control works on known infestations while actively growing until peak flowering period in early May. Conduct follow up control works where possible prior to flowering. Do not disturb or remove soil and plant material from a known infestation location, even if no plants are visible. You are responsible for ensuring machinery and vehicles avoid known infestation areas or are appropriately washed down prior to leaving your property. You are responsible to ensure materials or products leaving your property are free from gamba grass weed seed or plant material.
In the containment zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Assist in annual survey operations, control isolated plants before they seed. Regularly check for recruitment along tracks, fence lines and within treated areas.
In the asset protection zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Manage risk of spread from your property and protect priority assets using best practice methods to control infestations where practical to do so.

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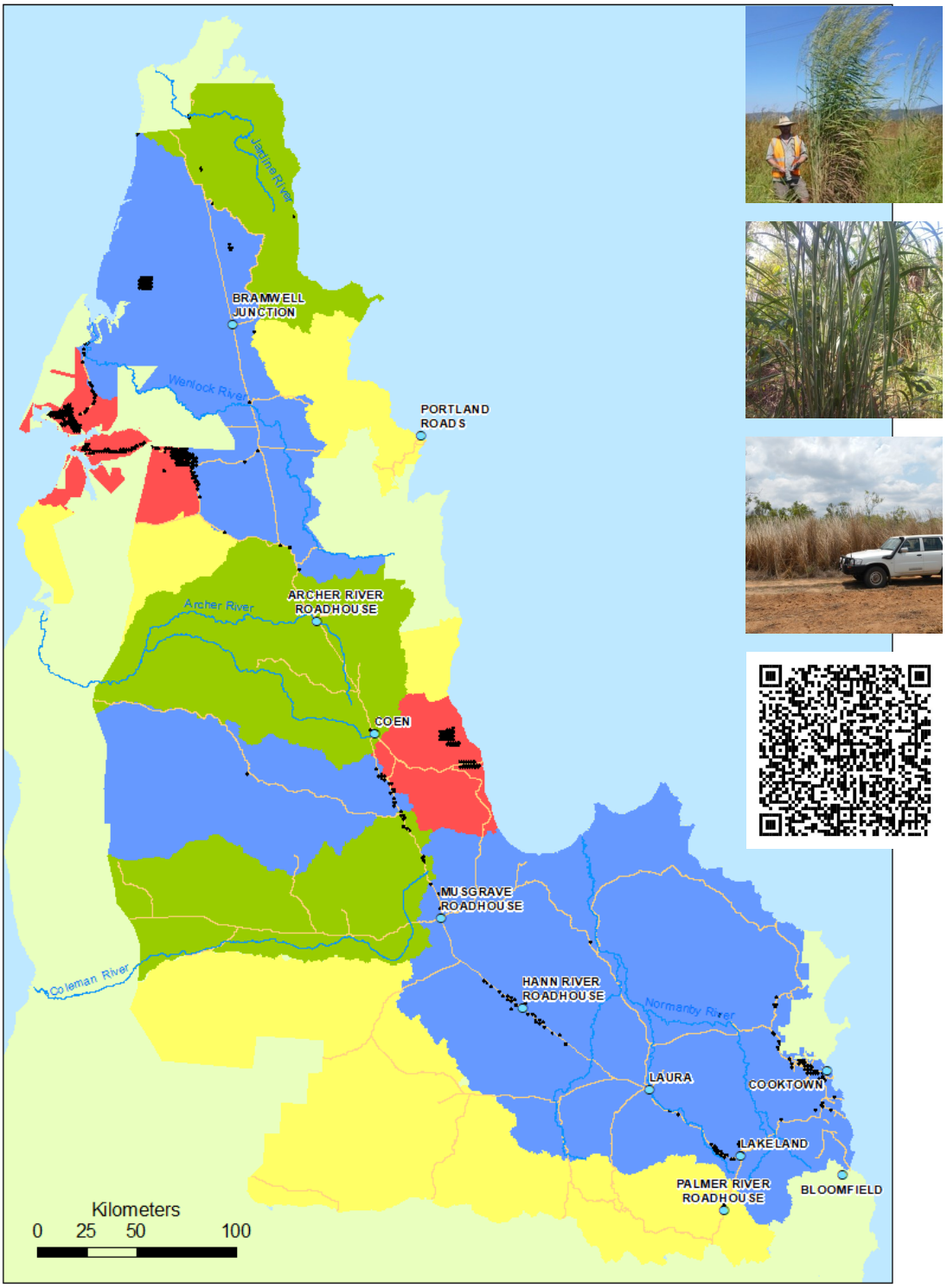
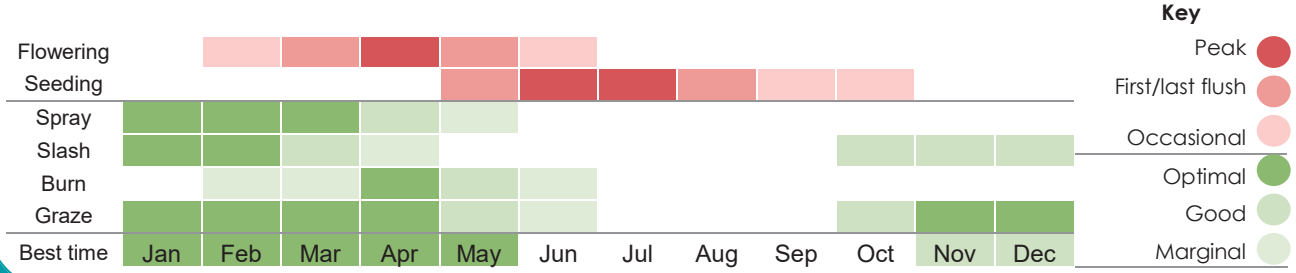
Management objectives and actions



Control

Spread

Prevention	Eradication	Containment	Asset protection



Giant rats tail grass (*Sporobolus* spp.)

Details

Biosecurity obligations and legal requirements

Description: A group of robust, upright perennial grasses 0.6 –1.7 metres tall. Flower spikes are about 40 cm long and transform from a distinctive dark 'rats tail' shape when young to an open pyramid when mature. Leaves are narrow and tough and can be rasp like to touch. Identification of weedy sporobolus grasses can be difficult. Outside of areas of know distribution a herbarium specimen should be collected to aid identification.

Distribution: Scattered across the local government area but in higher densities in townships and camp grounds. Prefers a drier savannah climate.

Impacts: A large stature species which can drastically outcompete desirable pastures. Unpalatable to stock causing selective over-grazing of native grasses. Is a major problem in over-stocked or disturbed systems. Invades creek lines and woodlands in drier savannah environments. Rat's tail grasses are well adapted to fire.

Key projects: Annual treatment on Shipton's Flat Rd to prevent spread within the Wet Tropics World Heritage Area.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act restricted sporobolus species must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation restricted sporobolus species may be disposed of by:

- Deep burial,
- Transporting to a waste facility in a sealed container or a covered vehicle that prevents the restricted matter from being lost or released during transport,
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with restricted sporobolus species under their control.

In the prevention zone	Contact Council to report any suspect plants on 4082 0500. Wherever practical ensure agricultural and raw materials are sourced from a reliable supplier and are from a weed free area.
In the containment zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Control isolated plants before they seed. Regularly check for recruitment along tracks, fence lines and in areas adjacent to known infestations. Spell any stock in a holding paddock for at least 7 days before moving from areas that are either known to be, or may be, infested with the species.

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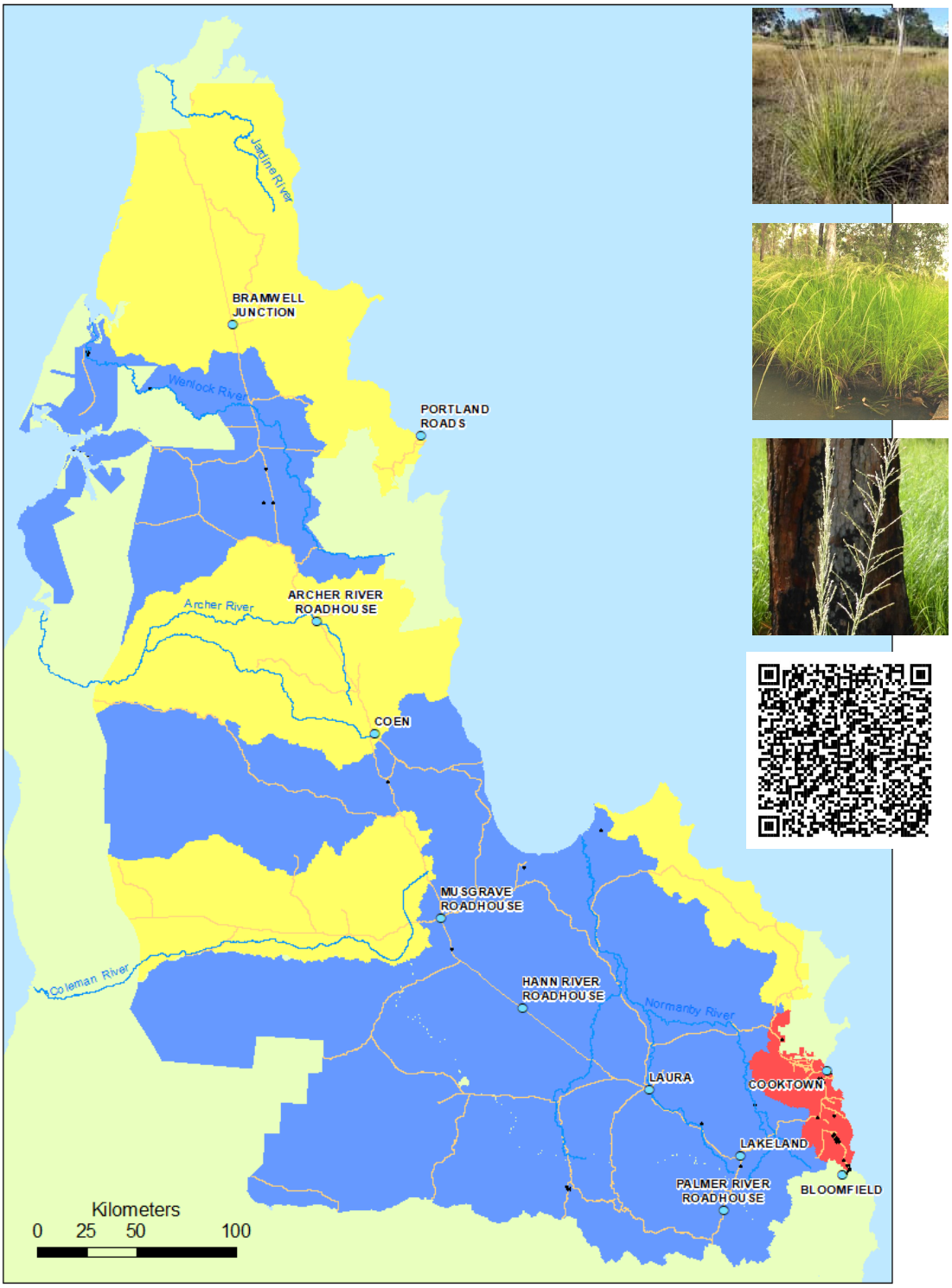
Giant rats tail grass (*Sporobolus* spp.)

Cook Shire COUNCIL

Management objectives and actions



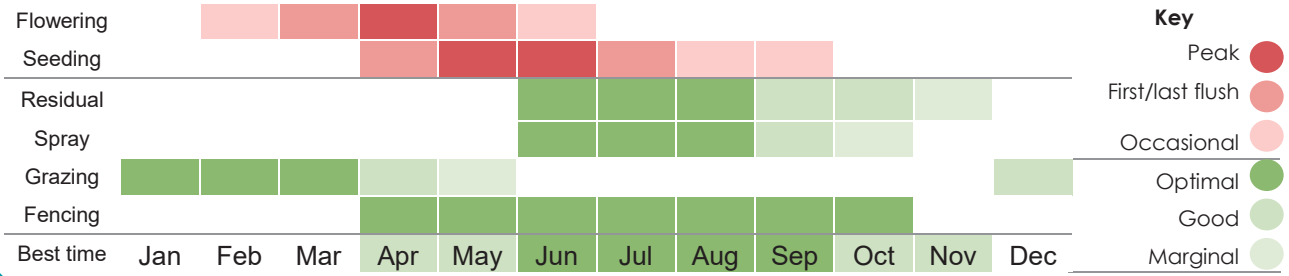
Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection



Grader grass (*Themeda quadrivalvis*)

Details

Description: Upright tufted annual grass to 1-2.5m. Flower stalks are stiff and cane-like with red-brown flower spikes bent downwards. A tropical and sub-tropical grass which forms dense swards and stands on roadsides and in savannah woodlands. A similar common native species, kangaroo grass, is shorter in stature, perennial and lacks tufts near the seed.

Distribution: An established weed across many areas of Cape York, particularly in savannah woodlands and open country.

Impacts: Can invade native and improved pastures, woodlands and roadsides. Grader grass is a significant weed of roadsides where it increases management requirements and impacts on safety because of its height. It can significantly outcompete pastures, reducing productivity of grazing lands. Grader grass produces much higher fuel loads than native grasses increasing fire risk.

Key projects: The protection of important environmental and agricultural assets is a high priority. Roadside management of this species is undertaken annually to prevent spread.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with grader grass under their control.

In the prevention zone	Report any suspected outbreaks or detections to Cook Shire Council on 4082 0500. Ensure any machinery or vehicles moving from the infested areas are free from plant material and soil. Do not cart, introduce or transport contaminated hay or silage.
In the asset protection zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Manage risk of spread from your property and protect priority assets using best practice methods to control infestations where practical to do so.

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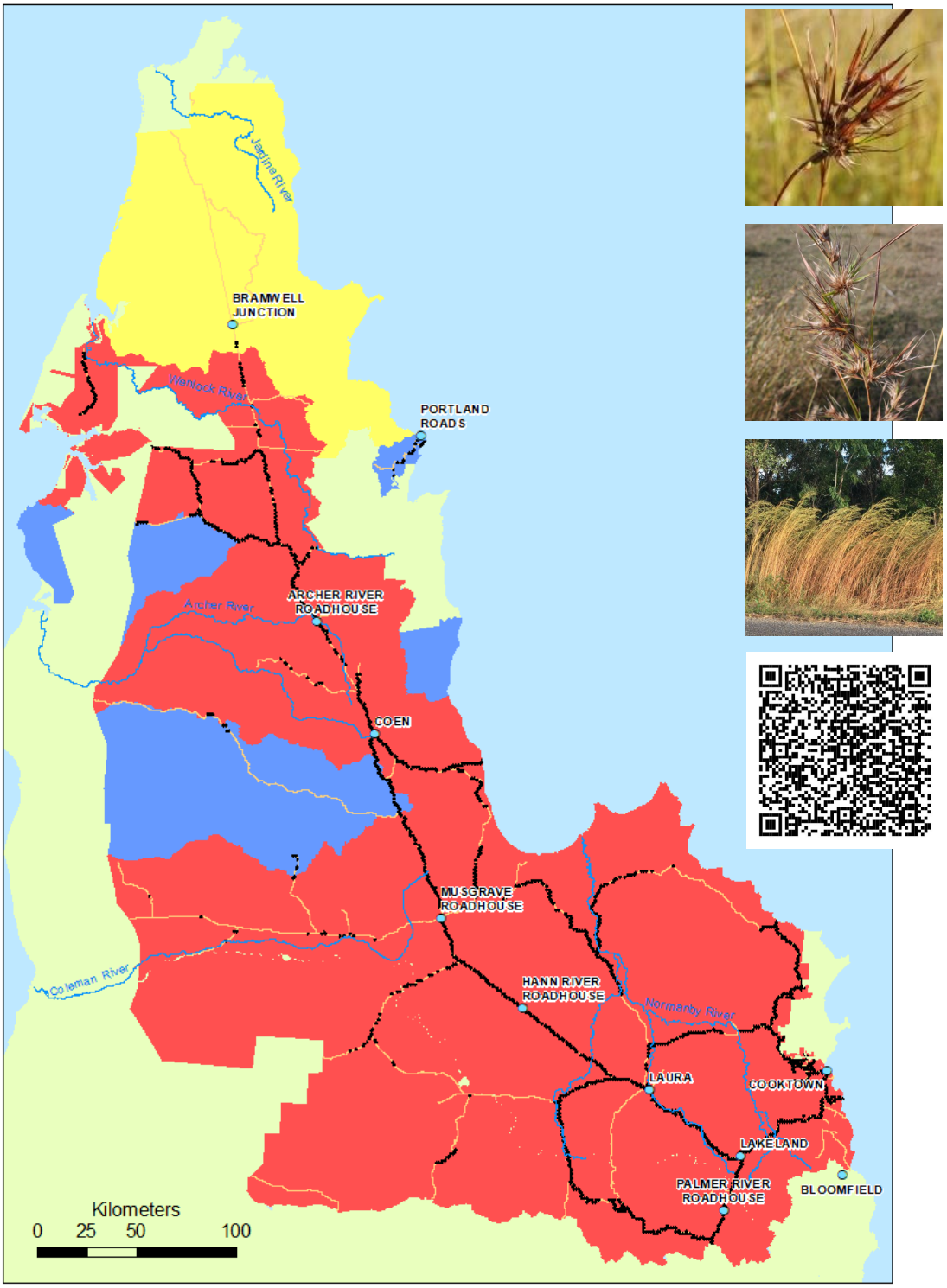
Grader grass (*Themeda quadrivalvis*)

Cook Shire COUNCIL

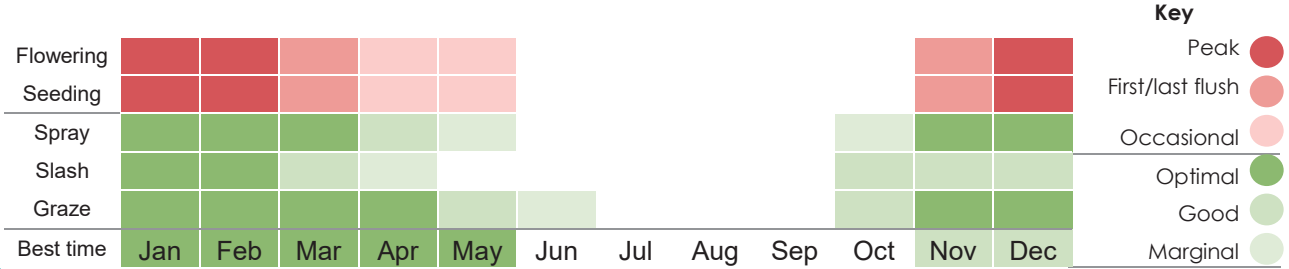
Management objectives and actions



Control

Spread

Prevention	Eradication	Containment	Asset protection



Hymenachne (*Hymenachne amplexicaulis*)

Details

Biosecurity obligations and legal requirements

Description: A robust, upright perennial aquatic grass 1-2 metres with distinctive stem clasping leaves. Flowers and seeds are held on dense spikes at ends of stems. Stems are pithy inside and are able to float. An aquatic grass which develops roots at each node. The native hymenachne (*H. acutigluma*) is more slender, has reddish nodes, leaves that do not clasp around the stem and are held more upright. Olive hymenachne is recorded to hybridise with the native species to produce *Hymenachne x calamitosa* which is treated the same under the regulation.

Distribution: Currently locally abundant in several areas of the Endeavour Catchment south to Bloomfield River. An isolated outbreak in Rinyirru is under an active eradication program across several lagoons and wetlands.

Impacts: Hymenachne blocks drainage systems in farms. It readily invades and outcompetes native plants in wetlands and waterways. Inhibits fish passage and breeding opportunities for key species like barramundi. Hymenachne can also impede boat access and potentially damage infrastructure like bridges and weirs.

Key projects: Queensland Parks and Wildlife is currently managing a series of isolated outbreaks in the wetlands of Rinyirru. Report any suspected detections in the Rinyirru area to QPWS or Cook Shire Council on 4082 0500.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act hymenachne must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation hymenachne may be disposed of by:

- Deep burial,
- Transporting securely to a waste facility (contact Council on 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with hymenachne under their control.

In the prevention zone	Olive hymenachne seed can be spread via vehicles, machinery and stock. Waterways and dams should be monitored in the growing season to detect any new outbreaks. Stock should be spelled for 7 days prior to being released to drop any ingested seed.
In the eradication zone	Isolated outbreaks in the wetlands of Rinyirru are the target of an eradication program. Observe management signage and report any suspect plants to QPWS.
In the containment zone	Isolated outbreaks in the Normanby and Hann catchment require removal to prevent spread downstream into Rinyirru. Localised surveys around known locations are required to ensure full distribution is known.
In the asset protection zone	Management in the Endeavour and Annan Rivers is targeted toward protecting key assets, reducing spread to new areas and reducing impacts. Manage risk of spread from your property and protect priority assets using best practice methods to control infestations where practical to do so.

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Cook Shire COUNCIL

Management objectives and actions

L-R . *H. amplexicaulis*, *H. acutigluma*, and hybrid H. x calami-tosa

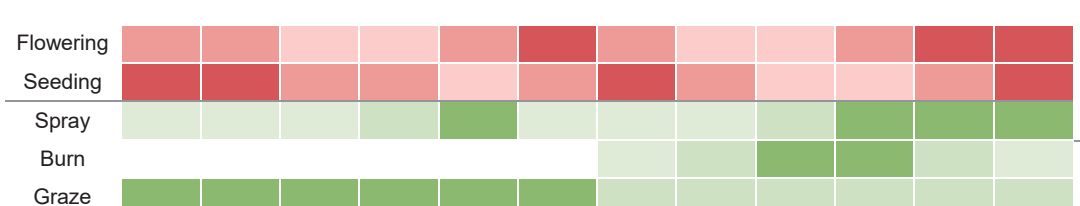
Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection



Lantana (*Lantana camara*)

Details

Description: Lantana is a heavily branched shrub that can grow in compact clumps, dense thickets or as a climbing vine. The stems of lantana are square with small, re -curved prickles. The small leaves (6cm) are covered in fine hairs, bright green above, paler underneath and have round-toothed edges. Flowers are variable ranging from purple to orange.

Distribution: Common and widespread across the Wet Tropics ranges less abundant in drier districts where it is often restricted to monsoon scrubs and waterways. Isolated outbreak near Iron and McIlwraith Ranges.

Impacts: Lantana is a significant weed of natural systems and grazing areas. The species displaces understorey species and alters fire regimes. Lantana can also cause poisoning in stock not familiar with it.

Key projects: Due to widespread distribution of this species management is the responsibility of individual landholders.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act restricted lantana must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation restricted lantana species may be disposed of by:

- Deep burial,
- Transporting to a waste facility in a sealed container or a covered vehicle that prevents the restricted matter from being lost or released during transport,
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with Navua sedge under their control.

In the prevention zone	In areas prone to infestation by lantana undertake regular monitoring and treat plants when identified. Report any suspect plants to Council on 4082 0500.
In the containment zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Assist in annual survey operations, control isolated plants before they seed. Regularly check for recruitment along tracks and fence lines through forested areas.
In asset protection zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Identify high value assets and protect them from impacts where possible

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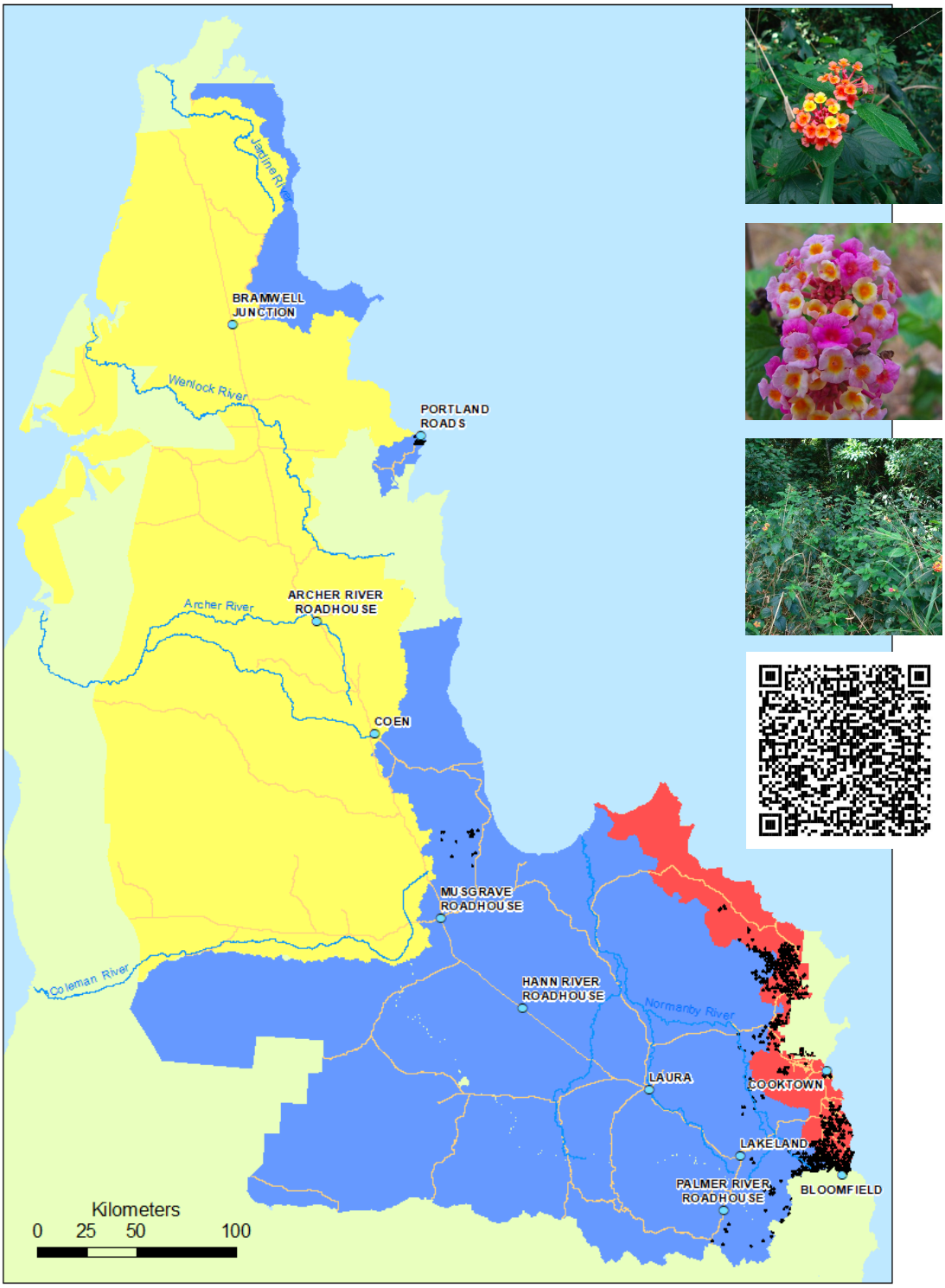
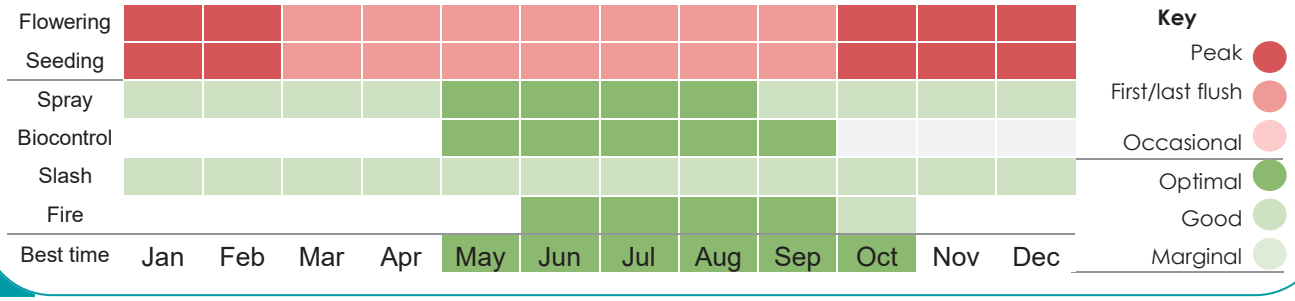
3
Do not distribute



Control

Spread

Prevention	Eradication	Containment	Asset protection



Mission grasses (*Cenchrus* spp.)

Details

Description: (*Cenchrus polystachios* (perennial) and *C. pedicellatus* (annual). Grows in large, tough, loose clumps to 3 metres high. The leaf blades are hairy and elongated, up to 45 cm long and 18 mm wide. Flower heads are distinctive forming a dense spike that appears hairy and is usually golden in colour.

Distribution: The exact distribution of mission grass is not currently known within the Cook LGA and is generally believed to be restricted to the south-east corner around Cooktown.

Impacts: Similar to grader grass the species is a significant invasive plant of roadsides. It can significantly outcompete pastures, reducing productivity of grazing lands. Mission grass also produces much higher fuel loads than native grasses increasing fire risk.

Key projects: Opportunistic treatment of mission grass along roadsides when encountered during operations by Council staff. Delimitation survey to gauge the species true extent and assess the viability of eradication.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with mission grass under their control.

In the prevention zone	Familiarise yourself with this species and treat isolated plants when identified. Report any sighting of mission grass to Council on 4082 0500 to increase knowledge of distribution.
In the eradication zone	If you have mission grass on your property treat prior to flowering. Do not disturb or remove soil and plant material from a known infestation location, even if no plants are visible. Ensure materials or products leaving your property are free from mission grass seed or plant material if your property has a known infestation location. Ensure machinery and vehicles avoid known infestation areas or undertake appropriate wash down procedures prior to leaving site. Report any sighting of mission grass to Council on 4082 0500 to increase knowledge of distribution.

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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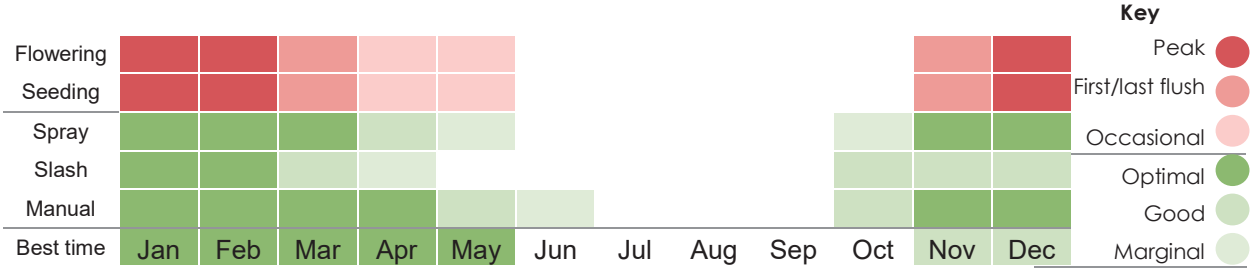
Management objectives and actions

Images Weeds NT

Control

Spread

Prevention	Eradication	Containment	Asset protection



Navua sedge (*Cyperus aromaticus*)

Details

Description: A robust, upright perennial sedge from 10-60 centimetres tall with a distinctive button like flower above three large and three small bracts. Leaves are long narrow and glossy green, when stressed the plant turns light yellow. Leaves have a distinctive aroma when crushed.

Distribution: Scattered to dense infestations occur in the southern Cook LGA from the Wujal Wujal boundary to Rossville. Isolated occurrences around reported from Lakeland and Cooktown. Also reported in most neighbouring LGAs. Generally widespread and common in the Wet Tropics.

Impacts: Navua sedge outcompetes pastures and displaces native grasses and sedges. It is both difficult and expensive to control selectively and can decrease productivity significantly. Navua sedge spreads rapidly along roadsides.

Key projects: There are no current targeted projects. Landholders should manage any new outbreaks and keep pastures in good condition. Weed hygiene practices on farm will assist in reducing the opportunities for introduction.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to local laws
Navua sedge is a declared local pest under Cook Shire Council's local laws. It is an offence to introduce, harbour or propagate this species within the Cook LGA. Penalties apply.

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with Navua sedge under their control.

In the prevention zone	Landholders should familiarise themselves with the species. Any detections of this plant should be reported to Council on 4082 0500.
In asset protection zone	Identify areas to be free of Navua sedge and undertake intensive management. Do not disturb or remove soil and plant material from a known infestation location, even if no plants are visible. You are responsible for ensuring machinery and vehicles avoid known infestation areas *or* undertake appropriate wash down procedures prior to leaving site. Wherever practical ensure agricultural and raw materials are sourced from a reliable supplier and are from a weed free area.

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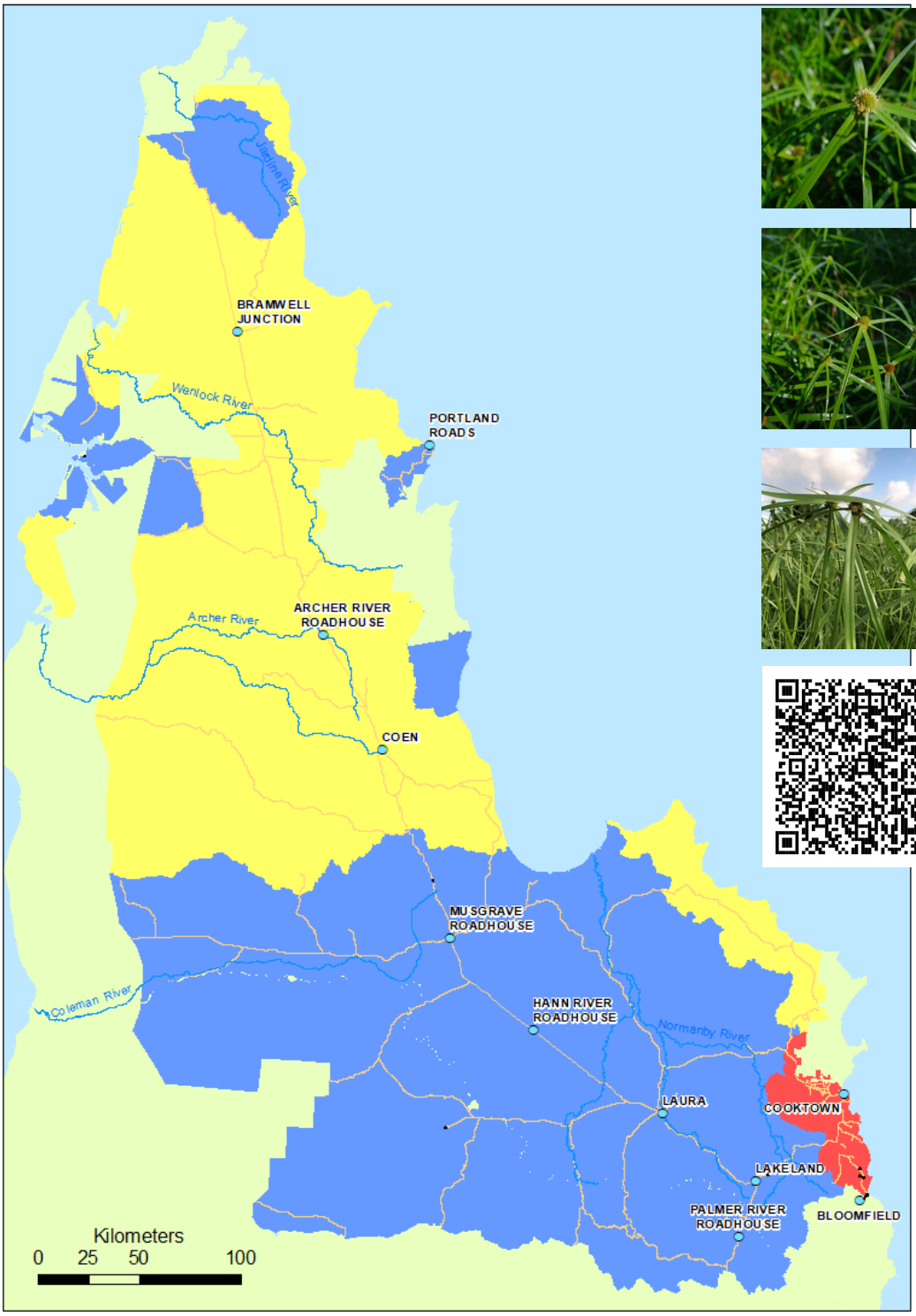
Navua sedge (*Cyperus aromaticus*)

Management objectives and actions



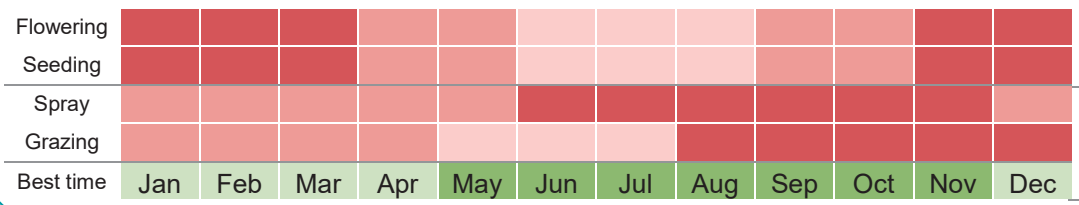
Local laws apply

- Must not breed
- Must not propagate
- Must not introduce
- Must not sell or supply
- Must not provide harbour

Control

Spread

Prevention	Eradication	Containment	Asset protection



Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Pond Apple (*Annona glabra*)

Details

Biosecurity obligations and legal requirements

Description: Pond apple is a tall semi-deciduous shrub or tree reaching around 15m but usually 3-6 m. Pond apple is most likely to occur in wetlands and along waterways, but it may occur along beaches as well. Leaves are lighter below than above and have a green apple scent when crushed. The large fruit is similar to a custard apple and filled with floating seeds similar in size and shape to a pumpkin seed.

Distribution: Along the east coast of Cape York Peninsula core infestation occur in Temple Bay, Lockhart River and Amos Bay. Outliers occur scattered along the coast particularly on the south facing coastline as far north as the mouth of the Jardine River. Outside the Cook LGA core infestations occur in the Daintree, Russell/Mulgrave, Johnson and Murray river catchments. Seeds can float on river and ocean currents.

Impacts: Pond apple is a highly invasive tree/shrub that can colonise and take over a wide range of wetland habitats. It forms dense thickets that exclude most native ground and shrub layer plants and prevents regeneration of trees.

Key projects: Localised infestations within the Cooktown local area are treated when identified.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act pond apple must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation pond apple may be disposed of by:

- Deep burial,
- Transporting to a waste facility securely (contact Council on 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with bellyache bush and physic nut under their control.

In the prevention zone	Contact Council to report any suspect plants on 4082 0500.
In the asset protection zone	Manage risk of spread from your property and protect priority assets using best practice methods to control infestations where practical to do so. You are responsible to ensure materials or products leaving your property are free from pond apple seed or plant material.

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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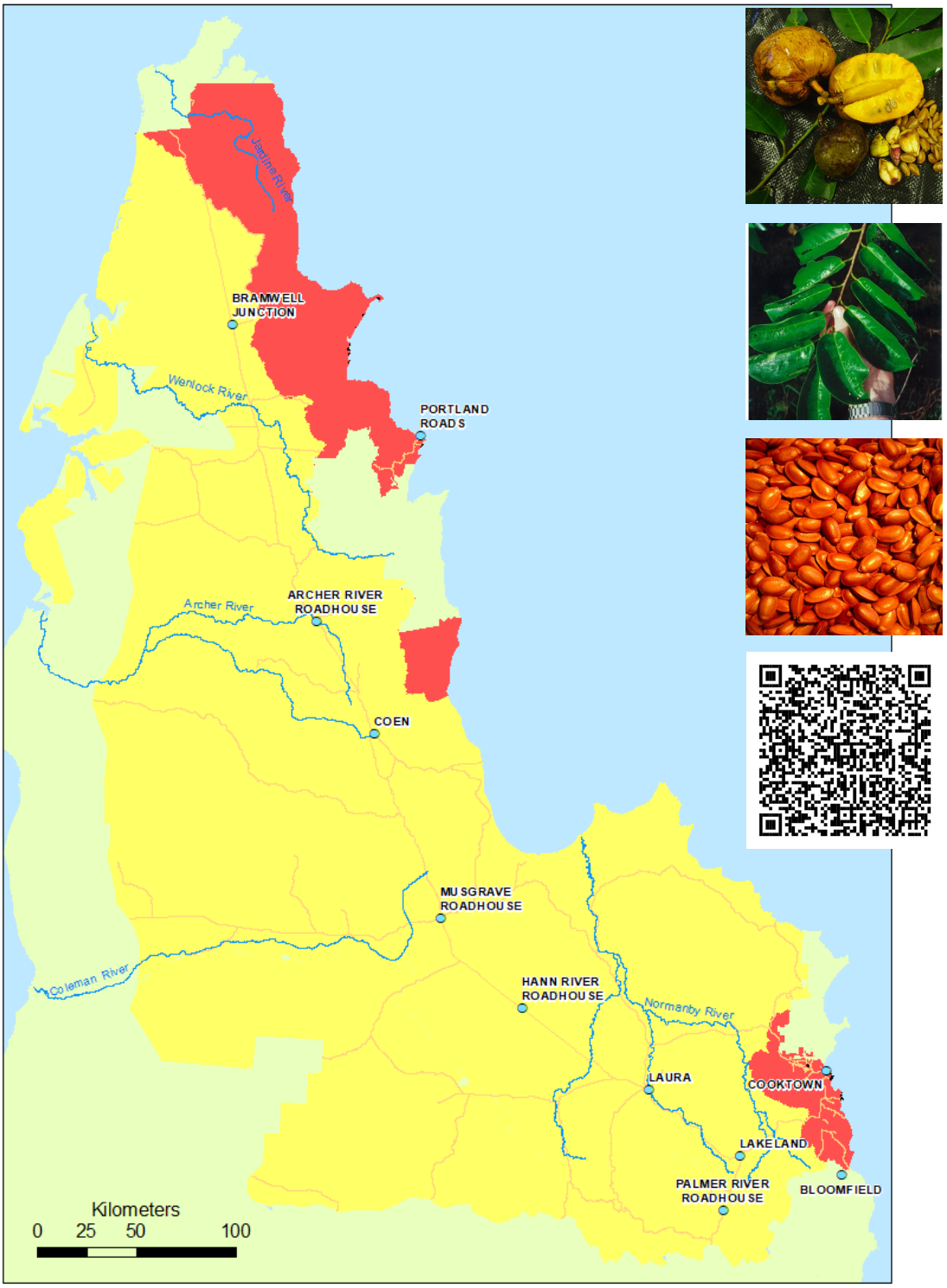
Pond Apple (*Annona glabra*)

Management objectives and actions



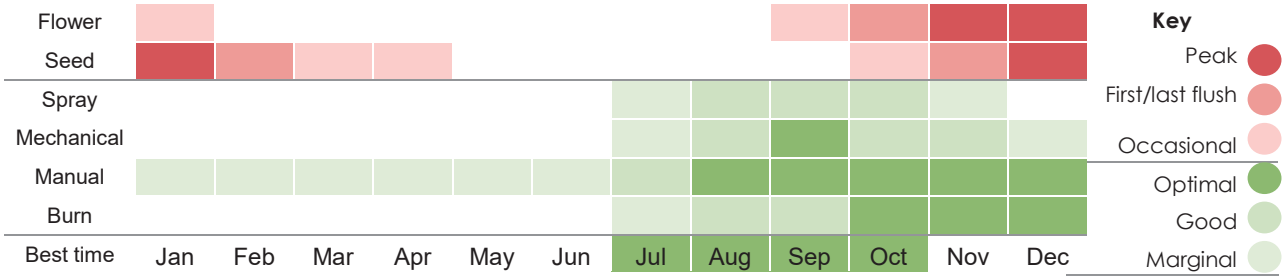
Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection



Rubber vine *(Cryptostegia grandiflora)*

Details

Biosecurity obligations and legal requirements

Description: A vigorous twining climber which begins as a multi-stem shrub with long whip like shoots. Can present as low shrubs or a canopy of vines. Distinctive glossy, paired leaves and large white to purple funnel shaped flowers. Produces paired rigid seedpods which split to release fine cotton like seed.

Distribution: Widespread ranging from sparse to common in southern and central Cape York largely associated with waterways and roads. More prevalent in areas protected from fire like riparian zones, vine forests and rocky outcrops. The wind borne seeds are also spread by vehicles along road sides.

Impacts: Rubber vine smothers native vegetation and pasture and can impede stock movement. The dense vine thickets shade out grasses which alters fire regimes and vegetation composition. It is poisonous to stock. Rubber vine has particularly high impacts in areas sheltered from fire like river banks and rocky escarpments.

Key projects: A successful rust bio-control agent seasonally suppresses outbreaks. Healthy rangeland pastures and appropriate fire regimes are key tools in broad acre management. The species is actively targeted during roadside weed.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act rubber vine must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation rubber vine may be disposed of by:

- Deep burial,
- Transporting securely to a waste facility (contact Council 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with rubber vine under their control.

In the prevention zone	Contact Council to report any suspect plants on 4082 0500. Ensure that machinery, stock and materials are from weed free areas or subject to a detailed hygiene to reduce the risk of spread. maintaining healthy fire regimes and pastures will improve the ability of your property to rubber vine.
In the containment zone	Control plants along waterways and roadsides from the top-down or in an east-west direction. Assist management programs by assisting with access and maintaining healthy rangelands. Report new infestations.

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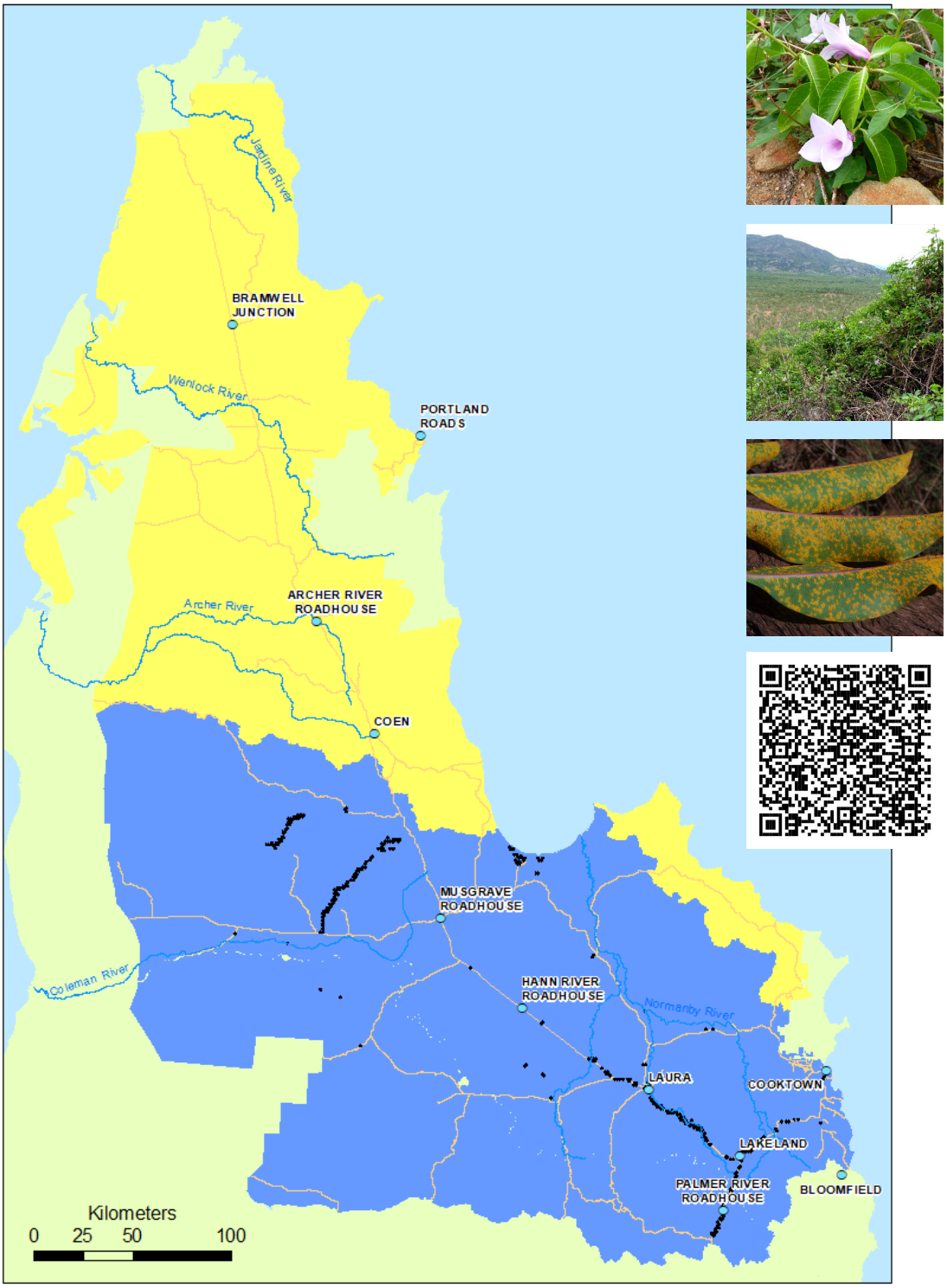
Rubber vine *(Cryptostegia grandiflora)*

Cook Shire COUNCIL

Management objectives and actions



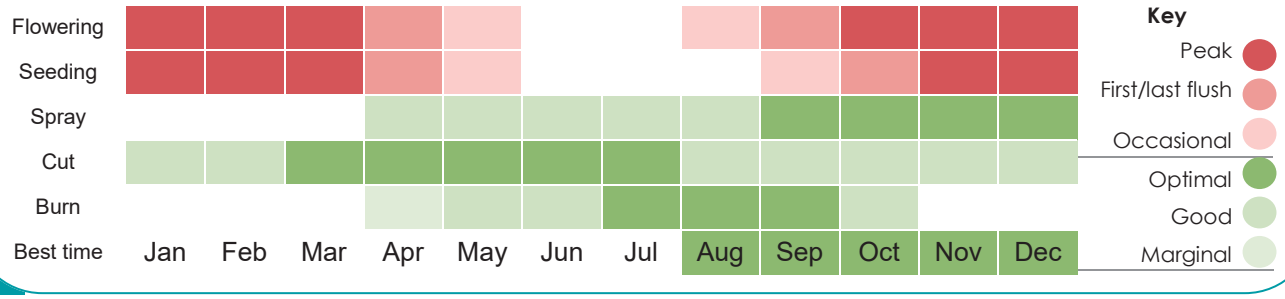
Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection



Salvinia (*Salvinia molesta*)

Details

Biosecurity obligations and legal requirements

Description: A floating fern with small, coarsely hairy oval leaves which repel water. As the plant matures it turns from bright green to brown and bunches up into tight rafts. Salvinia reproduces by rapidly dividing into smaller plants which will quickly cover waterways particularly in slow moving or ponded water.

Distribution: A single infestation in the upper Normanby catchment in the Mount Poverty area is under management toward eradication. An extensive infestation in Honey Dam was successfully eradicated and is now under monitoring to ensure re-introduction does not take place. Salvinia is a common weed in several Wet Tropics basins and re-introduction sources may include watercraft, aquariums or gardens.

Impacts: It floats on still or slow-moving water and can grow rapidly to cover the entire water surface with a thick mat of vegetation. This shades out any submerged plant life and impedes oxygen exchange impacting on fish and aquatic organisms.

Key projects: An eradication project is underway at Mount Poverty in the upper Normanby catchment. Report any suspect plants to Cook Shire Council on 4082 0500.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act salvinia must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation salvinia may be disposed of by:

- Deep burial;
- Transporting to a waste facility securely (contact Council on 4082 0500);
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with Salvinia under their control.

In the prevention zone	Contact CSC to report any suspect plants on 07 4082 0500. You are responsible to know what you are buying online or at local markets to ensure you don't unintentionally introduce salvinia from a contaminated source. Be responsible and do not dump garden pond or fish tank contents into waterways.
In the eradication zone	Remove and bag specimens from water features and contact Council to arrange disposal on 4082 0500. Ensure soil or vegetation from known infestations is not moved from the site unless it is disposed of in accordance with the regulation. If you have salvinia in your possession do not share contaminated material including aquatic plants and do not dump garden pond or fish tank contents into waterways. You are responsible to know what you are selling online or at local markets to ensure you don't unintentionally spread salvinia.

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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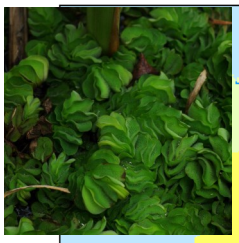
Salvinia (*Salvinia molesta*)

Cook Shire COUNCIL

Management objectives and actions



Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vegetative												
Spray												
Biocontrol												
Manual												
Best time												

Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Sicklepod *(Senna obtusifolia)*

Details

Description: Sicklepod is a vigorously growing, very competitive woody shrub growing to 1.5-2m tall and 1m wide with yellow flowers and long curved seed pods. Normally an annual though plants that have been slashed or survive chemical application often re-shoot and survive another year.

Distribution: Sicklepod is widespread and occasional across the Cape up to the Wenlock River. In some river systems and in the wetter coastal districts sickelpod is abundant and forms dense thickets that die back annually.

Impacts: Sicklepod can invade and completely dominate pastures, grasslands, river beds and wetland margins. It becomes a major weed of crops within 2 or 3 seasons. Sicklepod will invade natural areas especially following disturbance. It is a problem weed of roadsides.

Key projects: Asset protection and spread prevention programs are underway. Weed hygiene measures are in place to protect clean areas and properties.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Under the Act sicklepod must not be given away, sold, or released into the environment. Penalties apply.

Under the Regulation sicklepod may be disposed of by:

- Deep burial,
- Transporting securely to a waste facility (contact Council on 4082 0500),
- Sealing the matter in plastic and leaving the matter in the sun until any vegetative material being disposed has decomposed.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with sicklepod under their control.

In the prevention zone	Sicklepod seed is easily spread on machinery, vehicles, stock and in raw materials. Comprehensive hygiene is required to prevent spread to new locations. Cleaning down machinery and equipment between movements between properties will assist to reduce spread. Spelling stock in a holding paddock for at least 7 days prior to turnout or movement will ensure any ingested seed is passed before moving. Ensuring raw materials like quarry products are sourced from a clean site will assist to prevent the introduction of sicklepod.
In the asset protection zone	Manage roadside and pastures to prevent spread to adjoining paddocks and properties. Integrated control in grazing areas including pasture management, herbicide control and weed hygiene activities will assist to keep pastures healthy. Spot spraying isolated outbreaks as they occur and prior to slashing or grazing will assist to prevent development and spread of seed. Slashing prior to flowering may prevent seed formation in some situations. Ensuring adequate buffers are maintained between active (growing) and dormant (seeds in soil) infestations will reduce likelihood of spread along watercourses and road ways. Mapping infestations will help to identify key assets at risk and steps which might be taken to manage the impact of sicklepod. Careful follow up after disturbance such as movement of soil, fire or heavy grazing will limit the establishment.

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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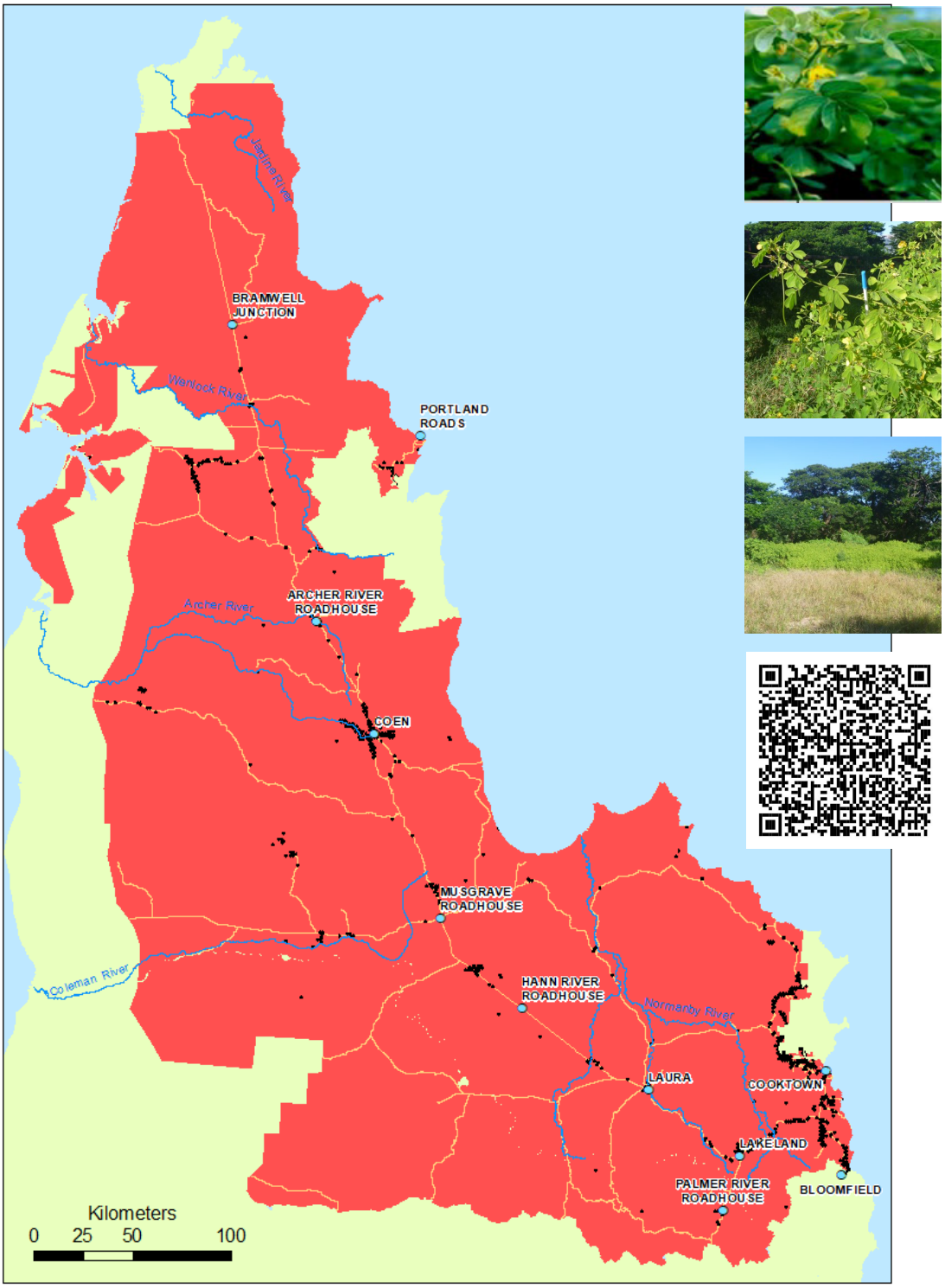
Sicklepod (*Senna obtusifolia*)

Management objectives and actions



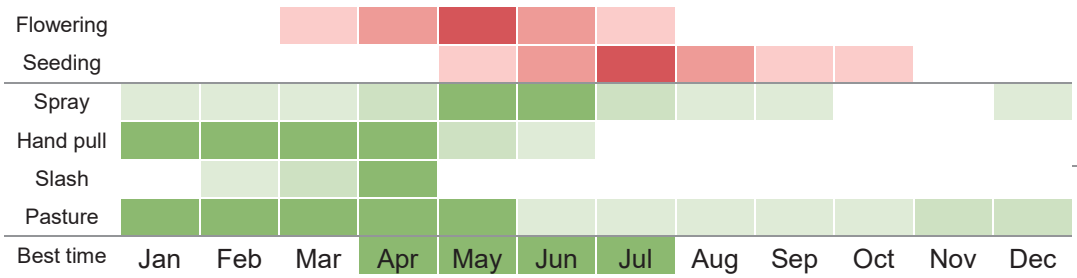
Biosecurity Act Restricted matter category

3
Do not distribute

Control

Spread

Prevention	Eradication	Containment	Asset protection



Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Thatch grass (*Hyparrhenia rufa*)

Details

Biosecurity obligations and legal requirements

Description: An erect, densely tufted perennial grass that grows to ~3 metres in height. While difficult to distinguish when young the species exhibits distinctive green and white striations on the culm while flowering and the flower stalks are branched in a distinctive "V" shape.

Distribution: Thatch grass is rapidly colonising roadsides with the Cook local government area predominantly on the PDR north of Coen and the Mulligan Highway near Lakeland. Isolated tussocks have been identified across the road network.

Impacts: The species rapidly out competes native species and increases fuel loads. This increases the intensity of fires, removing native species and encouraging further growth of thatch grass in a self-perpetuating cycle similar to grader grass and gamba grass.

Key projects: Intensive surveys of the road network are ongoing to monitor the spread of thatch grass. Roadside control programs are targeted at areas where the species is isolated and considered eradicable.

Biosecurity obligations and legal requirements

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with thatch grass under their control.

In the prevention zone	Report any suspected outbreaks or detections to Cook Shire Council on 4082 0500. Ensure any machinery or vehicles moving from the infested areas are free from plant material and soil. Do not cart, introduce or transport contaminated hay or silage.
In the eradication zone	Undertake control works on known infestations while actively growing until peak flowering period in early May. Conduct follow up control works where possible prior to flowering. Do not disturb or remove soil and plant material from a known infestation location, even if no plants are visible. You are responsible for ensuring machinery and vehicles avoid known infestation areas or are appropriately washed down prior to leaving your property.
In the containment zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Assist in annual survey operations, control isolated plants before they seed. Regularly check for recruitment along tracks, fence lines and within treated areas.
In the asset protection zone	Ensure best practice weed hygiene measures are in place to reduce risk of spread to new locations. Maintain weed free areas. Identify high value assets and protect them from impacts where possible.

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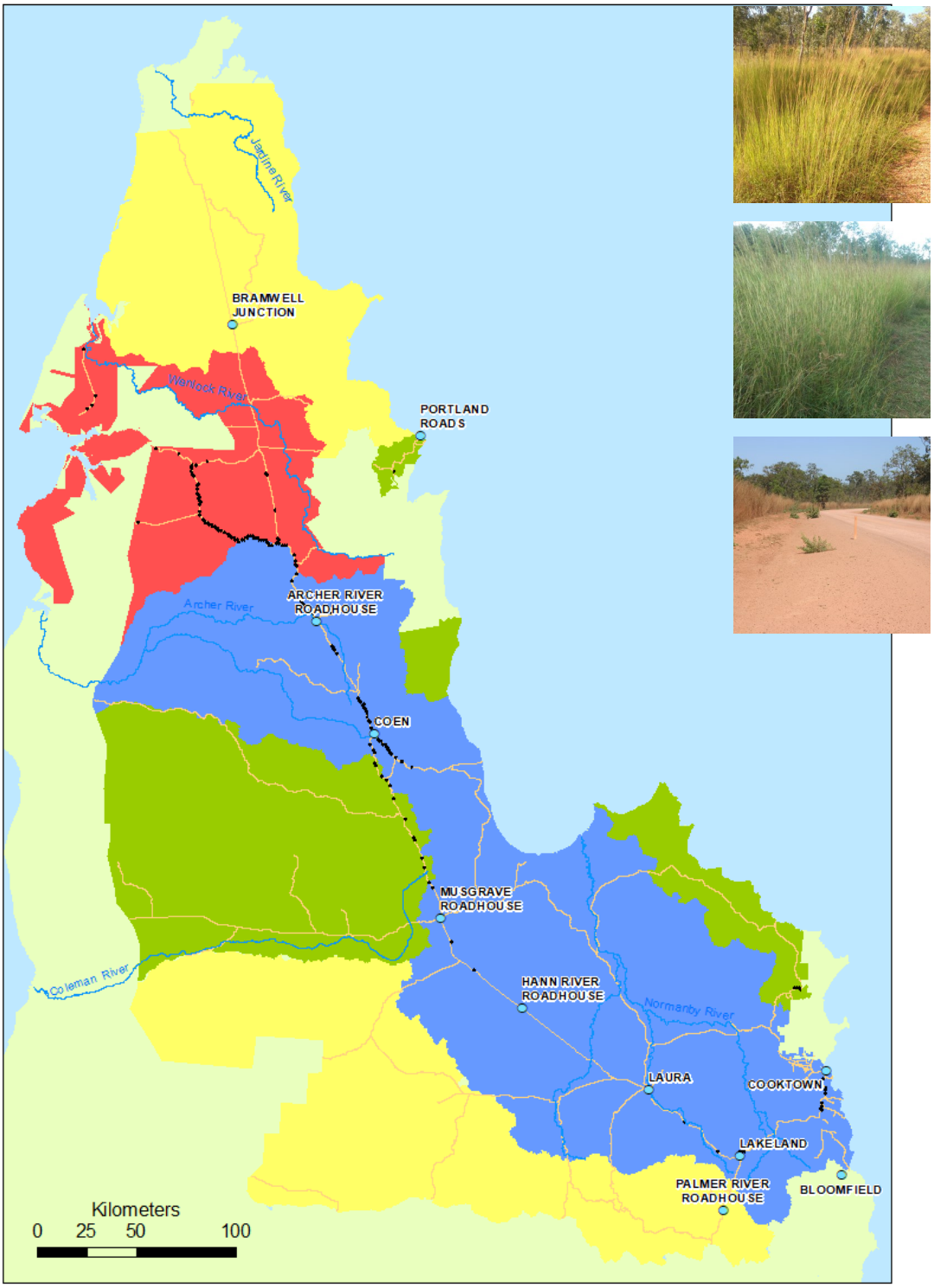
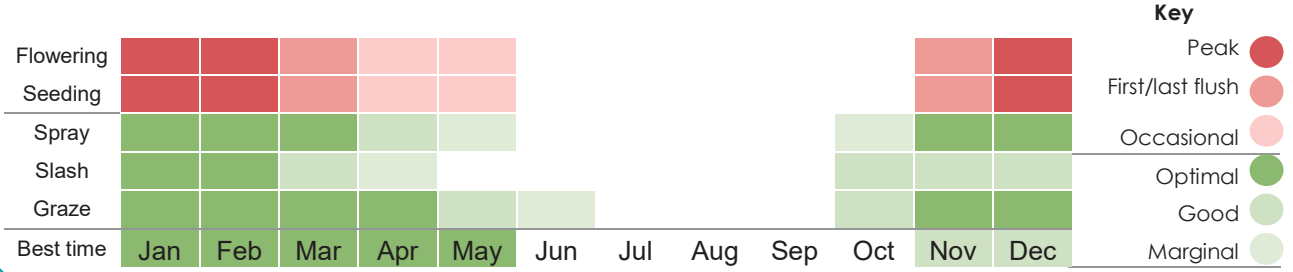
Management objectives and actions



Control

Spread

Prevention	Eradication	Containment	Asset protection



Feral cat (*Felis catus*)

Details

Description: Feral pigs include all pigs that are not domesticated and living in a wild state. They are generally nocturnal, and camp in thick cover during the day. Feral pigs are omnivorous and can range from 5 to 50 square kilometres. They breed throughout the year often producing two weaned litters annually.

Distribution: Feral pigs are found across the Cook local government area.

Impacts: Feral cats eat any small to medium prey item they can catch including birds, reptiles, amphibians, mammals, fish and insects and have an enormous impact on native wildlife. They compete directly with native carnivores and carry toxoplasmosis which is harmful to marsupials. Feral cats scavenge around towns and may prey on domestic pets and poultry.

Key projects: As a result of limited effective management tools feral cats are usually not managed on a landscape scale but are targeted in species recovery programs and protection of key environmental assets.

Biosecurity obligations and legal requirements

Biosecurity obligations and legal requirements

Obligations relating to restricted matter
Under the Act you must not move, feed, give away, sell or release feral cats into the environment. Penalties may apply.

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with feral cats under their control. Below is a list of recommendations:

In the asset protection zone

As a result of the lack of broad scale management options for the control of feral cats (i.e. baiting programs) there is currently no coordinated management program active within the Cook local government area.

Despite this a range of management options that can be applied at a local level do exist and these include shooting, trapping using both cage and leg hold traps, restricting access to potential food sources such as dump points and responsible domestic cat ownership (de- sexing, keeping cats confined etc.). Integrated management utilising a number of these methods is recommended.

While feral cats pose a threat to all native wildlife particular attention to management is required in areas of central Cape York Peninsula inhabited by the golden shouldered parrot given its endangered species status and susceptibility to feral cat predation.

Domestic cats are managed in accordance with local laws. For domestic cat enquires contact Council on 4082 0500.

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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Felis catus (Feral cat)

Management objectives and actions

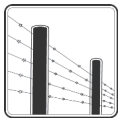
Biosecurity Act Restricted matter category

3 Do not distribute

4 Do not move

6 Do not feed

Control



	Prevention	Eradication	Containment	Asset protection

Best time	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding												
Kittens												
Shoot												
Fence												
Trap												

Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Feral cattle (*Bos* spp.)

Description: Feral cattle across the Cook LGA are physically indistinguishable from domesticated cattle and can resemble both *Bos Taurus* and *B. indicus*. The definition is largely dependent on whether the animal is being husbanded or living in a wild state independent of agricultural systems.

Distribution: Feral cattle are found across the Cook local government area however are generally more problematic on conservation based landholdings. While a nuisance in extensive grazing systems the animal are still considered a resource.

Impacts: Feral cattle cause soil impaction, erosion, a reduction in or elimination of native grasses, weed spread, increased nutrient loads, sedimentation in waterways and can spread disease. Feral bulls interfere with herd genetics producing progeny of reduced marketability and drought tolerance.

Key projects: Feral cattle are actively managed within national parks by Queensland Parks and Wildlife (QPWS). Trapping programs are undertaken by Cook Shire Council in response to complaints.

Biosecurity obligations and legal requirements

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with feral cattle under their control. Below is a list of recommendations:

In the asset protection zone	Maintenance of adequate fencing, trapping and reporting feral cattle related problems to Council are recommended outside national parks. Within national parks QPWS have a comprehensive management strategy. Be on the lookout for any evidence of disease in feral cattle and report to Biosecurity Queensland on 13 25 23 or contact the Emergency Disease Watch Hotline on 1800 675 888

For more information on using this biosecurity action plan fact sheet, and further information on control tools, refer to the Cook Shire Local Area Biosecurity Plan available at cook.qld.gov.au and customer service centres.

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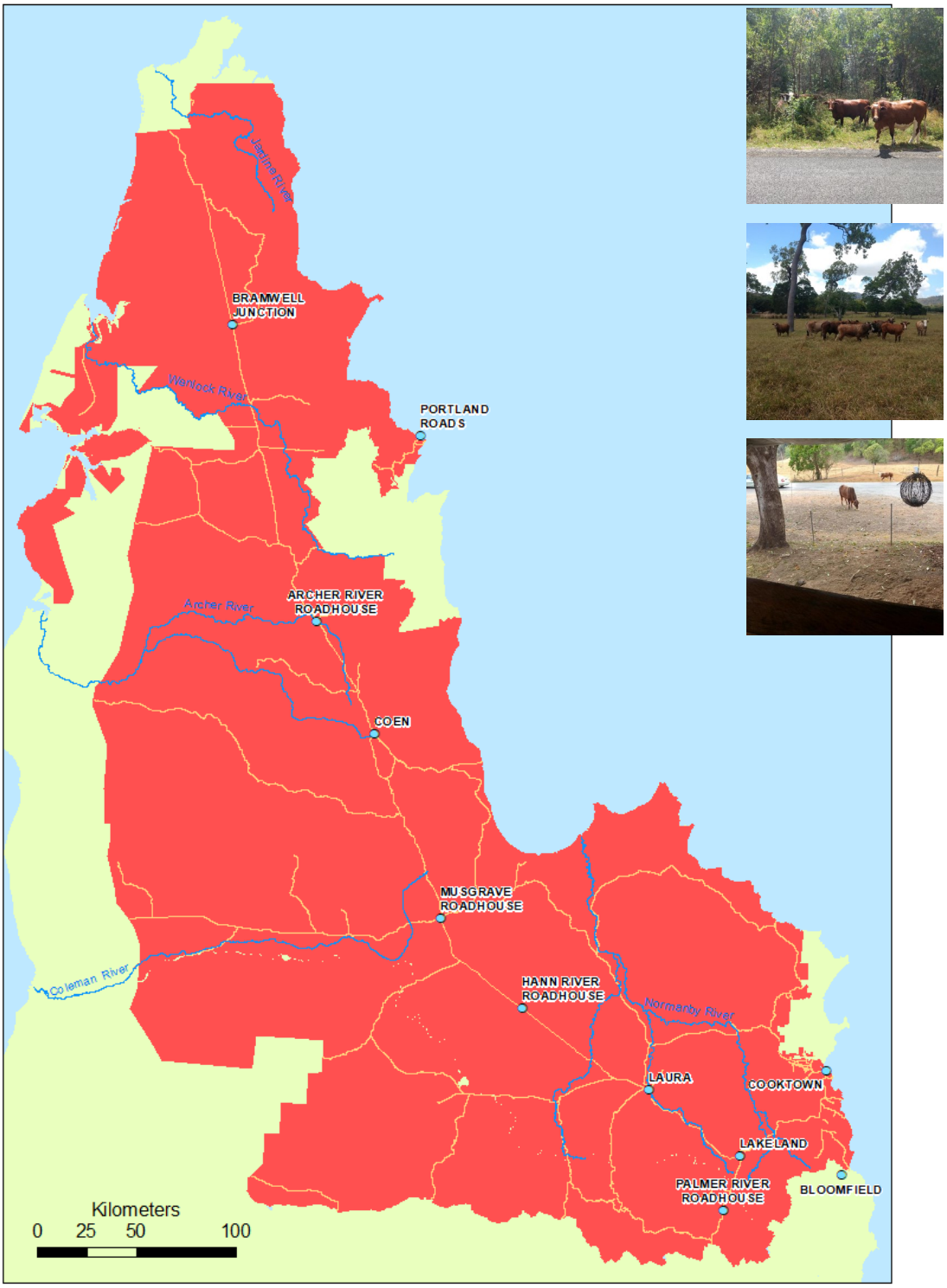
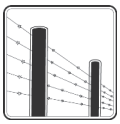
Management objectives and actions



Control



	Prevention			Eradication			Containment			Asset protection		
Breed												
Calves												
Shoot												
Trap												
Fence												
Best time	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Feral horse (*Equus caballus*)

Details

Biosecurity obligations and legal requirements

Description: Feral horses across the Cook LGA are physically indistinguishable from domesticated horses and originate from domestic stock that have reverted to a natural existence. The definition is largely dependent on whether the animal is being husbanded or living in a wild state independent of agricultural systems or domestic intervention.

Distribution: Feral horses are found across the Cook local government area.

Impacts: Feral horses cause soil impaction, erosion, a reduction in or elimination of native grasses, weed spread, increased nutrient loads, sedimentation in waterways and can spread disease. They are pose a traffic hazard along roadsides and damage infrastructure such as fences.

Key projects: Feral horses are actively managed within national parks by Queensland Parks and Wildlife (QPWS). Aerial shooting programs are funded annually by Cape York NRM and undertaken across several participating cattle stations. Feral horses are shot opportunistically on most cattle station.

Biosecurity obligations and legal requirements

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with feral cats under their control. Below is a list of recommendations:

In the asset protection zone

Feral horses are widespread across Cape York Peninsula and their categorisation as an invasive animal is dependent on context such as land tenure, land use and the cultural perceptions of landholders.

In general horse management programs are in place to protect areas of high environmental value, such as National Parks, and control measures are undertaken by landholders. In areas where horses are regarded as an invasive animal management options include capture and removal, aerial culling and ground based shooting.

Should private landholders believe that feral horses are having a detrimental impact on the environmental character of their landholding, or are responsible for economic losses to agricultural production, and the scale of the problem excludes ground based controls, assistance may be sought from regional organisations such as Landcare and Cape York NRM with access to funding streams aimed at pest animal management.

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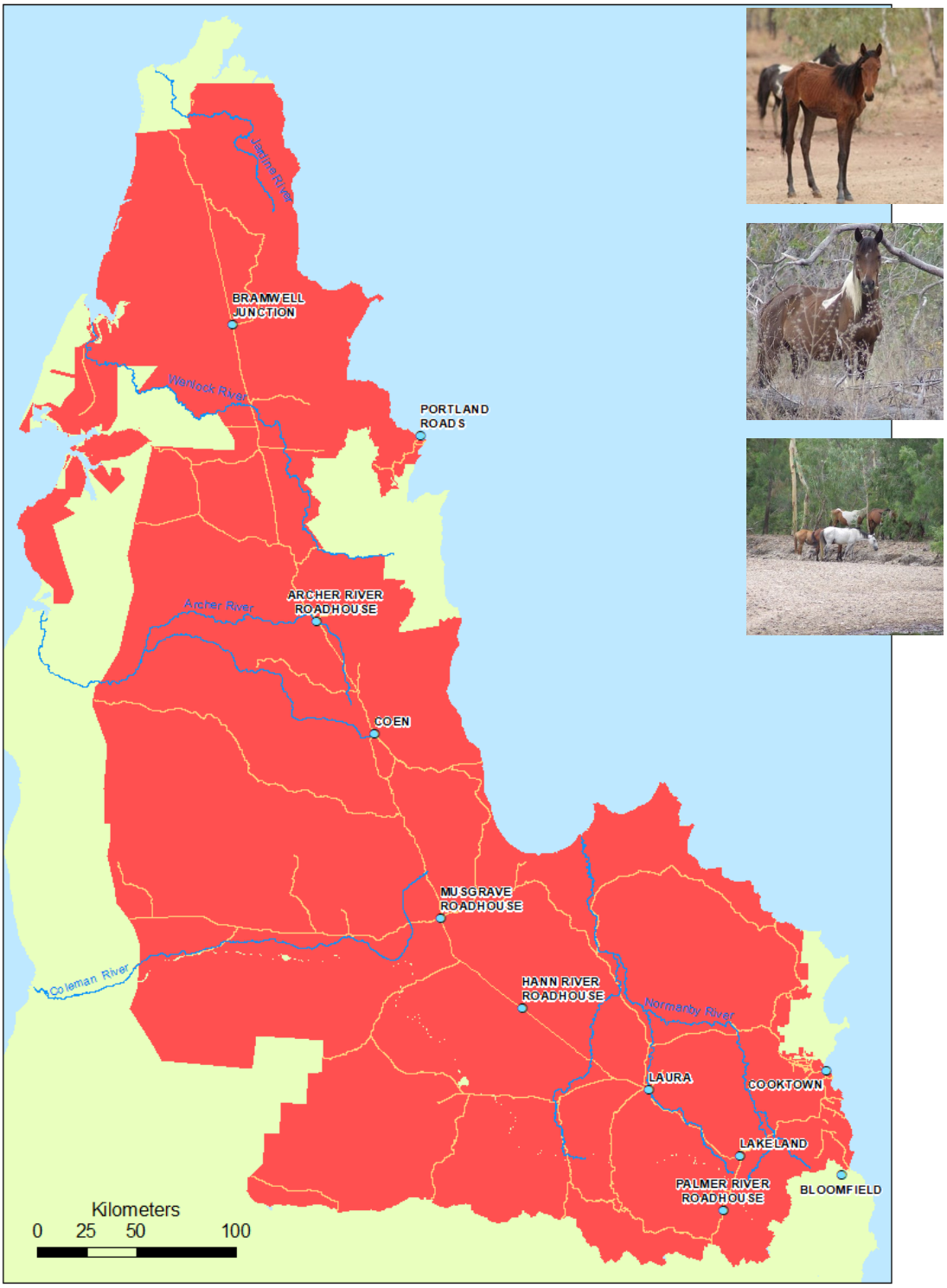
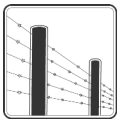
Management objectives and actions



Control



	Prevention			Eradication			Containment			Asset protection		
Breed												
Foals												
Shoot												
Trap												
Fence												
Best time	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal

Feral pig (*Sus scrofa*)

Details

Biosecurity obligations and legal requirements

Description: Feral pigs include all pigs that are not domesticated and living in a wild state. They are generally nocturnal, and camp in thick cover during the day. Feral pigs are omnivorous and can range from 5 to 50 square kilometres. They breed throughout the year often producing two weaned litters annually.

Distribution: Feral pigs are found across the Cook local government area.

Impacts: Feral pigs damage crops, stock, property and the natural environment. They transmit disease and could spread exotic diseases, such as African swine fever, if introduced to the country.

Key projects: Biannual baiting programs are provided to participating properties across the LGA. Council run a trapping programs under which landholders are able to loan panel traps. Annual aerial shooting programs are undertaken adjacent to turtle nesting sites on the west coast and across extensive cattle stations.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter
Under the Act you must not move, feed, give away, sell or release feral pigs into the environment. Penalties may apply.

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with feral pigs under their control. Below is a list of recommendations:

In the asset protection zone	Property managers should coordinate control activities with neighbours. A range of control options from shooting, to trapping and baiting are used to control feral pigs when required. Pig proof fencing or electrified wires are effective on smaller allotments.

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Management objectives and actions

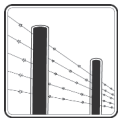
Biosecurity Act Restricted matter category

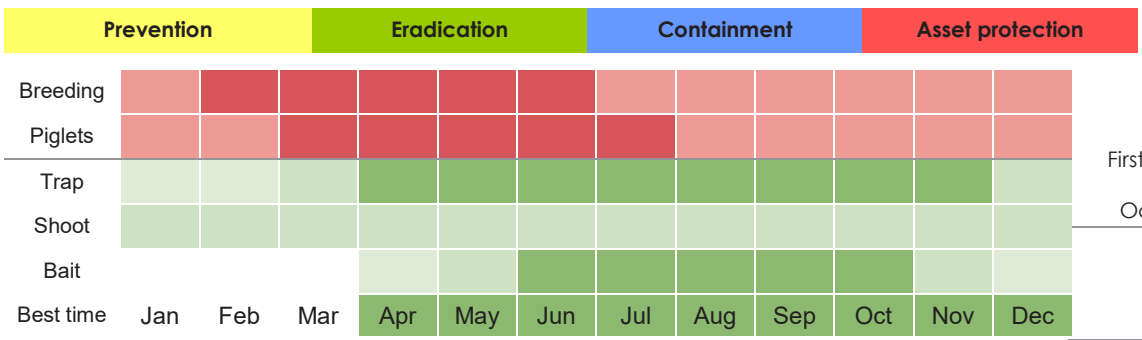
3 Do not distribute

4 Do not move

6 Do not feed

Control





Wild dog (*Canis lupus familiaris*)

Details

Biosecurity obligations and legal requirements

Description: Wild dogs include dingoes, wild domestic dogs and hybrids.

Distribution: Wild dogs are found across the local government area.

Impacts: Wild dogs can cause stock losses in calving season. They also often carry parasites and pathogens. Near towns they can cause a nuisance, attack or otherwise threaten domestic animals and are often reported as a threat by residents.

Key projects: Biannual baiting programs are provided to participating properties across the LGA. Ongoing investigation of the efficacy of various baiting techniques. Trapping is undertaken in urban and settled areas by Council when wild dog related issues arise.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter
Under the Act you must not move, keep, feed, give away, sell or release wild dogs into the environment. Penalties may apply.
The biosecurity plan does not include management of straying or problematic domestic dogs (including hunting dogs). These animals are domestic animals and are managed in accordance with Cook Shire Council's local laws.
For domestic dog queries contact Council on 4082 0500.

General Biosecurity Obligation
The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with dealing with wild dogs under your control. Below is a list of recommendations:

In the asset protection zone	Participation in broad scale baiting programs on extensive grazing properties. Trapping and opportunistic shooting is also effective for problem animals. Dog proof fencing is effective in urban/peri-urban contexts as a method of reducing the impacts of wild dogs on domestic stock and pets.

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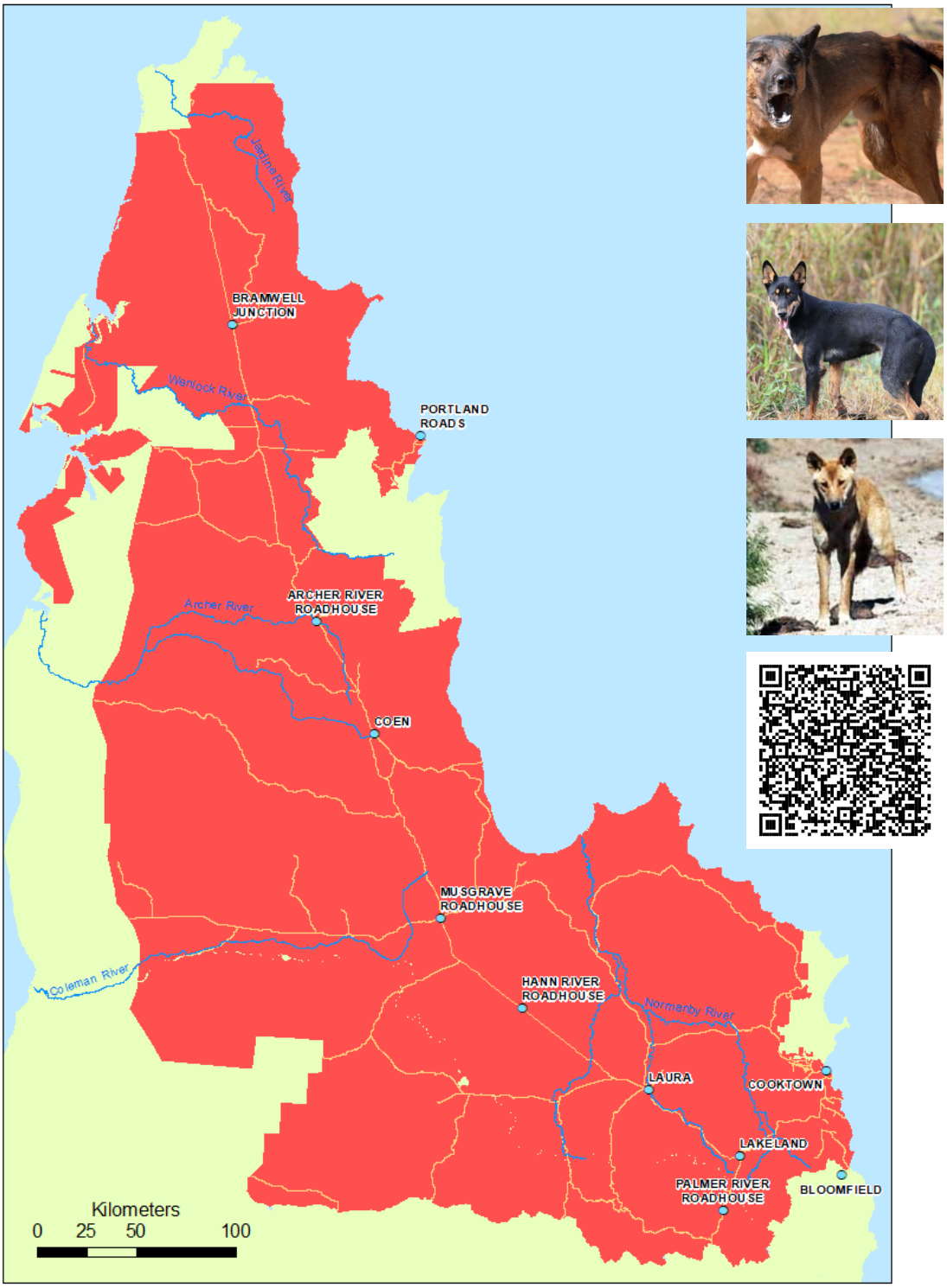
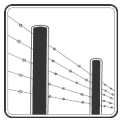
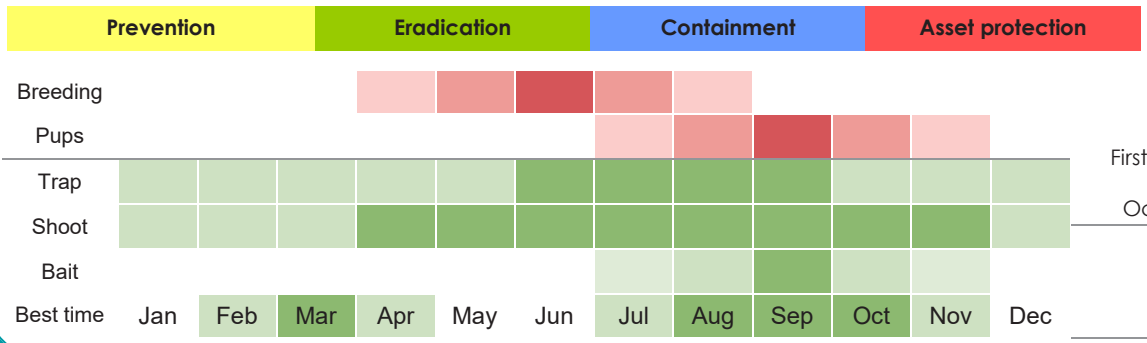


Biosecurity Act Restricted matter category

- **3** Do not distribute
- **4** Do not move
- **5** Do not keep
- **6** Do not feed

Control





Tilapia (*Oreochromis mossambicus*)

Details

Biosecurity obligations and legal requirements

Description: Two species of Tilapia are established in Queensland the Mozambique tilapia (*Oreochromis* mossambicus) and the spotted tilapia *(Pelmatolapia mariae)*. Mozambique tilapia Grows to more than 36cm and lives up to 13 years. Usually dark grey or almost black but can be silver with 2–5 dark blotches/spots on the side. Breeding males can have red tips on their fins. Deep-bodied with a thin profile and long pointed fins. Mozambique tilapia are mouth brooders – females protect eggs and larvae from predators by holding them in their mouths. Males build large circular breeding nests in soft silt or muddy substrate. Spotted tilapia lay their eggs on hard substrate

Distribution: The Mozambique tilapia was discovered in the Endeavour River in 2004. Subsequent surveys enabled by South Cape York Catchments confirmed breeding populations

Impacts: Tilapia can survive environments where native fish find coping difficult and can rapidly outnumber native fish and dominate aquatic communities. They can tolerate saline water allowing them to retreat to lower stream reaches during dry seasons.

Key projects: Awareness and education is essential to prevent spread to new catchments across Cape York and to respond quickly to any new outbreaks.

Biosecurity obligations and legal requirements

Obligations relating to restricted matter

Tilapia is a restricted noxious fish under the *Biosecurity Act 2014*.
Under the Act you must not move, keep, feed, give away, sell or release Tilapia into the environment. Penalties may apply. If you catch these species, you must immediately humanely kill and dispose of them by burying them above the high-water mark or disposing of them in a nearby bin.

General Biosecurity Obligation

The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with dealing with Tilapia under your control. Below is a list of recommendations:

In the prevention zone	Most new infestations are caused by human-assisted translocation (movement of live fish). This includes private dam stocking and moving tilapia between catchments to use as bait. Obtain a permit to stock fish. Buy fingerlings from a registered hatchery to minimise the chance of contamination with undesirable species. Know how to identify tilapia and report any suspected sightings to Council on 4082 0500.
In the asset protection zone	You cannot use tilapia or any other invasive fish as bait. These fish must not be returned to the water dead or alive. If you catch Tilapia , you must immediately humanely kill and dispose of them by burying them above the high-water mark or disposing of them in a nearby bin. Don't transfer invasive fish between waterways. Prevent unwanted hitchhikers—check, clean and dry your boats and gear between waterways to prevent spread of weed with tilapia eggs or juveniles attached.

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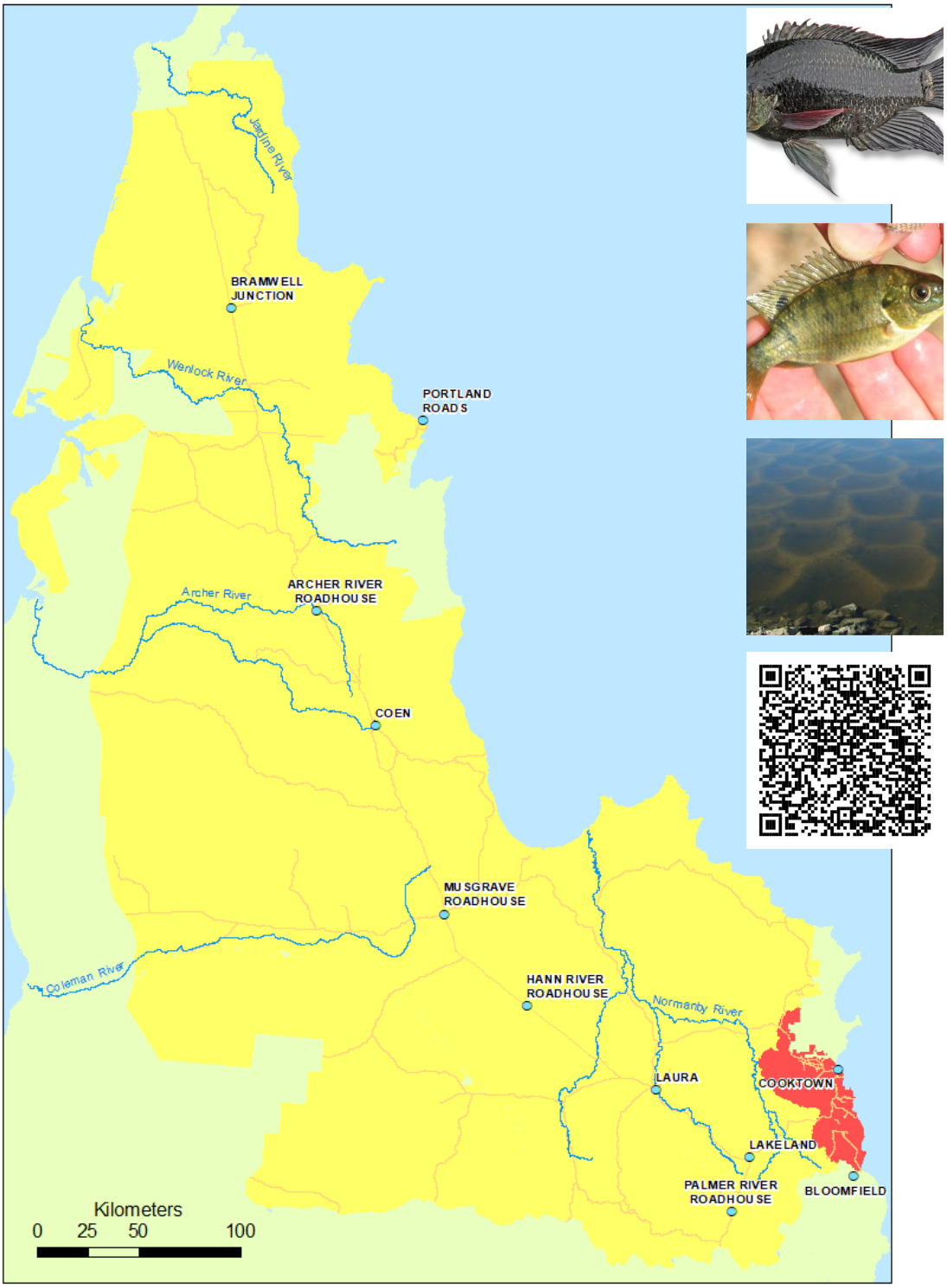
Tilapia (*Oreochromis mossambicus*)

Cook Shire COUNCIL

Management objectives and actions



Biosecurity Act Restricted matter category

- **3** Do not distribute
- **5** Do not keep
- **6** Do not feed
- **7** Kill and dispose

Control

Spread

	Prevention			Eradication		Containment				Asset protection		
Breeding	■	■	■	■	■	■	■	■	■	■	■	■
Larvae	■	■	■	■	■	■	■	■	■	■	■	■
Trap	■	■	■	■	■	■	■	■	■	■	■	■
Poison				■	■	■	■	■	■	■	■	
Best time	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Key

- Peak
- First/last flush
- Occasional
- Optimal
- Good
- Marginal