

# WARDDEKEN LAND MANAGEMENT LIMITED



**ANNUAL REPORT 2011-2012**

Cover photo: Warddeken rangers fought a serious wildfire in “catastrophic” fire category conditions in August 2011. Devita Hodgson was amongst those on the fire-line clearing a line for a back-burn to halt a rapidly-moving fire-front. Full story: page 11.

Below photo: In the distance in the late afternoon light, smoke from early dry-season burning rises in Djorlok Valley (photo by Jake Weigl).



The sprayed hand stencil symbol at the centre of the Warddeken logo is known as *bidbimyo*, in *Bininj-Kunwok*. It was created in 2007 with the incorporation of Warddeken as a not for profit company limited by guarantee and replaced an earlier logo for the unincorporated, fire-focused ranger group, Manwurrk Rangers. The *bidbimyo* design is the hand of Warddeken’s founder and patron, Lofty Baradayał Nadjamerrek AO (Wamud Namok, 1926–2009). The symbol reminds us that it was his guiding hand that led the land management movement in western Arnhem Land. His vision leads us into the future.

# HEALTHY COUNTRY — HEALTHY PEOPLE



Photo: Dan Maclaren.

*Our vision is to have our healthy people living and working on our healthy country in the Arnhem Land Plateau.*

*We want to work with partners to achieve mutually agreed objectives using Indigenous and Western science-based knowledge systems.*

*We want the management of our land to be in our hands now, and into the future.*

# Bininj Kunwok

*kunwok dja manngarre ngadberre*



Over the last 12 months Warddeken Land Management has been developing a collaborative relationship with the Bininj Gunwok Language Project co-ordinated by linguist Murray Garde and his team of language workers including Andrew Manakgu, Alfred Nayinggul and Donna Nadjamerrek. This project is funded by the Federal Government's Indigenous Language Support program. Many other Bininj Gunwok language speakers have also participated. The project seeks to deliver resources to community organisations in the Bininj Gunwok dialects of Western Arnhem Land including the varieties spoken by *Bininj* in Warddeken's Indigenous Protected Area region.

One of the highlights of this collaboration over the past 12 months has been blog posts about Indigenous knowledge of natural species produced as part of Warddeken's plant and animal monitoring programs. Examples include blog posts in Kunwinjku, Kundedjnjenghmi and English announcing new resources such as posters about

the management of *anbinik* forests and headwater wetlands, produced as a collaboration amongst Warddeken, ecologist Jeremy Freeman, the Nature Conservancy together with Andrew Manakgu, Alfred Nayinggul and Murray Garde from the Bininj Gunwok Language Project. <http://bininjgunwok.org.au/2012/anbinik-dja-kukodjjudbbe-ankabo/>

Other blog posts have documented knowledge about animals such as *yirlinkirrkirri* 'the White-throated Grasswren': <http://bininjgunwok.org.au/2012/yirlinkirrkirri/>

And *ngalwalngurru* 'the chameleon dragon': <http://bininjgunwok.org.au/2012/ngalwalngurru-chameleon-dragon/>

NOTE: Readers will note ambiguity of spelling for Bininj Kunwok and Bininj Gunwok on this page. The problem is that some groups in western Arnhem Land prefer an orthography with 'K' and others 'G'. Elsewhere in this report we have opted for Bininj Kunwok and general use of 'K'.

## KARRI-NAHNARREN BU HELICOPTER KARRI-RE

Yi-madbu yi-wokbekkan pilot ngun-mameyime bu yi-bidban dja bu yi-kolungken. Yi-kolung dja yi-bebme wanji yi-boddi yi-re. Yun yi-boriedme kore yerre.



**Ka-mak**



**Ka-warre**

**Konda ka-mak rowk ka-mak**

 <p style="font-size: small; margin: 5px 0;">Yi-madban yi-wokbekkan pilot ngun-mameyime bu yi-bidbanken dja bu yi-kolungken. Yi-djare kore pilot ngun-nahnar, yun yi-re kore yerre.</p>	 <p style="font-size: small; margin: 5px 0;">Kore ka-bukodjeddi wanji yi-kolung kore kangji ku-kurik, ming yi-kolung kore ka-bokdulum.</p>	 <p style="font-size: small; margin: 5px 0;">Bu kun-djaling ka-kurikwayime dja ninj yi-wernnan, yi-bodban dja yika yi-yerhan yi-madban wanji pilot ngun-bidyikame.</p>
 <p style="font-size: small; margin: 5px 0;">Bu pilot ka-wurike dja ka-romban yun yi-bidban mak yun yi-kolung, dja yi-yerhan.</p>	 <p style="font-size: small; margin: 5px 0;">Bu yi-bidban dja yi-kolung yi-kodjokolung yi-karman nenu yi-kodjijombuyindi. Yun yi-bidwayime dja mak yun yi-kadjung djale nenu ngun-bitwon.</p>	 <p style="font-size: small; margin: 5px 0;">Bu yi-karime njalenale yi-wayhnante yi-djalkarman kore ka-djorrh. Yun yi-wayhke dja yun yi-kanahkan ku-karlang.</p>

Stressing the safety message in the language of the land. For fire and other work helicopters are the only means of access. This sign was adapted from a CASA safety poster and rendered in Bininj Kunwok. It's been printed onto signs and erected at a number of sites.

## THE CHAIRMAN REPORTS



Dean M Yibarbuk

Hello *nawarddeken daluk and bininj*, women and men of the stone country. I'm very proud to report to you all the success and achievements of our company Warddeken Land Management over the last 12 months.

The work of Warddeken Rangers represents the continuation of caring for our country as our ancestors did — our cultural obligations to our lands being practiced in a modern way. In spite of the ongoing challenges we face being based entirely at remote and isolated outstation communities, this is also our strength.

Being on-country, away from the dysfunction that all too often characterises 'growth towns', gives us room to work in harmony with our children and our old people. Warddeken Rangers operate in an environment where ancestral connections to the past are present in everyday activities and where communities are working together to care for country.

Our innovative community-based model of conservation is seeing Warddeken increasingly recognised at a national and global level and for this we should all be proud. Our team of rangers based at communities across the plateau are the frontline for managing new threats to the stone country — invasive plant and animal species that threaten the ecological and cultural integrity of our IPA. This is vitally important work that our rangers are getting better at every year.

Our world-class fire management program is also addressing climate change, one of the most serious environmental threats the world has ever faced. The abatement of greenhouse gas through reinvigoration of customary fire management has been a core program of Warddeken's for over five years now, yet it remains innovative and our rangers are increasingly involved in educating other Indigenous groups from across northern Australia as they work towards setting up programs of their own.

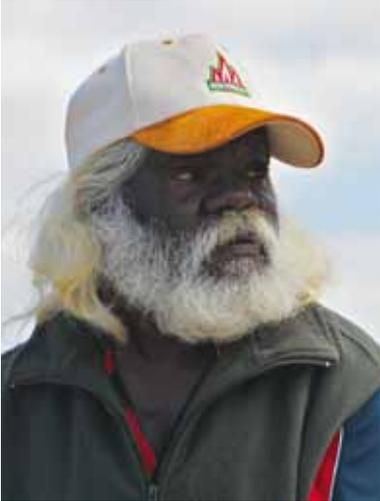
It is in these ways that the oldest living culture in the world is working hard to help fix some of the world's newest problems. So while we remain firmly grounded in our culture and ancestral connection to the past, we are using this knowledge to give us strength in the contemporary world.

I would like to dedicate this report to the Old People who set us on this path, especially those we have lost over this last year. In particular I would like to pay respect to two very special men who were integral in the establishment of Warddeken: Kodjok Nawurrban, the last of the stone country ceremony men and Ngarridj Nadjordi, the company's founding Chairman. These men were visionaries and educators; they were our professors and we will miss them deeply.

A handwritten signature in blue ink, which appears to read 'Dean M Yibarbuk'. The signature is fluid and cursive.

Dean M Yibarbuk  
Warddeken Chairman

## FROM THE SENIOR RANGER CO-ORDINATOR



Nigel Gellar, Senior Ranger Co-ordinator.

We have lost a number of our senior cultural leaders over the last year and I would like to begin by acknowledging the contribution they made to Warddeken Land Management. We would not be the strong company we are today without their wisdom, guidance and generosity.

Despite these tragic losses, the last year has been our most solid yet. We faced fewer challenges from the weather and managed to achieve an incredible amount of work. Operationally our work program has become smoother with each passing year. This comes from building up the right resources to run a world-class conservation program — the right gear and equipment and the right people to deliver work outcomes.

Throughout my six years as Warddeken's senior ranger co-ordinator I have been particularly proud to witness our *yawurrinj*, our young men, grow into their roles as rangers. Many of them have worked with Warddeken since they were teenagers and over the years have been building up their skills to grow Warddeken's workforce into a strong and capable one.

Securing a grant from the Indigenous Land Corporation (ILC) for roadwork machinery and new vehicles was a highlight for me this year and I look forward to getting stuck into badly needed road repair and maintenance in the coming year. An improved network of roads and tracks will enhance conservation outcomes in the IPA and will make life better and easier for all who live on the plateau.

With the establishment of two new satellite ranger bases, Manmoyi and Kamarrkawarn this year, Warddeken's presence across the plateau continues to grow. In coming years we will continue this growth, with the aim of setting up further new satellite ranger bases at other outstation communities.

We may not have those old people who laid down the path for us with us any longer, but their vision is shining bright across the stone country.

A handwritten signature in blue ink that reads "N Gellar".

Nigel Gellar  
Senior Ranger Co-ordinator

# WARDDEKEN DIRECTORS AT DECEMBER 2011



From left, back row: Terrah Guymala (outgoing chair), Sarah Nabarlambarl Billiss, Mandy Muir (proxy), Lisa Joelene Miller, Christopher Ngabuy, Kevin Bulawana, Dean Yibarbuk (incoming chair). Front row: Dell Hunter, Sylvia Badari, Suzannah Nabalwad, Lois Nadjamerrek, Kenneth Mangiru.

Absent from group photo: Jessie Alderson and Fred Hunter; below.

Warddeken Land Management Limited is governed by 12 Indigenous directors elected every three years.

Three members are elected for each of four 'wards' or membership classes, defined by a grouping of clans geographically — kakbi or (north), karrkad or (west), walem, (south) and koiyek (east).

At 30 June 2012 representatives were:

**Kakbi:** Kevin Bulawana, Sylvia Badari, Suzannah Nabalwad — Wardjak (Maburrinj), Danek (Gudjumarndi), Ngalngbali (Kudjekbinj), Yurlhmanj (Djalbangurrk), Madjuwarr (Kunukdi), Murrin (Gumarirrbang), Wurrik (Mandedjkadjang), Mayirrkulidj (Djurika), Durilmangka (Kudjaborn/Kunburray), Djok (Ngolwarr), Barrbinj (Gumarirrbang/Kudjarlrdordo).

**Karrkad:** Jessie Alderson, Kenneth Mangiru, Fred Hunter — Manilakarr Urningank (Mikginj), Maddalk (Kumalabukka), Wardjak/Worrkori (Balmana from Kundjikurdubuk), Bolmo (Dedjrungi and Dodekiyu), Badmardi (Balawurru, [succession/caretaking]), Wurnkomku (Nawoberr).

**Walem:** Christopher Ngabuy, Dean Yibarbuk, Lisa Joelene Miller — Djorrorlom (Bamo), Murruba (Morre), Karnbirr (Djohmi), Mimbilawuy (Garlingarr), Barabba (Mimbrung), Mandjuwarlwarl (Bobbalinjma), Barradj (Yangkobarnem), Bulumo (Makkebowan).

**Koiyek:** Lois Nadjamerrek, Terrah Guymala, Sarah Nabarlambarl Biless — Bordoh (Ngorlkwarre), Mok/Berdberd (Mankungdjang/Ngalkombarle), Yamarr (Kidbulmanyamara), Kulmaru (Kubumi), Bolmo (Marikawo), Rol (Bolkngok), Djordi/Djorrolom (Kodwalehwareh), Buluwunwun (Walangandjang) Wurrbarn (Nabrang), Warridjingu (Boburrk), Yamarr (Kidbulmanyamarra).

The next election of directors will take place in the last quarter of 2013.



# CONNECTING LANDSCAPES FOR CONSERVATION

In only a few years, the *nawarddeken*, or people of the Western Arnhem Plateau, have come a long way along a path marked out for them by their elders — the people they affectionately and respectfully call 'our professors'.

The *nawarddeken* passed a significant milestone in 2009 when they declared the natural and cultural treasure that is their homeland an Indigenous Protected Area (IPA), adding 1.3 million hectares to Australia's National Reserve System.

The achievement is not just important in itself but also in a larger conservation context in which the national parks at Nitmiluk and Kakadu, jointly managed by government and indigenous landowners, are joined to the Warddeken IPA which in turn is joined to the Djelk IPA in the east.

Altogether this creates a connected conservation landscape of more than 4 million hectares and sets an early, perhaps pre-emptive, benchmark achievement against the draft National Wildlife Corridors Plan provided for Australian Government consideration in March 2012.

It brings together conservation being delivered in national parks through joint Indigenous and government management arrangements with an equal area where independently governed Indigenous land managing organisations make the plans and do the work, drawing on two toolboxes of Indigenous and scientific knowledge.

The vision of the Wildlife Corridors Plan recognises that connectivity is a fundamental requirement of healthy, productive landscapes and that a diversity of land tenures and land use types will contribute to wildlife corridors, while the rights that landowners have under law to control and enjoy their property and to control access to their property will be protected. The objective of this new collaborative, whole-of-landscape, approach is to increase resilience in our natural ecosystems.

All this sits well with both the vision and practice of Warddeken. Warddeken, like Kakadu National Park, is currently developing new multi-year natural and cultural management plans. Warddeken and Djelk have already made their pledge to collaboration and connectivity plain, with overlapping boundaries embedded in their current plans.



Sharing the love of country at Kunbarlanja and Jabiru festivals in 2011 young *nawarddeken* reflect a pride in following the path towards healthy country and healthy people. The Warddeken display is looked after by Christella Namundja, Natasha Yibarbuk and Stevie Wurrkidj.

While there will be no such change in the cadastre on the Kakadu side, both Kakadu and Warddeken are committed to developing common and complementary approaches to management at the cusp, high in the sensitive sandstone along the official boundary line.

Despite a boundary line that cuts through, and overlays an Indigenous social landscape and legal cadastre, land owners and land managers from both sides share common concerns to ensure that country will be resiliently healthy in a time of great climatic and environmental change and that an equally important outcome of conservation work will be achievements in social, cultural and economic health for the Indigenous land owners.

In this annual report, dedicated to the elders who pointed the way forward and who have now joined the ancestors in their ancient landscape, we see a new generation of *nawarddeken* taking up the challenge of the future.

As outgoing Warddeken chairman Terrah Guymala says, 'in our lives we had our old people there to give us knowledge. Now we are becoming the new old people and we need to make sure we have the knowledge to be the new professors.'

As well as keeping and re-invigorating old knowledge, this new generation of leaders are keen to pursue new knowledge — whether from conventional science or from lessons learned in the field through practising adaptive management.



Warddeken has many challenges — not least of which is a very large landscape with difficult access and very small financial resources with which to protect assets and control threats. Warddeken has to bring innovation and the growing up of new knowledge to bear in order to deal with costly and chronic issues.

Protecting the fragile headwater wetlands from buffalo damage will be an ongoing and expensive annual task. In the unfenced 100,000 sq km that is Arnhem Land and with some neighbours who have for decades benefited from mustering and marketing buffalo, it's a 'cut and come again' problem, where lines on a map are no impediment to feral animal movement. This is perhaps the dark side of connected landscapes.

Warddeken is working to develop a buffalo management strategy that takes a triage approach, putting most effort and funds into protecting high value, but heavily threatened, locations where we believe we can do most good.

We need to understand more deeply the biology of feral animals, their seasonal movements in the landscape, their dependence on 'favorite places'

and integrate this with knowledge and techniques learned from the Brucellosis and Tuberculosis Eradication Program (BTEC) of the 1980s.

The greater availability and lower costs of satellite tracking and monitoring technology available today will help. We must develop cost-effective monitoring methods that show clearly we are getting the best biodiversity bang for the buck that is possible. We need to talk and work more closely with neighbours.

Protecting the upland wetlands is a pressing need, in both local and national interest. With help, the *nawarddeken* can do it.

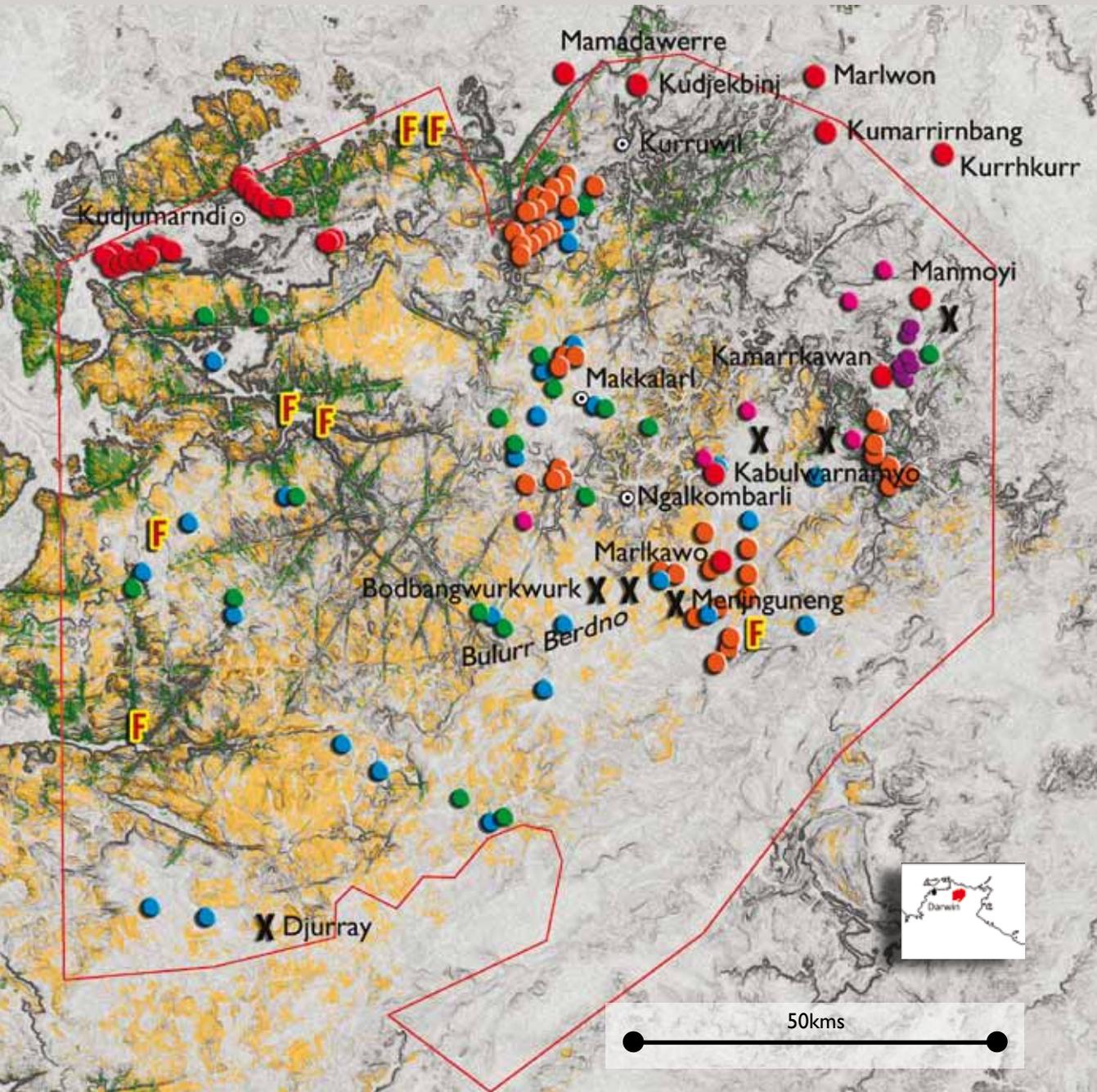
From Peter Cooke, Warddeken CEO

## WARDDEKEN LAND MANAGEMENT LIMITED ANNUAL REPORT 2011–2012

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**The production team in 2012:** Therese Ritchie, Peter Cooke, Georgia Vallance, Polly Hemming.  
**Printing:** Instant Colour Press, Canberra.

Indigenous landowners declared the Warddeken Indigenous Protected Area (IPA) on 24 September 2009. The IPA covers 1,394,951 hectares of spectacular sandstone, gorge, forest, wetlands and heath country on the Western Arnhem Land Plateau. Warddeken rangers manage the natural assets to International Union of Conservation (IUCN) Category VI standards and are setting new best-practice standards for cultural management.



Key left shows Arnhem Plateau Sandstone Shrubland Complex, declared as an endangered ecological community in 2011. Critical Warddeken fire management is already targeting and delivering protection and recovery P.18.

## IN BRIEF: WHAT WE DID WHERE IN 2011–2012

**F Fire:** Rangers flew 5975 km and drove 486 km to deliver early burning over 1,300,000 ha. p.10; Banksia Award win p.13. Wildfire: 52 people spent 933 hours fighting seven wildfires; wildfire catastrophe averted. p.11–12.



**X Rock Art:** Conservation action and site surveys at six rock art complexes with more than 1500 images. Nationally important historical contact art site documented. p. 34–38.

**● Weed control:** Ten rangers treated 10 outstation communities twice — 507 hours weed work. Six rangers treated 50+ mission grass infestations and seven Warddeken Rangers and Kakadu rangers treated 2000 mimosa plants in Mikiginj Valley. p.14–15.



**● White-throated Grasswren:** Eight rangers and a biologist walked 100km in sandstone shrubland to locate five family groups of this elusive endemic and threatened bird. p.19.

**● Fauna:** Two full vertebrate fauna surveys completed over two regions. Total of 15 trapping sites. Biologist and 30 rangers, landowners and elders establishing long-term monitoring plots. p.27–28.



**● Wetland surveys** **● Anbinik surveys and protection:** On-ground assessment of 16 *anbinik* remnant rainforest patches and 9.2 km firebreaks created for five 'at-risk' isolates. Two knowledge systems for monitoring. Biofund gives \$550k support. p.21–23.

**● Buffalo Control:** Two aerial culls at six locations over 10 days. Total of 709 buffalo killed. Further 200 culled by ground shooting. Damaged sites are recovering. p.16.

**● Remote land management bases:** Four remote land management bases and Kabulwarnamyo ranger headquarters maintained and bush tracks and fire trails maintained.



Conserving and using Indigenous knowledge to carry on the vision of our *Bininj* professors, and more reports from the plateau inside.



# TALKING — PLANNING — BURNING EARLY



Senior ranger Nigel Gellar (right) plans early burning of the north-west of the IPA with Warddeken director and landowner Kenneth Mangiru.



Kenneth puts the plan into action as navigator.



Warddeken director Suzannah Nabalwad guides burning on the Madjuwarr estate.

**In the 2011 fire season WALFA partners achieved 127 per cent of the required level of abatement under the WALFA agreement.**

Managing country — especially for fire — means always talking to the right people for country. In March 2012 senior rangers Nigel Gellar and Terrah Guymala, and operations manager Jake Weigl travelled to outstations and Kunbarlanja and Jabiru to ask landowners how Warddeken could help them manage fire on their clan estates this year.

Using maps of last year’s fire scars, decisions were made about where to implement aerial and on-ground burns to keep country healthy and where to put firebreaks to control late dry season fires.

Landowners then identified whether they, or family members, would like to be involved in the burning program, or nominated a proxy to undertake the burning on their behalf. The results of these discussions became the 2012 Warddeken Early Burning Plan.

On-ground burning involves day trips, camps at remote land management bases throughout the IPA and bushwalks. These activities are made possible through use of Warddeken’s network of self-maintained bush tracks. Focus is also on burning around occupation sites and along *bininj manbolh*, the traditional walking routes of the plateau.

To cover Warddeken’s 13,500 sq km area, helicopters are essential tools of contemporary burning. Warddeken staff are trained to use the R2 Raindance incendiary machine which drops small incendiary capsules.

Aerial prescribed burning commenced at the end of May and continued until 23 July 2012.

Rangers draw on their Indigenous ecological knowledge to read country, assessing factors such as fuel loads and curing, flowering or fruiting of indicator plant species, the last time country was burnt — all the while making calculations about how far the burn will travel given the specific landscape, ecological communities and weather conditions. The burning program continues to be driven by the complex knowledge set from the Bininj ‘toolbox’.

Fire management has been the catalyst for the revival of a rich and complex knowledge system in the stone country.

Fire management activity	Hours	People	Km
Aerial burning	90	17	5975
On-ground burning	685	31	486
Asset protection (environmental, cultural and infrastructure)	486	12	8
<b>TOTAL</b>	<b>1261</b>	<b>60</b>	<b>6467</b>

# FAST ACTION STOPS A CATASTROPHIC WILDFIRE

In 2011 the nature of fire on the plateau went very suddenly from being beneficial 'early burning' to potentially catastrophic wildfire.

The first fire of the 2011 season designated as a wildfire started in mysterious circumstances west of the upper Mann River in early August. The area was well away from any roads and with no-one known to be in the area.

The helicopter 'bambi bucket' was used and the fire seemed to have gone out, like all the early burns. But the weather changed suddenly, with strong south-easterly winds, high day temperatures, winds throughout the night and low humidity. The fire picked up quickly within a day or two and was pushed north east between strong early burned breaks to the north and south.

Bushfires NT declared a situation of 'catastrophic' fire weather — a new level of fire weather severity recognised for the first time in the NT in 2011.

Warddeken rangers and Bushfires NT scientist Andrew Edwards made a helicopter assessment of the fire, helped also by the NAFI satellite hotspot system and decided that the fire could not be held across the broad front advancing into rugged rock country.

Early burning flight lines had almost completely enclosed the fire's wind-driven path, except in the critical north-west where grass on swampy flats was too green to burn, and fuels either side too light to burn except under extreme conditions.

An area where the containing breaks came to within 900 metres apart was identified and a decision made to try to confront the fire by clearing a mineral earth break with rakehoes and using leafblowers to assist a backburn.

On 20 August, 22 rangers, including six women rangers who had only recently completed their fire fighting training gathered and camped 10 nautical miles from the target area. At first light they were flown in three at a time by helicopter with basic tools of rakehoes, leaf blowers and drip torches.



Above left: In order to back burn in tinder dry conditions, a mineral earth break was essential.

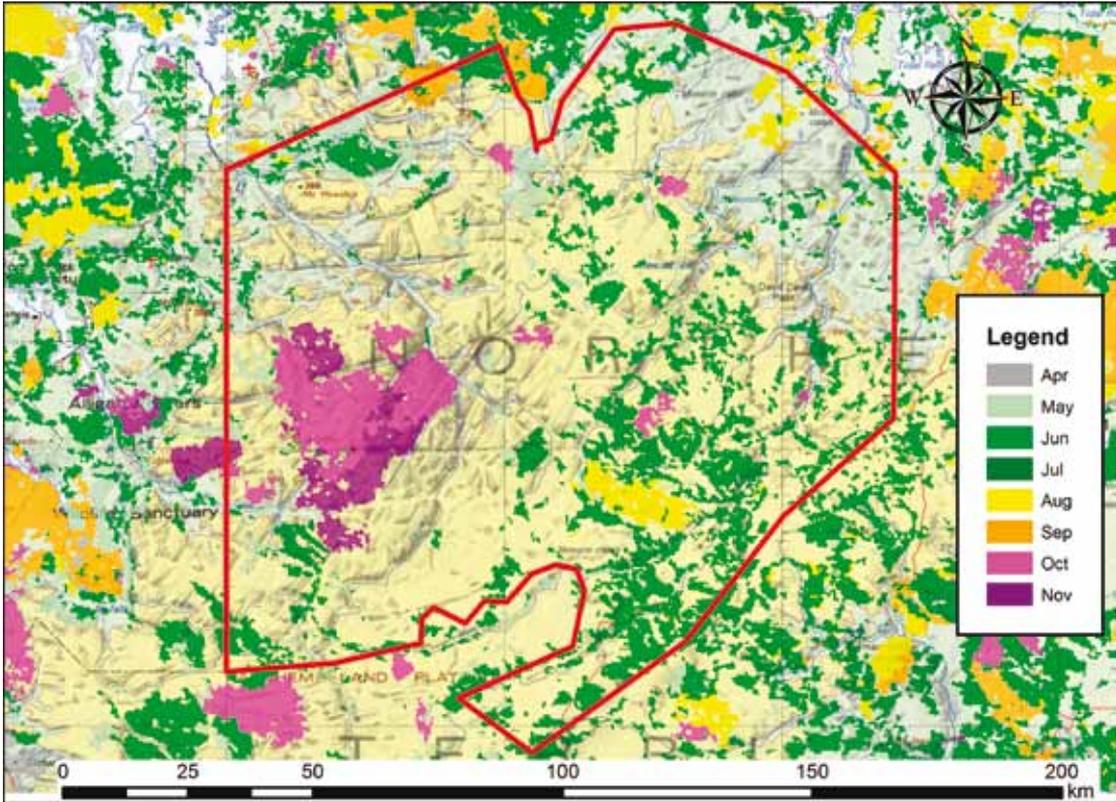
Above right: With a break cleared, leafblowers pushed the backburn into the wind.

Under supervision of senior ranger Nigel Gellar the crews set furiously to work. With barely a break in the day for a bite to eat, the crews were within 100 metres of bridging the gap when the fire front arrived at about four o'clock. The rangers then engaged in 'hand-to-hand' combat with the fire, pushing towards the centre from south and north.

The fire was finally put out with only just enough time to pull the fire-fighters out before last light.

If the front had not been stopped at this point, the fire's trajectory could have made it an unstoppable fire that might have burned for weeks or months and taken out a very large part of the plateau with severe impacts for biodiversity and radically increased greenhouse emissions for the year.

# SATELLITES RECORD 2011 FIRE STORY



NAFI fire scar history for 2011, showing a total of 13 wildfires for the year. Active suppression was undertaken for seven fires. Six fires were unattended because of various factors including containment by early burned breaks, very light fuel loads, rugged terrain or overstretched human resources.

Date	Location	People	Hours
18–23/8/11	Bulurr Berdno	24	150
27–28/9/11	West of Mamadawerre	3	52
12/10/11	West Bolmo county	2	5
12/10/11	East Alligator tributary	2	4
12–18/10/11	Menj Nguneng	13	490*
14–21/10/11	South of Nakarriken	5	150
12–20/10/11	West of East Alligator	3	82**
<b>TOTALS</b>		<b>52</b>	<b>933</b>

\*Note: Warddeken hours only. Five Djelk Rangers, estimated 150 hours additional.

\*\* Note: Warddeken hours only. Two Kakadu Rangers additional hours unrecorded.

At the end of the day, a tired firefighter waits for the chopper home.



## ANOTHER AWARD FOR THE WALFA PROJECT

The Western Arnhem Land Fire Abatement project won the Caring for Our Country Indigenous Award at the 2011 Banksia Awards.

The Banksia Awards are known widely as Australia's 'environmental Oscars'.

In accepting the prize on behalf of five Indigenous ranger groups, Dean Yibarbuk, of Warddeken Land Management paid tribute to the inspiration and leadership of the elders who helped establish the Western Arnhem Land Fire Abatement Project (WALFA).

'They set us on the path which has led to our success', Mr Yibarbuk said.

The development phase of the project began in 1997 with the coming together of Indigenous elders and rangers and non-Indigenous scientists.

'The use of two toolboxes — one based in Indigenous tradition and the other with roots in science — allowed us to bring wildfire back under control in western and central Arnhem Land.'

The WALFA project went fully operational in 2006 with the partners of Warddeken Land Management, Bawinanga Aboriginal Corporation, Jawoyn Association and the Mimarl and Adjumarlal Rangers using strategic early dry season burning and active fire fighting to reduce greenhouse gas emissions.

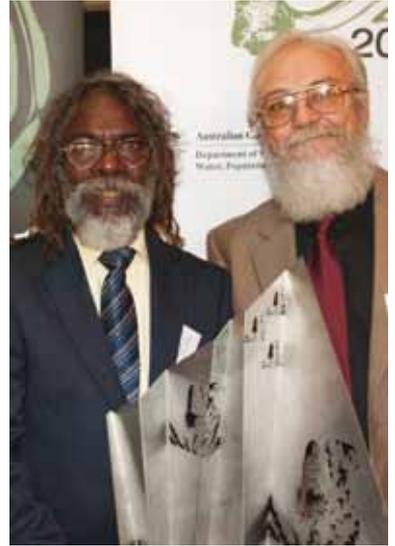
The project set an annual target of 100,000 tonnes of Co2 abatement but in the five years to 2010 actually abated 707,000 tonnes — a 140 per cent result against the target!

The project has received most of its funding from the Indigenous Protected Area and Working on Country programs but has also been strongly supported by payments for carbon offsets from Darwin Liquefied Natural Gas.

'In 2007 we won a Eureka Prize for an innovative idea but this win in 2011 is more satisfying because it is for turning an idea into a sustainable project benefiting country, and people on country,' said Warddeken CEO Peter Cooke.

Warddeken and other partners are working to restructure the WALFA project so it can operate under the Australian Government's Carbon Farming Initiative.

The WALFA project embodies the practical process associated with Warddeken's vision — Indigenous people living and working on their country for an outcome of healthy country and healthy people. In pursuing this local objective, the WALFA partners have provided a strong example of how Indigenous people can contribute innovative solutions to the pressing global issues of climate change.



Warddeken Chairman Dean Yibarbuk and CEO Peter Cooke pose with the Banksia Award after the presentation at the 2011 Banksia Awards in Sydney. After some significant difficulties getting the large and sharp metal trophy onto their aircraft as cabin baggage next morning, the trophy travelled to a final destination at the Warddeken Ranger Base at Kabulwamamyo. When it arrived back, it was placed first on the grave of WALFA founder and Eureka prizewinner Wamud Namok in recognition of his inspiration for fire management.



## PARTNERSHIPS STRENGTHEN WEED WORK

A strong on-ground working collaboration between Kakadu National Park and Warddeken targeting the weed *Mimosa pigra* in Mikginj Valley continued through 2011–12 year.

The infestation of the lower Mikginj Valley is the only occurrence of a weed of national significance in the Warddeken Indigenous Protected Area (IPA). *Mimosa* plants produce vast numbers of seeds that remain viable in soils for as long as 20 years.

The aims of the project are controlling the spread of the infestation (estimated three to five years); and tackling the infestation itself (ongoing in perpetuity).

During the first stage of treatment, 22–25 November 2011, over 900 hectares and about 2200 *mimosa* plants were treated using the herbicide Graslán. Adult plants and seedlings, some only inches tall, were treated. Participants were ferried in and out of Mikginj Valley by helicopter over four consecutive days and covered the area on foot. Three Warddeken rangers and six Kakadu rangers were involved in this treatment.

Senior rangers note that the infestation at the top of the watercourse has improved, with many dead plants from previous treatments evident.

A highlight of the project has included the strengthening of relationships between stakeholders in Mikginj Valley, particularly between project partners Warddeken and Kakadu, and senior traditional owners who strongly support weed control activities on their country. Other Indigenous organisations in the region are expressing an interest in joining the fight against this exotic plant in Mikginj Valley.

The Mikginj area is also focus for another important weed collaboration involving



Warddeken Ranger James Guyula tags another *mimosa* plant treated with herbicide.

Warddeken working with the mining company Alligator Energy which holds a number of granted exploration tenements and a number of tenement applications.

Alligator Energy operates a permanent mining camp during the dry seasons and wants to work to control the legacy of mission grass infestations from previous miners and other land users.

In 2011 Warddeken undertook a weed treatment program in collaboration with Alligator Energy staff, surveying the extent of mission grass infestations in and around Myra Camp, and treating as many infestations as possible. Rangers also undertook asset protection burns around Myra Camp.

In September 2011 Warddeken Operations Manager Jake Weigl also undertook feral animal control activities for Alligator Energy, after requests to cull some problem pigs around Myra Camp. Warddeken was reimbursed for all costs associated with this activity. Pigs add to weed problems by transporting seeds from infested to clean sites.

In February 2012 Warddeken undertook more extensive weed surveys and treatments in collaboration with Alligator Energy.



Warddeken weed team.

## WEED CONTROL NOW A COMMUNITY PRIORITY

Residents at outstations have responded strongly to Warddeken's weed awareness and control strategies and the battle against the spread of weeds is now a community action priority.

Western Arnhem Land and the plateau country is, for the most part, one of the most weed free areas of Australia. However, there remains enormous potential for weed invasion and constant monitoring and control must become an embedded part of life to prevent adverse impacts on ecology, culture and economy.

Tropical invasive species such as gamba grass and mission grasses are high priority threats to the structure and function of riparian, floodplain and savanna woodland ecosystems throughout central and western Arnhem Land. These large pasture



grasses would destroy the viability of Warddeken's savanna burning greenhouse gas emission business.

Perennial mission grass and gamba grass are listed under the *Northern Territory Weeds Management Act 2001*. Annual mission grass is not currently listed as a weed in the Northern Territory, however it has been classified a high-risk weed under the draft NT Weed Risk Assessment. The mission grasses and gamba grass are high biomass species that have been shown to have damaging effects on the environment particularly by increasing the intensity and scale of fires.

Each year Warddeken rangers undertake an aggressive weed management program at all

Right: With roads closed by the wet season at the priority periods for weed control, helicopter slinging is the only way to move equipment around.

Below left: Women rangers trained and equipped for safe use of glyphosate have joined the community weed fight. Sisters Sylvia Ragurk and Edna Midjarda spray mission grass before it goes to seed.

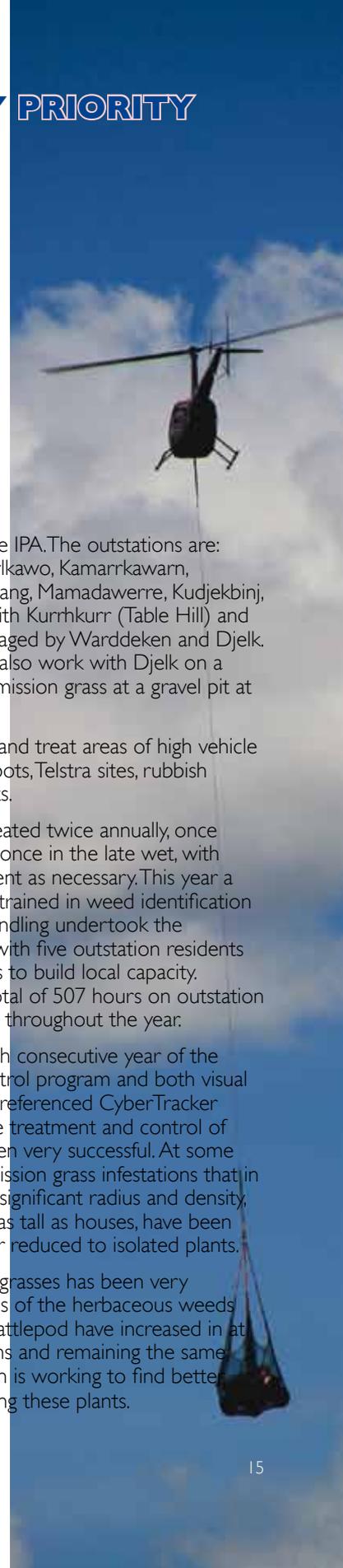
outstations within the IPA. The outstations are: Kabulwarnamyo, Marlkawo, Kamarrkawarn, Manmoyi, Kumarimbang, Mamadawerre, Kudjekbinj, Guborlomborlom with Kurhkurr (Table Hill) and Marlwon jointly managed by Warddeken and Djelk. Additionally rangers also work with Djelk on a major infestation of mission grass at a gravel pit at Dreaming Lady.

Rangers also survey and treat areas of high vehicle use such as fishing spots, Telstra sites, rubbish dumps and gravel pits.

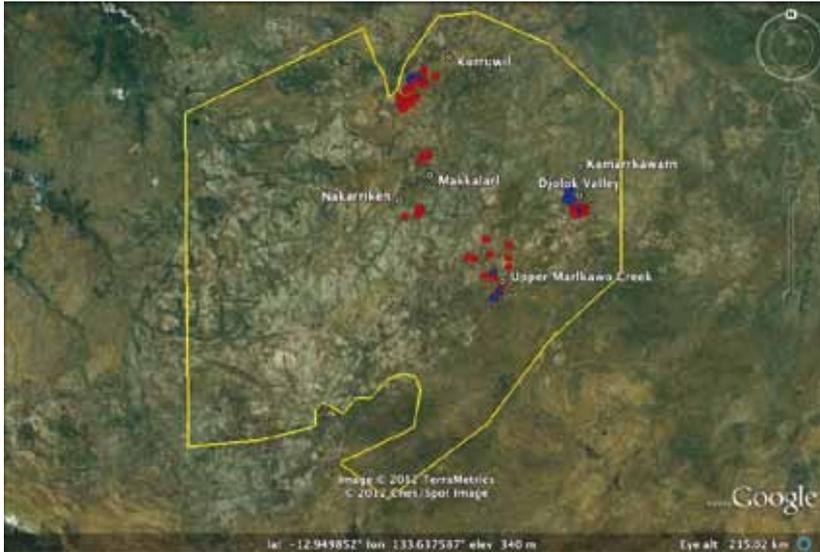
Each outstation is treated twice annually, once in the early wet and once in the late wet, with additional management as necessary. This year a team of ten rangers trained in weed identification and safe chemical handling undertook the treatment program with five outstation residents working casual hours to build local capacity. Rangers worked a total of 507 hours on outstation weed control efforts throughout the year.

2011–12 was the fifth consecutive year of the outstation weed control program and both visual observation and georeferenced CyberTracker data indicate that the treatment and control of grassy weeds has been very successful. At some outstations annual mission grass infestations that in 2008–2009 were of significant radius and density, with plants standing as tall as houses, have been entirely eliminated or reduced to isolated plants.

But while control of grasses has been very successful, infestations of the herbaceous weeds spinyhead sida and rattlepod have increased in at least three outstations and remaining the same at others. Warddeken is working to find better methods of controlling these plants.



# BUFFALO CULLS MAKING A DIFFERENCE



Anabarru, the water buffalo *Bubalis bubalis*, was brought to the Territory in 1827 but according to venerable *nawarddeken* elders they didn't spread into the *warddewardde* country until towards the mid-20th century.

Numbers on the plateau were further increased by movement from the Bulman area after BTEC, when a commercial community buffalo enterprise focused on catching and live export of young bulls and release of all females to breed up, making the next year's

After three years involved with culling of feral buffalo on the Arnhem Plateau Warddeken Director and Kakadu National Park Ranger, Fred Hunter, believes we are seeing an improvement in the health of country.

'We are focusing on the areas where we see the worst damage to country — especially the headwater wetlands and springs — and we're making a difference,' Fred said.

Fred Hunter and Calvin Murakami have been helping with aerial culling of buffalo on Warddeken lands as an important part of the strong neighbour relationship between Warddeken and Kakadu National Park. Warddeken has funded the helicopter shooting platform and bullets and Kakadu has done the shooting.

Buffalo on the plateau did not return positive disease tests for brucellosis and tuberculosis like the lowland buffalo populations which were reduced to minimal numbers under the 1980s Brucellosis and Tuberculosis Eradication Campaign (BTEC) program.

## Aerial Buffalo Culls 2011–12

Aerial cull period	Buffalo shot	Chopper hrs	Cost per beast
Early dry season	146	18.9	163.95
Late dry season	563	33.4	86.10
<b>TOTAL</b>	<b>709</b>	<b>52.3</b>	<b>Average \$125</b>

harvesting easier and more cost effective. The buffalo population boom at Bulman continues to push herds up into the plateau.

In forested and rocky areas of the plateau feral buffalo don't appear to cause a great deal of harm but when present in dense numbers on the fragile wetlands of the high plateau they have a devastating impact. Waterholes are fouled, walking pads can become irreparably eroded gullies and marshland edges are trampled and left vulnerable to erosion. The diversity of fringing marshland plants and the complex biota they support suffer badly.

Warddeken's buffalo strategy, constrained by limited funding, focuses on hitting buffalo hard at heavily impacted areas. It takes time for populations to refill culled areas and country quickly begins to recover. Buffalo densities can be remarkable: at Kurruwil in the north of IPA 227 buffalo were removed from an area of 9.5 sq km — a population density of almost 24 buffaloes per square kilometre!

As Fred Hunter says: 'We're making a difference but this is a big problem that needs more resources.' Warddeken is working with Jeremy Freeman from Charles Darwin University to develop formal methods of measuring buffalo damage and recovery after culling and looking for partnerships to address the larger problem in the western and central Arnhem Land area.

## PIGS AND RATS — MORE WORK FOR RANGERS

**Pigs:** Warddeken Rangers have always culled pigs whenever they can but this year a pilot trapping program at sites of cultural significance was implemented.

Although the population and impact of feral pigs on the plateau is not as significant as in lowland areas, it has long been recognised that feral pigs cause severe localised impacts to freshwater systems in the Indigenous Protected Area (IPA). Of particular concern are their impact on important bush foods such as *mankodjbang* (water peanut), *mardebulmardebulh* (an aquatic herb) and *nganjno* (waterlily tubers) and their impact on sites of spiritual significance.

Warddeken investigated different pig trap designs in use throughout Australia and, based on a number of factors including cost, availability of materials and logistics, a simple 'silo' or 'heart shaped' design was decided upon. The traps are constructed of readily available star pickets and weldmesh and are easily assembled and can be moved with relative ease.

Rangers are still in the process of establishing the most effective bait for the traps. A number of combinations have been trialled, including buffalo guts, sweet potato and compost scraps. It is important to note that water is provided in each trap so any animals trapped do not die of dehydration and can be disposed of humanely with a firearm.

Approximately 40 pigs were destroyed as a result of trapping, aerial culling and opportunistic culling. In the coming year Rangers will expand the trapping program to other sites of cultural significance.

**Black rats have gone bush:** Very few people are aware how the feral black rat (*Rattus rattus*) has taken to the tropical Australian bush. Black rats are now more commonly found in mammal trapping surveys in the Djelk and Warddeken IPAs and neighbouring national parks than native small mammals of that size and weight range.

It seems that as small native rat numbers have plummeted, black rats have somehow successfully taken up that ecological niche. It's a matter of great concern. At Kabulwarnamyo rangers now trap regularly for black rats which have drifted into camp from the bush. Spreading the word and developing a broader program of control at other outstations is a priority.



Nigel Gellar, Gavin Namarnyilk and Fred Nadjamerrek put paid to a pair of pesky porkers.



Simple but effective... reinforcing mesh is an inexpensive material that can be made into an efficient feral pig trap. Richard Miller and Leon Lawrence install a trap at Nakkarludr.



Lisa Miller checks the traps at Kabulwarnamyo. Trapping for black rats is now part of regular ranger work. The traps used are never used for native mammal work to prevent spreading disease.

# RECOGNITION FOR ENDANGERED SANDSTONE SHRUBLAND COMPLEX

In November 2011, the Australian Government listed the Arnhem Plateau Sandstone Shrubland Complex as an endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The listed community is the shrubby vegetation that occurs on stone country in western Arnhem land, Nitmiluk and Kakadu, with a significant percentage of the community found within the Warddeken Indigenous Protected Area.

It is the first time that an ecological community has been EPBC listed in northern Australia (and the first in the Northern Territory).

It is also the first time that a listed community is predominantly restricted to Indigenous lands, and is one of only a few ecological communities that have been listed in Australia due to threats other than land clearing. The listing raises the profile of land management issues in northern Australia and the requirement for increased investment in indigenous land and sea management programs.

The process of getting the ecological community listed began in 2003 at a meeting of various stakeholders including the NLC to develop a work plan for a new Darwin based Threatened Species Network (TSN) position. Submitting a nomination to have the Arnhem plateau recognised as a nationally threatened ecological community was identified as a priority for the new TSN co-ordinator (Jarrad Holmes). Recognising that the available mapping of the ecological community would not meet EPBC Act requirements, an Honours project was undertaken by Graeme Blake in 2004 (supervised by Guy Boggs, Charles Darwin University, with support from Jeremy Russel-Smith, Bushfires NT) and a higher resolution map for the community was produced. Following input from stakeholders including Peter Cooke and Warddeken Landowners, the draft nomination was submitted to the Commonwealth in late 2005 by WWF-Australia.



Over the following years a number of visits to the plateau were made by Commonwealth officers and members of the Threatened Species Scientific Committee to discuss with landowners the listing process and what it all means. The process ended in November 2011 when the Environment Minister listed the Arnhem Plateau Sandstone Shrubland Complex as an endangered ecological community.

This listing is seen as a positive step as it recognises the significant conservation values of the stone country that are under threat from changed fire regimes, feral animals and weeds, and it will hopefully lead to greater resourcing for Warddeken and neighbours to build on the land management work that is already being undertaken.

*Protecting and restoring the Sandstone Shrubland Complex is a key objective of Warddeken's fire management program*



*Alyurr* (aka Leichardt's grasshopper; *Petesida ephippigera*) is an iconic and endemic inhabitant of the Sandstone Shrubland that depends on a single genus of plants (*Pityrodia*) to support its lifecycle.

# YIRLINKIRRKIRR RESPONDS TO CALL FOR DATA



This bossy little bird in a family of four yirlinkirrkirr responded strongly to audio lures during a rock art survey in May 2012. Photo by Peter Cooke.

In 2011 the Australian Environmental Grantmakers Network (AEGN) provided funding for research into the ecology and traditional knowledge of *yirlinkirrkirr*, or White-throated Grasswrens (*Amytornis woodwardi*).

White-throated Grasswrens are shy ground-dwelling birds endemic to the rugged sandstone massif of the Arnhem Plateau.

They are listed as a vulnerable species in the Northern Territory but the successes in Warddeken field survey work suggest a strong persistence in *yirlinkirrkirr* populations within their specialised habitat in the Indigenous Protection Area (IPA).

The research was undertaken with the support of Maningrida-based Northern Territory Government scientist Alys Stevens in collaboration with Warddeken IPA rangers, senior knowledge holders and landowners. The broad aims were to document and support the transferral of customary knowledge of the bird and to help fill scientific data gaps about a little-known species.

Using indicators from both toolboxes — traditional knowledge of habitat and scientific fire scar information — rangers targeted swathes of long unburnt country with substantial *mankarrarndalk* (spinifex) cover as this is a key habitat requirement

for *yirlinkirrkirr*, hence making the birds strong indicators of fire regime.

Small teams consisting of Alys and two walkers with a mixture of landowners (father country), *djungkay* (ceremonial managers) and other rangers were positioned by helicopter in the morning to walk all day through sandstone shrublands, playing a pre-recorded *yirlinkirrkirr* call to entice these cryptic birds to be seen.

Alys and the rangers walked approximately 100 km over seven days and recorded four groups of *yirlinkirrkirr* and habitat information using a CyberTracker sequence on handheld computers. Additional sightings were made during a rock-art conservation camp happening at the same time in the IPA.

The power of *yirlinkirrkirr* as an indicator of fire management is valuable, and further defining and monitoring of a subset of discovered populations will become part of the annual ranger program.

This research was a great success ecologically and culturally — everyone learned something. Scientific knowledge about the extent of the population has been broadened, building on previous work in Kakadu NP on which this project was modelled, and knowledge has been shared not just between cultures but across generations.

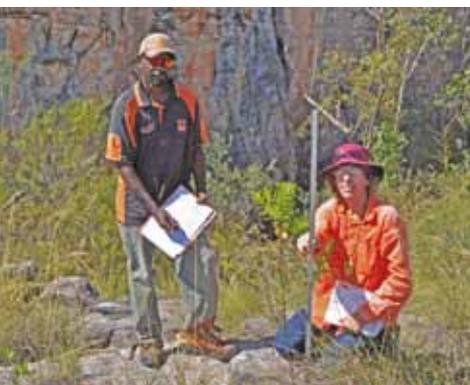
## MONITORING THE VULNERABLE BORONIAS



The vulnerable boronias are plants of the rugged *wardde wardde* country in the north west of the Warddeken IPA.



*Boronia quadrilata*.



Shaun Namamyilk, an Adjumarlarl ranger with strong *wardde wardde* connections, and Lynnette Liddle review the personal particulars of *B. quadrilata* plants.

Scientists have identified that the highest concentration of endemic plant species of any geographic region in the Northern Territory can be found on the Arnhem Land plateau, with 172 species only found in the region and a further 25 species have 90 per cent of their range occurring there. With detailed studies of the endemic plant species of the Arnhem Plateau very limited, the work of the Warddeken rangers in this field is of national value.

In 2012 Warddeken worked with Northern Territory Government scientists to continue monitoring two highly restricted endemic species of boronia in the East Alligator region.

Both boronias are woody shrubs growing on sandstone but they have markedly different growth-form and habitat preference, particularly with regard to exposure to fire. *Boronia quadrilata* is an erect multi-stemmed shrub and typically grows on rocky outcrops or in rocky ravines. Populations are periodically exposed to fire.

*Boronia viridiflora* is a cliff-dwelling shrub. Plants grow in rock crevices and are frequently found hanging from vertical cliff faces in deeply dissected sandstone country. The cliff habitat means *B. viridiflora* plants grow on sites out of reach of fire. Both species are listed as vulnerable to extinction under the Northern Territory Government *Territory Parks and Wildlife Conservation Act 2006* and the Australian Government *Environment Protection and Biodiversity Conservation Act, 1999*.

To better understand the population trend for these two nationally listed threatened boronia species a collaborative monitoring program was established in 2006. In the 2012 dry season Warddeken and Natural Resources, Environment the Arts and Sport Biodiversity Conservation Division joined forces to visit plots and reassess plants last surveyed in 2007. The monitoring includes following the survival of tagged *Boronia quadrilata* plants in the Magela Creek system.

Of 242 boronia plants counted within 12 study plots in 2007, 137 remain alive this year. A further 19 new plants have grown. Reasons for the change in number of plants are unclear but a build up of spinifex may have contributed to some boronia plants being crowded out. The optimal fire regime for *Boronia quadrilata* is unknown, but the trend over the last few years in which plots have remained unburnt, suggests some fire may be required in the long-term to refresh the boronia population. The resampling has provided a valuable picture of the population and provides a basis to guide future fire management and monitoring of the site.

Assessment of the shrub *Boronia viridiflora* growing on cliffs in the Tin Camp Creek area showed little change between 2006 and 2012 in the number of adult plants encountered in four plots. The number of juvenile plants has increased.

# TWO KNOWLEDGE SYSTEMS — BETTER MONITORING

Working in close collaboration with Warddeken rangers and landowners, PhD candidate Jeremy Freeman from Charles Darwin University has been using two important ecosystems from the Arnhem Plateau region as case studies to develop a new Cross Cultural Monitoring Framework for Indigenous managed lands.

These case study ecosystems, *anbinik* rainforest patches and headwater wetlands, were identified by *Bininj*<sup>1</sup> as conservation targets. With the assistance of Jeremy, key information for management has been gathered on both ecosystems.

The monitoring programme began with an inventory of each ecosystem. We now have new maps at a scale suitable for on-ground land management for wetlands and *anbinik* forests. And importantly *anbinik* patches and wetlands are classified not just by western standards but by information vital for management in the Indigenous Protected Area (IPA) such as custodianship and proximity to traditional walking routes. The next step has been to answer some important research questions — questions set by land managers and important for proper land management. Jeremy and rangers are now setting up the long-term monitoring program so land managers can see if actions are working and Warddeken can report efforts to conserve *anbinik* and wetlands effectively to the community and government. (continued on next page)



Jeremy Freeman

Below: Two knowledge systems, two languages, one story. Warddeken posters designed by Jeremy Freeman and translated into Bininj Kunwok by Alfred Nayinggul and Dr Murray Garde from the Bininj Kunwok Project.<sup>2</sup>

<sup>1</sup> Note: Indigenous people of western Arnhem Land identify as 'Bininj', just as east Arnhem Land people identify as 'Yolngu'

<sup>2</sup> Learn more about language at <http://bininjgunwok.org.au>

# FIVE YEAR FUNDING FOR ANBINIK PROTECTION



The Australian Government's Biodiversity Fund will provide funding of \$560,000 over five years to support on-ground management aimed at protecting and restoring *anbinik* (*Allosyncarpia ternata*) patches. Monitoring the outcomes of management is another important task supported by the funding.

*Anbinik* is an iconic and majestic tree endemic to the Arnhem Plateau. In deep gorges it thrives and is not threatened. Where it exists as patches of various sizes away from natural protection it is threatened by wildfire.

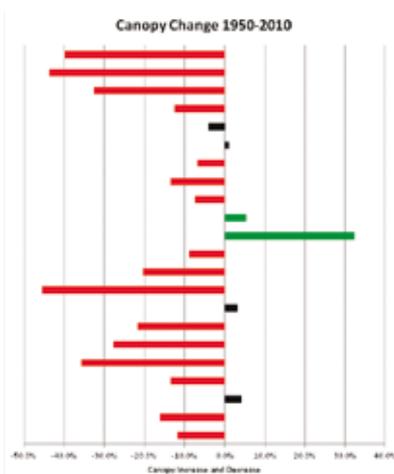
Some *anbinik* trees are thought to be over 600 years old, making it easy to understand why many *Bininj* say they feel a close connection to ancestors within the cool and shady groves of *anbinik* that provide a great relief from the heat of surrounding eucalypt forests.

The project will give priority protection to the sites shown on the map (left).

## ANBINIK FOREST

(from previous page) The major scientific debate around *anbinik* forest is their trend and condition. Some researchers have said that *anbinik* is actually expanding, across the whole plateau. *Bininj* however have a different story about the *anbinik* patches that they knew. *Bininj* and some non-aboriginal land managers have observed that the many small, isolated, fire susceptible patches of *anbinik*, which are culturally the most significant, have been shrinking.

Research using historical aerial photos showed that fire susceptible sites which were once actively protected by traditional burning regimes have mostly shrunk since 1950.



These sites are of great value to *Bininj* compared to the majority of *anbinik* which is located in fire protected rugged canyons. Of 22 such patches, 16 show substantial loss of canopy, two show canopy recovering from past fires, and four were relatively stable. (see graph left)

Using the new mapping and key indicators identified by *Bininj* a rapid assessment aerial and on-ground survey of at risk sites across the IPA was undertaken by Jeremy and several senior rangers.

These prioritised sites will receive on ground management funded by the new Biodiversity Fund grant. Once priority sites were established, Warddeken rangers and Jeremy established 100 long term monitoring plots, recording trunk size, tree health, fuel loads, canopy cover and ground photos with digital tablets. These plots will provide baseline data to monitor the effect of ongoing *anbinik* management.

## MAKING A BREAK: HANDS-ON HARD WORK



Protecting *anbinik* patches and restoring damage from past wildfires means hard work early every dry season for Warddeken Rangers.

Using helicopters and incendiary capsules at the landscape scale delivers emissions abatements and a general biodiversity benefit, but *anbinik* and other iconic plant species of the plateau require a more hands-on and fine-scale approach.

In the picture above, historic damage from wildfire is shown by the broken canopy cover at this *anbinik* site north west of Makkalarl. At the edge of the patch young trees give promise of recovery — but only if protected from fire.

With tussock grasses growing thickly after several years without fire this patch needed a hand-crafted firebreak to provide protection for the dry season of 2012.

Warddeken rangers were dropped onto the site by helicopter and over four days they used brush-

cutters and leaf blowers to clear a 6 kilometre mineral earth break around the two large adjacent patches. With this in place, and then using drip torches and leaf blowers, the rangers backburned all around this perimeter.

This level of hands-on management with a limited number of rangers is not possible every year for all of the 15 priority sites and approximately 50 patches of *anbinik* identified for the Biodiversity Fund project. However, not all sites require annual treatments. This site, for example, will not need the same treatment in 2013, as the surrounding grassy vegetation will have only one season of regrowth and not pose such a threat as it did in 2012. Management strategies will match effort against the particular needs of individual patches.

Warddeken plans to better equip its work camp at the Yurlhmanj clan location of Makkalarl so that it can be used as a base for work parties undertaking firebreak work on this large and fairly flat area of high plateau.



# BUFFALO AND PIGS ARE KILLING OUR COUNTRY

Warddeken's collaboration with Jeremy Freeman from Charles Darwin University is focusing on developing the best strategies to look after the spring-fed headwater wetlands across the 13,500 sq km of the Warddeken Indigenous Protected Area and greater Arnhem Plateau region. (see pages 21–22) for Jeremy's other work with Warddeken)

In 2011–2012 these headwater wetlands have been mapped using high resolution satellite imagery.

GIS processing undertaken by Jeremy delineated a finer scale drainage layer and each wetland has been classified by wetland form, catchment and connectivity. Wherever possible this mapping is trying to document and record the correct Indigenous names. However this task has become much harder with the loss of the most knowledgeable generation of men in the past few years.

The biggest threat to the marshlands and springs of the Arnhem plateau is damage being done by buffalo and pigs.

A rapid assessment of wetland condition used helicopter-mounted GPS cameras to record videos and images of wetlands for classification via computer screen. Images are being converted to booklets and DVDs for each catchment. Of over 300 surveyed wetland locations, 93 per cent were ranked as having either moderate or high buffalo impact, with many damaged places not currently having any buffalo control on them.

Very high resolution aerial photos of wetlands across the plateau were also obtained as part of long term monitoring efforts and now they form

the baseline for ongoing monitoring of buffalo damage signs such as wallows, tracks, erosion and dirty water.

Warddeken rangers will monitor buffalo damage using both the aerial imagery and on-ground assessments rather than try to estimate numbers of buffalo, which has proved very hard in the past.

As part of efforts to demonstrate the impact of buffalo on wetlands Jeremy Freeman also helped



Warddeken obtain a grant for some small, ruggedly fenced areas to be set up on wetlands near communities, and testing of water quality. Hopefully Jeremy's research will lead to resourcing of an expanded program of buffalo management across the plateau — a program where all the costs and benefits of buffalo are considered and wetlands once again become healthy places.

# BUILDING TWO TOOLBOXES FOR CONSERVATION



Caring for country, and the plants and animals that live there, starts with having a detailed knowledge base. For Warddeken this means drawing on and building knowledge in two systems — Indigenous knowledge and western scientific knowledge.

This is a critical time for Warddeken in conserving Indigenous knowledge. In the past few years the oldest and most knowledgeable of our ‘professors’ have died.

As Warddeken director Terrah Guymala observed: ‘In our lives we had our old people there to give us knowledge. Now we are becoming the “new old people” and we need to make sure we have the knowledge to be the new professors.’

Warddeken’s remaining elders and the coming generation of Indigenous experts are working together with scientists to build a special

knowledge base that draws on both knowledge systems.

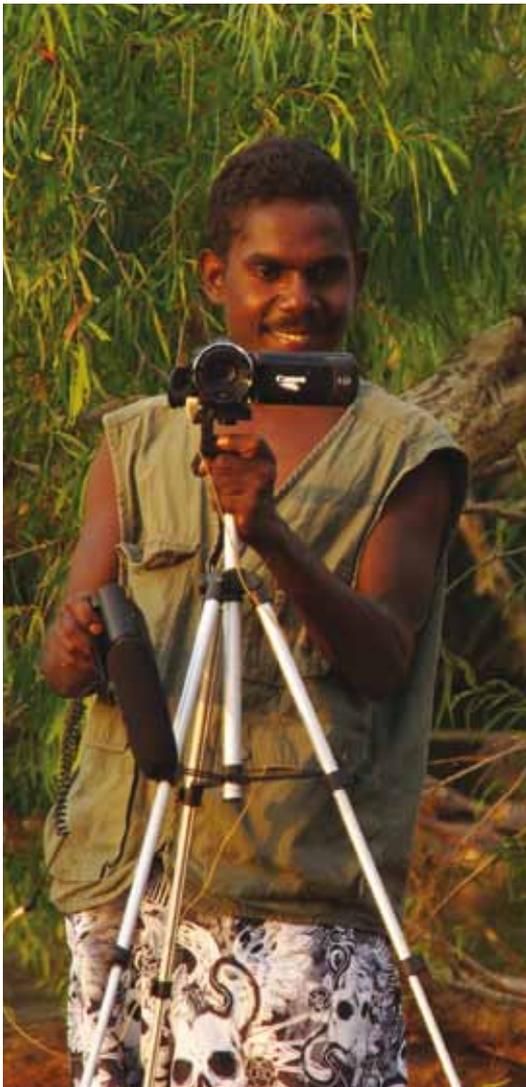
Biodiversity survey work that involves Indigenous rangers, old people, kids and scientists like the Northern Territory Government’s ecologist Alys Stevens is a critical part of how we conserve and expand our knowledge base.

Many plants and animals are found only on the plateau — in scientific terms ‘extremely high levels of endemism’ in both plants and animals, with many species under-researched and data deficient. This lack of knowledge is not just on the growing science side but also on the endangered Indigenous side.

Rangers are working to learn more about the unique biodiversity of the Indigenous Protected Area (IPA) with a focus on endemic, threatened and culturally important species.

## A JOB FOR ALL GENERATIONS

Warddeken's biodiversity work is an ongoing opportunity for different generations of *Bininj* to engage at an intellectual level to discuss Indigenous ecological knowledge, such as species taxonomy, animal behavior, and *djang*, or dreamings relating to particular species. Using the correct language terms associated with plant and animal species, landscapes and habitats in different dialects is fundamental. Rangers are using video, photography and audio to record and store their knowledge for storage on Warddeken's information management database (see page 40 this report).



## PATROLLING FOR SIGNS OF LIFE



Alys Stevens and rangers plan cat patrols.

'Signs of Life' biodiversity patrols are undertaken by rangers on foot, quad bike and in vehicles using a specially designed CyberTracker sequence to record data.

Throughout the year these patrols have continued to yield valuable information about the presence of significant fauna species within the Indigenous Protected Area (IPA), and ongoing use of the patrols over time will allow Warddeken to gain deeper understanding of the distribution and population density of threatened and endemic species.

During the last year 'Signs of Life' patrols have collected information about the distribution of species including the Oenpelli python, black wallaroo, emu, White-throated grasswren and bandicoot. The patrols have also provided data on the abundance and distribution of feral cats. The Kamarrkawarn ranger base in particular has been regularly undertaking patrols and gathering valuable biodiversity information using the CyberTracker sequence.

**NERP cat project:** Landowners and rangers have identified the control of feral cats as a priority management activity for the plateau. While cats are cryptic animals we know from their tracks that they are everywhere through the bush.

Concern about the impact of feral cats on native small mammals is growing, with the third year of biodiversity surveys demonstrating continued low numbers or total absence of critical weight range stone country mammal fauna.

Warddeken is beginning a major project looking at the abundance, behaviour and options of control of feral cats for the benefit of stone country *mayh* (animals) with funding from the National Environmental Research Project (NERP). However, delays in receiving project funding have meant the project has been pushed behind schedule.

In the meantime, ecologist Alys Stevens and rangers have undertaken extensive preliminary research. During the Kamarrkawarn biodiversity surveys they focused on developing a system of observations to determine feral cat abundance, with all of the activities recorded into an updated version of the CyberTracker 'Signs of Life' sequence. The methodology involves:

- search and record feral cat presence (via tracks) at all fauna survey sites;
- repeated spotlight transects. Rangers head out half an hour after sunset and drive a network of bush tracks at 5–15 km an hour with a 12V 100W spotlight and a Lightforce Walkabout kit for patrolling outside the car. Minimum 30km a night;
- natural sand-plot monitoring. Rangers walk during the day in naturally sandy places such as along creeks to look for and record cat tracks (this work will be increased and complemented with additional man-made sand plots in the coming year);
- motion sensor cameras. Cameras are used at fauna monitoring sites, and suspected cat hangouts. Cameras are placed on strong trees 30 cm off the ground, with a bait station 1.5 m in front.

During the Kamarrkawarn survey camps two transects totalling 72 km were established, and rangers drove them two to three times each at an average speed of 5 km per hour, equalling almost 30 hours of night patrolling. Six feral cats were spotted. However areas of dense vegetation, sandstone outcrops and the use of bush tracks more commonly dominated by dingoes lead to an underestimation of the true number. This data does, at any rate, provide a starting point for establishing baseline assessment of cat abundance on which to build.

## LAST YEAR FOR PEOPLE ON COUNTRY PROJECT

Since 2008 Dr Emilie Ens has been working in collaboration with Warddeken as an ecological research fellow on the People on Country project (PoC) at the Australian National University's Centre for Aboriginal Economic Policy Research's (CAEPR).

The Sidney Myer Fund People on Country project ended this year after five years of collecting evidence for the ecological, social and economic benefits of Indigenous ranger programs.

In late 2011 Dr Ens and Gill Towler of the National Herbarium worked with 35 Warddeken staff and family members at a cultural camp on the banks of the Mann River at Kamarrkawan to record local knowledge of important flora and fauna species. This camp built on the previous work of the 'People and Plants' project that Emilie and Gill have facilitated over the last three years, which used field-based recording to document customary use of plants on the plateau and facilitated intergenerational transmission of knowledge systems relating to flora of the stone country.

During the cultural camp many hours of video footage were recorded in collaboration with senior cultural leaders. This video footage has been incorporated into the Bidjerrin Information Management System.

At night the team conducted two frog surveys, continuing an ongoing biodiversity survey program to monitor cane toad impacts on the wide variety of native frog species of the plateau. Results continue to demonstrate that despite the presence of cane toads across the plateau, native frog populations remain healthy.

In April 2012, Warddeken ranger, Emmanuel Namarnyilk was employed by CAEPR to work at ANU in Canberra to edit and add subtitles to film footage taken at the Kamarrkawan culture camp. After Emmanuel's stay in Canberra, Lisa Miller traveled to ANU to assist Dr Ens with preparations for the second People on Country Women's Workshop, held in early June 2012. Dr Ens and Lisa produced plain English user manuals for iMovie (Mac) and Movie Maker (PC) software to edit and produce DVDs.

These manuals were used in the Women's Workshop where 20 women rangers from PoC partner groups participated in a five day workshop to enhance technological literacy, in particular DVD production. The workshop also involved finalising the women ranger's toolkit: *Women Rangers Talking — Sharing Ideas about Women Rangers Work*. This was published as a 32-page glossy document. The booklet can be downloaded from the CAEPR website <http://caepr.anu.edu.au/>.

Warddeken thanks Dr Ens and research assistant Gill Towler for their valuable contribution to Warddeken's work.



Lisa Miller working at Kabulwarnanyo ranger base.



Carol Pamkal at Kamarrkawan People on Country camp.



On camera... Laura Rungguwanga demonstrates traditional fibrecraft at Kamarrkawan.

## ACTION PLANNING FOR HEALTHY COUNTRY



Healthy country, happy people: participants from the Kamarrkawan workshop, including students from the Manmoyi school, during a visit to a dreaming site at Marnemarneyi.

Landowners from the outstation communities of Kamarrkawan and Manmoyi have developed regional management plans for their areas of the Warddeken IPA.

The Nature Conservancy supported Warddeken in facilitating Conservation Action Planning (CAP) workshops to develop these plans which set clear targets for conservation work out of new satellite ranger bases at Manmoyi and Kamarrkawan.

The Kamarrkawan workshop was held 1–5 August 2011 with 18 participants and the Manmoyi workshop was held 21–25 November 2011 with 22 participants. Senior CAP trainer Stuart Cowell assisted Warddeken staff to co-facilitate workshop sessions and GIS expert Angela McCauley from Eco Trust worked with participants to develop plan outputs into maps and other 'living documents'.

Days were divided into workshop sessions in the morning and afternoons were spent visiting sites, inspecting natural and cultural assets and discussing and assessing threatening processes such as feral animals and fire damage. This structure allowed participants to understand how the planning process related directly to management of country and proved to be a very successful model.

The workshops provided training in CAP techniques for senior Warddeken Staff. Indigenous rangers Terrah Guymala and Sarah Billis (Manmoyi) and Jamie Billis and Sylvia Ragurk (Kamarrkawan) were mentored as CAP facilitators at the workshops, together with Warddeken on-ground manager Georgia Vallance.

Planning process in action at Kamarrkawan August 2011.



The two workshops led to the development of a joint management plan for Bordoh and Djordi clans, the Ngorlkwarre and Kodwalewale Healthy Country Plan 2012–2023. This plan outlines world-class conservation project management methods developed using CAP and applies internationally agreed standards and tools for planning, implementation and measuring conservation impacts and outcomes. The planning framework allowed participants to clearly identify cultural, ecosystem and species targets and management priorities for threat abatement and holistic recovery of cultural landscapes.

These and future local plans will complement the overarching Warddeken IPA Management Plan. The 2009–2013 plan is under review to produce a revised plan to take effect from mid 2012.

## A FIRST IN INDIGENOUS CONSERVATION PLANNING

Qualified CAP coaches, Terrah Guymala, Sarah Billis and Georgia Vallance joined 15 other participants from five different countries for a Conservation Action Planning (CAP) coaches training workshop in the Atherton Tablelands In March 2012.

Terrah, Sarah and Georgia are now accredited CAP (Open Standards) coaches, with Terrah and Sarah being the first Indigenous Australians to receive CAP coaching accreditation.

Warddeken staff built valuable skills in internationally recognised conservation planning techniques and gained confidence in public speaking and group facilitation. These skills will be put to use in the coming year as Warddeken moves into a process of reviewing and updating the 2009–2013 IPA Plan of Management and works towards developing additional regional Healthy Country Plans.

Coaches-in-training shared insights from their work with Indigenous and traditional land management and worked to build confidence to effectively support the CAP process in their own communities. Warddeken staff joined global Indigenous land management networks, forming strong connections with participants from China, Papua New Guinea and Indonesia.

Participants worked intensively for five days, learning how to facilitate and coach the different steps of CAP. Participants also experimented with community mapping and visioning techniques as ways to capture local and traditional knowledge and explored best practices for developing and maintaining partnerships.



A global indigenous land management network: participants from China, Papua New Guinea, Indonesia, USA and northern Australia came together to train as accredited CAP Coaches.



Bringing it all back home... conservation action techniques come back home to assist community-based conservation at Manmoyi.

## KNOWLEDGE OLD BECOMES KNOWLEDGE NEW



Sylvia Ragurk and Helena Malanga proudly display a traditional sieve (badjbara or didde) used especially for washing and leaching the toxins from cheeky yams. Knowledge of techniques for harvesting and preparing 'old fashioned foods' are being conserved.



Preserving the unique knowledge systems of the *wardde wardde* (plateau country) and the vocabulary that describes them is a priority for Warddeken's members.

The conservation target *kunmayali*, translated by *Bininj* as 'knowledge', was ranked by rangers, elders and community members as the highest priority during planning workshops and consultations. Strategies are being urgently developed and implemented to combat the loss of knowledge at this critical time when so few elders who were born and raised in the bush are still alive and able to pass on knowledge.

Over the 2011–12 wet season rangers from Manmoyi and Kamarrkawarn ranger bases worked with their communities on a project to increase intergenerational sharing of the specialised knowledge systems relating to customary life and survival on the plateau.

In designing the scope of the project key areas of knowledge were identified by old people as requiring urgent transmission to younger generations:

**Material culture** — production of objects used by ancestors for life on the plateau, such as spears, stone axes, dilly bags, cooking tools and clothing;

**Bush survival skills** — highly specialised skills required to live in the stone country such as navigation, making fire, building traditional shelters, preparing and using fish poison and hunting using spears;

**Knowledge of plants** — preparation of plants for food and medicinal purposes.

The project created a space for *nawarddeken* of all ages to work together on cultural knowledge transmission and throughout the course of the project most members of the Manmoyi and Kamarrkawarn communities, young and old, were involved. A total of 39 people participated — 14 kids, 8 elders and 17 rangers. The Manmoyi Homeland School also partnered with Warddeken, pairing students with cultural mentors to make spears (boys) and woven baskets (girls) and participate in culture based lessons on seasonal indicators, bush foods and using items of material culture.

Basheena Namarnyilk is proud of her dilly bag and all the different kinds of bush food she's learned to collect. The kids at Manmoyi have written a song about bush tucker — it's going to be made into a video singing the praises of 'ugly food'.

## MAKING MATERIAL CULTURE KEEPS IT STRONG

The material culture project aims to document and record the production and use of cultural artefacts.

The following methodology was used to make sure the project was achieving the dual aims of actively teaching knowledge and documenting and recording the knowledge for posterity:

- collecting materials for making objects, recording traditional knowledge of plants used and correct harvesting protocols;
- preparation of plant materials for making artefacts, with video recording of processes;
- using artefacts and teaching younger generation to use artefacts;
- annotation of videos by project team for input into Bidjarn Information Management System (BIMS).



Aspelita Guymala and honey gathering bags.

High-quality video was recorded with supporting documentation written in both English and Bininj Kunwok. Data generated through the project is archived into the BIMS at Warddeken's operational base at Kabulwarnamyo.

Rangers, young adults and kids embraced the opportunity to learn more about their culture from those old people who still hold the knowledge. Continuation and expansion of the project will ensure that there is active and ongoing use of the knowledge and skills handed down between generations.

Over 100 items of material culture were produced, including: *kundjabarrk* (string bag), *borndok* (spear thrower), *karlbbu* (simple disposable spear thrower), *kunkolborn* (dilly bag tightly woven from light fibres used for collecting wild honey), *djuddjud* (fibre skirts), *ngalbardi* (armband made from various plant fibres worn on the biceps for personal adornment, or given by lovers to each other as mementos), *barrawu* (shovel nosed spear), *manbokkadji* (spear).



Berribob Watson ... Manmoyi's leading man of material culture.

# ILLUSTRATED NEWS FROM 1883 REPUBLISHED



Landowner Lois Nadjamerrek views old news from her ancestors.

Below: ANU archaeologist Daryl Wesley works with rangers Ray Nadjamerrek and Gavin Namarnyilk.

In October 1883 — 129 years ago — the surveyor David Lindsay was struggling into the *warddewardde* after a six month exploration of Arnhem Land sponsored by South Australian investors looking for good cattle country.

Lindsay and his party had left Katherine in May and travelled east to the Gulf, then north, then west until they reached the Liverpool River below the northern scarps of the plateau in early October. The oppressive weather of the 'build-up' had begun and men and horses were exhausted as they

headed south to cross the plateau and find the headwaters of the Katherine River.

Lindsay saw no Aboriginal people during his push across the plateau, but the rediscovery of an extraordinary rock art gallery has made it clear that landowners certainly saw the explorers up close and in detail.

On Mok clan country the explorers camped for a few days to rest before the final push. In his journal for 15 October 1883 Lindsay wrote:

*... [we] lightened our packs by throwing away two packsaddles, the fish net, some rope, a great deal of revolver and rifle ammunition, and all the clothes we could spare.*

Only a few kilometres from where Lindsay wrote the above passage in his journal several Aboriginal people recorded the same event in ochre. After being lost to memory for several generations the historic artwork is again being looked after by the Mok clan.



Photo: David Hancock, Skyscans.

## COMPUTER SOFTWARE HELPS TELL THE STORY



Photo: Daryl Wesley

A digital imagery tool called DStretch changes colours of rock art images to better show detail. Here, at left in the image above, a man with a pipe sights along a rifle with a bullet in the chamber. The distinctive lever action and short forestock indicate a Webley Wylie rifle, the firearm carried by Lindsay's party.

In the context of Lindsay's journal the hatched image is clearly a rolled fishing net. Although Lindsay refers to throwing away 'packsaddles' it seems more likely that they were saddle packs rather than packsaddles, when the imagery is taken into consideration. An American saddle pack from this period is shown in the picture right. The packs depicted in the rock art could well be a legitimate 'correction' of a misleading description by Lindsay.

The panel of images telling the story of the Mok's encounter with the Lindsay expedition is about 5 metres long and includes about 30 firearms, a horse and rider and four men bearing arms. Not all the firearms appear to have been painted in 1883 — some seem to have been painted later. Interestingly, some of the Lindsay images have been painted over with traditional themes — the largest a kangaroo

that partly obscures an explorer, indicating that after the visitors left, life went back to normal for the people of Mok country in 1883.

David Lindsay (below) was a skilled surveyor and GIS expert Jeremy Freeman was able to use his maps (detail pictured) and journal to plot the explorers' route onto a Google Earth based map.



## CARING FOR FRAGILE FIRST IMPRESSIONS



Humour travels well across the generations ... on her first visit to her country, Djorrorlom landowner Evelyn Farrell enjoys this image of an axe-wielding farmer and a larger-than-life rooster:

For more than 50,000 years Indigenous artists have been leaving painted messages on the sandstone surfaces of the Western Arnhem Plateau.

Although thousands of images have been recorded, thousands more have remained out of sight for several generations since many clans were drawn off the plateau during the 19th and 20th centuries.

Most of that art which has been around for thousands of years can be expected to be around for thousands more — indeed those images painted in particular kinds of red ochre have penetrated the sandstone surfaces several millimetres.

But the most recent art, particularly that which records first contact with non-Indigenous people is critically fragile and in danger of being lost or damaged. Unlike the red and some yellow pigments, white pigments of pipeclay or the rare and vibrant mineral huntite do not penetrate the rock and sit only on the surface.

White paintings are vulnerable to being lost to wind, water, fire or rubbing by feral animals such as pigs and buffalo.

The Fragile First Impressions Project, funded by the Australian Government's Indigenous Heritage Program, began in 2010–2011 and the first round of activities was completed by the end of the 2011–12 financial year.

Warddeken Rangers and staff often find rock art in the course of other work and these brief records have been followed up for a select number of important contact sites.

Site locations and descriptions have been recorded and entered into the Bidjerrin Information Management System archive. Images have been photographed in the greatest detail and highest resolution available and stored and indexed.

Special data forms have been designed for rangers to record and prioritise management actions that are considered necessary for each site.

Landowners from the plateau diaspora have joined rangers in site surveys and reconnected with their cultural heritage.

## UNFRIENDLY FIRE THREATENS ROCK ART

In 2006 Severe Tropical Cyclone Monica left a trail of destruction across northern Arnhem Land. At the Red Lily Billabong near Kunbarlanja it knocked down a red apple tree that lay up against an ancient and culturally important image associated with the increase of the Red Lotus Lilies.

During the cyclone clean up the tree was unfortunately set alight. The heat caused the rock to explode and pieces inches thick were thrown more than 30 metres. The art was destroyed.

While Warddeken and partners have now taken charge of fire and are successfully controlling it at the large landscape scale, managing it at fine scale and preventing damage to rock art is a further difficult challenge.

Many rock art 'hot spots' are places where old people camped regularly and controlled the growth of spinifex and shrubs by regular low-intensity burning.

Emulating this personalised management across 13,500 square kilometres on the Warddeken IPA is an enormous challenge for rangers and landowners.

As part of the Fragile First Impressions project rangers carried out critically important fuel reduction at a number of long-unburnt cultural sites. Some grasses were hand-pulled or hacked out with rakehoes. At the site complex of Menjunguneng rangers worked for a week with brushcutters removing a thick build up of prickly shrub that both prevented access to rock art and threatened damage if it burned in the late dry season.

Keeping records of work done in a site database will allow rangers to plan coming back to unburned sites every couple of years to protect the art from unfriendly fire.

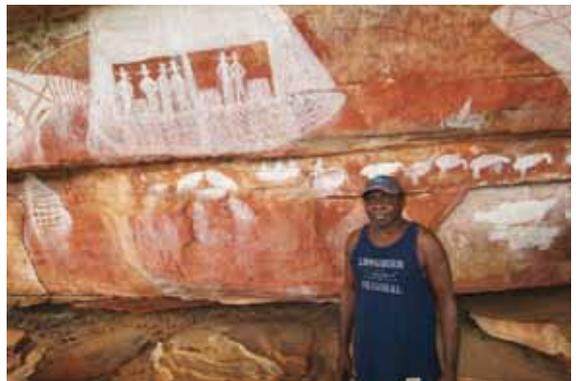
Some art sites are so remote that they can only be accessed by helicopter. This is the case with the wonderful contact site of Djurray on Wurnkomku country. Senior landowner Johnny Reid has asked Warddeken rangers to 'keep an eye on the site' for him when they are around that part of the IPA doing fire work. On a recent visit with Warddeken chair Dean Yibarbuk, Johnny was concerned to find helicopter skid marks, a 'popper juice' straw, cigarette butts and artefacts moved around. The issues have been reported to the Northern Land Council. Photo by Robert Gosford



Brushcutters are used to knock down thick shrub build-up. Cuttings were gathered and removed for burning at a safe distance from rock art.



While this grass looks green, it contains volatile oils and needs to be hand-pulled to protect the image of a white man shown fully clothed, with a rifle, wearing a hat and puffing on a pipe, from fire damage in a late dry season fire.



## DIGITAL ASSET MANAGEMENT GOES BUSH



Online and actively archiving ... Bidwern set up at Kabulwarnamyo Ranger Base. Lisa Miller at the keyboard.

Margaret Guymala records Bininj Kunwok names and other information about bush tucker.



Glen Maclaren and Troy Mallie, the developers of the Keeping Places software systems, travelled to Kabulwarnamyo in late 2011 to install the Bidwern Information Management System (BIMS) at Kabulwarnamyo ranger base. Glen returned for a follow-up in May 2012.

*Bidwern* is a Bininj Kunwok word with a literal meaning of 'many fingers'. Bidwern is a customised version of Keeping Places and BIMS is a play on words in Bininj Kunwok as '*bim*' is used for rock art and other imagery, including photographs today.

Throughout 2012 rangers have worked to populate the database with both historical and contemporary datasets, with a focus on accurate input of metadata. Six women rangers have received on-the-job training and are able to input photographic and video data. Bidwern currently houses 2017 photos, 171 videos, 49 documents and over three hundred place names.

Bidwern is used to provide information for visiting researchers and is regularly used by community members — many of them children — to search and explore cultural data.

Consultant Polly Hemming has been engaged to process and input data relating to the Arnhem Plateau from Warddeken CEO Peter Cooke and linguist Murray Garde. These datasets represent 30 years of photos, slides, video and documents and a valuable contribution to Bidwern. Much of this work involves transferring data from obsolete data formats such as cassettes and slides into electronic format.

Establishing Bidwern at other communities has been contingent on securing internet access. Manmoyi and Kamarrkawarn communities were registered for the National Broadband Network (NBN) in early 2012 with installation scheduled for July.

## KARRKAD-KANJDJI: A NEW PARTNERSHIP

*The Karrkad-Kanjdi Trust was established to help Indigenous conservation managers on the Djelk and Warddeken Indigenous Protected Areas. Karrkad-Kanjdi will bring in support from private sources of funding — people who appreciate the work of Djelk and Warddeken and want to help build land management capacity in Western Arnhem Land.*

*Karrkad-Kanjdi Trust will build a trust fund to generate consistent annual returns in perpetuity for the management of the Warddeken and Djelk Indigenous Protected Areas. With this innovative model, the Karrkad-Kanjdi Trust is providing a template for land management funding across Australia. The Trust welcomes gifts to the trust fund, project funding, gifts in kind and gifts in support of operations.*

This year has seen the beginning of active operations for the Karrkad-Kanjdi Trust, with the appointment of two staff members (Stuart Cowell, CEO, and Sophie Davidson, Director of Development), development of a 10-year strategic plan, and commencement of the capital campaign to raise funds for the Trust.

In addition to a number of virtual meetings, the board gathered for a meeting at Djinkarr in the Djelk Indigenous Protected Area in December 2011. Karrkad-Kanjdi staff and representatives from The Nature Conservancy, Warddeken Land Management Limited and Bawinanga Aboriginal Corporation worked intensively with board members over two very productive and enjoyable days. The meeting provided clear direction to the strategic plan, and laid the foundation for staff to begin operations.

Although Karrkad-Kanjdi has been in existence since 2009, it is only through some very generous support that we have been able to really start on our work. In particular, on behalf of the Board of Directors, I extend my most sincere thanks to The Nature Conservancy and the Pew Environment Group for providing the foundational support that allowed Karrkad-Kanjdi to begin operation in 2011–12. With the most immediate priority being to build the trust fund, planning for a major fundraising campaign has been the primary focus this year. Communications have also been an initial priority, with the website [www.karrkad-kanjdji.com.au](http://www.karrkad-kanjdji.com.au) established and a draft 'case for support' brochure created in collaboration with board members.

I would like to thank the many people who generously provided advice and assistance to Karrkad Kanjdji in 2011–12, including representatives from both Warddeken and Bawinanga. I would also like to thank all board members for the expertise they have shared with Karrkad Kanjdji this year: Jessie Alderson, Jon Altman (Secretary), Robert Hill, Joe Morrison, Rosemary Nabalwad, and Matthew Ryan.

Guy Fitzhardinge (Chair)  
[www.karrkad-kanjdji.org.au](http://www.karrkad-kanjdji.org.au)  
[mail@karrkad-kanjdji.org.au](mailto:mail@karrkad-kanjdji.org.au)  
03 6224 2551



Guy Fitzhardinge (Chair).



In December 2011 a Karrkad-Kanjdi meeting was held on Dean Yibarbuk's country at Djinkarr. Clockwise from Terrah Guymala (back to camera), Sarah Billiss, Rosemary Nabalwad (KKT), Mandy Muir (KKT proxy), Michael Looker (Nature Conservancy), Lori Richardson (Nature Conservancy), Jon Altman (ANU-KKT), Stuart Cowell (KKT-CEO), Guy Fitzhardinge (Chair KKT), Dean Yibarbuk, Sophie Davidson (KKT — Director Development, Luke Morrish (BAC-CEO). Absent from picture: Matthew Ryan, Joe Morrison and Jesse Alderson.  
Photo: Peter Cooke.

## CONSERVATION VISITORS WELCOME ON COUNTRY



The Nature Conservancy's (TNC) Asia-Pacific Council travelled to Warddeken Indigenous Protected Area (IPA) in May 2012 and came away impressed by the world-class conservation management happening there. This trip followed an earlier visit by senior TNC staff in November 2011 (picture above).

Accompanied by some of the organisation's key senior managers, the group from TNC — a Warddeken partner since before the IPA's establishment — spent a day on *warddewardde* country. They explored the IPA's escarpments, took in several rock art sites, and received a lesson in making fire without matches or a lighter.



They were also introduced to the *borndok* (spearthrower), which resulted in an impromptu spear-throwing competition that roused the competitive instincts of the visitors. Their efforts to outdistance one another pitted high-ranked TNC senior managers against members of the Asia Pacific Council, which includes some of the organisation's most ardent supporters.

Some of the TNC Asia-Pacific members present were Moses Tsang, John and Tashia Morgridge; James and Rebecca Morgan, George Tahija; and Rob McLean AM, who also serves as chairperson of TNC's Australia Advisory Board. Among the TNC senior managers present were Charles Bedford, managing director for the Asia Pacific region, Brian McPeck, Chief Operations Officer, and Bill Ginn, Chief Conservation Officer.

'It was great to see the council members have so much fun and be so engaged,' Brian McPeck said of the visit.

The trip allowed businesspeople from throughout the Asia-Pacific region to learn from a culture that has been in Australia for over 40,000 years. Participants received a very powerful message on how seemingly disparate groups can come together and share knowledge and resources in order to achieve better conservation outcomes.

Dr Looker, TNC's Australian Director, agreed that the trip was highly worthwhile for the Council members. 'The management program at Warddeken has set a model for how to care for country over the long term,' he says. 'We're proud to support the IPA, and we're happy that we got to show staff and supporters the fantastic work that's happening at Warddeken.'

Top left: TNC's Australian Director Michael Looker receives a traditional head-wetting welcome to Mok country from Antonia Djangjomerr at the Kabulwarnamyo spring while other visitors wait their turn.

Bottom left: Mok landowner Frederick Nadjamerrek and Warddeken Director Fred Hunter hosted a fact-finding visit to Kabulwarnamyo by community and government conservation stakeholders from Sabah, Malaysia in September 2011.

# TRAINING IS DIFFICULT — SAFETY IS THE PRIORITY



Whether it's on the fireground or in the workshop, health and safety is a top priority in the Warddeken workplace.

Warddeken has come a long way in standardising work health and safety procedures and recognises worker safety as the highest priority for the company.

Every morning at a planning meeting the team discusses work activities for the day, potential risks and strategies to get the job done safely.

High value is placed on seeing vehicles are kept in safe working order and all vehicles are equipped with a satellite phone, SPOT GPS emergency beacon, first aid kit, vehicle recovery gear and water supply.

When rangers are out in the field they leave what is known in aviation terms as a 'SAR' or search and rescue time at the office of the operational base. This time is updated as necessary via sat phone and if a vehicle fails to return by this time and no phone call has been received, a team is dispatched to ensure they are OK.

Providing a training program is challenging given the remote location — few registered training organisations are willing to send staff to such remote outstation communities.

Although Warddeken adheres to law and company rules concerning licenced drivers, obtaining

licenses for new (in particular younger) rangers is problematic, to say the least. Most new staff lack identification documents to make up 100 points of ID. Additionally, the cost of delivering training is high because of logistics involved.

Warddeken operates in a region where outcomes from state education are poor; with low literacy and numeracy sadly the norm. Despite these obstacles, most permanent staff have attained competency in the core Conservation and Land Management units: Wildfire Safety and Response, Safe Handling of Chemicals and Weed Identification, Operate Quad Bikes, Operate and Maintain Chainsaws, as well as holding a current first aid certificate, drivers licence and firearms licence.

In an attempt to overcome challenges of location and up-skill rangers with basic workplace literacy and numeracy skills, Warddeken has partnered with Charles Darwin University's Adult Literacy and Numeracy Unit to design and pilot a Skype-based training program.

Over the coming year permanent staff at Kabulwarnamyo, Manmoyi and Kamarrwawarn will participate in a training program that will focus on building skills around job-specific activities to increase awareness in the workplace. The training will continue our strong focus on workplace health and safety.

## OUR FIELD MANAGERS REFLECT ON 2011–12



from Warddeken field managers  
Jake Weigl and Georgia Vallance

Warddeken's ever willing field managers Jake and Georgia ... still smiling and providing essential support and co-ordination.

The most significant development in Warddeken's employment structure this year has been decentralisation of the workforce with establishment of two permanent ranger bases at outstation communities. It has long been a goal of Warddeken to offer employment to residents of IPA communities outside the Kabulwammyo operational base and so represents a major step in growth of the company.

Continuing the positive employment trends of previous years, participation in work programs continues to grow. The new community-based ranger operations have allowed residents of Manmoyi and Kamarrkawarn previously employed as casuals to step into full-time and permanent part time roles.

More 'professors' have also been more heavily involved in regular work activities, providing cultural guidance to both core and specialised work activities.

Co-benefits of working in natural and cultural conservation are more apparent amongst staff, particularly in regards to economic and health benefits. Permanent staff are now eligible to qualify for bank loans and are purchasing vehicles outside the false economy of mining royalties. Rangers enjoy healthier lifestyles because land management work is intrinsically linked to physical activity. Women in particular are moving beyond the largely sedentary life at outstations and participating in conservation activities.

Warddeken also performs an important advocacy role for *nawarddeken* living permanently at outstation communities. Though the Indigenous Protection Area includes some of the nation's most significant natural and cultural landscapes there are no basic services available to those who live there — no health clinic, community store, police station, bank, postal service, Centrelink office or other services enjoyed by most Australians.

In the face of extreme isolation and an absence of external assistance Warddeken performs a liaison role between rangers and 'mainstream' society, with the recognition that staff are better able to perform if they and their families are healthy, have adequate dwellings, enjoy food security and have access to financial and education services.

Management staff regularly assist colleagues in negotiating the challenges of living in one the most rugged and remote regions of Australia.



A new and handy asset in the industrial area at Warddeken HQ ... a 10,000 L self-bunded diesel storage tank with a powered and metered pump went into service during the year. This will allow for the phasing out of bringing in fuel in drums, which adds about \$100 to the cost of every 200 L, in 2012–13.

## WARDDEKEN WORKERS 2011–2012

**Expert consultants:** Mary Kolkiwarra Nadjamerrek, Mary Naborlhborlh, Ruby Bilidja, Deborah Nabarlambarl, Laura Runggawanga, Josie Maralngurra, Jack Djandjomerr, Timothy Nadjowh, Wurdib Nabalwad, Leonie Guymala, Leanne Guymala, Lillian Guymala

**CEO:** Peter Cooke

**Financial controller:** John O'Brien

**Operations manager:** Jake Weigl

**Administration, Research and Training Manager:** Georgia Vallance

**Senior ranger co-ordinator:** Nigel Gellar

**Senior ranger (workshop manager):** Freddy Nadjamerrek

**Senior ranger (fire ecologist):** Dean Yibarbuk

**Ranger coordinator Manmoyi:** Terrah Guymala

**Ranger coordinator Kamarrkawarn:** Jamie Billis

**Fulltime and permanent part time Working on Country rangers:** Berribob Watson, Lisa Miller, Jenny Nadjamerrek, Sylvia Ragurrk, Elizabeth Nabarlambarl, Margaret Guymala, Keleasha Ogden, Richard Miller, Joel Naborlhborlh, Bobby Maralngurra

**Casual rangers:** Gavin Namarnyilk, Darius Maralngurra, Keith Nadjamerrek, Lindsay Whitehurst, Nicodemus Nayilibidj, Ray Nadjamerrek, Jeshua Djandjomerr, Len Naborlhborlh, Rodney Naborlhborlh, Ross Guymala, Casten Guymala, Regan Gellar, Rohan Naborlhborlh, Benjamin Burrunali, Roland Burrunali, Ricky Nabarlambarl, Lewis Naborlhborlh, Mitchell Nabarlambarl, Joe Guymala, James Guyula, Josh Cameron, Kamahl Djandjomerr, Emmanuel Namarnyilk, Graham Namarnyilk, Christopher Ngabuy, Zebedee Ngabuy, Leslie Ngabuy, Stuart Guymala, Serina Namarnyilk, Rhonda Nadjamerrek, Antonia Djandjomerr, Vietta Bangarr, Helena Malanga, Ruth Guymala, Ruth Nabarlambarl, Sarah Billis, Edna Midjarda, Jean Burrunali, Toni Whitehurst, Amy Namarnyilk, Wendy Namarnyilk, Jalisa Koimala, Martha Cameron.

**Other valuable help from:** Alys Stevens, Emma Ignjic, Mike Mewett, Murray Garde, Andrew Edwards, Paul Josif, Michael Carter, Daryl Wesley, Troy Mallie, Glen McLaren, Calvin Murakami, Anna Pickworth, Emile Ens and Gill Towler; the Djelk Rangers, Stuart Cowell and KKT, Geoff Lipsett-Moore, Dom Ferguson, Jabiru NLC, Jan Cooke and David Hancock.



Mary Kolkiwarra Nadjamerrek ... an inspiration and fount of knowledge to all.



It happens...bush work's not all full steam ahead.



But...at other times it seems like a whole lot of fun!

# WARDDEKEN AUDITOR'S STATEMENT

**Warddeken Land Management Limited**

**ABN 12 128 878 142**

**Report of the independent auditor on the summary financial statements to the members of Warddeken Land Management Limited.**

The accompanying summary financial statements, which comprise the statement of financial position as at 30 June 2012, the income statement and related notes are derived from the audited financial report of Warddeken Land Management Limited for the year ended 30 June 2012. We expressed an unmodified audit opinion on that financial report in our report dated 2 November 2012.

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.

### *Directors' Responsibility for the Summary Financial Statements*

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

### *Auditor's Responsibility*

Our responsibility is to express an opinion on the summary financial statements based on our procedures, which were conducted in accordance with Auditing Standard ASA 810 *Engagements to Report on Summary Financial Statements*.

### *Opinion*

In our opinion, the summary financial statements derived from the audited financial report of Warddeken Land Management Limited for the year ended 30 June 2012 are consistent, in all material respects, with that audited financial report, on the basis described in Note 1.

*Perks Audit & Assurance*

PERKS AUDIT & ASSURANCE

180 Greenhill Road

Parkside SA 5063

*P Hill*

PETER J HILL

Director

Registered Company Auditor

Dated this 15<sup>th</sup> day of November 2012

# WARDDEKEN AUDITED FINANCIAL STATEMENT

## Warddeken Land Management Limited

ABN 12 128 878 142

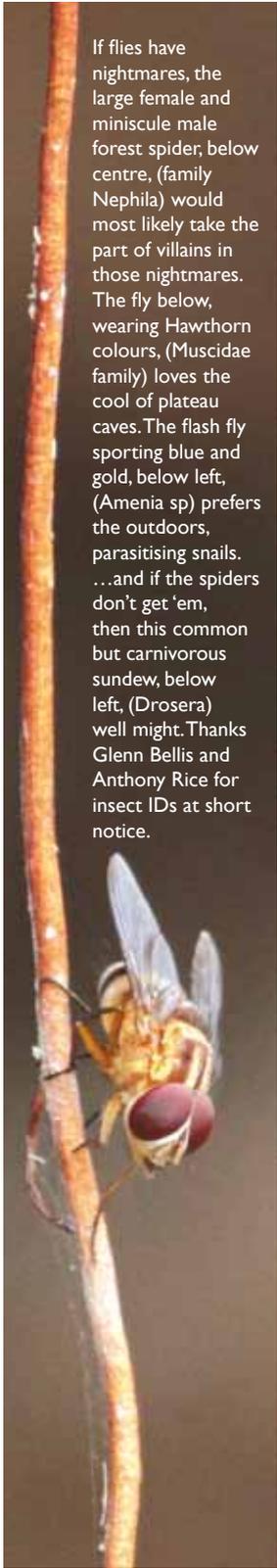
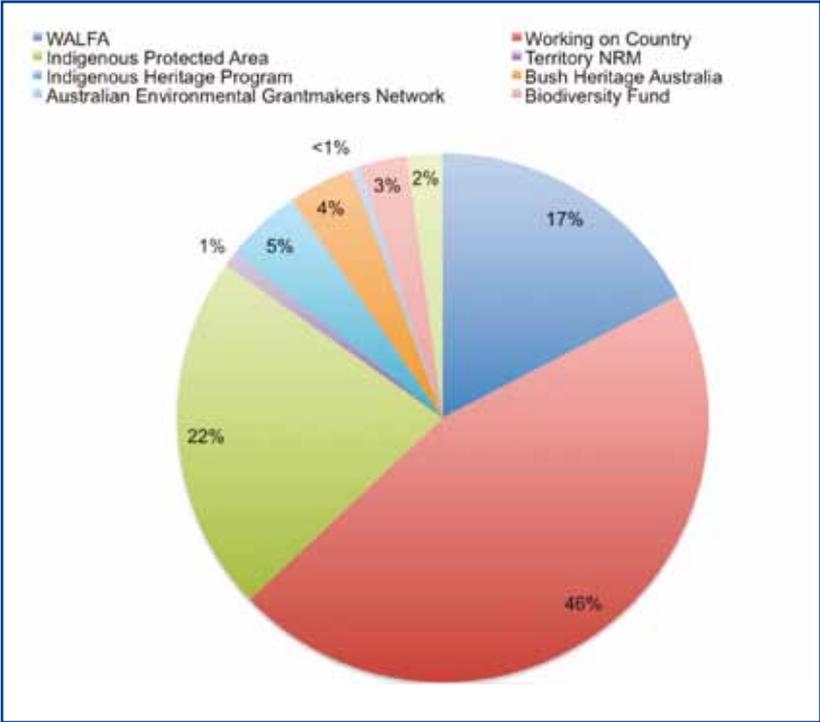
Summary Financial Statements

For the year ended 30 June 2012

		2012 \$	2011 \$
<b>Income Statement</b>			
Grants revenue		1,817,549	1,811,349
Other income		92,345	17,743
Employee benefits expense		(888,210)	(826,037)
Depreciation, amortisation and impairments		(74,039)	(54,210)
Hire of plant and equipment		(349,266)	(246,372)
Repairs and maintenance		(157,556)	(110,950)
Other expenses		(562,777)	(473,366)
<b>(Loss) / income before income taxes</b>		<b>(121,954)</b>	<b>118,157</b>
	Note	2012 \$	2011 \$
<b>Statement of Financial Position</b>			
<b>ASSETS</b>			
<b>Current assets</b>			
Cash and cash equivalents	2	436,160	520,309
Trade and other receivables	3	26,811	11,206
<b>Total current assets</b>		<b>462,971</b>	<b>531,515</b>
<b>Non-current assets</b>			
Property, plant and equipment	4	486,896	486,002
<b>Total non-current assets</b>		<b>486,896</b>	<b>486,002</b>
<b>TOTAL ASSETS</b>		<b>949,867</b>	<b>1,017,517</b>
<b>LIABILITIES</b>			
<b>Current liabilities</b>			
Trade and other payables	5	83,901	142,210
Borrowings	6	108,802	-
Employee provisions	7	33,369	30,399
Other Liabilities	8	14,522	13,681
<b>Total current liabilities</b>		<b>240,594</b>	<b>186,290</b>
<b>TOTAL LIABILITIES</b>		<b>240,594</b>	<b>186,290</b>
<b>NET ASSETS</b>		<b>709,273</b>	<b>831,227</b>
<b>EQUITY</b>			
Retained earnings		709,273	831,227
<b>TOTAL EQUITY</b>		<b>709,273</b>	<b>831,227</b>

The accompanying notes form part of these summary financial statements

# OUR FUNDING SOURCES IN 2011-2012



If flies have nightmares, the large female and miniscule male forest spider, below centre, (family Nephila) would most likely take the part of villains in those nightmares. The fly below, wearing Hawthorn colours, (Muscidae family) loves the cool of plateau caves. The flash fly sporting blue and gold, below left, (Amenia sp) prefers the outdoors, parasitising snails. ...and if the spiders don't get 'em, then this common but carnivorous sundew, below left, (Drosera) well might. Thanks Glenn Bellis and Anthony Rice for insect IDs at short notice.



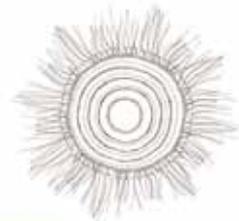
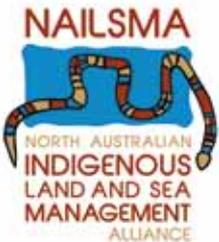
Warddeken Land Management is supported by the Australian Government through funding from Caring for Our Country, the Biodiversity Fund of the Clean Energy Future Initiative and the Department of Sustainability, Environment, Water, Population and Communities.



**Australian Government**

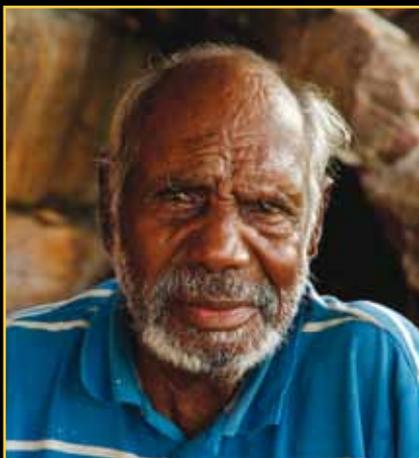


Warddeken also acknowledges and thanks many other supporters and project partners, including:



## THEY MARKED THE BINIJ MANBOLH TO THE FUTURE

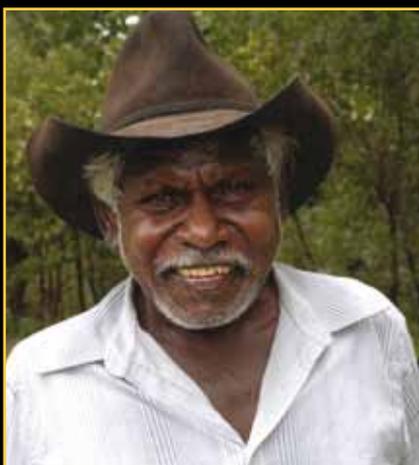
*These men were visionaries and educators;  
they were our professors and we will miss them deeply.*



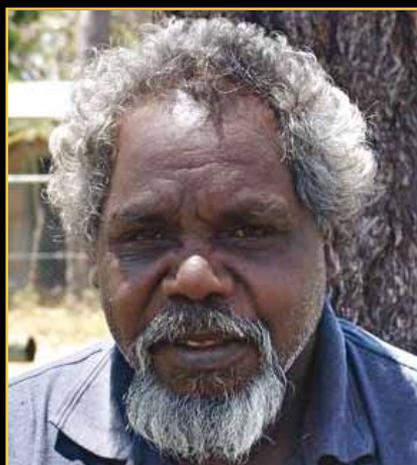
Kodjok Nawurrbarn, Jimmy Kalariya  
Namarnyilk 1938–2011  
(Photo by Bob Gosford)



Ngaridj Nadjordi, Peter Biless  
Nabarlambarl 1935–2011



Wamud Namanilakarr, Jacob Nayinggul  
1943–2011

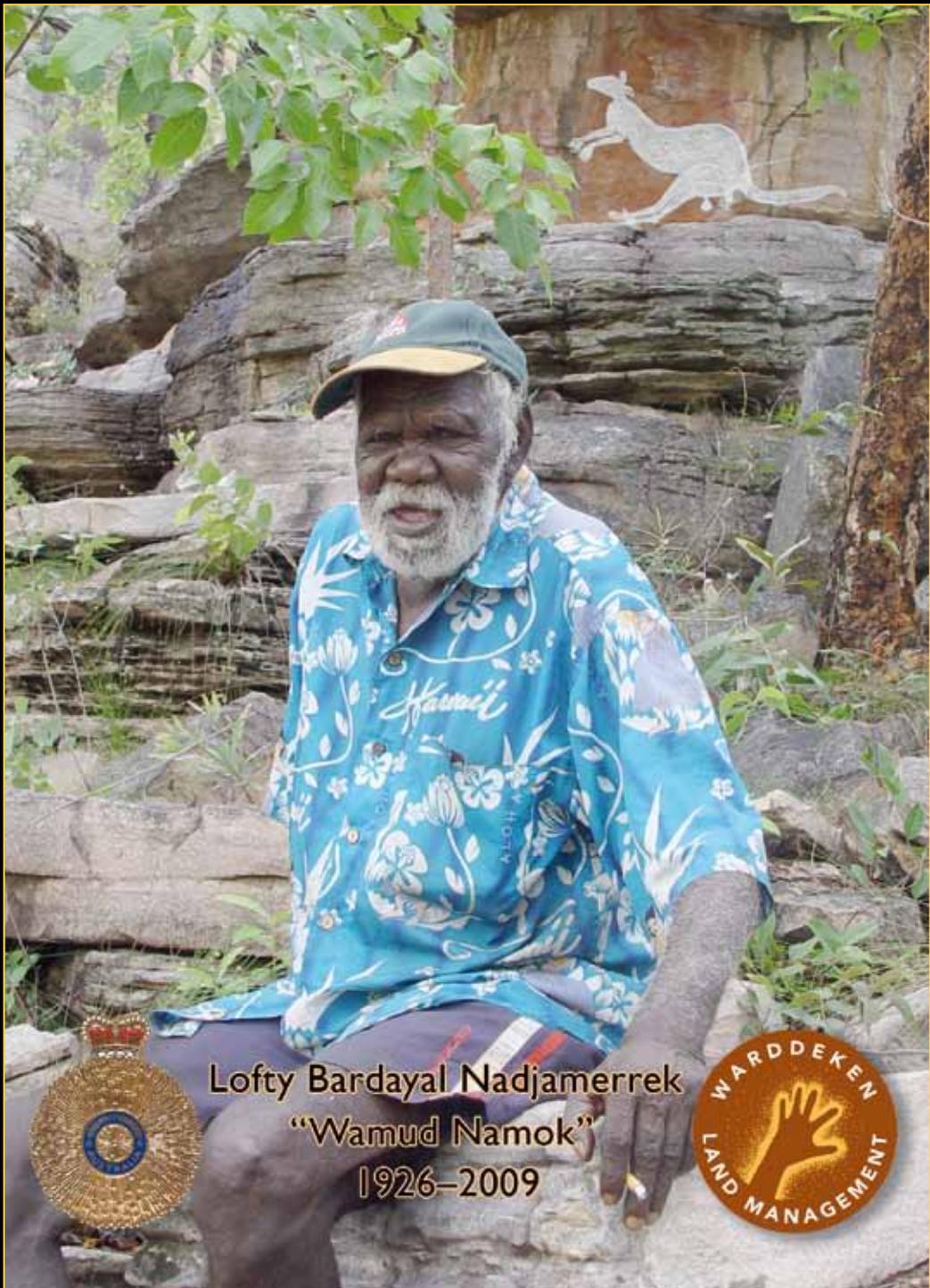


Kamarrang Nabolmo,  
George Djandjomerr 1955–2011

Note 1: Names and photographs are used with permission of the families. Warddeken directors and workers extend continuing sympathy to all those affected by their passing.

Note 2: *Bininj manbolh*, literally 'blackfella road', a traditional walking track or path to follow.

# HIS SPIRIT LIVES WITH THOSE WHO CARE FOR COUNTRY



Lofty Bardayal Nadjamerrek  
“Wamud Namok”  
1926–2009

*Yakkake Wamud Na-mok, djorrhbayeng, ngundi-manjbun rowk bu kan-bukkabukkang ngadberre an-garre na-warddeken, kan-kangemang ngadberre Wamud. Munguyh-munguyh arri-djalbengkan ngudda. Kun-malng ke ka-rurndeng kore An-kung Djang, kore Djabidj Bakoluy, kore Kundjorlomdjorlom, Nabiwo Kadjangdi, Ankung Kangeyh, Kabulwarnamy, kore “the dear one”, you Wamud will always be our “dear one”.*



**WARDDEKEN LAND MANAGEMENT LIMITED**

**An Indigenous not-for-profit conservation company  
from the Western Arnhem Land Plateau.**

**ABN: 12 128 878 142**

**PO BOX 785**

**NIGHTCLIFF NT 0814**

**Telephone: 08 8979 0772 (Kabulwarnamyo)**

**Telephone: 0428 744 874 (CEO mobile)**

**Email: [Warddeken@ Activ8.net.au](mailto:Warddeken@Activ8.net.au)**

**Over a period of two days in June 2012 Warddeken rangers used brush-cutters and leaf blowers to create a mineral earth break more than six kilometres in length around an important anbinik (*Allosyncarpia ternata*) isolate near Makkalarl. The rangers then back-burned from the break to protect the patch from late dry-season fire.**  
**More: Page 23.**