



Towards a Tiwi Islands Indigenous Protected Area

An information booklet supporting Tiwi people's aspirations for an IPA for their islands.



"Just as Tiwi traditional owners understood and cared for our land when we used it for the traditions in the past, the new generations of Tiwi land managers need to understand and care for it now and into the future. To keep our country healthy, our people healthy and our culture strong, we need to bring together our knowledge of the past with new ways of doing things today. A Tiwi IPA will help us to continue to look after our country and our culture for all the generations to come."

— Gibson Farmer Illortaminni
Tiwi Land Council Chairman



This booklet confirms Tiwi Traditional Owners' ambitions for an Indigenous Protected Area over the Tiwi Islands and sets out a case for Northern Territory and National support for the development of an IPA. Additionally, it documents the exceptional natural and cultural values of the proposed IPA and assesses its potential contribution to the National Reserve System.

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The Tiwi Islands





Summary

The Tiwi Islands, located north of Darwin in the Northern Territory, include Australia's second and fifth largest islands – Melville and Bathurst. The islands have more than a thousand kilometres of coastline and cover an area of approximately 8,000 square kilometres. There has been an unbroken history of occupation and ownership of the Tiwi Islands for many thousands of years by Tiwi people, who possess a distinct culture and language.

The Tiwi Islands are a biodiversity haven, supporting a very high diversity of plant and animal species including many not recorded anywhere else in the world. This diversity includes 19 threatened plant and 30 threatened fauna species, and healthy populations of small mammal species that have undergone recent dramatic declines on the mainland. The Tiwi Islands contain the Northern Territory's best-developed eucalypt

forests, along with an unusually high density and extent of rainforests, reflecting the significantly higher rainfall than on mainland NT. The coast supports important nesting sites for marine turtles, internationally significant seabird rookeries and major aggregations of migratory shorebirds, and there is a rich marine biota in the surrounding seas.

The natural and cultural resources of the Tiwi Islands have been carefully managed by Tiwi people for thousands of years. Tiwi Traditional Owners are well aware of the overwhelming significance of their country for national cultural heritage and biodiversity conservation but have not previously considered the declaration of national parks or nature reserves necessary for their sustainable management of their country.

Traditional Owners now recognise the importance and value of the IPA program and consequently have directed that an application be submitted as the momentous first step towards the planning, dedication and management of an IPA for the Tiwi Islands.





About the Tiwi Islands

The Islands

The Tiwi Islands are located in the Arafura Sea between latitudes 11° and 12° South and longitudes 130° and 131°40' East. They are approximately 80 kilometres north of Darwin, have more than a thousand kilometres of coastline and approximately 8,000 square kilometres of land. The island group is part of the Northern Territory and consists of two large inhabited islands including Melville and Bathurst, originally called Ratuwati Yinjara (two islands), and numerous smaller uninhabited islands including Yirripurlingayi (Buchanan), Harris, Seagull, Purrapinarli (Karslake), Yipinuwurra (Clift), Turiturina, Matingalia, Nodlaw, Muma (East Vernon), Warabatj (North West Vernon), Kulangana (South West Vernon). The Vernon Islands are known collectively as Potinga.

Most of the smaller islands lie close to the Tiwi coastline however, Kulangana (South West Vernon Island), is less than five kilometres from the NT mainland coast. Melville Island is the largest island in the group and, at 5,788 square kilometres, is the second largest island off the Australian mainland after Tasmania. Bathurst Island is the fifth largest island in Australia. Bathurst and Melville Islands are separated by the Apsley Strait, which is approximately 70 kilometres long, and ranges in width from 600 metres to 6 kilometres.

According to Tiwi culture, the islands were created at the beginning of time during the dreaming or Palaneri. Before this time there was only darkness and the earth was flat.

'.... and then Mudangkala, the old blind woman arose from the ground carrying three babies in her arms. As she crawled in the darkness across the featureless landscape, seawater followed and filled the imprints made by her body. Eventually the pools became one and formed a channel. The old woman continued her journey overland and once again the moulded earth filled with the flow of water. Before she left, Mudangkala covered the islands with plants and filled the land and sea with living creatures. Finally, the land was prepared for her children and for the generations of children who followed.'

Most of the Tiwi Islands consists of gently undulating country with elevations of less than 50 metres above sea level. The higher country on Bathurst Island reaches elevations of 100 metres, while on Melville Island the maximum elevation is about 140 metres above sea level.

The Tiwi Islands have a dry monsoonal climate, characterised by a hot and humid wet season and a hot dry season. Average temperatures range from around 19 to 30°C in the dry season to 25 to 33°C in the wet season. The wet season brings the Tiwi Islands the highest rainfall in the Northern Territory, with around 90 per cent falling between November and April. Mean annual averages range from 1200 mm to 1400 mm on eastern Melville Island, to above 2000 mm in northern Bathurst Island and north-western Melville Island.





The Tiwi People

'The Tiwi are today arguably Australia's most intact Aboriginal group. Certainly, they retain their fiercely possessive attitude toward their land and their culture, and they have a resolute determination to maintain controls over those essentials of Tiwi integrity.'

– Peter Forrest (Historian) 1998

The Tiwi People have occupied their land for millennia. During the last Ice Age the Tiwi Islands were connected to the mainland through what is now Coburg Peninsula in western Arnhem Land in the Northern Territory. Rapid sea level rises between 8,000 to 12,000 years ago separated these islands from the mainland and each other, as described in the Tiwi legend of Mudangkala. This left the Tiwi people to develop in isolation a distinct culture over thousands of years. Around 2500 people live on the Tiwi islands, more than 90 per cent of whom identify as Tiwi. Tiwi people have long considered themselves to be different from the inhabitants of the mainland and consider themselves as uniquely Tiwi, reflected in the translation of 'Tiwi' as 'we, the only people'. They have successfully strived for a system of governance through the Tiwi Land Council that provides true regional authority over all aspects of their lives.

Tiwi people possess a distinct culture and language and are famous for their strong sense of identity, and extraordinary artistic capability and output. Their isolation from the mainland resulted in the development of distinctive features in their artistic expressions. Ceremonies play a very important role in Tiwi culture and the two most significant ceremonies are Pukumani and Kurlama. The Pukumani, or burial, ceremony is

considered the most important ceremony in a person's life: it ensures that the spirit of the dead person goes from the living world into the spirit world. The Pukumani, which takes place months after the deceased has been buried, allows Tiwi full expression of their grief and provides a forum for artistic expression through song, dance, sculpture and body painting. The Kurlama, or yam, ceremony occurs each year towards the end of Jamutakari, the wet season. It is an annual celebration of life and involves three days and nights of ritual body paintings, singing and dancing complete with the eating of yams according to a ritual custom.

Land Ownership

'We have always said who can come to our country and who must go.'

– Matthew Wonaeamirri

There has been an unbroken history of occupation and ownership of the Tiwi Islands by Tiwi people. European colonisation of mainland Australia did not result in displacement of Tiwi from their traditional lands. Tiwi have never surrendered any of their land and have proved through history that outsiders who want to come to the their islands can only do so on Tiwi terms. Land plays an important role in kinship and relationship networks, with each person belonging to a landowning group, and having particular connections to spatially defined areas. Similarly, there are aspects of managing and allocating land and natural resources that are inseparable from kinship and relationship ties. While landowning rights are inherited from the father, the responsibility for the care of important sites comes through the mother's line. There are eight Landowning Groups on the Tiwi Islands.





The Tiwi Islands | LAND OWNING GROUPS



Governance

'The Tiwi Land Council is primarily an expression of Tiwi traditions, going back more than 40,000 years'

The Tiwi Land Council was established in August 1978, following representation by Tiwi people to the Federal Government for recognition of their distinct geographic and cultural identity. However, prior to the establishment of the Land Council, the Tiwi Aboriginal Land Trust was established under the Aboriginal Land Rights (Northern Territory) Act 1976. The Tiwi Land Council is the only body with authority and capacity to direct and administer the Trust.

Membership of the Tiwi Land Trust and the Tiwi Land Council was initially based on 12 clan or

'country' groups but over time has been adjusted to eight. In 1995, the Minister for Aboriginal Affairs approved the appointment of the Tiwi Management Committee under the Commonwealth Land Rights Act. The Executive Management Committee currently has 10 members, including the Chairman and the Deputy Chairman. The Committee meets more than 20 times a year and is primarily responsible for operational matters, as well as providing strategic advice to the full council. The full Tiwi Land Council meets six times a year and is responsible for making strategic decisions about the islands. The Tiwi Land Council is a truly representative body with an average of one member for every 70 Tiwi residents and all decisions are made through consensus.



Since 2000 the Environmental Management Secretariat of the Tiwi Land Council has been successfully developing and overseeing contemporary land management plans on the Tiwi Islands and in 2004 produced the *Tiwi Islands Regional Natural Resource Management Strategy*. The Tiwi Land Council also actively manages ongoing approvals and agreements from each of the eight Landowning groups across the Tiwi Islands, and manages collaborations between other organisations involved in natural resource management.

TLC Statement about the Present

The Tiwi Land Council represents all Tiwi people in the protection of our land, sea and environment, while at the same time supporting sustainable economic development to improve Tiwi lives through employment, income, education and health opportunities. Our reputation is founded on our cultural and leadership strengths, following in the footsteps of our visionary leaders.



The Tiwi Land Council Executive Management Committee

The Tiwi Land Council has been recognised for excellence in natural resource management by winning or being a finalist in a number of local and national awards.

- 2016** Finalist: Banksia Sustainability Award, Indigenous Leadership Category (Fire management for greenhouse gas abatement)
- 2015** Keep Australia Beautiful NT Culture and Heritage Award (Tiwi Seasons Calendar, Tiwi Plants and Animals Calendar)
- 2015** UN World Environment Day Award, Biodiversity Category
- 2015** Finalist: Banksia Sustainability Award, Indigenous Leadership Category (Invasive ants)
- 2008** National Indigenous Landcare Award
- 2007** NT Indigenous Landcare Award
- 2007** McKell Medal for Excellence in Natural Resource Management
- 2005** NT Bushcare Nature Conservation Award
- 2005** Australian Quarantine and Inspection Service Commendation for Outstanding Service to Quarantine
- 2004** NT Coastcare Award
- 2003** NT Regional Quarantine Award
- 2002** Rural Industries Research and Development Corporation NT Rural Woman of the Year

TLC Vision for the Future

Our vision is of an independent and resilient Tiwi society built on the orderly and well managed utilization of our natural and human resources through reliance upon our own management, maintenance and protection of unique cultural and natural resource values for the enjoyment and benefit of future generations of Tiwi.





Ecology of the Tiwi Islands

Animals

Although Tiwi people have long held a deep knowledge of the animals of their lands, western scientific knowledge of Tiwi fauna has only been documented since the 1990s. The Tiwi harvest more than 100 animal species for food.

Mammals

There are 36 native mammal species on the Tiwi Islands, which is exceptional compared to other Australian islands. The islands have substantial populations of native mammal species that have undergone dramatic recent decline on the Northern Territory mainland. There are seven threatened mammal species, including healthy populations of species such as Brush-tailed Rabbit-rat (*Conilurus penicillatus*) which have declined close to local extinction on the NT mainland. Feral mammals on the islands include black rats, cats, pigs, water buffalos, horses, and cattle.

The waters around the islands support a number of marine mammal species including dugongs, dolphins and whales.

Sea turtles

Tiwi people have strong cultural and subsistence links to sea turtles and the sandy beaches on the west coast of Bathurst Island and the north coast of Melville Island are very important for sea turtle nesting. Nesting is dominated by Flatback (*Natator depressus*) and Olive Ridley turtles

(*Lepidochelys olivacea*), but Green turtles (*Chelonia mydas*), and Hawksbill turtles (*Eretmochelys imbricate*) also nest on Tiwi beaches. Each of these marine turtle species is listed as threatened.

Green turtles are the main turtles harvested in the water while eggs of all sea turtle species are collected on land. Traditional hunting mainly takes place close to communities, leaving most of the islands free from harvest pressure. The Tiwi Island rookeries at Pirripatiriyi (Seagull Island) and the north-west coast of Melville Island are among the largest in Australia for Olive Ridley turtles. Ensuring turtle populations remain healthy in the long-term is very important to Traditional Owners and since 2003 the Tiwi Land Council has partnered with a range of organisations to study Olive Ridley turtles. This important research, which has been conducted at Imalu Beach at Cape Van Diemen on the north-west coast of Melville Island, has made a significant contribution to knowledge about the ecology of Olive Ridley turtles in Australia.

Sea turtles are expected to be particularly threatened by rapid climate warming and rising sea levels. The Tiwi Land Council is partnering with scientists to investigate the effects of increased temperatures and nest inundation on hatchling sex ratios and turtle hatchling performance. Research will continue to inform future turtle management work undertaken by the Tiwi Land Council.

Birds

A total of 222 species of bird have been recorded on the Tiwi Islands. The islands have been identified as an Important Bird Area by BirdLife International because they support relatively high densities of Red Goshawks, Partridge Pigeons and Bush Stone-curlews and up to 40,000 shorebirds on tidal flats, particularly on the south-east of Melville Island. A





record number of 12,000 Great Knots, more than one per cent of the global population, have been recorded as well as Red-necked Stints, Greater and Lesser Sand Plovers, and Bar-tailed Godwits. Pirripatiriyi (Seagull Island), off the north-western tip of Melville Island, supports a breeding colony of about 60,000 Crested Tern (*Sterna bergii*), the largest known colony in the world. Three colonies of Little Terns on the islands are considered of national significance. Thirteen threatened bird species occur on the Tiwi Islands, including the endemic subspecies Tiwi Masked Owl (*Tyto novaehollandiae melvillensis*), Tiwi Hooded Robin (*Melanodryas cucullata melvillensis*) and Horsfield's Bushlark (*Mirafrja javanica melvillensis*).

Plants

The vegetation of the Tiwi Islands includes open eucalyptus forest and woodlands, Punkaringa Melaleuca (paperbark) forest, monsoon rainforest, Acacia shrublands, treeless plains, freshwater swamps, sedgeland, grasslands, mangroves, coastal dunes and saltmarsh. Tall forests dominated by Jukwartirringa *Eucalyptus tetradonta* (Stringybark), Timirraringa *Eucalyptus miniata* (Woollybutt) and Wurringilaka *Corymbia nesophila* (Melville Island Bloodwood) cover about 75 per cent of the islands and include the best developed eucalypt forests in the Northern Territory. There are a large number of monsoon rainforest patches on the Tiwi Islands, supporting a unique diversity of species including many of the plants endemic to the Tiwi Islands. The most common weeds on the islands are Mission grass and Guinea grass.

Scientists have recorded at least 1200 native plant taxa. Eleven plant species have been recorded in the world only on the Tiwi Islands, and a further 17 are known in the NT only from the Tiwi Islands (but also occur beyond the NT, mostly in north Queensland, New Guinea, Indonesia and the

Philippines). Ten monsoon rainforests on the Tiwi Islands are listed on the Register of the National Estate for their natural values, including: Big Pig Jungle, Ilinga Jungle, Hanguana Jungle, Gully Gully Jungle, Tarracumbie Creek Jungle, Jump Up Jungles, Imanawudi Jungle, Third Spring Jungle, East Tjipripu Spring Jungle and Mangkipu Jungle.

A total of nineteen Tiwi plant species are listed as threatened. An additional 36 plant species have been listed as 'Near Threatened' and 41 as 'Data Deficient' under the *Territory Parks and Wildlife Conservation Act*, and many of the latter are likely to qualify as threatened in future reviews of their conservation status.

At least 200 native plants are used traditionally by Tiwi people for food, in art and as construction material. Most of these plants are associated with rainforest and eucalypt open forests.

Invertebrates

The Tiwi ant fauna has high national significance, with many species occurring nowhere else in the world. More than 200 species of ants have been recorded to-date on the Tiwi islands and Tiwi rainforests have especially high levels of endemism. Six pest ant species have been recorded on the islands. The Tiwi ant fauna includes several genera and species-groups that do not occur on the NT mainland. Two dragonfly species are restricted to the Tiwi Islands and a skipper butterfly is only known from Bathurst Island. Other invertebrates, however are not as well known.

Four invertebrate species on the Tiwi Islands are listed as threatened in the Northern Territory including two Land snails (*Amphidromus cognatus* and *Trochomorpha melvillensis*), Dodd's Azure Butterfly (*Ogyris iphis doddii*), and Atlas Moth (*Attacus wardi*).



An Indigenous Protected Area for the Tiwi Islands

“Things are changing on the Tiwis. To keep our country healthy and to keep our people healthy we’ve got to think about doing things in new ways.”

– Willie Rioli, Tiwi Land Ranger Mentor and Supervisor

Indigenous Protected Areas are voluntarily dedicated by Indigenous groups on Indigenous owned or managed land or sea country. They are recognised by the Australian Government as an important part of the National Reserve System, protecting the nation’s biodiversity for the benefit of all Australians. Areas under the Aboriginal Land Rights (Northern Territory) Act 1976 (ALRA), S.19 Land Use Agreements, township leasehold and other lease areas would be excluded from the IPA.

The Tiwi Islands covers a total area of around 800,000 hectares and Tiwi Landowners determined at their April 11, 2018 Executive Management Committee meeting that the whole of the Tiwi Islands should be placed under an IPA where land tenure permits. This means that an IPA will cover close to 90 per cent of the total Tiwi Islands land mass.

The proposed Tiwi Islands IPA incorporates the entire Tiwi Subregion of the Tiwi Cobourg Bioregion, as well as a small proportion of the Darwin Bioregion.

Australian Bioregion (IBRA7)	Subregion	Tiwi Islands IPA (% of total area of Bioregion or Subregion)
Darwin		5%
	Darwin coastal	5%
Tiwi Cobourg		47%
	Tiwi	100%

A Tiwi IPA would be dedicated under two International Union for Conservation of Nature (IUCN) categories. Category VI would be applied to areas where conservation and cultural heritage protection will be the paramount land use. Category V would be applied for areas where Tiwi envisage significant sustainable use of natural resources in parallel with conservation management.

Steps to a Tiwi IPA

The Tiwi Land Council produced this information booklet after successfully applying for a grant from Northern Territory Aboriginal Ranger Grants Land Management and Conservation Fund. It marks the beginning of the IPA development process for Tiwi Land owners. Should the Tiwi Land Council be successful in securing Australian Government support through the Indigenous Protected Area Programme, dedication of the Tiwi Islands IPA would be preceded by the following steps. These steps would be completed within 12 months:

- 1) Community-based participatory planning** – for natural and cultural resource management.
- 2) Development and distribution of an IPA draft plan of management** – integrating and updating the existing Tiwi Islands Regional Natural Resource Management Strategy.
- 3) Traditional Aboriginal Owner consultations** – to finalise the IPA boundary and secure statutory endorsement for the dedication of an IPA.





IPA Management

The land and intertidal sea country that would comprise a Tiwi Islands Indigenous Protected Area are held entirely as inalienable Aboriginal freehold. The Tiwi Land Council is a statutory authority under the Aboriginal Land Rights (Northern Territory) Act 1976 administering the land and representing Tiwi peoples' interests. As 'ALRA freehold' Tiwi traditional owners enjoy virtual sovereign rights over their country and are free to implement management as they see fit.

Inclusion of surrounding marine areas beyond the intertidal zone is envisaged as a second stage of the IPA. Tiwi people regard these waters as their traditional sea country and hope to manage them through a combination of rights and other arrangements. Their rights here exist in relation to registered marine sacred sites and as yet un-determined native title. Management by other means currently occurs through the rangers' formal involvement in policing recreational and commercial fishing, quarantine and border surveillance.

The Tiwi Land Council understands that IPA establishment rests both on agreement between Traditional Owners and an agreement with the Australian Government. In progressing this initiative for an IPA, the TLC is aware that IPA status is non-binding, has no legal force or effect and has no bearing on the operation and enforcement of NT or Commonwealth laws.

IPA Governance

The importance of natural resource management on the Tiwi Islands has been formally acknowledged by the Tiwi Land Council through

the formation of sub-committees specialising in matters of particular interest to landowners. The Tiwi Islands Natural Resource Management Committee was established in July 2007 to focus on natural resource management business and Subcommittees include the Tiwi Islands Water Advisory Committee and the Tiwi Islands Fire and Weed Management Committee. These committees have functions and authorities devolved through the Aboriginal Land Rights (Northern Territory) Act 1976 and would provide an appropriate and well-tested mechanism for the management of an IPA on the Tiwi Islands.

Statement of Significance

The Tiwi Islands are of great importance for biodiversity conservation because they contain:

- at least 1200 plant taxa and 340 terrestrial vertebrate taxa, with a largely unknown diversity of invertebrates;
- 6 plant taxa that are listed as threatened under the national *Environment Protection and Biodiversity Conservation Act*, and a total of 19 which are listed as threatened under the *Territory Parks and Wildlife Conservation Act*;
- 20 animal species that are listed as threatened under the under the national *Environment Protection and Biodiversity Conservation Act*, and a total of 27 which are listed as threatened under the *Territory Parks and Wildlife Conservation Act*;
- 11 endemic (i.e. restricted to the Tiwi Islands) plant taxa, with a further 17 plant species known in the Northern Territory only from the Tiwi Islands;





- many endemic animal species – these include 8 bird subspecies, two mammal subspecies, about 10 per cent of the 200 known ant species, and an unknown number of other invertebrates, but known to include some butterfly, dragonfly and snail species;
- 54 migratory animal species listed for special protection under bilateral and other international treaties;
- many plant and animal species with important cultural and subsistence value to Tiwi landowners;
- more than 1200 rainforest patches, constituting a higher density of rainforests in the landscape than anywhere else in the Northern Territory, and comprising rainforest types of unique floristic composition;
- extensive areas of the best developed (i.e. tallest and with greatest basal area) *Eucalypt* forests in the Northern Territory;
- vertebrate species composition that is distinctly different to that of the Northern Territory mainland; and
- a broad mix of environments including *Eucalypt* open forest and woodlands, wetlands, coastal dune formations, “treeless plains” (a low woodland, almost restricted to the Tiwi Islands), mangroves, grasslands and *Melaleuca* forests.

The entire Tiwi Islands have been recognised by the Northern Territory Government as a Site of Conservation Significance¹, with an International Significance rating, because of the values described above.

Scientific Priorities for Biodiversity Conservation

The proposed Tiwi Islands IPA would closely conform to the Scientific Framework underpinning Australia’s National Reserve System (NRS). Specifically, it would address the following Scientific Priorities for Biodiversity Conservation:

Bioregions and subregions where there is very little legal protection for plants and animals native to that area and where they are under a real threat

The Tiwi subregion is held entirely as NT Aboriginal Freehold where Traditional Aboriginal Owners enjoy near-sovereign rights over the land and wildlife. However, these exceptionally biodiverse islands are increasingly at risk from introduced pests, weeds and the impacts of climate change. IPA establishment is the only suitable option for NRS reservation and on-going support of management programs to mitigate these threats.

Native habitats under-protected within the existing National Reserve System

The Tiwi IBRA subregion is currently not represented in the National Reserve System. Establishment of this IPA would lift the reservation status to near 100 per cent.

¹ http://www.territorystories.nt.gov.au/bitstream/handle/10070/213462/09_tiw_i.pdf



The Tiwi Islands also have particular biodiversity values associated with being islands. A number of endemic species have developed on the islands, and the large size of the islands has allowed these taxa to persist over evolutionary time. Additionally, the Tiwi Islands are insulated from some of the most severe threats to biodiversity prevalent across mainland northern Australia, most notably exotic species such as cane toads and gamba grass. The Tiwi Islands present a near unique opportunity to manage extensive landscapes to maintain secure populations of many species that are declining elsewhere.

Rare or threatened species and habitats

The Tiwi Islands IPA would support a very high number of rare or threatened species including 19 threatened plant taxa, 27 threatened animal species, 11 endemic plant taxa (restricted to the Tiwi Islands), and a further 17 species only known in the NT from the Tiwi Islands. There are many endemic animal species including eight bird subspecies, two mammal subspecies, about 10 per cent of the known ant species, and some butterfly, dragonfly and snail species.

Places that offer refuge, centres of native species richness, or areas of national importance such as wetlands

Due to their size, isolation from the mainland, intact condition, and habitat diversity the Tiwi Islands are one of Northern Australia's most important refugia, with native plants and animal species insulated from many of the threatening processes affecting mainland areas.

Special species, groups or circumstances – for example, very special habitat requirements, species with an exceptionally large range, migratory species, species vulnerable to climate change or other threatening process

The diversity and extent of coastal and wetland habitats within the proposed Tiwi Islands IPA, in combination with their good condition, low levels of development, and protection from other threats, means that these habitats are likely to be relatively resilient to the impacts of climate change. With more than 1,000 kilometres of largely remote and undisturbed coastline the Tiwi Islands will remain important, or even increase in importance, as a refuge for the 54 migratory species that use this area, including marine turtles and shorebirds.



Looking After Tiwi Country

Marine Rangers

The Tiwi Marine Ranger Program, which commenced in 2001, was the first Indigenous Marine Ranger Program in the Northern Territory. The program, initiated by the Tiwi Land Council, was developed in response to Traditional Owners wanting a more active role in sea country management. There were concerns about illegal fishing, the arrival of foreign vessels, and management of the internationally significant nesting sites for sea turtles, seabird rookeries and shorebird populations on the islands. The Tiwi program was so successful that it became the model for other Indigenous Marine Ranger Programs across the Top End of the NT.





Marine Ranger activities include coastal surveillance patrols, marine debris surveys, monitoring of sea turtle nesting and Crested Tern rookeries, visitor site management and raising community awareness about marine issues. The Rangers provide input on coastal and marine management issues with all stakeholders to protect the high natural and cultural values of the region. A range of projects have been developed to investigate coastal processes and restore and rehabilitate damaged areas. A number of monitoring sites have provided a rate of coastal regression, and results are being used for future community planning. The Tiwi Marine Rangers have attained international standard accredited Coxswain qualifications and hold positions on Territory and national committees and advisory groups. They have been trained by NT Fisheries to undertake regulatory activities under the NT Fisheries Act, and currently hold Certificates in Fisheries Compliance.

Land Rangers

Over thousands of years, Tiwi people have developed and harnessed knowledge that strengthens environmental sustainability and fosters cultural wellbeing. The Tiwi Land Council's Land Ranger Program, which was established in 2006, draws on this knowledge and connection to country, and helps to address gaps in land management capacity across the Islands.

Tiwi Land Rangers carry out a range of land management and liaison activities including environmental contract work, biological surveys, providing support for ecological research, heritage and sacred site assessments, rehabilitation of developed areas, fire management for carbon abatement, weed management and pest

monitoring, quarantine surveillance and biosecurity. They either hold, or are training for, a Certificate III in Conservation and Land Management. In addition, a range of partnership projects have been undertaken with commercial operators on the Tiwi Islands, aimed at increasing knowledge of listed threatened species. This information is then incorporated into land use planning on the islands. Tiwi Land Rangers have developed outstanding expertise in discovering and monitoring targeted species and play a significant role in ongoing management of threatened species.

Training for the Future

It's very important that we provide opportunities for our kids so they can have choices for the future. We include Tiwi students in our work so they learn more about their country. Hopefully some of them will end up being a ranger like me!"

– Willie Rioli, Tiwi Land Ranger Mentor and Supervisor

Tiwi Land and Marine Rangers currently play a key role in community engagement. As well as regularly interacting with the broader community, the rangers act as role models for young Tiwi people by visiting schools, giving presentations, and by taking students on country for work experience. The support provided by a Tiwi IPA would significantly enhance the training and mentorship of future Tiwi land and sea managers. This would be achieved by increasing opportunities for accredited training such as Certificates in Conservation and Land Management through schools or the Tiwi Islands Training and Education Board (TITEB), and work experience with Land and Marine Rangers.



Management Priorities for the Tiwi Islands

Fire

The tropical savannas of northern Australia are among the most fire-prone ecosystems on Earth, with up to half of many savanna landscapes, including the Tiwi Islands, being burnt each year. Fire plays a key role in maintaining the open vegetation structure that most savanna plants and animals require. However, there is concern that fire frequency in some areas is too high, and that this is having a negative impact on biodiversity.

Savanna fires also have an important influence on greenhouse gases. They make a significant contribution to the nation's accountable (non-CO₂) emissions through the release of methane and nitrous oxide. Savannas contain about 30 per cent of Australia's terrestrial carbon stocks, and fire also influences rates of carbon sequestration through its effects on tree growth and survival, litter decomposition and charcoal production.

Burning is an important cultural expression and land management tool for Tiwi people, and there is growing concern about the potential negative impacts of more intense fires occurring late in the dry season. Most emissions from burning are generated by these fires that sweep through remote areas on the Tiwi Islands from late August onwards. As well as producing greenhouse gases, fires late in the dry season can threaten biodiversity. Reducing the extent of fires can earn carbon credits, representing an economic opportunity for the Tiwi Islands. In 2009, the Tiwi

Land Council commenced the Tiwi Carbon Study and in 2016, the Tiwi Islands Savanna Burning for Greenhouse Gas Abatement Project was registered with the Australian Government's Emissions Reduction Fund, allowing Tiwi people to earn carbon credits. The Tiwi Islands Fire Management Committee produces annual management plans, which aim to reduce the extent and severity of fires and thus the levels of greenhouse gas emissions.

Tiwi people live in small communities and permanent outstations that are closely connected with the surrounding bush. Compared to the rest of the islands, these areas have the largest infestations of weeds such as Mission grass (*Pennisetum polystachion*) and Guinea grass (*Megathyrsus maximus*), which have much higher fuel loads than native grasses resulting in much higher fire intensities, especially later in the dry season. Such fires contribute to soil erosion, destruction of native vegetation and habitat decline. They also present a significant risk to property and even to people's lives.

Introduced animals

Mammals introduced to the Tiwi Islands include Black rats, Water buffalo, cattle, pigs, horses, and cats. Reptiles include the Asian house gecko (*Hemidactylus frenatus*) and the Flowerpot blind snake (*Indotyphlops braminus*). Six pest ant species have been recorded.

Feral water buffalo and pigs

Water buffalo were introduced by the British from Timor to Melville Island in 1826 for milk, meat and heavy labour, while pigs were introduced to Bathurst Island for meat in the early 1900s. Buffalo and pigs remain an important food resource for





Tiwi people, and buffalo are also valued for their contribution to tourism through trophy hunting and their disease-free status. However, large, uncontrolled numbers of buffalo have the potential to cause environmental degradation and there is evidence of significant damage to wetlands in remote areas of Melville Island. In 2010, the Tiwi Land Council implemented a Buffalo Management Program to estimate the number and location of animals and identify areas particularly vulnerable to buffalo impacts. A targeted culling operation was undertaken over a period of seven helicopter aerial shoots in environmentally sensitive areas across Melville Island, with Tiwi Rangers reducing the total estimated number of buffalo from 6,800 to 5,363.

The rooting and digging behaviour of feral pigs ploughs up vegetation in wetlands and along watercourses and destroys native ecosystems. They compete with native animals for food and can spread weed seeds and diseases. Feral pigs have done considerable damage on Bathurst Island, where their numbers are greatest, and a small population has established on Melville Island. The Tiwi Land Council continues to work on the eradication of feral pigs on Melville Island and has banned the keeping of domestic pigs in communities on Melville Island.

Pest ants

Introduced pest ants are some of the greatest environmental and economic threats to northern Australia. Two of the most serious pest ant species occurring in the Northern Territory also occur on the Tiwi Islands, including Tropical fire ants (*Solenopsis geminata*) and Singapore ants (*Monomorium destructor*). These ants most likely arrived on the Tiwi Islands in barge cargo from Darwin.

The Tiwi Tropical Fire Ant Project, a collaboration between the Tiwi Land Council, CSIRO and the Tiwi Plantations Corporation, has achieved some of the world's largest pest ant eradications. Two of the three areas where Tropical fire ants have been eradicated on Melville Island are the second and fourth largest ant eradications ever achieved. In 2015, the project won the Biodiversity category of the United Nations Association of Australia World Environment Day Awards. It was also a finalist in the Indigenous Leadership Category of the 2015 Banksia Sustainability Award. Although there has been considerable success in eradicating Tropical fire ants on the Tiwi Islands, two infestations persist on Melville Island. Singapore ants are present in the main communities while African big-headed ants have been eradicated from both islands. Management of pest ants is an ongoing activity for the Tiwi Land Council.

Feral cats

Australia has the highest rate of mammal extinction on Earth, primarily due to predation by feral cats and foxes. These extinctions have occurred mostly in southern and arid parts of Australia but over the last 30 years many mammal species have disappeared from across the north, including possums, bandicoots and quolls. The reasons why these species are disappearing are complex, but are thought to be related to frequent, hot fires making it easier for predators such as feral cats to hunt.

The Tiwi Islands are special because they are one of the last refuges for small mammals that are regionally extinct in many parts of mainland Australia, but research has shown that some of these mammals, including Northern Brown Bandicoots (*Isodon macrourus*), Black-



footed Tree-rats (*Mesembriomys gouldii*) and Brush-tailed Rabbit-rats (*Conilurus penicillatus*) are in decline. Brush-tailed Rabbit-rats are one of 20 priority mammals in the Australian Government's Threatened Species Strategy.

Tiwi landowners are very concerned about the destructive impacts of feral cats and for many years the Tiwi Land Council has been proactive in promoting a cat-free Tiwi Islands. Working with Animal Management in Rural and Remote Indigenous Communities, the University of New England and The Ark Animal Hospital, with support from the Australian Government's Threatened Species Commissioner, the Tiwi Land Council has delivered a comprehensive community education and cat desexing program. Permission must be sought from the Tiwi Land Council to transport cats to the islands, and only desexed animals will be considered for approval. In contrast to many other Aboriginal communities, Tiwi people generally do not keep cats as pets, and there is overwhelming community support for feral cat control.

Weeds

Weeds pose a significant threat to the natural resources of the Tiwi Islands. They have been a feature of the Tiwi landscape for many years and are mostly confined to communities and other disturbed land. As with other Aboriginal-owned areas, the Tiwi Islands were selected by government for pasture and plantation forestry research trials, particularly during the 1960s and 1970s, and introduced species were brought over from the mainland. The increase in traffic from the mainland in recent years has resulted in an increased risk of the introduction of weeds and weed seed. The most common weed species on the Tiwi Islands include Mission grass (*Pennisetum polystachion*) and Guinea grass

(*Megathyrsus maximus*). These African grasses out-compete native grasses and increase fuel loads, resulting in more intense fires late in Kumunupunari, the dry season. Mimosa (*Mimosa pigra*) and Lantana (*Lantana camara*), which are Weeds of National Significance, occur in two small isolated areas, and are being eradicated by the Tiwi Land Council.

Management of weeds is challenging as the Tiwi Islands are large, remote, unpopulated, and difficult to access. Weed control, as part of the Tiwi Weed Management Plan, is a key activity of Tiwi Land and Marine Rangers and requires ongoing resourcing. Unlike many other areas in the Northern Territory, there is real potential to eradicate many invasive weeds from the Tiwi Islands. Once outbreaks have been controlled, the sea barrier from the mainland combined with improved quarantine infrastructure and procedures, would make it possible to maintain a relatively weed free status. Visitors to the Islands are asked to help the Tiwi Land Council fight weed infestations by carefully checking luggage, vehicles and freight.

Impacts of Climate Change

Tiwi Islanders have a long history of strong ties to ancestral lands, habitats and wildlife, and Tiwi livelihoods are highly dependent on natural resources. Climate change is likely to change the resources available to support Tiwi people. Rising temperatures will affect the seasonal availability of bush tucker, as plant flowering and fruiting times change. Rising sea levels and more frequent big storms will cause many coastal freshwater places to become saltier in the future. Over the past 20 years, sea levels in northern Australia have been rising by about 10 mm each year. This is much greater than the sea level rise in southern Australia and is two to three times greater than



the global average. For communities living close by the sea, even moderate sea-level rises may mean people will have to move to higher ground.

Tiwi people have strong cultural and subsistence links to sea turtles, which are predicted to be severely threatened by rapid climate change. Rising sea levels may affect the return of sea turtles to nesting sites, and increased nest temperatures and moisture from rising sea levels may affect the sex and development of hatchlings.

Remote communities are particularly vulnerable to the impacts of climate change because of limited access to services, and an increase in the proportion of high-intensity cyclones will have a significant impact on infrastructure. The Tiwi Climate Change Committee, which works proactively to develop adaption strategies, was established in 2017 as a key outcome of a National Climate Change Adaptation Research Facility CoastAdapt workshop held on the Tiwi Islands.

Quarantine

The natural resources of the Tiwi Islands are Tiwi people's most valuable asset. They form the basis

of traditional activities and underpin economic aspirations. The introduction of feral animals, weeds, and other pests and diseases would place the biodiversity of the islands at great risk. Cane toads and African Big-headed ants are currently not on the Tiwi Islands, but their introduction would have an immediate and devastating impact. Weeds such as Gamba grass (*Andropogon gayanus*) out-compete native grasses and increase fuel loads, resulting in more intense fires late in Kumunupunari, the dry season. Gamba grass is currently not on the Tiwi Islands, but its introduction could lead to fuel loads up to seven times higher than native grasses.

The Tiwi Land Council has a Tiwi Islands Quarantine Policy and has implemented a range of quarantine and public awareness initiatives. In 2003, the Tiwi Land Council won the Australian Quarantine and Inspection Service Regional Quarantine Award for its work in quarantine activities and awareness, and in 2005 the Australian Quarantine and Inspection Service Commendation for Outstanding Service to Quarantine. Since 2001, the Tiwi Land and Marine Ranger Programs have provided a frontline surveillance and monitoring service to the Northern Australia Quarantine Strategy.





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Appendix

Tiwi Threatened Species Lists

The following abbreviations are used in the tables on pages 20 to 21:

NT Status – Status of species listed under the *Territory Parks and Wildlife Conservation Act*

National Status – Status of species listed under the *Environment Protection and Biodiversity Conservation Act* (EPBC Act)

CR – Species is listed as Critically Endangered

EN – Species is listed as Endangered

VU – Species is listed as Vulnerable

Endemic refers to species that are only found on the Tiwi Islands.





Threatened Plants of the Tiwi Islands

Common Name	Scientific Name	NT Status	National Status	Endemic
Elaeocarpus	<i>Elaeocarpus miegei</i>	CR		
Xylopia	<i>Xylopia monosperma</i>	EN	EN	Endemic
Garcinia	<i>Garcinia warrenii</i>	EN		
Typhonium	<i>Typhonium mirabile</i>	EN	EN	Endemic
Typhonium	<i>Typhonium jonesii</i>	EN	EN	Endemic
Burmannia	<i>Burmannia</i> sp. Bathurst Island	EN	EN	Endemic
Tarennoidea	<i>Tarennoidea wallichii</i>	EN		
Cephalomanes	<i>Cephalomanes obscurum</i>	EN		
Endiandra	<i>Endiandra limnophila</i>	VU		
Calochilus	<i>Calochilus caeruleus</i>	VU		
Freycinetia	<i>Freycinetia excelsa</i>	VU		
Mitrella	<i>Mitrella tiwiensis</i>	VU	VU	Endemic
Hoya	<i>Hoya australis</i> subsp. <i>oramicola</i>	VU	VU	Endemic
Luisia	<i>Luisia corrugata</i>	VU		
Cycad	<i>Cycas armstrongii</i>	VU		
Mapania	<i>Mapania macrocephala</i>	VU		
Thrixspermum	<i>Thrixspermum congestum</i>	VU		
Freycinetia	<i>Freycinetia percostata</i>	VU		
Dendromyza	<i>Dendromyza reinwardtiana</i>	VU		

Threatened Fauna of the Tiwi Islands

Common Name	Scientific Name	NT Status	National Status	Endemic
Eastern Curlew	<i>Numenius madagascariensis</i>	VU	CR	
Great Knot	<i>Calidris tenuirostris</i>	VU	CR	
Curlew Sandpiper	<i>Calidris ferruginea</i>	VU	CR	
Hooded Robin (Tiwi)	<i>Melanodryas cucullata melvillensis</i>	CR	EN	Endemic
Masked Owl (Tiwi Islands)	<i>Tyto novaehollandiae melvillensis</i>	EN	EN	Endemic
Olive Ridley	<i>Lepidochelys olivacea</i>	VU	EN	
Lesser Sand Plover	<i>Charadrius mongolus</i>	VU	EN	
Black-footed Tree-rat	<i>Mesembriomys gouldii gouldii</i>	VU	EN	
Brush-tailed Rabbit-rat	<i>Conilurus penicillatus melibius</i>	EN	VU	Endemic
Fawn Antechinus	<i>Antechinus bellus</i>	EN	VU	
Northern Brush-tailed Phascogale	<i>Phascogale pirata</i>	EN	VU	
Dodd's Azure	<i>Ogyris iphis doddi</i>	EN		
Butler's Dunnart	<i>Sminthopsis butleri</i>	VU	VU	
Red Goshawk	<i>Erythroriorchis radiatus</i>	VU	VU	
Greater Sand Plover	<i>Charadrius leschenaultii</i>	VU	VU	
Partridge Pigeon	<i>Geophaps smithii smithii</i>	VU	VU	
Horsfield's Bushlark (Tiwi Islands)	<i>Mirafrja javanica melvillensis</i>	VU	VU	Endemic
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	VU	VU	
Flatback Turtle	<i>Natator depressus</i>	DD	VU	
Water Mouse	<i>Xeromys myoides</i>	DD	VU	
Green Turtle	<i>Chelonia mydas</i>	NT	VU	
Pale Field-rat	<i>Rattus tunneyi</i>	VU		
Land Snail	<i>Trochomorpha melvillensis</i>	VU		Endemic



Common Name	Scientific Name	NT Status	National Status	Endemic
Cognate Land Snail	<i>Amphidromus cognatus</i>	VU		
Mertens' Water Monitor	<i>Varanus mertensi</i>	VU		
Bar-tailed Godwit	<i>Limosa lapponica baueri</i>	VU		
Yellow-spotted Monitor	<i>Varanus panoptes</i>	VU		
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	VU		
Grey Falcon	<i>Falco hypoleucos</i>	VU		
Atlas Moth	<i>Attacus wardi</i>	VU		

EPBC Act Listed Migratory Species recorded from the Tiwi Islands and their surrounding waters

Mammals

Common Name	Scientific Name
Australian Snubfin Dolphin	<i>Orcaella heinsohni</i>
Blue Whale	<i>Balaenoptera musculus</i>
Dugong	<i>Dugong dugon</i>
Humpback Whale	<i>Megaptera novaeangliae</i>
Indo-Pacific Bottlenose Dolphin	<i>Tursiops aduncus</i>

Reptiles

Common Name	Scientific Name
Flatback Turtle	<i>Natator depressus</i>
Green Turtle	<i>Chelonia mydas</i>
Hawksbill Turtle	<i>Eretmochelys imbricata</i>
Olive Ridley	<i>Lepidochelys olivacea</i>
Saltwater Crocodile	<i>Crocodylus porosus</i>

Birds

Common Name	Scientific Name
Asian Dowitcher	<i>Limnodromus semipalmatus</i>
Bar-tailed Godwit	<i>Limosa lapponica</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Bridled Tern	<i>Onychoprion anaethetus</i>
Broad-billed Sandpiper	<i>Limicola falcinellus</i>
Brown Booby	<i>Sula leucogaster</i>
Caspian Tern	<i>Hydroprogne caspia</i>
Cattle Egret	<i>Ardea ibis</i>
Common Greenshank	<i>Tringa nebularia</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Common Tern	<i>Sterna hirundo</i>
Curlew Sandpiper	<i>Calidris ferruginea</i>
Eastern Curlew	<i>Numenius madagascariensis</i>

Common Name	Scientific Name
Eastern Great Egret	<i>Ardea modesta</i>
Eastern Osprey	<i>Pandion cristatus</i>
Eastern Reef Egret	<i>Egretta sacra</i>
Fork-tailed Swift	<i>Apus pacificus</i>
Glossy Ibis	<i>Plegadis falcinellus</i>
Great Knot	<i>Calidris tenuirostris</i>
Greater Sand Plover	<i>Charadrius leschenaultii</i>
Grey Plover	<i>Pluvialis squatarola</i>
Grey-tailed Tattler	<i>Tringa brevipes</i>
Lesser Crested Tern	<i>Thalasseus bengalensis</i>
Lesser Frigatebird	<i>Fregata ariel</i>
Lesser Sand Plover	<i>Charadrius mongolus</i>
Little Curlew	<i>Numenius minutus</i>
Little Tern	<i>Sternula albifrons</i>
Marsh Sandpiper	<i>Tringa stagnatilis</i>
Oriental Cuckoo	<i>Cuculus optatus</i>
Oriental Reed-Warbler	<i>Acrocephalus orientalis</i>
Pacific Golden Plover	<i>Pluvialis fulva</i>
Pin-tailed Snipe	<i>Gallinago stenura</i>
Rainbow Bee-eater	<i>Merops ornatus</i>
Red-necked Stint	<i>Calidris ruficollis</i>
Ruddy Turnstone	<i>Arenaria interpres</i>
Sanderling	<i>Calidris alba</i>
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>
Swinhoe's Snipe	<i>Gallinago megala</i>
Terek Sandpiper	<i>Xenus cinereus</i>
Whimbrel	<i>Numenius phaeopus</i>
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>
White-throated Needletail	<i>Hirundapus caudacutus</i>
White-winged Black Tern	<i>Chlidonias leucopterus</i>
Wilson's Storm-Petrel	<i>Oceanites oceanicus</i>

