Katherine Regional Weeds Strategy
2021-2026

Department of
ENVIRONMENT, PARKS AND WATER SECURITY

NORTHERN TERRITORY GOVERNMENT

Rubbervine flowers

Cover photo: Parthenium weed

CONTENTS

Introduction

Weeds have major economic, environmental and social impacts in Australia, causing damage to natural, economic and cultural assets. In the present day, weeds are spreading around the globe at an ever-increasing rate, primarily through human activities and related economic development.

The Katherine Region covers an area of approximately 386,350km^2 of tropical savannah from the Gulf of Carpentaria district to the eastern NT border, the Katherine District north to Pine Creek and south to Hayfield Station, including the Sturt Plateau, and the Victoria River District to the western border (see Figure 1).

There is a continued risk of new weed incursions throughout the Katherine Region and the spread of existing weeds by the deliberate and accidental actions of people. For example, weeds can escape from gardens, be accidentally transported with livestock, be spread by slashers and be sold in hay or landscaping products. While these risks are ongoing, their impacts can be mitigated and reduced by strategic management.

Purpose

The purpose of the Katherine Regional Weeds Strategy (the Strategy) is to set out a strategic approach for the Northern Territory Government and key stakeholders to reduce the adverse impact of the weeds in the Katherine region over the period 2021-2026. It succeeds the Katherine Regional Weed Management Plan 2015-2020.

Aims

The Strategy aims to protect the Katherine Region's natural, economic and cultural assets from the adverse impacts of weeds by:

- Identifying the principal weed threats to the Katherine Region and describing best practice weed management strategies to mitigate these threats.
- Providing clear regional weed management priorities through an evidence-based consultative decision making process.
- Providing clear, achievable and measurable regional management actions and goals.

Figure 1. Weed Management Regions of the Northern Territory (NT Weed Management Branch 2020).

Development principles

The Strategy has been developed in line with the Department of Environment, Parks and Water Security (DEPWS) Strategic Plan 2021-24, and the Australian Weeds Strategy 2017-27. These two documents highlight the importance of coordination and consultation amongst landholders and other stakeholders for effective weed management at a landscape scale. These concepts underpin the development of this strategy and can be described as a 'working together' approach.

DEPWS Strategic Plan (2021–2024)

The DEPWS Strategic Plan (2021–24) provides a clear vision to use evidence-based advice and regulation to support the sustainable use of the Northern Territory's natural resources, and to protect and present our wildlife, parks and reserves. There are four goals that are directly relevant to the Strategy and a range of strategies that can be used in order to realise these goals. In relation to weed management, the goals and strategies fall into three broad classes:

1. supporting sustainable economic development
2. fostering and strengthening partnerships
3. protecting and managing our natural assets

The Strategy has incorporated the goals and strategies of the DEPWS Strategic Plan into its development.

Australian Weeds Strategy (2017–2027)

The Australian Weeds Strategy (2017-2027) (AWS) identifies seven key principles that underpin effective weed management in Australia. It recommends that these principles be used to guide cost-effective weed management planning, investment and actions:

1. Effective weed management is a responsibility shared between landholders, community, industry and government.
2. Evidence-based decision-making should underpin the approach to weeds.
3. Risk-based prevention and early intervention is generally the most cost-effective approach for managing weeds.
4. Prioritisation of weed management must be informed by a risk-based approach, considering feasibility, likelihood of success and impact.
5. Coordination amongst landholders, community, industry and government is necessary to manage weeds at a landscape scale.
6. Sustaining capability and capacity across landholders, community, industry and government is fundamental to effective weed management.
7. Individuals, organisations and industry groups that create risks that may result in a weed entering, emerging, establishing or spreading in Australia have a role in minimising the impacts and contributing to the costs of management.

These seven principles have been used to guide the development of the Strategy.

The AWS provides clear principles, goals and priorities to assist with strategic weed management in Australia. These provide a valuable resource to any stakeholder developing weed management priorities.

Northern Territory Biosecurity Strategy (2016-2026)

The Northern Territory Biosecurity Strategy 2016-2026 (NTBS) recognises that minimising the threat and impact of pests and diseases to the Northern Territory is a responsibility that all Territorians share. Success in achieving good biosecurity outcomes is only possible with the cooperation and joint commitment from all stakeholders and the community. It identifies three fronts that biosecurity, including weed management, must address to reduce the impacts of pests:

1. Prevention – minimising the likelihood of entry and establishment of new pests.
2. Elimination – detecting, containing and eradicating significant pests.
3. Management – reducing the impact of established pests on the economy, environment and community.

Activities included in this Strategy also contribute and link directly to the goals and purpose of the NTBS.

Grader grass

'Working together' approach

A 'working together' approach is one way of describing the importance of making shared partnerships the central pillar of the Strategy. The DEPWS Strategic Plan, AWS and NTBS emphasise the need for fostering effective coordination between stakeholders, community and government to achieve effective weed management at a landscape scale. This is why consultation with key stakeholders in the Katherine Region through the Katherine Regional Weed Reference Group has been integral to its development. This Strategy also links to the Northern Territory NRM Plan (Gulf Savanna Region) which provides an overarching direction, scope and prioritisation for natural resource management activities within the region.

Key stakeholders

The Katherine Regional Weed Reference Group (KRWRG) is a forum which provides an opportunity for a wide range of stakeholders in the Katherine region to discuss and collaborate on regional priorities and related topics relating to weed management, including the development of the Strategy (see Section 5, below). Stakeholders coming together to discuss and develop the Strategy is a part of the 'working together' approach.

The KRWRG has been operating since 2009, and before this as the Katherine Regional Weed Advisory Committee from July 2001. It is supported by the Weed Management Branch within the Rangelands Division of DEPWS and is an important source of expertise and advice. Membership currently comprises representation from, among others, the NT Cattlemen's Association, Katherine Pastoral Industry Advisory Committee, Northern Territory Government, NT Farmers Association, Northern Land Council, Jawoyn Association, Volunteer Bushfire Brigades and Sturt Plateau Best Practice Group (see Appendix A).

A full list of key stakeholders who will be responsible for implementation this Strategy, is presented in the table below.

Table 1: Key stakeholders responsible for weed management in the Katherine Region

Key stakeholder group	Name
Australian Government	Department of Defence
Northern Territory Government	Department of Environment, Parks and Water Security: • Weed Management Branch • Bushfires NT • Flora and Fauna • Parks and Wildlife Department of Industry, Tourism and Trade Department of Infrastructure, Planning and Logistics • Road Network and Vacant Crown Land NT Police, Fire & Emergency Services, Fire and Rescue Service
Local Government	Katherine Town Council Victoria Daly Regional Council Roper Gulf Regional Council
Aboriginal	Northern Land Council Central Land Council Aboriginal Ranger Groups
Environment and community	Australian Wildlife Conservancy
Landcare / Natural Resource Management	Landcare NT Territory Natural Resource Management (TNRM) Roper River Landcare Group Victoria River District Conservation Association
Industry	NT Cattlemen's Association (NTCA) – Katherine Branch Katherine Pastoral Industry Advisory Committee (KPIAC) Sturt Plateau Best Practice Group NT Farmers Association NT Nursery and Garden Industry
Education and research	Charles Darwin University
Private landholders	Town and rural block owners

Weed legislation

There are legal requirements for land managers and land occupiers in the Northern Territory in relation to declared weeds. These requirements are described in the *Weeds Management Act 2001*. Some weeds have statutory weed management plans, which describe additional legal requirements for these species.

Weeds Management Act 2001

The *Weeds Management Act 2001* describes the legal requirements and responsibilities that apply to land owners and land occupiers regarding declared weeds.

The general duties are described in section 9 of the Act and include the requirement to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading.

Additional duties include a prohibition on the buying, selling, cultivating, moving or propagating any declared weed, and the requirement to notify the Weed Management Branch of a declared weed not previously present on the land within 14 days of detection.

Statutory weed management plans

All landholders must also meet the management requirements described in statutory weed management plans. A statutory weed management plan establishes and clearly articulates the objectives, management requirements and management actions to be achieved by landholders for a specific declared weed. The Minister responsible for the *Weeds Management Act 2001* approves statutory weed management plans.

There are nine statutory weed management plans relevant to the Katherine Region:

1. Athel pine
2. Bellyache bush
3. Chinee apple
4. Gamba grass
5. Grader grass
6. Mesquite
7. Mimosa
8. Neem
9. Prickly acacia

This Strategy should be considered in conjunction with these statutory weed management plans.

They can be viewed on the Northern Territory Government website: visit the relevant species page for further information:

Athel pine	nt.gov.au/athelpine
Bellyache Bush	nt.gov.au/bellyachebush
Chinee apple	nt.gov.au/chineeapple
Gamba grass	nt.gov.au/gamba
Grader grass	nt.gov.au/gradergrass
Mesquite	nt.gov.au/mesquite
Mimosa	nt.gov.au/mimosa
Neem	nt.gov.au/neem
Prickly Acacia	nt.gov.au/pricklyacacia

Weed data

Spatial data

The Weed Management Branch routinely provides maps including the current and historic distribution records of priority weeds to assist stakeholders with strategic weed management planning. Maps of some priority species in the Katherine Region have been included in the Strategy, however, data and maps for other species are also available on request.

Special care must be taken when interpreting distribution maps. For example, data for some species (particularly non-declared weeds) is not routinely collected and so maps for these species may under represent their true range. Other species, such as mesquite and prickly acacia, have been the target of local or regional control programs and so the map may include locations where adult plants have been managed in the past. In some cases, there may be some uncertainty as to whether there are seeds in the soil or whether regeneration has occurred at that location. The conservative approach is to include historic data as present (which may overestimate the true extent) until there is sufficient evidence to conclude that local eradication has been achieved.

Weed risk assessment

Historically, decisions on weed management have frequently been based on perceptions or emotions, which is not necessarily a sound basis for determining long-term strategic priorities. Three of the seven principles of the Australian Weeds Strategy (2017-2027) refer to the importance of evidence-based decision making, risk-based prevention and risk-based prioritisation for effective weed management.

In order to provide an evidence basis to decisions regarding strategic weed management, in line with other Australian jurisdictions and the AWS, the Northern Territory Government (in collaboration with other stakeholders including industry, community and research organisations) developed a NT Weed Risk Management System (WRMS).

Mimosa flowers

The WRMS is a process that uses evidence to assess and rank the relative weed risk and feasibility of control for different weed species in the Northern Territory. Weed risk assessments involve an assessment of evidence and are made by a panel of experts from several government departments.

The WRMS user guide describes the development of the WRMS, its purpose and application and how assessments are undertaken. It lists the questions used for assessments and includes a section on using the results to assist with determining strategic priorities. The user guide is available on request. Contact the NT Weed Management Branch at weedinfo@nt.gov.au if you would like a copy.

In order to assist the KRWRG in the discussion of prioritisation and weed risk, the Weed Management Branch provided advice and outputs from the WRMS, including results for individual species assessments and management matrices to inform species prioritisation.

The Strategy

The KRWRG provides a forum for key stakeholders to collaborate and discuss weed management issues in the Katherine Region.

The Group met three times between December 2019 and November 2020 to discuss the review of the Katherine Regional Weed Management Plan and the development of this Strategy. This included discussion of the weed threats to the Region, how to prioritise and to respond to them, and how to incorporate them into the Katherine Regional Weed Strategy 2021-2026.

The development of the Strategy started with asking questions about weed management including:

1. What priorities and actions were in previous weed plans for the region?
2. What are our priority weeds and where are they located?
3. What are our objectives for regional weed management and do we have the time and money to succeed?
4. What actions are most appropriate to achieve our objectives?

In order to effectively utilise the limited resources available to the Region to manage weeds, the Strategy identifies regional priorities in the following three areas:

1. Priority weeds
2. Priority landscape areas
3. Priority pathways of spread

Priority weeds

Developing the priority lists

The KRWRG used their expert local knowledge as well as the outputs from the NT Weed Risk Management System (WRMS) to determine the priority lists. The NT Weed Risk Management System provided an evidence-based tool to assist with the prioritisation process and was actively used by the KRWRG in developing the priority weed lists. Refer to Appendix B (Weed Risk Management Matrix) for the outputs of the Weed Risk Management System that were used to assist with the weed prioritisation process.

However, it was clearly acknowledged by the group that stakeholders may have different priorities at an individual, catchment or property scale. Note that some weeds identified as priorities or concerns in this Strategy are not recognised as declared weeds under the *Weeds Management Act 2001*. This reflects the community/scientific expectations and concerns about a range of current and emerging weed threats to the Region not restricted to the declared weed list.

Weed species that are listed as requiring priority management attention within the Region were determined by consensus during KRWG meetings with input from the NT Weed Management Branch using one or more of the following criteria:

a. subject to a statutory weed management plan

b. listed as a Weed of National Significance

c. weed risk assessment concluded the species to be a high or very high risk to the Northern Territory

d. weed risk at the regional level confirmed by local expert knowledge

e. strategic management of isolated or core infestations regarded as feasible by local expert knowledge.

The priority weeds to be the focus for the Katherine Regional Weeds Strategy are listed in Tables 2 and 3, and maps for these species are provided in Appendix C.

Category 1 – Priority weeds for eradication

These species are present in the Katherine Region and are widely considered feasible to eradicate. They are typically evaluated as very high risk and have isolated and restricted distributions.

Table 2: Priority weeds for eradication in the Katherine Region

Common name	Botanical name	NT Declared class	Weed Risk (NT)
Prickly acacia	*Vachellia nilotica*	A	Very high
Mesquite	*Prosopis* spp.	A	Very high
Parthenium weed	*Parthenium hysterophorus*	A	Very high
Mimosa	Mimosa pigra	A	Very high
Rubber vine	Cryptostegia grandiflora	A	Very high
Salvinia	*Salvinia molesta*	B	Very high
Rope cactus	*Cylindropuntia* spp.	A	Very high
Thatch grass	*Hyparrhenia rufa*	A	Very high
Giant rats tail grass	*Sporobolus* spp.	Not declared	High

Category 2 - Priority weeds for strategic control (including eradication of outliers)

These species warrant strategic control across the Katherine Region due to their high impact on land managers, and other economic and environmental values. The key for these species is that outlier populations are practical to eradicate, but there are core infestations that are subject to control and containment. They are typically covered by a statutory weed management plan, the target of a specific program or similar. Often they are Weeds of National Significance.

Table 3: Priority weeds for strategic control (including eradication of outliers)

Common name	Botanical name	NT Declared class	Weed Risk (NT)
Chinee apple	*Ziziphus mauritiana*	A	Very high
Gamba grass	*Andropogon gayanus*	A/B	Very high
Ornamental rubber vine	*Cryptostegia madagascariensis*	A	Very high
Bellyache bush	*Jatropha gossypiifolia*	A/B	Very high
Grader grass	*Themeda quadrivalvis*	B	Very high
Neem	*Azadirachta indica*	B	Very high
Devils claw	*Martynia annua*	A	High
Athel pine	*Tamarix aphylla*	A	Very high

Category 3 – Weeds of concern

These species have been assessed by the weed risk management system as a medium to high risk (or have not been assessed) but have been identified by stakeholders as posing a threat to the values of the Katherine Region. The list is not comprehensive. There are no plans or strategies to manage any one of them as a species across the landscape. They are typically managed on a site basis and to prevent further spread. In some cases there may be local strategies to manage these weeds.

Table 4: Weeds of Concern

Common name	Botanical name	NT Declared class	Weed Risk (NT)
Parkinsonia	*Parkinsonia aculeata*	B	Very high
Common lantana	*Lantana camara*	B	Very high
Mission grass, perennial	*Cenchrus polystachios*	B	Very high
Olive hymencahne	*Hymenachne amplexicaulis*	B	Very high
Yellow oleander	*Cascabela thevetia*	Not declared	Very high
Mission grass annual	*Cenchrus pedicellatus*	Not declared	High
Rubber bush[1]	*Calotropis procera*	B (South of 16°30' S latitude)	High
Long-spine thornapple	*Datora ferox*	A	Medium
African mahogany	*Khaya senegalensis*	Not declared	Medium
Lions tail	*Leonotis nepetifolia*	B	Medium
Thorn apples	*Datura* spp.	C	Not assessed
Coffee bush[2]	*Leucaena leucocephala*	Not declared	High

[1] Rubber bush is considered a high priority on the Sturt Plateau

[2] Leucaena is increasing in popularity as a fodder species. If left ungrazed or unmanaged, leucaena has the potential to form dense thickets which can be difficult and time-consuming to eradicate. A producer group, the Leucaena Network, is currently revising its Best Management Code of Practice for the establishment and management of leucaena pastures.

Category 4 – Hygiene and biosecurity weeds

These species are typically evaluated as low risk, however they do still have local impacts. There are no strategies in place for managing these species at a landscape scale. However, it is important for landholders to implement weed hygiene and other biosecurity measures to prevent the spread of weeds into clean areas, and to control these species where the opportunity arises. Typically, these weeds may become problems around infrastructure, drains and other disturbed areas.

Table 5: Hygiene and biosecuirty weeds in the Katherine Region

Common name	Botanical name	NT Declared class	Weed Risk (NT)
Hyptis	*Mesosphaerum suaveolens*	B	High
Sida	*Sida* spp.	B	High
Snake weed	*Stachytarpheta* spp.	B	Not assessed
Goat head burr	*Acanthospermum hispidum*	B	Not assessed
Coffee senna	*Senna occidentalis*	B	Not assessed
Mossman River grass	*Cenchrus echinatus*	B	Medium
Sickle pod	*Senna obtusifolia*	B	High
Castor oil plant	*Ricinus communis*	B	High
Noogoora burr	*Xanthium strumarium or Xanthium occidentale*	B	High

Category 5 – 'Alert' weeds

The Weed Management Branch uses a working definition of an 'alert' weed as a species:

- not yet naturalised in a Region
- with the potential to have a high level of impact should it become established
- having a reasonable likelihood of arriving in the Region (or of being present undetected).

Table 6: Regional 'Alert' weeds in the Katherine Region for eradication on detection

Common name	Botanical name	NT Declared class
Siam weed	*Chromolaena odorata*	C
Pond apple	*Annona glabra*	A
Sagittaria	Sagittaria platyphylla	A
Cabomba	*Cabomba caroliniana*	A
Water mimosa	*Neptunia plena*	A
Water hyacinth	*Eichhornia crassipes*	A

Priority landscape areas

Landscape areas that require priority management attention within the Region were determined using one or more of the following criteria:

a. low incursions of weeds

b. sites of significance for biodiversity conservation[3]

c. significant commercial values

d. very high visitation areas

e. significant cultural and heritage values

f. susceptibility to invasion

g. weed source areas including top of streams and up-wind areas

h. high value assets.

Table 7: Priority landscape areas

Landscape area	Nested values	Threats
All sites of significance for biodiversity conservation in the NT, e.g. Legune Coastal floodplain, Limmen Bight and associated coastal flood plains	Biodiversity Tourism Recreational users Pastoral Cultural Carbon projects	Category 1 weeds Ornamental rubber vine
Water courses including Katherine River, Victoria River and Roper River	Biodiversity Tourism Recreational users Pastoral Cultural	Category 1 and 2 weeds
Key sites of community value	Nitmiluk National Park Arnhem land	All
Rangelands	Sturt Plateau Beetaloo sub-basin	All

[3] Sites listed in 'An inventory of sites of international and national significance for biodiversity values in the Northern Territory' (Harrison et al 2009) because they support important wetland values, large aggregations of wildlife, concentrations of threatened species or endemic species, or are considered botanical hot-spots.
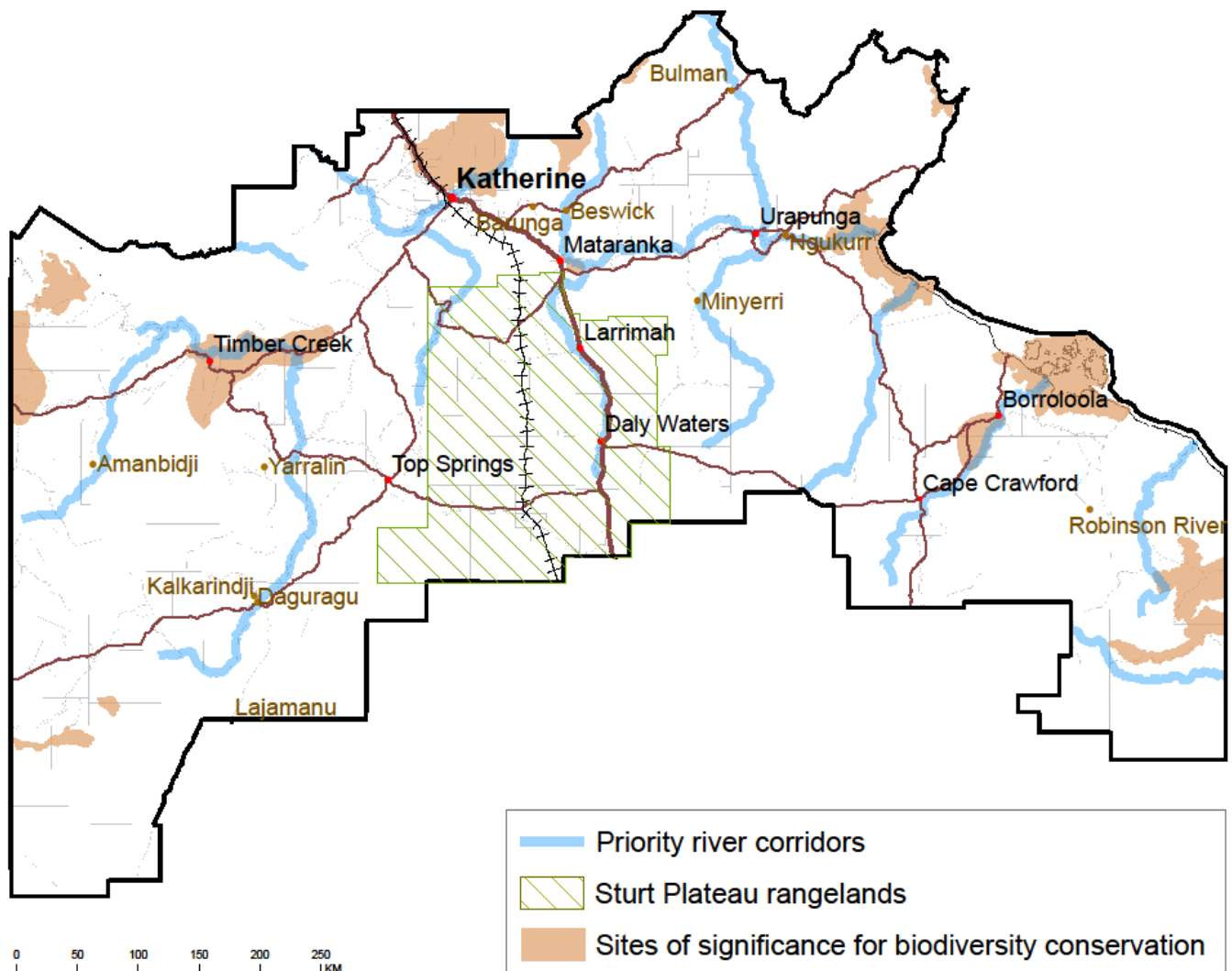

Figure 2. Priority landscapes

Priority pathways for spread

Following consultation with a wide range of government, non-government and industry bodies, the Northern Territory Weed Management Branch prepared education and technical material to assist with the strategic mitigation of weed spread. The results are summarised in "Preventing weed spread is everybody's business". This document lists the main pathways of spread in the Northern Territory (pp. 6-7) and was informed by previous the Northern Territory Regional Weed Management Plans. The Katherine Regional Weed Management Plan 2015-2020 is available at: territorystories.nt.gov.au/10070/825510

The Katherine Regional Weed Reference Group discussed the pathways for spread that require priority management attention in the Region and considering the following:

  a. physical characteristics of weeds that are likely to be transported by human or natural means

  b. which weeds are most likely to be transported into or within the Katherine Region

  c. human activities most likely to spread weeds

  d. presence of a physical corridor assisting weed spread.

Table 8: Priority pathways of spread of weeds

| Cause	Pathway (s) of Spread	Example mechanisms of spread along priority pathways	Examples of species that are likely to be spread by this pathway
Physical processes	River corridors and gulf coastline	Livestock, feral and native animal movements, wind, water, fire, recreation activities and ocean current	Rubber vine, mimosa
Native or feral animals	River corridors	Feral and native animal movement	Neem, chinee apple
Land use and development	Mining and exploration areas including Beetaloo sub-basin (refer to Figure 3)	Construction and maintenance of mines and access roads, including land clearing, slashing and grading	Grader grass All Category 4 weeds
	Gas pipeline	Maintenance activities	Gamba grass, grader grass
	Rail corridors	Maintenance activities	Gamba grass, grader grass
	Pastoral holdings	Cattle, hay and contractors	Parthenium weed, prickly acacia, grader grass
	Roads	Construction and maintenance, such as slashing and grading, 4WD tourism, livestock, and fodder haulage and high traffic/rest areas	Gamba grass, grader grass All Category 4 weeds
Tourism	Accidental	Camping, parking on the side of the road Deliberate plantings, garden plants	Parthenium weed, rubber vine, grader grass
Use by industry	Nursery industry Garden plants Horticulture Agriculture	Deliberate plantings, garden plants Deliberate plantings, vehicle and machinery movements	Cacti, bellyache bush, neem, ornamental rubber vine Leucaena, grader grass All Category 4 weeds
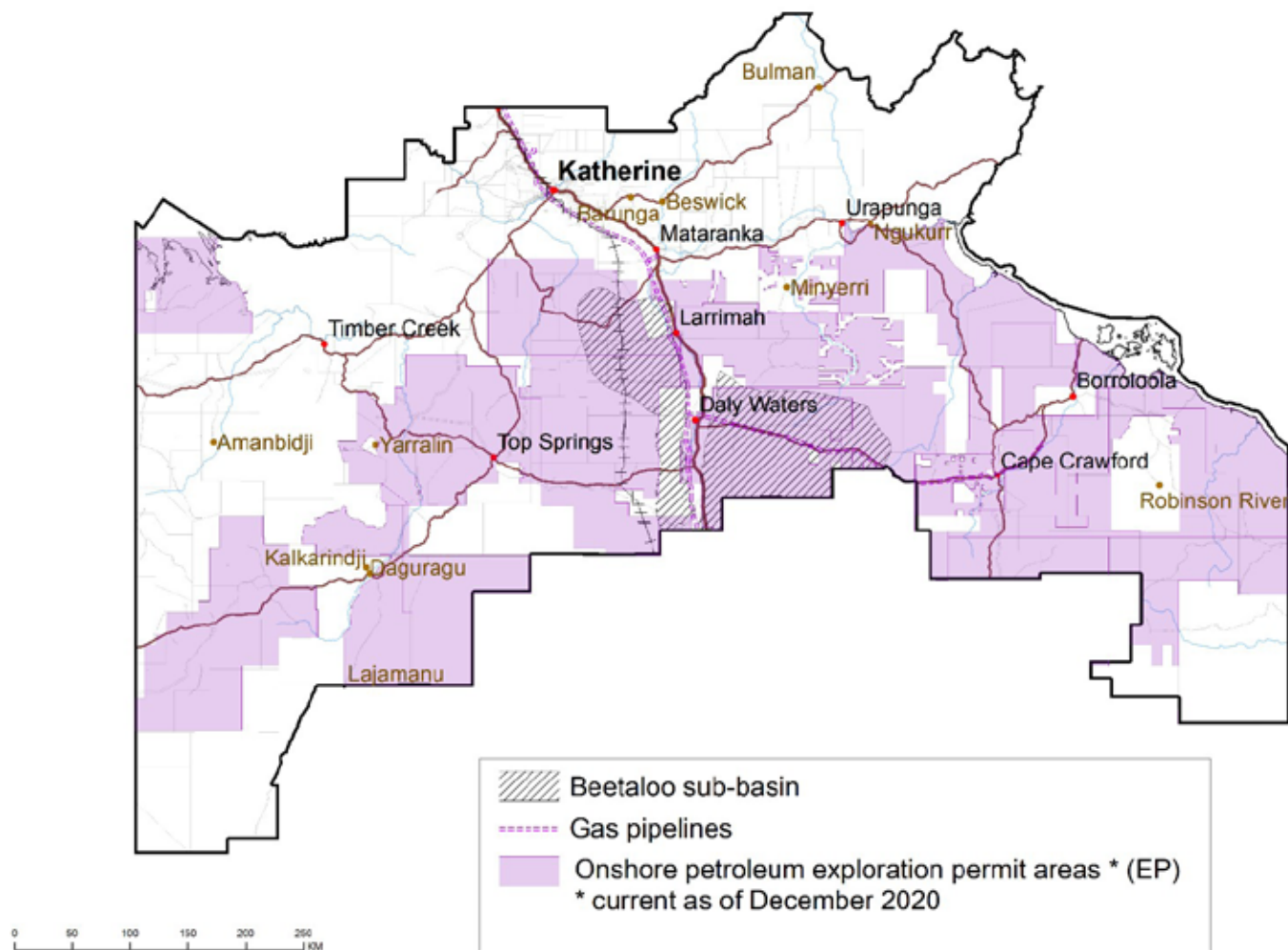
Figure 3. Onshore petroleum exploration permit areas

Objectives and actions

The following six objectives in the Strategy represent an achievable outcome within its five year timeframe. To achieve the objectives within that timeframe, significant investment in time and resources will be required by a range of stakeholder groups.

Objective 1:   To make progress towards the eradication of identified priority weeds.

Objective 2:   To make progress towards the control and containment of identified priority weeds.

Objective 3:   To prevent the introduction and spread of the Region's priority weeds.

Objective 4:   To improve adaptive weed management.

Objective 5:   To ensure landholders act responsibly and support a 'working together' approach to weed management.

Objective 6:   To increase the Region's awareness of its priorities and capacity to manage weed impacts.

Objective 1: To ensure regional compliance against statutory weed management plans and priority weed species

Weed	Action	Known areas	Katherine Regional Weed Reference Group	Australian Government	Weed Management Branch	Northern Territory Government	Local Government	Aboriginal	Landcare / Natural Resource Management / community groups	Industry	Education and Research	Private landowners
Prickly acacia	Control of all adult trees by end of 2026	11 known infestation areas	E		MS			C	E	C		C
Mesquite	All historic sites to be inspected by 2022	6 historic infestations	E		M				E	M		
Parthenium weed	Emergency response working towards eradication.	1 known infestation			M A E MS					C		
	Possible Parthenium Weed Management Plan											
Mimosa	Active annual control programs and ongoing monitoring in place working towards eradication	9 known infestations	E		M	C		C		C		
Rubber vine	Emergency response working towards eradication	1 known infestation	E		M MS E				E	E	E	
	Possible Rubber vine Weed Management Plan											
	5 km buffer zone being maintained on the Queensland side of the border											
Salvinia	Eradication of plants		E		M E		M		E			
Rope cactus	Eradication of plants				M							C M
	Education and awareness		E		E				E			
Thatch grass	Eradication of all plants	1 known infestation at Pine Creek	E		M E	C		M	E	E		
Giant rats tail grass	Eradication of outlier plants	2 known locations			M	M				M		
	Education and awareness		E		E		E	E	E	E		
	Explore if option to declare				MS							

E – Education   C – Control   MS – Management Support   M – Monitoring   A - Awareness

Objective 2: To make progress towards the control and containment of identified priority weeds

Weed	Action	Known areas	Katherine Regional Weed Reference Group	Australian Government	MWeed Management Branch	Northern Territory Government	Local Government	Aboriginal	Landcare / Natural Resource Management / community groups	Industry	Education and Research	Private landowners
Chinee apple	Eradication of outlier plants	Town and rural blocks			MS	C	C	C				C M
	Targeted education program		E		E	E	E	E	E	E		
Gamba grass	Eradication of outlier plants	All isolated infestations	E		MS M E	C M	C M	C M	E	C M	C M	C M
	Containment of core infestations and eradicate outliers	Edith Farms area	E		ME M E	C M	C M	C M	E	C M	C M	C M
	Compliance of permit areas	two permits			M							
Ornamental rubber vine	Eradication of outlier plants	Mataranka Numbulwar Katherine River Corridor	E		MS M E	C M	C M	C M	E			C M
Bellyache bush	Eradication of outlier plants	Rural blocks VCL Roads Victoria River	E		MS M E	C M	C M	C M	E	C M		C M
	Containment of core infestations and eradicate outliers	Upper Daly Catchment Roper River Rosie Creek	E		MS M E	C M	C M	C M	E	C M		
Grader grass	Containment of core infestations and eradicate outliers	Road corridors VCL Pastoral Rural blocks Aboriginal land National Parks	M		MS M	C M	C M	C M		C M	C M	C M
	Education and awareness	Grader grass working group	E		E	E	E	E	E	E	E	E
Neem	Containment of core infestations and eradicate outliers	Katherine River Corridor Mataranka Outstations	E		MS M E	C M E	C M	C M	E C M	C M		C M
Devils Claw	Eradication of isolated plants at known locations	Devils Claw festival Katherine			MS M	MS M	C M	C M		C M		C M
	Targeted education program		E		E	E	E	E	E	E		
Athel pine	Eradication of isolated plants	Pastoral	E		MS M				E	C M		

E – Education   C – Control   MS – Management Support   M – Monitoring   A - Awareness

Objective 3: To prevent the introduction and spread of the Region's priority weeds

Goal	Identified action
Implement regional activities to increase awareness and adoption of weed spread prevention procedures such as quarantining livestock and cleaning machinery	Biosecurity champions Focusing on the Sturt Plateau Best Practice Group and Beetaloo sub-basin
	Front gate signage
	Community expectations associated with legislative non-compliance are met
Innovative, practical and cost effective solutions to minimise weed spread	Stewardship program for hay production

	Agreed Northern Territory Government (NTG) and industry standards on all land tenures
	    Roads weed working group
	    Investigate industry tarping of loads
	    WMB to administer all NTG weed control
	    Training like Weed and Seed / Trainsafe NT accredited training?
	    Self-declarations for vehicle and machinery hygiene
	    Roadside signage/awareness of key areas
	    Contractor evidence of vehicle and machinery hygiene

	Washdown options • Investigations into Agribusiness Hub washdown facility, Daly Waters, individual properties and land tenures • Contractors (including slashers) • National Parks (mountain bikes)
	Identify and implement activities that increase awareness of weed spread prevention to encourage adoption of best practice management
Monitor priority pathways for new and spreading weeds	Weed reporting • DIPL Portal (road reserve) Konect • weedinfo@nt.gov.au • Road signage – "come clean, go clean" • Weed data collection through NT Weedmate app
	Ongoing mapping of weeds in transport corridors and control.
	Awareness of Category 1, 2 and 5 weeds as a priority • The Weed Patch quarterly email • Weed ID app (to replace the Weed ID deck) • Industry and KRWRG member networks. • Information/training sessions

Neem flower

Objective 4: To improve adaptive weed management

Goal	Identified action
Knowledge sharing	Share the results of weed control success and failings with the Katherine Regional Weed Reference Group • The Weed Patch • Regular updates on emergency responses • Regular KRWRG agenda item
	Share landscape rehabilitation learnings including what makes a weed resilient landscape
Greater understanding of current weed control within the region	Provide weed datasets to the Regional Weed Officer
	Encourage weed data to be collected through the NT Weedmate app and/or other datasets to demonstrate active control programs on all land tenures
	Map distribution of priority weeds and monitor change in their density • Weed Management Plan template (ie Farm biosecurity app) • Progress of control along transport corridors
Continue to regulate and support property holders with a permit to use a declared weed	Two gamba grass permits
Identify and support the trial of new weed management equipment and biological agents	Promote findings at information events eg Food Futures
Identify and record where there are gaps in knowledge for future investigations	Grader grass working group
Maintain links with other regional weed reference groups, Northern Territory and interstate research institutes/groups and continue to support a partnership approach to regional priority weed research	Kimberley Weeds Network (WA) Southern Gulf Catchments and North West Gulf Pest Taskforce (Qld) Regional priority weed discussions – input into road contracts

Objective 5: To ensure landholders act responsibly and support a 'working together' approach to weed management

Goal	Identified action
Develop and maintain regional partnership programs with all industry	Development of weed management plans for public land users, properties, ALTs. Rangeland Workshops targeting managers to include weed management planning.
Identify priority programs for funding prior to funding announcements	Early warning of funding programs (Landcare NT) Agenda item for KRWRG for potential projects
	Explore pathways to receive funding through other organisations, industry groups and concept of an incorporated body Explore options to increase staff numbers within the Weed Management Branch to achieve results
Coordinate planning activities on a catchment scale	Create awareness of landholder legal responsibilities, attention to new landholders and managers to the region who may be unaware of their obligations are a priority
	Participate in local, regional and national NRM forums where weeds are discussed
	Weed control with fire mitigation programs Upper Daly Bellyache Bush working group Mataranka Neem Project

Objective 6: To increase the Region's awareness of its priorities and capacity to manage weed impacts

Goal	Identified action
Develop a communication strategy to assist with the implementation and identified actions of the strategy	Promote regional priorities (weeds, landscape areas and pathways for spread) to land managers through key partners
	Provide inductions and regular training to identify priority and 'alert weeds' to volunteers and staff
	Support land managers to develop and improve weed management capacity through on ground demonstration and incentive programs and development of weed management plans
	Continue to develop regional and targeted communication materials, including students as a targeted audience group
	Expose community members to the impact of 'alert' weeds in neighbouring states
	Develop a 'working together' role in detection, management and prevention of spread of weeds

Appendix A. Katherine Regional Weed Reference Group November 2020

Name	Organisation
Jay Mohr-Bell (Chair)	Katherine Pastoral Industry Advisory Committee
Susan King, Executive Officer, KRWRG	Regional Weed Manager, Weed Management Branch, Department of Environment, Parks and Water Security
Steve Pocock	NT Cattlemen's Association
Simone Cameron	NT Farmers Association
Eleanor Fordyce	Department of Industry, Tourism and Trade
Brian Hill	Volunteer Bushfire Brigades and small block owners
Mark Ford	Northern Land Council
Chris Parry	Parks & Wildlife, Department of Environment, Parks and Water Security
Claire Brown	Department of Infrastructure, Planning and Logistics
Madonna Wuttke	Landcare NT
Scott Herring	Jawoyn Association
Michelle Riggs	Sturt Plateau Best Practice Group
Chris Parker	Onshore Petroleum Weed Management Officer, Department of Environment, Parks and Water Security

Appendix B. Weed Risk Management Matrix

The Northern Territory Weed Risk Management System is an evidence-based framework for assessing the relative weed risk and feasibility of control of weeds. The answers to questions relating to weed risk and feasibility of control are determined by consensus of a committee of experts representing different sectors of government.

		FEASIBILITY OF CONTROL (KATHERINE REGION)	
		HIGH – VERY HIGH	LOW - MEDIUM
WEED RISK ASSESSMENT (NT)	VERY HIGH	**A: Prevent entry; Contain regional spread; Regional eradication; Protect priority sites** Common lantana (*Lantana camara*) Prickly acacia (*Vachellia nilotica*) Mesquite (*Prosopis* spp.) Gamba grass (*Andropogon gayanus*) Mission grass – perennial (*Cenchrus polystachion*) Athel pine (*Tamarix aphylla*) Mimosa (*Mimosa pigra*) Para grass (*Urochloa mutica*) Guinea grass (*Megathyrsus maximus*) Parthenium weed (*Parthenium hysterophorus*) Rubbervine (*Cryptostegia grandiflora*) Ornamental rubbervine (*Cryptostegia madagascariensis*) Yellow oleander (*Cascabela thevetia*) Salvinia molesta (*Salvinia molesta*) Olive hymencahne (*Hymenachne amplexicaulis*) Chinee apple (*Ziziphus mauritiana*) Neem tree (*Azadirachta indica*) Rope cacti (*Cylindropuntia* spp.)	**B: Targeted control (incl. Biocontrol); Protect priority sites** Parkinsonia (*Parkinsonia aculeata*) Bellyache bush (*Jatropha gossypiifolia*) Grader grass (*Themeda quadrivalvis*) Sicklepod (*Senna obtusifolia*) Mission grass – annual (*Cenchrus pedicellatum*) Coffee bush (*Leucaena leucocephala*) *Sheda grass (*Dicanthium annulatum*) Tully grass (*Urochloa humidicola*)
	HIGH	**C: Prevent entry; Contain regional spread; Protect priority sites** Castor oil plant (*Ricinus communis*) Devils Claw (*Martynia annua*) Thatch grass (*Hyparrhenia rufa*)	**D: Targeted control; Improve general weed management; Monitor; Protect priority sites** Noogoora burr (*Xanthium occidentale*) Rubber bush (*Calotropis procera*) Hyptis (*Mesosphaerum suaveolens*) Sida (*Sida* spp.) Giant rats tail grass (*Sporobolus* spp.)
	MEDIUM	**E: Targeted control** Longspine thornapple (*Datura ferox*) Mexican poppy (*Argemone ochroleuca*) Singapore daisy (*Spahgneticola trilobata*) Giant reed (*Arundo donax*) African mahogany (*Khaya senegalensis*)	**F: Improve general weed management** Mossman river grass (*Cenchrus echinatus*) Lions tail (*Leonotis nepetifolia*)
	LOW	**G: Assist interested parties; Monitor** Star burr (*Acanthospermum hispidum*) Candle bush (*Senna alata*) Barleria (*Barleria prionitis*) Khaki weed (*Alternanthera pungens*) Caltrop (*Tribulus* spp.) Poinciana (*Delonix regia*) Golden rain tree (*Cassia fistula*)	**H: Assist interested parties** Sabi grass (*Urochloa mosambicensis*) Gambia pea (*Crotalaria goreensis*)

*This weed risk assessment recognised that this species has characteristics associated with high and very high risk species, but also that significant uncertainty exists around the assessment of this species as it has not as yet manifested as a significant weed in the Northern Territory.

Appendix C. Maps of priority weeds

This strategy has identified priority weeds for eradication and strategic control in the Katherine Region. Distribution maps for these species are included here. The presentation of the data aggregated into 50km x 50km grid cells and the classification classes are consistent with the standardised reporting requirements for Weeds of National Significance (WoNS) as described in the WoNS field manual[1].

Category 1: Priority species for eradication:

- Prickly acacia (Class A, WoNS)
- Mesquite (Class A, WoNS)
- Parthenium weed (Class A, WoNS)
- Mimosa (Zone A, WoNS)
- Rubber vine (Class A, WoNS)
- Salvinia (Class B, WoNS)
- Rope cacti (Class A, WoNS)
- Thatch grass (Class A)
- Giant rats tail grass (Not declared)

Category 2: Priority species for strategic control:

- Chinee apple (Class A)
- Gamba grass (Class A/B, WoNS)
- Ornamental rubber vine (Class A)
- Bellyache bush (Class A/B, WoNS)
- Grader grass (Class B)
- Neem (Class B)
- Devils claw (Class A)
- Athel Pine (Zone A and WoNS)

[1]McNaught I, Thackway R, Brown L and Parsons M (2006). A field manual for surveying and mapping nationally significant weeds. Bureau of Rural Sciences, Canberra.

Gamba grass leaves

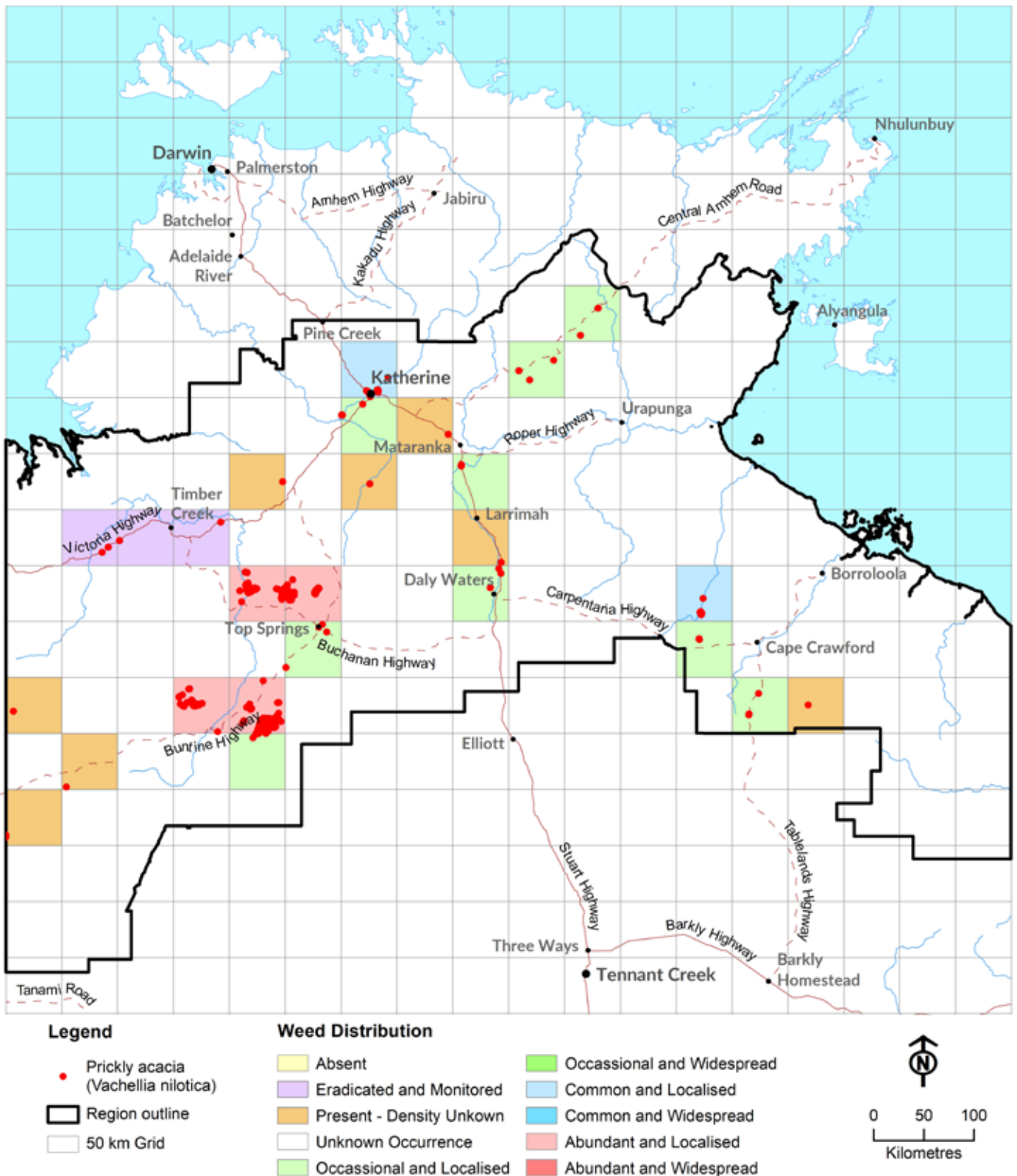## Category 1: species targeted for eradication – Prickly acacia

Legend

- Prickly acacia (Vachellia nilotica)
- Region outline
- 50 km Grid

Weed Distribution

- Absent
- Eradicated and Monitored
- Present - Density Unkown
- Unknown Occurrence
- Occassional and Localised
- Occassional and Widespread
- Common and Localised
- Common and Widespread
- Abundant and Localised
- Abundant and Widespread

Figure 3. Current and historic records of prickly acacia (*Vachellia nilotica*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).
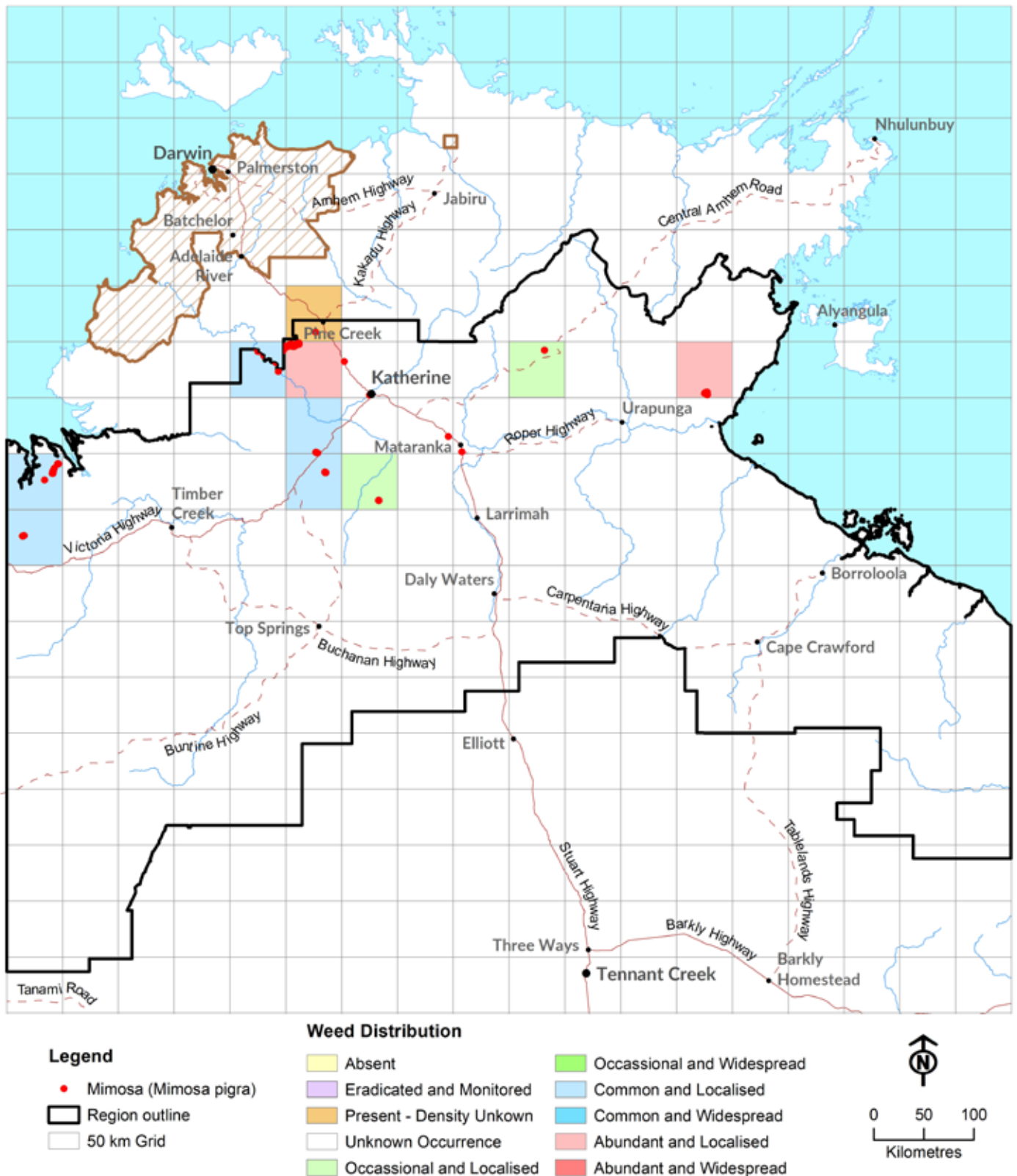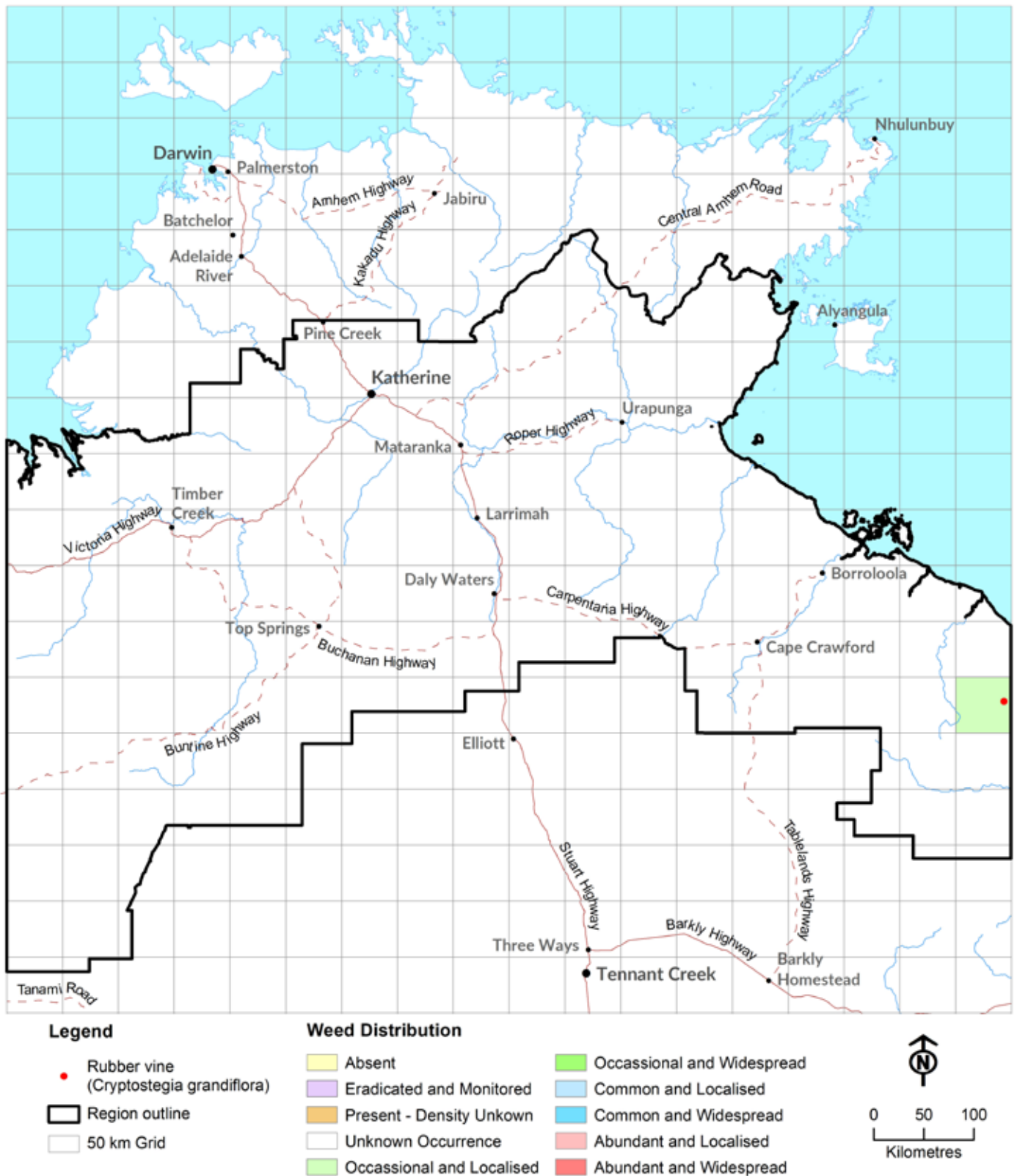
Category 1: species targeted for eradication – Mesquite
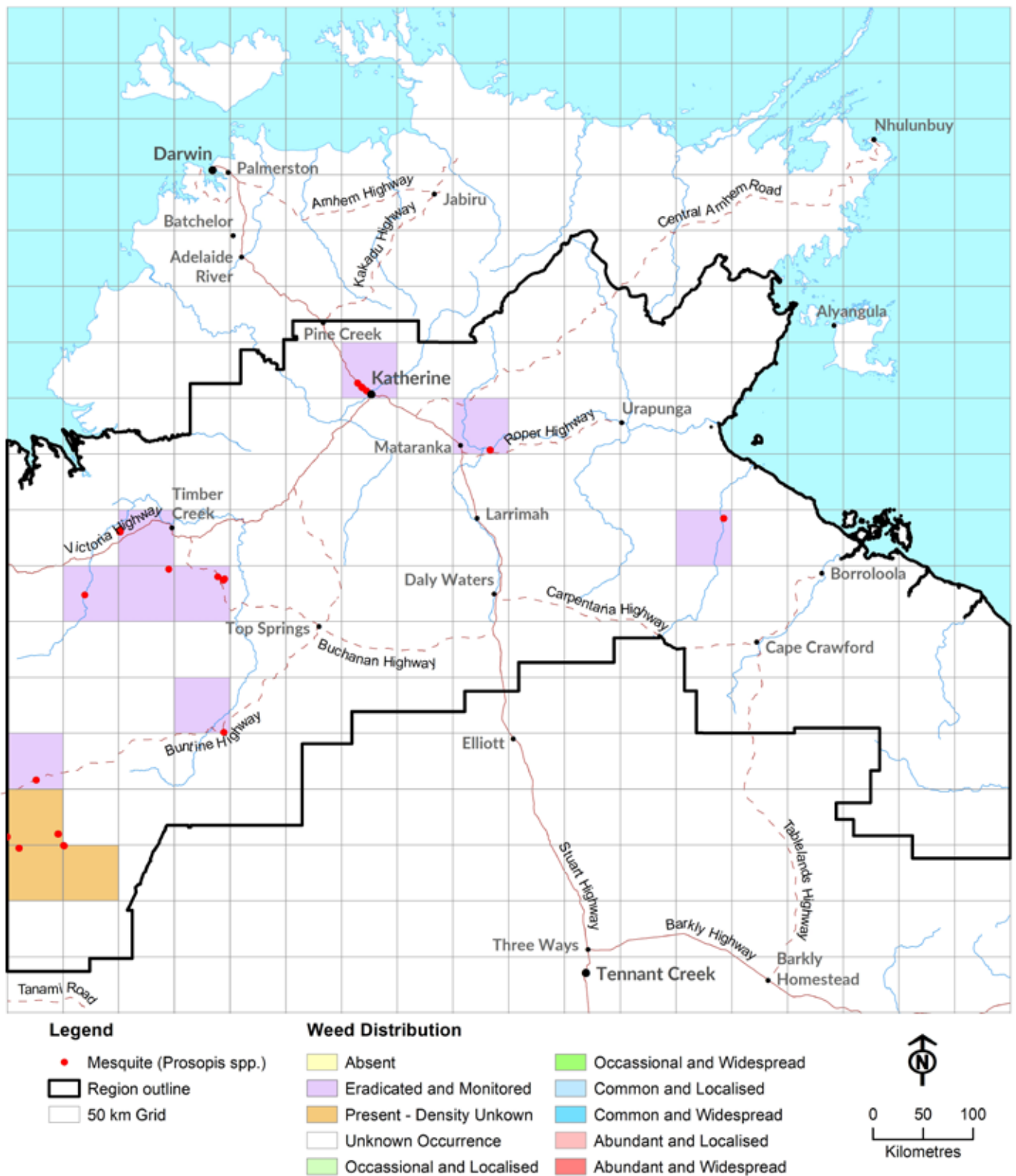
Figure 4. Current and historic records of mesquite (*Prosopis* spp.) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 1: species targeted for eradication – Parthenium weed
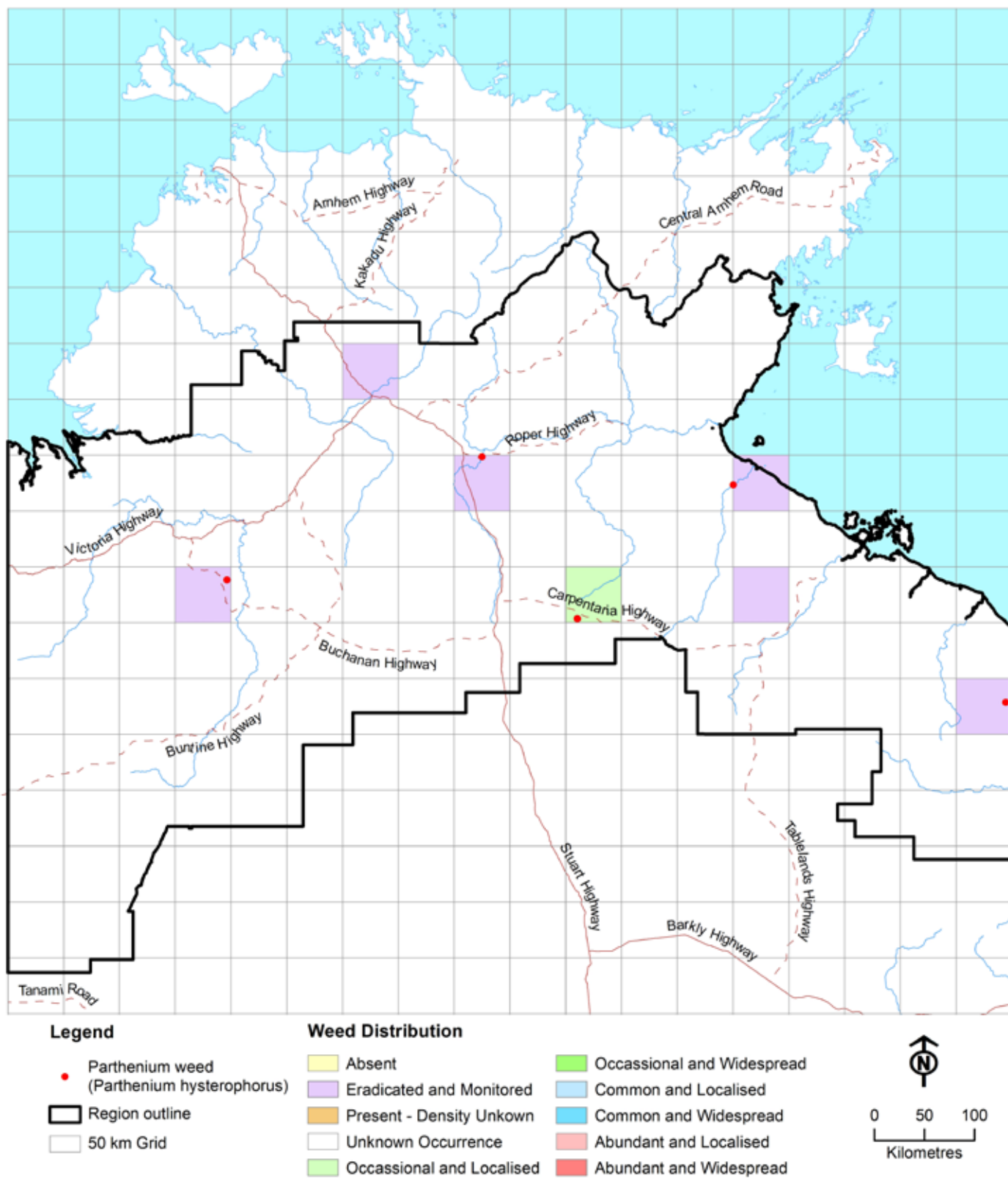
Figure 5. Current and historic records of parthenium weed (*Parthenum hysterophorus*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).
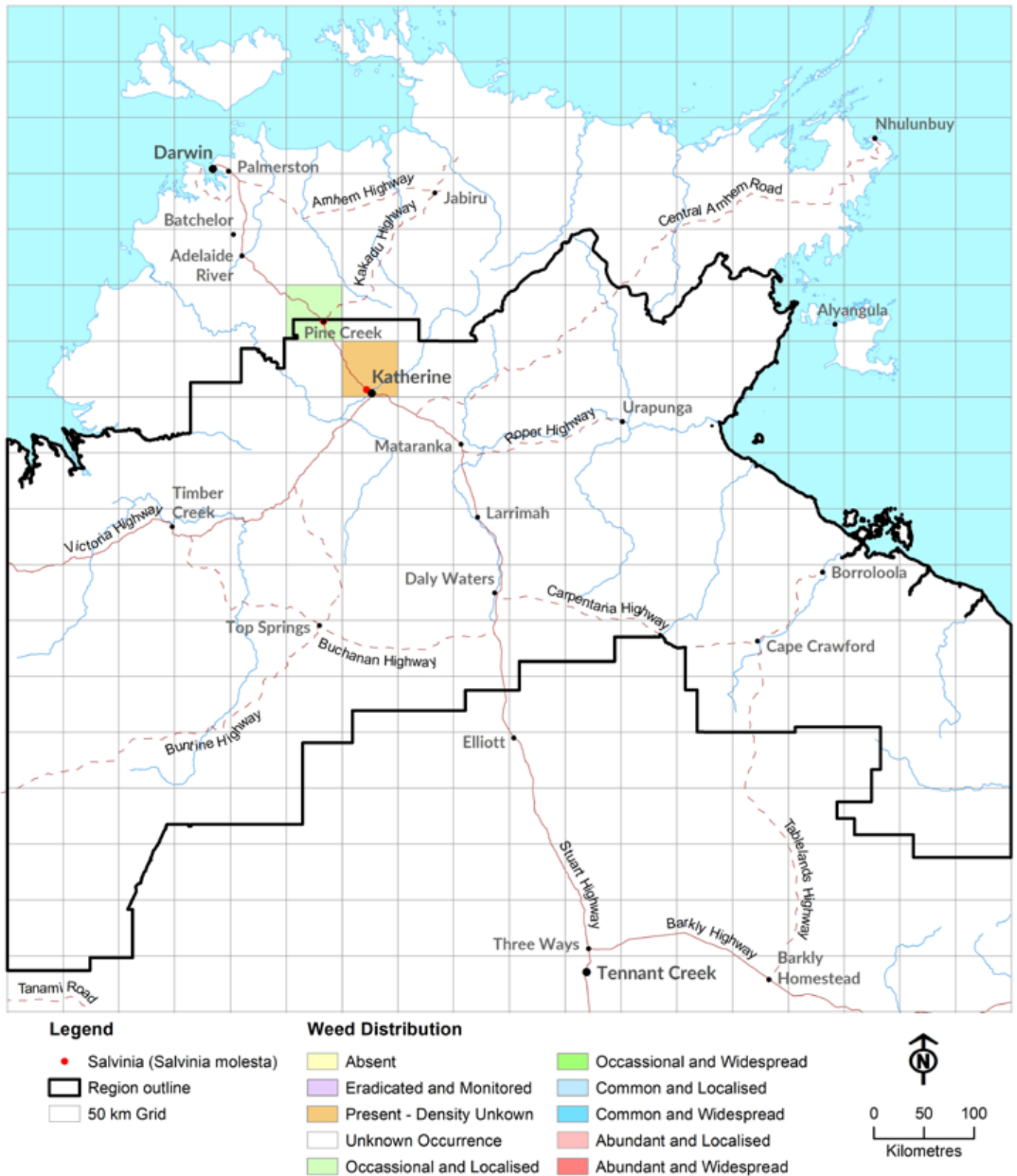
Category 1: species targeted for eradication – Mimosa

Weed Distribution

Legend
- Mimosa (*Mimosa pigra*)
- Region outline
- 50 km Grid

Weed Distribution:
- Absent
- Eradicated and Monitored
- Present - Density Unkown
- Unknown Occurrence
- Occassional and Localised
- Occassional and Widespread
- Common and Localised
- Common and Widespread
- Abundant and Localised
- Abundant and Widespread

Figure 6. Current and historic records of mimosa (*Mimosa pigra*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 1: species targeted for eradication – Rubber vine
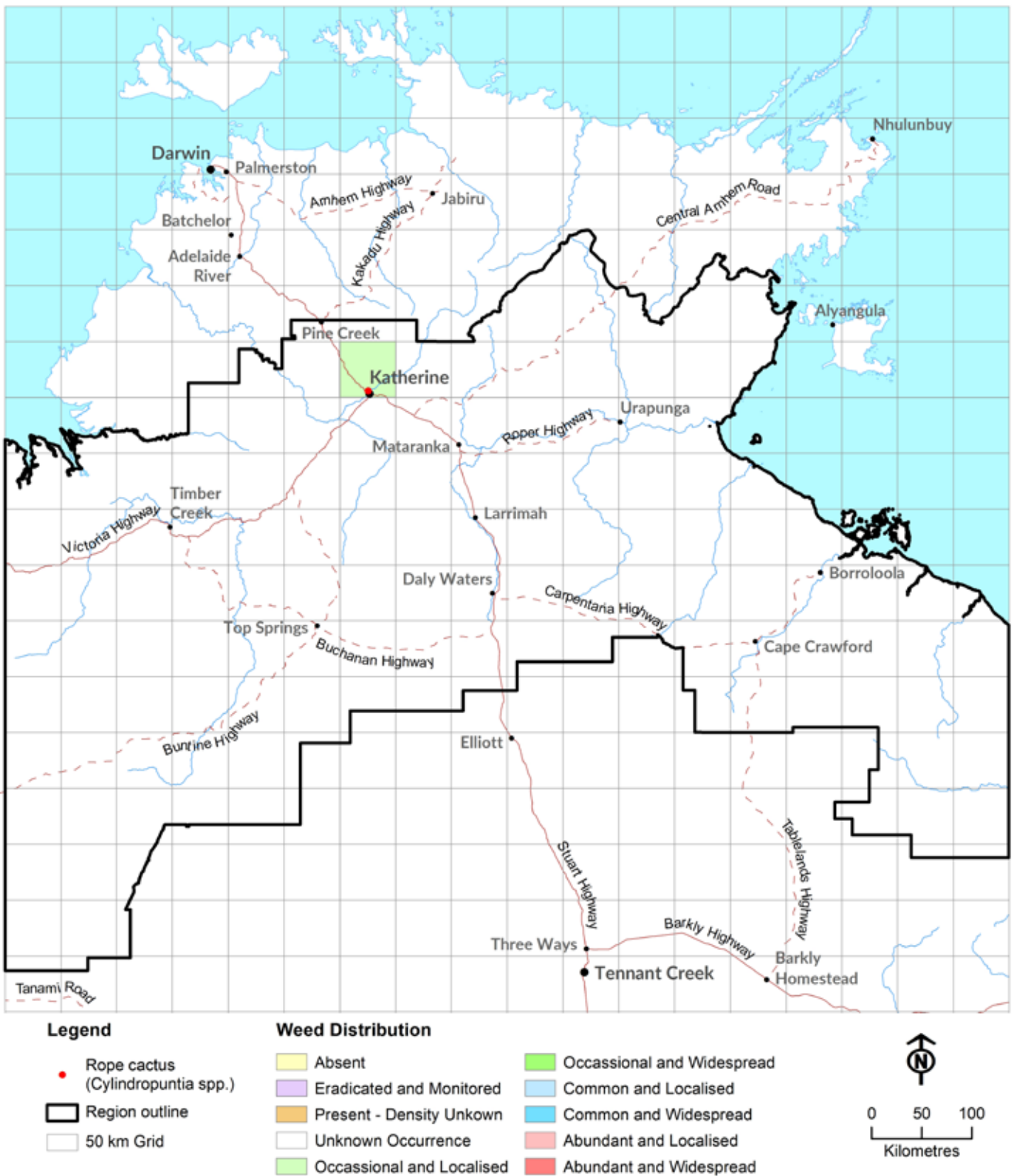

Figure 7. Current and historic records of rubber vine (*Cryptostegia grandiflora*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).
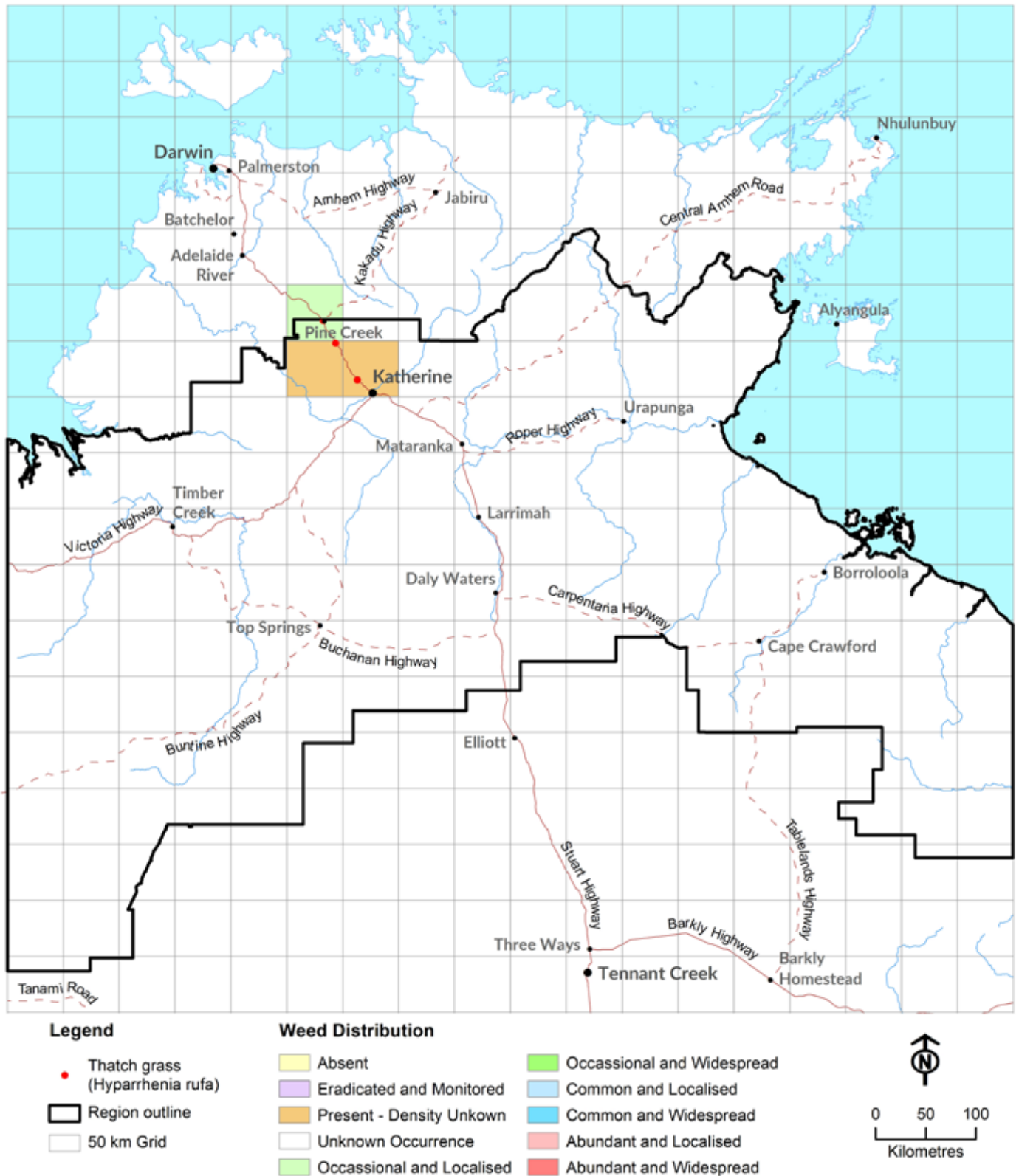
Category 1: species targeted for eradication – Salvinia

Legend

- • Salvinia (*Salvinia molesta*)
- ▭ Region outline
- ▭ 50 km Grid

Weed Distribution

- ▭ Absent
- ▭ Eradicated and Monitored
- ▭ Present - Density Unkown
- ▭ Unknown Occurrence
- ▭ Occassional and Localised
- ▭ Occassional and Widespread
- ▭ Common and Localised
- ▭ Common and Widespread
- ▭ Abundant and Localised
- ▭ Abundant and Widespread

0   50   100
Kilometres

Figure 8. Current and historic records of salvinia (*Salvinia molesta*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 1: species targeted for eradication – Rope cactus

Figure 9. Current and historic records of rope cactus (*Cylindropuntia* spp.) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 1: species targeted for eradication – Thatch grass

Legend

- ● Thatch grass (Hyparrhenia rufa)
- ▭ Region outline
- ▭ 50 km Grid

Weed Distribution

- Absent
- Eradicated and Monitored
- Present - Density Unkown
- Unknown Occurrence
- Occasional and Localised
- Occasional and Widespread
- Common and Localised
- Common and Widespread
- Abundant and Localised
- Abundant and Widespread

0   50   100
Kilometres

Figure 10. Current and historic records of thatch grass (*Huparrhenia rufa*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 1: species targeted for eradication – Giant rats tail grass
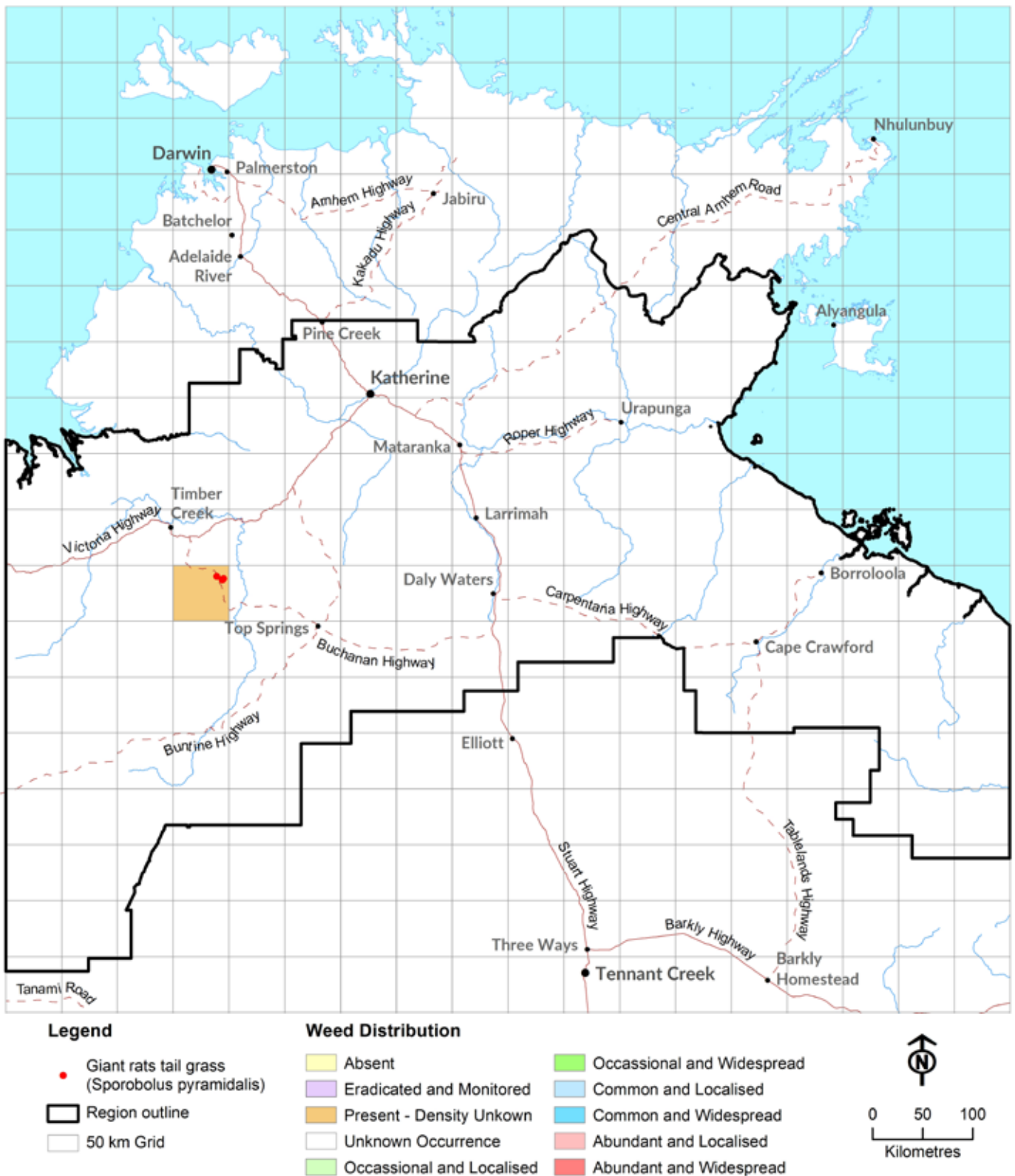
Figure 11. Current and historic records of giant rats tail grass (*Sporobolus pyramidalis*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).
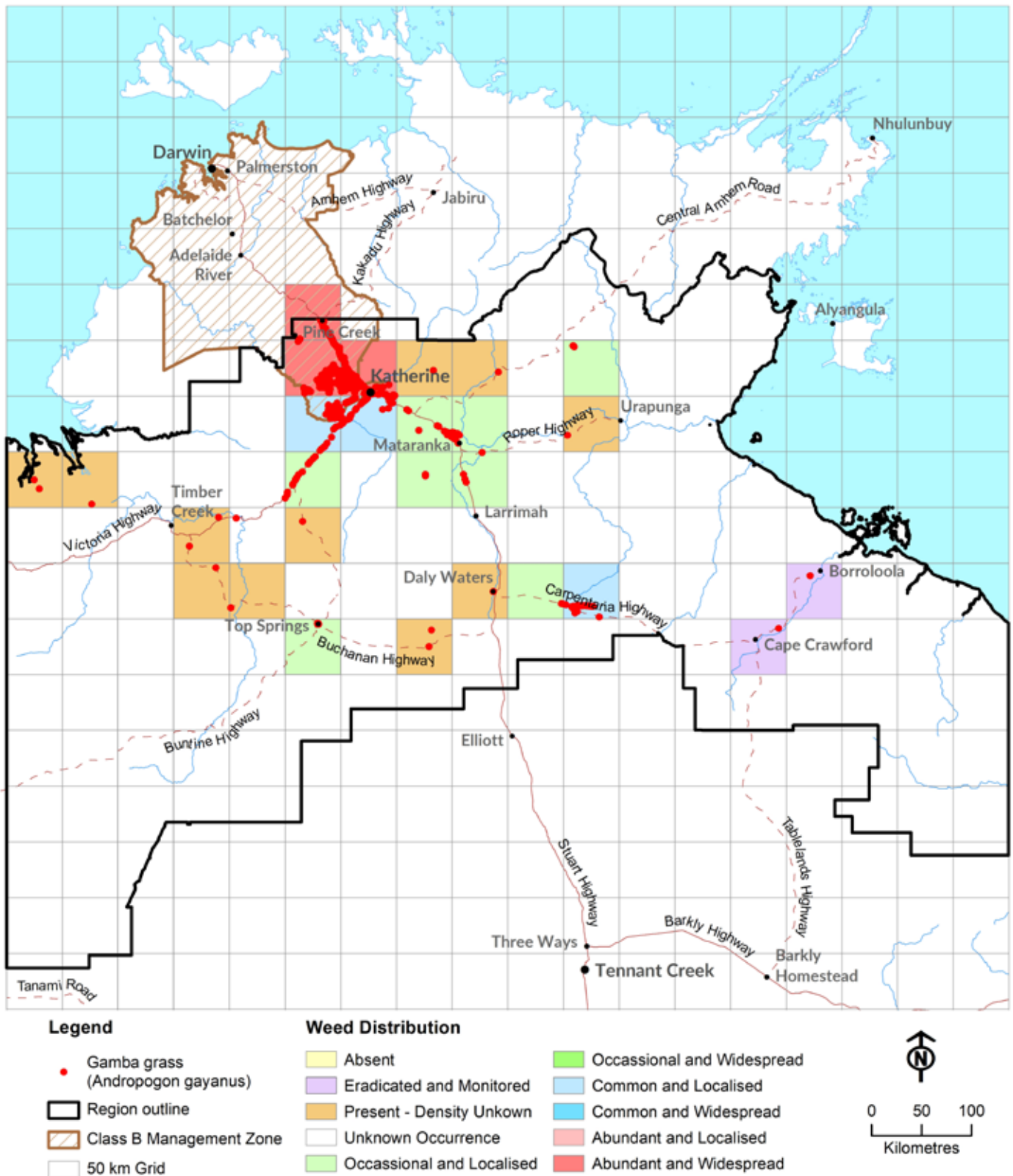
Category 2: species targeted for targeted control – Chinee apple
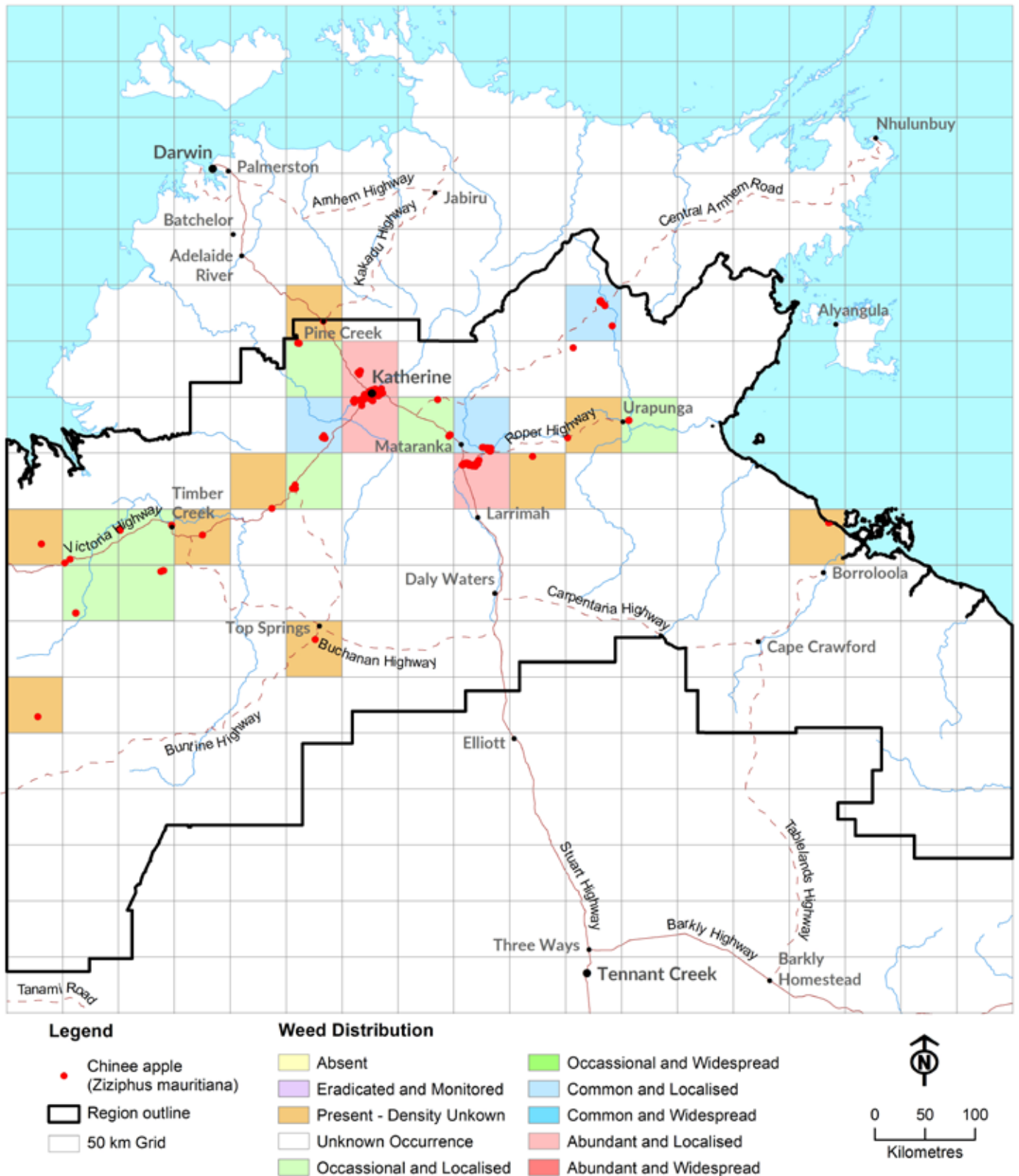
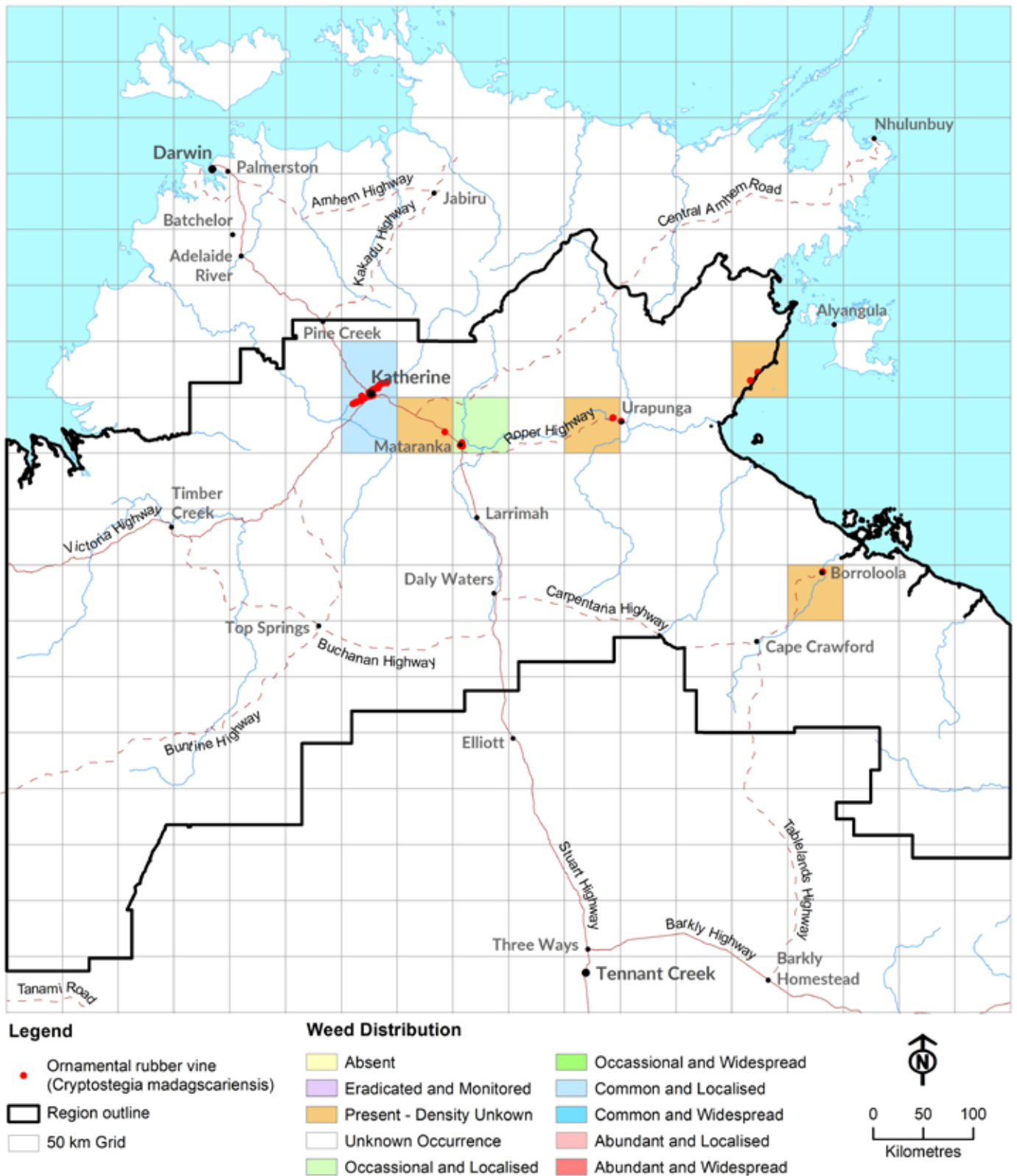Figure 12. Current and historic records of chinee apple (*Ziziphus mauritiana*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

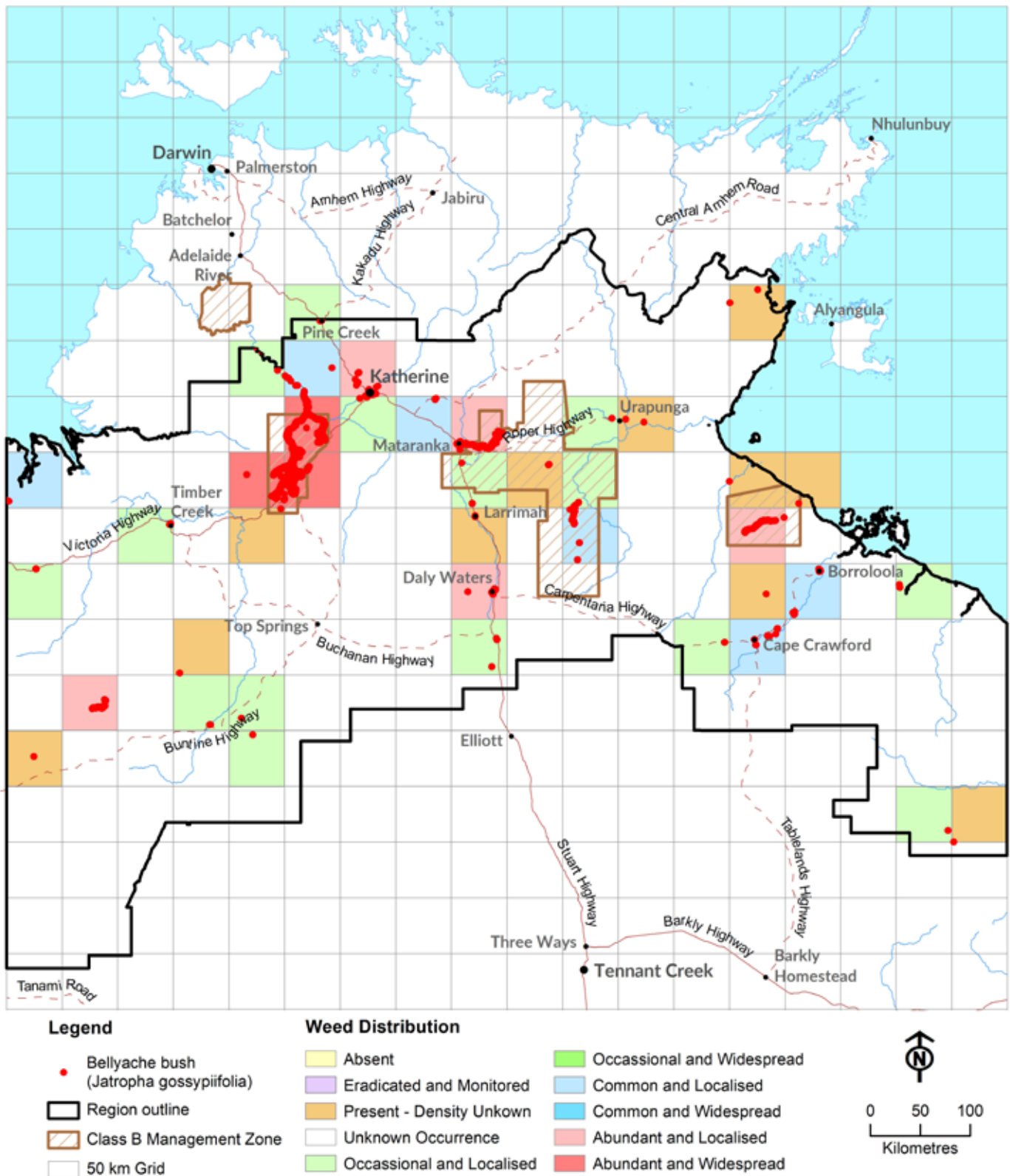## Category 2: species targeted for targeted control – Gamba grass

Figure 13. Current and historic records of gamba grass (*Andropogon gayanus*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 2: species targeted for targeted control – Ornamental rubber vine

Figure 14. Current and historic records of ornamental rubber vine (*Cryptostegia madagscariensis*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).
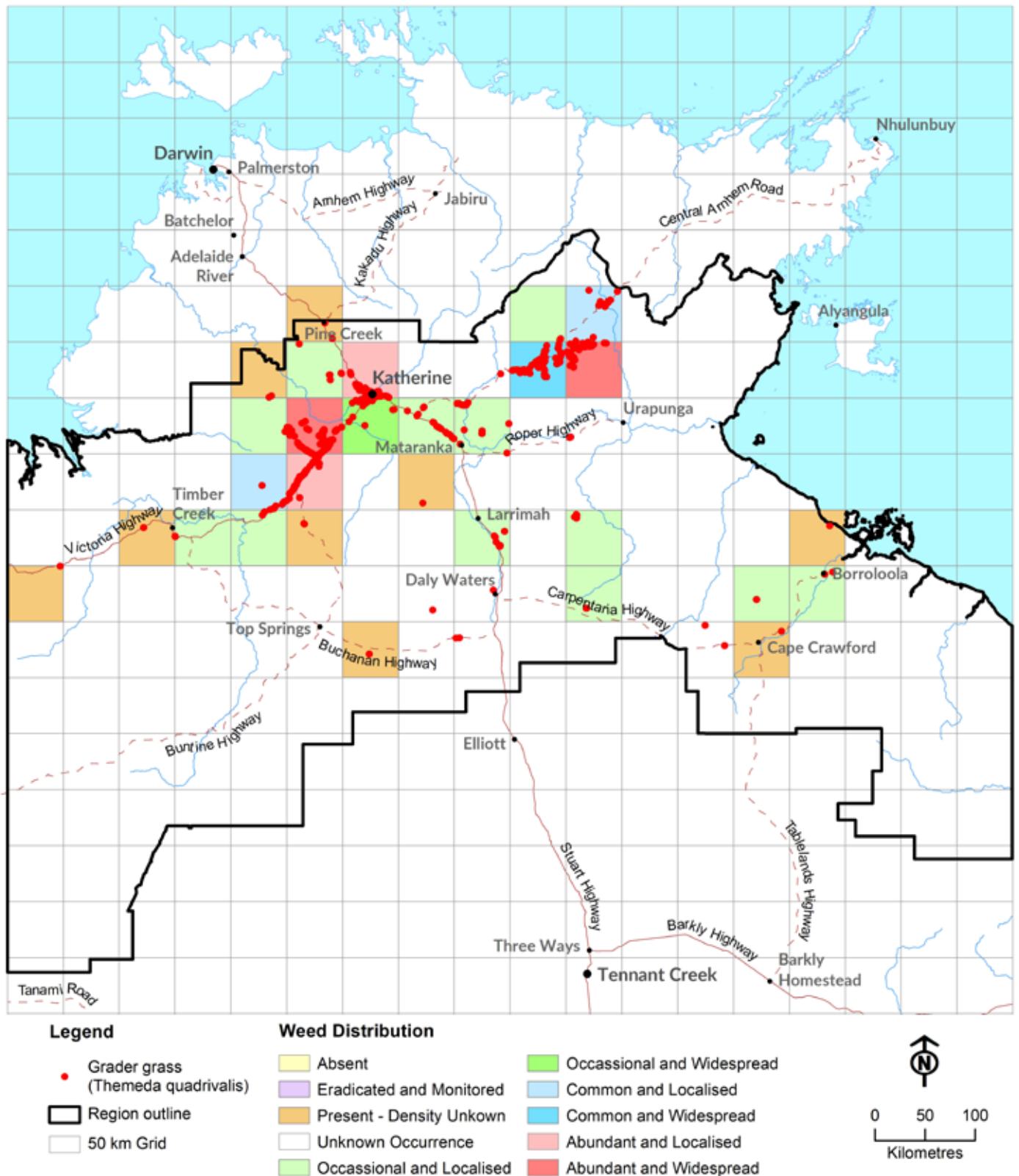
Category 2: species targeted for targeted control – Bellyache bush

Legend

- • Bellyache bush (Jatropha gossypiifolia)
- ▢ Region outline
- ▨ Class B Management Zone
- ▢ 50 km Grid

Weed Distribution

- Absent
- Eradicated and Monitored
- Present - Density Unkown
- Unknown Occurrence
- Occassional and Localised
- Occassional and Widespread
- Common and Localised
- Common and Widespread
- Abundant and Localised
- Abundant and Widespread

Figure 15. Current and historic records of bellyache bush (*Jatropha gossypiifolia*) in the Katherine region of the Northern Territory (NT Weed Management Branch 2020).

Category 2: species targeted for targeted control – Grader grass

Figure 16. Current and historic records of grader grass (*Themeda quadrivalis*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

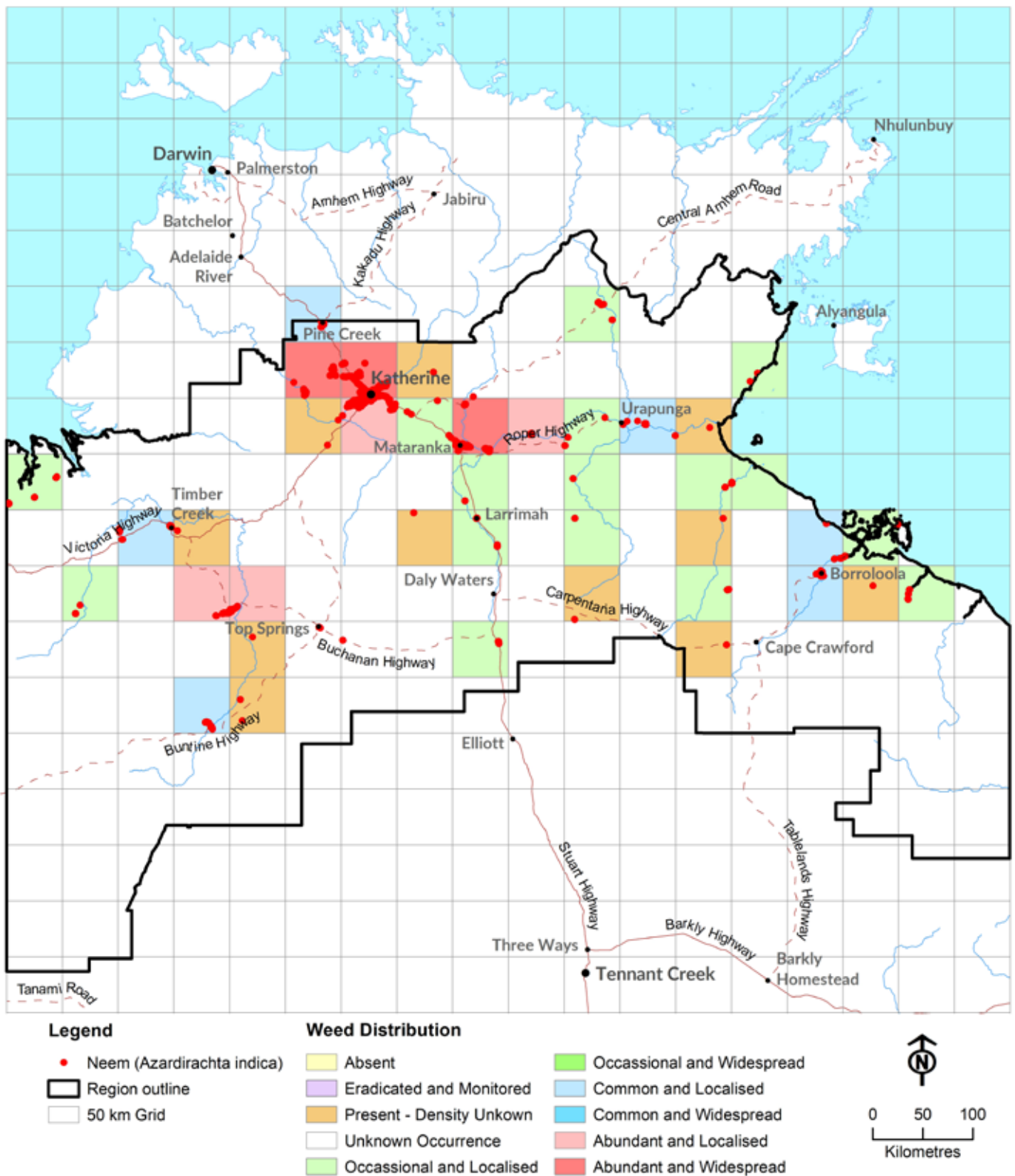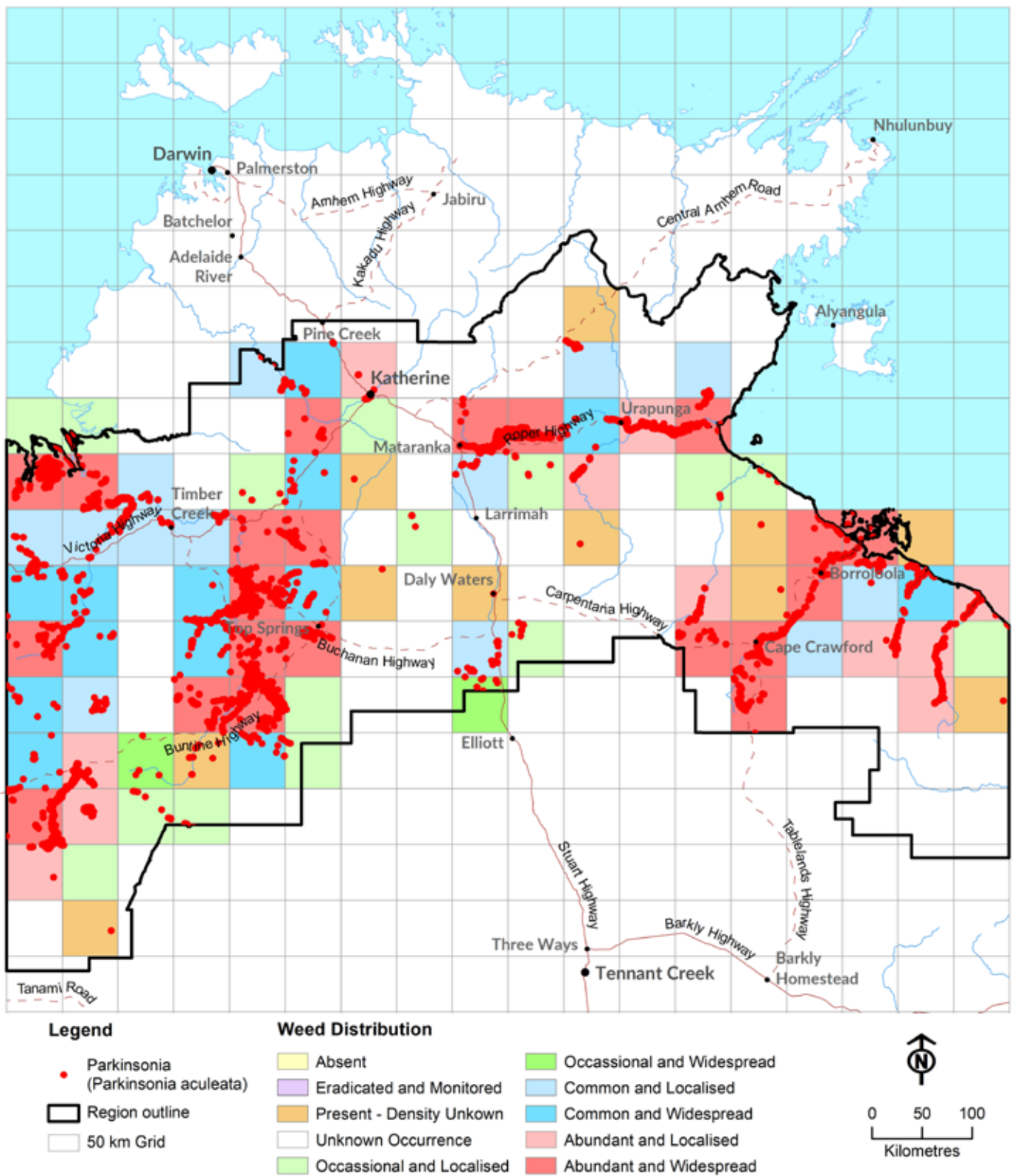## Category 2: species targeted for targeted control – Neem

Figure 17. Current and historic records of neem (*Azardirachta indica*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Category 2: species targeted for targeted control – Parkinsonia

Figure 18. Current and historic records of parkinsonia (*Parkinsonia aculeata*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

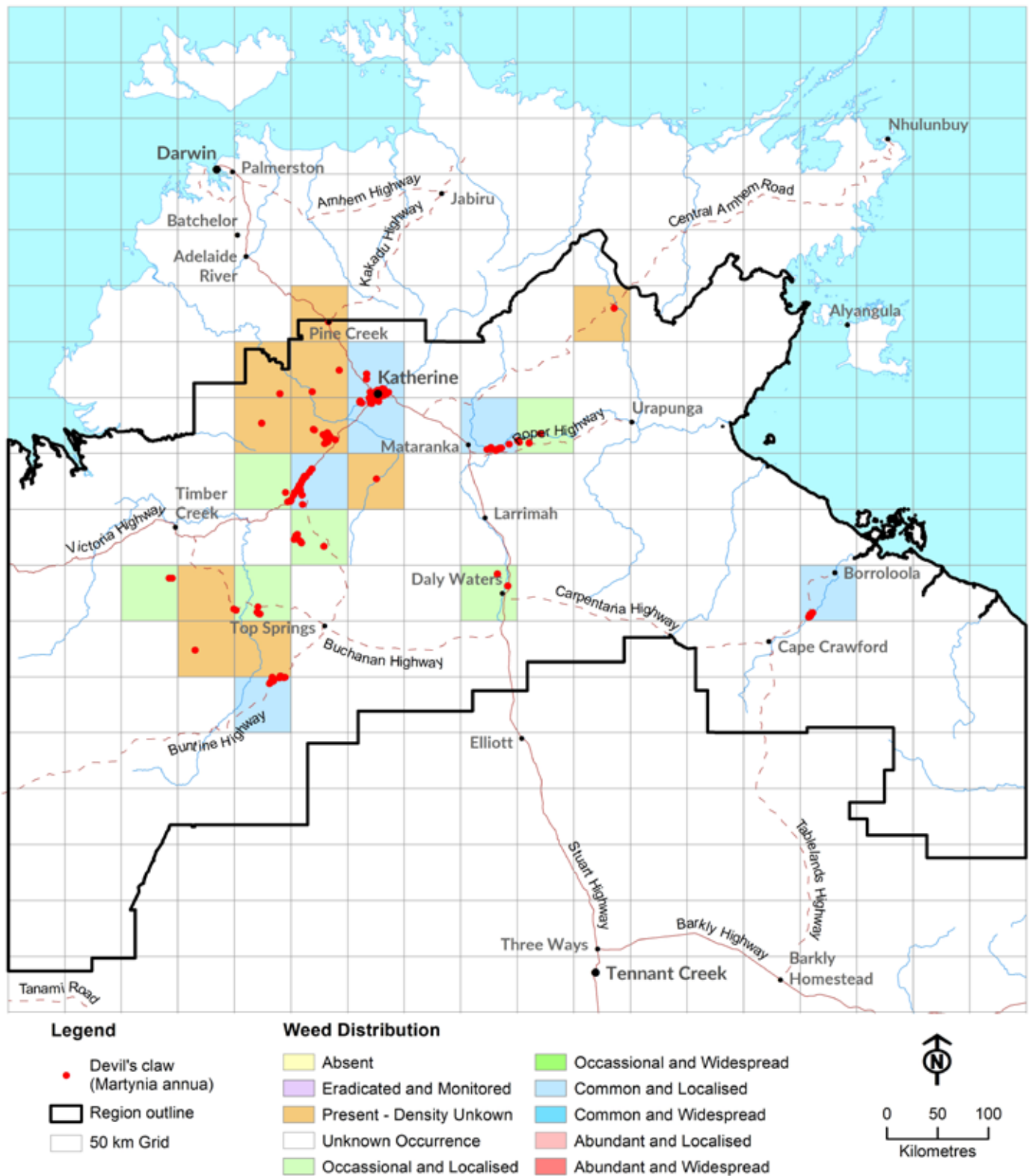## Category 2: species targeted for targeted control – Devil's claw

Figure 19. Current and historic records of devils claw (*Martynia annua*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

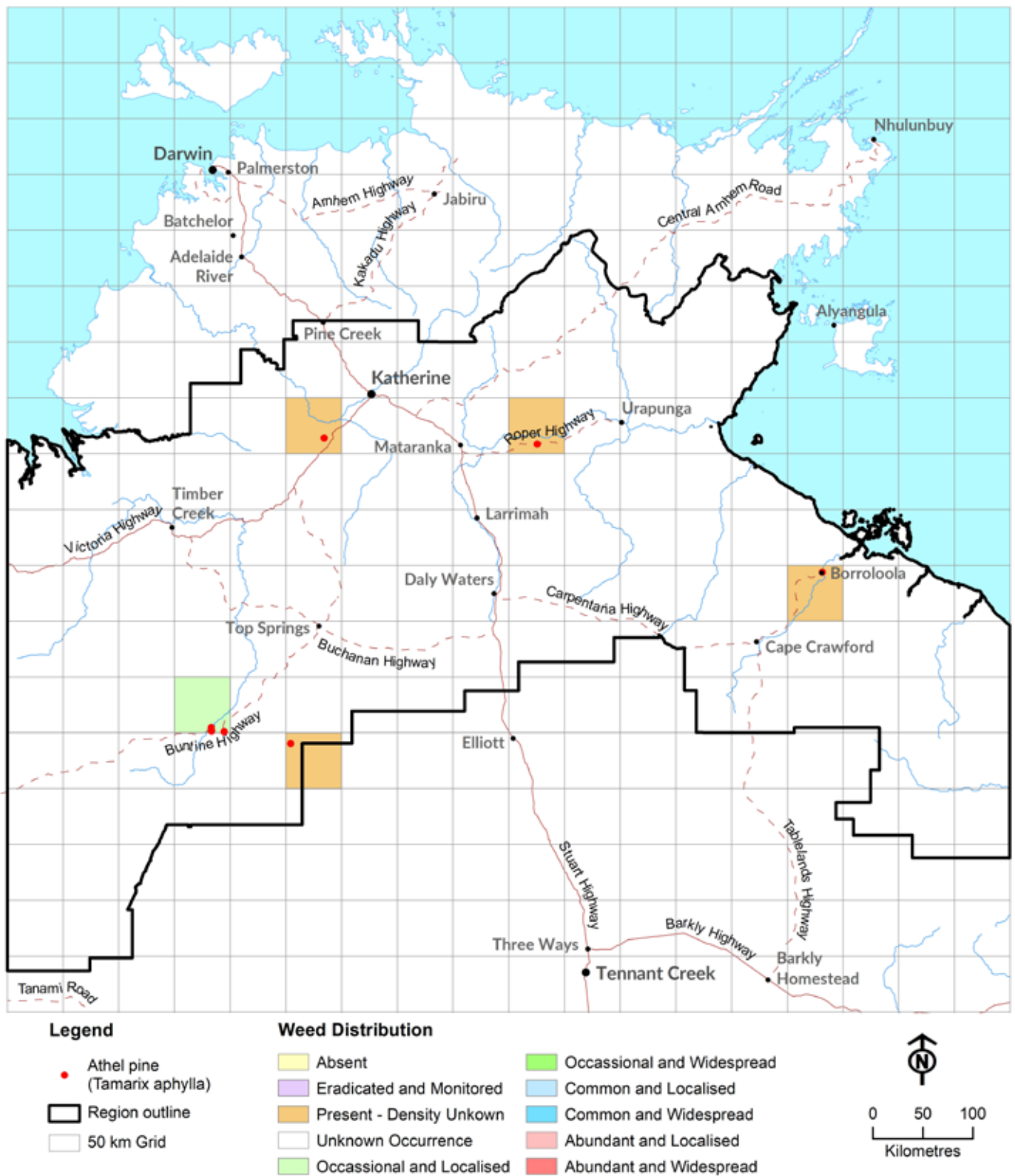## Category 2: species targeted for targeted control – Athel pine

Figure 20. Current and historic records of athel pine (*Tamarix aphylla*) in the Katherine Region of the Northern Territory (NT Weed Management Branch 2020).

Salvinia

Prickly acacia pods

Chinee apple

Bellyach bush

Contact

Weed Management Branch
8999 4567
weedinfo@nt.gov.au
nt.gov.au/weeds