Tiwi Islands Fire Management Plan 2018

Incorporating
Weed Management: 2017–18 Wet Season
Fire Management: 2018 Dry Season

Management of introduced grassy weeds is an integral part of fire management on the Tiwi Islands in the Northern Territory. Grassy weeds replace native vegetation and produce high fuel loads. They promote high intensity, late dry season fires leading to ecosystem degradation, habitat loss and species declines. This booklet outlines fire and weed management activities during 2018 on the Tiwi Islands. It also includes a reference section to assist with the identification of key weeds on the islands.

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Fire Management on the Tiwi Islands: 2018 Dry Season

Since 2006, discussions have been held in the Tiwi Land Council, and subsequently in the Tiwi Islands Fire and Weed Management Committee, about fire management for greenhouse gas abatement. There has been unwavering and unanimous resolve for the development and implementation of a fire management plan that reduces greenhouse gas emissions. These reduced emissions can subsequently be sold in carbon markets, potentially generating income that can be used for the continuing employment of Tiwi Rangers.

In May 2018, with full endorsement from the Tiwi Land Council, Tiwi Resources Pty Ltd (a Tiwi-owned trust company) became the first organisation to enter into an agreement with the Indigenous Land Corporation to fund Tiwi fire management in exchange for carbon credits. The agreement, funded by Inpex Operations Australia Pty Ltd, guarantees funding to Tiwi Rangers for three years, irrespective of carbon credits earned. At the end of three years there is an option to extend the agreement for a further period or terminate.

Greenhouse gas emissions can be reduced by burning earlier in the year, and by burning less area overall. Early season burning (before the end of July) results in lower intensity cooler fires, and these fires give off less greenhouse gas. Late season fires (fires from early August onwards) are hotter and create more greenhouse gas. In addition, low intensity fires early in the dry season burn more patchily and are less destructive to Tiwi plants and animals.

2018 Dry Season

The Tiwi Islands Fire and Weed Management Committee meets regularly to develop strategies to inform Tiwi people, and to reduce the area of the Tiwi Islands burnt in the late dry season. On the 17th May 2018, the Committee signed off on the Tiwi Islands Fire Management Plan for 2018. Learning from previous fire seasons, the management strategies being used to reduce late season fires in 2018 include:

- Helicopter burning early in the dry season to reduce fuel loads and provide patches of burnt country that stop late fires from running (creating a helicopter break);
- Ground based burning along roadsides in the early dry season to reduce fuel loads and provide patches of burnt country that stop late fires from running (creating a road break);

- Grading firebreaks around assets such as plantations (plantation break) and outstations and burning off them early in the dry season (protection burning);

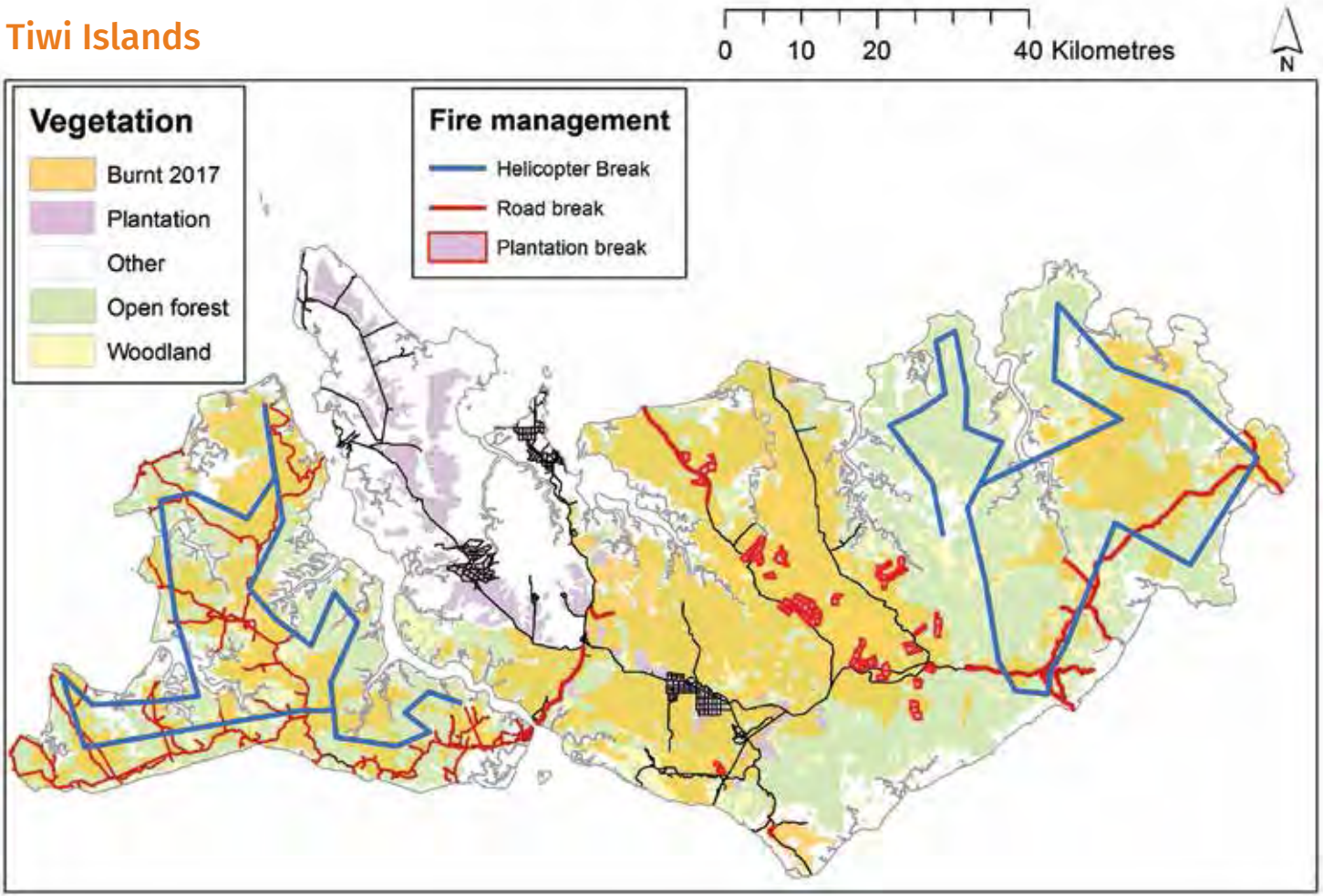
The Tiwi Islands have been split into eight areas for the purpose of fire management; as shown on the maps on the following pages. Areas are not based on Landowning Group boundaries - they are split up according to the landscape and natural features. This way each area can be treated as a separate unit, thereby reducing the likelihood of fires from one management area running into another management area.

Each map in this booklet shows the 2017 fire scars laid over broad vegetation types. The overall aim for the 2018 program is to shift the majority of fires to the early dry season and break up country with patchy burning, resulting in less area burnt overall throughout the year. This will be achieved by helicopter burning of areas unburnt in 2017 to reduce and break up fuel loads, early roadside burning to provide additional fire breaks, and burning off firebreaks around assets such as plantations, outstations and sacred sites.

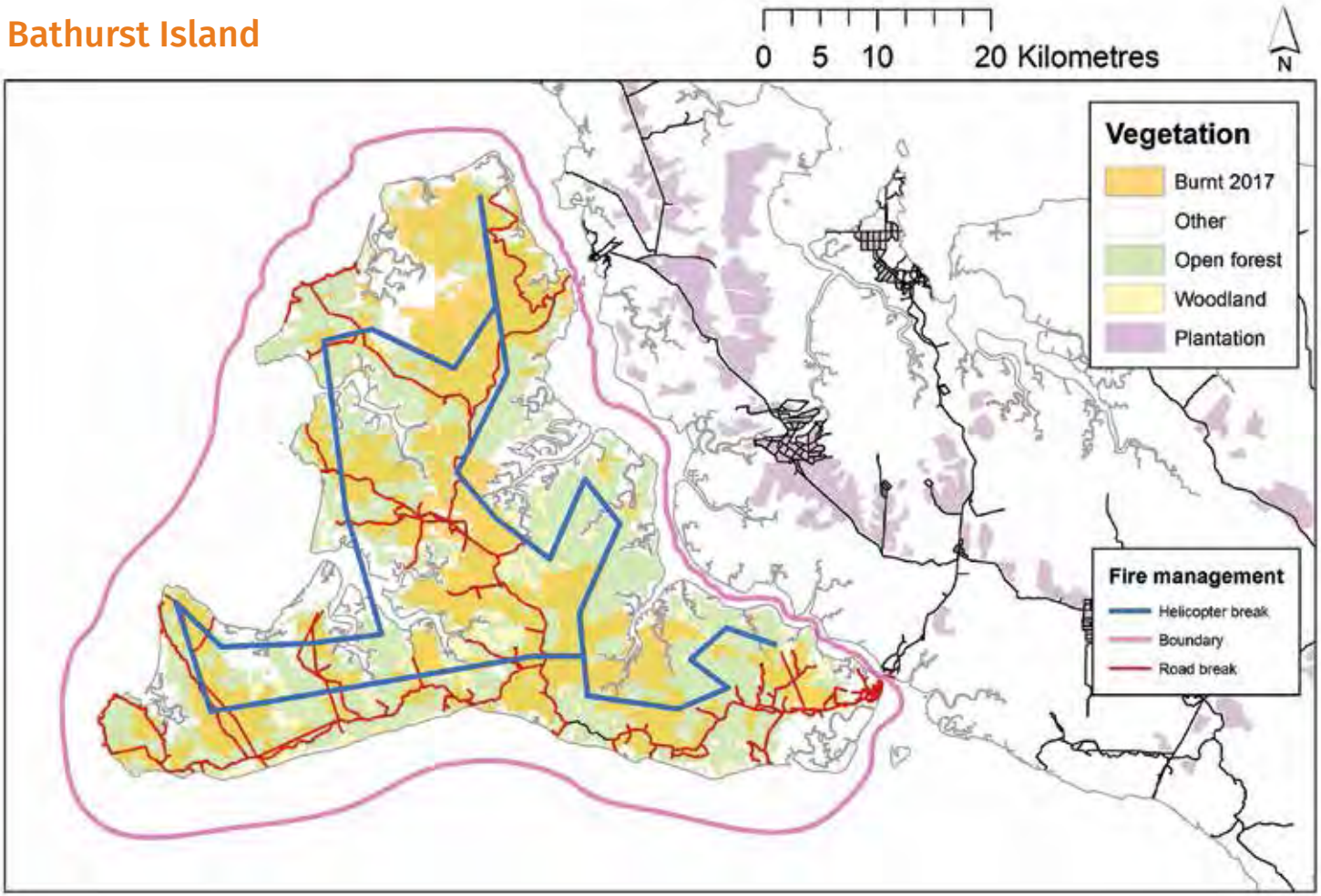
The timing of operations and resources required are listed in a table following the maps. This is an adaptive fire management plan, so timings may alter with changing circumstances.

The northwest area of Melville Island is not included in this fire management plan. This is because this is where most of the plantation forestry is located, and forestry managers implement a separate fire protection plan for the plantations. The Tiwi fire crew will be working closely with forestry fire crews in this area and may undertake additional burning once the plantations are adequately protected.

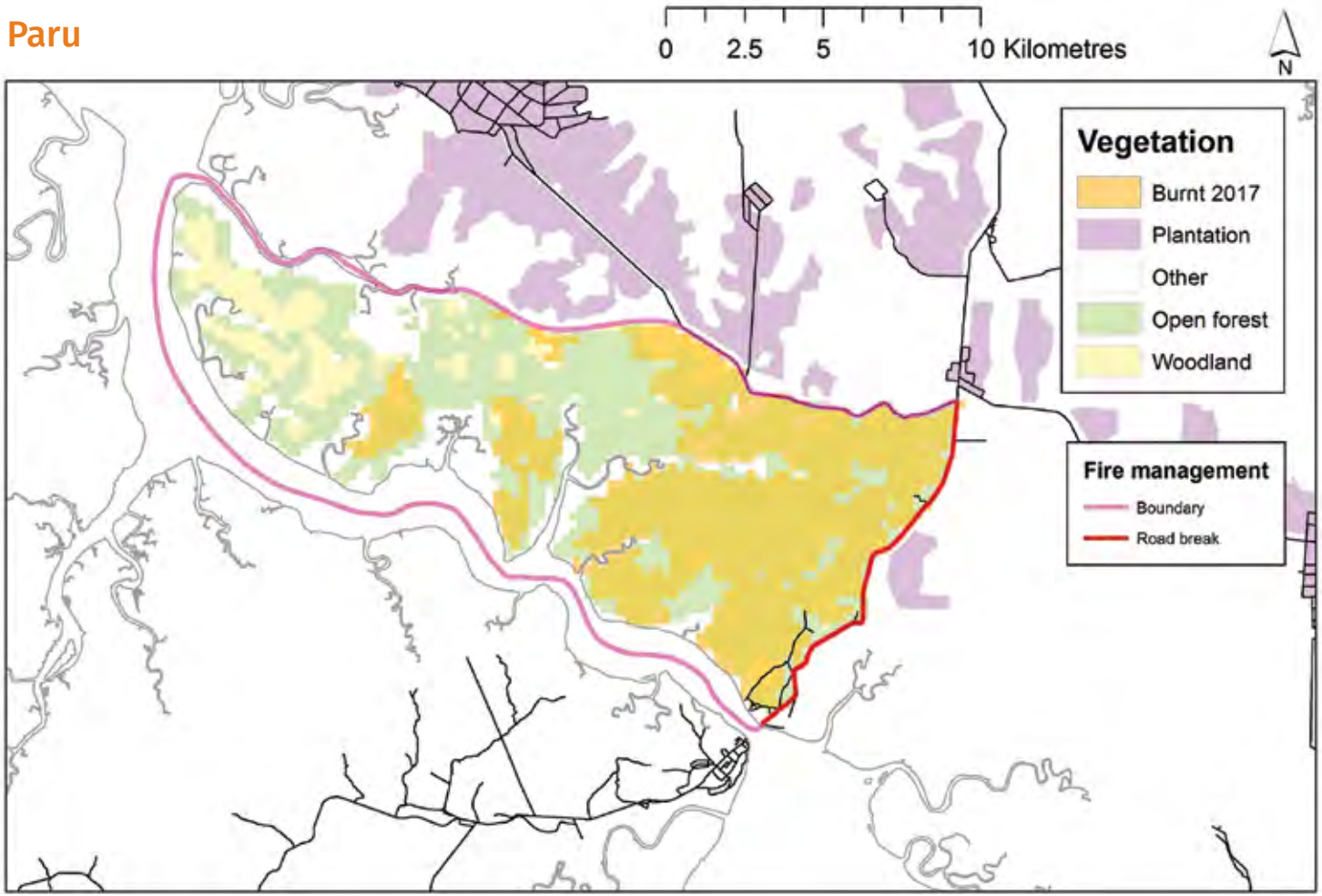
Tiwi Islands



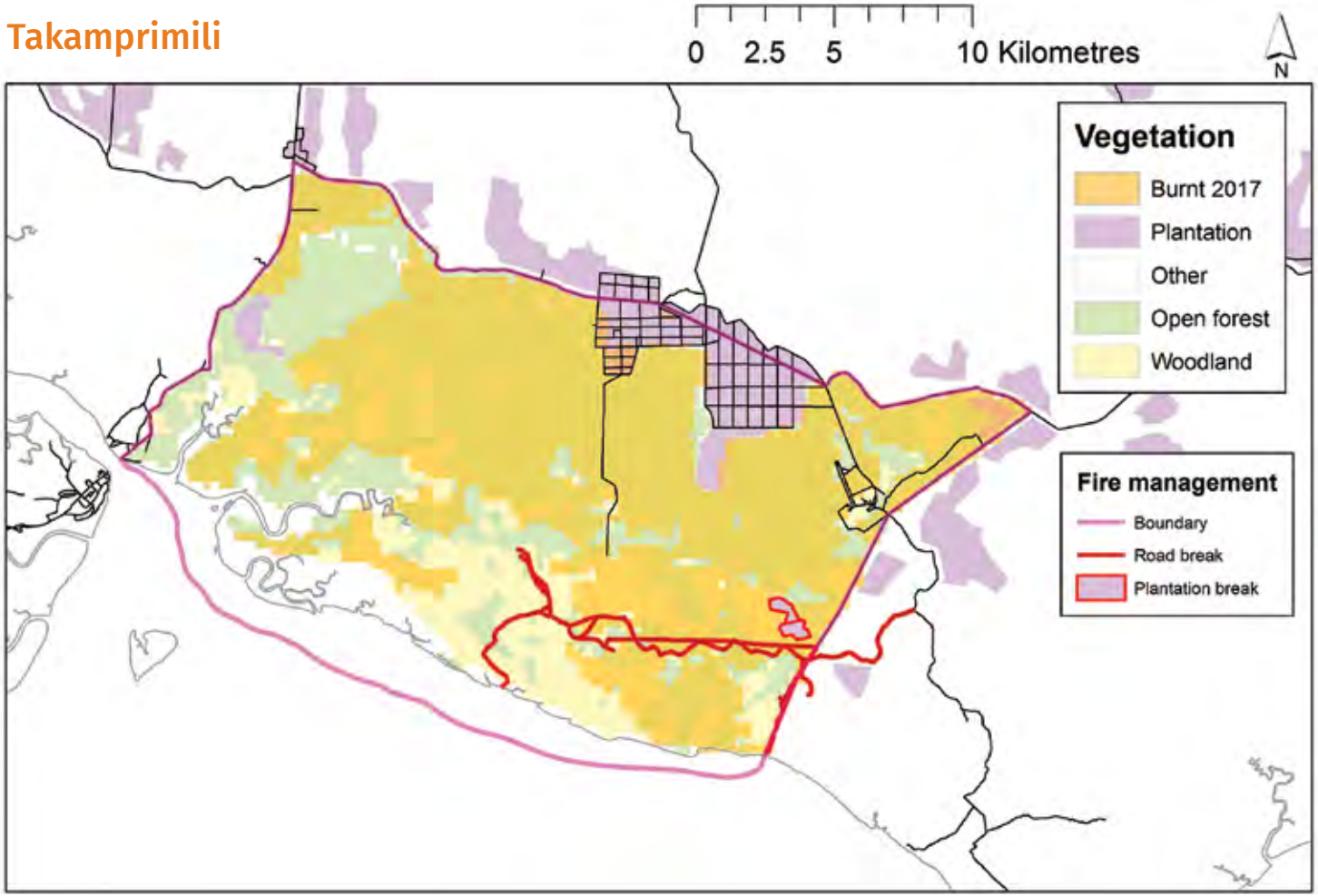
Bathurst Island



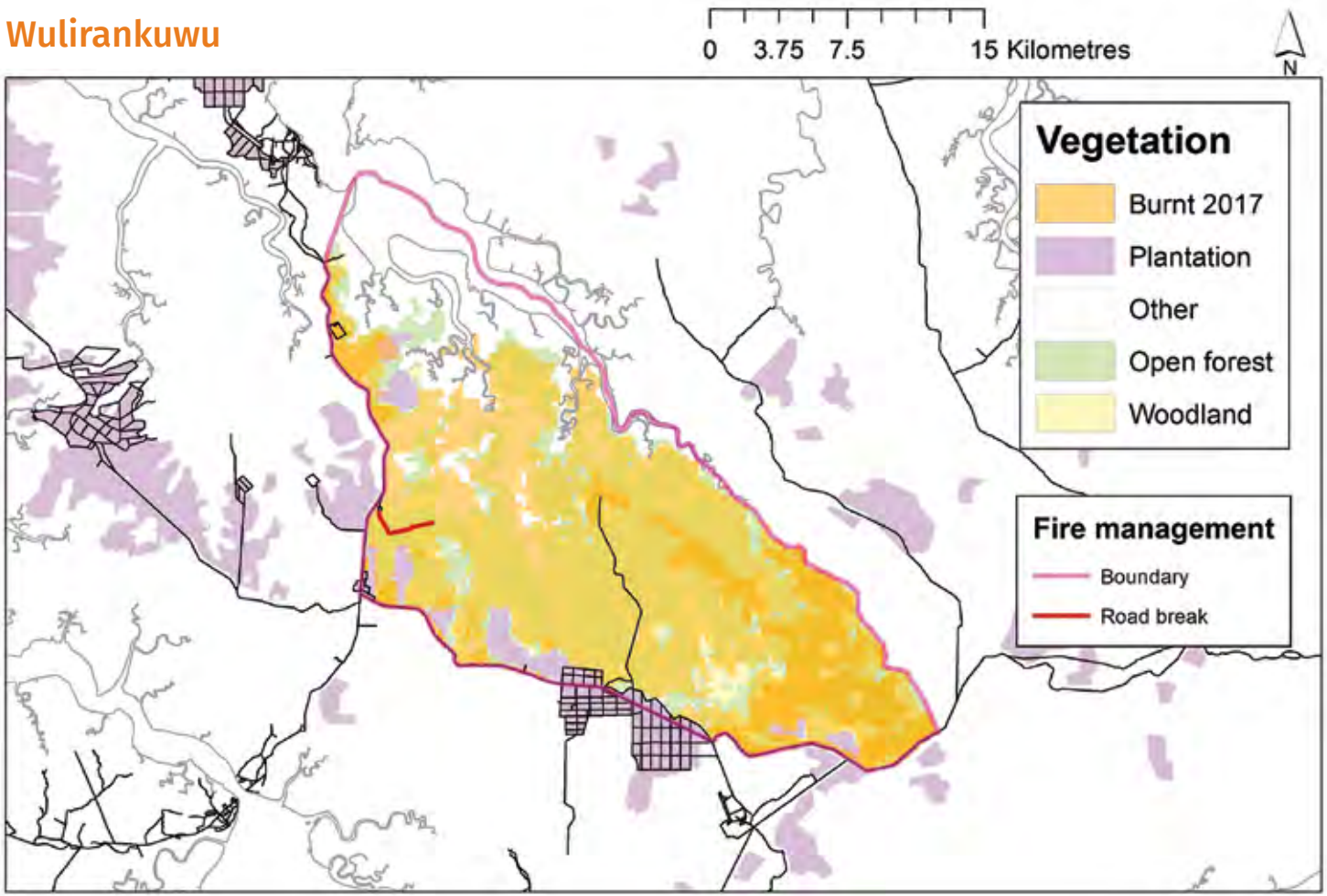
Paru


0
2.5
5
10 Kilometres
N
Vegetation
Burnt 2017
Plantation
Other
Open forest
Woodland
Fire management
Boundary
Road break

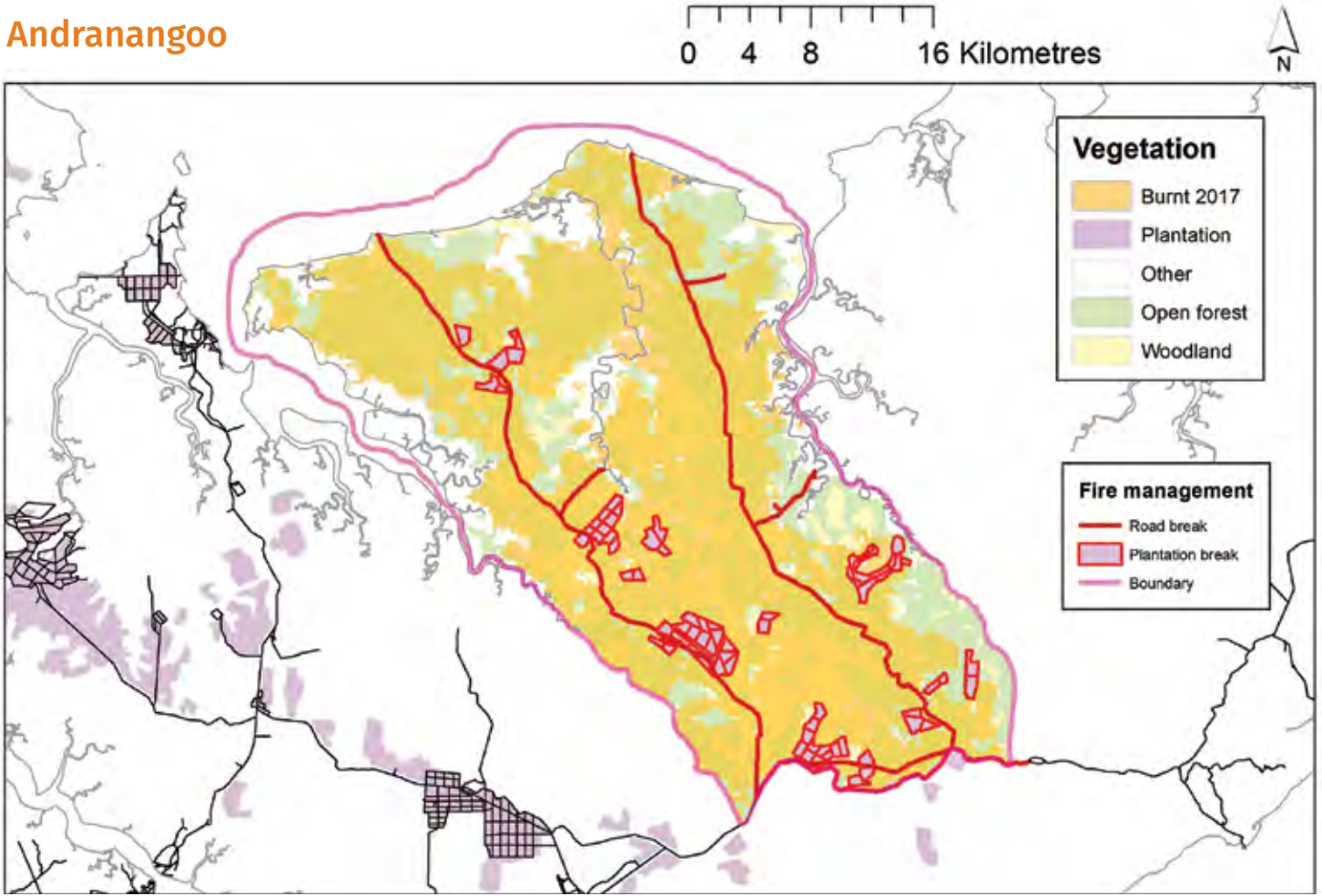
Takamprimili



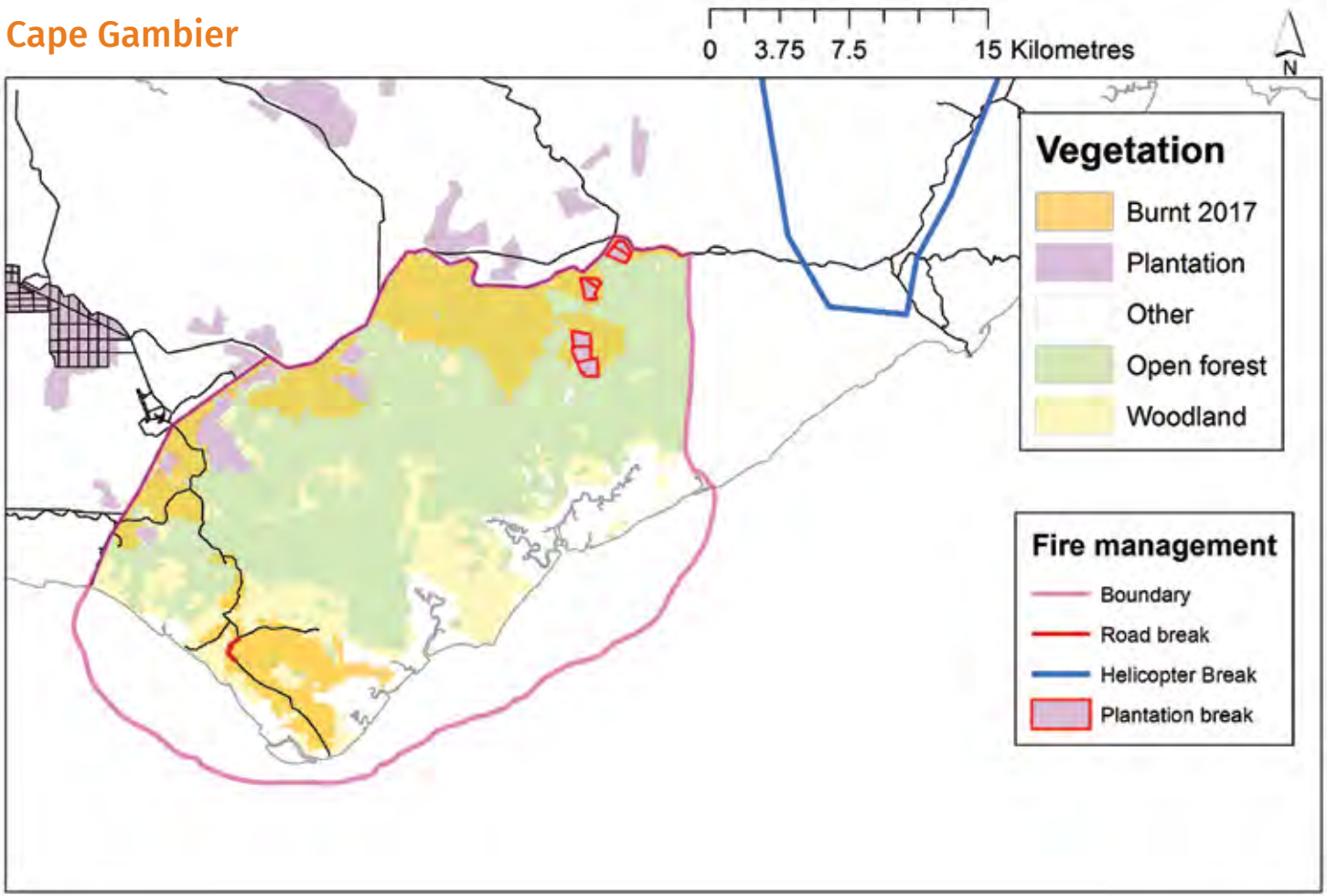
Wulirankuwu



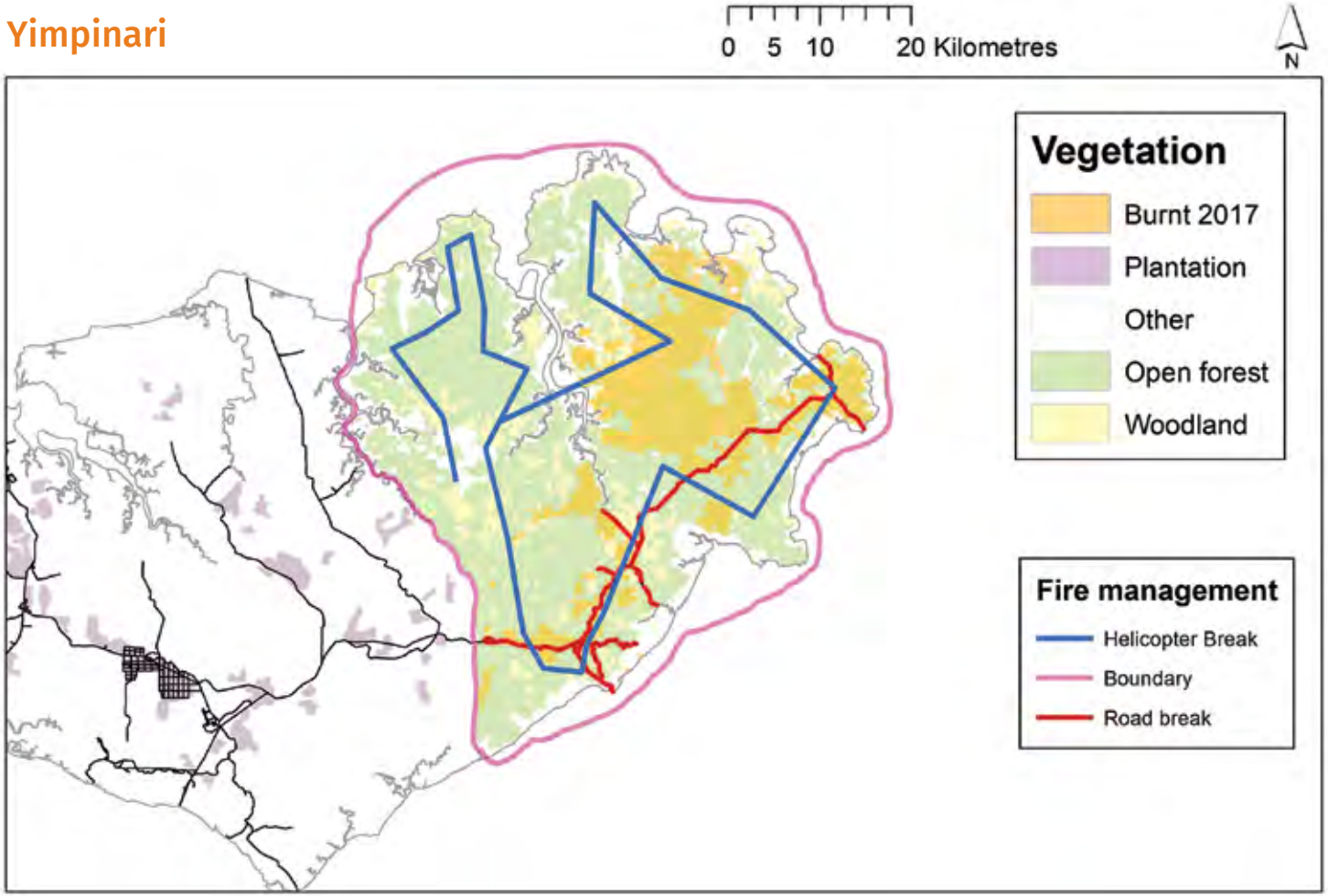
Andranangoo



Cape Gambier



Yimpinari


0 5 10 20 Kilometres
N
Vegetation
Burnt 2017
Plantation
Other
Open forest
Woodland
Fire management
Helicopter Break
Boundary
Road break

Tiwi Islands Burning Activity Schedule 2018

	Activity
1	Spray/grade plantation firebreaks; spray outstation firebreaks and Tuyu track
2	Check country for dryness in Yimpinari, Cape Gambier, Takamprimili and Bathurst Island
3	Protection burns around Taracumbi and Paru Plantations
4	Burn roadsides in Yimpinari and Jessie, plus Milikapiti & Paru roads
5	Burn around Takamprimili outstation
6	Aerial burning Yimpinari, Andranangoo/Cape Gambier, Paru and Bathurst Island
7	Protection burns around Andranangoo plantations 6, 7, 8 and 9
8	Roadside burning in Andranangoo, Goose Creek and Cape Gambier
9	Protection burns around Pickataramoor plantations and Tiwi College
10	Roadside burning Bathurst Island
11	Protection burns around Jessie and Bonkalji plantations

Tiwi Islands Burning Activity Schedule 2018

Activity	Responsibilities/resources	Week starting: May 14	May 21	May 28	June 4	June 11	June 18	June 25	July 2	July 9-31
1	Tiwi Fire Crew & Forestry									
2	Tiwi Fire Crew & TOs									
3	Tiwi Fire Crew & Forestry									
4	Tiwi Fire Crew									
5	Tiwi Fire Crew & TOs									
6	Tiwi Fire Crew & TOs									
7	Tiwi Fire Crew & Forestry									
8	Tiwi Fire Crew									
9	Tiwi Fire Crew									
10	Tiwi Fire Crew									
11	Tiwi Fire Crew & Forestry									

NO MORE BURNING

KARLUWU YIKWANI

Weed Management on the Tiwi Islands: 2017–18 Wet Season

Outcome:

Prevention of weed spread across the Tiwi Islands

Objectives:

- Eradicate all Weeds of National Significance;
- Eradicate small outlying infestations of grassy weeds;
- Contain large infestations of grassy weeds;
- Continue to manage *Acacia mangium* wildings;
- Contain other outbreaks of woody weeds.

Treatment Priorities:

The treatment of weeds is determined by the risk of weed spread and the potential for damage to primary production and/or the environment. Risk of spread is a function of the type of weed and its location.

Introduced Grassy weeds currently present the highest risk for weed spread and potential environmental damage across the Tiwi Islands because of their ability to replace native vegetation and produce high fuel loads. They promote high intensity, late dry season fires leading to ecosystem degradation, habitat loss and species declines. Grassy weeds of particular concern include Mission Grass (*Cenchrus polystachios*, previously known as *Pennisetum polystachion*), Guinea Grass (*Panicum maximum* syn. *Urochloa maxima*) and Gamba Grass (*Andropogon gayanus*). For many years these grasses were confined to communities, outstations and camping areas. However, increased development and traffic across the Islands in recent years has led to the increased spread of Mission Grass outside communities, along roadsides and within plantations. Gamba Grass has been eradicated from the Tiwi Islands, but monitoring needs to be maintained to prevent new outbreaks.

Weeds of National Significance are weeds that could have a significant impact on primary production and/or the environment. Weeds of particular concern for the Tiwi Islands are Mimosa (*Mimosa pigra*), Fringed Spider Plant (*Cleome rutidosperma*), Lantana (*Lantana camara*), Rubber Vine (*Cryptostegia grandiflora*) and Bellyache Bush (*Jatropha gossypiifolia*). Isolated outbreaks of Rangoon Creeper (*Quisqualis indica*) are increasing across both islands.

PLEASE NOTE:
Tiwi Land Rangers can help with weed identification.
Phone Willie Rioli on 0488 949 809.

Remember: IF IN DOUBT – PULL IT OUT!

Weed management priorities

1. Contain and progressively eradicate Fringed Spider Plant.
2. Progressively eradicate the *Mimosa pigra* outbreak at Cape Gambier on Melville Island.
3. Contain and progressively eradicate the *Lantana camara* outbreak behind Punarli Beach, Melville Island.
4. Continue monitoring and eradication of all occurrences of Gamba Grass.
5. Continue to manage *Acacia mangium* wildings.
6. Treat all occurrences of Rubber Vine, Bellyache Bush and Rangoon Creeper.
7. Eradicate all outlying occurrences of Mission Grass (those plants located outside of communities, and new plantation outbreaks).
8. Contain large, existing outbreaks of Mission Grass and Guinea Grass.
9. Monitor implementation of quarantine procedures for the Tiwi Islands and organisations operating on the Tiwi Islands.

Correct hygiene and quarantine procedures are to be observed while these activities are undertaken.

Recording weeds:

Please record:

- New weed sightings
- All sightings of grassy weeds outside community/forestry areas; particularly Mission Grass, Gamba Grass and Guinea Grass

Recorded information should include:

- Location description (e.g. Kilu-impini bore; Pickertaramoor airstrip etc.)
- GPS reference
- Date
- Weed – common name will do or 'unidentified grass or shrub'
- Estimate of weed density
- Approximate area infested
- If treated; treatment method (e.g. pulled, sprayed, none)

PLEASE NOTE:
We require all organisations to keep weed management records in a secure location.

Areas of weed management responsibility 2017-18

Organisation	Areas of responsibility	Comments
Tiwi Forests	• Fringed Spider Plant in forestry areas • *Acacia mangium* wildings • Rolla Plains • Plantation areas including internal & access roads • Yapilika forestry centre • Roadside bores • Shark Bay and Northern Beaches Roads	• With Tiwi Ranger assistance
Matilda Zircon	• Andranangoo camp and mining area • Both Lethbridge camps and mining areas • Minesite haul roads	• Contracted to Tiwi Rangers
Tiwi College	• Tiwi College lease area • Pickataramoor creek bank • Rangoon Creeper • Tiwi College firebreaks	• With ongoing assistance from Tiwi Rangers
Tiwi Land Rangers	• Cape Gambier Mimosa • Punarli Beach area Lantana • Fringed Spider Plant at Pirlangimpi • All Bathurst Island except Wurrumiyanga (includes Ranku) • All Rubber Vine and Bellyache Bush • Gamba Grass within communities (where present)	• Main focus on Pirlangimpi to Pickataramoor; and Milikapiti to Paru roads

Areas of weed management responsibility 2017-18

Organisation	Areas of responsibility	Comments
Tiwi Land Rangers (continued)	• Community and outstation boundaries (includes Karslake, Taracumbi outstation and Taracumbi falls, Pitjamirra, Paru, Takamprimilli, Conder Point, 4-Mile, Port Hurd and Cape Fourcroy) • Community rubbish tips and airstrip boundaries • Mission Grass and Gamba Grass outliers • Main roads co-ordinated with forestry	
Tiwi Marine Rangers	• Cape Gambier Mimosa • Fishing campsites	• With Tiwi Land Ranger assistance
Tiwi Islands Regional Council	• All weeds within community boundaries • Edges of communities	
Port Melville lessee	• All weeds within Port Melville lease	
Point Fawcett	• All weeds within Defence lease and along fence lines	• Contracted to Tiwi Rangers

Tiwi Islands Weed Management Program 2017-18

	Activity
1	Stocktake chemicals and order as required. Distribute across both islands
2	Service vehicles and equipment including pumps and check PPE - order if required
3	Survey and treat Mimosa outbreak at Cape Gambier
4	Survey and treat Lantana at Takamprimili
5	Survey and treat Rangoon Creeper at Tiwi College
6	Ongoing monitoring and eradication of Fringed Spider Flower at Pirlangimpi
7	Ongoing surveying and treatment of Mission Grass on Bathurst & Melville Islands
8	Survey and treatment of Mission Grass at old mine site - Andranangoo
9	Spraying firebreaks around outstations, Tiwi College and Tiwi Land Council HQ at Pickataramoor

Tiwi Islands Weed Management Program 2017-18

Activity	Responsibility	Month starting: 6th November	4th December	8th January	5th February	5th March	2nd April	7th May
1	Ranger Supervisor							
2	All Rangers							
3	Tiwi Marine Rangers							
4	Tiwi Land Rangers							
5	Milikapiti Land Rangers							
6	Pirlangimpi Land Rangers							
7	All Rangers							
8	All Rangers							
9	All Rangers							

Tiwi Islands Fire and Weed Committee

Chair and Arnhem Regional Bushfires Committee member	Willie Rioli
Tiwi Land Council Chairman	Gibson F Illortaminni
Landowner delegate and Arnhem Regional Bushfires Committee member	Connell Tipiloura
Landowner delegates	James Desantis Dennis Dunn David Guy Colin Kerinaiua Christopher Molaminni Vincent Mungatopi Danny Munkara Patrick Puruntatameri Richard Puruntatameri Willie Roberts Dennis Tipakalippa Brian Tipungwuti Adonis Wommatakimmi Pedro Wonaeamirri
Tiwi Islands Fire Coordinator	Bruce Holland
Tiwi Land Council Manager for Land and Resources	Kate Hadden
Tiwi Plantations	Quinten Pope Sarah Ryan
Technical and operational support: Bushfires NT	Christine Platell

Identifying key weeds on the Tiwi Islands

Mission Grass
(*Cenchrus polystachios*)

- Large, tough, grass, forming loose clumps to 3 m high.
- The leaf blades are hairy and elongated to 45 cm long and up to 18 mm wide. Can have a red purplish colour at the base.
- Leaves stay green long after native grasses have died off.
- Flower heads appear in the early dry season and are a dense golden spike, 5 – 26 cm long and 1.3 - 2.6 cm wide.

Gamba Grass
(*Andropogon gayanus*)

- Large erect tussock grass to 4 m high.
- Strong stems covered in soft velvety white hairs.
- Leaves broad and softly hairy to 1 m, with a distinctive white midrib.
- Leaves stay green after native grasses have died off.
- Seed heads are v-shaped and fluffy, developing above the leaves on thick stems.

Guinea Grass
(*Panicum maximum* syn. *Urochloa maxima*)

- Tufted grass 60-200 cm high.
- Leaf blades up to 35 mm wide tapering to a fine point.
- Seed is about 2 mm long.

Mimosa
(*Mimosa pigra*)

- Found on floodplains, wetlands and along creeks and rivers.
- Leaves are fern-like and close up when touched and at night time.
- Single prickly stem when young, branched prickly bush when mature, up to 6 m tall.
- Stems are greenish in young plants but become woody as the plant matures.
- Stem prickles are 0.5 cm to 1 cm long.
- Flowers are round fluffy balls composed of up to 100 small pink to mauve flowers.
- Seed pods are 6 cm to 8 cm long, turn brown when mature and break into segments.
- Seeds within the pods are oblong, brown or green and flattened and covered in fine hairs.

Lantana
(*Lantana camara*)

- Spreading shrub, 2 to 4 m tall often forming dense thickets.
- Flower heads are about 2.5 cm wide, made up of 20 to 40 flowers. Colours vary between red, orange, pink, purple, cream and pale yellow.
- Leaves give off a bad smell when crushed.
- Berries ripen from green to shiny purple-black and contain a single pale seed.

Rubber Vine
(*Cryptostegia grandiflora*)

- Woody, multi-stemmed vine with shiny dark green leaves climbing 30 m into tree canopies, or 1 m to 3 m as a shrub if unsupported.
- Releases a milky sap when broken or cut.
- Flowers are white inside and pink to purple outside, 5 to 6 cm long and about 3.5 cm wide shaped like a trumpet with five petals.
- Seeds form in large pods that grow mostly in pairs.
- Large seed pods are up to 15 cm long and 4 cm wide and contain more than 300 brown seeds.

Bellyache Bush
(*Jatropha gossypiifolia*)

- Shrub or small tree up to 4 m high.
- Multiple thick stems covered with coarse, gland tipped, sticky, brown hairs.
- The leaves can be purple/red when young but go green when mature.
- Flowers are small and red with yellow centres grouped in clusters around the top part of the plant.
- Fruit capsules are oblong, initially green, ripening to dark brown.

Fringed Spider Plant
(*Cleome rutidosperma*)

- Small shrub up to 100 cm tall.
- Angular stems, each leaf is made up of three diamond-shaped leaflets.
- Small mauve flowers have four upright petals.
- Numerous tiny kidney-shaped brown seeds in a narrow capsule.