

Matuwa Kurrara Kurrara
Indigenous Protected Area

Ngaparrtji Ngaparrtji (Two-way) Science Plan 2018-2023



Summary

The Matuwa Kurrara Kurrara (MKK) Traditional Owners self-identify as Martu. The MKK Indigenous Protected Area Country Management Plan (IPA Plan) for 2015–2020 outlines the Martu people’s vision for their country. The IPA Plan identifies key management priorities, associated objectives and strategies to be implemented on country. It is the responsibility of the IPA Management Team to lead the implementation of the IPA Plan.

A key theme of the IPA Plan is the development of the IPA into a best-practice *ngaparrtji ngaparrtji* (two-way) science hub. Much work has been undertaken to build partnerships with WA Parks and Wildlife, CSIRO and the Wiluna School to achieve this idea.

The IPA Management Team have developed this *Ngaparrtji Ngaparrtji* (Two-way) Science Plan 2018–2023 as a starting point for developing sustainable projects that will empower Martu and provide them with genuine opportunities to lead. It is not designed to detail all *ngaparrtji ngaparrtji* (two-way) science opportunities or ideas. This plan first defines what Martu believe good *ngaparrtji ngaparrtji* (two-way) science looks like, and then outlines four strategies to be implemented within the MKK IPA from 2018 to 2023. These strategies are:

- On-ground projects to look after country: *Muntangalku* (Bilby); Night Parrot; Golden Bandicoot; feral predators – cats and foxes; and *waru* (fire management)
- Working with researchers
- Training opportunities
- Partnering with the Wiluna School.

The hope is that this plan will assist in aligning future funding opportunities and reducing the reporting load.

The plan includes measures of success, which will be reviewed each year so that it remains adaptive, relevant and flexible. It has been written so that it can be incorporated into a Healthy Country Plan in the future.

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Introduction

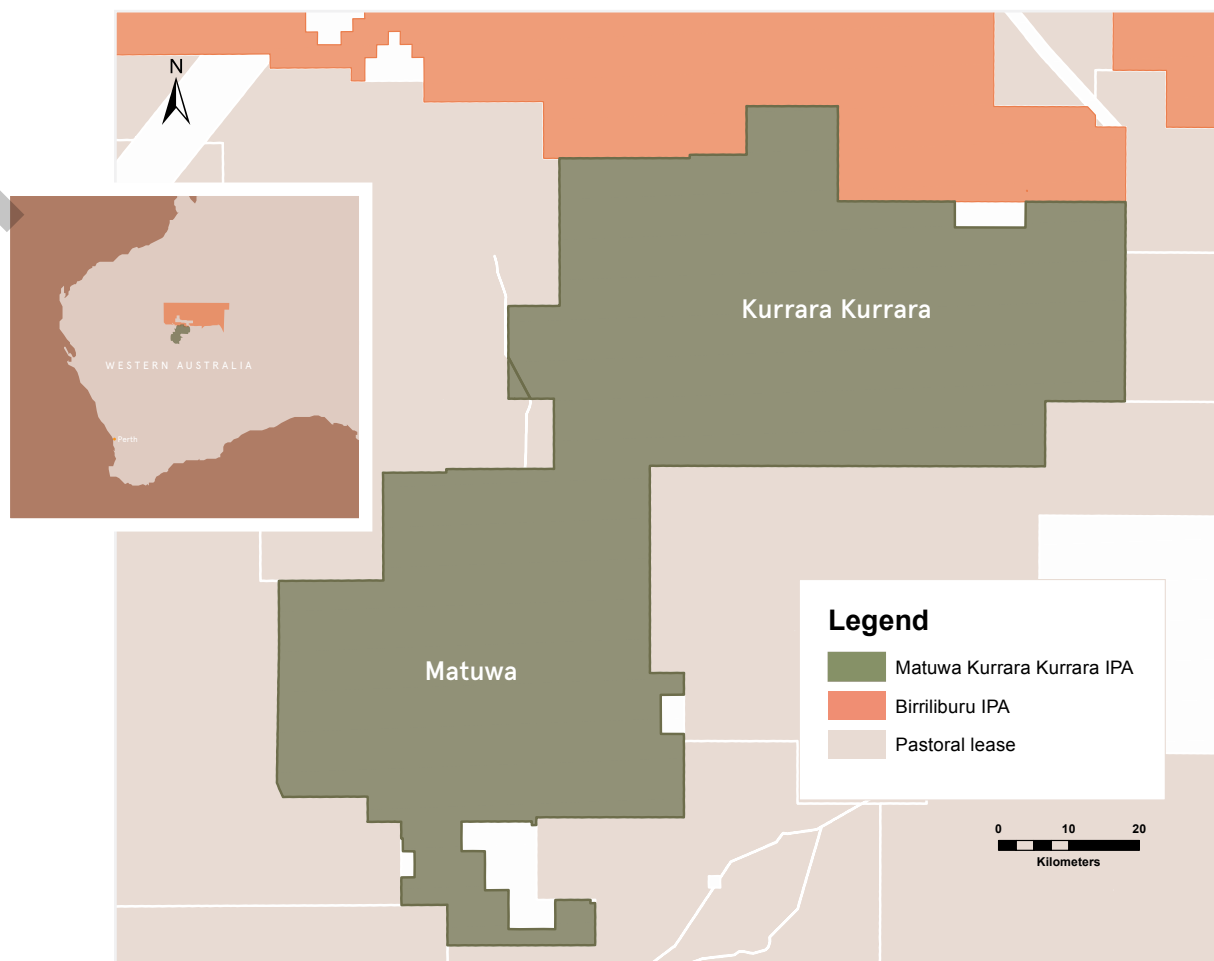


Location

The Matuwa Kurrara Kurrara (MKK) Indigenous Protected Area (IPA) covers 569,754 hectares of native title-determined Martu country in Western Australia, 160 kilometres north-east of Wiluna.

The IPA straddles the Murchison and Gascoyne bio-regions, formerly the northern portion (Kurrara Kurrara) was known as Lorna Glen and the southern portion (Matuwa) was known as Earahedy pastoral stations. The MKK IPA is bordered by the Birriliburu IPA to the north, a number of pastoral stations including Granite Peak and Milrose to the west, Lake Violet and Yelma to the south, and Wongawol and Carnegie to the east.

MKK Traditional Owners self-identify as Martu and live mostly in the remote towns and communities of Wiluna, Jigalong, Warburton and Pungurr.



History

Before the late 1960s

Traditional Martu practices

Martu people occupied the Western Desert (Little Sandy, Great Sandy and Gibson deserts) for over 40,000 years. Matuwa and Kurrara Kurrara are places where major *tjukurrpa* (dreaming) sites are found.

1960s – 1990s

Pastoral leases

The country was carved into two pastoral leases: Earaheedy in 1967 and Lorna Glen in 1972. This marked a period of non-Indigenous control of the area. The land was fenced off as sheep stations and, later, cattle stations. At the beginning of this period, Martu were able to maintain their connection to country by taking up employment as station hands, drovers and housemaids. The pastoral leases gradually became economically unviable, which limited Martu access to country.

2000 – 2014

WA Parks and Wildlife conservation reserves

WA Parks and Wildlife purchased both pastoral leases for conservation: Earaheedy in 1999 and Lorna Glen in 2000. Artificial water points were switched off and management of pest animals began. From 2004 onwards, discussions with Martu about joint management of the land commenced. In 2009, a 1100-hectare feral predator-proof compound was constructed at Matuwa as part of the Operation Rangelands Restoration Project. Small threatened animals (Mala, Boodie and Golden Bandicoots) were released inside. The project was funded by the Chevron-operated Gorgon Project's State Environmental Offsets Program.

2014 onwards

Martu owned and managed

The Federal Court determined exclusive possession native title over both Matuwa and Kurrara Kurrara in 2013. MKK was declared an IPA in 2015 at a ceremony at the Matuwa homestead.



Why is MKK special to Martu?

The MKK IPA is an area of high cultural and natural value. It is home to some of the most significant men's and women's cultural sites in the Western Desert.

Tjukurrpa (dreaming) sites and *tjukurrpa tjina* (dreaming tracks) connect MKK to the desert country across Western Australia, the Northern Territory and South Australia. The underground water at MKK follows the *tjukurrpa* songline of the *pikuta* (Euro) who travelled east, creating the creeks as he travelled.

A variety of different types of country are present across the MKK IPA including:

- *Juljul* (thicket, usually mulga)
- *Purlpurl* (calcrete country)
- *Parada* (spinifex plain)
- *Luurnpa* (silver-leaf wattle thicket)
- *Yapul yapul* (rocky country)
- *Kapi warnarnba* (wash country)
- *Nyaparu* (lakes)
- *Karo* (creeks and rivers)
- *Junu* (soaks and rock holes)
- *Pilkililli* (claypans)
- *Tali* (sand dunes)
- *Pirnki* (caves)
- *Rirrau* (gravel country).

These different types of country largely overlap with the land systems and vegetation types mapped across the IPA. This diversity of habitat provides opportunities for a variety of plants and animals to live together at MKK. The table below shows how many different types of plants and animals have been recorded within the IPA to date (Source: Naturemap, accessed 25:6:18).

Plants and animals recorded within the MKK IPA

		Matuwa	Kurrara Kurrara
Plants	Total	453	298
Animals	Birds	94	73
	Crustaceans	1	0
	Frogs	5	4
	Mammals	22	13
	Reptiles	78	55
	Total	200	145

Of particular note is the high diversity of reptiles. Some of the threatened animal species present at MKK include the Malleefowl, *Muntangalku* (Bilby), Mulgara and Long-tailed Dunnart. Martu also named a newly-discovered species of freshwater crustacean, *Boeckella pilkililli*, after the claypan country where it lives. It is only known to occur at MKK.

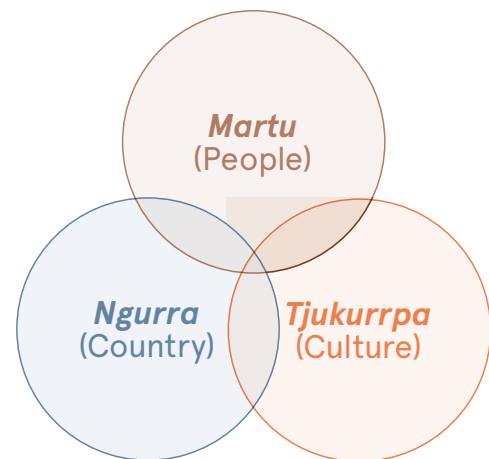
The MKK IPA Plan

The IPA Plan identifies values (what Martu care about), threats (what Martu worry about) and strategies relating to culture, employment, wellbeing, visitors and looking after MKK country.

One of the key principles underscoring the management of the IPA is *kanyirninpa*, which means 'holding', 'looking after' or 'nurturing'. According to the MKK Traditional Owners, *martu* (people), *ngurra* (country) and *tjukurrpa* (law/culture) exist as indivisible realms of existence. Because of this, people have a responsibility to hold, look after or nurture country and the underlying creative force and system (the Law) that underwrites it.

The IPA Plan requires that an IPA Management Team be established to oversee implementation of the plan. The team has been meeting regularly since 2015. The MKK Rangers have been working on country to implement the IPA Plan since 2013.

Two-way science and learning is mentioned throughout the IPA Plan. It is the aspiration of the MKK IPA Management Team that the IPA becomes a hub for best-practice two-way science projects.



Kanyirninpa

Matuwa and Kurrara Kurrara Indigenous Protected Area Country Management Plan 2015 to 2020



*“Ngaparrtji ngaparrtji –
it’s about give and take.”*
Rhonda Williams



What is two-way science?

Two-way science is about respect, sharing knowledge, listening and learning. It brings together different frameworks for thinking (Martu and Western knowledge) for the benefit of people and country.

A good way to define two-way science is through the Western Desert principle of *ngaparrtji ngaparrtji* meaning 'give and take', 'in return', or 'you scratch my back and I'll scratch yours'. *Ngaparrtji ngaparrtji* is about recognising the relationships that bind groups of people together.

In practice, *ngaparrtji ngaparrtji* (two-way) science is an exchange of knowledge and a chance to learn based on mutual respect, responsibility and connectedness. This collaborative approach is appropriate when there is recognition of the value that each group brings to a project, and when all groups involved have a shared interest in the project outcomes.

Not all projects will be suited to a *ngaparrtji ngaparrtji* (two-way) science approach. Sometimes, projects will be done the Martu way, and it will be up to the MKK IPA Management Team to decide when this is the case.

Good *ngaparrtji ngaparrtji* (two-way) science projects can be very rewarding for everyone involved, and can help to keep country healthy. They provide opportunities for Martu to:

- Start a conversation
- Build relationships
- Attract funding
- Encourage wider participation
- Share outcomes with a more diverse group of people
- Learn new skills (e.g. monitoring, data analysis and mapping)
- Teach others (e.g. traditional burning, tracking, connection, language and stories)
- Be a good example for other ranger groups and lead the way.

All future research at MKK will occur with Martu involvement. Consultation with the IPA Management Team is required before any research commences, including PhD and honours projects, as well as ecological surveys and monitoring.

Developing this plan

This plan was developed over five planning sessions (three on country, one in Perth and one in Wiluna) with the IPA Management Team and a number of partners.

The aim of this plan is to develop a clear pathway for the MKK IPA to become a world class *ngaparrtji ngaparrtji* (two-way) science hub. Principles identified in the IPA Plan vision including healthy country, partnerships and balance between Martu and Western knowledge of land management were fundamental to this plan's development. It is also designed to be adaptive so Martu can learn, grow and try things out.

The IPA Management Team developed this *Ngaparrtji Ngaparrtji* (Two-way) Science Plan 2018–2023 as a starting point for developing sustainable activities that will empower Martu and provide them with genuine opportunities to lead. It is intended that this plan should detail all *ngaparrtji ngaparrtji* (two-way) science opportunities or ideas.

Throughout the plan, two types of tasks have been identified for implementation in the coming years: 'Must do' activities and 'Should do' activities.



Must do activities

These activities are like *wanari* (Mulga trees): they are important and there all the time – in drought and in rainy periods (when resources are scarce or plentiful).

Wanari are important to other plants as well as animals and culture.

'Must do' activities will be undertaken every year and are the most important jobs to get done.



Should do activities

These activities are like *wutja wutja* (Bush Beans): they wait until conditions are right (after rain). They are prepared and ready to grow in times when there are more resources.

'Should do' activities will occur when funding becomes available.

'Must do' (*wanari*) activities provide the opportunity for 'Should do' (*wutja wutja*) activities to grow and flourish.

It is anticipated that funding to implement this plan will come from a variety of sources, including the IPA Program, WA Aboriginal Ranger Program, Women in STEM project, Science Pathways, Connecting to Country and Bush Heritage Australia.

This plan has been written so that in the future, it will be possible to incorporate it into a Healthy Country Plan that outlines and operationalises more detailed strategies and activities for all the values and threats Martu identified in the IPA Plan.



How this plan addresses strategies in the IPA Plan

Management priority in IPA Plan	Strategy in IPA Plan	Relevant strategy or project in this plan
Site and heritage management	In accordance with traditional law, Martu elders will take sole responsibility for determining any immediate management actions in relation to sites of cultural importance.	Night Parrot; <i>waru</i> (fire management)
Community and wellbeing	The MKK IPA Management Team will investigate options for the integration of land management work into community-focused trips, such as a bush ranger program.	Wiluna School partnership
Vegetation and flora	The MKK IPA Management Team will incorporate the protection and maintenance of significant vegetation and flora communities into the fire management plan for MKK.	<i>Waru</i> (fire management)
Fauna	The MKK IPA Management Team will incorporate the protection and maintenance of significant fauna communities into the <i>waru</i> (fire management) plan for MKK.	<i>Waru</i> (fire management)
	The WLMU will, in partnership with Parks and Wildlife, implement the fauna scope of works including control of introduced predators and pest animals.	<i>Muntangalku</i> (Bilby), Night Parrot and Golden Bandicoot; feral predators – cats and foxes
	The MKK IPA Management Team will develop an educational opportunity with the Wiluna Remote Community School and other visitors to create awareness of the plight of native animals and the need to protect them.	Wiluna School partnership
Fire	Martu, in partnership with Parks and Wildlife, will take responsibility for <i>waru</i> (fire management) at MKK in line with traditional law and in combination with contemporary <i>waru</i> (fire management) practices.	<i>Waru</i> (fire management)
Research	Ensure that researchers develop and implement projects collaboratively with the IPA Management Team (including the negotiation of intellectual property).	Working with researchers
	Identify key flora, fauna, social, cultural and land management research projects and implement these.	<i>Muntangalku</i> (Bilby), Night Parrot and Golden Bandicoot; feral predators – cats and foxes; <i>waru</i> (fire management)
Enterprise and regional development	Partners such as the Wiluna Remote Community School, Western Australian universities and other educational bodies will be surveyed regarding their interest in overnight on-country exchanges and education camps.	Wiluna School partnership
	Continue to utilise MKK as a two-way learning hub for training and development of professional land management services.	Training opportunities

Important roles

The implementation of this plan will not be possible without clear roles being defined and collaboration with many partners.

Tarlka Matuwa Piarku Aboriginal Corporation (TMPAC) is the Prescribed Body Corporate for the Wiluna (including Matuwa Kurrara Kurrara) native title determination area. It represents the native title holders and is the key decision-making body in any decisions that affect native title.

IPA Management Team appointed by TMPAC, is tasked with working with relevant stakeholders to lead the implementation of the land management activities in the IPA.

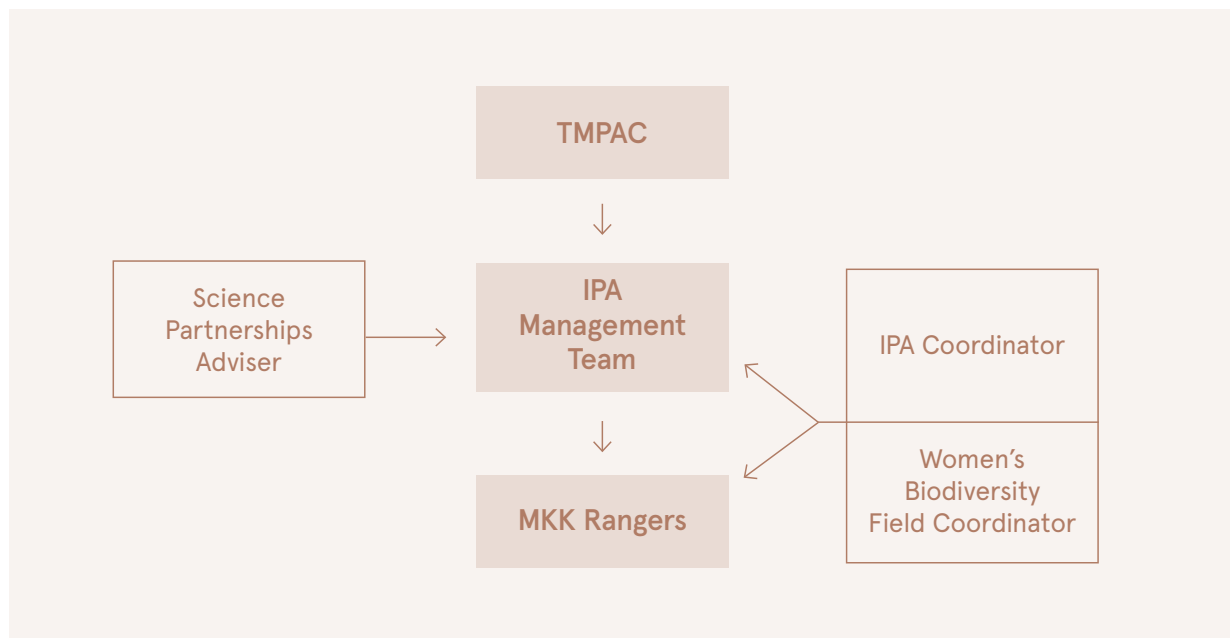
MKK Rangers work with partners and other stakeholders in the field to implement the land management programs set out in the IPA Plan.

IPA Coordinator is responsible for bringing together the IPA Management Team, MKK Rangers and stakeholders to plan IPA activities. The IPA Coordinator coordinates the implementation of on-ground activities within the IPA.

Science Partnerships Advisor works with the IPA Management Team to provide advice on research projects and support positive *ngaparrtji ngaparrtji* (two-way) science projects.

Women's Biodiversity Field Coordinator works with the IPA Coordinator, the MKK Rangers and the IPA Management Team to plan and implement the *Ngaparrtji Ngaparrtji* (Two-way) Science Plan 2018-2023 and other parts of the IPA activity as it relates to the work of the women rangers in relation to biodiversity conservation.

Roles of Martu and supporting staff for the MKK IPA



Partners and funders



Desert Support Services (DSS) has overall coordination responsibility for most aspects of the land management work conducted across the IPA.



Department of Biodiversity,
Conservation and Attractions

WA Parks and Wildlife sits within the Government of Western Australia's Department of Biodiversity, Conservation and Attractions. They work with the MKK Rangers, DSS, TMPAC and other stakeholders.



Australian Government
Department of the
Prime Minister and Cabinet

Department of Prime Minister and Cabinet provides the core funding for foundational activities under the IPA and works with the IPA Management Team and other stakeholders to plan IPA projects and outcomes.



Wiluna Remote Community School promotes the development of *ngapartji ngapartji* (two-way) science within the school curriculum. It partners with CSIRO and the MKK Rangers to include more on-country learning.

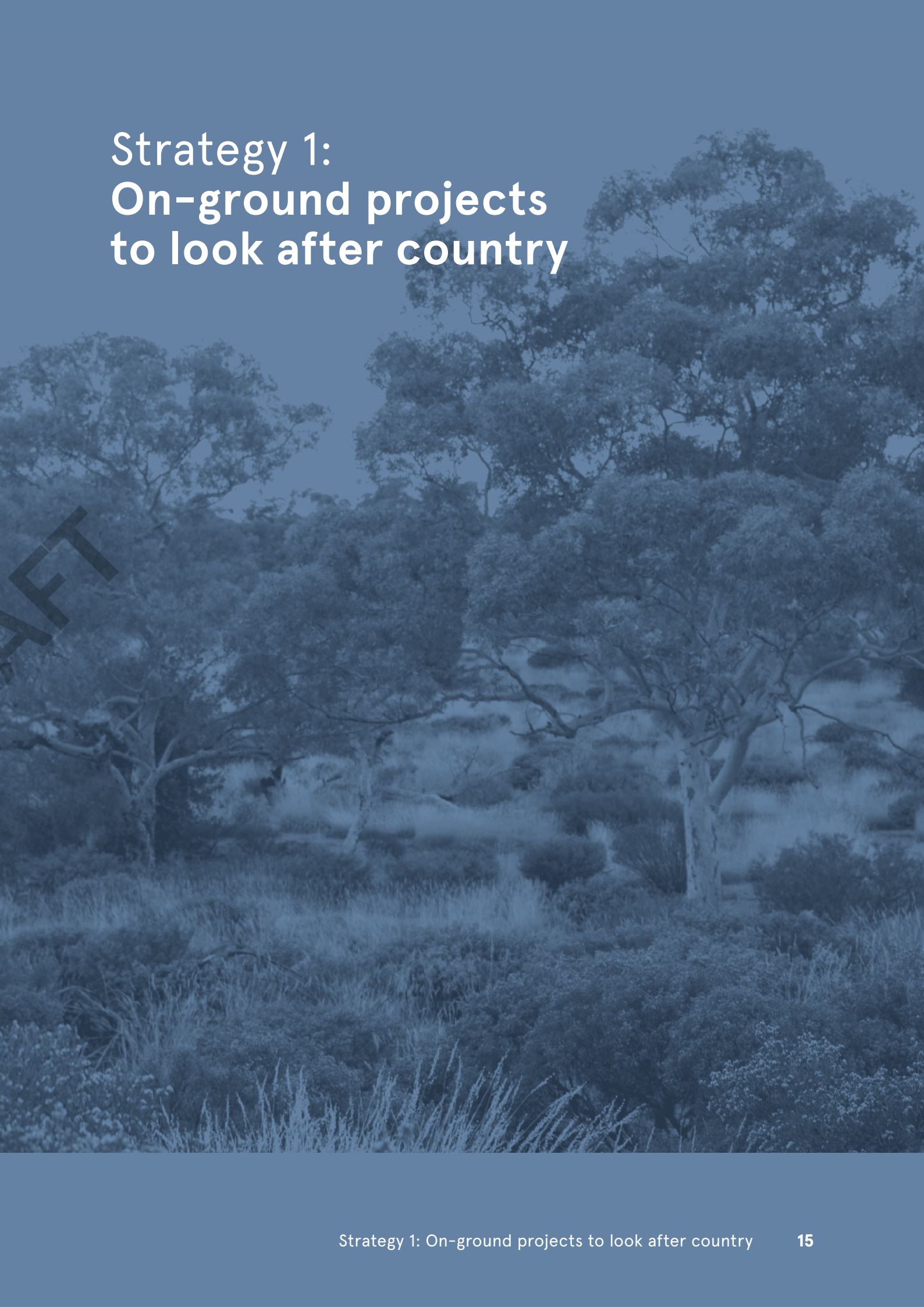


Bush Heritage Australia is a national not-for-profit conservation organisation working to return the bush to good health, including by partnering with Traditional Owners. Bush Heritage has a formal partnership with Birriliburu and supports the Science Partnership Advisor role at MKK.



Rangelands NRM Western Australia partners with DSS and the MKK Rangers to deliver specific land management programs such as threatened species monitoring within the IPA and surrounding areas.

CSIRO is Australia's leading science and research body. The Science Pathways Program aims to increase Martu participation in science and encourage two-way learning by working with the Wiluna School and MKK Rangers.

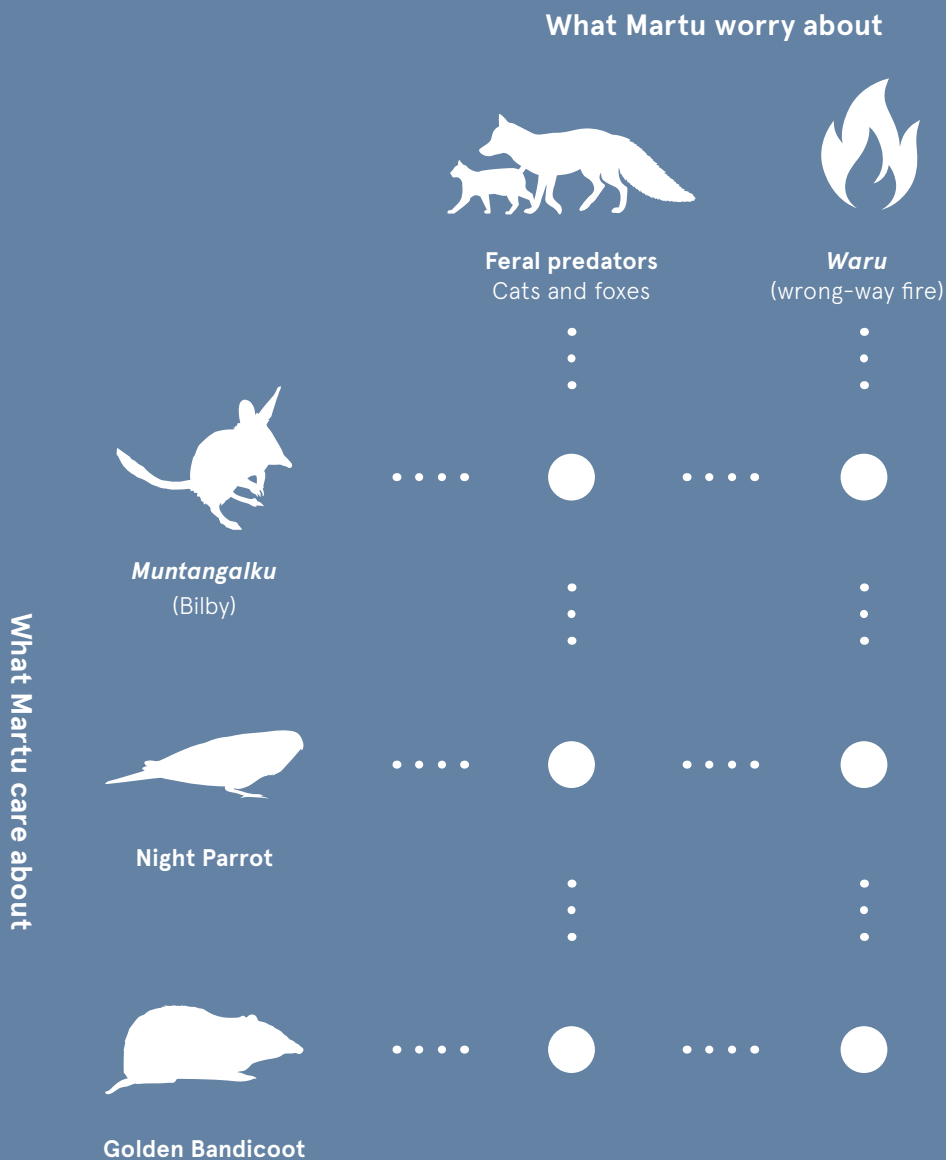


Strategy 1: On-ground projects to look after country

Strategy 1: On-ground projects to look after country

The IPA Management Team has reviewed the values (what Martu care about) and threats (what Martu worry about) identified in the MKK IPA Plan and chose a number of projects to implement using *ngaparrtji ngaparrtji* (two-way) science.

The MKK Rangers will use *ngaparrtji ngaparrtji* (two-way) science to monitor Bilbies, Night Parrots and Golden Bandicoots, and manage key threats to these species including feral predators (cats and foxes) and wrong-way fire. These projects provide opportunities for Martu to get out on country and put *ngaparrtji ngaparrtji* (two-way) science into action. They also provide a template for the development of future projects.



“Our vision for Matuwa and Kurrara Kurrara is to make sure it remains a place where Martu law and culture is practised and that country is made healthier. Matuwa and Kurrara Kurrara will be managed through progressive partnerships between the Wiluna native title holders, the government and the broader community. Healthy partnerships will help balance Martu and Western knowledge of land management, create economically and environmentally sustainable employment and contribute to the health and wellbeing of future Martu generations.”

MKK IPA Country Management Plan 2015 to 2020



Mutangalku (Bilby)



Language	<i>Mutangalku</i> (<i>munta</i> meaning 'dirt', and <i>ngalku</i> meaning 'eater'; pronounced mun-ta-nar-ko)
Common	Greater Bilby or Bilby
Science	<i>Macrotis lagotis</i>

Why do Martu want to protect the Bilby?

Bilbies are of cultural importance to Martu and their presence is a sign of healthy country. They are one of the last remaining digging mammals left in the wild on MKK country.

MKK Rangers are highly skilled at tracking Bilbies and hold important knowledge about their behaviour and diet. Bilbies used to occur across 70 percent of Australia, but today they are restricted to just 15 percent of the country: in central and northern Western Australia, central Northern Territory and a small isolated area in southern Queensland.

Due to this dramatic decline in their distribution, Bilbies are listed as vulnerable at the national level and in Western Australia. They are also one of 20 mammals identified in the National Threatened Species Strategy as a high priority for conservation.

The MKK IPA is located on the southern edge of the Bilby's current range and is therefore significant in preventing further retreat in the species' distribution to the north.

It is important that older and younger rangers spend time on country looking after Bilbies so important cultural and ecological information can be passed down through generations.

Previous work on the Bilby at MKK

WA Parks and Wildlife released 130 Bilbies outside the fenced compound at Matuwa from 2007 to 2009. The animals came from Point Peron (WA), Dryandra (WA) and Thistle Island (SA).

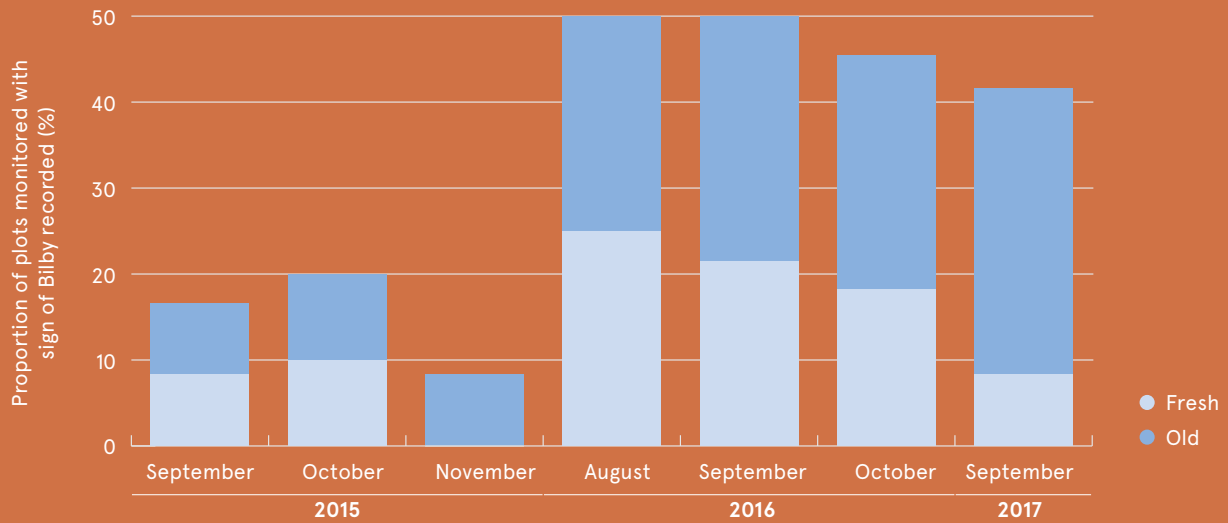
MKK Rangers have been undertaking track plot monitoring of Bilbies on their country since 2015 (further discussed in 'Feral predators – cats and foxes'). They have repeated fixed plot locations and looked for tracks, scats, diggings and burrows to check up on Bilbies at MKK. The results show that Bilby activity was lower in 2015: In 2016 and 2017, there was some evidence of a decline in the proportion of plots with fresh signs of Bilby (1-2 days old), but overall activity is relatively constant at about 30-35 percent.



“The Bilby is part of me. It makes my feeling so happy. The Bilby is on the country. I’m with him.”

Rita Cutter

Proportion of track plots where MKK Rangers recorded sign of Bilby



In September 2017, the rangers completed a 'Bilby Blitz', which included the track plot surveys described above and targeted searches in known and new areas of suitable habitat. Fresh signs of Bilby were recorded in 13 locations. One area (site M07) had particularly high Bilby activity, with a 700 metre stretch of the track showing relatively continuous signs of recent activity.

WA Parks and Wildlife staff have also undertaken Bilby monitoring using motion-sensor cameras, horses and *guna* (scat) collections along transects.

The rangers have observed higher levels of Bilby activity at MKK compared to Katjarra (Carnarvon Range), within the adjacent Birriliburu IPA. This may be attributable to the feral cat and fox control works being undertaken at MKK. The rangers want to compare the results of monitoring in the two areas.

MKK Rangers have also been involved in revising the new draft of the National Bilby Recovery Plan. They listed two sites on country where ongoing monitoring will occur: Matuwa and Kurrara Kurrara.

Aim of ongoing Bilby work at MKK

- Passing on knowledge to younger rangers
- Monitoring Bilbies – are they doing ok at MKK? Are they breeding?
- Comparing results to the Birriliburu IPA where there is no cat and fox control – is cat and fox control at MKK helping the Bilbies?

Works to be completed



Must do activities

- 1:** Every May, August and October, Bilby surveys will be carried out at Matuwa based on track plot monitoring, known burrow searches and searches in new areas of suitable country. *Guna* (scat) measurements and collections will be undertaken to learn more about breeding and diet.
- 2:** The August trip will be called the 'Bilby Blitz' trip. MKK Rangers will prepare a short video during this trip, which will then help them share their work with other ranger groups and the community. The video will also help promote the important work rangers do to protect Bilbies on National Bilby Day (the second Sunday of September) each year.



Should do activities

- 1:** Less is known about how Bilbies are going on Kurrara Kurrara, compared to Matuwa. Martu will aim to replicate the work being undertaken at Matuwa on Kurrara Kurrara when resources become available.

Other activities: MKK Rangers may be interested in joining WA Parks and Wildlife staff when they undertake biennial *guna* (scat) transect monitoring with Martin Dziminski. The rangers are keen to hear the results of this project to-date and in the future.

How is this project using *ngaparrtji ngaparrtji* (two-way) science?

Martu way	Western science
Tracking	Recording data on iPad in Fulcrum
Knowing good country (habitat) to search	Using repeat track plots and making graphs
Passing on knowledge to younger rangers	Measuring <i>guna</i> (scats)
Sharing stories in language	Making maps

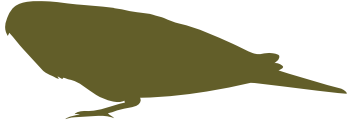
***Mutangalku* (Bilby) – Measures of success**

- Three monitoring trips completed per year
- One video made during the 'Bilby Blitz' trip
- Older and younger rangers present on each trip
- Data recorded on iPad
- *Guna* (scats) measured and collected
- Maps and graphs made

DRAFT



Night Parrot



Language	To be confirmed
Common	Night Parrot
Scientific	<i>Pezoporus occidentalis</i>

Why do Martu want to protect the Night Parrot?

This species is of cultural significance and was thought to be lost from country. Now that it has been found in Queensland and Western Australia, it is important to Martu to tell stories, learn about the species and help to protect it.

The Night Parrot is listed as endangered in Australia and critically endangered in Western Australia. It is one of 20 birds identified in the National Threatened Species Strategy as a high priority for conservation.

Aside from feral predators and wrong-way fire, Martu also worry about trespassers (e.g. researchers, tourists and poachers) disturbing birds. It is important that Martu take control of access to the special places for Night Parrots on the MKK IPA.

Previous work on the Night Parrot at MKK

Volunteers undertook Night Parrot surveys for a number of years prior to the IPA dedication. Unconfirmed sightings on Matuwa have been documented from 2009. In 2017, a confirmed sighting was recorded in an area adjacent to the MKK IPA.

DBCA and researchers have now briefed the MKK IPA Management Team and a number of rangers regarding their initial findings. The MKK Rangers are confident in identifying suitable Night Parrot country and many have recently worked on a project in the adjacent Birriliburu IPA using sound recorders.

**“We thought it was lost forever.
Never to see it again. Now we want
to keep our eyes on them.”**

Caroline Long



Aim of Night Parrot work at MKK

- Leadership – Martu are leading Night Parrot surveys on their country
- Sharing knowledge – stories are being passed on to younger rangers, and Martu are learning more about Night Parrot behaviour and diet
- Monitoring – MKK Rangers are improving their skills around the use of survey equipment, including setting up equipment and analysing calls with sound recorders.

Works to be completed



Must do activities

- 1:** MKK Rangers will undertake two trips every year to survey for Night Parrot on Kurrara Kurrara. On the first trip, areas of suitable habitat will be mapped, sound recorders set up, and ground searches will be undertaken for any signs of the species (e.g. nests, tracks and feathers). On the second trip, the sound recorders will be collected and further searches for any signs of the species will be undertaken.
 - 2:** MKK Rangers will learn how to analyse sound recordings for Night Parrot calls so that in the future, they can undertake this task independently.
 - 3:** MKK Rangers will work with TMPAC to discuss limiting access to the IPA. A map will be prepared showing where visitors can and cannot go to ensure Night Parrot country and sacred sites are protected.
-



Should do activities

- 1:** Ranger exchange with Paraku Rangers (Kimberley, WA) to learn about their Night Parrot work.
 - 2:** Ranger exchange with Pullen Pullen Traditional Owners (central-west Queensland) to learn about their Night Parrot work.
-

How is this project using *ngaparrtji ngaparrtji* (two-way) science?

Martu way	Western science
Tracking	Recording data on iPad in Fulcrum
Sharing stories in language	Using sound recorders – set up and data analysis
Using knowledge of country to find suitable monitoring sites	Mapping habitat

Night Parrot – Measures of success

- Two monitoring trips completed to set up and collect sound recorders
- Older and younger MKK Rangers present on each trip
- Survey location data recorded on iPad
- MKK Rangers trained in sound recorder analysis
- Map prepared to manage visitor access



Photo by Steve Murphy

Golden Bandicoot



Language	To be confirmed <i>Mitika, Minkari (Ullula)</i> Putijarra: <i>makurra, mingatjurru, wintarra/</i> <i>wirntarra v: makurra, mingatjurru, wintarra/</i> <i>wirntarra, mirtara, tirkka, tjurrungu, ulkaratja</i>
Common	Golden Bandicoot
Scientific	<i>Isoodon auratus</i>

Why do Martu want to protect the Golden Bandicoot?

It is exciting for Martu to have this species back on country. Many small mammal species have disappeared and are now only known from stories passed down by Elders.

The Golden Bandicoot was once widespread across western, central and northern Australia but is now almost extinct on the mainland – it is only found in a few locations in the north-west Kimberley and on a number of islands.

The species is listed as vulnerable across Australia and in Western Australia, and is one of 20 mammal species identified in the National Threatened Species Strategy as a high priority for conservation.

Previous work on the Golden Bandicoot at MKK

In 2010, WA Parks and Wildlife staff released 78 males and 82 females from Barrow Island (WA) into the feral-proof fenced enclosure at MKK. MKK Rangers were in attendance and assisted with the animals' release. In September 2015, WA Parks and Wildlife staff released 93 animals outside the fence at Well 9 on Matuwa.

In 2016, WA Parks and Wildlife staff undertook trapping, tracking and camera monitoring around the 2015 release site. Their results showed that, although the 0–6 month translocation success criteria were met, there was a trend of decreased activity observed through time.


The MKK Rangers have not yet been involved in targeted monitoring of this species. However, during the track plot surveys undertaken between 2015 and 2017, MKK Rangers did identify four potential Golden Bandicoot tracks.

There is now an opportunity for MKK Rangers to lead ongoing monitoring of this species outside of the fenced compound to find out more about how they are going. This monitoring will assist WA Parks and Wildlife staff to understand whether they have met their medium/long-term success criteria for the release of these animals outside the fenced enclosure including:

- Continued persistence or presence of Golden Bandicoot at/near release site
- Evidence of breeding of individuals
- Evidence of survival and recruitment of new generations at/near release site
- Dispersal of individuals to nearby appropriate habitat (tracks/signs)
- Increased occurrence of records of bandicoots across Matuwa.

This is a great opportunity for Martu to use their tracking skills to help find out more about this species on MKK.

Opposite page: Photo by Colleen Sims



“It is special to have them back. We want our little animals back.”

Leonie Anderson

Aim of Golden Bandicoot work at MKK

- Learn more about them – what do their *tjina* (tracks) and *guna* (scats) look like again?
- Find out more about their presence on MKK – how are they going? Are there still animals around?
- Find out about their preferred habitat for nesting and foraging – what kind of country do they like?
- Find out more about their diet – what do they like to eat?

Works to be completed



Must do activities

- 1:** MKK Rangers will visit the fenced compound at Matuwa to see the animals, take photos and videos and prepare a field guide to help identify their tracks, *guna* (scats), diggings and burrows. Rangers will then be able to use this guide in the future, and share it with the Wiluna School.
 - 2:** MKK Rangers will undertake two trips each year to search for sign of the species around Well 9 (release site) and in other areas of suitable habitat. They will also track individual animals to find out more about what they are eating and their preferred habitat for nesting and foraging. The tracking efforts and observations will be mapped on the iPad. Any *guna* (scats) observed will be collected so the rangers can find out more about their diet.
-



Should do activities

- 1:** A ranger exchange with the Wunambal Gaambera Rangers (Kimberley, WA) to learn about their Golden Bandicoot work.
-



Photo by Judy Dunlop

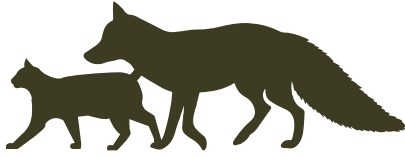
How is this project using *ngaparrtji ngaparrtji* (two-way) science?

Martu way	Western science
Tracking	Recording data on iPad (Fulcrum and PDF maps)
Sharing stories in language	Repeat visits to known areas
Using knowledge of country to find suitable monitoring sites	Analysing <i>guna</i> (scats)
	Making maps

Golden Bandicoot – Measures of success

- Two monitoring trips completed
- Field guide prepared
- Older and younger rangers present on each trip
- Survey data recorded on iPad
- *Guna* (scats) collected and analysed
- Maps of search areas and records prepared

Feral predators Cats and foxes



Language	<i>Tjutju-kulyu</i> (pronounced tjoo-tjoo-gulyoo)	<i>Jirida</i> (pronounced tji-ri-dar)
Common	Feral cat	Fox
Science	<i>Felix catus</i>	<i>Vulpes vulpes</i>

Why do Martu want to control feral cats and foxes?

Feral cats and foxes do not belong on country. They are a predator, which means Martu worry about how many little animals they are eating, such as Bilbies, Night Parrots and Golden Bandicoots.

Previous work on MKK to control feral cats and foxes

WA Parks and Wildlife staff have been undertaking extensive feral predator control at Matuwa since 2000, including aerial baiting and leghold trapping.

In 2017, MKK Rangers invited Kiwirrkurra Rangers to come to MKK for a ranger exchange to receive training from them in cat hunting. During the trip, one pregnant cat was caught and disposed of humanely. The rangers learnt about identifying really fresh *tjina* (tracks), tracking techniques and humane euthanasia methods.

In May 2018, WA Parks and Wildlife staff trained 13 MKK Rangers in 1080 handling.

From 2018, WA Parks and Wildlife staff plan to trial the effectiveness of ground baiting along tracks compared to aerial baiting.

Funding for three Felixer (Grooming) Traps has become available through a National Threatened Species Recovery Fund grant. Felixer Traps use laser sensors to identify cats and then spray them with poison (1080) as they pass in front of the trap. The cats then ingest the fatal poison when they groom themselves.





“A lot of old animals are gone. Ferals (cats and foxes) damage the *tjukurrpa* (dreaming) for the native animals like the *Muntangalku* (Bilby).”

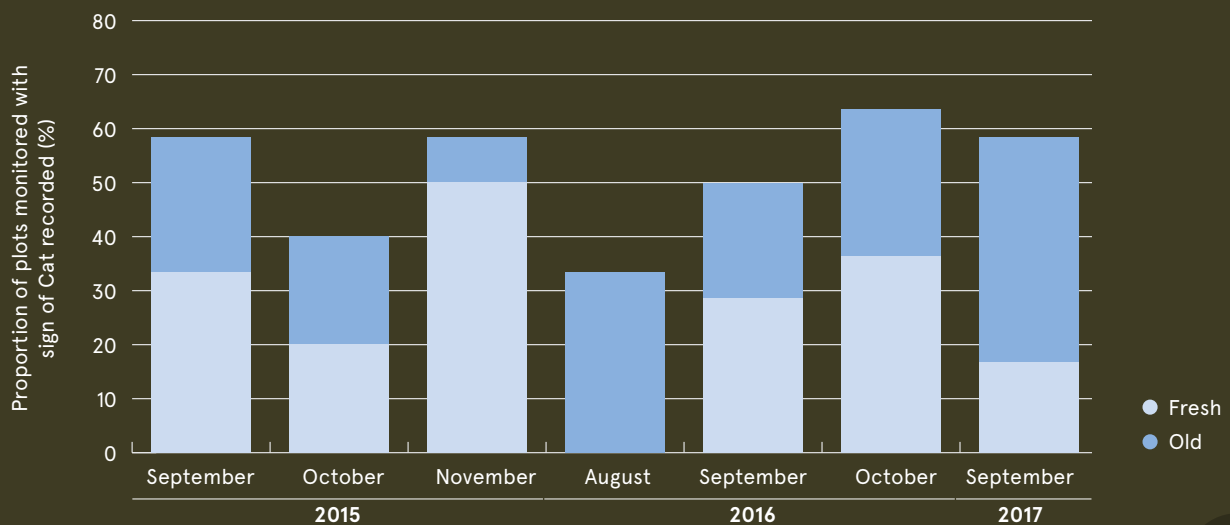
Vera Anderson

Work on MKK to monitor feral cats and foxes

WA Parks and Wildlife staff have monitored feral cat and fox activity on MKK over a number of years using motion-sensor cameras and sand pad transects. This work has shown that baiting has reduced cat numbers on Matuwa.

MKK Rangers have undertaken track plot monitoring since 2015. The plot locations were identified with help from Rick Southgate for a broader fauna study that looked at water points and grazing pressure, and extended onto Jundee pastoral lease to the west. At Matuwa, 12 sites were established and each surveyed seven times. The results for feral cats are provided on page 30 (only one fox was recorded).

Proportion of track plots where MKK Rangers recorded fresh signs of feral cats



Cats were recorded in 35–55 percent of plots surveyed during each trip.

Less monitoring has occurred at Kurrara Kurrara, with 14 plots surveyed once in 2016: old signs of cats were found at two of those sites and no foxes were recorded.

Feral cats and foxes are not controlled in the Katjarra Priority Management Zone within the adjacent Birriliburu IPA, where Birriliburu Rangers are conducting similar track plot work. As discussed in the Bilby section, there is an opportunity to compare Bilby and feral predator activity at the two locations (Matuwa and Katjarra) to better understand how feral cat and fox activity might be influencing Bilby numbers.

Aim of feral cat and fox work on MKK

- Partner with WA Parks and Wildlife staff to control feral cats and foxes on MKK
- Become trained in feral cat control methods including baiting and Felixer Traps
- Continue to monitor track plots to find out more about feral predator activity
- Compare predator activity from track plots at MKK (different baiting areas) and Katjarra.

Work to be completed – control



Must do activities

- 1: MKK Rangers will complete training and obtain '1080 Use and Possess' licences with the assistance of WA Parks and Wildlife.
 - 2: MKK Rangers will work with WA Parks and Wildlife staff during ground baiting at Matuwa in July each year, and learn more about aerial baiting methods.
 - 3: MKK Rangers will be trained in establishment and maintenance of Felixer Traps and decide where the three traps should be placed on MKK to protect important animals.
-



Should do activities

- 1: MKK Rangers will work with WA Parks and Wildlife to undertake feral predator control at Kurrara Kurrara.
 - 2: Purchase additional Felixer Traps (the likelihood of reducing cat numbers will be higher if traps are positioned in a cluster on country).
-

Works to be completed – monitoring



Must do activities

- 1: MKK Rangers will undertake three track plot monitoring trips to Matuwa each year. MKK Rangers will monitor 10 track plots in the area to be aerial baited and 10 in the area to be track baited to test whether there is a change in activity between the different areas. It would be best if the surveys were done in May (pre-baiting), August and October (post-baiting).
 - 2: Compare track plot results between the aerial and track-baited areas at Matuwa and the unbaited Katjarra areas. MKK Rangers will look at results to find out which area has the lowest feral cat and fox numbers.
 - 3: MKK Rangers will collect all feral cat, fox and dingo *guna* (scats) found during ranger work for diet analysis. This has been working well on the adjacent Birriliburu IPA.
-



Should do activities

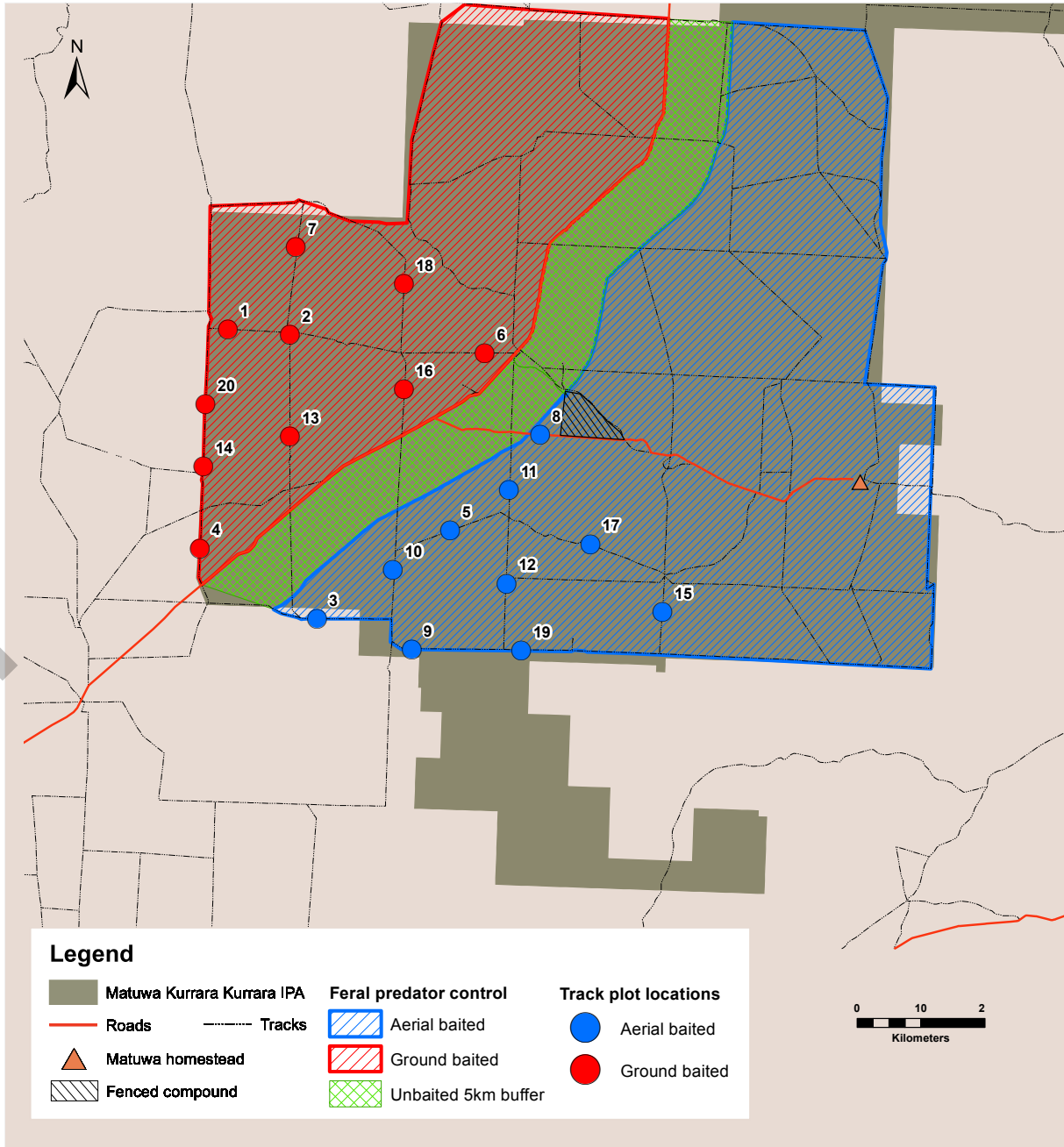
- 1: MKK Rangers will monitor track plots at Kurrara Kurrara. The existing 14 plots have only been visited once and many were on unsuitable tracking surfaces. It would be best to establish 10 new plots at Kurrara Kurrara to be monitored as resources become available.
 - 2: Invite a predator *guna* (scat) analysis expert to teach the rangers how to find out what the different predators are eating.
-

How is this project using *ngaparrtji ngaparrtji* (two-way) science?

Martu way	Western science
Tracking	Recording data on iPad in Fulcrum
Teaching younger rangers	Using repeat track plots
Finding <i>guna</i> (scats)	Learning about Felixer Traps and baiting
	Analysing <i>guna</i> (scats)
	Making maps and graphs

Feral predators: cats and foxes – Measures of success

- Rangers have 1080 'Use and Possess' licences
- One trip undertaken with WA Parks and Wildlife staff
- One baiting trip undertaken to learn about Felixer Traps
- Three trips undertaken to monitor track plots at Matuwa
- Older and younger rangers present on each trip
- Survey data recorded on iPad
- Track plots results for feral cats and foxes compared between MKK and Katjarra
- *Guna* (scats) collected and analysed
- Maps prepared



Matuwa feral predator control areas and track plot locations for ongoing monitoring



Waru (fire management)

Why is *waru* (fire management) important to Martu?

The cultural significance of *waru* (fire management) cannot be understated. For Martu, fire comes from *tjukurrpa* (dreaming). Burning country rejuvenates it, provides immediate hunting opportunities and allows for the regeneration of plants used for food, medicine and fibre. Wrong-way fire can damage special places and remove habitat for important animals.

“You gotta know where, when and how to burn.”

– Alan Ashwin

“You burn something, you get more of it afterwards.”

– Gladys Ashwin

“Martu have responsibility for fire...”

– Maurice Wongawol

Previous fire work on MKK

WA Parks and Wildlife staff have been undertaking mapping, planning and fire management works at MKK since 2000. A priority of this work has been to protect the fenced compound and the little animals inside it.

Martu have been involved in this fire program since 2015. They have undertaken training alongside WA Parks and Wildlife staff, and have burnt small areas inside the fenced compound, and along fire breaks and tracks.

Aim of *waru* (fire management) on MKK

- Share knowledge
- Do good fire planning with WA Parks and Wildlife
- Protect special places
- Implement a traditional patchwork burning program.



Works to be completed



Must do activities

- 1:** An annual fire planning session with MKK Rangers and WA Parks and Wildlife staff will be held in March each year (at the start of the field season). This will include a report back from both groups about work done in the previous year.

During the annual fire planning session, discussions will be held around annual fire scar mapping undertaken by WA Parks and Wildlife showing fires from the previous year (different colours should be used to show ranger and management burns, and wildfire) and overall fire history.

Proposed areas for burning in the coming field season will also be discussed. Reasons for choosing these proposed areas may include:

- Protecting cultural places
- Protecting the fenced compound's outside boundary
- Improving habitat for fauna inside the fenced compound
- Protecting long-unburnt areas that are important for animals such as the Night Parrot and Malleefowl
- Protecting neighbouring pastoral areas
- Creating a patchwork of right-way burns to make country healthy and stop large wildfires.

- 2:** MKK Rangers will undertake a minimum of two burning trips per year to Matuwa with WA Parks and Wildlife staff.



Should do activities

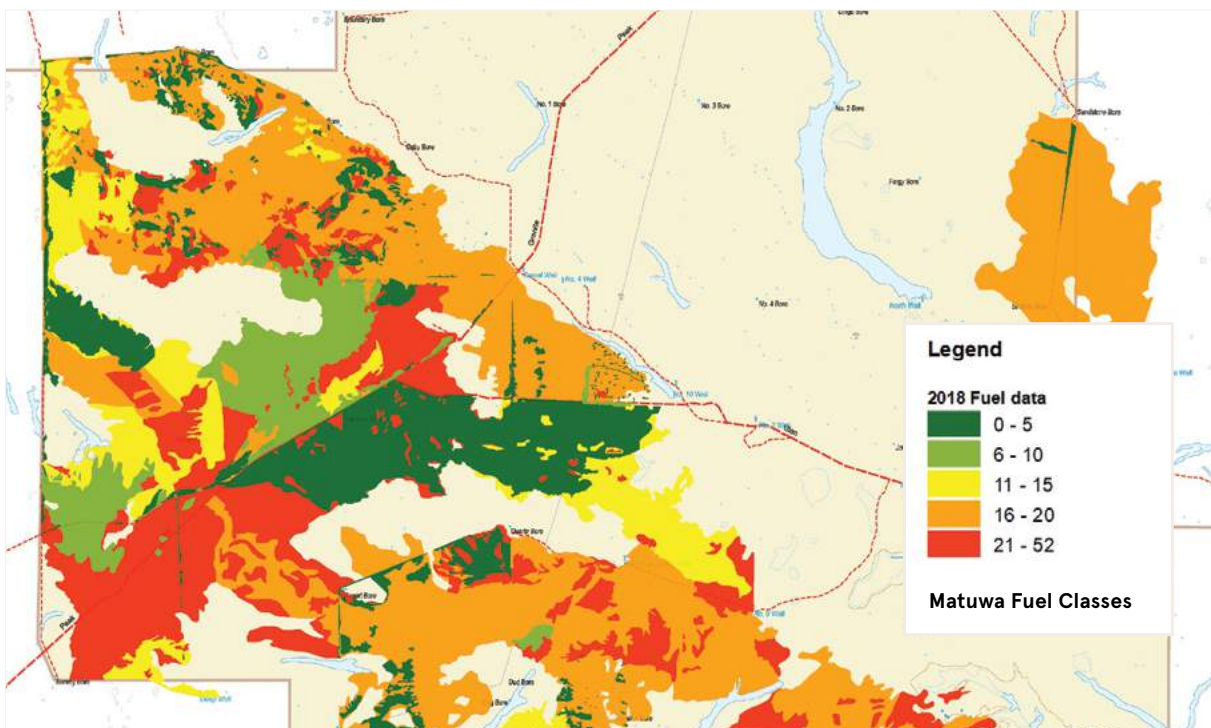
- 1:** Undertake additional burning trips to Kurrara Kurrara.
-

How is this project using *ngapartji ngapartji* (two-way) science?

Martu way	Western science
Sharing knowledge with WA Parks and Wildlife staff about traditional burning methods	Sharing information with Martu about safe weather envelopes and training in Western fire-management methods
Talking about areas to burn or to be protected to keep country healthy	Recording data on iPad in Fulcrum and PDF maps
Implementing right-way fire, and patchwork and firestick burning	Fire scar mapping and analysis

Waru (fire management) – Measures of success

- Fire scar mapping completed by March each year
- One planning meeting with WA Parks and Wildlife in March each year
- Two burning trips with WA Parks and Wildlife each year
- Older and younger rangers present on each trip
- Fire management work recorded on iPad



Map of fire scars at Matuwa at the start of 2018 (provided by Ryan Butler, DBCA)



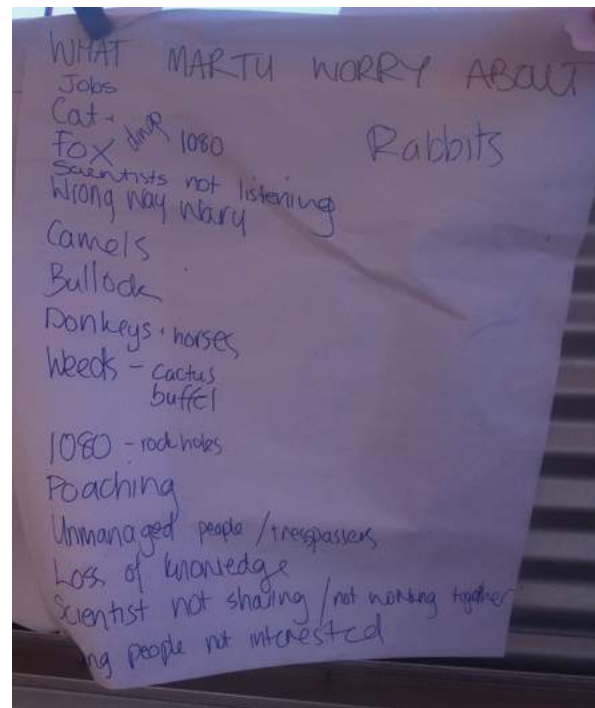
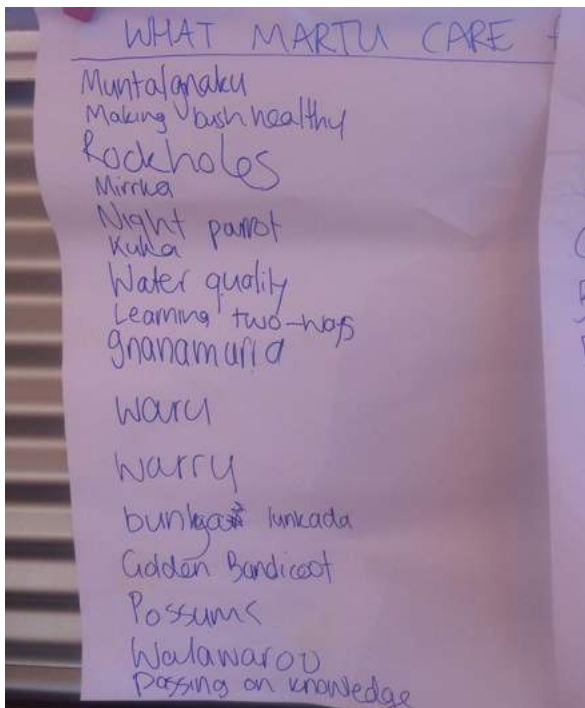
Other project ideas

MKK Rangers and the IPA Management Team have also identified a range of other interests that could be the basis of further *ngaparrtji ngaparrtji* (two-way) science projects.

These include:

- Learning more about reptiles – the MKK IPA has lots of different types of *parlaparla* (lizards), *liru* (snakes), *parnka* (goannas) and other reptiles.
- *Parnka* (goannas) inside the fenced compound – WA Parks and Wildlife staff have identified that goannas may be eating small mammals inside the fence. The rangers are experts at tracking and hunting goannas and would like to work together on a project to find out more.
- Pitfall trapping – MKK Rangers would like to learn more about setting up traps, identifying animals and recording data.
- Possums – MKK Rangers are aware of the Brush-tailed Possums around the homestead and are interested in being involved in monitoring them and finding out about how they are going on country.
- Boodies – MKK Rangers are interested in finding out more about this species and being involved in any translocations.

Some of the other values (what Martu care about) and threats (what Martu worry about) identified in the IPA Plan and during planning sessions with the IPA Management Team are shown below.



Workshop notes from IPA Project Team planning meeting in 2017

Strategy 2: Working with researchers



DRAFT

Why is working with researchers important to Martu?

Working together with researchers is an important part of developing the MKK IPA into a world-class two-way learning hub.

The MKK IPA Plan identifies the following research objective:

To promote and develop research projects and partnerships of equal benefit to the Martu community and non-Martu.

Previous research

WA Parks and Wildlife staff have facilitated a large volume of research at MKK with a focus on threatened fauna.

Existing research projects

A number of research projects are currently underway within the IPA. Of note is Simon Cherriman's PhD project looking at *warlawurru* (Wedge-tailed Eagle).

Simon has taken the time to learn Martu words, teach the school kids, report back to the IPA Management Team and promote a best-practice *ngaparrtji ngaparrtji* (two-way) science approach. Martu look forward to continuing their work with Simon and establishing new projects with other researchers like him.

Future research project development

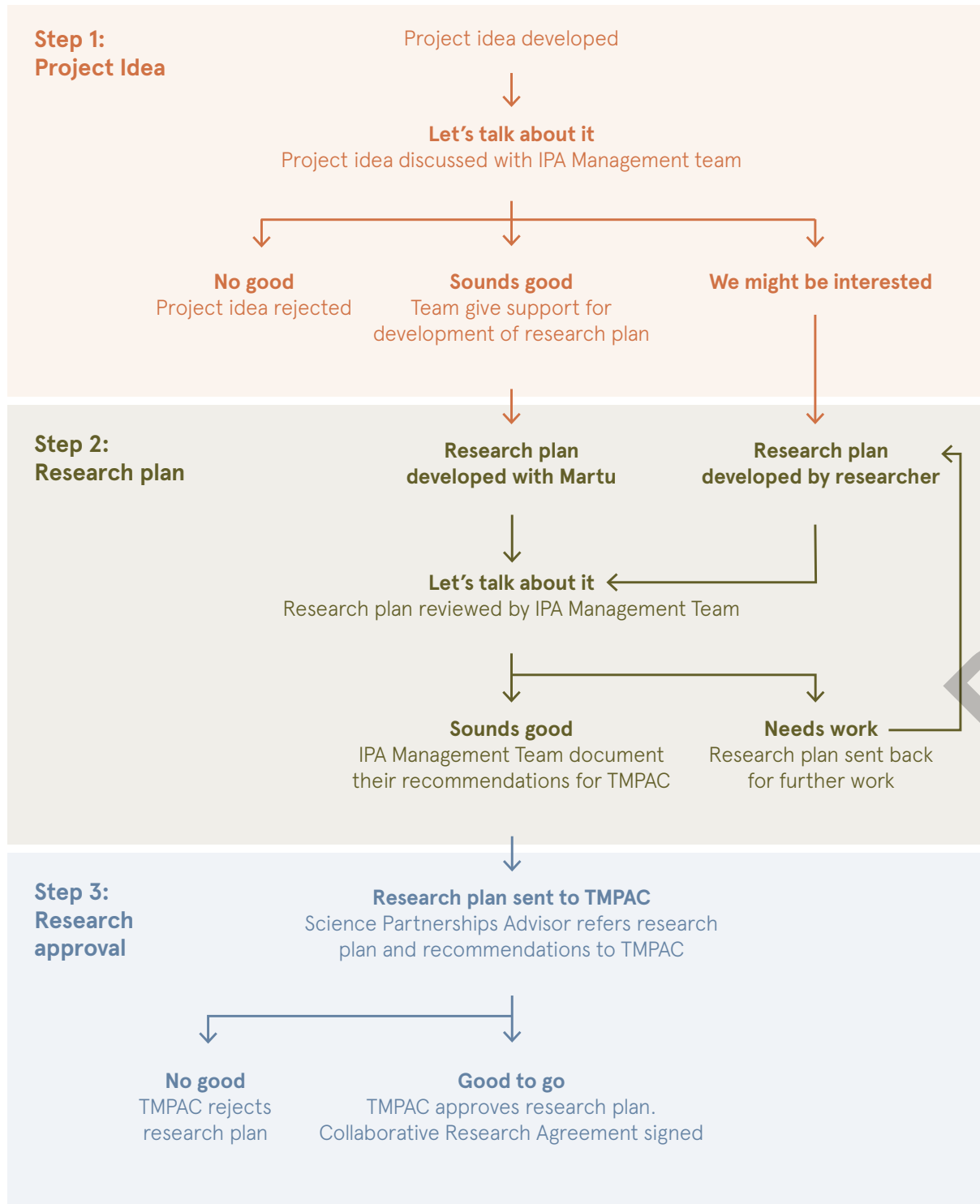
MKK is special country and provides significant opportunity for important scientific research. The aims of research at MKK are:

- Martu and researchers are working together respectfully on projects
- All research projects are being discussed with the MKK IPA Management Team before, during and after their completion
- Research outcomes are being communicated to Martu, including to school children
- Martu input is being recognised in research outputs wherever appropriate.

True, respectful and significant *ngaparrtji ngaparrtji* (two-way) science and research can only be achieved if Martu are included in project discussions from beginning to end.

The IPA Management Team has identified a new process for approving research projects within the MKK IPA. All new projects must follow the process:

MKK Research Project Approval Process



Step 1: Project idea

A 'project idea' is a short summary document (one page) that describes the 'who, what, when, where and why' of a new research project idea. A template for this document can be provided on request. It will be used to introduce the project to the IPA Management Team so initial discussions can be had to understand the project and raise any concerns. It will be written in plain English (no jargon).

Researcher/s must prepare this summary document and provide a copy to the Science Partnerships Advisor a minimum of two weeks prior to an IPA Management Team meeting.

Researcher/s must also inform the IPA Coordinator that they have submitted the document and request an opportunity to discuss it with the IPA Management Team at the next meeting.

At the meeting, the IPA Management Team will discuss the idea with the researcher/s and consider whether they will support or reject the idea. If the project idea is supported by the Team, there will be two options for moving forward:

- Either Martu are keen to be involved and want to work together to develop a detailed two-way science research plan, or
- Martu are interested in finding out more and are happy for the researcher to proceed on their own in preparing the research plan.

Step 2: Research plan

A 'research plan' is a detailed document outlining the scope, aims, methods, locations, Martu involvement, parties, responsibilities, communications and budget of a research project. A template for this plan has been prepared and is available on request.

Once the draft research plan has been completed (either together with Martu or independently), it will be provided to the Science Partnerships Advisor a minimum of two weeks before the next IPA Management Team meeting. The researcher/s will again inform the IPA Coordinator that they have submitted the document and request an opportunity to discuss the draft with the IPA Management Team.

At the meeting, the IPA Management Team will discuss the plan further with the researcher/s and suggest any changes. They will also document their recommendations for TMPAC.

Step 3: Research approval

The Science Partnerships Adviser will refer the research plan and the IPA Management Team's recommendations for the project to TMPAC. TMPAC will consider the plan and decide whether it should be rejected or approved. If the plan is approved, a Collaborative Research Agreement (CRA) outlining intellectual property rights, code of conduct etc. will be signed by all parties, with the research plan included as a schedule.

Projects are more likely to be supported if they clearly outline the following:

- Opportunities for Martu involvement that recognise their knowledge, skills and interests
- Ongoing means of updating the IPA Management Team on project progress
- Commitments to sharing findings with the rangers and Wiluna School.

This process is not intended to be labour intensive or a barrier to research.

Works to be completed



Must do activities

- 1: Ensure that all new research projects follow the MKK Research Project Approval Process.
 - 2: A register of all *ngaparrtji ngaparrtji* (two-way) science projects being undertaken at MKK will be established, and all research agreements, reports, posters, videos and other data will be gathered in one place.
-

Working with researchers – Measures of success

- All new research projects follow new process
- There are positive relationships between Martu and researchers
- A register of *ngaparrtji ngaparrtji* (two-way) research projects undertaken at MKK has been established



Strategy 3: Training opportunities



Why are training opportunities important to Martu?

In order for the MKK IPA to become a *ngaparrtji ngaparrtji* (two-way) science hub, it is important that there are ongoing and formal on-country training opportunities for rangers.

MKK Rangers want to be able to take on more responsibilities in the management of the IPA and improve their chances for ongoing employment.

It is important that rangers who complete training at MKK are recognised for their efforts. The IPA Management Team will be proud of all rangers that complete training.

It is hoped that rangers from neighbouring areas (such as Birriliburu) may also benefit from training opportunities established for MKK Rangers on country.

The IPA Plan also discusses the idea of the MKK IPA becoming a 'bush university', with rangers holding on-country training courses to teach university students and other groups about Martu culture, language and ways of looking after country. This would require the IPA Management Team to collaborate with universities, TAFE, schools or other groups to establish the topics, activities and determine timing, logistics and funding sources.

Previous training

Since the ranger program commenced at MKK, there have been opportunities to conduct training for rangers alongside partners including Parks and Wildlife. Martu Rangers have participated in short training courses such as operating chainsaws, quadbikes, fire awareness and response, handling of chemicals to treat weeds and 1080 bait handling, all of which have been conducted on MKK.

It is important that training continues for MKK Rangers in activities traditionally conducted by Parks and Wildlife staff at Matuwa so that they are able to contribute to future management of their IPA and enhance career opportunities. This should include accredited trainers and assessors attending these training events that occur on country, where possible in the future.

In 2017, a new partnership was forged between the Wiluna School, Central Regional TAFE and Desert Support Services. It has provided an opportunity for three MKK Rangers (and other Vocational Education Training students) to complete their Certificate 1 in Conservation and Land Management at the Wiluna Training Centre run by the Wiluna School. In 2018, these three students are continuing their study to obtain a Certificate II. The Wiluna Training Centre provides a significant opportunity for Martu people to undertake further studies regionally.

MKK Rangers have given important presentations at conferences including the WA Threatened Species Forum and annual Indigenous Desert Alliance events in recent years. These trips give rangers an opportunity to build on their leadership skills through meeting new people and public speaking.

It is an important aspiration for Martu to have the next generation trained up for the future management of MKK and to participate significantly in joint management opportunities with Parks and Wildlife.



“Learning up young fellas. We gotta keep putting them through.”

“Younger people need to know how to keep country healthy. They can work with scientists.”

MKK IPA Management Plan 2015–2020

Aim of training

- Learn new skills and gain confidence
- Receive recognised, formal training that can lead to ongoing employment.

Works to be completed

Opportunities for MKK Rangers to learn about baiting and Felixer Traps have already been discussed. Other opportunities for formal training and skills capacity development are provided below.



Must do activities

- 1:** A Science Training program will be developed with WA Parks and Wildlife. The program will focus on providing opportunities for two Martu women seeking career pathways in land management and conservation each year. The trainees will learn about study design, digital data recording, ethics, animal handling and application of technology. They will attend a minimum of three on-country field trips with WA Parks and Wildlife scientists.
- 2:** TAFE training will continue for two to six rangers each year. In the future, Wiluna TAFE will offer training in Certificate II Rural Operations. This course offers flexibility in the units that MKK Rangers can undertake based on their interests and opportunities. In order to complete this course, MKK Rangers need to be available for one week per month to undergo course work at the Wiluna TAFE building.
- 3:** Eight to ten MKK Rangers will complete the DBCA Fauna Handling course, on country, in 2019. The course covers ethics and techniques for handling threatened fauna and includes classroom and field-based activities. It is hoped that this course can be held on an annual basis. An accredited TAFE trainer will attend this course to ensure rangers can receive credit towards their TAFE certificates (level II).
- 4:** Four to six MKK Rangers will complete a fire training course on country based on Western fire management techniques with DBCA and an accredited TAFE trainer. During this course, there will be defined opportunities for MKK Rangers to share their perspective and knowledge about *waru* (fire) with DBCA staff. Credit for this course will contribute toward their TAFE certificate (level II).
- 5:** MKK Rangers will attend conferences and workshops and give presentations about their ngaparrtji ngaparrtji (two-way) science work. A minimum of four rangers will present at forums such as the Indigenous Desert Alliance, Ecological Society of Australia, Threatened Species Forum, Southern Desert Ranger Forum and Bilby Festival each year.
- 6:** A register of accredited training courses and other important activities (such as public speaking) completed by MKK Rangers will be established.



Must do activities continued...

- 7:** The IPA Management Team will award a certificate to rangers who have completed accredited courses. This is important to the IPA Management Team because it makes everybody feel proud.
- 8:** The MKK IPA Management Team will develop a vision for the Bush University. Potential partners will be invited out on country to discuss the idea.



Should do activities

- 1:** The IPA Management Team will identify training gaps and seek to establish additional training opportunities at MKK.
- 2:** Opportunities to invite other ranger groups to join in on training courses will be explored.

Training – Measures of success

- Science traineeship positions established with DBCA
- Accredited TAFE trainers attend training opportunities so rangers can receive credit
- Rangers trained in fauna handling and fire management
- Rangers present work at a minimum of two forums per year
- A register of MKK Ranger training certificates is maintained
- Opportunities for MKK to become a Bush University are explored



Strategy 4: Partnering with the Wiluna School



DRY

Why is partnering with the Wiluna School important to Martu?

Teaching young people on country is of great importance to Martu – the intergenerational transfer of knowledge is fundamental to maintaining a connection to country.

School attendance and the engagement of students in their education can be dramatically improved if Martu language and culture is incorporated into the curriculum.

Martu Elders and MKK Rangers are keen to incorporate two-way learning into the Wiluna School in a way that respects their traditional ecological knowledge (intellectual property).

Working with the Wiluna School and CSIRO

The IPA Management Team and MKK Rangers have been working with the Wiluna School and CSIRO since March 2016 on a project called 'Science Pathways for Indigenous Communities'. This project aims to support schools and communities to develop a culturally and environmentally responsive integrated two-way science learning program connecting the traditional ecological knowledge of local Aboriginal people with Western science inquiry.

The partnership has been based on 'learning on country' trips to the MKK IPA where rangers and other partners, including DBCA and BirdLife Australia, have engaged students in both Martu and Western science educational activities.

The science pathways program has developed a suite of educational resources that outline opportunities for two-way science activities under the main themes of animals, plants, water, seasons, weather/astronomy and places/maps/country. These activities highlight opportunities to involve rangers and traditional knowledge holders in the community.

In 2017, the Wiluna School, in partnership with the MKK Rangers, DSS and CSIRO, won the nationwide School Award in Indigenous SSTEM (Science, Technology, Engineering and Mathematics) from CSIRO.

Aim of partnering with the Wiluna School

- Martu knowledge is shared in the right way with students to help develop relevant educational resources.
- Rangers and students learn about modern scientific methods such as planning and conducting surveys, using monitoring equipment and recording data.
- Rangers and scientists are role models of two-way science for school students.

“We gotta try two-way learning more. Education is about teaching our young people bush way too. We can also teach white fellas. We got a classroom here too, outside.”

Lena Long





Must do activities

- 1:** A formal agreement between TMPAC, DSS and the Wiluna School will be prepared to define the scope of the partnership, ensure Martu knowledge (intellectual property) is safe and outline the approach for working together.
- 2:** An annual on-country bird trip will be undertaken in October each year. During this trip, MKK Rangers, students of Wiluna School and scientists including Simon Cherriman will participate in an on-country two-way science trip to Matuwa. They will complete the following activities:

2.1: Bird surveys across different habitats

Rangers will share traditional knowledge about birds including Martu names, cultural stories, where to find certain birds and birds important to Martu.

Scientists will share methods for identifying unknown birds using binoculars and field guides, conducting standardised surveys in different types of country, and recording data on the iPad.

2.2: Monitoring Wedge-tailed Eagle nests and chicks

Rangers will share traditional knowledge about country, plants, animals and bush foods while visiting the eagle nests.

Scientists will share knowledge and methods for monitoring Wedge-tailed Eagles, including providing hands-on experience for rangers and students.

Students will give Martu names to the eagle chicks.

2.3: Monitoring Malleefowl mounds (ranger-led activity)

Rangers will take students to a known Malleefowl mound and share traditional knowledge and stories about Malleefowl.

Rangers will teach students how to set up motion-sensor cameras so the nest can be monitored for Malleefowl breeding and predator activity around the nest.

Students will sort through the photos back in the classroom and learn from visiting scientists how to present and interpret the data.

- 3:** A minimum of two other on-country school trips will be undertaken.
- 4:** During on-country trips with the school, MKK Rangers will capture video footage showing Martu women leading two-way science projects. Working with the MKK IPA Management Team, partners will use this footage to create videos that can be used by the school and shared with other groups.



Must do activities continued...

- 5:** MKK Rangers will participate in two-way science school projects such as the Martu seasonal calendar
- 6:** MKK Rangers will work on developing a track plot activity for the Wiluna School children. It will answer questions like:
- Why are we doing track plots?
 - Where should we put the plots?
 - How often should we survey them?
 - How do we look for tracks?
 - What types of animals might we find?
 - How do we collect the data?
 - How do we analyse the data?
 - How do we share the results with others?
- 7:** MKK Rangers will come into the Wiluna School at least twice a year to tell stories about the work they have been doing at MKK. Ideally this would occur after the on-country trips together.
-

Wiluna School Partnership – Measures of success

- Annual bird trip with school completed
- Two other on-country school trips completed per year
- Video, calendar and track plot activities progressed
- At least two ranger visits to the Wiluna School undertaken throughout the year
- An ongoing positive relationship has been developed with the Wiluna School and CSIRO.

DRAFT

Review



Copyright

So, how are we going?

The IPA Management Team will hold a *ngapartji ngapartji* (two-way) science meeting in March each year. A draft agenda for these meetings is provided on the opposite page.

A report will be prepared after the meeting, capturing the work undertaken in the previous year, key issues discussed and an outline of the works required for the coming year. The report will be printed and shared with rangers, partners and funders.

Implementation of this plan will also be discussed during the other IPA Management Team meetings held throughout the year as issues come up and research ideas and agreements are formulated.



Agenda for March review meeting each year

Day 1	<p>Morning</p> <p>Data will be gathered together from work done in previous field season with assistance from the IPA Coordinator, Science Partnerships Advisor and Women’s Biodiversity Coordinator.</p> <p>Key questions for the IPA Team to discuss:</p> <ul style="list-style-type: none"> • How are we going with this plan? • Is <i>ngaparrtji ngaparrtji</i> (two-way) science happening? • What could we do better this year? • Is there anything missing?
	<p>Afternoon</p> <p>For each of the four strategies, the IPA Team will look at the measures of success and ask:</p> <ul style="list-style-type: none"> • Did we do what we said we were going to do? If not, why not? • For Bilbies, Night Parrots and Golden Bandicoots, how are we going to know if they are doing ok over time? • For feral cats and foxes, what do track plots tell us? Are feral cat and fox numbers increasing or decreasing after baiting work on country, and how does this compare to Katjarra? • For fire, how do we demonstrate that Martu fire management is making country healthy?
Day 2	<p>Morning</p> <p>The IPA Management Team will invite partners to come along to the meeting including DBCA, Wiluna School, CSIRO, trainers and researchers.</p> <p>The IPA Team will present their work from the previous year to the partners.</p> <p>The partners will present their work.</p> <p>There will be time for asking questions.</p>
	<p>Afternoon</p> <p>Trip out on country together to share stories.</p>
Day 3	<p>Morning</p> <p>With partners still present, the IPA Management Team will lead a discussion about how we can do even better in the coming year.</p> <p>Talk through specific trips and ideas.</p> <p>Partners depart.</p>
	<p>Afternoon</p> <p>IPA Team have a final discussion about how they are feeling.</p> <p>They will also decide how best to share the outcomes with the MKK Rangers and other Martu.</p>

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- IPA Management Team 2017 – Annette Williams, Rhonda Williams, Glenys Williams, Victor Ashwin, Zareth Long, Lena Long, Caroline Long, Rita Cutter, Vera Anderson
- IPA Management Team 2018 – Annette Williams, Rhonda Williams, Glenys Williams, Victor Ashwin, Lena Long, Caroline Long, Rita Cutter, Vera Anderson

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