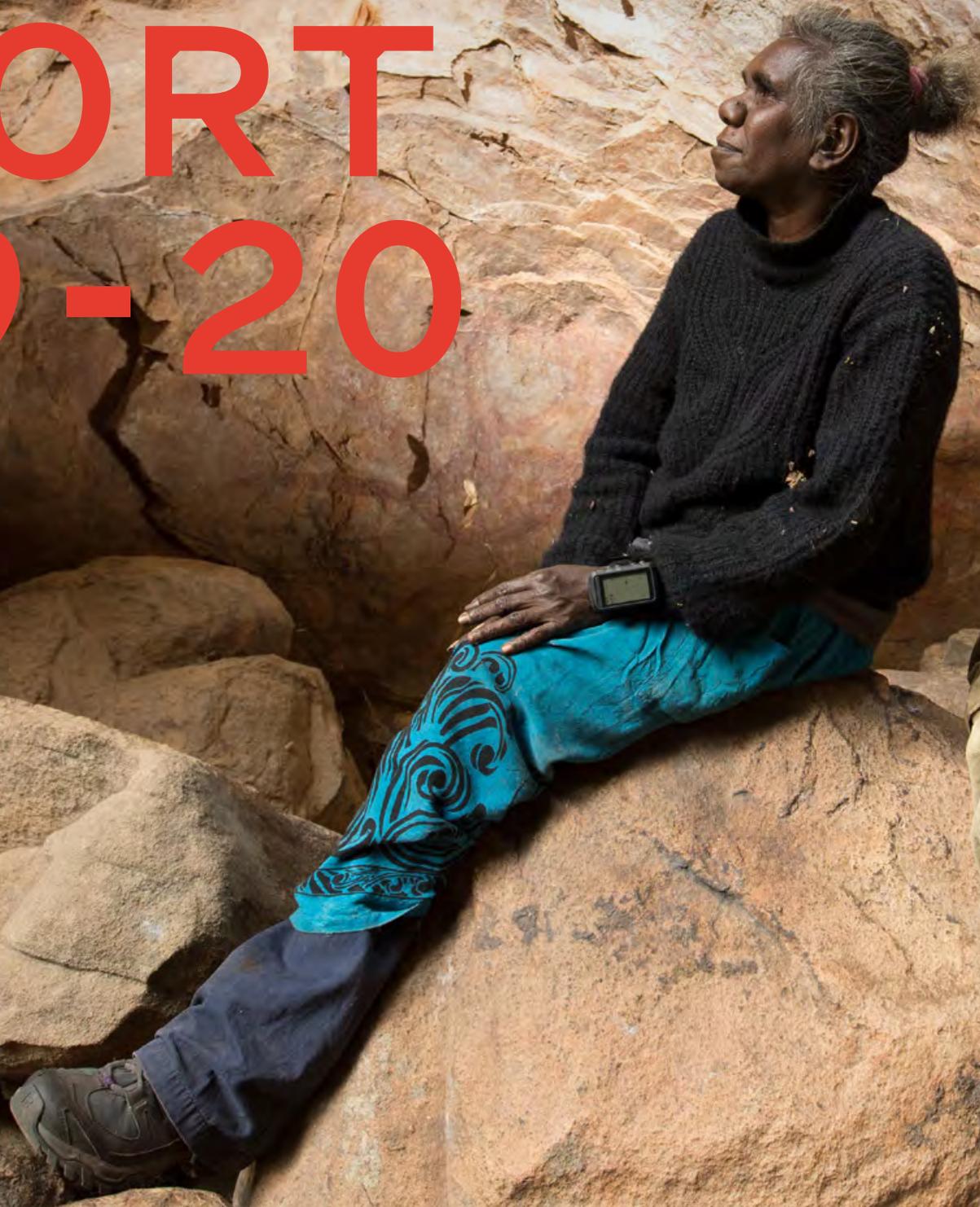


WARDDEKEN ANNUAL REPORT 2019-20



NGARRIDJARRKBOLKNAHNNAN KUNRED

LOOKING AFTER COUNTRY TOGETHER



The bidbimyo (hand stencil) at the centre of the Warddeken logo is the hand of Warddeken's founder and patron, Bardayal Lofty Nadjamerrek OAM (Wamud Namok, 1926-2009).

The symbol reminds us that it is his guiding hand that led the land management movement in western Arnhem Land. His vision leads us into the future.

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Design — rodeo.com.co
Copywriting — Georgia Vallance



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Front cover: Edna Midjarda surveys a cave complex at Nawekke, near Manmoyi. Painted figures nearby tell the Bininj that namarnde - bad spirits inhabit this area and not to wander into the bush alone - a warning to children to stay close to their parents. Photo © David Hancock

CELEBRATING 10 YEARS OF THE WARDDEKEN INDIGENOUS PROTECTED AREA



From left: Terrah Guymala and members of Narbalek Band perform 'Wamud's Song' at the 2009 IPA declaration. Photo © David Hancock
Peter Garrett (the federal Environment Minister in 2009) speaks of the significance of the inclusion of the Warddeken IPA in the federal reserve system. Photo © David Hancock

Lois Nadjamerrek speaks of the vision of her father Bardayal Lofty Nadjamerrek during the 2019 celebrations.



In November 2019, we celebrated a milestone in our company's history – the 10-year anniversary of the declaration of the Warddeken IPA. Members from across the kuwarddewardde came together at Nawarlbin on Mok estate to commemorate the occasion with an epic ground oven feast, heartfelt speeches by bininj elders and board members and kunborrk (ceremonial singing and dancing) late into the evening.

The declaration of the IPA in 2009 holds a very special place in the heart of all who were in attendance, as it was the last time our professors gathered together in one place to celebrate what they had accomplished for their fellow Nawarddeken. Tragically, a month after the event, our visionary leader Bardayal Lofty Nadjamerrek passed away, and the coming years were to be marked by the loss of more of our stone country professors.

In celebrating ten years of the Warddeken IPA, we celebrated these great men and women and the vision they set out for Nawarddeken and our company. We also celebrated the progress and achievements our rangers and staff have made in these years. The dedicated staff and members of Warddeken have shown an ongoing commitment to improving the health of the kuwarddewardde, preserving the unique knowledge of Nawarddeken and ensuring a bright future for the coming generations.

As Chairman Dean Yibarbuk said on the day, "For ten years now Warddeken rangers have worked tirelessly to protect the stone country of western Arnhem Land. Our old people would be so proud of what we have achieved as bininj working together."

“IT WAS A VERY SPECIAL DAY BECAUSE OF OUR OLD PEOPLE. WE THINK ABOUT THEM AND THANK THEM BECAUSE THEY LEFT A PATHWAY FOR US. AND THIS PATHWAY IS LEADING US INTO THE FUTURE.”

–LOIS NADJAMERREK



From top: Zebedee Ngaboy dances while singers Winston Naborlborlh and Stuart Guymala, along with other Manmoyi rangers, perform the song cycles of the kuwarddewardde.

Chairman Dean Yibarbuk addresses members from the four wards of the IPA to talk about the achievements of Warddeken over the last ten years.

Wurnkomku senior traditional owner and karrikad ward member Johnny Reid.

Members from koyek ward Maylene, Deborah and Leon enjoy festivities.

A ground oven feast of kangaroo, buffalo, barramundi and magpie goose was prepared by rangers and enjoyed by all.

Rosemary, Tinnasha, Theona and Lorna from kakbi ward celebrate the occasion.



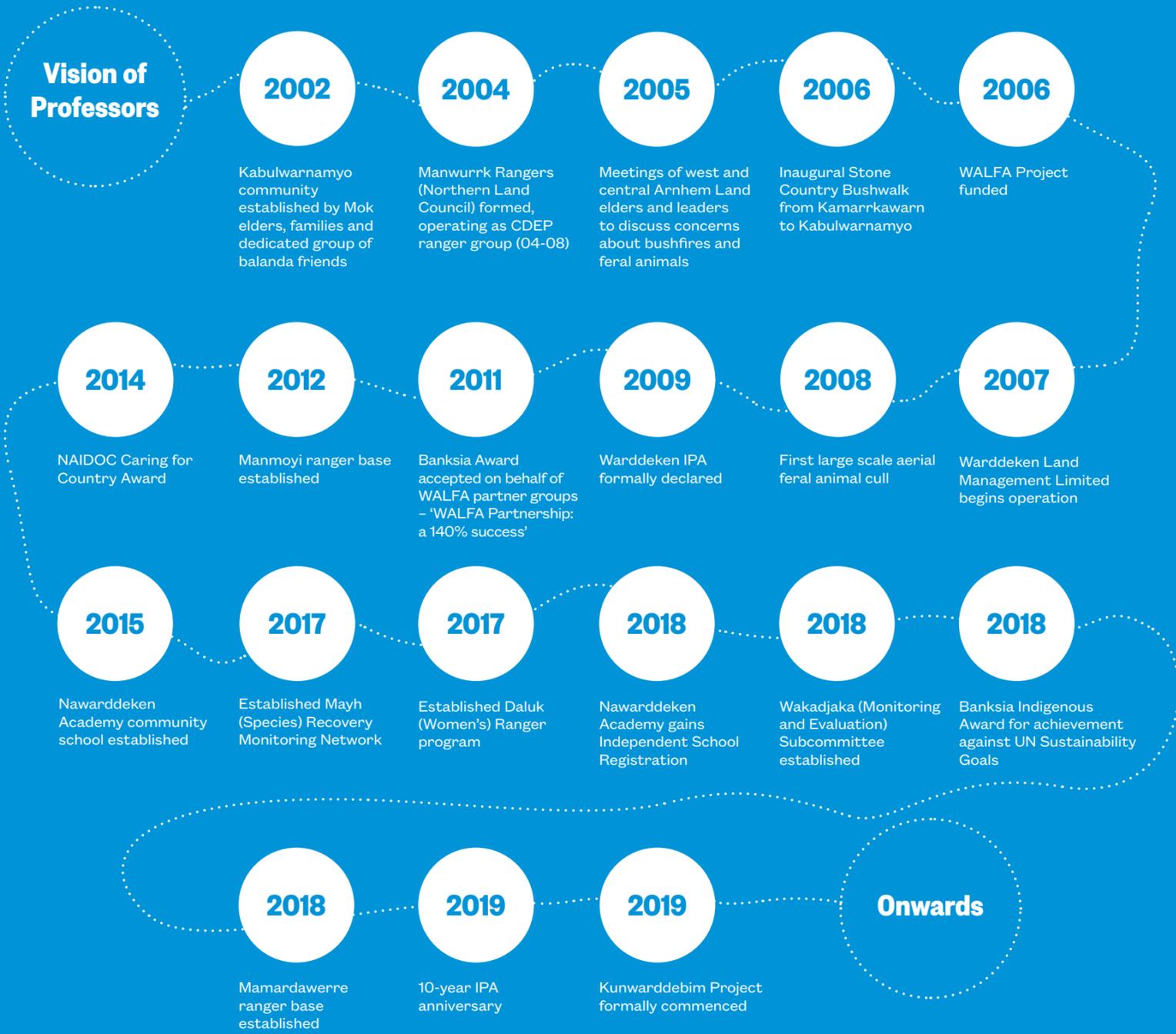
**OUR VISION IS TO HAVE
OUR HEALTHY PEOPLE
LIVING AND WORKING ON
OUR HEALTHY COUNTRY IN
THE ARNHEM PLATEAU.**

**WE WANT THE MANAGEMENT
OF OUR LAND TO BE IN
OUR HANDS NOW AND
INTO THE FUTURE.**

Photo © Rowand Taylor



WARDDEKEN OVER THE YEARS



THE WARDDEKEN IPA





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At Kuwuleng, near Manmoyi, a rock art gallery sits high on a stony escarpment looking over a woodland and creek. Generations of artists have painted over each other's work here, creating a tapestry of designs in different colours. Kunbidjih – hand stencils – stand out. Photo © David Hancock

THE WARDDEKEN STORY

Warddeken's story is one of bininj returning to country; of reconnecting with our rich cultural inheritance and preserving our unique knowledge and languages. It is the story of looking after country, drawing upon both customary and contemporary management practices. Most importantly, the Warddeken story is of building a sustainable future for our people.

For thousands of generations, Nawarddeken clan groups lived on their ancestral estates in the kuwarddewardde – the stone country of the Arnhem Land Plateau. Nawarddeken cared for and shaped this living landscape through management practices encompassing the spiritual, religious and pragmatic.

Family groups walked and camped throughout the kuwarddewardde, undertaking fine scale burning across their estates in the early dry season. Djungkay (ceremonial managers by matrilineal inheritance) performed and oversaw ceremonies to encourage regeneration of food plants and the proliferation of animal species. Senior landowners frequently visited djang (sacred sites) and other places of cultural import, to show respect to ancestors and creator spirits, and to perform requisite rituals.

The kuwarddewardde remains the home of Nawarddeken people today and is the location of Warddeken Land Management's three ranger bases. However, this has not always been the case and for many long years the stone country was emptied of people.

With the arrival of balanda (Europeans), Nawarddeken began to leave the kuwarddewardde, lured by Christian and government missions, opportunities to work in the mining and buffalo industries, and the appeal of larger settlements such as Gunbalanya and Maningrida.

By the late 1960s, the kuwarddewardde was largely depopulated. Nawarddeken elders considered the country orphaned and despaired for its future. For the next 30 years, our old people – the Warddeken professors – saw and felt the devastation of large wildfires and an increasing number of feral animals impacting the physical and cultural landscape.

Their concern was matched only by their desire and motivation to return to country, to once again look after the kuwarddewardde and hand down their knowledge to younger generations. In the early 1970s, our visionary leader, Bardayal Lofty Nadjamerrek AO, began the long process of bringing Nawarddeken back to their homeland communities, working tirelessly for the next twenty years to reconnect country and people. Finally, in 2002, Lofty moved back permanently to

his own country on Mankungdjang estate (sugar bag dreaming) at Kabulwarnamyo, where he worked alongside other bininj leaders and committed balanda friends to establish the Manwurrk Ranger program, which allowed landowners for the first time to make a living on country.

The Manwurrk rangers helped pioneer a number of innovative fire management initiatives, including the world's first savanna carbon project, the West Arnhem Land Fire Abatement Project (WALFA). Since then, carbon projects have become one of the biggest indigenous industries and economies in Australia – and they originated right here in the kuwarddewardde.

In 2007, after extensive consultation and meetings between landowners and the Northern Land Council, Warddeken Land Management Limited was formally registered as a not-for-profit public company limited by guarantee, and the Manwurrk rangers evolved into Warddeken.

Our company is responsible for looking after the kuwarddewardde, just as our ancestors were. We achieve this through extensive fire management, feral animal culls, weed control and supporting the recovery of our unique and threatened biodiversity. Through this ranger work, Nawarddeken are once again able to live on country and care for sacred locations, rock art galleries and the many cultural sites that sustained our old people. Importantly, we are also able to teach younger generations this knowledge.



From top left: Maureen Namarnyilk picks man-djarduk (red apple). Proud father Zacharia Namarnyilk with his son Bundy at a rock art gallery. Mok elder Hagar Bulliwana shares stories with visitors to Kabulwarnamyo. Fire management continues to be Warddeken's most important land management tool.

OUR PROFESSORS

We acknowledge the most senior and knowledgeable Nawarddeken as our professors – those who are still with us and those whose spirits have returned to the kuwarddewardde. Their wisdom and foresight set us on the path we follow today. We carry them in our hearts and their vision continues to guide us into the future.



**Bardayal Lofty
Nadjamerrek OA**
1926-2009



Jimmy Kalariya Namarnyilk
1934-2012



Peter Nabarlambarl Billis
1935-2012



Jack Djandjomerr
1945-2014



Wurdib Nabalwad



Leanne Guymala



Molly Nayilibidj



Leonie Guymala
1938-2014



Ruby Bilidja
1930-2014



Mary Kolkiwarra Nadjamerrek



Josie Maralngurra



Lillian Guymala



Timothy Nadjowh OA
1923-2017



Jacob Nayinggul
1943-2012



Djawida Nadjongorle
1933-2012



Mary Naborlhborlh
1930-2012



WARDDEKEN INDIGENOUS PROTECTED AREA

Ricky Nabalambari searches for paintings during a rock art survey on his Djordji estate. Photo © David Hancock

The commitment of our professors to see the kuwarddewardde cared for and managed into the future led to the dedication of the Warddeken Indigenous Protected Area (IPA) on 24 September 2009. Since its establishment, more than 300 indigenous people have worked with Warddeken in environmental and cultural programs that conserve and protect the IPA.

The Warddeken IPA encompasses 14,000 km² of the kuwarddewardde in west Arnhem Land, Northern Territory, bordering Kakadu National Park to the west, and overlapping with the Djelk IPA in the north and the proposed Mimal IPA in the south. The IPA incorporates the headwaters of numerous major river systems, including the Liverpool, Mann, East Alligator, Katherine and Goomadeer rivers, and part of the South Alligator River catchment.

The IPA is home to hundreds of endemic species, a host of threatened flora and fauna, and the nationally threatened Arnhem Plateau Sandstone Shrubland Complex. Threatened fauna include iconic species such as djabbo (northern quoll), barrk (black wallaroo), mulbbu (Arnhem Land rock-rat), alyurr (Leichhardt's grasshopper) and nawaran (oepelli python).

Outstation communities of the IPA are:

- Koyek (east) – Kabulwarnamyo, Manmoyi and Kamarrkawarn
- Kakbi (north) – Kudjekbinj, Kumarrirrbang, Mamardawerre, Marlwon and Table Hill
- Karrikad (west) – Kudjumarndi and Mikkinj
- Walem (south) – Marlkawo

There are four permanently populated outstations in the IPA: Manmoyi, Kabulwarnamyo, Marlkawo and Mamardawerre (just outside our northern boundary). Other communities are seasonally occupied and include Kudjekbinj, Kamarrkawarn and Kumarrirrbang.

Warddeken operates from three remote ranger bases: Kabulwarnamyo (established 2004) and Manmoyi (established 2012) in the Koyek ward of the IPA, and Mamardawerre (established 2018) in the Kakbi ward. Multiple ranger bases are vital to ensuring our management programs address management issues right across the IPA.

The repopulation of the kuwarddewardde and the establishment of several ranger bases have steadily empowered Nawarddeken to care for and manage country. As Warddeken grows, we will continue to explore and develop new ranger bases and ways to support the return of Nawarddeken to country, enabling the proper care of these lands into the future.

OUR AIMS

.....
Alleviate poverty, suffering, isolation,
serious economic disadvantage, and
improve our members' health and wellbeing
.....

Conserve indigenous knowledge
.....

Protect the environmental
values of the land
.....

Advance indigenous education
.....

Participate in natural and cultural
resource management projects
.....

Participate in fire, weed, feral animal
and threatened species management
.....

Manage the IPA as part of the
Australian National Reserves System
in accordance with IUCN Category VI

Miles Namarnyilk takes a dip in the
Kabulwarnamyo spring.



BOARD OF DIRECTORS

Today 405 Nawarddeken are registered members of our company, Warddeken Land Management Limited. Warddeken is governed by an entirely indigenous Board of Directors derived from this membership base.

Triennially, three board members are elected for each ward of the Warddeken IPA: Kakbi (north), KARRIKAD (west), WALEM (south) and KOYEK (east).

At the end of 2019, elections were held and a new board was voted in to represent members for the period 2020-2022. The directors listed in this report are our new board members.



KAKBI

- Kevin Bulliwana
- Conrad Maralngurra
- Rosemary Nabalwad

Representing clan groups: Warddjak (Maburrinj), Ngalngbali (Kudjekbinj), Yurllhmanj (Djalbangurrk), Madjuwarr (Kunukdi), Marrirn (Kumarrirrbang), Wurrik (Mandedjkadjang), Mayirrkulidj (Djurllka), Durllmangkarr (Kudjaborrng/Kunburray), Djok (Ngolwarr) and Barrbinj (Kumarrirrbang/Kudjaldordo)

KARRIKAD

- Jessie Alderson
- Fred Hunter
- Kenneth Mangiru

Representing clan groups: Manilakarr Urningangk (Mikkinj), Maddalk (Kumalabukka), Warddjak/Worrkorl (Balmana from Kundjikurdubuk), Bolmo (Djedjrungi and Dordokiyu), Badmardi (Balawurru, succession/caretaking), Wurnkomku (Nawoberr) and Danek (Kudjumarndi)

WALEM

- Mavis Jumbiri
- Richard Miller
- Dean Yibarbuk

Representing clan groups: Djorrrolom (Bamo), Murruba (Morre), Karnbirr (Djohmi), Mimbilawuy (Karllngarr), Barabba (Mimbrung), Mandjuwarlwarl (Bobbolinjarr), Bolmo (Marlkawo), Barradj (Yanjkobarnem), Buluwunwun (Walangandjang) and Bulumo (Makkebowan)

KOYEK

- Terrah Guymala
- Elizabeth Nabarlambarl
- Lois Nadjamerrek

Representing clan groups: Bordoh (Ngorllkwarre), Mok/Berdberd (Ankung Djang/Ngalkombarli), Yamarr (Kidbulmaniyimarra), Kulmarru (Kubumi), Rol (Bolkngok), Djordi/Djorrrolom (Kodwalewale), Wurrbbarn (Nabrang) and Warridjngu (Boburrk)

KAKBI



Kevin Bulliwana



Conrad Maralngurra



Rosemary Nabalwad



Jessie Alderson



Fred Hunter



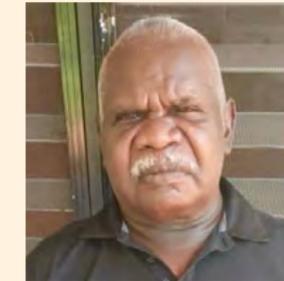
Kenneth Mangiru

KARRIKAD

WALEM



Mavis Jumbiri



Richard Miller



Dean Yibarbuk

KOYEK



Terrah Guymala



Elizabeth Nabarlambarl



Lois Nadjamerrek

GOVERNANCE OUTCOMES



Clockwise from top left: 18-year-old Jayden Namarnyilk was able to sign up as a Warddeken member and vote in the board elections for the first time.

Sharleen Namarnyilk places her vote in the ballot box. Mundy Cleary and Yvonne Brennan cast their votes from Kalaro community during mobile polling.

Polling assistants Margaret Nabulwad and Theona Namarnyilk with member Daisy Nadjongorle.

Board Meetings

Membership of Warddeken is open to landowners from the 35 clans within the Warddeken IPA. Connection to country is recognised in four distinct ways, ensuring appropriate cultural governance: father's country (daworro), mother's country (djungkay), grandmother's country (kakak), great grandmother's country (doydoy).

Warddeken is governed by a board of twelve indigenous directors, who represent the company's 405 registered members. The board operates at a high level, making decisions regarding the management and strategic direction of the company, developing policy, building organisational relationships and financial management.

During 2019-20 the Warddeken Board convened at Kabulwarnamyo, Gunbalanya and Mamardawerre, with all meetings achieving quorum. Meetings in 2019 were attended by the previous board (2017-19), with meetings in 2020 attended by the new board (2020-22).

For over ten years, directors have been supported by an independent governance mentor, Paul Josif. Paul works alongside the chairman and other members of the board to enhance understanding of balanda governance.

Board Elections

Members of the Warddeken board serve three-year terms and at the end of 2019, triennial elections were held once again. Former Warddeken staff Georgia Vallance and Jake Weigl worked with locally-based bininj polling assistants to run mobile polling across sixteen communities, including homelands and larger regional centres such as Gunbalanya, Jabiru and Katherine. A record number of Warddeken members voted – in total more than 260 members cast a vote in this election. This included over 50 new members who cast provisional votes.

Polling ran over eleven days from 12–22 November 2019. Mobile polling was held in the following communities: Jabiru, Gunbalanya, Mamardawerre, Kabulwarnamyo, Marlkawo, Manmoyi, Patonga, Kybrook, Pine Creek, Katherine, Barunga, Gorge Camp, Manyallaluk, Kalaro and Beswick.

For the first time in Warddeken's history, voting was held for each ward. This was because it was the first time Karrikad ward had more than three nominees.

During mobile polling operations, many members commented that they found Warddeken board elections and the associated voting process to be an example of good, strong governance. This feedback is important to Warddeken, as we strongly value our company's ongoing commitment to being strong, successful and bininj led.

Wakadjaka Subcommittee

The Wakadjaka subcommittee of the Warddeken board is another example of what is possible when aboriginal groups have the capacity to determine and pursue their own priorities. To understand if Warddeken is headed in the right direction, it is essential to regularly monitor and evaluate the sociocultural and ecological assets, associated threats and operational outputs outlined in the Plan of Management. The core purpose of the Warddeken Kananan dja mak Karrmorokme (Wakadjaka) subcommittee is to evaluate the progress towards achieving the vision articulated in the 2016-2020 Plan of Management.

Subcommittee membership consists of a director from each of the four wards of Kakbi, Koyek, Karrikad and Walem and four bininj experts. Support staff include the monitoring officer who is the subcommittee secretariat, the CEO, an independent facilitator and other Warddeken staff as required.

The Wakadjaka subcommittee reports and makes recommendations to Warddeken Board on:

- If the Plan of Management is being used in the management of the Warddeken IPA
- If the Plan of Management is working
- If the two toolboxes of Traditional and western knowledge and practice are being used
- How to report on the above 1-3 so that the board, Warddeken members and other parties understand what has been achieved.

The committee has continued to make progress towards producing Warddeken's first Monitoring, Evaluation, Reporting and Improvement (MERI) Plan. While a Plan of Management sets out what we think is going to happen – which things we will do and what impact we think we will have – a MERI Plan sets out how we are going to check if we are actually achieving our goals, and what we will do with the results.

The MERI journey will be faithful to a bininj driven approach and value set. Crucial to the Warddeken MERI program will be the innovative collection and use of data born of the rich and multifaceted knowledge people accrue from interaction with their country, their families and the living cultural landscape.

REPORT FROM THE CEO



This past year marks ten years since the dedication of the Warddeken IPA – for our company this is a bittersweet milestone. Looking back over our many successes it is impossible not to notice the void left by the esteemed Nawarddeken elders who have passed on; their vision and drive to return to and care for country is everything that makes Warddeken who we are today.

Following proudly in their footsteps the new generation of Nawarddeken have continued to strive and achieve, bringing people back to country, asserting control and care for their lands, building communities and inspiring their children. Even through the incredibly challenging year we've just experienced, the Warddeken team rose to the occasion. 2019-20 saw us combat our most intense wildfire season ever – with more than 50 late season intense bushfires controlled and a strong result for carbon abatement in the WALFA project achieved.

The start of 2020 brought the global COVID-19 pandemic to Australia and Warddeken rangers helped to keep our remote communities functional, safe and COVID-19 free during this disturbing time. Key staff locked down at each ranger base and made provisions to ensure that our important work of caring for country could continue in concert with the necessary biosecurity restrictions.

We have seen a renewal of our Board of Directors, with more than 260 members voting during mobile polling to elect our new board. I am very proud to note the regular feedback from our members during the election regarding their happiness with our strong governance processes. I would like to thank our departing board members for their hard work and commitment during their terms with Warddeken and extend a warm welcome to our newly elected and returning directors.

The coming year will no doubt bring many new challenges, in particular the impacts of COVID-19 will continue to evolve and Warddeken will need to remain alert and ready to respond to any new developments in this area. That said, the strong performance of the WALFA program in 2019 and our conservative management during this period has Warddeken well positioned to both respond to this uncertain time ahead and seize upon the new opportunities that may arise. In particular we look forward to the expansion of the Daluk (female) ranger and Bim (rock art) projects in the coming year and the opportunities this will bring.

A handwritten signature in black ink, appearing to read 'Shaun', written in a cursive style.

Shaun Ansell
CEO



The spectacular East Alligator River during the wet season.
Photo © David Hancock

COVID-19 IMPACT AND RESPONSE

Along with the rest of the country, Warddeken have been significantly impacted by the global COVID-19 pandemic. The health and safety of Warddeken staff and members has been our priority during this time, and our team remains committed to ensuring this is possible. While programs such as fire management, biodiversity monitoring and rock art conservation have continued to operate, it has been in a scaled back capacity as a result of impacts such as restricted Traditional Owner movement, and overland freight and transport being halted.

The arrival of COVID-19 in Australia posed a serious risk for Nawarddeken in west Arnhem Land, and indeed indigenous people across Australia and the world. Elders and local community leaders were decisive in their early calls to action to protect vulnerable community members, many of whom are disproportionately impacted by chronic disease and comorbidity factors.

Within a short period of time, west Arnhem communities closed their borders to all non-essential travellers. Visitor permits were revoked by the Northern Land Council and only approved essential workers were allowed to travel to and between the remote communities and homelands.

The announcement of the closure of west Arnhem communities came with only several days' notice. Numerous community members faced being stranded in Darwin and nearby towns, without secure accommodation or access to any services. The Warddeken team organised charter flights to get these members home with less than 48 hours to spare. Throughout the closure, Warddeken also liaised with the Gunbalanya Emergency Response Group to enable permits for additional community members to return on medical grounds.

Kabulwarnamyo, Manmoyi and Mamardawerre communities rely on food supplies delivered by plane each fortnight. At the onset of COVID-19 biosecurity zone closures, all freight from outside was halted. Initially it was unclear whether or not food delivery into our communities would continue to be feasible and possible. As a first response, the Warddeken team organised a large shipment of dry and canned food that could sustain each community for a least one extra month should it be required. For the remainder of the community closures period, when freight recommenced, Warddeken continued to ensure food security amongst homeland residents across the IPA.

Warddeken IPA communities have only a handful of landline phones, no mobile phone reception and limited internet access. For most residents, English is not their first language. We recognised from the outset that getting the right health messaging out to Nawarddeken living on homeland communities was paramount. This necessitated the development of bilingual resources and to this end a linguist from the rock art project was redeployed to create COVID-19 health messages in Kunwinjku.

These messages were in the form of podcasts, posters and pamphlets, and have been made available on the Northern Territory government COVID-19 website, as well as shared widely across social media platforms by bininj and other local organisations.

“We indigenous people are resilient. Everyone is helping each other to keep people safe. Here it is very, very healthy. Children are still being educated when other schools closed down. We are working with our fire management. We have managed and maintained our cultural heritage and people.”
- Dean Yibarbuk, Chairman

**YI - BENGKAN
CORONA VIRUS**

**YIWURLHME?
FEVER?**

**YIWERNDOHME?
COUGH?**

**YIKOMMOK?
SORE THROAT?**

**YINGOLEKWARREMEN?
SHORTNESS OF BREATH?**



YIKOMMOK ? YINGOLEKWARREMEN?

THE YEAR IN NUMBERS

Bininj (Indigenous)
Rangers Employed

182

Warddeken Members

405

Square Kilometres Managed

14,000

Wildfire Suppression
Late Dry Season
(Aug-Dec 2019)

53 fires controlled

4,469 ranger hours **682** chopper hours

Feral Animals

945 buffalo culled aerially

352 buffalo culled on ground **78** pigs culled aerially

Employment

105 Bininj (men)

77 Daluk (women) **12** Balanda (non-indigenous)

Anbinik Isolate Forests

11 forests protected by on-ground fire break

30 forests protected by targeted APB

Rock Art

30,000+ sites in the IPA

12 sites conserved **55** sites rediscovered

Culture Camp

60 attendees **15** children

Biodiversity Surveys

902,455 camera trap photos

31 mammal species **36** bird species **21** reptile species

Aerial Prescribed Burning
Early Dry Season
(April-July 2020)

9,799 km APB

>200 km roadside burning

MANWURRK FIRE MANAGEMENT



Photo © Rowand Taylor

For many thousands of years, Nawarddeken used fire as a tool to manage country to their benefit and the ecology of the kuwarddewardde expresses this imprint in many ways. After the widespread depopulation of the plateau in the 1960s, large wildfires dominated in the absence of dry season burning patterns and devastated the region.

Background

In 2002, under the guidance of Bardayal and other professors, Warddeken reintroduced indigenous fire management practices to the region, playing a central role in the development of the pioneering West Arnhem Land Fire Abatement (WALFA) Project.

Through implementing a combination of traditional and modern fire management techniques – primarily conducting prescribed burns in the early dry season and wildfire suppression in the late dry season – Warddeken rangers have stabilised the fire regime of the kuwarddewardde, in turn protecting the environment and cultural heritage sites and reducing greenhouse gas emissions.

WALFA Project

This strategic landscape scale fire management underpins the ground breaking WALFA Project where industry, government and indigenous ranger groups work in partnership to offset greenhouse gas emissions. Initiated in 2006, the WALFA Project saw ConocoPhillips and Darwin Liquefied Natural Gas work with the Northern Territory Government to fund the fire management activities of five ranger groups across 2.8 million hectares to produce an annual offset of 100,000 tonnes of greenhouse gases.

In the fifteen years since WALFA's inception, Warddeken and our project partners have built our capacity to undertake broadscale fire management, and the success of the project has demonstrated the strong environmental, cultural, social and economic benefits that stem from good fire management practice. Greenhouse gas abatements have also exceeded expectations, with over 2.7 million tonnes of greenhouse gases abated to date.

Excess abatement is marketed through the aboriginal owned, not-for-profit company ALFA (NT) Ltd. This has led to substantial locally generated revenue being reinvested into world class aboriginal ranger groups who manage the WALFA Project. In this way the Bawinanga (Djelk), Jawoyn, Mimal, Adjumarllarl and Warddeken rangers are seizing control of their own destinies.

2020 Early Dry Season Burning

At the beginning of each year, senior Warddeken staff conduct widespread landowner consultations to gain consent and feedback regarding the operation of our early dry season burning program. Our fire management consultations in 2020 were unusual due to COVID-19 restrictions on travel, with the majority of consultations conducted over the phone to avoid potential virus spread. Despite the challenge of not being able to discuss plans with maps of country and fire scar maps as visual aids, consultations were completed for all clan estates in the IPA.

Strategic on ground burning is performed wherever possible throughout the IPA, particularly along roadsides and hunting tracks. Rangers undertake ground burning from a 4WD vehicle or by foot, and use either a drip torch or matches as the ignition source. In 2020, on ground burning was performed across more than 200 kilometres of tracks and roads within the IPA.

Ground burning is also utilised to protect environmental assets such as anbinik rainforest isolates and stands of anlarrh (fire sensitive native cypress), as well as cultural sites including kunwarddebim (rock art galleries) and djang (dreaming sites).

Rangers and coordinators ensured that all outstation communities and associated infrastructure within the IPA were protected by installing asset protection firebreaks, before commencement of APB.

The coinciding of COVID-19's arrival in the NT with our aerial prescribed burning (APB) program meant delivery of APB operations needed to be adapted to meet government restrictions and ensure the safety of our staff and constituents. Senior ranger Terrah Guymala and ranger base coordinators gained consent to undertake much of the burning as proxies for Traditional Owners, who in normal circumstances would guide and/or perform the APB themselves. Rangers and coordinators from all three bases shared APB duties across the IPA, with a total of 9,799 kilometres of APB completed for the season. Despite the impact of COVID-19 on APB, we continued to emphasise the empowerment of senior bininj staff to independently undertake more of the aerial burning.

A highlight of 2020 APB was increased participation by young daluhdaluk (women) particularly from Kabulwarnamyo ranger base, with Tana Girrabel and Tahnee Nabalwad learning to confidently operate the Raindance incendiary machine and perform effective aerial burning across multiple clan estates.



Clockwise from top left: Drip torches allow rangers to walk through country and burn effectively. Photo © David Hancock

Jenkin Guymala in front of a cool burn lit using matches. Photo © Rowand Taylor

Senior ranger Greg Lippo does some burning while he's out undertaking on ground feral animal control. When rangers are out and about on country during the early dry season, they are able to conduct early burns as vegetation dries out and country is ready. Photo © Rowand Taylor

Tahnee Nambulwad learned to confidently operate the Raindance incendiary machine and was a key player in delivering APB this year.



A highlight of the 2020 early burning season was increased participation by young daluhdaluk (women). Here Tana Girrabil performs aerial burning across multiple clan estates for which she has customary obligations.

KUNWARDDEBIM

ROCK ART

The tens of thousands of kunwarddebim (rock art) sites spread across the vast expanse of the Warddeken IPA represent one of the most significant collections of cultural heritage anywhere in the world. Warddeken is committed to documenting and conserving kunwarddebim, which lies at the heart of Nawarddeken cultural identity.

Rangers and Traditional Owners drive our rock art research and conservation program. While ad hoc rock art surveys and site works have long been a feature of Warddeken's work program, in 2019 a turning point in this critically important work was achieved when the Kunwarddebim Project moved from pilot phase and formally commenced.

Through this project, we have set ourselves the ambitious goal of working with landowners to strategically survey the entire IPA, documenting and conserving art sites in the process. While we have a long way to go, steady progress is being made and the project continues to engage bininj, reconnecting clans and Traditional Owners with the artistic and spiritual legacy of generations of their ancestors.

The rock art project officer works alongside rangers and Traditional Owners using a customised methodology of surveying and mapping kunwarddebim, and directing a rigorous program of site conservation and protection.

In the first full year of the project, these are some of the project highlights.

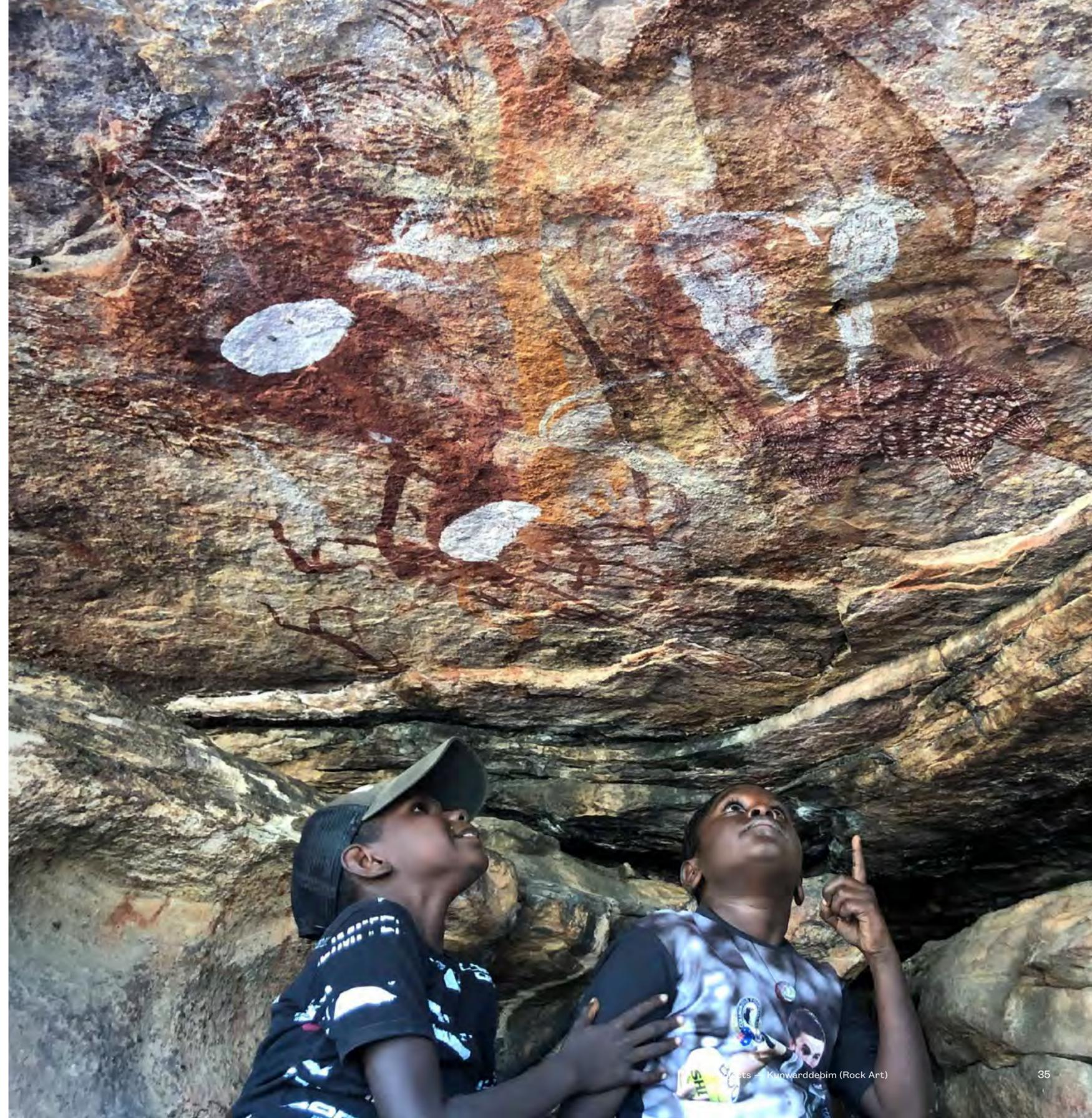
135 sites surveyed
>1000 paintings documented
0.056% overall IPA surveyed



Ricky Nabarlambarl takes in the paintings inside a cave complex during field surveys. Photo © David Hancock

All paintings are photographed with a colour scale, which allows for digital colour calibration and is a means of standardising the photographic record of rock art. Photo © David Hancock

Right: Young Mok traditional owner Richard and kun-Mok djungkay Delsanto examine an art site on the country they will grow up to be responsible for.



Rock Art Survey Camps

Djalama

4 days

15 sites

Kunmurrka & Yindimorlongong

Rangers and djungkay, comprised of five women from the Nabalwad family, surveyed a high rocky ridge to the east of Mamardawerre. The area was difficult to survey as the sites were situated relatively high up the ridge and had not been visited in the recent past – quite a lot of overgrown fuel had built up, such as grasses and spinifex. None of the art was known to the rangers and Traditional Owners present. The predominant use of red ochre, the pigments' fading and the subject of the art itself (thylacine, men with headwear pertaining to a time unknown to bininj), coupled with the fact that those places were not visited frequently by artists in the more recent generations of the Djalama clan, leads us to assume the art is older than at least 3000 years.

Djordi

2 days

1 major site

Namelek

Namelek site had previously been recorded, but not using the updated recording method, and so Traditional Owners decided to record and start monitoring the site using updated methods.

Yurhmanj

2 days

22 sites

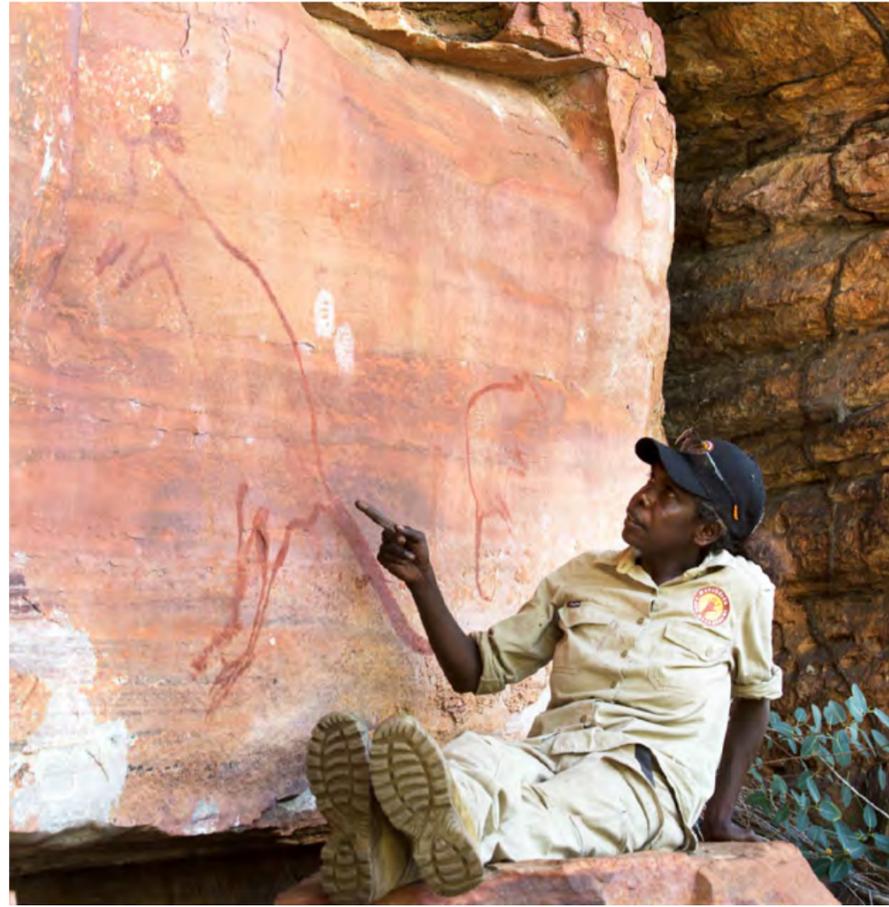
Rangers continued major surveys in Yurhmanj clan estate at the beginning of October, guided by Zacharia Namarnyilk (djungkay for Yurhmanj estate). Zacharia wanted to show children his country, so the survey also functioned as a youth learning camp. The team camped near a billabong where eminent Warddeken professors Bardayal Nadjamerrek, Jimmy Kalarraya and others used to camp, a place therefore of cultural importance. Four managed sites in the area (fenced) were visited and discussions held to establish an action plan to keep the fences functional and the sites protected.

Wurrbbarn

3 days

6 sites

A survey camp involving nine rangers, of which two were Traditional Owners, and two djungkay. Six previously undocumented sites were recorded. Remoteness and rugged terrain meant the survey team moved by helicopter to reach the campsite. From there the rest of the surveys were conducted on foot.



Clockwise from top left: Lorraine Namarnyilk examines a painting of a kunj (kangaroo). The surviving red pigment indicates the image was made with an iron-based material, absorbed into the rock over thousands of years. Photo © David Hancock

Specially developed rock art software D-Stretch allows images to be enhanced and can bring out faint paintings that are invisible to the naked eye. This painting of a male in a headdress with a dilly bag over his shoulder becomes visible with the software, providing a snapshot of ancient life.

In these two bottom images, teams of bininj (male) and daluk (female) rangers document more recent contact art sites, with vulnerable paintings made using delek (white ochre). Using small tripods and digital cameras, rangers avoid heavy gear in the rugged terrain. Photos © David Hancock



Barradj

2 days

10 sites

This camp was run in collaboration with the Mayh (Species) Recovery Project and the Nawardecken Academy and included learning on country subjects related to animals (namely quolls, which had previously been recorded in the area) and rock art. Ten new sites were recorded. Highlights included trips with students to a cave/occupation site and adjacent undercut with ngalyod (rainbow serpent) drawn on it, and a thylacine site. The sites were chosen by senior Traditional Owner Dean Yibarbuk. In total an area of 0.20 square kilometres was surveyed and six rangers were involved in the survey process.

Rock Art Conservation

Dr Melissa Marshall from the Nulungu Institute at the University of Notre Dame in Broome, WA, facilitated rock art conservation training for teams of rangers from each base. Practical maintenance workshops were held on how to reduce threats at sites, including removal of termite runs, cobwebs and vegetation from a site. Dr Marshall talked about best practices to fence areas to restrict feral animals and demonstrated how to set up monitoring points for the observation of damage to art.

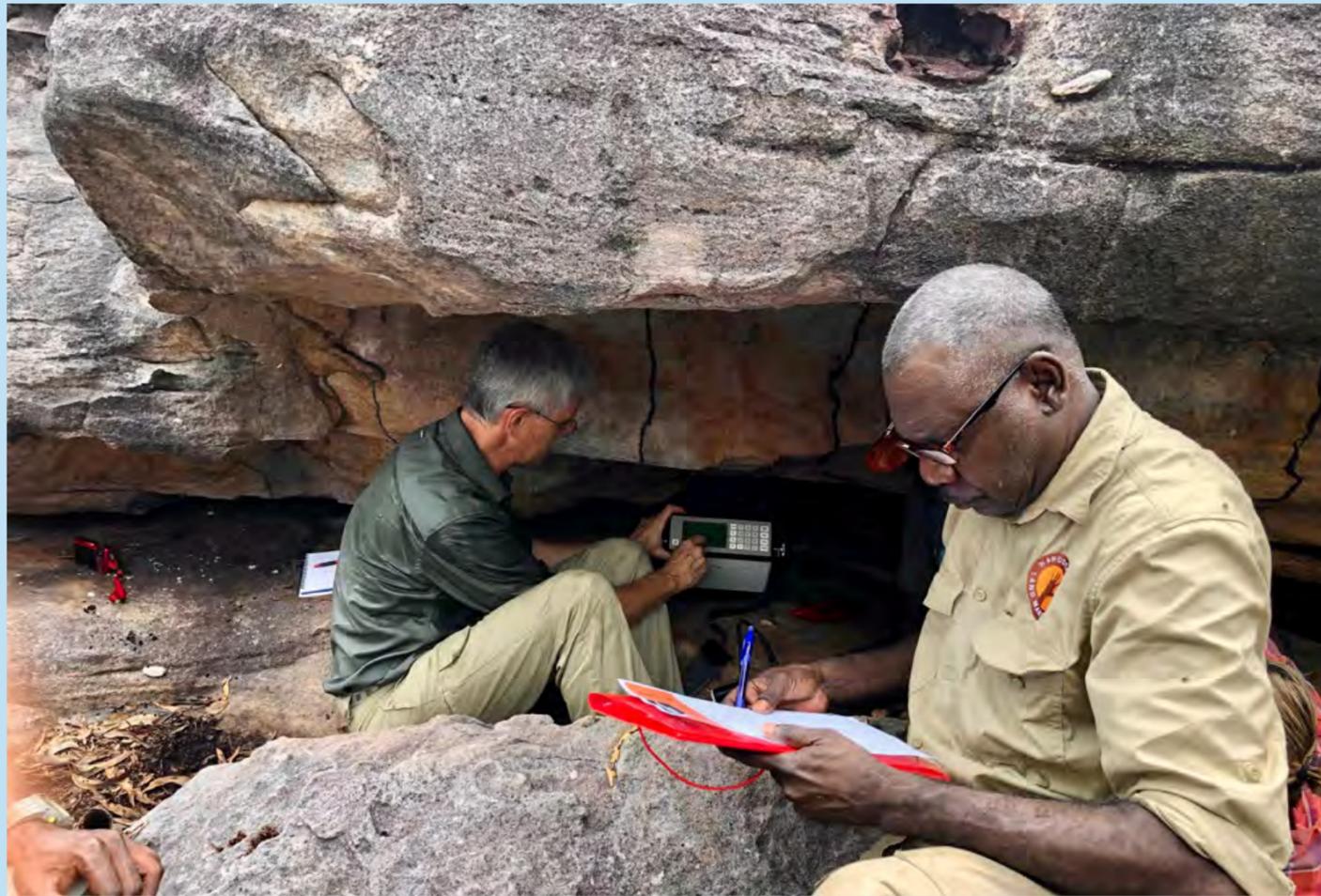
During the dry season, rangers undertook a range of conservation actions including basic site maintenance: on ground burning, clearing of the sites from fuel build up (leaves), cutting down growing trees and plants after assessing their threat for the art, and removal of cobwebs (to avoid the risk of dust accumulation) and termite runs. Plans have also been made for the erection of four feral animal exclusion fences, however the works have been postponed due to the impacts of COVID-19.

Over the wet season, daluk rangers successfully completed the task of archiving all survey data collected over the course of 2019 on our Bidwern Cultural Heritage Management database.

Collaborations and Conferences

Warddeken progressed a partnership with CABAH (Centre of Excellence for Australian Biodiversity and Heritage) in Wollongong, whose staff visited the IPA twice. CABAH staff presented at each ranger base community about projects for potential collaboration. Of immediate interest to landowners and rangers was a project involving the removal and dating of wasp nests from art sites. See over page for more about this exciting project, which is led by Dr Zenobia Jackobs (a world expert in archaeological dating) and Professor Richard Roberts (director of CABAH and designer of the wasp nest dating technique).

Unfortunately, the Warddeken team was unable to attend the 2019 Australian Archaeological Association's (AAA) conference as planned. Despite this, we submitted a poster in the AAA competition, which was judged as highly commended. The bilingual poster 'The State of Rock Art & Indigenous Management in the Warddeken IPA' was developed through a process of community engagement and prepared by the project officer and daluk rangers.



Senior ranger Terrah Guymala works with a researcher from CABAH to record details about the painting on which the wasp nest has been built.

This year, rangers expressed interest in finding out more about the antiquity of certain paintings. One way to discover the age of rock art is to sample wasp nests that have been built on the top of, or sometimes underneath, paintings. Determining the age of the wasp nests provides a minimum age for the art, as the painting is under (and therefore older) than the nest.

In February, the sampling of ancient mud dauber wasp nests was performed by rangers in collaboration with researchers from the Centre of Excellence for Australian Biodiversity and Heritage (CABAH). This is the first time any rock art within the Warddeken protected area has been dated, and everyone was excited to get a scientific date for the age of some kunwarddebim.

Traditional Owners chose locations to survey and then identified suitable sites for sampling nests. Two art and occupation sites that had been used by Nawarddeken until recent times were selected. In the late afternoon, the team revisited the site, waited for the sun to set and proceeded with collecting the nests by moonlight. It is a requirement to sample the wasp nests without exposure to sunlight.

The following morning, the team revisited the site to inspect the previous night's work and collect additional data. The gamma rays (energy coming from the rock) were measured using a gamma spectrometer.

The nests collected were taken back to a laboratory and analysed by CABAH. This involved obtaining quartz grains from inside the mud wasp nests, cleaning the grains with chemicals and then measuring how much energy was stored inside the grains. The quartz grains inside the nest have accumulated energy since the nest was built and, by measuring this through optical luminescence stimulation, we were able to find out the age of the nest.

Results showed the mud wasp nests collected at Miyene were 20,000 years old. This means the painting of the kunj directly underneath the nest is at least 20,000 years old – possibly even older! Receiving this news was a reminder to us bininj that we are the custodians of sites that have been used by many, many generations of our family; that our history with the kuwarddewardde is long, deep and ubiquitous.

From left: Detail of the ancient mud dauber wasp nest that was used to date the painting underneath.
Conrad Maralingurra uses a gamma spectrometer to measure gamma rays – energy coming from the rock.

USING DJIDDIRIRIN (MUD WASP) NESTS TO DATE ART SITES



180 camera traps deployed
 32 Bininj employed
 20 senior landowners
 consulted with for 2020
 deployment approvals
 902,455 photographs
 31 mammal species
 36 bird species
 21 reptile species

MAYH (SPECIES) MONITORING PROJECT

It is important to consider the following statistics in context – our monitoring network was designed with ten key mammal species in mind, and cameras are suitable for a broad range of species, but not all. Additionally, we do not sample every kind of habitat. Considering these factors, our project outcomes are even more impressive than at first glance.



9/10 focus mammal species

Barrk dja djukerre (male and female black wallaroo), bakkadji (black-footed tree-rat), yok (bandicoot), djebuyh (brush-tail possum), dalkken (dingo), swamp buffalo, pig, feral cat and black rat

23/29 mammal species that are suitable for getting on camera

This includes our native focus species and other such as djorrkkun (rock ringtail possum), ngarrbek (echidna) and various mulbbu such as pale field rat, red-cheeked dunnart, Arnhem rock-rat and the sandstone antechinus

9/9 big lizards we would expect to see

Kalawan (yellow-spotted monitor), djanay (sand monitor), djerreko (spotted tree monitor), burrar (both water monitors), darrara (Kimberly rock monitor), bongka (black-palmed monitor), karrek (pale-headed monitor), bulurr (northern spiny-tailed monitor) and narlangak (frill-necked lizard)

10/11 of the ground dwelling birds we would expect to see

Yahye (rainbow pitta), marlum (emerald dove), lumbruk (common bronzewing), korlobok (peaceful dove), korlododdok (bar-shouldered dove), rakul (partridge pigeon), bamkarnamalkmalk (spinifex pigeon), borrobborro (chestnut-quilled rock pigeon), bukbuk (pheasant coucal) and kurrukurlanj (orange-footed scrub fowl)

7/7 introduced species;

Water buffalo, feral cattle, horse, pig, feral cat, black rat and cane toad

Alexandria Namarnyilk sets a motion sensor camera trap.
 Photo courtesy of Donal Sullivan



In the face of ongoing mammal declines across northern Australia, Warddeken has established a long-term monitoring network to understand the impact of our own land management practices and programs on priority mammal species, including djabbo (northern quoll), yok (bandicoot), bakkadji (black-footed tree-rat) and djorrrkun (rock ringtail possum). The project continues to deliver meaningful involvement and employment of landowners and rangers, generating positive outcomes far beyond just the scientific.

Now in its fourth year, the Mayh Monitoring Project is the foundation for all species recovery initiatives within the Warddeken IPA. The project forms the bedrock information base by which we can gauge the success of our landscape scale and species-specific management actions.

The commitment and ongoing efforts of monitoring officer Alys Stevens to work in partnership with rangers and Traditional Owners has seen the Mayh Project set a benchmark for best practice collaborative works between western scientists and indigenous ecological knowledge holders. The project values the experience and knowledge of landowners alongside the collection of robust data to answer key ecological questions, and this approach has seen the Mayh Project maintain strong support from Traditional Owners and community.

During the March 2020 deployment, 150 motion sensor cameras were set out by rangers, which involved participation by 28 rangers and Traditional Owners. These 150 cameras were retrieved throughout May and June and yielded over 900,000 individual images. The images were imported into our bilingual database and, in between other exciting dry season events, the daluhdaluk (women) at Manmoyi ranger base have been working their way through the image identification process.

From top: Jenny Nadjamerrek and Tana Gurrabul fly over Kundjikutdubuk for the first time – country they have custodial responsibilities for but had not visited until the Mayh Monitoring Project allowed them to.

Young daluk rangers Tinnesha Narrorga and Lorina Maralingurra set a camera trap. Photo courtesy of Donal Sullivan

Unfortunately, due to the impacts of COVID-19, our resampling deployment program was interrupted, with only 36 of the 60 sites planned for resampling in 2020 achieved. The missing sites will be caught up in 2020 as the seasonal window had been lost by the time the COVID-19 restrictions lifted. At the time of reporting, we have now resampled 96 of our long-term 120 monitoring sites. By the end the first quarter of 2020-21, a plan will have been made for how to make up the missed 24 sites.

Though the technical outcomes of the Mayh Monitoring Project may have been reduced this year, we were still able to continue to service the major Warddeken priority of connecting people to their clan estates through land management. The March camera deployment involved senior ranger Jenny Nadjamerrek and her daughter Tana Gurrabul visiting Jenny's mother country, the clan estate Warddjak Kudjikutdubuk, for the first time in their lives. This is an example of the co-benefits a scientific project can generate when conducted with integrity and commitment to cultural outcomes.

Exciting new projects commencing in 2020

Djabbo (Northern quoll) research and recovery project:

Djabbo populations identified by the Mayh Monitoring Project still continue to be actively considered in annual early burning and wildfire suppression activities, and are also to be targeted for further investigation for the purposes of building population resilience. With meaningful involvement and employment of landowners and rangers, Warddeken will seek to define quoll and major predator feral cat population density and distribution to inform the design of predator suppression strategies if required.

Kurrukurlanj (Orange-footed scrub fowl) project:

Senior people devised this project after the Mayh Project confirmed their observations that kurrukurlanj have declined from their historical extent in dry monsoon rainforest and vine thickets along the Mann River. Senior rangers will lead the site selection and camera deployment along the Mann River independently, with the monitoring officer providing technical support back at the base. The Kurrukurlanj Project at Manmoyi will investigate the perceived reduction in distribution by sampling historically known sites where senior people recall kurrukurlanj was present.

CAMERA TRAP HIGHLIGHTS

Djirndih - Brown quail



Djukerre - Female black wallaroo



Yok - Bandicoot



Djebuyh - Brushtail possum



Ngarrbek - Echidna



Boywek - Northern knob-tailed gecko



Dalkken - Dingo



Djanay - Sand monitor



Djorrkun - Rock ringtail possum



Mulbbu - Pale field rat



Barrk - Black wallaroo



Narlangak - Frill-neck lizard



Borrobborro - Chestnut-quilled rock pigeon



Djabbo - Northern Quail



Bakkadji - Black-footed tree-rat





YIRLINKIRRKIRR (WHITE-THROATED GRASS WREN) - A KUWARDDEWARDDE SUCCESS STORY

Yirlinkirrkirr (White-throated grass wren, *Amytornis woodwardi*) is a small, shy but extremely charismatic ground-dwelling bird endemic to the kuwarddewardde. Yirlinkirrkirr is restricted to the rugged sandstone massif of western Arnhem Land and is patchily distributed within this range of about 32,000km². It is listed as vulnerable in Australia and on the IUCN Red List of Threatened Species, with data suggesting that the total population of yirlinkirrkirr is less than 10,000 individuals. Species decline is presumed to be based on broadscale change in habitat quality associated with altered fire regimes.

Despite the work of many amazing linguists and their bininj counterparts, the local bininj kunwok (aboriginal language) name for white-throated grass wren had not been documented before the commencement of biodiversity surveys in the Warddeken IPA. Early consultations about the project with professors Mary Kolkiwarra Nadjamerrek and Mary Naborlhborlh revealed the name to monitoring officer Alys Stevens. The word yirlinkirrkirr has appeared in subsequent Kunwinjku dictionaries and language materials for our region.

Interestingly, like many Kunwinjku bird names, yirlinkirrkirr is onomatopoeic – meaning that the word phonetically imitates the sound of the white-throated grass wren call. It is this distinctive call – a mixture of complex trills and chirps – that has given it such a complex name!

Excitingly, early analysis of camera data from the 2020 deployment revealed another two populations of yirlinkirrkirr have been discovered in the Djorrlam and Ngalngbali clan estates. The Ngalngbali record is the most northernmost record known to western science.

In the Warddeken IPA, we have now formally documented ten population records of yirlinkirrkirr. We have found them by walking, looking for them and playing their call (2012 surveys) and through the Mayh Monitoring Project.

We have found them in the estates of Mok, Bordoh, Djordi, Dulhmarnkarr, Warddjak Maburrinj, Ngalngbali, Djedjrungi, Djorrlam and Barradj.

Yirlinkirrkirr are themselves a sign of good fire management as they need long, unburned spinifex in which to make their nests and ensure their protection from feral cats.

Based on our results so far, we can be confident that yirlinkirrkirr will be found in many other places across the IPA, reflecting Warddeken's positive fire management outcomes. Warddeken would like to build on the collection of records of yirlinkirrkirr obtained to date to conduct a program to fully understand the current status of yirlinkirrkirr for the purposes of monitoring this nationally important species. To do this, we need to understand which monitoring method is most effective at detecting yirlinkirrkirr and use this to conduct regular and long-term population census across the IPA.





From top: Many Anbinik forests are protected through targeted aerial burning, which provides protection through early burned patches in close proximity to the sites. Photo © Rowand Taylor
 One of the 2020 Anbinik ranger crews pose for the camera after completing a break.
 Far right: This aerial image shows the mineral earth break that rangers have installed around an entire stand of Anbinik forest.



ANBINIK

ALLOSYNCARPIA RAINFORESTS

The spectacular and significant anbinik (*Allosyncarpia ternata*) was the dominant tree species of the kuwarddewardde as far back as the last Ice Age. These large, broad canopied, shady trees are relictual species, ancient ancestors of today's eucalypts. Anbinik are of strong significance to Nawarddeken for their contemporary ecological importance, as well as the cultural status they held for old people, who valued the forests for the shade and shelter they offered.

Anbinik forests are ancient, slow growing and fire sensitive. When Nawarddeken left the plateau in the 1960s, anbinik forests were left vulnerable to devastating wildfires and entire stands of forest were destroyed. Today, anbinik is largely restricted to the deep gorges and rugged escarpments of the plateau, where the landscape provides protection from fire. In the savanna woodlands, small isolate forests persist and are dependent on ongoing management and protection from fire. Old people maintained these patches through careful fire management, a practice now reinstated by Warddeken at fifteen of the most 'at risk' anbinik isolate forests.



**“Anbinik are the trees from the very beginning.”
 – Mary Naborlhborlh (DEC)**

Unfortunately, Warddeken's Anbinik Management Program has been scaled back for the previous two years due limited funding. The unusually high level of expenditure on 2018 and 2019 wildfire suppression and the resultant reduced income led to a reduced program of works. Within the IPA there are fifteen identified 'at risk' priority anbinik forests that are normally visited and cared for annually through the Anbinik Management Program. This year, rangers were able to visit eleven sites and comprehensively protect them by maintaining the existing mineral earth breaks surrounding entire stands of forest. For the remaining four sites, aerial prescribed burning was executed strategically in the immediate vicinity of the forests to offer protection through burned breaks. Rangers continue to observe positive signs of forest regrowth at some sites, including Yidngarremarnng in Bolmo estate. Originally funded by the Federal Environment Department's Biodiversity Fund, Warddeken's Anbinik Management Program is now sadly – much like the anbinik forests themselves – at risk. While some anbinik patches can be protected as part of the early dry season prescribed burning program, additional and ongoing funding is necessary to ensure the continuation of on-ground management at the fifteen priority sites, allowing us to deliver best practice forest management and continue to drop off teams of rangers at each site early in the season to manage and maintain approximately 20,000 lineal metres of fire breaks and monitor forest regrowth.

KUNMAYALI DJA KUNWOK

KNOWLEDGE AND LANGUAGE

Barradj Culture Camp

Plans for a large-scale bushwalk involving many of our neighbouring ranger groups were put on hold until 2021 due to COVID-19 restrictions. Instead, we facilitated a culture camp on Barradj estate that for the first time allowed a large group of rangers, Traditional Owners and students of the Nawarddeken Academy to camp and spend time getting to know this remote area of country.

Barradj clan estate in the south of the IPA is rarely visited, due to its remoteness and lack of road access. Most works in this estate have previously involved transport by helicopter, limiting the number of Traditional Owners who have ever visited the estate. In the lead up to the camp, rangers worked to build new sections of road, as well as repairing and maintaining the existing rough bush track leading to Barradj country.

Sixty attendees, including fifteen children, made the long journey through three clan estates before reaching the final destination. This allowed adults and children to see country in Mok, Berdberd and Yulhmanj clan estates and discuss clan boundaries en route to the camp.

Upon arrival a head wetting ceremony was held at a freshwater spring, where new visitors to country were welcomed and introduced to the ancestors and creator spirits. The camp commenced with 'kobahkobanj kabirriwokdi', senior people sharing knowledge with younger campers. Elders Mary Kolkiwarra Nadjamerrek, Josie Maralngurra, Hagar Nadjamerrek and Leanne Guymala discussed the purpose of the camp, the importance of two-way education, and shared cultural information about the place, country and families.

Barradj estate is one of the only known locations within the IPA of an-kokbo, or stone country cycad (*Cycas conferta*). These ancient trees are both ecologically and culturally significant and it was exciting to be able to introduce a new generation of Nawarddeken to the species. Spending time on Barradj estate allowed the three professors present – Mary, Josie and Leanne – to share knowledge with children and younger people about the harvesting and processing of an-kokbo seeds to make damper.

When camping on country, hunting and harvesting bush foods is one of the most popular activities and a great many ngardderrhwo and ngalmangeyi (short and long necked turtle) made it onto the campfire during the camp. Lots of damper was prepared by the daluhdaluk (women) and a buluki (wild cattle) ground oven was prepared by the binihbininj (men).

Prior to the camp, Warddeken's ecological monitoring officer and rock art officer worked with senior Traditional Owners and teachers from Nawarddeken Academy to devise a cultural learning program with activities centred around djabbo (northern quoll) surveys, and kunwarddebim (rock art) recording.

Kunwarddebim exploration yielded the discovery of multiple sites, the highlights being a depiction of djankerrk (thylacine) and an extensive shelter with many remnant stone tools and grinding stones.

Djabbo surveys involved setting cameras at strategic locations, as Barradj country is one of the locations our camera surveys have positively identified a population of djabbo. A highlight of this activity was the discovery of what is likely a djabbo (northern quoll) foot print at a rock shelter and the setting of remote cameras there.

With many master weavers present, fibre art workshops were held over multiple days. Pricilla Baddari, Merryl Namundja and Connie Nayinguul facilitated trips to collect natural dyes and ran weaving workshops for students and younger women.



Master weavers Leanne Guymala and Merril Namundja share their fibre art skills with young women during the Barradj culture camp.



Clockwise from top left: Lorraine and Amber work together to learn practical ways that both balanda and bininj can increase their use of spoken and written language in a cross cultural workplace.

An interactive app developed by linguist Steven Bird in collaboration with Nawarddeken Academy students. The game helps students master Kunwinjku words for body parts.

Tahnee Nabalwad stops in for a visit at the sacred site Djamarr (Havelock Falls) on her mother's country during aerial prescribed burning.

Senior ranger Elizabeth Nabalwarl works on transcribing and translating rock art videos. An accomplished linguist, Elizabeth drives a dynamic program of cultural learning at Manmoyi ranger base.



During the Barradj Culture Camp, rangers were excited to discover a significant cultural site rarely seen by the current generation of bininj. Among the rocky outcrops, behind a large shelter, lay an impressively large collection of kunj (kangaroo) bones, many painted with ochre. The bones were arranged in a ceremonial fashion, with many of them incredibly still standing after at least 150 years.

The bones have accumulated from the first successful kangaroo hunts of yawurrinj (young men) over a great many generations. Known as kalngbuy, the spearing of a kangaroo for the first time was a significant moment in the lives of yawurrinj.

The meat of these hunts was restricted to certain older relatives of the hunter – a system that ensured older people who needed protein to stay strong would always have access to a good supply of meat.

Senior cultural advisor Berribob Dangbungala Watson and senior daluk rangers Lizzy Nabarlambarl and Sarah Nabarlambarl Billis recorded in Kunwinjku the story of kalngbuy. The audio has been saved in our Bidwern database to be used as a learning resource for future generations.

KALNGBUY - REDISCOVERING A CULTURAL SITE ON BARRADJ COUNTRY

Kalngbuy

Mani korroko murrungno mani kamurrngyo kore kuwardde kunkare.
Those bones, a long time ago, the bones lay among the rocks, a long time ago.

Korroko kohbokohbanj, birribuni yawurrinj
In the time of the old people, those young men used to kill [kangaroos]

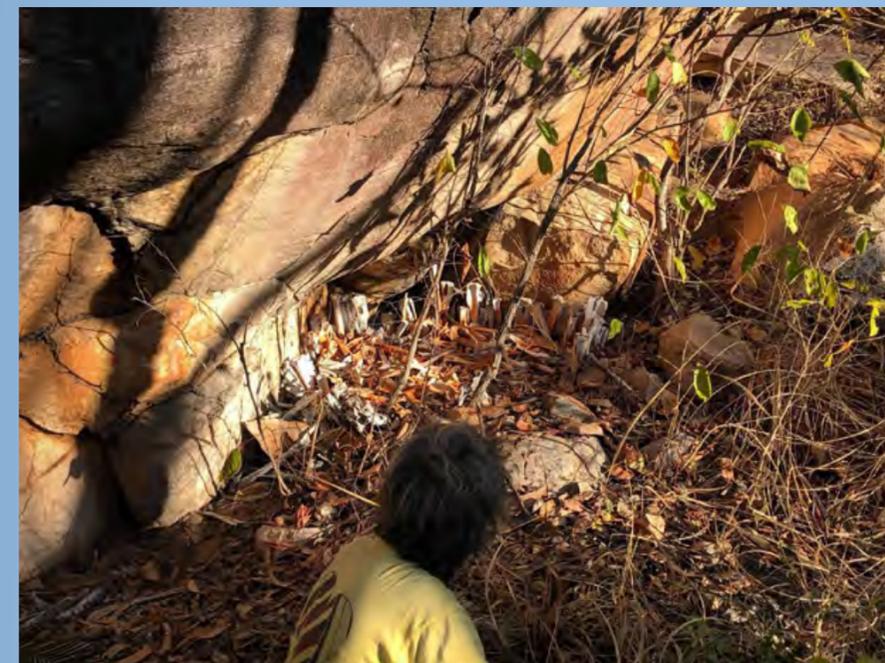
minj birringuyinj kunj
but they could not eat the kangaroo meat

yawkyawk nawu yiman kayime benedanginj
and those young women, their sisters also [could not eat the meat].

Yiman kayime ngaleng nuye ngaldjongmiken, ngalmorlahmiken,
However, those older people such as their mother's mothers and their mother's elder sisters

Ngaldoydoyhmiken, ngalmanjmiken yimeni like birringuni
their great grandmothers, their mother's aunts – those people were allowed to eat [the kangaroo].

Senior landowner Dean Yibarbuk takes some time to absorb and reflect upon the antiquity of the kalngbuy site on his country.



Njale murrngno birrimurrngkurrmeng kumekke? Why did they put those bones there?

Wanjh bu birribuni yawurrinj...
If young men killed a kangaroo

bindimarnemurrngmayinj kohbokohbanj, ngalmorlahmiken mayi.
those older relatives used to collect the bones for them, such as their mother's elder sisters.

Murrngkarrmeninij wanjh manarr mayi baruji
The young men used to keep the bones and then get some red ochre and paint them,

birrimurrngbaruy wanjh birrikurrmeninij kore kuwardderurrk yiman kayime bolkkime karrinan kore kuwardderurrk kayo murrngno
they used to paint the bones with ochre and then put them in caves where we see them today.

Kumekke kunwale karrme korroko.
That's what they used to do a long time ago

Mah kunekke manekke like korroko kobohbanj
that's the story of a long time ago, of those old people.

Bu birrikomdudjni wurdurd yawurrinj nakka bindiwoni
That's what they did to young men who were recently initiated into ceremonies,

wanjh bu birrireij kore mayhkah
and so when they went hunting

djamunmeni bedberre.
they were then not allowed to eat the meat of animals they hunted.

Minj birringuyinj ngaldahdaluk ngalbahbadjan
Their mothers and their sisters were also not allowed to eat it,

djal birringuni... modjarrkdoyburrk warridj minj birringuyinj
some could eat it... but skewed cross cousins for example, they couldn't eat it either.

Bedmanwe kobohkobanj
It allowed older people access to protein rich food,

ngalmorlahmiken, ngalmanjmiken
such as their mother's older sisters and their mother's aunts

ngaldjongmiken yiman kayime birringuni.
and their grandmothers [mother's mother] they could eat it.



Top: Learning to dig for bush foods using bush tools.

Bottom: In a series of language workshops, staff and employees in the school and ranger program learnt ways to talk about feelings, how to read emotional body language, and how to express empathy and support.



KUNWOK LANGUAGE

Ngakangerayekwon
nga - kange - rayekwon

I'm encouraging him
I.him-heart-make.strong

There are six languages that make up the Bininj Kunwok language group. While Kundedjnjenghmi is the original language of the kuwarddewardde, most young Nawarddeken are not fluent speakers. Today, Kunwinjku is the dominant language spoken across west Arnhem Land with around 1,200 speakers, many of whom live in Gunbalanya.

Community members and elders are concerned that younger generations are not attaining a comprehensive vocabulary in Kunwinjku, which can only be reached through learning and practising language on country, as such a large percentage of the Kunwinjku vernacular is related to the natural environment. At Warddeken, we play a vital role in helping to reduce the loss of language by providing the space and resources for children and young people to learn Kunwinjku on country, where the natural and cultural environment supports the expansion of their vocabulary.

Language development activities at Warddeken over the last year have centred on 'learning for work'. We have been learning practical ways that both balanda and bininj can increase their use of spoken and written Kunwok. This has involved delivery of a series of workshops, most recently on the language of emotions. Through storytelling and role play, staff and employees in the school and ranger program learnt

ways to talk about feelings, how to read emotional body language, and how to express empathy and support.

Through these workshops we have established a virtuous circle, where bininj help balanda with concepts and pronunciation, while balanda help bininj with literacy and technology.

The workshops have been facilitated by Dean Yibarbuk and Steven Bird, with sponsorship by the Indigenous Languages and Arts program of the Federal Government. Some of the learning materials we have been creating are available at kunwok.org, including a phrasebook.

Steven Bird serves Nawarddeken Academy in the role of linguist, and directs the Top End Language Lab at Charles Darwin University. The Language Lab is developing new technologies to support learning and literacy for aboriginal languages.

Both the Mayh Recovery Project and Kunwarddebim Project continue to operate in a deliberate space of bilingualism, with the respective project officers deeply committed to delivering the projects, documenting outcomes and producing communication materials in both Kunwinjku and English. This has led to many reports and mixed media recordings being produced in Kunwinjku, including rock art site recordings, videos of elders discussing country and kinship, and technical instructional videos.

DALUK RANGERS



The Daluk Engagement Project is empowering young Nawarddeken women with the skills and confidence they need to find fulfillment and success in the workforce.

The Daluk Engagement Project focuses on building a strong daluk (female) workforce and creating gender equity within our workplace. The project is built around elders and senior women who are committed to being positive female role models. Warddeken's daluk workforce ranges in age from teenagers to octogenarians, and the project has created a diversified and flexible work program to cater to the varying interests and needs of Nawarddeken daluk.

Daluk are engaged and employed at all three ranger bases, working in many different capacities across a range of environmental and cultural programs.

Daluk rangers conducted early season prescribed burning along the roadsides around Kabulwarnamyo and Manmoyi, and installed firebreaks around the communities. They also led fine scale burning efforts at a number of rock art sites within the same regions, which involved removal of fallen branches, dried leaves and detritus from the vicinity of paintings. Young female rangers showed great interest and aptitude for participating in aerial burning operations, and excitingly for the first time conducted APB as operators of the Raindance incendiary machine.

In partnership with the Darwin Centre for Bushfire Research (DCBR), daluk rangers continued work with Bianca Vranjes, conducting monthly fuel accumulation surveys at Kulnguki on Mok clan estate. The survey data is contributing to the improvement of methodologies currently used to calculate carbon abatement in eucalypt woodlands and sandstone heath ecosystems, which are both found throughout the IPA. Bianca and teams of daluk rangers were able to complete every monthly survey on time, providing valuable data for this important research.

Daluk from all three ranger bases have been involved in various aspects of the Rock Art Project, including survey and data collection, data management (archival, analysis and report production), management actions, and cooperation with external stakeholders (eg CABAH). The daluk from Mamardawerre base have shown particular enthusiasm for undertaking rock art fieldwork and surveys.

Daluk rangers have again played a critical role in the Mayh (species) Recovery Project. This year, women constituted 62% of the Mayh workforce! As in previous years, daluk rangers were integral in the successful deployment of camera traps at many long-term monitoring sites across the IPA. Setting cameras is far more challenging than it sounds, and often involves walking significant distances from the chopper landing site to the location where the camera is to be set. At the Manmoyi base, daluk rangers have once again conducted photo analysis of almost one million individual images and managed the custom bilingual database. With this project now in its fifth year, the rangers have attained a high level of competency and efficiency at a range of skillsets and are producing exciting results.

This year has seen bush trips and intergenerational knowledge transfer on country continue to be a mainstay of the daluk ranger program. The Manme dja Manrakel (Bush Food and Medicine) Project is important for daluk rangers at all three communities and is run continuously throughout the years to ensure that important knowledge of food and medicine plants is reinforced. The project aims to provide the space for older and younger generations to spend time learning together, and to produce educational materials for intergenerational knowledge transfer, particularly for Nawarddeken Academy students.

Daluk from Kabulwarnamyo collaborated with Colormaker Industries – an Australian owned and manufactured paint specialist – who provided Warddeken with free PermaPlastik mural paints. The paint arrived in time for school holidays and offered community members the opportunity to create and design community messages and share traditional stories in a contemporary context. Daluk, bininj and wurdurd have been involved in creating colourful artworks in the community, particularly during quieter weeks. Daluk and Nawaddeken Academy students collected old car doors and bonnets from the tip, cleaning and preparing them with undercoat. The finished pieces are to be installed around community as a permanent art installation.

Throughout the year, daluk from across all three bases participated in a range of accredited and in-house training programs to build skills and confidence, including:

- Work Health and Safety
- Treating weeds
- Applying chemicals under supervision
- Inspecting and cleaning machinery for plant, animal and soil material
- Firearms A & B refresher course
- Digital literacy
- Raindance incendiary machine training
- Jewellery workshop
- Tendril (digital app) training



KUKKU FRESHWATER PLACES

Nawarddeken are freshwater people. Many of our freshwater places are sacred sites and others remain important sources of bush tucker, such as fish, turtles, water chestnuts and water lilies. A number of springs, creeks and rivers are also important sources of drinking water for ranger bases and landowners spending time on country.

A range of freshwater ecosystems exist within the Warddeken IPA, encompassing vast river systems, streams, billabongs, springs and our unique and fragile perched wetlands. These aquatic habitats are important for cultural and ecological reasons and support a diverse range of freshwater species as well as many favoured bush food and medicine plants. They are also the home of creator spirits such as ngalyod (the powerful rainbow serpent) and yawkyawk (mermaids) and a number of freshwater sites have associated cultural protocols and restrictions as a result.

The single greatest threat to all freshwater places in the IPA is hooved feral animals, primarily Asian water buffalo. Since their introduction to Australia during the period 1825 to 1843 they have damaged some freshwater sites beyond recognition, fouling the water and trampling the surrounding vegetation. Although the overall number of buffalo in the IPA is considerably less than in neighbouring lowland areas, the animals have a disproportionate impact on fragile upland wetland ecosystems around which they cluster during the dry season.

Warddeken has been undertaking annual aerial culls of feral animals within the Warddeken IPA since 2008, representing one of the most significant and sustained culling efforts within any protected area in northern Australia. Over time, our aerial culls have expanded in both intensity and coverage, reflecting increased support and understanding from Traditional Owners in the Warddeken IPA for culling, particularly in those areas where conflicting land uses do not exist.

An assortment of healthy freshwater sites from across the Warddeken IPA. Bininj consider freshwater places to be healthy if the right bush foods are available at the right time of year (plant and animal foods), there is minimal disturbance by feral animals, and the water is drinkable.

FERAL ANIMAL CONTROL

During 2019, Warddeken undertook a maintenance cull across a targeted area of more than 180,000 hectares, focusing on the catchments of the Goomadeer, Liverpool, East Alligator, Mann and Cadell Rivers. Culling had also been planned for the upper South Alligator river, but this was not possible due to time constraints.

Over the period of 5-12 November, Warddeken Land Management engaged Jake Weigl and North Australian Helicopters to conduct aerial culling in the Warddeken IPA following consultations with Traditional Owners to determine consent for the program.

Given the tendency of buffalo in the escarpment regions to be highly concentrated around water and feed, these culls targeted those areas exclusively to maximise the impact of this cull. All animals culled were recorded with species, number and location logged in a GPS. Flight paths for culling operations were also recorded.

As in previous years, buffalo were the most numerous animals culled with the highest populations in the southern reaches of the IPA. In those areas that have been consistently culled (Goomadeer and Liverpool Rivers) numbers, and indeed the overall populations of animals, remains low. Cattle, horses and pigs were also culled opportunistically, but were not the primary focus of the cull.

Throughout the duration of the cull, ground teams attended cull locations where possible to cut up and retrieve meat. This meat was then delivered to Traditional Owners in Kabulwarnamyo, Marlkawo, Manmoyi, Mamardawerre, Maningrida, Jabiru, Gunbalanya and Barunga. The distribution of meat is an important component of maintaining support for culling activities and ameliorating some wastage where possible.

36.5 helicopter hours
945 buffalo (aerial)
352 buffalo (on ground)
29 cattle
17 horse
78 pigs

Total feral animals culled 1,421

The cull was effective in maintaining the low buffalo populations in the Goomadeer, Liverpool, and East Alligator Rivers, and the middle reaches of the Mann River. In the upper Mann and Cadell river catchments the cull further reduced buffalo populations, however numbers in these regions remain high due to external pressures from the large populations in southern Arnhem Land. It is critical that this work be continued in future years to maintain the low populations in these regions.

The greatest single challenge for feral animal management in the Warddeken IPA is accessing reliable annual funding to undertake aerial culling operations. Consistency is necessary to maintain low populations across vast landscapes. This is compounded by the ongoing pressure of migration to culled areas from less managed herds to the south of the Warddeken IPA.

Additional to the aerial cull, on-ground shooting throughout the year removed 246 buffalo - the great majority of which were butchered, with meat distributed at outstation communities. Buffalo meat is a staple in the diet of most outstation residents and contributes significantly to food security in the IPA.

The Warddeken IPA feral animal program is a long-term success with significant improvements in both the quality of the environment and the remaining buffalo observed by rangers and Traditional Owners.

Clockwise from top: Introduced hoofed animals severely damage the fragile perched wetlands of the kuwarddewardde. Photo © Rowand Taylor
Given the rugged and inaccessible terrain of much of the IPA, helicopters are essential for feral animal control. Photo © David Hancock
Rangers such as Zacharia Namarnyilk regularly conduct on ground culling, with buffalo meat being a main staple in the diet of residents of IPA homeland communities. Photo © Rowand Taylor



WILDFIRE SUPPRESSION

If we were hoping for a reprieve after a challenging year of firefighting in 2018, we were sorely disappointed, with the conditions in 2019 proving to be the most demanding since the inception of WALFA. The hot, dry and windy conditions of the 2019 late dry season had a major impact on the severity and frequency of fires across the IPA, and during this period Warddeken rangers suppressed a record 53 wildfires across the IPA.

53 fires fought
682.1 helicopter hours
4,469 ranger hours
51 staff involved



Left: Like so many firefighters across the nation in 2019, this crew of Warddeken rangers – along with CEO Shaun Ansell – missed out on spending Christmas with family, instead tackling blazes in extreme conditions throughout the holiday period.

Right: Battling blazes with backpack blowers – our rangers pioneered the use of Stihl leaf blowers over 15 years ago. Since then they have become an essential firefighting tool for rangers across northern Australia.

The ignition source of each fire ranged from people burning during fishing and hunting activities, early dry season aerial burns that flared up again from smouldering logs, to lightning strikes. Rangers and coordinators worked tirelessly to ensure the fires were completely extinguished, toiling under trying weather conditions and within very hostile terrain. Despite all of these challenges, every fire was successfully dealt with.

Rangers from each base (Manmoyi, Kabulwarnamyo and Mamardawerre) rose to the occasion and were deployed to fires in every ward of the IPA, at times even assisting neighbouring ranger groups such as Bawinanga (Djelk), Adjumarllarl, Jawoyn and Mimal. The demands of the 2019 wildfire season led to a great sense of comradery, passion and drive by rangers, coordinators and neighbouring groups to help each other out, ensure all firefighters remained safe and extinguish fires as efficiently as possible.

The custom firefighting training delivered earlier in 2019 by Mark Desailly of ALFA proved to be valuable throughout the fire season, and rangers had plenty of opportunities to use their training and knowledge in real life scenarios out on the fire line.

From August 1, marking the beginning of the wildfire season, Warddeken rangers spent every single day of the following seven weeks firefighting before they were able

to enjoy a short reprieve of calmer weather. Unfortunately, due to the high frequency of lightning storms across the IPA throughout November and December, our team were then tested to their limits with four weeks of continuous firefighting.

In the month of December alone, 21 individual wildfires were suppressed, with almost all of these originating from lightning strikes.

The Warddeken team were finally able to stand down on December 27 after the last part of mopping up was completed. A special congratulations goes out to this team, who willingly gave up Christmas with their loved ones, spending it instead camped with the Jawoyn Rangers at Birndalak while they worked to ensure the protection of the IPA.

The perseverance and hard work of our rangers proved effective in restricting the total area burnt by late dry season wildfires to less than 6% of the IPA – a truly extraordinary outcome considering the severity of the season we were dealt. Proof of the professionalism and expertise of our team in delivering fire management programs is that significant improvements continue to be made with all measures relating to extent and impact of severe wildfires on Warddeken project area.



WEED CONTROL

Although the Warddeken IPA is comparatively weed free when compared to surrounding areas, there remain a number of weed species of concern, and consistent and vigilant weed control efforts are imperative to ensuring these weed infestations are managed.

Our weed control programs aim firstly to prevent the spread of weeds, which can occur easily via vehicles, animals (feral and native) and wet season flooding, as well as working steadily toward the eradication of certain invasive weed species. Invasive species targeted are annual mission grass, perennial mission grass, mimosa, rattlepod, hyptis, sida, caltrop, gmelina, neem and gamba grass. Rangers are always on the lookout for other species posing a threat to biodiversity within the IPA.

The logistics of wet season weed works involves much preparation as wet season conditions prohibit travel via road and require rangers to travel by helicopter to various outstations within and surrounding the Warddeken IPA. Vehicles with dual spray units are shuttled out at the end of each dry season to shipping containers strategically placed throughout the IPA to allow access to outstations and areas with the worst infestations. A quad bike with a 100L spray unit is placed at Kudjekbinj and is kept in a smaller shipping container. In addition, swags, tents, hydration packs, as well as herbicide, fuel and PPE are kept in containers for rangers to access as needed throughout the wet season.

In early 2020, as part of the annual wet season weed control program, grassy weed infestations at the homeland communities of Kabulwarnamyo, Manmoyi, Kamarrkawan, Kummarirnbang, Kurrhkurr, Marlwon, Kudjekbinj, Mamardawerre and Kuborlomborlom were treated. Weed infestations along roadsides between the communities of Kabulwarnamyo, Marlkawo and Manmoyi were treated during the wet season to good effect. Works were successful with a noted reduction in weed abundance. Unfortunately, COVID-19 affected the spraying season, with restrictions on travel throughout the IPA making it difficult to get to various areas to conduct control. Warddeken will need to implement a much more intensive wet season weed control program in the 2020-21 season to account for this.

Warddeken staff undertook consultations with Bawinanga (Djelk) rangers and Traditional Owners regarding inclusion of Yikkararkal and Kakokabuldi outstations in the annual Warddeken weed management program. While

there was broad support for the idea and consent for works was obtained, unfortunately the works were unable to be completed due to the equipment being stranded on the wrong side of the Mann River during the wet season.

A gamba grass (*Andropogon gayanus*) aerial survey took place in early December 2019 in conjunction with NT Weeds Branch and Adjumarllarl rangers. The survey confirmed that previous efforts by rangers to eradicate individual gamba grass plants at Kuborlomborlom (the site of a very old homeland community) and the Lupuwayaya gravel pit were successful, and the weed had not returned at either of these locations. The successful treatment of these small infestations demonstrates the effectiveness of consistent control efforts in eradicating weeds. Had either of these sites been left untreated, they could easily have become significant infestations that would require a major campaign to control their spread.



Clockwise from top: Jonathan and Zacharia prepare to travel by chopper to communities that are inaccessible by road during the wet season.

Treating infestations along the Maningrida Road, where weeds are easily spread by vehicles and roadwork machinery, is a crucial component of the annual weed control program.

Rangers treat weeds at all communities in the IPA, including those that are unoccupied.



KUNRED COMMUNITY



Clockwise from top: A welcome sign painted by daluk rangers greets visitors arriving at the Manmoyi airstrip. Photo © David Hancock

Rangers use local rocks to manually repair a river crossing after monsoonal rains rendered it impassable. Such work must be carried out annually so the IPA is accessible by vehicle after each wet season.

Mamardawerre residents wave goodbye to the fortnightly 'tucker run' plane, an essential service provided by Warddeken to homeland communities in the IPA.



As one of the very few organisations in Australia based exclusively on homeland communities, Warddeken are deeply committed to supporting and advocating for Nawarddeken who choose to live on outstations. We recognise that life in the bush is even more challenging than ever for indigenous people and, where possible, we work alongside communities to increase access, improve environmental health and ensure sustainable futures on country.

Warddeken are the registered Homelands Service Provider for Kabulwarnamyo, and we work closely with Demed Aboriginal Corporation who provide services for the people of Mamardawerre, Manmoyi and other communities within the IPA.

Power and water infrastructure upgrades

In 2019, we were successful in our application to the Aboriginals Benefit Account (ABA) for funding to upgrade the solar power system at Kabulwarnamyo (including replacement of the ageing battery bank) and sink a production bore to provide an improved water source for the community. The upgrades will greatly enhance the living conditions of community members, and will address the shortfall of essential services that has resulted from a growing community and ageing infrastructure. Unfortunately, due to funding delays, the works – which were scheduled for late 2019 – have been postponed until late 2020.

Mamardawerre staff dwellings

In November 2019, construction commenced on the building of two balabbala dwellings at Mamardawerre for the new positions of Daluk Ranger Coordinator and a future Nawarddeken Academy teacher. The building works were completed in July 2020, bringing to three the total number of staff dwellings at Mamardawerre ranger base.

Nawarddeken Academy playground

Community members at Kabulwarnamyo – in particular the students of Nawarddeken Academy – have been requesting a community playground in the vicinity of the school for the last few years. Students and teachers researched playgrounds that utilised local, natural materials. Community members and students were involved in the planning, landscaping and tree planting for the playground, which is now finished and has been a hit with children (big and small) across the community. The playground consists of a swing set, cubby, climbing frames and a slide and incorporates local timber. Thank you to the rangers and Rob Bakes for building it for us.

Fuel shed and Dangerous Goods storage

To support our operations, there is a need for our ranger bases to store bulk supplies of fuel and chemicals, some of which are classified as Dangerous Goods (DG). As our bases are on outstation communities, there is an imperative to ensure they are stored securely and safely. The growth of Warddeken's programs and expansion of ranger bases meant that the existing infrastructure no longer met our DG storage requirements. Fortunately, Warddeken were greatly supported by the Indigenous Land and Sea Corporation (ILSC) who funded the following works to address these issues.

To address significant Work Health and Safety (WHS) and community safety issues surrounding the safe storage and management of aviation fuel, a purpose-built fuel storage shed was built by rangers and an externally contracted builder at Kabulwarnamyo in October to November of 2019. The completed shed at Kabulwarnamyo provides secure, bunded and ventilated, weatherproof storage adjacent to the helicopter landing area. Storage capacity is five bays (each four metres wide) that can hold 24 drums each – allowing for the safe storage of 120 drums of aviation fuel.

We are also required to store significant amounts of herbicide for weed management purposes, and existing storage facilities had become inadequate due to the growing needs of the land management program. A 20-foot Dangerous Goods (DG) container was procured to store 24 drums of aviation fuel at Manmoyi. This then allowed for the repurposing of the existing 8-foot DG container at Manmoyi, which is now used exclusively for herbicide storage. An 8-foot DG storage container was also purchased for the newly established Mamardawerre ranger base, providing the first custom storage arrangement for DG at this base. This will allow storage of aviation fuel and herbicides.

Mechanical works

A dedicated trained diesel mechanic has been stationed at Kabulwarnamyo Community since 2015. Rangers assist the Warddeken mechanic with repairs and maintenance to the fleet of vehicles, plant and equipment within Kabulwarnamyo, Manmoyi and Mamardawerre communities. Some rangers have spent a few months at a time working directly with the mechanic to improve their skills and training.

Food security

IPA communities are many hours' drive from the nearest store and all food supplies must be transported into the community. With private vehicles few and far between, and air charter costs prohibitive to individual families, in the past this has caused massive food insecurity. With the support of Karrkad Kanjdji Trust and Simplot, Warddeken has been able to address this issue by providing a fortnightly food delivery service via charter plane to each of our three ranger bases, free of cost to community members.

NAWARDDEKEN ACADEMY



With the help of the Karrkad Kanjdji Trust, in 2015 the community of Kabulwarnamyo established the Nawarddeken Academy, a unique bicultural school where a culturally specific curriculum is developed in partnership with community elders and taught in tandem with the Australian Curriculum.

For many years, rangers and their families lobbied for education to be delivered on country so they would not have to leave their children with family in larger towns. Elders and parents dreamed of two-toolbox education to make their children strong in two worlds – bininj and balanda. This dream was realised in 2015 when, with the generous support of the Karrkad Kanjdji Trust and Gunbalanya School, the Nawarddeken Academy was established at Kabulwarnamyo, providing bicultural education for school aged children.

The Kabulwarnamyo community has joint ownership of Nawarddeken Academy and actively oversees the direction of the school and participates in the education of its children on a daily basis. What began as a one-teacher classroom under a tarp, with minimal resources, has grown into a school that can cater for over 20 students with two permanent teachers, five casual indigenous teaching assistants, an Executive Officer and an early learning program that caters for children from zero to five-years-old.

The Academy is focused on empowering young people to be strong and confident; preserving Nawarddeken languages and culture through bilingual and bicultural experiential learning; and promoting intergenerational education. The school enables indigenous ranger jobs to be created and retained because children are able to be educated at home, on country.

In December 2018, Nawarddeken Academy gained Independent School Registration. Registration brings recurrent government funding that will secure the financial future of the Academy and more importantly provide Kabulwarnamyo students with the education they deserve.

Our children are now receiving a first-rate education on country. Our bicultural education approach engages indigenous leaders, rangers and skilled teachers. The future of Nawarddeken depends on our children learning to live, work and thrive within two knowledge systems.

Throughout 2019-20, Nawarddeken Academy continued delivering a strong, locally driven program of bicultural education. These are some highlights from the last year.

Bush Trips

Our regular bush trips allow students to harvest, prepare and, most importantly, eat bush foods across the six seasons of the kuwarddewardde. A bicultural bush school is all about getting out on country, learning from elders and having fun, and lessons utilising this philosophy of education continue to be delivered with regularity.

The seasonal calendar has been the focus of bush trips this year. When on bush trips, students learn about the country we are visiting – which clan estate we are on and how each student is connected to that country. Professor Mary Kolkiwarra Nadjamerrek has accompanied us on many bush trips where she shares stories about the seasons at a campfire learning session, before teaching us how to collect and cook foods.





Previous: Delsanto and Nicholas look for man-dem (waterlily corms) during a learning on country session.
 Top: Students pose in front of their artworks inspired by rock art and dreaming stories.
 Bottom: Over the last year students have participated in a number of rock art surveys alongside rangers, and have been fascinated by paintings of now extinct animals, such as the djankerrk (thylacine) depicted in this painting.



Literacy

Students enjoy reading every day at Nawarddeken Academy. We aim to make learning experiences relevant to the local context while celebrating learning in both Kunwinjku and English. Students explored the structure and features of narrative texts, writing a group narrative before composing their own stories. Students also used stop animation to make their own short film.

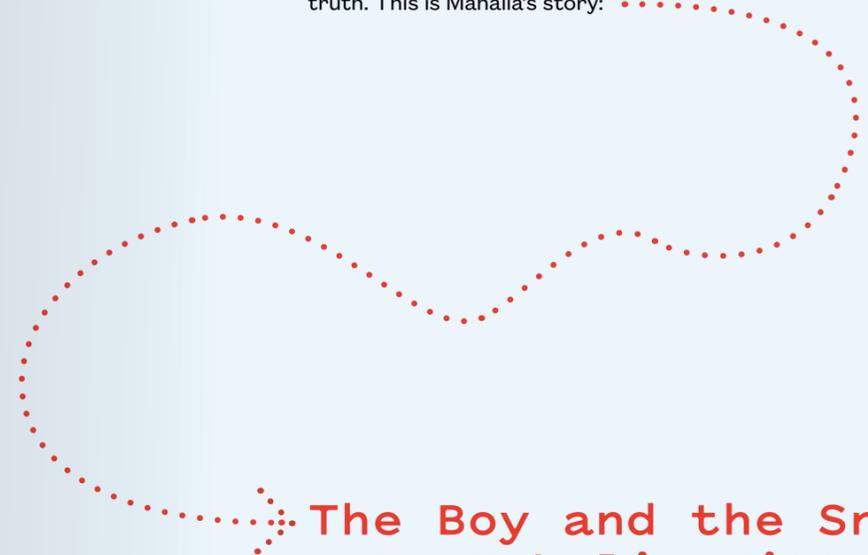
One area of focus was reading and writing stories that teach a lesson, as do many traditional dreaming and creation stories. Students wrote their own stories to teach other children about the importance of honesty and telling the truth. This is Mahalia's story:

Campfire Learning Nights

Teachers have worked with the community to establish Campfire Learning Nights, which provide an opportunity for elders and community members to share stories with students to help them connect with culture and build a positive sense of self and belonging.

Early Learning Program

There have been upgrades to the Kaldurrk Early Learning balabbala, with a new kitchen bench, sink, cupboards and a balustrade added to keep wurdurd from falling off the balabbala. This has made the space a lot safer and easier to use for the mothers and little ones. The outdoor area has also seen changes with fruit trees planted and a new playground!



The Boy and the Snake - By Mahalia Kittman

One day a boy was very bored. He wanted to play a trick. 'Someone help! There is a snake!' the boy cried. His mum ran to help but the boy had lied. The next week he lied to his mum again. She was very grumpy. Then he really saw a snake! But his mum didn't believe him. He got bitten by the snake. The snake wasn't poisonous but it hurt. The bite was a lesson not to lie again.



Clockwise from top left: Literacy activities for early learners.

Natasha Yibarbuk models a necklace she designed and created during an art workshop.

Students on country during the Barradj culture camp.

Beneath this fantastic fox mask is Richard Nadjamerrek.



Creative Arts Workshops

Students participated in a fortnight of creative art workshops, making pottery, jewellery and batik. Some amazing artworks were created and students had a huge amount of fun during the artistic design process. For pottery workshops, we harvested local clay, carefully constructed jugs, mugs and sculptures and then fired them in a bush kiln that students prepared. The workshops started off on country looking for natural dyes, with elders taking us down some long-forgotten roads to find windilk seeds (pink/purple colour), mandjurndum roots (yellow colour), wirlilwirdil root (brown) and manbedde leaves (grey/black).

This two-week workshop helped us to think more about the possibility of creating handmade, quality products on country to generate income through sales and local retail outlets.

Rock Art Workshops

Scientists from CABAH visited Kabulwarnamyo, along with the rock art officer and rangers, and visited the school to run an activity to show how wasp nests built under the rock art (bim) are older than the paintings, while wasp nests on top of the bim are newer, and how this can help us find out how old rock art is. Students enjoyed making wasp nests out of plasticine and creating their own bim in a practical workshop to demonstrate the new knowledge.



Top: Mahalia uses a rock to prepare a customary paint brush.

Bottom: Students prepare a ground kiln to fire their pottery creations.

The kuwarddewardde is the home of the unique 'x-ray style' paintings that developed from the ancient artworks depicted on rocks across the plateau.

Renowned artist Freddy Nadjamerrek has been working with students throughout 2020 to pass down the techniques and traditions of stone country painting that he learned from his father, the late master artist Bardayal Lofty Nadjamerrek.

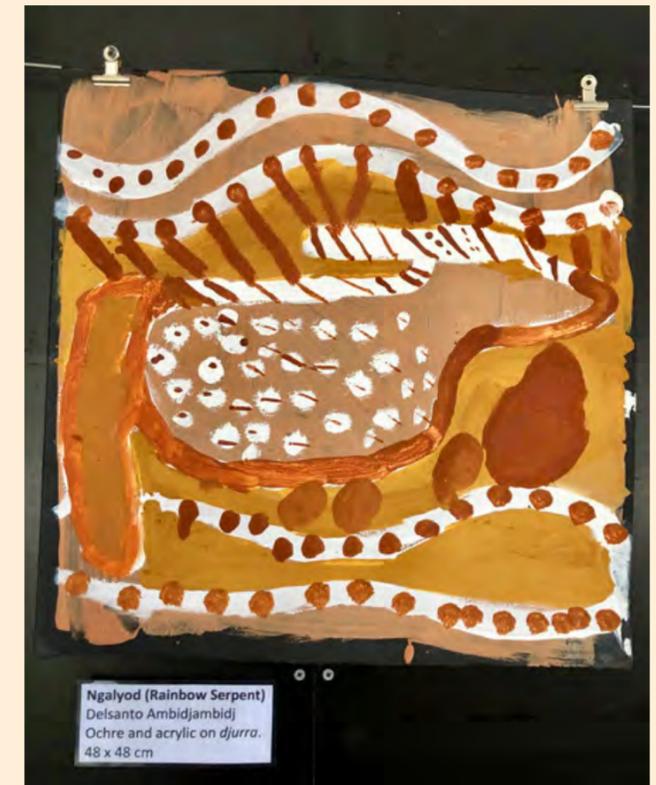
As part of a series of workshops designed to focus on different aspects of harvesting and preparing customary painting materials, students collected dolobbo (bark) in the wet season when it is easiest to remove from the tree, and learned how to prepare and flatten the dolobbo ready for painting.

Freddy also showed students how to prepare a traditional grass paintbrush, as well how to mix and prepare red and yellow ochres and charcoal to make paint. This allowed students to produce artworks in the tradition of generations of stone country artists – painted on dolobbo (bark), using manyilk (grass paintbrushes) and locally harvested ochres.

Students' artworks were inspired by recent visits to rock art sites, as well as local animals. Under Freddy's tutelage, students painted mayh (animals) and djang (dreamings). Richard recreated the school logo, which depicts the last rock art left by his great-grandfather for his grandchildren. Delsanto painted ngalyod (rainbow serpent), as it is seen painted at a major rock art site on Mok estate, Kundjorlomdiorlom.



Clockwise from top left: Freddy Nadjamerrek demonstrates how to collect dolobbo (bark). Miles takes inspiration from the paintings at a rock art gallery on his grandmother's country. Delsanto's fabulous painting of ngalyod, the rainbow serpent. Karlba (yellow ochre) is found at a handful of ochre mines across the kuwarddewardde. Students learned about these sites and how to prepare paint from the pigment as part of the project.



THE NEXT GENERATION OF STONE COUNTRY ARTISTS



NT RANGER OF THE YEAR AWARD - FRED HUNTER



At the 2019 NT Natural Resource Management (NRM) Awards in November, Warddeken board member Fred Hunter was recognised for his long-running career as a ranger at Kakadu National Park and his contribution to Warddeken Land Management. This award recognises an exceptional individual who has gone above and beyond their ranger duties and made an outstanding contribution to management of protected areas across the Northern Territory.

Receiving the Ranger of the Year Award, Fred was recognised for his commitment to country and culture, and the enormous benefit he has made to the local community by strengthening culture, passing on intergenerational knowledge, creating jobs and providing solutions for long term, sustainable management of country.

Fred was born under a tree at Mudginberri in the heart of the Alligator Rivers country, which later became World Heritage Kakadu National Park. He is the longest serving Kakadu Park Ranger, starting work at the park in 1985 when he was 15-years-old, and has dedicated 36 years to his work.

He has a tremendous work history and is an inspiration to young aboriginal rangers in both his areas of operation, Kakadu National Park and western Arnhem Land. He is currently the Chief Ranger of South Alligator River District – the first Indigenous Chief Ranger in the park’s history – and is responsible for managing vast areas of cultural and environmental significance in Kakadu.

Since Warddeken’s inception, Fred has served as a valued board member and was chairman between 2014-2016. He has also lent Warddeken his skill and expertise in invasive species management, as both a marksman in feral animal aerial culls and a mentor and teacher in weed management programs.

Fred has dedicated his life to looking after country and we cannot think of a more deserving winner. Congratulations Fred, you have done Warddeken, Kakadu and your family proud.

NGAD NAWARDDEKEN

OUR PEOPLE

Staff



Shaun Ansell
CEO



Dean Yibarbuk
Fire Ecologist and
Mentor



David Arthur
CFO



**Freddy
Nadjamerrek**
Senior Ranger



Stuart Guymala
Senior Ranger



Terrah Guymala
Senior Ranger



Greg Lippo
Senior Ranger



Strath Barton
Kabulwarnamyo
Ranger Coordinator



Torsten Unnasch
Mamardawerre
Ranger Coordinator



Natalie Chester
Manmoyi Ranger
Coordinator



Alys Stevens
Ecological
Monitoring Officer



Claudia Cialone
Rock Art Project
Officer



**Elizabeth
Nabarlambarl**
Daluk Rangers Team
Leader



**Lorraine
Namarnyilk**
Daluk Rangers Team
Leader



Celina Ernst
Daluk Engagement
Officer



Bianca Twaddle
Administration
Officer



Jimmy Morrison
Mechanical Services
Officer



Olga Scholes
Nawarddeken
Academy EO

Daborrabolk – Senior Cultural Advisors



**Mary Kolkiwarra
Nadjamerrek**



Josie Maralngurra



Leanne Guymala



Lillian Guymala



**Deborah
Nabarlambarl**



Wurdib Nabalwad



**Berribob
Dangbungala
Watson**



Margaret Nabalwad



Molly Nayilibidj

Thanks to Our Dedicated Team of Rangers

Bininj Rangers

Robert Balmana, Marshall Bangarr, Jamie Billis, Jakah Billis, Kevin Bulliwana, Eldrick Bush, Josh Cameron, Marcus Cameron, Duane Dakgalawuy, Esau Djandjomerr, Peter Djandjomerr, Dick Djogiba Jonathan Djogiba, Terrah Djogiba, Lachlan Djumberri, Dudley Dudduma, Elkanah Dullman, Cecil Galaminda, Victor GarIngarr, Zecchaeus GarIngarr, Joshua Garnarradj, Anthony Gumurdul, Silvaris Gumurgal, Casten Guymala, Jenkin Guymala, Mario Guymala, Ross Guymala, Stuart Guymala, Terrah Guymala, Zario Guymala, Douglas Hunter, Fred Hunter, Kamahl Hunter, Deon Koimala, Greg Lippo, Karl Makin, Jobie Managku, Kenneth Mangiru, Ron Mangiru, Conrad Maralngurra, Darius Maralngurra, Maath Maralngurra, Melchizedek Maralngurra, Nick Maralngurra, Maacka Marlibirr, Richard Miller, Cade Morrison, Arijay Nabarlambarl, Anthony Nabarlambarl, Mitchell Nabarlambarl, Reon Nabarlambarl, Ricky Nabarlambarl, Willie Nabarlambarl, Ackim Naborlhborlh, Joel Naborlhborlh,

Jason Naborlhborlh, Lewis Naborlhborlh, Melchi Naborlhborlh, Rodney Naborlhborlh, Winston Naborlhborlh, Enosh Nadjamerrek, Frankie Nadjamerrek, Frederick Nadjamerrek, Jai Nadjamerrek, Keith Nadjamerrek, Ray Nadjamerrek, Amaziah Nadjowh, Clifton Nagurrurrba, Roy Nagurrurrba, Alfred Nalorlman, Judas Nalorlman, Emmanuel Namarnyilk, Gavin Namarnyilk, Graham Namarnyilk, Ivan Namarnyilk, Josech Namarnyilk, Zacharias Namarnyilk, Charlton Namundja, Elijah Namundja, Ashton Narorrnga, Kormel Nawilil, Manoah Nawilil, Cain Naydwana, Jimmy Nayilibidj, Nicodemus Nayilibidj, Zebalan Nayilibidj, Sebi Nayilibidj, Alfies Ngabuy, Vernon Ngabuy, Ashon Ngabuy, Christopher Ngabuy, Zebedee Ngabuy, Garrett Pamkal, Lesley Phillips, Johnny Reid, Berribob Watson, Denzel Watson, George Watson, Bradley Wesley, Lindsay Whitehurst, Esmond Wood, Dean Munuggullumurr Yibarbuk, Jayrique Yibarbuk

Daluk Rangers

Anne Marie Ahwon, Elizabeth Bangarr, Vietta Bangarr, Sarah Billis, Tara Buckskin, Kyrin Bulliwana, Jean Burrunali, Joylene Cameron, Marlene Cameron, Katelin Campion,

Samantha Deegan, Belinda Djandjomerr, Mavis Djumberri, Gillian Galaminda, Carmen Garnarradj, Tana Girrabul, Glenda Gurruwiwi, Alexia Gurwdul, Adeline Guymala, Ashalina Guymala, Asheena Guymala, Delvina Guymala, Jeraiah Guymala, Leanne Guymala, Jalisa Koimala, Grace Laraidbi, Fiona Lawrence, Lorina Maralngurra, Edna Midjarda, Joelene Miller, Louise Miller, Deborah Nabarlambarl, Elizabeth Nabarlambarl, Marcia Nabarlambarl, Maylene Nabarlambarl, Serita Naborlhborlh, Chantel Nabalwad, Lorna Nabalwad, Margaret Nabalwad, Rosemary Nabalwad, Susan Nabalwad, Suzannah Nabalwad, Tahnee Nabalwad, Drusilla Nadjamerrek, Faith Nadjamerrek, Jenny Nadjamerrek, Lois Nadjamerrek, Mary Nadjamerrek, Naomi Nadjamerrek, Rhonda Nadjamerrek, Colleen Nagurrurrba, Janice Nalorlman, Treanne Nalorlman, Alexandria Namarnyilk, Emma Namarnyilk, Lorraine Namarnyilk, Serina Namarnyilk, Theona Namarnyilk, Wendy Namarnyilk, Yvette Namundja, Tinesha Narorrnga, Evelyn Narorrnga, Eliza Nawirridj, Carol Nayilibidj, Molly Nayilibidj, Ethel Nayinggul, Karen Watson, Toni Whitehurst, Bernadette Yibarbuk, Penelope Yibarbuk

THE KARRKAD KANJDJI TRUST



Karrkad Kanjdji is the Kunwinjku name given to us by our founders, the Traditional Owners of the Warddeken and Djelk Indigenous Protected Areas.

It refers to the stone country highlands and savanna lowlands of Arnhem Land that we work together to protect.



Stacey Irving, KKT CEO

The Karrkad Kanjdji Trust (KKT) was founded by visionary people alongside the establishment of the Warddeken and Djelk IPAs. Our aim is to protect, restore and enhance the natural environment of west and central Arnhem Land. We do this by bringing together philanthropists and ranger groups to address some of the region's most pressing issues.

Reflecting the priorities of our partners, we take a holistic approach to conservation. Each project we support strengthens the ability of indigenous people to manage their natural and cultural assets.

Over the 2019-2020 financial year, KKT partnered with Warddeken as they undertook IPA-wide ecological monitoring to better inform land management activities; surveyed, documented and protected rock art galleries throughout the escarpment; provided increased opportunities for women within the ranger workforce; educated the next generation of custodians; and maintained the sustainability of remote outstation ranger bases.

Thanks to the generosity of our supporters, the philanthropic community from wider Australia and overseas, KKT contributed over \$1,200,000 to Warddeken's critical work during this time. Alongside multiyear programs that we support, such as the Daluk (Women's) Ranger Program, we have been thrilled to fund the establishment of the Indigenous Language and Culture Curriculum for the Nawarddeken Academy, and begin fundraising for the protection of remnant anbinik rainforest patches.

With the support of Warddeken, we are growing our reach within the region. Our philanthropic funding for Mimal Rangers, neighbours to the south, is increasing and we are also now partnering with ALFA (NT) and the Adjumarllarl Rangers.

It is a privilege to work together with Warddeken. For more information or to make a donation to their work, please visit kkt.org.au

OUR PARTNERS

Thanks to our many supporters and partners



EXTRACT FROM FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2020

Independent Audit Report to the members of Warddeken Land Management Ltd

Notes to the Financial Statement For the Year Ended 30 June 2020

1 Basis of preparation of the financial report

This summary financial report is an extract from the full financial report for the year ended 30 June 2020. The financial statements are derived from, and are consistent with, the full financial report of Warddeken Land Management Limited.

The summary financial report cannot be expected to provide as detailed an understanding of the financial performance and financial position as the full financial report. A copy of the full financial report and auditor's report will be sent to a member, free of charge, upon request.

Report on the Audit of the Financial Report Opinion

The accompanying summary financial statements, which comprise the statement of financial position as at 30 June 2020, the income statement for the year then ended and related notes are derived from the audited financial report of Warddeken Land Management Limited for the year ended 30 June 2020.

In our opinion, the accompanying summary financial statements are consistent, in all material respects, with the audited financial report, in accordance with the basis described in Note 1.

Summary Financial Statements

The summary financial statements do not contain all the disclosures required by Australian Accounting Standards. Reading the summary financial statements, therefore, is not a substitute for reading the audited financial report of Warddeken Land Management Limited and the auditor's report thereon.

The summary financial statements and the audited financial report do not reflect the effects of events that occurred subsequent to the date of our report on the audited financial report.

The Audited Financial Report and Our Report Thereon

We expressed an unmodified audit opinion on the audited financial report in our report dated the 27th September 2020.

Responsibilities of Directors for the Summary Financial Statements

The Directors are responsible for the preparation of the summary financial statements on the basis described in Note 1.

Auditor's Responsibilities

Our responsibility is to express an opinion on whether the summary financial statements are consistent, in all material respects, with the audited financial report based on our procedures, which were conducted in accordance with Auditing Standard ASA 810 Engagements to Report on Summary Financial Statements.

PERKS AUDIT PTY LTD

180 Greenhill Road
Parkside SA 5063



PETER J HILL

Director
Dated this 13th day of November 2020

Statement of Profit or Loss and Other Comprehensive Income

	Note	2020 \$	2019 \$
Grant revenue		3,665,444	3,444,883
Contract income		1,161,192	685,670
Other income		230,531	128,661
Prior year adjustments		50,069	-
Employee benefits expense		(1,833,630)	(2,029,651)
Depreciation, amortisation and impairments		(417,242)	(238,474)
Hire of plant and equipment		(815,276)	(599,054)
Repairs and maintenance		(193,936)	(545,783)
Other expenses		(1,282,920)	(1,199,839)
Profit (loss) before income taxes		564,232	(353,587)
Income tax expense		-	-
Profit (loss) for the year		564,232	(353,587)

Statement of Financial Position

Note	2020 \$	2019 \$
ASSETS		
<i>Current assets</i>		
Cash and cash equivalents	1,152,392	431,886
Trade and other receivables	200,636	400,333
Total current assets	1,353,028	832,219
<i>Non-current assets</i>		
Plant and equipment	1,355,750	1,430,699
Total non-current assets	1,355,750	1,430,699
Total assets	2,708,778	2,262,918
LIABILITIES		
<i>Current liabilities</i>		
Trade and other payables	289,999	409,350
Employee provisions	114,968	113,989
Total current liabilities	404,967	523,339
Total liabilities	404,967	523,339
Net assets	2,303,811	1,739,579
EQUITY		
Retained earnings	2,303,811	1,739,579
Total equity	2,303,811	1,739,579



Photo by Sally Tsoutas

IN MEMORIAM

WAMUDDJAN NGAL - MANJDJURLNGUNJ 1979 - 2020



This past year has not been without sadness and grief. We said goodbye to Wamuddjan Ngal-Manjdjurlngunj, a dedicated ranger and much-loved member of the Warddeken family, who lost her life under tragic circumstances.

Wamuddjan was a crucial force in establishing the Manmoyi rangers. She was a skilled and enthusiastic ranger, as well as a kind and much-loved member of the Warddeken family. We will miss her infectious laughter and the joy she brought to the workplace.

We pay tribute to Wamuddjan and her contribution to caring for the kuwarddewardde, and we extend our deepest sympathy to her families.

DEDICATION

BARDAYAL LOFTY NADJAMERREK OAM 1926 - 2009



Yakkake Wamud Namok, djorrhbayeng, ngundimanjbun rowk bu kanbukkabukkang ngadberre angarre nawarddeken, kankangemang ngadberre Wamud.

Wamud of the Mok clan, in whose special clan language we use the Mok clan word 'yakkake' — our dear friend.

We all thank you for everything you have taught us, the culture and way of life from the rock country. Our hearts cry out to you Wamud.

Munguyhmunguyh ngarridjalbengkan ngudda.
We shall forever think about you.

Kunmalng ke karrurdeng kore Ankung Djang, kore Djabidj Bakoluy, kore Kundjorlomdjorlom, Nabiwo Kadjangdi, Ankung Kangeyh, Kabulwarnamyo, kore "the dear one".

Your spirit will return to the Honey Dreaming sacred places, to Djabidj Bakoluy, to Kundjorlomdjorlom and Nabiwo Kadjangdi, to Ankung Kangeyh and Kabulwarnamyo, the place you referred to as "the dear one".

You Wamud will always be our "dear one".

OUR FUTURE

As we move into the next ten years, we remain deeply committed to keeping the kuwarddewardde healthy, and ensuring Nawarddeken culture stays strong.

We will:

Expand our keystone land management programs to enhance cultural and environmental outcomes

Maintain our bininj-led governance structures

Assist Nawarddeken from a greater number of clans to spend time on country

Increase bininj employment and strive for workplace equity

Advance education opportunities for children living on outstations

Most importantly, we will stay true to the vision of our Professors, and pass this vision on to our children.



The next generation of Bordoh traditional owners and djungkay. Photo courtesy of Sebastian Wesley
Back cover: Djamarr is sacred to the Mok clan, the deep pool below the waterfall being a resting place for Ngalyod the rainbow serpent. Photo © David Hancock



“IN THE TEN YEARS SINCE THE DECLARATION OF THE WARDDEKEN INDIGENOUS PROTECTED AREA, OUR RANGERS HAVE WORKED TIRELESSLY TO PROTECT THE STONE COUNTRY OF WESTERN ARNHEM LAND. OUR OLD PEOPLE WOULD BE SO PROUD OF WHAT WE HAVE ACHIEVED AS BININJ WORKING TOGETHER.”

— DEAN YIBARBUK, CHAIRMAN

WARDDEKEN.ORG.AU