CROYDON SHIRE
LOCAL GOVERNMENT AREA

PEST MANAGEMENT PLAN
2011

Contents

Executive Summary

The *Land Protection (Pest and Stock Route Management) Act 2002* sets out the legislative requirements for the management of weeds and pest animals and stock routes throughout Queensland. The Act specifically requires local governments to develop, adopt and implement local area Pest Management Plans as part of an integrated planning framework for managing pest plants and animals across the state. The general principles of planning, prevention, and partnership underpin Local Government Pest Management Plans with desired outcomes linked to objectives, actions and evaluation. The principles of pest management set out in the Act have guided the preparation and review of the pest management plan and the desired outcomes under the Strategic Program.

The Croydon Shire local government area pest management plan has been developed in accordance with the *Land Protection (Pest and Stock Route Management) Act 2002* for the benefit of the entire community. The expertise of stakeholders (including representatives of local and state government agencies, industry groups, environmental and other community groups, and private landholders) has been drawn on in planning for cooperative management of pests on all land within the shire boundaries.

The key objectives of the plan are to:

- improve the use of the resources and expertise available for managing pests within the Shire;
- reduce the economic, environmental and social impacts of pests.

This Plan supersedes the Croydon Shire Local Government Area Pest Management Plan 2004-2009.

Part A: Introduction and background

1. Introduction

1.1 Purpose

The Croydon Shire local government area pest management plan has been prepared to establish and promote the cooperative management of the impacts of weeds and pest animals within the Croydon Shire local government area (the shire).

1.2 Commencement and duration

The plan was approved by the Minister for Primary Industries, Fisheries and Rural and Regional Queensland on 23 December 2010 and endorsed by Croydon Shire Council on 17 February 2011. The plan is valid for four years from date of commencement and will remain in force until 17 February 2015, or until such time as a review establishes that the plan be extended, amended or revoked.

1.3 Area covered by the plan

The plan covers all land within the boundary of the Croydon Shire Council, including freehold, leasehold and state-controlled land. Croydon Shire comprises an area of 29,583 square kilometres and is located in the Gulf Savannah Region of Far North Queensland. The shire is situated in the catchments of the Norman and Gilbert River systems.

The plan addresses the management of exotic species declared under the three declaration classes identified by the Act and other species identified as having significant local impacts.

2. Statutory and planning context

2.1 Legislative framework

The *Land Protection (Pest and Stock Route Management) Act 2002* (the Act) covers 'the management of particular pests on land'. The Act specifically requires that Croydon Shire Council develop, adopt and implement this plan as part of an integrated framework for managing weeds and pest animals across Queensland. This draft plan has been prepared in consultation with state government agencies and other stakeholders within the shire and adjoining local government areas.

Part B of the plan sets out the strategic program identifying desired outcomes and the objectives and actions for achieving these outcomes together with measures of success. Part C sets out the four-year program for high priority weeds and pest animals identified for Croydon Shire Council. The Act empowers Croydon Shire Council to exercise the relevant enforcement provisions.

2.2 Strategic links to other legislation and planning processes

In accordance with the pest management principles of planning and integration, it is important that the plan integrates with other local government, regional and state plans. Relevant plans include:

Gulf Regional Development Plan
Endorsed in 1998, the Gulf Regional Development Plan (GRDP) identifies the importance of a regional approach to pest management. These plans provide the basis for the development of locally or regionally relevant state agency implementation plans which assist in the management of declared pests on state-controlled land. The GRDP is overdue for review.

Northern Gulf Natural Resource Management (NRM) Plan
This is a non-statutory plan prepared by the Northern Gulf Regional Natural Resource Management Group (NRMG). The plan integrates all aspects of NRM planning within a catchment, including pest management issues.

Regional Pest Management Plans
Ten cross-local government regional pest management groups are operating throughout Queensland, with boundaries closely aligned to regional NRM boundaries. Preparation of regional pest management plans are not a statutory requirement but do provide a communication forum, standardise activities, and enable the sharing of resources.

The Croydon Shire Pest Management Officer regularly attends meetings of the Gulf Catchments Pest Taskforce which comprises the local government areas of Mount Isa, Cloncurry, McKinlay, Flinders, Richmond, Carpentaria, Burke and Croydon. These regional meetings put in place strategies and objectives to address the current and emerging pest problems over this large area of north-west Queensland.

Croydon Shire Council Corporate Plan
A requirement under the *Local Government Act 1993,* the Corporate Plan sets out Council's vision for the community and how it intends to achieve that vision. Council's Corporate Plan states that Council will continue appropriate control measures for dealing with weeds and pest animals and continue implementation of the Croydon Shire Area Pest Management Plan.

Croydon Shire Planning Scheme
The Croydon Shire Planning Scheme was prepared under the *Integrated Planning Act 1997*. The Planning Scheme outlines desired development and environmental outcomes, allocates land for different uses, and identifies the type of development and corresponding level of assessment.

Stock Route Network (SRN) Management Plan
The Act requires local governments to either prepare plans for the management of the SRN within their area or undertake planning for pest management on stock routes under the local government area pest management plan. Croydon Shire Council will prepare a new SRN management plan on commencement of the new regulation governing stock routes.

Property Resource Management Plans
A number of landholders have voluntarily prepared a property resource management plan, for purposes including:

- Improving business and/or natural resource management
- Gaining funding from government or community programs
- Complying with regulatory requirements, for example, to obtain vegetation clearing approval or to access water resources.

Landholders including pest actions in property resource management plans can make a direct and valuable contribution to the management of priority pests in the local government area. Guidance for these property-level plans is increasingly taken from higher level plans, such as regional NRM plans. As leases are renewed properties are required to develop Property Management Plans taking into account all relevant higher level plan arrangements. The Croydon Shire Area Pest Management Plan will be available for landholders to use as a basis for developing individual property plans.

2.3 Pest management overview

Weeds and pest animals cost Queensland more than $710 million every year in lost production and control costs. They also cause degradation of natural resources (including vegetation), threaten biodiversity values and interfere with human health and recreational activities. In the Croydon Shire damage to the natural environment caused by pest plants and animals have not reached the limits of their invasive capacities.

Despite the relatively low impact of pests in this local government area, Croydon Shire Council realises the importance of undertaking pest management planning and implementation. This plan identifies current and potential pest species and includes well-planned strategies for their control, containment and eradication within the shire.

3. Stakeholder responsibilities

Key stakeholder responsibilities for implementing this plan are outlined below.

Stakeholders	**Key roles and responsibilities**			
	Class 1 Pests	**Class 2 Pests**	**Class 3 Pests**	**Further actions**
Croydon Shire Council (CSC)	Surveillance, early detection, destruction of infestations, local planning, mapping and raising awareness	Compliance, surveillance, local planning, mapping and raising awareness	Local planning, mapping and raising awareness	Lead declaration under Local Law of locally significant weeds and pest animals Contribute financially through the annual payment system for pest control and research services Best practice environmental management to prevent spread of weeds
Biosecurity Queensland / Department of Employment, Economic Development and Innovation (BQ)	Early detection, destruction of infestations, compliance, statewide planning, mapping, coordination, awareness raising and research	Supply 1080 to Council and administer, monitor, record and enforce proper use of 1080	Compliance, statewide planning, awareness raising and research	Research control techniques Support local government planning, extension and education services
Department of Environment and Resource Management (DERM)	Exclude high priority species	Early detection, eradication of isolated, strategic infestations/populations	Early detection, eradication of isolated, strategic infestations/populations	Ensure the conservation of biodiversity, monitor and regulate environmental impact of weed and pest animal management
Department of Transport and Main Roads (DTMR)	Early detection, destruction of infestations	Destruction and control of infestations	Weed control in environmentally significant areas	Best practice environmental management to prevent spread of weeds
Department of Health (QH)				Lead role in maintaining public health and safety in issues associated with poisons
Northern Gulf Resource Management Group (NGRMG)	Assist with the development and implementation of eradication programs	Contribute to regional containment and/or management programs in partnership with relevant stakeholders	Support funding proposals for control programs	Regional planning and funding support for resource management work programs
Southern Gulf Resource Management Group (SGRMG)	Assist with the development and implementation of eradication programs	Contribute to regional containment and/or management programs in partnership with relevant stakeholders	Support funding proposals for control programs	Map infestations and information/licensing
Landholders (LH) (including state landholding agencies)	Early detection, destruction of infestations	Destruction and control of infestations	Weed control in environmentally significant areas	Map infestations and inform CSC, BQ & NGRMG

4. Development, implementation and review

This plan is the second plan prepared by Croydon Shire Council under the Act. The first plan was prepared in 2004 and endorsed by the Minister in 2005. In accordance with section 31 of the Act, a local government area pest management plan has effect for a period of no more than four years. The 2004-2008 plan has been reviewed resulting in the development of a draft revised plan. This process has provided another opportunity for the local community and other stakeholders to have input into determining strategic directions and priority pest programs for the next four years. Stakeholder and community consultation on the draft plan has involved:

- Workshop of local pest advisory group (CSC, landholders, BQ, other relevant state agencies, NGRMG and interested persons) to provide feedback on current plan and input into draft plan
- Public notification and display of draft plan for community feedback and comment

The draft plan was submitted to the Minister for Primary Industries, Fisheries and Rural and Regional Queensland on 1 September 2010. The Minister was satisfied that the plan met the requirements of the Act, and on 23 December 2010 advised the Council that it may, by resolution, adopt it. In accordance with sections 30(2) and 32 of the Act, the Council endorsed the plan for implementation at its Ordinary Council Meeting of 17 February 2011.

The plan is available for public inspection on Croydon Shire Council's website www.croydon.qld.gov.au and at the Croydon Shire Council Administration Centre.

The plan will remain current until 17 February 2015. Annual action plans will be prepared each financial year to detail key actions, activities and programs for that year. Annual action plans will be reviewed annually, on or before 1 April, to monitor the effectiveness of the plan and give direction to Council's annual business planning cycle. Monitoring and evaluation processes (including the measurement of actions against stated success criteria) are in place to determine the effectiveness of the plan. Any amendments to the plan will require its re-submission to the Minister for approval.

PART B: Strategic Program

This part of the plan sets out strategic programs addressing pest management generally in the Croydon Shire Council local government area. The programs will be implemented over the four-year life of the plan and are aligned with the desired outcome set out in the Queensland weeds and pest animals strategies.

5. Desired outcomes, strategic objectives and actions

DESIRED OUTCOME 1

Stakeholders are informed, knowledgeable and have ownership of weed and pest animal management

Principle: Public awareness
Public awareness and knowledge of pests must be raised to increase the capacity and willingness of individuals to manage pests.

Issue 1: Awareness

Strategic Objective: To increase community, industry, agribusiness and government awareness of pests and their impacts.	**Success Criteria** The degree to which public awareness programs close gaps in public knowledge	
Strategic actions **Highly Desirable** • Publishing fact sheets about pests declared under local laws • Distributing BQ pest fact sheets on declared pest animals and plants. • Organising awareness-raising activities (eg participation in Weedbuster Week and presentations and field days for schools and stakeholders)	**Success indicators** **Highly Desirable** • Fact sheets published for declared species • Pest fact sheets distributed and displayed in Council Administration Building, Library and Visitor Information Centre • Number of awareness raising activities organize for both weeds and pest animals	**Actioned by:** CSC BQ/CSC CSC/BQ/ NGRMG

Desirable • Erect pest awareness signs at strategic sites. • Develop and implement a pest awareness program tailored at local stakeholders highlighting key issues including: - roles and responsibilities of stakeholders - the impacts of pests on people - pests declared under model local laws - changes in practice towards integrated pest management - the potential for introduced plants (including garden plants) to become weeds - the potential for introduced animals to become pests - preventing spread of new pests by humans - long-term advantages of weed and pest animal management - new and revised local weed and pest animal incentives - the concepts of community good and general environmental duty of care - suitable local native alternatives to introduced species - locations of vehicle wash-down facilities - improving communication between government, industry, community groups and landholders about pest management - linking pest management with other local government communications plans - surveying the community for levels of pest management awareness	**Desirable** • Number of pest awareness signs erected • Pest awareness programs developed • Timeframes and deadlines met • Number of actions linked to other local government communication plans • Number of stakeholder groups included in communication networks • Number of cooperative actions taken by stakeholders • Information sheet mailed out with annual rates notices	BQ/CSC CSC/NGR MG/LH CSC

Issue 2: Education and Training

Strategic Objective: To enhance stakeholder knowledge of pest impacts and improve skills in pest management.	**Success Criteria** The degree to which individuals and stakeholders pursue education and training in pest management	
Strategic actions **Critical** • Making the Croydon Shire Local Government Area Pest Management Plan available to the community for viewing and comment • Making urban district maps available to the community eg for the destruction of stray dogs	**Success indicators** **Critical** • Number of places where the Croydon Shire Local Government Area Pest Management Plan is available for viewing • Number of places where statutory maps are available for viewing	**Actioned by:** CSC CSC

Highly Desirable • Accredited training of CSC officers • CSC participation in relevant local government training workshops, conferences and forums • Making printed weed and pest animal information available to stakeholders through outlets such as libraries, catchment centres, tourist information centres, motels, caravan parks, petrol stations, shops, schools and other educational institutions • Using media such as newsletter, local newspapers, radio and websites to disseminate pest information to the community • Making other maps available to the community (eg pest distribution, containment lines, environmentally significant areas and survey programs) **Desirable** • CSC contributions to training other stakeholders	**Highly Desirable** • CSC PMO holds necessary accreditations • Number of workshops/meeting attended • Number of pest factsheets and information packages distributed • Number of media uptakes • Number of non-statutory maps made available **Desirable** • Number of training initiatives delivered to stakeholder groups	CSC CSC BQ/CSC CSC CSC/BQ

Issue 3: Availability of Information

Strategic objective: to ensure information about weeds and pest animals is available to all stakeholders	**Success criteria:** The extent to which appropriate information is available to stakeholders	
Strategic actions **Critical** • Making the Croydon Shire local government area pest management plan available to the community for viewing and comment • District maps available to the community **Highly Desirable** • Making printed weed and pest animal information widely available to stakeholders • Using media to disseminate pest information to the community • Making mapping available to the community (eg pest species distribution, containment lines, environmentally significant areas and survey plans)	**Success indicators** **Critical** • PMP available on Council website, copies available to view at Council Administration Centre, True Blue Visitor Information Centre and Council library. Copies available to purchase**.** **Highly Desirable** • Number of venues where pest factsheets and information is available and number of pest fact sheets distributed • Number of times articles published in Bush Telegraph and other media • Pest information on Councils website is relevant and current and includes link to state mapping	**Actioned by:** CSC CSC/BQ CSC CSC/BQ

DESIRED OUTCOME 2

All stakeholders are committed to and undertake coordinated management of weeds and pest animals

Principles: Commitment and Consultation and Partnership

1. Effective pest management requires a long-term commitment to pest management by the community, industry groups and government agencies.
2. Consultation and partnership arrangements between local communities, industry groups, state government agencies and local governments must be established to achieve a collaborative approach to pest management.

Issue: Compliance and enforcement

Strategic objective 1: To ensure compliance with the Act in weed and pest animal management	**Success criteria 1:** The extent to which stakeholders comply with and enforce the Act	
Strategic Actions **Critical** • Create a register of enforcement activities **Highly Desirable** • With stakeholders, develop and implement a compliance program (incentives, warnings, revocation and suspension of rights) with additional communication and education functions • Create a register of authorised local government compliance officers • Implement, and refine where necessary, BQ operational procedures for matters such as: - seizures - quarantine confiscation and destruction of declared pests - entering land - vehicles and property - recovering costs - surveys and inspections • Develop procedures for communicating with state and Australian Government land managers and their lessees about pest management • Network local government compliance officers statewide • Offer compliance training to local government officers and other	**Success indicators** **Critical** • Register is created and enforcement activities are documented **Highly Desirable** • Percentage of key stakeholders supporting the compliance program and the percentage of compliance issues resolved without the need for enforcement • Number of authorised officers, local government delegations and compliance actions included in register • Number of BQ procedures implemented, documented and communicated to stakeholders • Council's compliance officer participates in statewide networking • Number of Council officers who have undertaken compliance training • Local pest species declared under local law	**Actioned by:** CSC All CSC BQ CSC CSC CSC

stakeholders • Develop procedures for assessing and declaring pest species under local laws		CSC
Strategic objective 2: To establish long-term stakeholder commitment to weed and pest animal management	**Success criteria 2:** The proportion of stakeholders working in partnership on long-term pest management	
Strategic actions **Critical** • Establish a working group of key stakeholders to develop, implement and review the Croydon Shire Area Pest Management Plan and annual action plans • Establish partnerships for local weed and pest management **Highly Desirable** • Establish, through consultation, roles and responsibilities for each stakeholder, including contributions to annual action programs • Include resource allocations in annual action plans	**Success indicators** **Critical** • Percentage of key stakeholders represented on the working group • Number of new partnerships established and maintained **Highly Desirable** • Percentage of key stakeholders holding responsibility for PMP actions • As appropriate	 All All All CSC

DESIRED OUTCOME 3

Reliable information is available as a basis for decision making

Principle: Improvement
Research about pests and regular monitoring and evaluation of pest control activities, are necessary to improve pest management practices.

Issues: Data collection and assessment; pest biology and impacts; community attitudes

Strategic objective 1 : To collect, use and make available data relevant to weed and pest animal management	**Success criteria 1:** The extent to which data is collected and used in pest management	
Strategic actions **Highly Desirable** • Map all Class 1 and priority Class 2 declared pests • Contribute local pest data to the BQ Annual Pest Assessment (statewide mapping of all declared species) **Desirable** • Establish ways for community groups and other stakeholders to collect and use data • BQ pest status assessments by disseminating distribution and impact information about existing and potential pests • Facilitate information sharing between stakeholders (eg adjoining local government areas, NGRMG and other state agencies) • Collect administrative information about pest control activities such as the use of chemicals • Monitor and evaluate the effectiveness of control activities	**Success indicators** **Highly Desirable** • Percentage of Class 1 and priority Class 2 declared pests mapped. • Number of species for which data is contributed **Desirable** • Percentage of stakeholder groups collecting and using pest data • Number of BQ pest status assessments supported, with complete data provided • Information is shared between stakeholders • Percentage of operational pest control activities for which administrative information is recorded • Percentage of pest control activities for which monitoring and evaluation data is recorded	**Actioned by:** All CSC/LH SCS/NGRMG/ LH BQ All BQ BQ
Strategic objective 2: To further the understanding of the biology, ecology and impacts of weeds and pest animals.	**Success criteria 2**: The level of stakeholder understanding of pest biology, ecology and impacts, including the costs of action and non-action.	
Highly Desirable • Consider pest behaviour (biology and ecology), pest impacts (economic, social and environmental) and pest control costs in the	**Highly Desirable** • Percentage of priority pests determined with reference to available information on behaviour, impacts and	CSC

local declaration and prioritisation of pest species **Desirable** • Determine the local impact of pests • Contribute information to BQ for the quantification of statewide pest impacts on economic activities, natural ecosystems and human and animal health	control costs **Desirable** • Percentage of priority pests for which local impact information is recorded • Amount of available information provided to BQ and its research, industry and extension partners	 CSC/LH LH/NGRMG
Strategic objective 3: To further the understanding of community attitudes to weed and pest animal management.	**Success criteria 3:** The extent to which community attitudes to pest management are understood	
Strategic actions **Highly Desirable** • Assist BQ in gathering information on community awareness and attitudes **Desirable** • Initiate local surveys of community awareness and attitudes • Link the findings of local pest management surveys with those of other local government attitudinal surveys	**Success indicators** **Highly Desirable** • Number of BQ surveys of community attitudes for which local assistance is provided **Desirable** • As appropriate • Number of questions relating to pest management in local government attitudinal assessment surveys	 CSC CSC CSC

DESIRED OUTCOME 4

Strategic directions are established, maintained and owned by all stakeholders

Principles: Planning and Integration

1. Pest management planning must be consistent at local, regional, state and national levels to ensure resources target priorities for pest management are identified at each level
2. Pest management is an integral part of managing natural resources and agricultural systems

Issues: Planning, strategy management and coordination, resources, holistic management

Strategic objective 1 : To create a planning framework for weed and pest management	**Success criteria 1:** The number of pest management plans at different levels incorporated into the planning framework	
Strategic actions **Critical** • Ensure consistency between the Croydon Shire Area Pest Management Plan and related pest management plans (Principle: Planning) eg Queensland Weeds Strategy; Queensland Pest Animal Strategy; Regional Pest Management Plans; Property Pest Management Plans **Highly Desirable** • Develop property pest management plans for high priority pest situations, considering, for example – quarantine areas, containment areas, environmentally significant areas • Include the large landholding state agencies in planning • Share information with stakeholders involved in other relevant local planning	**Success indicators** **Critical** • Number of related pest management plans featuring local pest management issues **Highly Desirable** • Percentage of high priority pest situations with property pest management plans • Percentage of state agencies with large local holdings participating in the PMP • As appropriate	**Actioned by:** All LH LH CSC
Strategic objective 2 : To implement, evaluate and review integrated weed and pest animal strategies	**Success criteria 2:** The extent of coordination in implementing, evaluating and reviewing pest management plans	
Strategic actions **Critical** • Review the annual action plan three months before the end of	**Success indicators** **Critical** • Percentage of annual action programs given timely	 CSC

each financial year • Complete each new Pest Management Plan six months before the expiry of its predecessor • Implement actions for priority weed and pest animal management **Highly Desirable** • Seek cooperation from surrounding local governments and other stakeholders in implementing PMPs and annual action programs • Form a working group to implement the PMP • Develop strategies for managing matters of conflict eg cultural heritage • Monitor and evaluate the implementation of the PMP	review • As required • Percentage of priority weed and pest animal actions implemented **Highly Desirable** • Number of surrounding local governments involved in cross-border pest management • Percentage of key stakeholders represented on the working group • Number of matters of conflict identified and resolved • As appropriate	CSC Relevant stakeholder CSC All All CSC/LH/BQ
Strategic objective 3: To efficiently and adequately resource weed and pest animal management	**Success criteria 3:** The number of pest management actions that are adequately resourced	
Strategic actions **Highly Desirable** • Commit to adequately resourcing local pest management actions • Submit local government precepts (annual payments) to the Minister for services such as: plague pest control; barrier fences; research; extension **Desirable** • Allocate pest resources according to pest priorities • Seek funding and other resources from e.g. volunteers; industry and private enterprise; Caring for Country; NGRMG; state agencies • Commit to continuing allocation of resources to existing projects, such as: Strategic Weed Eradication and Education Program • Share resources and knowledge with other stakeholders	**Success indicators** **Highly Desirable** • Percentage of local pest management actions adequately resourced • Precepts duly submitted to the Minister **Desirable** • Percentage of resources allocated according to pest priorities • Value of resources obtained from non-local government sources • As appropriate • Number of cooperative projects	All CSC All All All
Strategic objective 4 : To integrate pest management planning with	**Success criteria 4:** The extent to which pest management	

other government, property, community and industry planning	actions are integrated with planning at different levels	
Strategic actions **Critical** • Ensure consistency between the PMP and resource management and other relevant plans (Principle: Integration) eg regional natural resource management plans; catchment plans; conservation management plans; vegetation management plans; local government corporate plans; local government planning scheme; stock route network management plans **Highly Desirable** • Require pest management actions, such as prevention of weed seed spread; planting of non-invasive species; fencing of refuse site etc; to be included in consideration of development applications under Council's planning scheme	**Success indicators** **Critical** • All planning documents covering natural resource management issues consistently deal with pest management actions **Highly Desirable** • Where reasonable and relevant, development permits issued by Council include conditions which address pest management	All CSC/DERM/ DTMR

DESIRED OUTCOME 5

The introduction, establishment and spread of weeds and pest animals are prevented

Principles: Prevention and Public Awareness
1. Preventative pest management is achieved by:
   - preventing the spread of pests and viable parts of pests, especially by human activity
   - early detection and intervention to control pests.
2. Public awareness and knowledge of pests must be raised to increase the capacity and willingness of individuals to manage pests.

Issues: Prevention, Early Detection and Eradication, Containment

Strategic objective 1: To prevent the introduction of new weeds and pest animals	**Success criteria 1:** The extent to which the introduction of new pests in prevented	
Strategic actions **Highly Desirable**	**Success indicators** **Highly Desirable**	**Actioned by:**

• Adopt weed prevention protocols and support their adoption by other local stakeholders • Promote the use of weed hygiene declarations • Use Weed Hygiene Declarations for: stock entering stock routes; movement of machinery and construction equipment; movement of fodder, soil and turf • Prevent the introduction of weeds along transport corridors eg by ensuring that road construction contracts include weed prevention conditions • Prioritise pest species for prevention of entry to the local government area by using published information e.g. distribution maps from pest species guidelines; local pest priorities; adjoining local government pest priorities; potential pest species distribution maps; Annual Pest Assessment maps	• Percentage of key stakeholder groups using weed prevention protocols • Percentage of key stakeholder groups using Weed Hygiene Declarations • Percentage of transport corridors with weed prevention programs • Require 'best practice' condition for prevention of weed seed spread in environmental management plans for road construction contracts • Number of Class 1 and new Class 2 pest species targeted for prevention of entry	All All DTMR/CSC DTMR/CSC CSC/BQ
Desirable • Build, maintain and promote wash-down facilities in strategic locations • Ensure weed prevention conditions are included in contracts e.g. telecommunications; amenities (pipelines); estate development • Promote suitable local alternatives to pest and potential pest species • Investigate the ways that weeds and pest animals enter the local area	**Desirable** • Wash-down facilities available and promoted • Percentage of infrastructure development contracts that include weed prevention conditions • Percentage of retail outlets not selling invasive pest species • Number of entry methods identified	CSC CSC/DTMR Business All
Strategic objective 2: To prevent the local establishment of new pests	**Success criteria 2:** The extent to which the local establishment of new pests in prevented	
Strategic actions **Highly Desirable** • Prioritise pest for early detection and eradication • Implement and promote pest monitoring or survey programs (e.g. an annual survey of roadsides or other critical areas) • Develop a rapid response program together with the state government for handling new infestations of Class 1 pests	**Success indicators** **Highly Desirable** • Number of Class 1 pest species targeted for eradication • Percentage of the local government area covered by such programs • Percentage of Class 1 rapid response programs featuring stakeholder cooperation, and number of key stakeholder groups with roles in these programs	CSC/LH CSC BQ/CSC

Desirable • Develop a rapid response program for handling new infestations of Class 2 pests not common in the local area • Use of emergency quarantine for Class 1, and where appropriate Class 2 pests • Establish a monitoring and identification network for weeds and plague pest animals (e.g. locusts, mice, field rats)	**Desirable** • Percentage of new Class 2 incursions targeted by rapid response programs • Number of quarantine notices issued • Number of reports of plague pests	BQ/CSC BQ All
Strategic objective 3: To minimize the spread of weeds and pest animals to new areas	**Success criteria 3:** The extent to which established pests are prevented from spreading	
Strategic actions **Highly Desirable** • Target priority Class 2 pests for containment • Contain local Class 2 pests in core infestation areas	**Success indicators** **Highly Desirable** • Number of Class 2 pests targeted for containment • Number of complaints received about pest animal damage inside containment areas	 CSC LH

DESIRED OUTCOME 6

Integrated systems for managing the impacts of established weeds and pest animals are developed and widely implemented

Principles: Best Practice, Improvement and Public Awareness

1. Pest management must be based on ecologically and socially responsible pest management practices that protect the environment and the productive capacity of natural resources
2. Research about pests, and regular monitoring and evaluation of pest control activities, are necessary to improve pest management practices.
3. Effective pest management requires a long-term commitment to pest management by the community, industry groups and government entities.
4. Public awareness and knowledge of pests must be raised to increase the capacity and willingness of individuals to manage pests.

Issues: Adoption of Management Techniques, Population and Impact Management, Environmentally Significant Areas, Development of Management Practices, Incentives

Strategic objective 1: To adopt and promote best practice in weed and pest animal management	**Success criteria 1:** The extent to which best practice is adopted	
Strategic actions	**Success indicators**	**Actioned by:**

Highly Desirable • Adopt timely and effective integrated best practice management for priority pest species that considers: timing; integrated techniques; non-target damage; costs; prevention; animal welfare; workplace health & safety; monitoring; new research; operational procedures; chemical registration requirements • Distribute best practice publications to relevant stakeholders **Desirable** • Prevent access to refuse sites by pest animals (e.g. feral pigs) • Contribute to developing potential productive uses of pests	**Highly Desirable** • Percentage of priority pest operations based on best practice • Best practice publications available through library, Visitor Information Centre **Desirable** • Refuse sites fenced • Number of pest species considered for productive uses	CSC CSC CSC/LH BQ
Strategic objective 2: To reduce pest populations and impacts	**Success criteria 2:** The extent to which the populations and impacts of established pests are reduced	
Strategic actions **Highly Desirable** • Coordinate plague pest animal management with stakeholders • Coordinate impact reduction programs for established pest animals e.g. baiting; trapping **Desirable** • Distribute biological control agents • Maintain problem animal reduction programs eg registering cats and dogs; fencing; refraining from feeding wildlife; constructing poultry enclosures; removing waste	**Success indicators** **Highly Desirable** • Number of complaints received about plague pests • Number of such programs coordinated for established pests, and number of participating land managers **Desirable** • Number of different biological control agents distributed • Number of complaints about problem animals resolved	LH CSC/LH BQ/CSC CSC
Strategic objective 3: To protect environmentally significant areas from weeds	**Success criteria 3:** The degree of protection afforded to environmentally significant areas by weed management programs	
Strategic actions **Highly Desirable** • Identify and prioritise environmentally significant areas for weed management	**Success indicators** **Highly Desirable** • Number of such areas identified and prioritized for weed management	CSC

Strategic objective 4: To develop new, and improve existing, weed and pest animal management practices	**Success criteria 4:** The extent to which local pest management practices are developed and improved	
Strategic actions **Highly Desirable** • Identify inadequacies in existing pest management • Identify areas for future research • Contribute to developing local best practice **Desirable** • Assist research projects • Ensure the adaptability of pest management practices	**Success indicators** **Highly Desirable** • Number of improvements recommended • Number of research needs identified • Number of new contributions to local best practice **Desirable** • Number of research projects assisted • Number of adaptive management practices developed	 All All All All All
Strategic objective 5: To offer incentives to stakeholders for practicing pest management	**Success criteria 5:** The extent to which incentives enhance pest management	
Strategic actions **Highly Desirable** • Continue to offer effective existing incentives • Assess the effectiveness of existing and potential incentives (and disincentives) for pest management e.g. barter programs and free herbicides **Desirable** • Revise, or introduce suitable new, weed and pest animal incentives	**Success indicators** **Highly Desirable** • Number of land managers using existing incentive programs • As appropriate **Desirable** • As appropriate	 LH BQ/CSC All

Part C: Pest-specific management programs

This part of the plan sets out the four-year programs for declared and high priority environmental weeds and pest animals identified for Croydon Shire.

6. Overview of pest management priorities

A full listing of the classes of declared pests in Queensland is contained in Appendix 1.

In the preparation of this plan, Croydon Shire Council undertook a prioritisation process for the management of species that are present in the shire and legislated for management under the Act, or are deemed to pose a significant local threat. These pests are summarised in the tables below.

The management of these species has assigned a **priority:** high, medium or low. The priority given to the management of a species is based upon threat, distribution and declaration status, in particular the:

- potential detrimental impact to the shire of not doing anything to control the pest
- beneficial impact of spending money now to control the pest (eg a weed is only present in very small numbers in the shire, meaning that for a small amount of money and effort the weed could be eradicated).

Based on the pest's biology, ecology and distribution, each pest plant and animal was rated according to its **strategic importance**: its potential threat to areas of high natural value or agricultural importance. The rating categories were:

1 Very dangerous
2 Dangerous
3 Potential
4 Not much threat
5 No threat

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

1 Could be eradicated from the Shire/specific area or not currently present
2 Could be significantly reduced in area (plants) or numbers (animals) in the shire/specific area
3 Could be contained/prevented from spreading (plants) or could prevent major/rapid increase in numbers (animals)
4 Could be managed effectively with an acceptable level of bio-control

For declared and high priority environmental weed and pest animal species, species-specific management programs have been prepared and are set out in section 7 of the plan.

DECLARED PRIORITY WEEDS

Common name	Scientific name	Declaration	Priority	Strategic Importance	Achievability
Rubber vine	*Cryptostegia grandiflora*	Class 2	High	2	3
Chinee apple	*Ziziphus mauritiana*	Class 2	Medium	2	2
Parthenium	*Parthenium hysterophorus*	Class 2/WONS	High	3	1
Giants Rats Tail	*Sporobolus pyramidalis and S. natalenis*	Class 2	High	2	1
Mesquite	*Prosopis glandulosa, P. Pallida and P. vellutina*	Class 2/WONS	High	2	1
Bellyache Bush	*Jatropha gossypifolia*	Class 2	High	1	1
Parkinsonia	*Parkinsonia aculeate*	Class 2/WONS	Medium	2	1
Water Hyacinth	*Eichhornia crassipes*	Class 2	Low	3	4
Prickly Acacia	*Acacia nilotica*	Class 2	High	3	1

NON-DECLARED PRIORITY WEEDS (ENVIRONMENTAL PESTS)

Common name	Scientific name	Declaration	Priority	Strategic Importance	Achievability
Caltrop	*Tribulus terrestris*	Not declared	Low	2	4
Khaki Weed	*Alternanthera pungens*	Not declared	Low	2	1
Neem Tree	*Azadirachta indica*	Not declared	Low	3	2
Calotrope	*Calotropis procera*	Not declared	Medium	4	2
Stinking Roger - Hyptis	*Hyptis suaveolens*	Not declared	Medium	2	4
Noogoora Burr	*Xanthium pungens*	Not declared	Low	2	2
Siratro	*Macroptilium autropuprreum*	Not declared	Low	4	2
Grader Grass	*Themeda quadrialvis*	Not declared	Low	3	1
Leucaena	*Leucaena leucucephala*	Not declared	Low	3	1

DECLARED PEST ANIMALS

Common name	Scientific name	Declaration	Priority	Strategic Importance	Achievability
Dingo / Wild Dog	Canus familiaris dingo	Class 2	High	2	2
Feral Pig	Sus scrofa	Class 2	High	2	2
Feral Cat	Felis catus	Class 2	Low	2	2
Rabbit	Oryctolagus cuniculus	Class 2	Low	2	2

7. Priority weed and pest animal programs

Species specific programs have been developed for weeds and pest animals identified in section 6 of this plan.

Each program:

- identifies the common and scientific names of the high priority weed of pest animal
- provides a description of the problem (ie the pest's biological characteristics, and potential and actual threats)
- describes the local distribution of the pest
- identifies the priority given to its management in Australia, Queensland, the region and adjacent local government areas (including state and local status)
- identifies objectives (eg prevention, eradication, containment)
- identifies operational actions (in relation to each action, identifies key stakeholder groups responsible for implementing those actions and when actions will be carried out)
- identifies measures of success and success indicators to assess the effectiveness of operational actions against the operational objectives.

Pest Specific Strategies

1. RUBBER VINE (*Cryptostegia grandiflora*)

Strategic Importance	Achievability	Priority
2	3	HIGH

Declaration Category – Plant 2

Description:

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

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

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

Impact: Environmental, Economic, Social

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

- Invasion and replacement of native flora and wildlife habitat,
- Prevention of cattle accessing watering points along rivers and creeks
- Prevention of mustering, as cattle hide in thick infestations and are impossible to move
- Poisonous to stock
- Reducing access to fishing holes and camping areas

Distribution: Rubber vine prefers areas with a rainfall of 400 – 1,400 mm per year

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

1. Prevention (1 year's seeding = seven year's weeding)
2. Rust (*Maravalia cryptostegiae*) from Madagascar seems to be reducing spread rate
3. Fire – if there's sufficient fuel (keep stock out for 12 months to allow sufficient fuel to accumulate). Kill rate 50-70%.
4. Mechanical options: Suitable for medium to dense infestations, but must be followed up with repeated treatment foliar spraying, basal bark spraying or fire. Use cutter bars, blade ploughing or discing (kill rate of 90% possible), bulldozing (not recommended as low (10%) kill rate and kills native vegetation), slashing using a heavy duty slasher with blunt blades (50% kill rate).
5. Herbicides: Foliar spray, basal bark, cut stump, aerial application using different chemicals and treatment types depending on density and preference

Strategic Objective: To eradicate scattered and isolated infestations of Rubber Vine and contain and reduce larger infestations	**Success Indicators:** • Any new plants are treated; • No perceived new infestations • Visible reduction of larger infestations	
Obstacles: Floods spread seed, difficult to get enough fuel for a fire to burn, many seeds per seed pod, wide spread, access to infestations difficult		
Action: Rubber Vine	**By Whom**	**When**
1. Treat scattered and isolated plants;		
• Pest Management Officer to prepare maps on distribution of all known Rubbervine infestations in Croydon Shire	CSC / Landholders – AF Rubbervine distributed on request.	Constantly monitor
• Pest Management Officer to GPS and record location and density of all rubber vine infestations	CSC	As reported
• Pest Management Officer to chemically control all infestations within the town area	CSC	As reported
• Start destroying strategic infestations on a catchment basis	CSC	October - May
2. **Large infestations to be reduced by fire and bio-control**	CSC/Landholders	October - May
3. Pest Management Officer to provide best practice control information to landholders	BQ	

Pest Monitoring Process:
Circulate landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

2. CHINEE APPLE (*Ziziphus mauritiana*)

Strategic Importance	Achievability	Priority
2	2	MEDIUM

Declaration Category – Plant 2

Description:

Chinee Apple is from Mauritius, India and southwest China. It is a large shrub or small spreading tree up to 8 m high and 10 m in canopy diameter. The plants are densely branched, from ground level in some cases. They grow as open forests or thorny thickets along waterways. Branches are zigzag in shape and have a leaf and a thorn at each angle. Leaves are rounded, glossy green above and almost white underneath. Flowers are small, greenish-white and have an unpleasant smell. The edible fruit are like a cherry but pale yellow or orange when ripe. During the dry, Chinee Apple drops most of its leaves due to water stress. It shows no marked preference for any soil type or vegetative association, but does not grow beneath the canopy of other vegetation.

Dispersal: Trees produce large quantities of fruit, which is readily eaten by stock, birds and humans. Trees, which are damaged at the top can regrow from lignotubers or cut roots.

Control: Large infestations can be knocked down with a bulldozer, pushed into a heap and burned. This should be followed up with chemical control of seedlings and suckers.

Small areas can be controlled with basal bark treatment with Starane (Fluoroxpyr) or Triclopyr (Garlon or Access). The cut stump method is also successful with Triclopyr.

Impact:

Dense infestations produce impenetrable thickets, which seriously hamper stock management and reduce pasture productivity and accessibility. This weed also devastates native plants and animals.

Distribution: Predominately around former mining towns in North Queensland

Strategic Objective:	Success Indicators:
Eradicate plant from shire	No new plants found

Actions:	By Whom	When
1. Education on plants status		
• Educate landholders on the pest potential of Chinee Apple as part of Extension activities	BQ	Bi-Monthly
• Pest Management Officer to provide best practice control information to landholders	CSC/NRM	Newspaper Monthly or as required
2. Eradicate in Town		
• Pest Management Officer to prepare maps on distribution of all known Chinee Apple infestations in Croydon Shire	CSC	
• Pest Management Officer to GPS and record location and density of all Chinee Apple infestations in Croydon Shire	CSC	As reported
• Pest Management Officer to chemically control all infestations of Chinee Apple within the town and surrounding area (NB: all Parkinsonia and Calotrope plants found will be controlled at the same time)	CSC	Ongoing

Pest Monitoring Process:

Circulate landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

3. PARKINSONIA
(Parkinsonia aculeate)

Strategic Importance	Achievability	Priority
2	1	MEDIUM

Declaration Category – Plant 2

Description: Parkinsonia is a shrub or small tree, rarely growing to 10 metres in height. It has slender green photosynthetic zigzag branches that have sharp spines. Leaf branches are 20 - 40 cm long, flattened with small, oblong leaflets along each edge.

Flowering: The flowers are yellow, fragrant, and have five petals on along drooping stalk. The seeds are oval, hard and about 1.5 cm long, borne in pencil like pods 5 - 10 cm long constricted between seeds.

Dispersal: Pods mature in late summer, float on water and are therefore readily dispersed by floodwaters. Seeds are viable for a number of years.
Control: There are several forms of control methods available to control Parkinsonia:

1. Mechanical control if away from watercourses.
2. Fire will kill seedlings only if there is enough heat.
3. A number of registered herbicides for chemical control are available for: basal bark, cut stump, foliar spray and soil application.

Two biological control agents have been released which attack the seed and have been moderately successful. Another biological control agent has been released which attacks the leaves but has not caused any significant impact in Queensland.

Impact: Parkinsonia can form dense and often impenetrable thickets along watercourses and bore drains. This in turn denies access to watering points and makes mustering exceptionally difficult. Such infestations can also harbour large numbers of feral animals.
Distribution: Parkinsonia is readily adaptable to most soil types and has spread to large areas of Queensland. Parkinsonia infestations within Croydon are as yet confined to several small infestations.

Strategic Objective	Success Indicators:
To eradicate the plant from in the shire	• No new plants • All known infestations treated

Obstacles:
Access to infestations difficult

Actions:	By Whom	When
1. Map infestations		
• Pest Management Officer to prepare maps of all known Parkinsonia in shire.	CSC / Landholders	Review annually
• Pest Management Officer to provide best practice control information to landholders	CSC	
• Pest Management Officer to GPS and record location and density of all rubber vine infestations in shire.	CSC/Landholders	Review annually or as reported
2. Treat all infestations with the shire		Review annually or as reported
• Pest Management Officer to chemically control all infestations within the town Area (NB: Parkinsonia to be treated as part of Chinee Apple control program)	CSC & landholders	

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

4.CALOTROPE
(Calotropis procera)

Strategic Importance	Achievability	Priority
4	2	Medium

Declaration Category - Nil

Description: Calotrope is a native of tropical Africa and Asia. It is a spreading shrub or small tree, which can grow up to 4 metres in height. A milky sap oozes from any part of the plant, which is cut or broken. Stems are smooth and pale greyish-green. Mature stems have a characteristic beige corrugated bark, cork like in appearance and texture. Grey-green leaves are attached in opposite pairs directly to the stem. Leaves are large (10 - 20 cm long and 4 - 10 cm Wide) with a short pointed tip and heart shaped base.

Flowering: Flowers grow in groups (of up to 15) in the forks of the uppermost leaves. They have 5 waxy petals that white, purple tipped and a central purplish crown.

Dispersal: Large mango shaped fruit about 8 - 12 cm long that bursts open when ripe to release numerous seeds which have tufts of long silky hairs at one end. Can be carried long distances on the wind.

Control: Foliar Spraying, Cut Stump or Basal Bark Spraying can achieve chemical control.

Impact: Calotrope can readily become established on overgrazed pastoral land or land disturbed by human interference. Dense thickets can form on alluvial flats or along rivers, which in turn will decrease pasture production and access to watering points as well as decreasing property values. **NB:** poisonous to both stock and humans.

Distribution: Widely naturalized across large areas of the Gulf country.

Strategic Objective:	**Success Indicators:**
• Control in town area; • Investigate threat to rural landholders.	No new infestations within the town area

Obstacles:

Access to infestations, extent of the problem is not known, the perception by graziers that Calotrope is a stockfeed

Actions:	**By Whom**	**When**
1. Town control with view to eradication;		
• Pest Management Officer to prepare maps on distribution of all know Calotrope infestations within the town area	CSC	Ongoing
• Pest Management Officer to chemically control all infestations within the town area (NB: Calotrope to be treated as part of Chinee Apple control program)	CSC	As reported
2. Ascertain concern by landholders to the plant	NRM /Landholders	
3. Education on Pest Potential and Control		
• Educate landholders on the Pest Potential of Calotrope as part of Extension activities:	NRM/DEEDI	

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

5. CALTROP (Tribulus terrestris)

Strategic Importance	Achievability	Priority
2	4	Low

Other Common names include, yellow vine, puncture vine, bullhead, goat-head and cathead.

Declaration Category - Nil

Description: A spreading prostrate annual or biennial, with branches up to 60 cm long and a woody tap-root; stems and leaves, especially when young, usually covered with silky hairs; leaves opposite with 5-7 pairs of leaflets; leaflets about 12 mm long and 6 mm wide, with an obliquely rounded base and a blunt point at the tip, green above and paler beneath; flowers pale yellow, carried singly on a short stalk in the joint of one of the pairs of laves; fruits or burrs woody, composed of 5 segments, each with 2 large spreading and usually 2 small, stout conical spines, whole fruit about 12 mm across.

Dispersal: Dispersal is via the large "goatshead" burrs that readily attached to passing vehicles and livestock

Control: Chemical options particularly foliar spraying is successful

Impact: The burrs are capable of causing injury to animals, people and vehicle/bicycle tyres

Distribution: This plant is widely distributed across Queensland

Strategic Objective: Eradicate in town | **Success Indicators:** No complaints

Obstacles: Longevity of seed, cost of chemical control

Actions:	**By Whom**	**When**
1. Treat all plants in town (Council to provide a herbicide spraying service to local residents for a nominal fee)		
• Pest Management Officer to prepare maps on distribution of all known Caltrop infested areas within the town area	CSC	August - May
• Pest Management Plan Working Group to make recommendation to Croydon Shire Council to provide a herbicide spraying service to local residents for a nominal fee.	Working Group	Annually
• Pest Management Officer to spray all Council controlled land (e.g.; Camping Reserves, Parks, Roadsides, etc.) NB: all Hyptis, Khaki Burr, and Siratro found in these areas will be controlled at the same time	CSC	May - August
• Pest Management Officer to contact residents with knowledge Caltrop (Goats Head) infestations and offer to control for nominal fee. NB: all Hyptis, Khaki Burr, and Siratro found in these areas will be controlled at the same time	CSC/landholders	As notified
2. Education on Pest Potential and Control	CSC	August - May
• Educate landholders on the Pest Potential of Caltrop (Goats Head) as part of Extension activities.		

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources Annual Allocation from Croydon Shire Council Operational Plan – As required.

6. STINKING ROGER – HYPTIS (Hyptis suaveolens)

Strategic Importance	Achievability	Priority
2	4	MEDIUM

Declaration Category – Nil

Description: Annual, erect, woody based herb with hairy, 4-angled stems, dull green leaves with a strong aromatic smell when crushed; leaves opposite stalked, lance shaped, pointed at the tip, rounded to heart-shaped at the base, shallowly serrate, 3-10 cm long and 2-7 cm broad.
Flowering: Flowers small, lavender about 5 mm long, usually arranged in few-flowered clusters in the forks of the upper leaves.
Control methods: Can be controlled by spraying with 2,4-D at strength of 0.2% or Amicide 625. Council awaiting approval for Quik Spray Unit.

Impact: Invades areas where the pasture is depleted and particularly disturbed sites
Distribution: Hyptis is a native of South America naturalised extensively in northeastern Queensland except in the very wet areas. It is particularly common in coastal sandy situations and occurs as a weed of disturbed areas, roadsides, fallow land and cultivation headlands.

Strategic Objective: Eradicate in strategic areas on properties, camping grounds and parks/gardens.

Success Indicators: Reduction in infestations throughout the Shire.

Obstacles: Longevity of seed, cost of chemical control and equipment.

Actions:	By Whom	When
1. Treat all plants in town (Council to provide a herbicide spraying service to local residents for a nominal fee)	CSC	August - March
• Pest Management Officer to prepare maps on distribution of all known Hyptis infested areas within town area	CSC	Review Annually
• Pest Management Plan Working Group to make recommendation to Croydon Shire Council to Declare Hyptis (Stinking Roger) under the *Local Government Act* 1993 for relevant areas of the Shire (Camping reserves, Roadsides, Urban areas, etc.) to a specified level of control.	Working Group / CSC	Review Annually
• Pest Management Plan Working Group to make recommendation to Croydon Shire Council to provide a herbicide spraying service to local residents for a nominal fee.		
• Pest Management Officer to spray all Council controlled land (e.g.; Camping Reserves, Parks, Roadsides, etc.) NB: Hyptis to be treated as part of Caltrop control program.		
• Pest Management Officer to contact residents with know Hyptis (Stinking Roger) infestations and offer to control for nominal fee.		Review Annually as part of Budget process
2. Education on Pest Potential and Control	Working Group / CSC	
• Educate landholders on the Pest Potential of Hyptis (Stinking Roger) as part of Extension activities.	BQ	August - March
• Encourage landholders to treat strategic areas within the Shire		

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – As required.

7. KHAKI WEED
(*Alternanthera pungens*)

Strategic Importance	Achievability	Priority
2	1	Low

Declaration Category – Nil **Description:** A native of tropical America, Khaki Weed is a prostrate, creeping perennial herb with reddish trailing stems to 60cm long. Several stems arise from each crown and roots form at stem nodes. Leaves are in opposite pairs of unequal size to 4 cm long but commonly 2 cm, numerous, oval or ovate, shortly stalked, glabrous or sparsely hairy and prominently veined on the underside. Flowers are inconspicuous, surrounded by sharply pointed, chaff-coloured bracts occurring in clusters in the leaf axles. The fruit is a chaff-coloured prickly burr about 1 cm long.
Dispersal: Mainly by the burrs attaching to animals, equipment, clothing and tyres as well as the movement of fodder.
Control: The large taproot makes this plant difficult to kill. It can be cultivated, but follow-up cultivation or herbicide action (Amitrole T or Dicamba) must be undertaken to kill seedlings that may grow from seeds or cuttings left uncovered by soil. Grazon DS is effective on large mature plants before flowering. Spraying must be done before the large taproot forms. Small areas can be mown with a catcher and the caught material burnt. Council currently using KAMBA and Amicide 265 for control.

Impact: Khaki Weed colonises bare or disturbed areas. It is seldom a problem on well-managed sown pastures, but occasionally establishes in native pastures where it out-competes most other species. The heads cause mechanical damage to the mouths and feet of stock and dogs. It causes annoyance to bare-footed people, and is claimed to cause hay fever, asthma and dermatitis in some people
Distribution: Widely spread throughout Queensland

• **Strategic Objective:** Eradicate in Town	**Success Indicators:** No new infestations

Obstacles: Seed Longevity

Actions:	**By Whom**	**When**
1. Treat all plants in town (Council to provide a herbicide spraying service to local residents for a nominal fee)	CSC	August - May
• Pest Management Officer to prepare maps on distribution of all known Khaki Burr infested areas within the town area	CSC	Review Annually
• Pest Management Plan Working Group to make recommendation to Council to Declare Khaki Burr under the *Local Government Act* 1993 for relevant areas of the Shire (Camping reserves, Roadsides, Urban areas, etc.) to a specified level of control.	Working Group / CSC	Review Annually
• Pest Management Plan Working Group to make recommendation to Council to provide a herbicide spraying service to local residents for a nominal fee.	Working Group / CSC	Review Annually – Budget process
• Pest Management Officer to spray all Council controlled land (e.g.; Camping Reserves, Parks, Roadsides, etc.) NB: Khaki Burr to be treated as part of Caltrop control program.	CSC	August - May
• Pest Management Officer to contact residents with known Khaki Burr infestations and offer to control for nominal fee.	CSC NRM	August - May Bi-Monthly
2. Education on Pest Potential and Control		Bi-Monthly
• Educate landholders on the Pest Potential of Khaki Burr as part of Extension activities.	NRM	and Annually

Pest Monitoring Process: Circulate Landholders with annual Corporate Planning Questionnaire – June/July.

Resources
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

8. SIRATRO (*Macroptilium autropupurreum*)

Strategic Importance	**Achievability**	**Priority**
4	2	Low
Declaration Category - Nil **Description:** Siratro is a twining perennial with hairy, dark green, alternate leaves, composed of three leaflets, and dark purple -red pea flowers; leaflets pointed at the tip, sometimes with one or two lobes, rounded to heart shaped at the base, up to 6 cm long, carried on a leaf stalk up to 8 cm long; flowers about 1.5 cm long, clustered at the ends of the flower stalks; pods straight and narrow, up to 9 cm long and 4 mm wide, splitting along both sides when ripe. Native of Central and Southern America. Dispersal: Planted widely as a stock feed which its main source of dispersal. Control: Foliar spraying when it is a problem.		
Impact: Although a useful pasture legume species Siratro is also classified as an occasional horticultural and urban pest. Distribution: Widely spread and naturalized through out Northern and Eastern parts of Queensland		
Strategic Objective: • To reduce the amount of plants in Town area	**Success Indicator:** Infestations in Town area kept to a manageable level.	
Obstacles: Longevity of seed, perception that this plant is stock feed only		
Actions: **1. Treat plants in town area** • Pest Management Officer to spray Siratro within the town area as part of Caltrop (Goats Head Burr) control program. (NB: very low priority due to the status of this plant as a common pasture species).	**By Whom** CSC	**When** August – May
Pest Monitoring Process: Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.		
Resources		
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.		

9.NOOGOORA BURR
(Xanthium pungens)

Strategic Importance	Achievability	Priority
2	2	Low

Declaration Category – Nil

Description: Noogoora Burr is an erect annual herb that can grow up to 2.5 metres in height. It has blotched purple stems and leaves that are dark green on the upper surface and are of similar shape to a grape. Flowers are not readily noticeable but develop into hard woody spiny burrs about 1.2 to 2 cm in length with numerous hooked spines

Dispersal : Noogoora Burr is exceptionally common along river and creek flats. Seeds are also readily dispersed by stock and machinery.

Control: numerous methods of control are available:

1. Cultivation prior to flowering.
2. Hand pulling isolated seedlings prior to flowering.
3. Spraying with 2,4-D Amine prior to flowering will give excellent results.
4. Some level of control has been achieved using biological control agents: particularly a Rust Fungus (*Puccinia xanthii*), which is more effective in the tropical areas. There are also stem boring and stem galling insects that have been released with varying levels of success.

Impact: Noogoora Burr contaminates wool severely increasing production costs. It decreases pasture production and can also deny stock access to watering facilities. Seedlings are poisonous to domestic stock.

Distribution: Noogoora Burr is widespread across Queensland but particularly prefers alluvial flood plains.

Strategic Objective:	Success Indicators:
Control and reduce effect	No dead cattle reports

Obstacles:

Longevity of seed, access to areas infested (usually creeks) when actively growing

Actions:	By Whom	When
1. Monitor and encourage landholders to eradicate/control plants in strategic areas	CSC	Bi-Monthly
• Educate landholders on the Pest Potential and control of Noogoora Burr		
• Encourage landholders to treat strategic areas within the Shire	BQ	Bi-Monthly
• Landholders to ensure adequate levels of Noogoora Burr Rust Fungus are present in years of higher rainfall	Landholders	Property Control Programs
• Seek out and apply for funding for control and survey work		

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

10. WATER HYACINTH (Eichhornia crassipes)

Strategic Importance	Achievability	Priority
3	4	Low

Declaration Category – Plant 2

Description: Originally from Brazil, Water Hyacinth is a floating waterweed with dark green rounded leaves up to 5 cm across and a fibrous root system. The leaf stalks are swollen into spongy bulbous structures.

Flowering: Flowers are light purple with a darker blue/purple and yellow centre. They are borne in dense spikes projecting above the plant.

Dispersal: Water Hyacinth grows from both seed and vegetative reproduction.

1. Daughter plants produced by vegetative reproduction remain attached to the parent plant until broken off by wind or other physical damage. In warm climates vegetative reproduction is rapid and enables the formation of large rafts of plants within a short time.
2. Flowering can begin as early as October and continue throughout the summer. Each of the flowers on the stalk remains open for one or two days before beginning to wither. When all flowers on a plant have withered, the stalk bends into the wind. Seeds are released from capsules at the base of each dead flower after about 18 days.

Control: Control is best if it incorporates an integrated approach with prevention being the best option. Methods include:

1. Mechanically removing the plant.
2. Biological control - several insects have been released with varying results.
3. Chemical control - a number of herbicides are registered for use but it is imperative to read the label prior to spraying.

Impact: Large dense infestations can destroy native wetlands and waterways, killing native fish and other wildlife. It can cause a health risk to the public as well as causing a loss of water quality and quantity.

Distribution:

Strategic Objective:	**Success Indicators:**	
Maintain current level of infestation.	No new infestations	
Actions:	**By Whom**	**When**
1. Inspect and determine extent of current infestations		
• Pest Management Officer to map distribution within shire and report back to Pest Management Plan Working Group when plan is revised	CSC & Landholders	Review Annually
• Pest Management Plan Working Group to review situation when plan is revised.	CSC	Review Annually
• Pest Management Officer to provide best practice control information to landholders		
• Pest Management Officer to GPS and record location and density of all infestations in shire	CSC / Working Group	Review Annually
• Seek out and apply for funding for control and survey work	CSC	

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

11. BELLYACHE BUSH
(Jatropha gossypifolia)

Strategic Importance	**Achievability**	**Priority**
1	1	High

Declaration Category – Plant 2

Description: Bellyache Bush is a native of North America. It is a squat, thick-stemmed shrub 2.5 to 4 metres tall developing from a short, single stemmed plant with three or four young leaves sprouting from the top. Young leaves are deeply divided into three rounded lobes, and are purple coloured and sticky. Older leaves are bright green, about 10 cm in diameter and may have up to five lobes, the edges are covered in course dark brown hairs.
Flowering: The flowers are small, red with yellow centres, and are in small clusters throughout the upper part of the plant. Seed pods are smooth and oval, about the size of a cherry, 12 mm across and contain three to four seeds about 8 mm long.
Control: Control can be achieved by overall spraying with either Brushoff or Starane and a wetting agent. Grubbing by hand is useful for minor infestations and fire and slashing will also reduce major infestations of Bellyache Bush.

Impact: Bellyache Bush out-competes native vegetation, reduces pasture growth, and hinders mustering. It is exceptionally aggressive on areas of prime river frontage. The fruits of the plant are poisonous to both humans and livestock. NB: Bellyache Bush can cause death.
Distribution: Odd plants can be found throughout Queensland particularly in gardens and around rubbish dumps. The major infestations in Queensland occur in the Burdekin River Catchment where it has showed adaptability to a variety of soil types. To date only one plant has been found in Croydon Shire.

Strategic Objective:	**Success Indicator:**
• To keep out of Croydon Shire.	• No infestations in Shire.

Obstacles**:**
Lack of people able to identify this plant within the Shire

Actions:	**By Whom**	**When**
1. Monitor, awareness exercises & identify suspect plants		
• Pest Management Officer to re-inspect town area whilst conducting spray programs to observe presence of Belly Bush plants in gardens and adjacent areas and to ask landholders to destroy any plants found.	CSC & BQ	
• Pest Management Officer to ensure that monitoring for plants in the vicinity of the town dump and their destruction.	CSC	Bi-Monthly
• Pest Management Officer to provide best practice control information to landholders		
• Seek out and apply for funding for control and survey work	CSC	

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

12. NEEM TREE
(Azadirachta indica)

Strategic Importance	Achievability	Priority
3	2	Low

Declaration Category - Nil

Description: Neem is a moderate to large size tree 12 - 2- meters high, reaching a girth of 1.8 – 2.5 meters. It forms a round crown with a spread of 5 - 10 meters; it is a broad leaf, evergreen tree, except in periods of drought when it will drop leaves; has a relatively straight trunk with moderately thick bark; roots deeply; grows moderately fast; is hardy; coppices rapidly and produces root- suckers.
Leaves are alternate, compound, 23 - 38 cm long. Leaflets (7 to 17) alternate or opposite, very shortly stalked, 6 - 7 cm long, oblique, toothed.
The tree is open pollinated, and the small, white, scented, bisexual flowers are borne on auxiliary clusters, which are shorter than the leaves and attract bees.
The fruit smooth, ellipsodal drupe 1.2 - 1.8 cm long, greenish-yellow when ripe, with a bittersweet pulp and one to two seeds. The flowers and fruit stink badly after rain.

Impact: Neem Trees are a recent Environmental Pest Species. That rapidly colonises areas where there is adequate moisture to sustain their rapid growth.
Distribution: Throughout Northern Queensland the Neem Tree is readily planted as a shade tree. There is also a large plantation on the Gilbert River in the Etheridge Shire.

Strategic Objective:	**Success Indicator:**
• To monitor the current population within the Shire	• Request reports from landholders through Bush Telegraph Newspaper Items & monitor for reports of increases & problems.

Obstacles: Easily spread by seed by wind, water or birds.

Actions	**By Whom**	**When**
1. Monitor and awareness exercises	CSC & NR&M	Bi-Monthly
• Educate landholders on the Pest Potential of Neem Tress	NR&M	Bi-Monthly
• Continue to review annually	Working Group	Review Annually

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

13. PARTHENIUM (*Parthenium hysterophorus*)

Strategic Importance	Achievability	Priority
3	1	High

Declaration Category – Plant 2

Description:

Parthenium is a native of subtropical North and South America. It is an annual herb with a deep taproot and an erect stem that becomes woody with age. As it matures, the plant develops many branches in its top half and may eventually reach a height of 2 m. The leaves are pale green, lobed and covered with soft, fine hairs. Small creamy white flowers occur on the tips of the numerous stems. Seeds are 2 mm long, black with two thin white scales.

Dispersal: Spread easily by machinery, feral animals, humans, vehicles, stock fodder, stock movement and pasture seeds.

Control: Manual – hand-pulling is not recommended due to health hazards of plant contact as well as the danger that mature seeds will drop off and increase the area of infestation. Burning is generally not an option for this weed. Pasture management and timely herbicide application is the key to successful management of this weed. 7 herbicides are registered for the purpose (refer BQ Pest Fact).

Impact:

Parthenium can overrun weak or overgrazed pastures with low ground cover and disturbed bare areas along roadsides, yards and watering points. It reduces the reliability of establishment of pasture, reduces pasture production potential and reduces land values. Parthenium is also a health problem as contact with the plant or the pollen can cause serious allergic reaction such as dermatitis and hay fever.

Distribution: Parthenium will grow anywhere, however it has not established as a serious pest is high rainfall areas. **NB:** Parthenium is not yet found in Croydon Shire but the potential for contamination from the Central Highlands by vehicle or in stockfeed is exceptionally high.

Strategic Objective:	Success Indicator:
• To keep out of Croydon Shire	• No infestations found

Obstacles:
Large quantities of traffic (via tourists and stock movements) and stock feed entering shire that could easily be contaminated, longevity of seed, spreads rapidly, lack of people in the shire who can accurately identify parthenium

Actions:	**By Whom**	**When**
1. Monitor & awareness exercises.		
• Educate landholders on the pest potential of Parthenium	BQ	
• Landholders and Pest Management Officer to monitor properties and roadsides for presence of Parthenium	Landholders/ CSC	Ongoing
• Pest Management Officer to be notified of all suspect plants. BQ to assist with positive identification and advise on control strategy.	CSC / Landholders /BQ	As reported
• Pest Management Officer to provide best practice control information to landholders		As reported
• Pest Management Officer to GPS and record location and density of all Parthenium infestations in shire	CSC/BQ/ Landholders	
• Seek out and apply for funding for control and survey work	CSC	
2. Provide advice on agisted cattle & equipment movements		
• Educate Landholders on the importance of good property hygiene.	BQ	

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required

14. PRICKLY ACACIA (Acacia nilotica)

Strategic Importance	Achievability	Priority
3	1	High

Declaration Category – Plant 2

Description: Prickly Acacia is a thorny shrub or small tree that is originally a native of Pakistan. It usually grows to about 4 – 5 metres in height but can grow as high as 10 metres. Young shrubs form dense thorny thickets while the mature trees are usually single stemmed with spreading branches, which have lost most of their thorns. Leaves are finely divided and fern like, with four to ten pairs of narrow green leaflets on each branch. Pairs of stout thorns, usually 5 to 10 cm long grow at the base of leaves.

Flowering: Flowers are golden-yellow, ball-shaped and about 1 cm across. They grow on stems from the leaf joint with 2 to 6 flowers per group. The pods are 10 to 15 cm or longer, flat, with narrow constrictions between the seeds, and grey when ripe.

Dispersal: Dispersal is mostly by stock. Seeds can remain viable in cattle stomachs and have been responsible for most new infestations throughout the state. Seeds can also be moved by machinery and along waterways and bore drains.

Control: Control can be achieved by various methods:

1. Chemical - a range of herbicides are registered for soil application, basal bark, cut stump, foliar spraying, and applying directly to bore drains.
2. Mechanical - a range of mechanical options have been produced to treat large infestations of Prickly Acacia including: pushing, stick raking, chain pulling, and blade ploughing with both front and rear mounted blades. **NB:** mechanical methods can sometimes produce an ideal seedbed for seedlings to make the problem worse.
3. Biological control – numerous Biological control agents associated with Australian native Acacias will readily attack Prickly Acacia. Large areas of dieback are usually reported in times of severe water stress. Field officers are currently working in South Africa to find other biological control agents.
4. Management - a number of management options will help to contain the problem:

- replace open bore drains with piped water
- do not let livestock graze mature pods (pods will drop and insects will usually destroy a percentage of pods on the ground)
- incorporate strategic fencing to contain Prickly Acacia
- run sheep instead of cattle wherever possible in infested paddocks
- quarantine stock when moving them from infested paddocks to clean areas
- do not overgraze
- feed nitrogen supplements at critical stages

Impact: Although initially imported to Australia for its shade and fodder values it became obvious that in the long term it decreases productivity as the larger trees choke out pastures. It also forms impenetrable thickets (particularly along bore drains and around watering points) that make mustering and access to watering points impossible. Thorns can produce large annual maintenance costs in tyre repairs and are exceptionally dangerous to both humans and livestock.

Distribution: Prickly Acacia will grow in most areas throughout Queensland, however it has not established as a serious pest is high rainfall areas. **NB:** Prickly Acacia is not yet found in Croydon Shire but the potential for contamination from the Richmond/Julia Creek areas by traveling livestock is exceptionally high.

Strategic Objective:	Success Indicators:

To keep out of Croydon Shire.	No new infestations.	
Obstacles: Large quantities of traffic (via tourists and stock movements) and stock feed entering shire that could easily be contaminated, longevity of seed, lack of people in the shire who can accurately identify Prickly Acacia		
Actions:	**By Whom**	**When**
1. Monitor & awareness exercises.		
• Educate landholders on the Pest potential of Prickly Acacia	CSC	Review Annually
• Landholders and Pest Management Officer to monitor properties and roadsides for presence of Prickly Acacia	CSC/ Landholders	Ongoing
• Pest Management Officer to be notified of all suspect plants. BQ staff to assist with positive identification and advise on control strategy.	CSC / Landholders /BQ	As reported
• Pest Management Officer to provide best practice control information to landholders	CSC/NRM/ Landholders	As required
• Pest Management Officer to GPS and record location and density of all Prickly Acacia infestations in shire if outbreak occurs	CSC/Landholder	As required
• Seek out and apply for funding for control and survey work	CSC	
2. Provide advice on agisted cattle & equipment movements	BQ	Regular
• Educate landholders on the importance of good property hygiene		
Pest Monitoring Process: Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.		
Resources		
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.		

15. GRADER GRASS (Themeda quadrialvis)

tStrategic Importance	Achievability	Priority
3	1	Low

- **Declaration Category – Nil**
- **Description:**

Grader Grass (Alternative Names: Habana Grass, Oatgrass)
A robust erect tufted annual grass, 50 to 200 cm high, growing in patches and turning brown at maturity, reproducing by seed. Stems: Green at first, brown when mature, 1 to 5 or more on the annual rootstock, 50 to 200 cm high, glabrous. Leaves: Brown when mature, alternate, well spaced; blades folded in the bud, long narrow and sometimes with margins rolled back. Inflorescence: A brown or reddish tinged, loose drooping panicle at maturity, 20 to 30 cm long; spikelet clusters in short racemes each subtended by a spathe; the spikelet group consists of (a) a solitary sessile and fertile bisexual spikelet, (b) 1 or 2 stalked male spikelets, the whole surrounded by (c) an involucre of 4 sessile, sterile subterminal spikelets, glabrous except for long tubercle-based hairs near the apex; the fertile spikelet contains a single, stalked and awned fertile floret above and a sessile sterile floret below. Seed: Brown, 6 to 7 mm long, enclosed in persistent glumes, usually with a terminal awn; the callus is blunt, rounded, less than 1 mm long and bearded. Root: Fibrous.

Life Cycle: Seeds do not germinate in the dark but germinate at any time of the year when light and moisture are present. In the Northern Territory, most seeds germinate with the onset of the wet season between October and December. Growth is rapid when available moisture remains high, plants reaching a height of 2 metres in 6 to 8 weeks. Flowering begins 5 or 6 weeks after germination and ripe seeds are present at 10 weeks. Grader grass dies when all seeds have matured.
Dispersal: Grader grass seeds are not adapted in any way for dispersal by wind and water. The major proportion fall close to the parent plant, its prolific seeding habit ensures rapid development of the colony once it is established in an area. Seeds are carried considerable distances on wool, fur, clothing and other fibrous materials and in roadside soil moved by graders. Seed is also spread in mud sticking to animals and machinery and as a contaminant in agricultural produce, particularly pasture seed.
Control: Because grader grass is an annual, preventing flowering, seed set and germination of existing seeds, is the key to successful control. Whenever possible, prevent the introduction of grader grass into clean areas; specifically purchase only seed certified free of grader grass and, when moving stock, yard them in a small paddock for three or four days before moving them to clean paddocks. Ensure that management practices do not permit light to get to the soil surface; avoid fires, heavy stocking, short mowing, and soil disturbance. Do not overstock native grasslands at any time because most have a relatively open canopy. Limit the practice of burning to remove excess growth to one year in four at most. Maintain all sown pastures in a vigorous state by topdressing and using low stocking rates. If grader grass is present, slash below the panicle when it is at the flowering or soft dough stage of seed development to minimize the number of viable seeds produced. Remove incipient infestations manually and, if seed heads are present, burn in a way which generates sufficient heat to kill seeds, for example, inside a drum. Kill the larger colonies by spraying with paraquat, adding a non-ionic surfactant to the spray solution. Apply the spray when plants are less than knee high. Alternatively, to minimize damage to other pasture plants, apply glyphosate with a rope-wick applicator, passing the wiper across the area 12 to 15 cm above the pasture when the grader grass is at least 25 cm above pasture height. Better results are obtained when two applications are made at right angles and speed of travel is less than 8 kph. Trifluralin, fluazifop butyl, haloxyfop and quizalofop have also been used overseas to control grader grass in Lucerne and other legume seed crops.

Impact:

Habitat**:** Subhumid and semi-arid subtropical and tropical pastures in areas of marked seasonal rainfall. Often occurring as a weed in moist disturbed areas such as road verges, railway enclosures, and waste places, from where it invades degraded native grasslands and sown pastures as well as some arable areas.

Properties: Grader grass is readily eaten by stock before the panicle appears, but flowering plants are rarely grazed. The leaf stem weight ratio is low at 1:4; and the plant matures rapidly and then dies. Because of its extremely short, barely useful life and its ability to spread quickly, grader grass is a serious threat to productivity in both native grassland and sown pastures of semi-arid monsoonal regions of northern Australia. It also grows readily in young sugarcane, competing with the crop and significantly reducing yields. Grader grass can also be troublesome in Lucerne and other legume seed crops and thrives on headlands, wastelands and roadsides where it becomes a hazard by reducing visibility on curves and at corners. Each grader grass seed carries an awn which, twisting when moistened pushes the seed callus into the soil. Because grader grass does not germinate in darkness or deep shade, this action, together with the removal of other ground cover, gives the plant an ecological advantage.

Strategic Objective:	**Success Indicators:**
• Keep out of Croydon Shire	• No new infestations found

Obstacles:
Large quantities of traffic (via tourists and stock movements) and stock feed entering Shire that could easily be contaminated, longevity of seed, spreads rapidly, lack of people in the Shire who can accurately identify Grader Grass.

Actions:	**By Whom**	**When**
1. Monitor & Awareness exercises		
• Educate Landholders on the Pest potential of Grader Grass	CSC	Ongoing
• Landholders and PMO to monitor properties and roadsides for presence of Grader Grass.	CSC/Landholders	Monthly or as reported
• PMO to be notified of all suspect plants. BQ to assist with positive identification and advise on control strategy	CSC/Landholders/BQ	As required
• PMO to provide best practice control information to landholders		
• PMO to GPS and record location and density of all Grader Grass infestations in shire	CSC/BQ/Landholders	Regularly
• Communicate with DTMR to identify and record sightings	CSC	
• Seek out and apply for funding for control and survey work	CSC	
2. Provide advice on agisted cattle and equipment movements		
• Educate Landholders on the importance of good property hygiene	BQ/CSC	

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

16. GIANT RAT'S TAIL GRASS (Sporobolus pyramidalis & S. natalensis)

Strategic Importance	Achievability	Priority
2	1	High

Declaration Category – Plant 2

Description:

Upright, vigorous perennial grasses which grow to 1.7m tall and have tough leaves. Seed heads grow to 40cm long and to 3 cm wide. They change shape from a 'rat's tail' spike when young to an extended pyramid shape from flowering through to maturity. Giant rat's tail is taller and more robust than native *Sporobolus* spp. and has denser seed heads. Giant rat's tail is a declared plant. A native of Africa, it was introduced to Queensland in contaminated pasture seed during the 1960s.

Impact:

It is an aggressive invader of disturbed or degraded pastures and its seeds can survive for a number of years in the soil. The plant is virtually unpalatable when mature and its presence severely reduces the carrying capacity of any infested pasture. It is difficult to control and precautions need to be taken when moving stock or machinery from infested areas. Giant rat's tail is not known to occur in the north-west, but it has significant potential to be a problem in the higher-rainfall areas associated with the Gulf coastline. Any sightings of the plant should be reported to BQ.

Strategic Objective:	Success Indicator:
• To keep out of Croydon Shire	• No infestations in shire.

Obstacles: Lack of people able to identify this plant within the shire.

Actions	By Whom	When
1.Monitor, awareness exercises and identify suspect plants		
• Pest Management Officer to be familiar with the plant for identification	CSC /BQ	Ongoing
• Educate landholders on the pest potential of Giant Rat's Tail Grass	CSC	Bush Telegraph
• GPS and record locations and density	CSC	As required
• Communicate with DTMR to identify and record sightings	CSC	Ongoing

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required

17. LEUCAENA
(Leucaena leucucephala)

Strategic Importance	Achievability	Priority
3	1	Low

Declaration Category – Nil

Description:

Dense shrub or tree to 6m tall. Leaves consist of six to nine pairs of pinnae, each with 13 to 21 pairs of small leaflets. Cream to white flowers occur in dense, globular heads, 1-2cm across and in groups of two to six. Flat, brown, papery pods have thickened edges, contain 8 to 18 seeds, grow 10-20cm long and 1-2cm wide, and hang down in groups of 5 to 20. Leucaena has been introduced as a productive tropical fodder tree. Leaves of the plant are highly nutritious, but poisoning can occur if large quantities are made available to non-ruminants (particularly horses) or ruminants that lack the kinds of lacteria necessary to break down the toxin mimosine. Leucaena has demonstrated weed potential in some drainage lines where thickets quickly grow out of browsing height.

Two main subspecies of the plant occur. Giant leucaena *(Leucaena leucocephala* subsp. *Glabrata)* is erect, less branched and hairless. It is more palatable and produces less seed, so is the more appropriate subspecies to consider if planting leucaena. The whole leaves are >19cm long and >12cm wide, leaflets are 16-21mm long, flower heads are >18mm across, and pods are 12-19cm long and 18-21mm wide.

Common laucaena *(Leucaena leucocephala* subsp. *leucocephala)* is a prolific seeder and is often considered a weed. It is shrubby, much-branched and shorter. The shoots, leaves and pods have a downy covering. Leaves are <20cm long and <12cm wide, leaflets are 9-13mm long, flower heads are 13-17mm across, and pods are 9-13cm long and 13-18mm wide.

Impact:

Leaves of the plant are highly nutritious, but poisoning can occur if large quantities are made available to non-ruminants (particularly horses) or ruminants that lack the kinds of lacteria necessary to break down the toxin mimosine. Leucaena has demonstrated weed potential in some drainage lines where thickets quickly grow out of browsing height.

Dangerous to horses and potential to cause problems in drainage areas.

Distribution:

Introduced.

Strategic Objective:	Success Indicator:
• Keep under control in Croydon Shire	• Small infestations in shire.

Obstacles:

Lack of knowledge for people able to identify this plant within the shire and unknown effect the plant can have on non-ruminant animals, especially horses.

Actions	By Whom	When
1. Monitor, awareness exercises & identify suspect plants • Pest Management Officer to inspect town area and arrange removal of plants on public land • Educate landholders on the Pest potential of Leucaena and its threat to non-ruminant animals.	CSC	Ongoing Bush Telegraph
Pest Monitoring Process: Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.		
Resources		
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.		

18. MESQUITE
(Prosopis glandulosa, P. pallida and *P. velutina)*

Strategic Importance	Achievability	Priority
2	1	High

Declaration Category – 2

Description:

Mesquite can occur as a multi-stemmed shrub with branches drooping to the ground, around 3-5 m high, or as a single-stemmed tree with a spreading canopy growing to 15 m.Leaves are fernlike in appearance.
Each leaf has 1−4 pairs of leaf branches (pinnae), with each 'branch' having 6−18 pairs of individual leaflets.
Leaflets vary from oval-shaped to long and narrow depending on the species.
Foliage is usually dark green but can vary to bluish green. Paired thorns usually occur just above each leaf axil.
Small greenish-cream 'lamb's tail' shaped flowers grow near the ends of branches in wattle-like spikes,
5-12 cm long. Seed pods are 10−20 cm long, straight to slightly curved, smooth, with slight constrictions
between the seeds. When ripe the pods are straw coloured, or purplish in some species.
Each pod contains between 5−20 hard seeds .Mesquite can appear rather untidy with individual zigzagged twigs sticking out beyond the main canopy.

Impact:

Mesquite, once a favoured shade tree around homesteads, has spread significantly in Queensland and unless checked, will continue to do so. Although sparse stands of mesquite trees may provide shade and some fodder for stock, dense impenetrable thickets can often form. Many infestations are along waterways, both natural and constructed, however plants will do just as well away from water. Even in rangelands it is an aggressive competitor and can quickly invade upland country. Mesquite thickets can out-compete other vegetation, interfere with mustering and block access to watering places.

Strategic Objective:	Success Indicator:
• Eradicate from Croydon Shire	• Small isolated plants around yards & homesteads

Obstacles: Landholder attitudes towards the shade tree.

Actions		When
• Educate landholders on the Pest potential of Mesquite	CSC/BQ	Annually
• Landholders and Pest Management Officer to monitor properties and roadsides for presence of Mesquite		During 1080 baiting campaigns & other available opportunities
• Pest Management Officer to be notified of all suspect plants. BQ staff to assist with positive identification and advise on control strategy		
• Pest Management officer to provide best practice control information to landholders.		As PMO becomes aware of isolated plants and infestations of Mesquite
• Pest Management Officer to GPS and record location & density of all rubber vine infestations in Shire.		As required
• Provide advice on agisted cattle and equipment movements		
• Educate Landholders on the importance of good property hygiene.		
• Eradicate from Shire: Access 60:1		
• Seek out and apply for funding for control and survey work	CSC	As available

Pest Monitoring Process:

Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

19. DINGOES (*Canus lupus dingo*) WILD DOGS (*Canis familiaris*)

Strategic Importance	Achievability	Priority
2	2	HIGH

Declaration Category – Animal 2

Description:
Dingoes are a primitive dog related to wolves and coyotes. The dingo was not part of the ancestral fauna of Australia and, though its origins are not clear, it is thought to have arrived in Australia 3,500 to 4,000 years ago. It is the largest mammalian carnivore remaining in mainland Australia, and as such fills an important ecological niche. Yellow and black-tan are the dominant coat colours, though dingoes can vary from pure white to black. It is very difficult to distinguish between dingoes and hybrids. Broken colours – e.g. brindling and patchiness in the normally pure white feet and chest patch, suggest the presence of domestic genes. Dingoes have a more heavily boned skull and larger teeth (especially the canine) than domestic dogs of similar size. Closer to settled areas, a greater number of feral domestic dogs produce a generally crossbred population.

Dingoes have only one breeding season per year. After a nine-week gestation, 4-6 pups are born. Pups are suckled for 4-6 weeks and generally weaned at 4 months. Independence occurs between 6 and 12 months of age.

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Control methods: A planned strategy that uses a combination of trapping, shooting, fencing and poison baiting, as well as considering dingo behaviour, will enable effective management.

Impact:
On grazing country, dingoes can harass, injure or kill calves. Dingoes are also vectors of diseases such as distemper and parvovirus, and parasites. They could pose a serious risk if the exotic disease rabies was introduced to Australia.

Strategic Objective:	**Success Indicator:**
Reduce numbers to below economic threshold, i.e. not causing economic losses	Reports of impact are infrequent

Obstacles: Damage assessment

Actions:	**By Whom**	**When**
1. Encourage coordinated baiting programs		
• Council to coordinate timing of biannual baiting program with adjoining Councils through BQ	CSC/BQ	March; August
• Council to notify all stations of biannual baiting programs and encourage maximum participation across the shire; baiting outside program is available on pay-for-service basis outside these times at cost	CSC CSC	April/ May; September/October As required
2. Assist Landholders with Permits to obtain alternative control products.		

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

20. PIGS
(*Sus scrofa*)

Strategic Importance	Achievability	Priority
2	2	High

Declaration Category – Animal 2

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

Control methods: Control needs to be carried out over a large area due to the big home range of pigs. 70% of the population should be removed each year to offset reproduction rate.
There are four basic methods of feral pig control: *trapping, poisoning, hunting and fencing.*
Trapping is most effective in areas of high conservation value as traps are relatively safe for non-target species. There are several trap designs, but all are principally steel mesh with a one-way gate. Free-feeding prior to activating traps is an essential prerequisite to successful trapping. Trapping in drier parts of the Shire is best towards the end of the dry.
Poisoning: 1080 is recommended. Phosphorus-based poisons are available but not recommended as they are unnecessarily inhumane. Free feeding with un-poisoned bait is the most important step in effective poisoning campaigns. Need 3 or 4 properties to be involved in a poisoning campaign to be effective.
Shooting and the use of dogs: Helicopter shooting is effective in areas where pigs exist in fairly high numbers and are visible from the air. Ground shooting is not effective unless it is extremely intense on a small, isolated but accessible pig population. Trained dogs may be useful to flush out the last few pigs in this situation, however dogging is not an effective pig control technique in the wet tropics – it changes pig behaviour, disrupts trapping programs and cannot be used in conjunction with poisons.
Fencing: Though an expensive option, fences can offer effective pig control on flat land. Need very high voltage, earth return and 5 wires backed by a netting fence and a live wire at the bottom. (Wallabies do dig under the fence and these are followed by pigs.) Effective control when used with trapping.

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

• **Strategic Objective:** Prevent increase in numbers	• **Success Indicators:** A reduction in environmental and stock damage/loss	
Obstacles: Cost of control, large distances, freezer boxes often closed (no market), need a constant supply of bait material for trapping		
Actions:	**By Whom**	**When**
1. Monitor population levels		
• Landholders to monitor pig numbers.	LH	On-going
2. Investigate possible 1080 baiting program		
• Encourage landholders to bait for Feral Pigs in conjunction with annual Dingo / Feral Dog baiting programs	CSC/ BQ/LH	Bi-annually in April/May and September/October
3. Educate landholders		
• Educate landholders on the environmental impacts of Feral Pigs and possible control options	BQ	On-going
4. Encourage pig harvesting		
• Encourage Landholders to utilise commercial pig harvesters when available	LH	June – November
Pest Monitoring Process: Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.		
Resources		
Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – Work Program		

21. FERAL CATS (*Felis catus*)

Strategic Importance	Achievability	Priority
2	2	LOW

Declaration Category – Animal 2

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

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

Strategic Objective:	**Success Indicators:**
• No new additions to the feral cat populations.	• Decrease in feral cat populations.

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

Actions:	**By Whom**	**When**
1. Educate public on responsible cat ownership;	CSC	Regular information updates
2. Implement new Cats and Dogs Legislation which requires registration of all cats	CSC	By December 2010
3. Provide cat traps to public on request	CSC	Cat traps are available on request

Pest Monitoring Process:
Circulate Landholders with questionnaire annually as part of Corporate Planning process – June/July.

Resources

Annual Allocation from Croydon Shire Council Operational Plan – Wages; Operating funds (chemical etc); Supervision Costs; Equipment and Vehicle – As required.

Part D: IMPLEMENTATION, MONITORING AND REVIEW

COORDINATION OF IMPLEMENTATION

The Croydon Shire Pest Management Working Group will continue to be a forum for problem-solving, advice and assistance, as well as fulfilling the monitoring and review role outlined below.

MONITORING AND REVIEW

- The Pest Management Working Group will monitor and review progress against stated success indicators for the implementation of this plan.
- In 2014 the Croydon Shire Pest Management Plan will be comprehensively reviewed in accordance with the Act and Regulations.

ACRONYMS

BQ	Biosecurity Queensland
CSC	Croydon Shire Council
DERM	Department of Environment, Resources and Mines
LH	Landholders
PMO	Pest Management Officer (Croydon Shire Council)

REFERENCES

Information and facts contained in the Croydon Shire Pest Management Plan were obtained from the following sources:

- *Land Protection (Pest and Stock Route Management) Act 2002*
- *Land Protection (Pest and Stock Route Management) Regulation 2003*
- *Department of Natural Resources & Mines – Resource Kit for developing local government area pest management plans (hard copy & CD)*
- *Croydon Shire Council Local Government Area Pest Management Plan 2004-2009*
- *Smith, Nicholas: Weeds of the Wet/Dry Tropics of Australia – a Field Guide 2002: Environment Centre NT*

APPENDICES

1. Classes of declared pests in Queensland
2. Map of Croydon Shire local government area
3. Maps indicating areas of known declared pest plant species

Appendix 1: Classes of Declared Pests

Information Source: ***Land Protection (Pest and Stock Route Management) Regulation 2003***

Class 1

General Description

A Class 1 pest is one not commonly present in Queensland which, if introduced, would cause an adverse economic, environmental, or social impact. Class 1 pests established in Queensland are subject to eradication from the state. Landholders must take reasonable steps to keep land free of Class 1 pests. Other powers of the Act apply. For example, Class 1 animals can be kept only under permit.

Actions for this class of pests:

- Assist prevention of entry at national barriers
- Do not permit entry to Queensland of Class 1 plants
- Permit entry of Class 1 animals to Queensland only for specific uses, such as keeping in zoos
- Prohibit propogation, cultivation, distribution, and sale of pest plants in the state
- Increase public awareness of the risks posed by these pests
- Survey for new naturalisations
- Develop and implement action plans for the eradication of these pests, if found
- Quarantine infested lands under emergency pest notices
- Investigate more cost-effective methods of control
- Enforce prohibition on the keeping of pests with confiscation, destruction, or euthanasia
- Include cooperation with state eradication plans in local government area pest management plans
- Monitor the effectiveness of eradication programs
- Prohibit the selling of contaminated "things" (e.g. fodder, machinery, water or stock)

CLASS 1 PEST PLANTS	CLASS 1 PEST ANIMALS
• Acacias non-indigenous to Australia *(Acacia spp. Other than A. nilotica and A. farnesiana)* • Alligator weed *(Alternanthera philoxeroides)* • Anchored water hyacinth *(Eichhornia azurea)* • Badhara bush *(Gmelina elliptica)*	**All mammals, reptiles, and amphibians are Class 1 pests, except:** **1. Class 2 declared pest animals** **2. mammals, reptiles, and amphibians indigenous to Australia, including marine mammals of the orders Pinnipedia, Sirenia, and Cetacea** **3. The following non-declared animals:**

• Bitou bush *(Chrysanthemoides monilifera subsp. Rotundata)* • Bridal creeper *(Asparagus asparagoides)* • Chilean needle grass *(Nassella neesiana)* • Christ's thorn *(Ziziphus spina-christ)* • Eurasian water milfoil *(Myriophyllum spicatum)* • Floating water chestnuts *(Trapa spp.)* • Gorse *(Ulex europaeus)* • Honey locust *(Gleditsia spp., including cultivars and varieties)* • Horsetails *(Equisetum spp.)* • Hygrophila *(Hygrophila costata)* • Kochia *(Kochia scoparia, syn. Bassia scoparia)* • Koster's curse *(Clidemia hirta)* • Lagarosiphon *(Lagarosiphon major)* • Limnocharis *(Limnocharis flava)* • Madras thorn *(Pithecellobium dulce)* • Mesquites *(all Prosopis spp. And hybrids other than P. glandulosa, P. pallida and P. velutina)* • Miconia *(Miconia spp.)* • Mikania vine *(Mikania spp.)* • Mimosa pigra *(Mimosa pigra)* • Myrica *(Myrica faya)* • Perusian primrose *(Ludwigia peruviana)* • Piper *(Piper aduncum)* • Red Sesbania *(Sesbania punicea)* • Salvinias *(Salvinia spp. Other than s. molesta)* • Senegal tea *(Gymnocoronis spilanthoides)* • Serrated tussock *(Nassella trichotoma)* • Siam weed*(Chromolaena odorata)* • Thunbergia*(Thunbergia annua, T. fragrans and T. laurifolia)* • Water soldiers *(Stratiotes aloides)* • Willow *(Salix spp. Other than S. babylonica, S. x calodendron, S. x reichardtii, and S. chilensis, syn. S. humboldtiana)* • Witch weeds *(Striga spp., other thn naïve species)*	• Alpaca *(Lama pacos)* • Asian house gecko *(Hemidactylus frenatus)* • Axoloti *(Ambystoma mexicanum)* • Bali cattle *(Bos javanicus and B.* • *sondaicus)* • Bison or American buffalo *(Bison bison)* • Black rat *(Rattus rattus)* • Camel *(Camelus dromedarius)* • Cane toad *(Bufo marinus)* • Cattle *(Bos spp.)* • Chital *(Axis)* deer *(Axis axis)* • Domestic cat *(Felis catus)* • Domestic dog *(Canis familiaris)* • Domestic goat *(Capra hircus)* • Domestic pig *(Sus scrofa)* • Donkey *(Equus asinus)* • European hare *(Lepus capensis)* • Fallow deer *(Dama dama)* • Guanicoe *(Lama guanicoe)* • Guinea pig *(Cavia porcellus)* • Hog deer*(Axis porcinus)* • Horse *(Equus caballus)* • House mouse *(Mus musculus)* • Llama *(Lama glama)* • Mule *(Equus caballus x E. asinus)* • Red deer *(Cervus elaphus)* • Rusa deer *(Cervus timorensis)* • Sambar deer *(Cervus unicolor)* • Sewer rat *(Rattus norvegicus)* • Sheep *(Ovis aries)* • Wapiti deer *(Cervus canadensis)* • Water buffalo *(Bubalus bubalis)* • White-tail deer *(Odocoileus virginianus)*

Class 2

General description

Class 2 pests are established in Queensland and have, or could have, an adverse economic, environmental or social impact. Their management requires coordination and they are subject to existing programs. They may also be new pests requiring state coordination, and subject to local government, community or landholder-led programs. Landholders must take reasonable steps to keep land free of Class 2 pests. Other powers of the Act apply.

Actions for this class of pest:

- Increase public awareness of the impacts of these pests
- Prohibit their propagation, cultivation, distribution, and sale in the state
- Survey established infestations to help develop strategies to manage or reduce local and regional spread
- Survey new infestations to help develop strategies to contain or reduce the spread of the pest at local and regional levels, or to eradicate
- Coordinate management of the pest on infested lands
- Quarantine infested lands under emergency pest notices in exclusion areas
- Develop and implement hygiene procedures and practices to prevent spread from infested areas
- Investigate cost-effective and efficient methods of control
- Enforce prohibition on the keeping of pests with confiscation, destruction or euthanasia
- Include coordinated local and regional management in local government area pest management plans
- Monitor the effectiveness of control plans in local government areas
- Prepare and implement a strategic management plan
- Permit entry of pests to exclusion areas only for certain purposes (e.g. research or education)
- Prohibit the selling of contaminated 'things' unless under a vendor declaration (e.g. notifiable species)

CLASS 2 PEST PLANTS	**CLASS 2 PEST ANIMALS**
• African boxthorn *(Lycium ferocissimum)* • American rat's tail grass *(Sporobolus jacquemontii)* • Annual ragweed *(Ambrosia artemisifolia)* • Bellyache bush *(Jatropha gossypiifolia)* • Cabomba *(Cabomba spp.)* • Chinee apple *(Ziziphus mauritiana)* • Fireweed *(Senecio madagascariensis)*	• Australian plague locust *(Chortoicetus terminifera)* • Cat, other than a domestic cat *(Felis catus)* • Dingo *(Canis familiaris dingo)* • Dog, other than a domestic dog *(Canis familiaris)*

• Giant Parrramatta grass *(Sporobolus fertilis)* • Giant rat's tail grass *(Sporobolus pyramidalis and S.natalensis)* • Giant sensitive plant *(Mimosa invisa)* • Groundsel bush *(Baccharis halimifolia)* • Harrisia cactus *(Eriocereus spp.)* • Hymenachne *(Hymenachne amplexicaulis)* • Mesquites *(Prospois glandulosa, P.pallida and P.velutina)* • Mother-of-millions *(Bryophyllum delagoense and B. daigremontianum x B. delagoense, syn. B. tubiflorum and B. diagremontianum x B. tubiflorum)* • Parkinsonia *(Parkinsonia aculeata)* • Parramatta grass *(Sporobolus africanus)* • Parthenium *(Parthenium hysterophorus)* • Pond apple *(Annona glabra)* • Prickly acacia *(Acacia nilotica)* • Prickly pear *(Opuntia spp. Other than O. ficus-indica)* • Rubber vine *(Cryptostegia grandiflora)* • Salvinia *(Salvinia molesta)* • Sicklepods *(Senna obtusifolia, S. hirsute and S. tora)* • Thunbergia *(Thunbergia grandiflora)* • Tobacco weed *(Elephantopus mollis)* • Water hyacinth *(Eichhornia crassipes)* • Water lettuce *(Pistia stratiotes).*	• European fox *(Vulpes vulpes)* • European rabbit (domestic and wild breeds) *(Oryctolagus cuniculus)* • Feral pig *(Sus scrofa)* • Goat, other than a domestic goat *(Capra hircus)* • Migratory locust *(Locusta migratoria)* • Spur-throated locust *(Austracris guttulosa).*

Class 3

General Description

These are plant species are established in Queensland which have, or could have, an adverse economic, environmental, or social impact. Their impact is primarily environmental. A pest control notice for Class 3 pests can be issued only for land that is, or is adjacent to, an environmentally significant area. Only some of the other powers of the Act apply.

Actions for this class of pest:

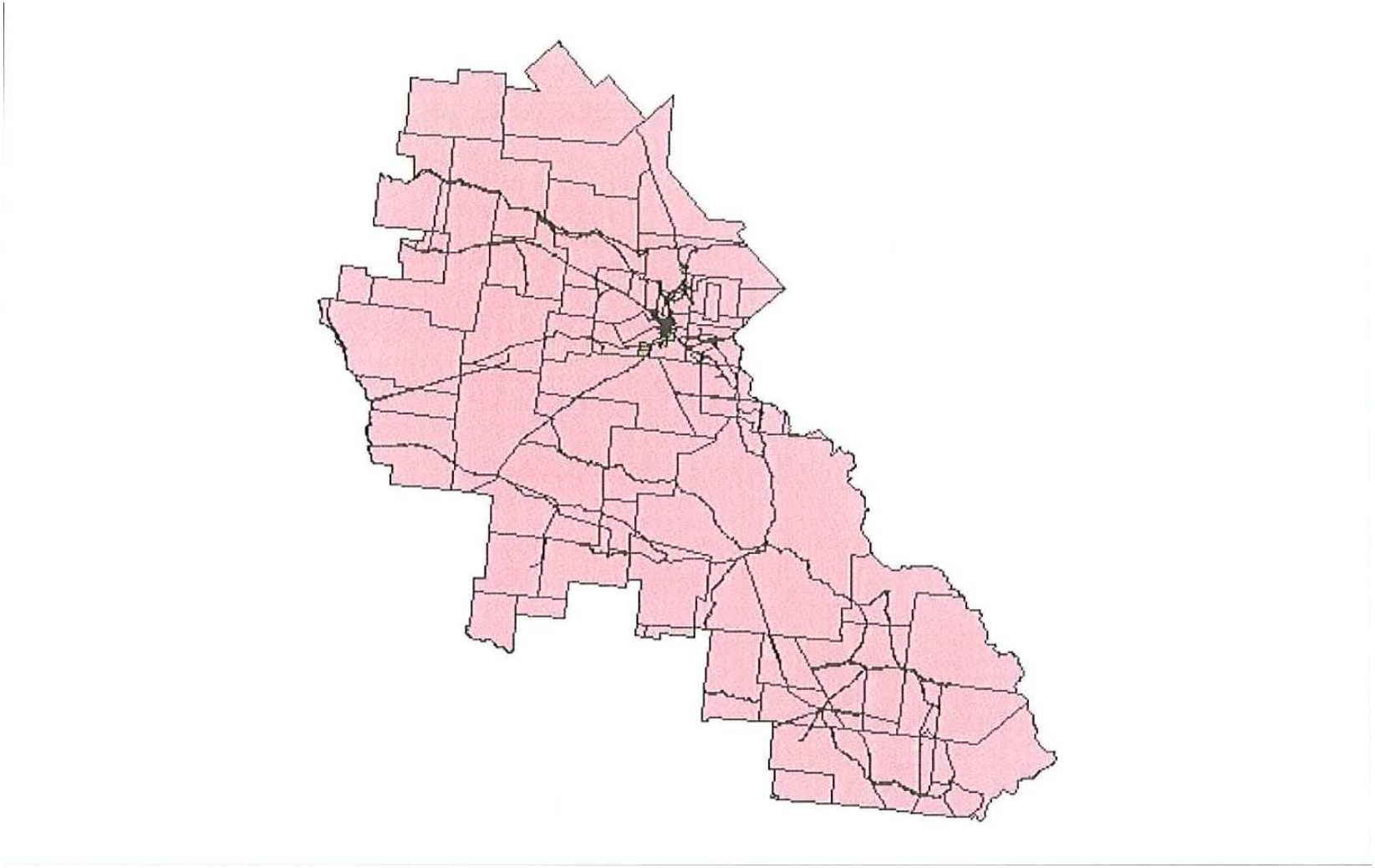
- Prohibit their propagation, cultivation, distribution and sale in the state
- Increase public awareness of the impacts of the pests
- Survey environmentally significant areas to help develop effective pest management strategies
- Develop pest management strategies for high-value conservation sites. (It should be possible to adopt strategies based on existing Class 3 pests for potential pest species)
- Keep a register of environmentally significant areas
- Develop hygiene practices tailored to sites, buffer regions and seed sources
- Investigate cost-effective and efficient methods of control
- Provide information on methods of revegetating or rehabilitating sites to prevent invasion or re-invasion
- Monitor the effectiveness of control plans in environmentally significant areas
- Ensure that holders of land that is, or is adjacent to, an environmentally significant area are aware of their responsibilities
- Include control of Class 3 pests in local government area pest management plans.

CLASS 3 PEST PLANTS

- African fountain grass *(Pennisetum setaceum)*
- African tulip tree *(Spathodea campanulata)*
- Aristolochia or Dutchman's pipe *(Aristolochia spp., other than native species)*
- Asparagus fern *(Asparagus aethiopicus 'Sprengeri', A. africanus and A. plumosus)*
- Athel pine *(Tamarix aphylla)*
- Balloon vine *(Cardiospermum grandiflorum)*
- Blackberry *(Rubus anglocandicans, R. fruticosus agg.)*
- Broad-leaved pepper tree *(Schinus terebinthifolius)*
- Camphor laurel *(Cinnamomum camphora)*
- Captain Cook Tree *(Thevetia peruviana)*
- Cat's claw vine *(Macfadyena unguis-cati)*
- Chinese celtis *(Celtis sinensis)*
- Harungana *(Harungana madagascariensis)*

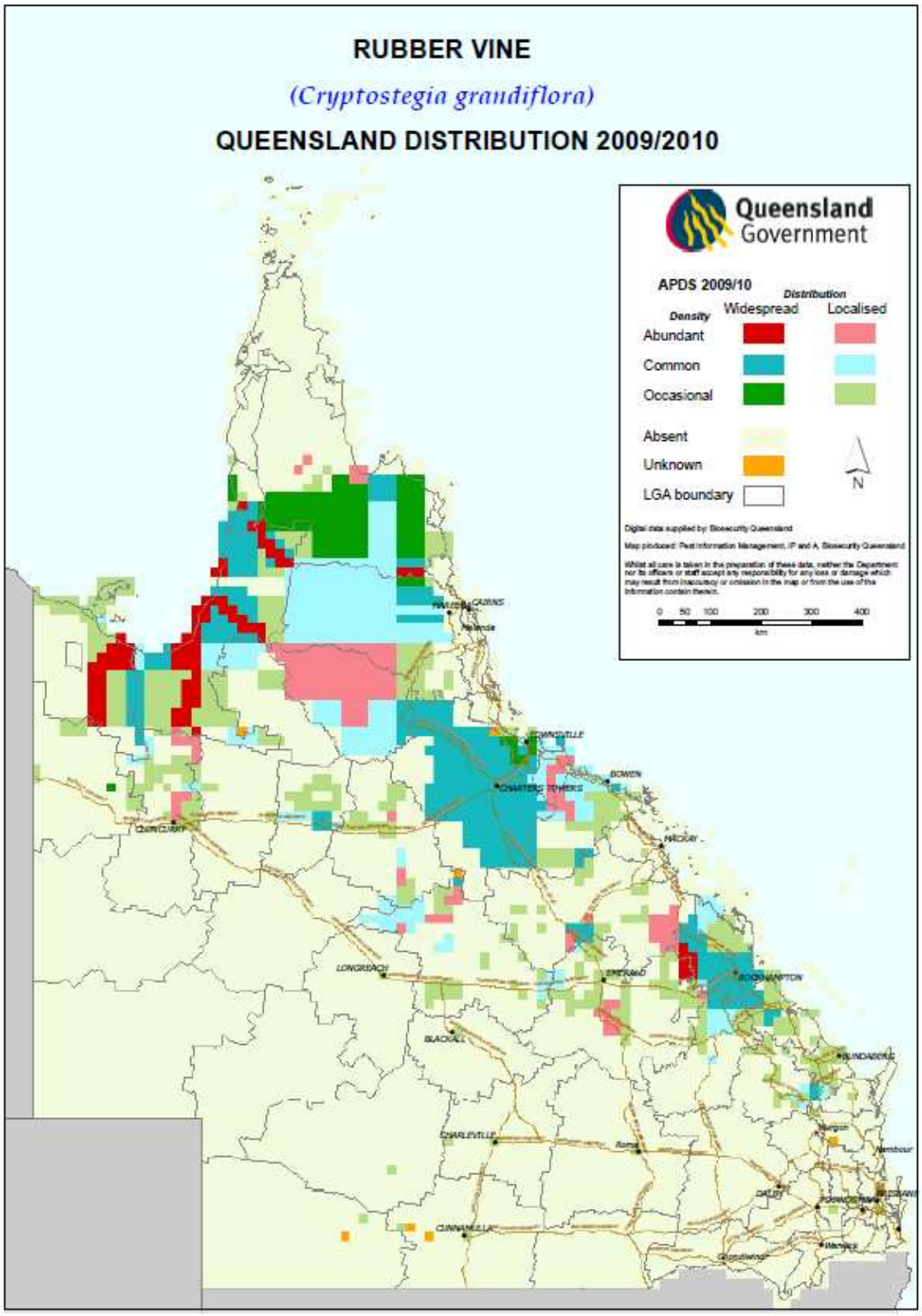
- Lantana *(Lantana spp.)*
- Madeira vine *(Anredera cordifolia)*
- Pencil willow *(Falix chilensis, syn. S. humboldtiana)*
- Privets *(Ligustrum lucidum and L. sinense)*
- Purple rubber vine*(Cryptostegia madagascariensis)*
- Singapore daisy *(Sphagneticola trilobata)*
- Yellow bells *(Tecoma stans)*

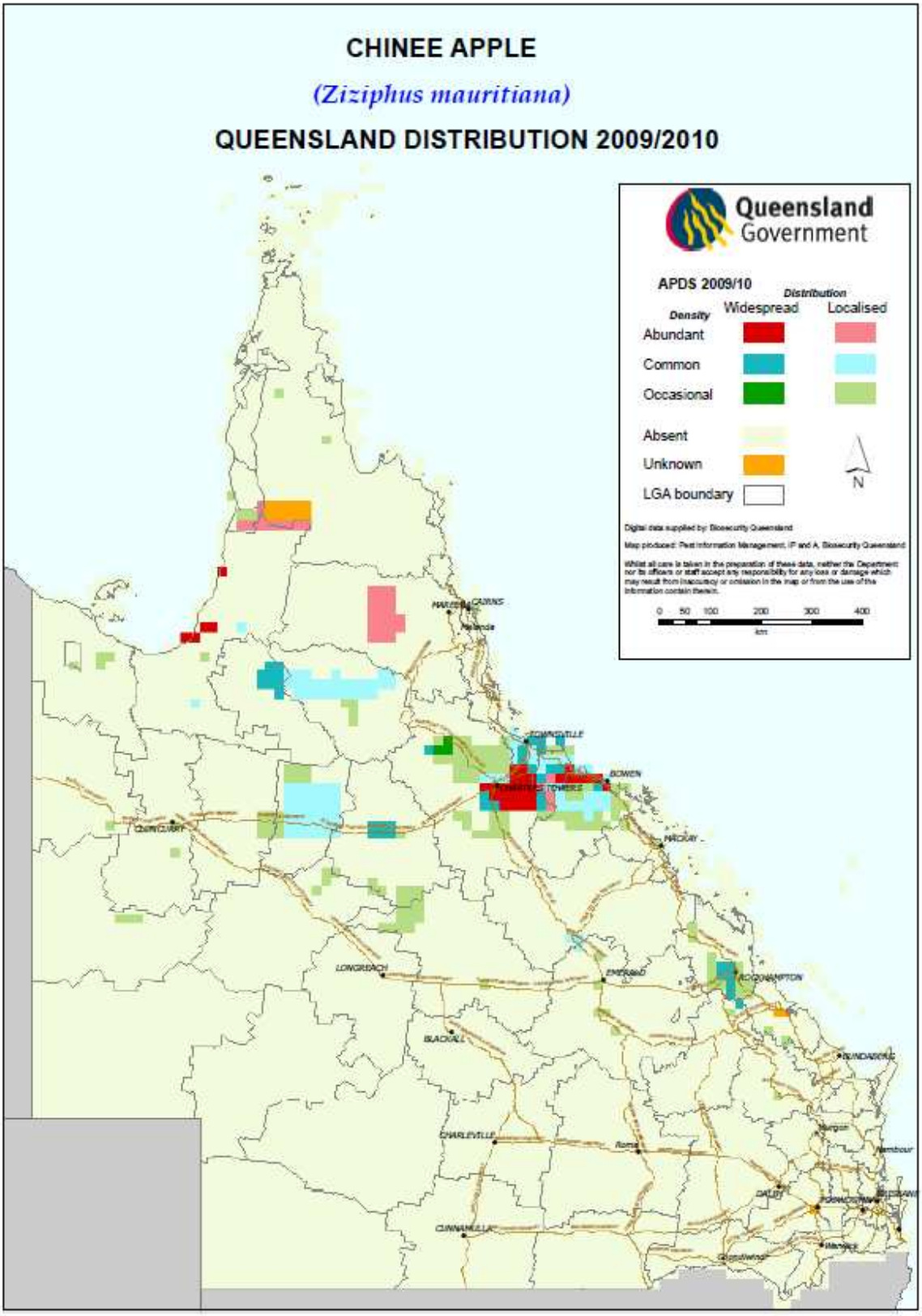
Appendix 2: Map of Croydon Shire



Appendix 3: Maps indicating areas of known pest plant species

Information Source: Biosecurity Queensland Pest Distribution Maps

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(Ziziphus mauritiana)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
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LGA boundary
N
Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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CAIRNS
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BOWEN
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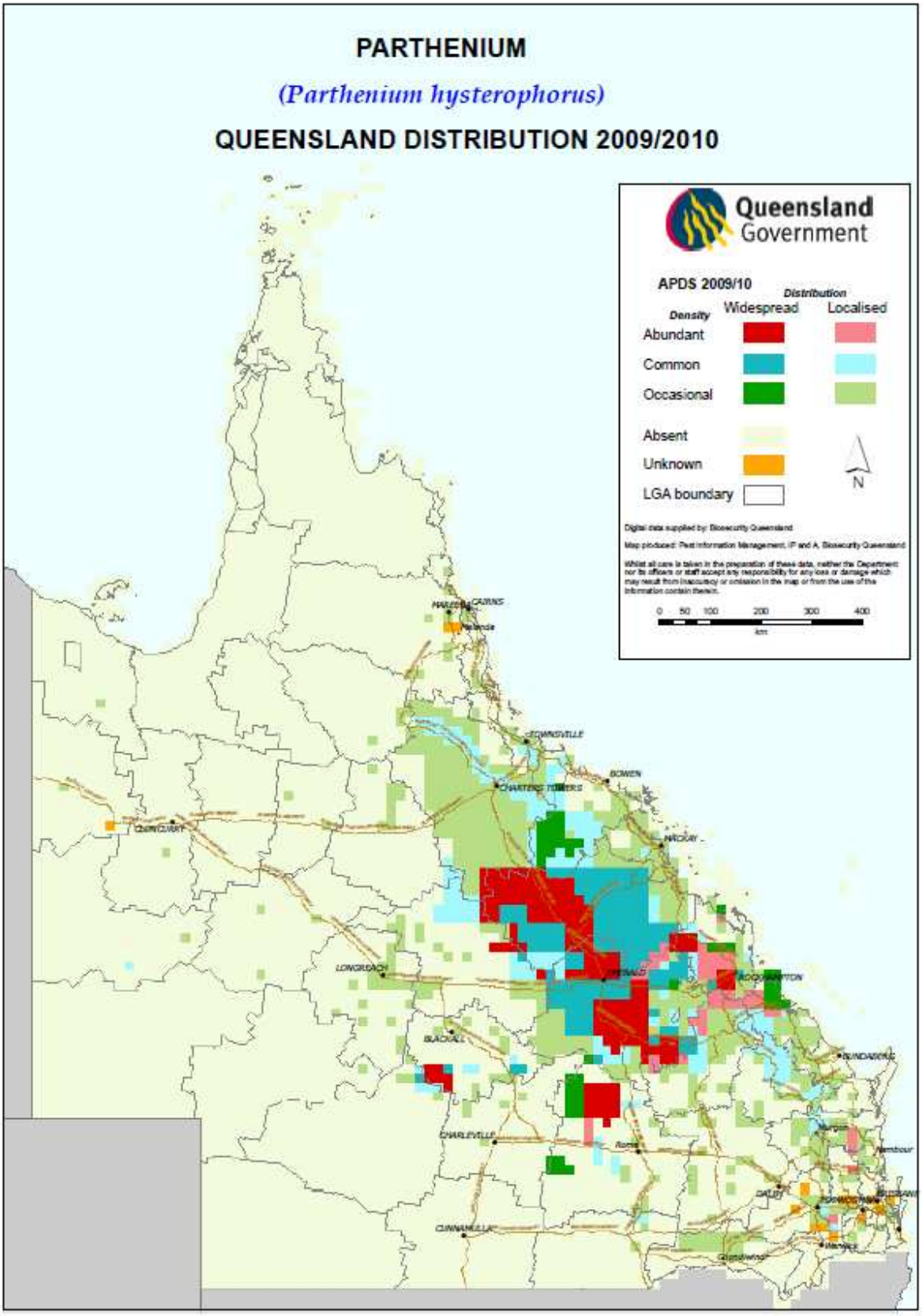
LONGREACH
EMERALD
ROCKHAMPTON
BLACKALL
CHARLEVILLE
Roma
CUNNAMULLA


PARTHENIUM
(Parthenium hysterophorus)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
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Unknown
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
Whilst all care is taken in the preparation of these data, neither the Department nor its officers or staff accept any responsibility for any loss or damage which may result from inaccuracy or omission in the map or from the use of the information contain therein.
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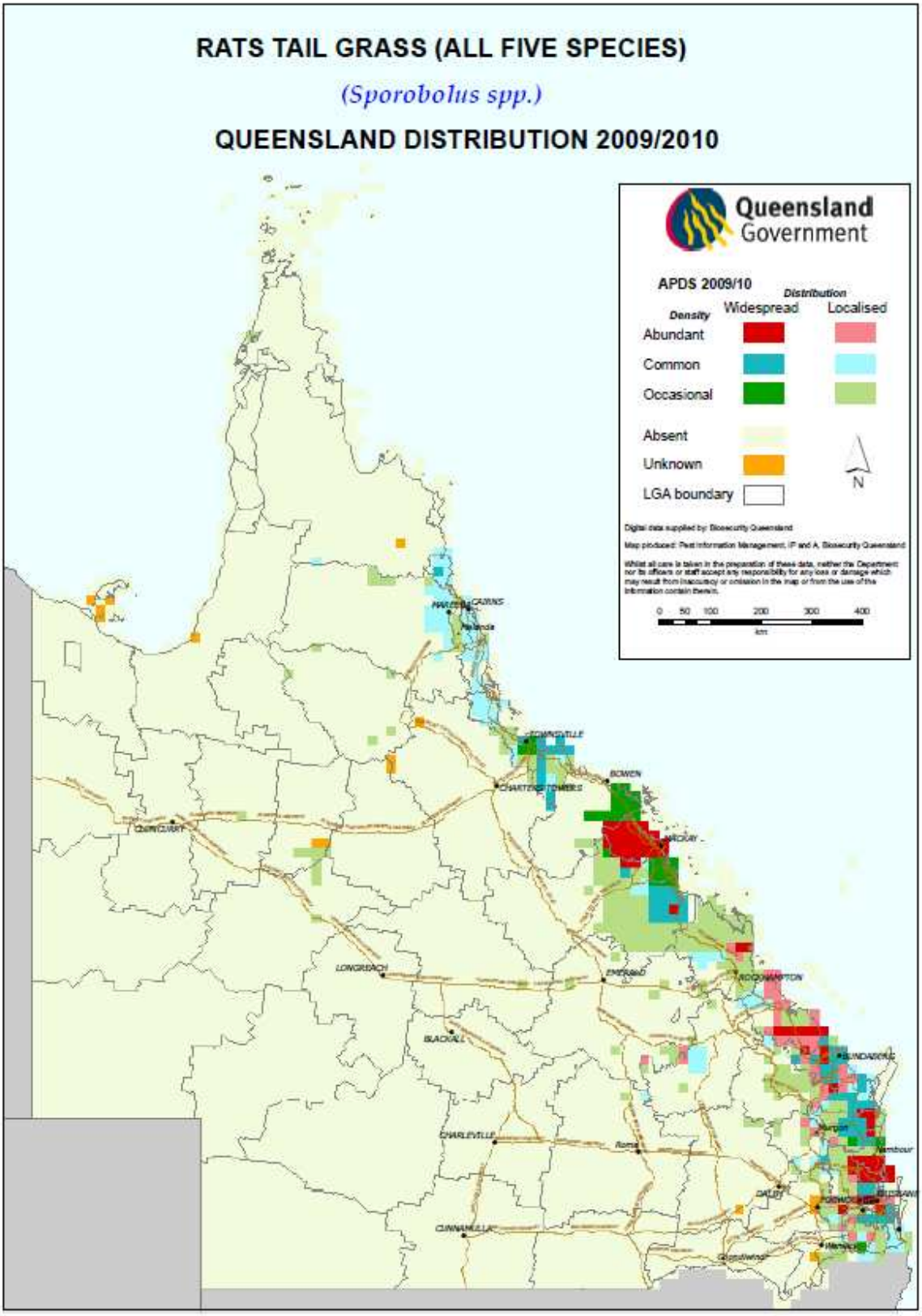
GATTON
TOOWOOMBA
BRISBANE


RATS TAIL GRASS (ALL FIVE SPECIES)
(Sporobolus spp.)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
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Absent
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LGA boundary
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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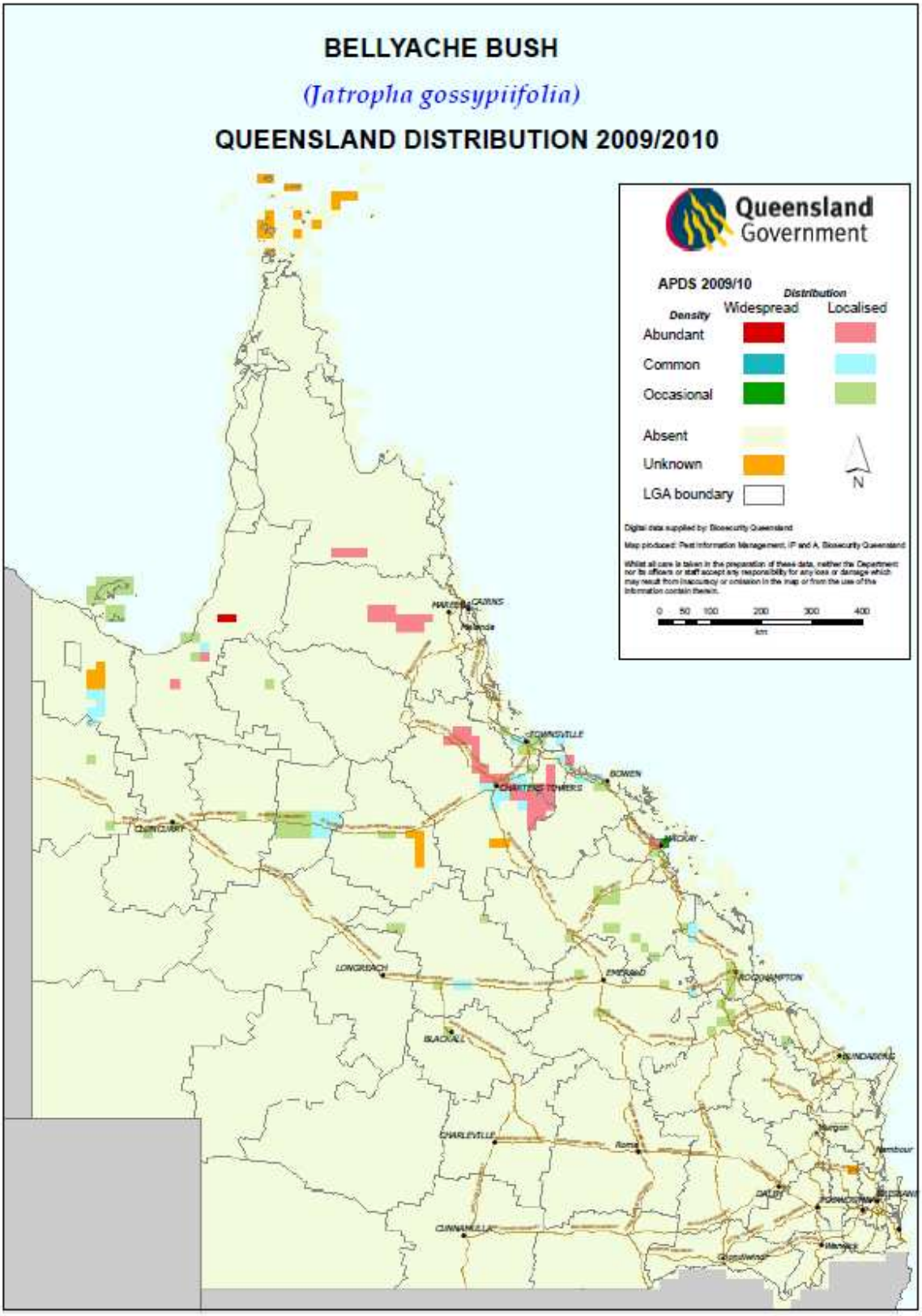
Roma
CUNNAMULLA


BELLYACHE BUSH
(Jatropha gossypiifolia)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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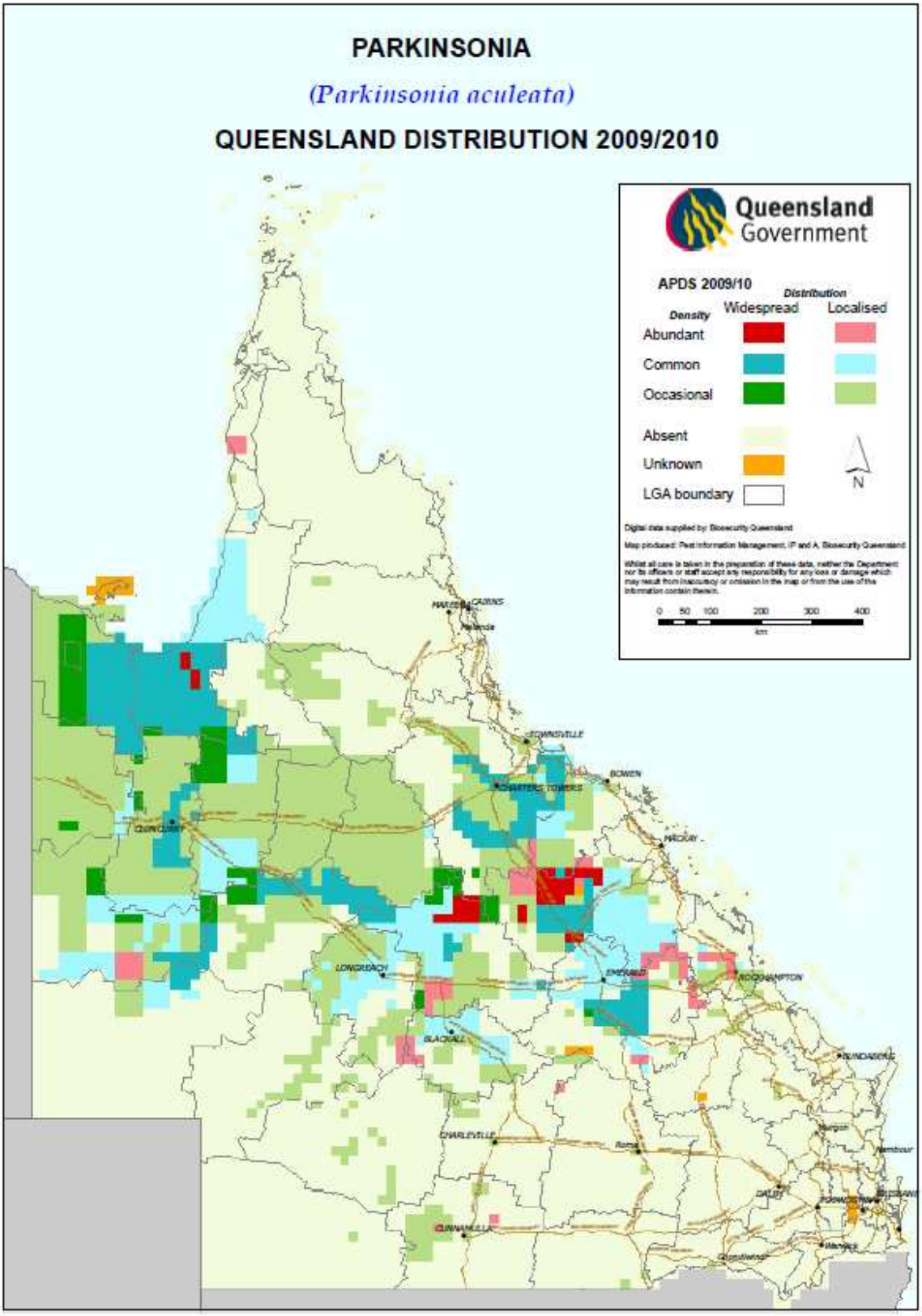
Roma
CUNNAMULLA


PARKINSONIA
(Parkinsonia aculeata)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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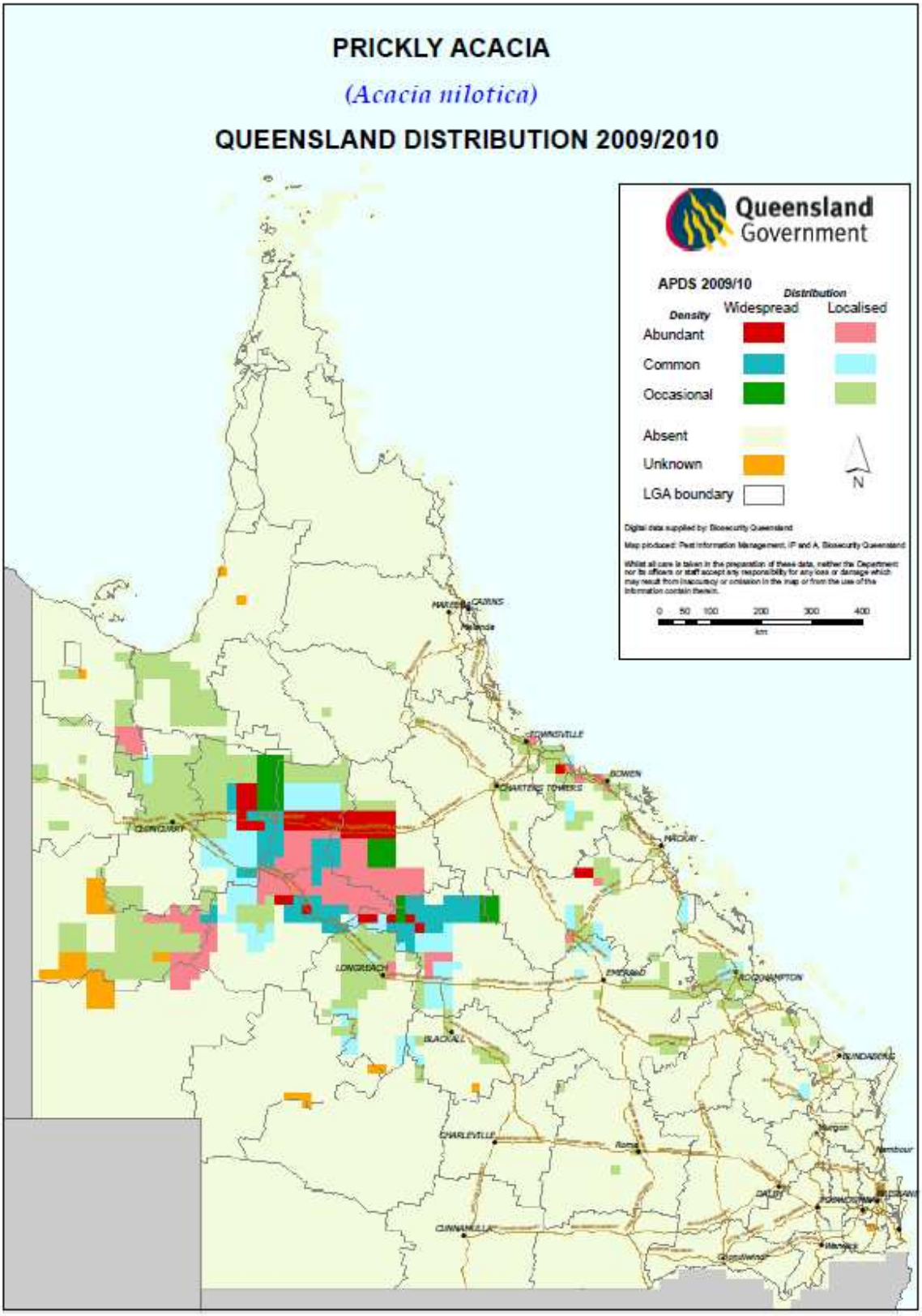
Roma
DALBY


PRICKLY ACACIA
(Acacia nilotica)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
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Digital data supplied by: Biosecurity Queensland
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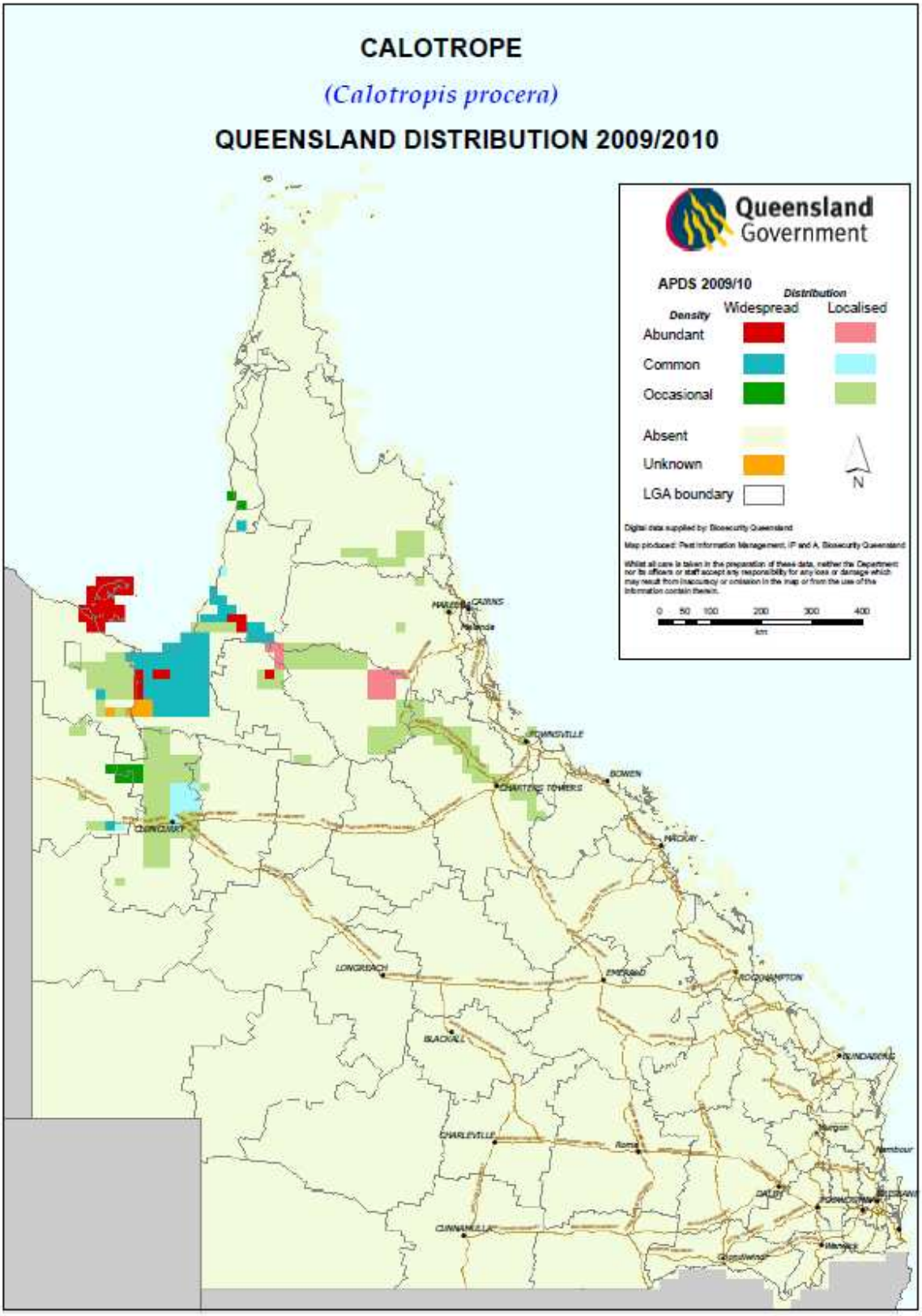
CALOTROPE
(Calotropis procera)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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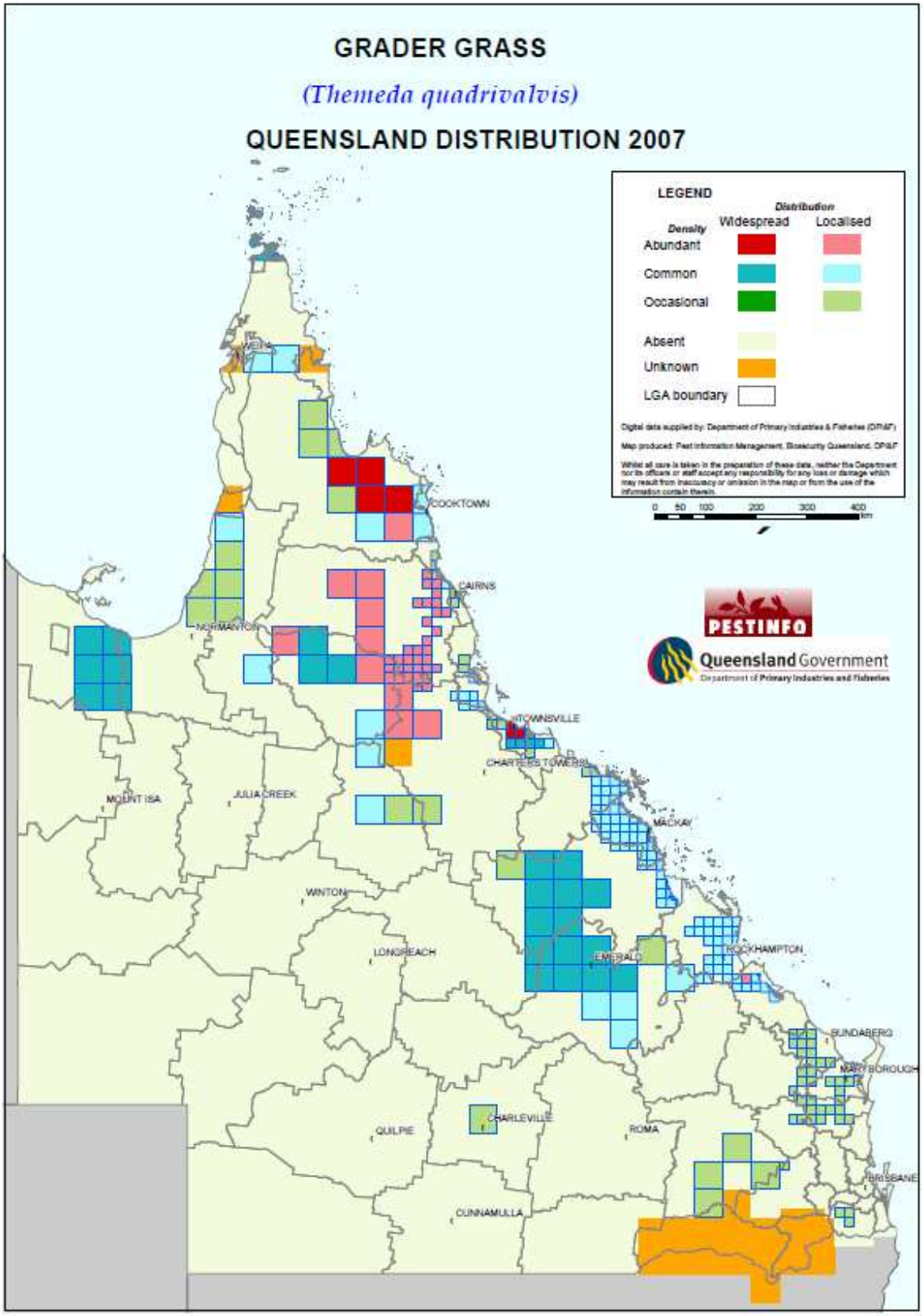
GRADER GRASS
(Themeda quadrivalvis)
QUEENSLAND DISTRIBUTION 2007
LEGEND
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
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LGA boundary
Digital data supplied by: Department of Primary Industries & Fisheries (DPI&F)
Map produced: Pest Information Management, Biosecurity Queensland, DPI&F
Whilst all care is taken in the preparation of these data, neither the Department nor its officers or staff accept any responsibility for any loss or damage which may result from inaccuracy or omission in the map or from the use of the information contain therein.
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PESTINFO
Queensland Government
Department of Primary Industries and Fisheries
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CAIRNS
NORMANTON
TOWNSVILLE
CHARTERS TOWERS
MOUNT ISA
JULIA CREEK
MACKAY
WINTON
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MARYBOROUGH
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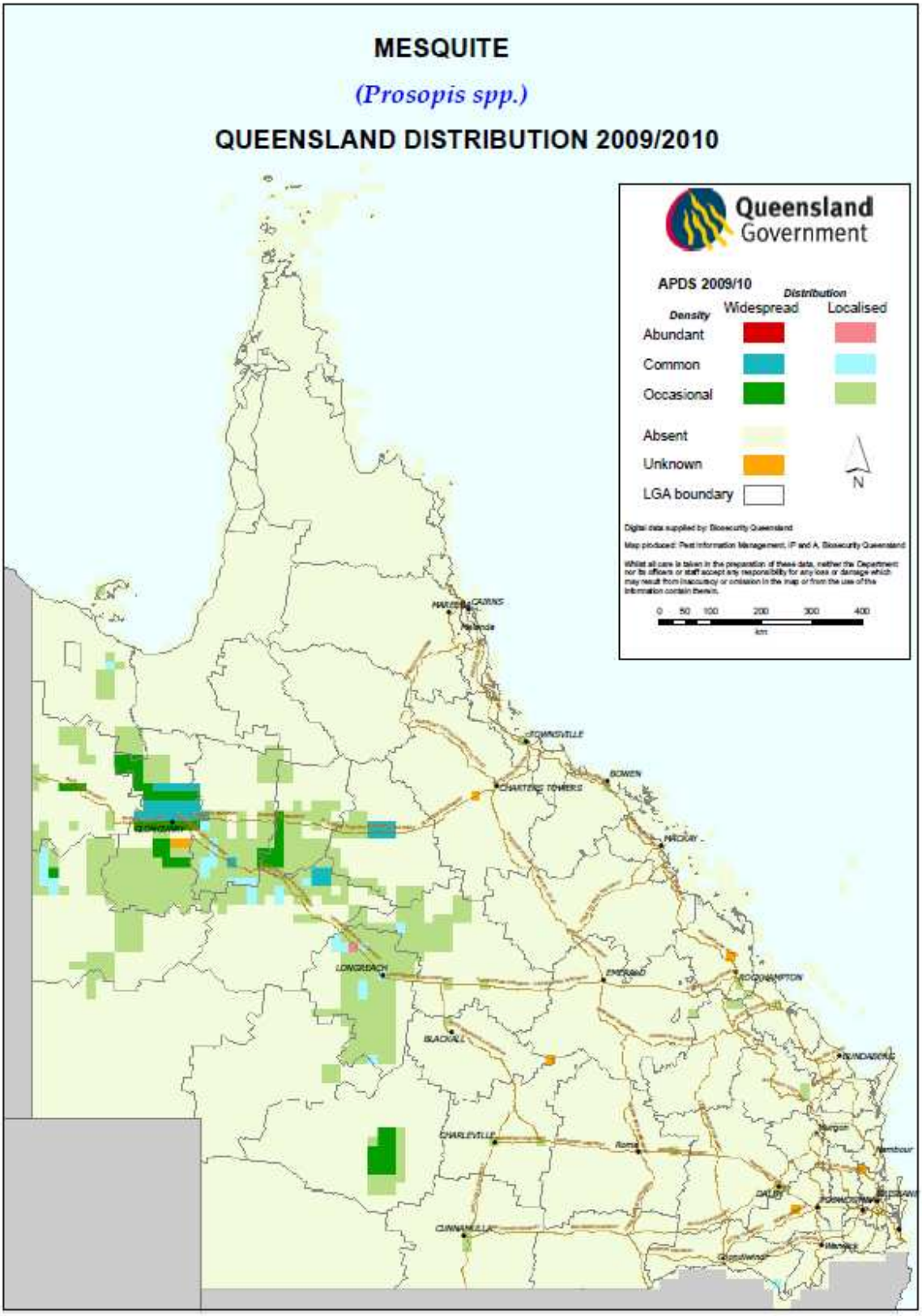
QUILPIE
ROMA
BRISBANE
CUNNAMULLA


MESQUITE
(Prosopis spp.)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
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Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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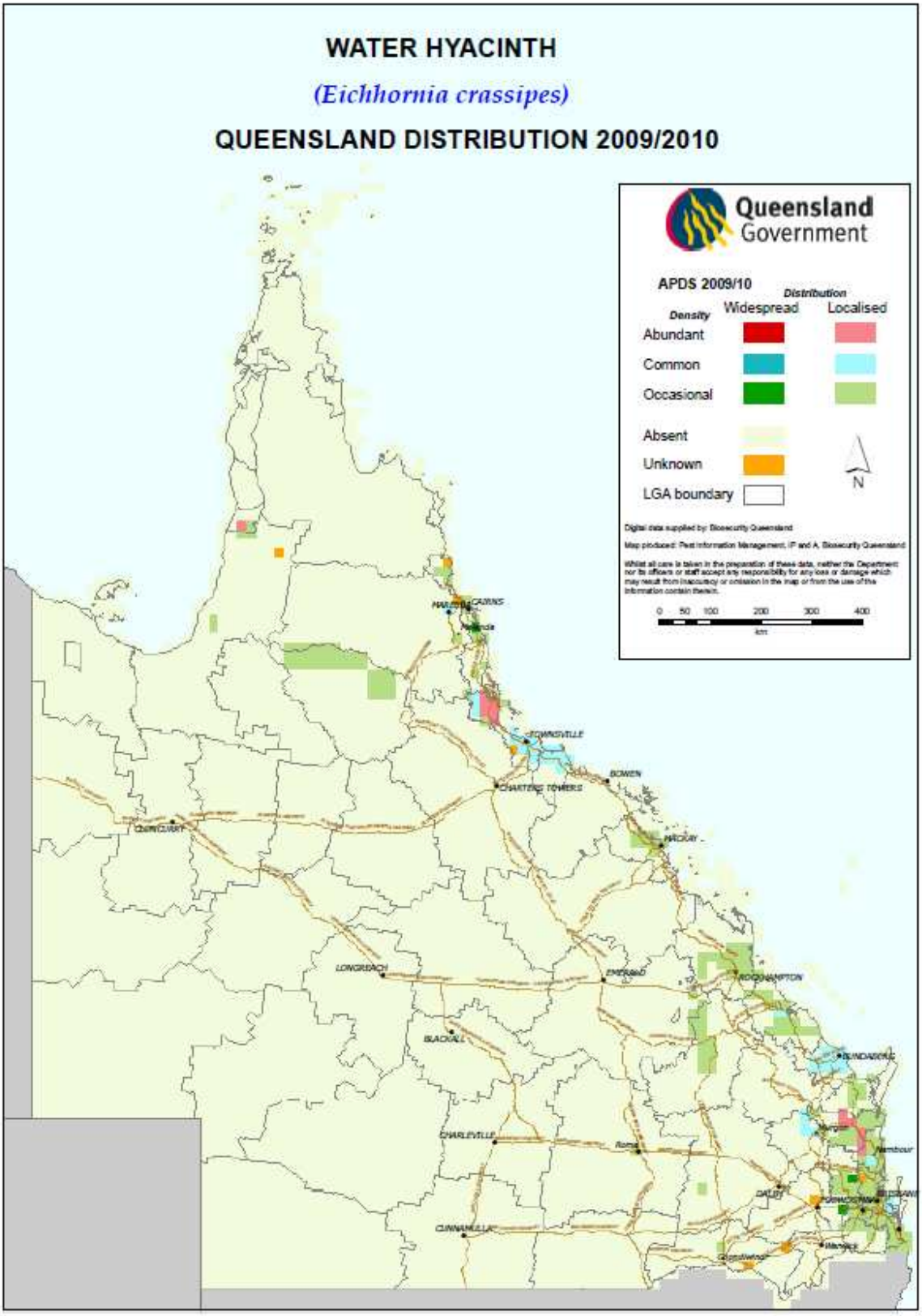
MACKAY
LONGREACH
EMERALD
ROCKHAMPTON
BLACKALL
CHARLEVILLE
Roma
CUNNAMULLA


WATER HYACINTH
(Eichhornia crassipes)
QUEENSLAND DISTRIBUTION 2009/2010
Queensland Government
APDS 2009/10
Distribution
Density
Widespread
Localised
Abundant
Common
Occasional
Absent
Unknown
LGA boundary
N
Digital data supplied by: Biosecurity Queensland
Map produced: Pest Information Management, IP and A, Biosecurity Queensland
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0 50 100 200 300 400
km
CAIRNS
TOWNSVILLE
CHARTERS TOWERS
BOWEN
MACKAY
LONGREACH
EMERALD
ROCKHAMPTON
BUNDABERG
CHARLEVILLE
Roma
CUNNAMULLA