

# Cape York

## Healthy Country Newsletter

### The practice of caring for Country

#### The lessons we learn



We're a savvy lot on the Cape – we have to be. We readily share our knowledge and our lessons learnt, and we embrace new ideas and work hard to make them succeed. If they don't work, we learn from that too.

Successful land management is the result of adaptive land management and we are continually learning from the results of our actions. We look for how our management practices affect the land, the water and the ocean. We are not afraid to make the necessary changes that allow us to continually do things better, meaning they are better for our profits and better for the environment.

The live beef cattle export from Weipa is one example of this. Graziers from across the Cape have banded together to revive live export to make the beef cattle industry sustainable and more profitable. The first boat in seven years left Weipa in mid-October.

The success of the Western Cape Turtle Threat Abatement Alliance is another example. Western Cape ranger groups have forged ahead, increasing sea turtle hatchling success rates by working together to share knowledge and resources.

Traditional Owners and land managers from across Cape York have embraced the opportunities for gaining carbon credits using the savanna burning methodology. Additionally, Traditional Owners are travelling to Cape York from across the Country annually, to learn and share traditional fire methods at the Cape York Indigenous Fire Workshop.

Engineers, land managers and machinery contractors are working together to implement better ways of making roads. Together with scientists and Cape York NRM, they are also implementing solutions to the land management problems of the past, which have led to the massive gully systems that we see in many parts of Cape York.

This newsletter acknowledges and thanks you all – our savvy land and sea managers who are continually striving for a sustainable Cape York by constantly improving what you do.

We hope you enjoy reading about some of what we've learnt along the way.

*Emma Jackson*

Chairperson, Sector Director - Primary Industries

#### Cape York Fire Forum

Cape York Land Managers are invited to learn and share knowledge of fire and carbon on Cape York.

7-8 December, Paradise Palms, Kewarra Beach

RSVP essential - 15 November

Visit our website to find out more: [www.capeyorknrm.com.au](http://www.capeyorknrm.com.au)

Issue 28 Spring 2016



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Cape York Natural Resource Management is shortened to Cape York NRM

# Around the Cape

## Walk raises awareness for Mental Health

Over 100 people participated in a 42 kilometre walk in Cape York during October, battling heat and dust along the Peninsula Development Road to raise awareness of mental health issues and suicide prevention. Organisers were overwhelmed by the number of registrations for this year's Conquer the Corrugations, which is only in its second year. The walk from Coen to Archer River attracted extensive support from Cape York businesses and organisations and was inspired by the loss of 19 year old Dillon Jackson from Wolverton Station in 2014. Suicide is a major issue for remote communities across Australia.



## Beef Cattle Boat Departs Weipa

Around 1900 beef cattle departed for Indonesia in mid-October on the first live export ship to leave Weipa in seven years. Despite departure delays, the Cape York Peninsula Live Export Group (CYPLEG) spokesperson Emma Jackson (*below*) said the wait was worth it. She says it has opened the doors to new opportunities and a consistent market for Cape York's Beef Cattle Industry. The cattle spent a month in holding yards in Weipa. During this time the cattle were cared for by CYPLEG and My Pathways employees, and gained around 20 kgs on average.



## Feral pig culling makes big impact on hatchling success rate for threatened sea turtles

Three years of feral pig abatement near Flinders Beach at Mapoon has this year proven its worth with no predation of sea turtle nests by pigs. Hatchling success rates sit at around 70% on the beach which is in stark contrast to previous years, particularly before the abatement program began, which often saw over 90% of nests fully destroyed by feral pigs. The Mapoon rangers and community have been undertaking turtle monitoring on Flinders Beach in conjunction with the Department of Environment and Heritage, since around 2002. This year, the rangers started monitoring Skardon Beach to the north of Mapoon and found most nests were predated by feral pigs.



*This feral pig abatement work is a collaborative project through the Western Cape Turtle Threat Abatement Alliance. It is supported by Cape York NRM with funding from the Australian Government and Queensland Government.*

# Campaign launched - Cape York Keep It Clean

**Organisations across Cape York are working together to educate people about the need to deal with their rubbish responsibly when travelling around the Cape. Funded by the Queensland Government and coordinated by Cape York NRM, the campaign targets both locals and tourists and urges them to plan ahead for responsible waste disposal before they even hit the road.**

Thoughtful Travelling Cape York spokesperson Jason Carroll said that there is limited waste disposal infrastructure on Cape York, which makes waste disposal difficult, but travellers could help reduce rubbish by planning ahead and making sure they know where waste disposal stations are located.

“If travellers make a few simple choices like packing minimal plastics and choosing cans, which can be crushed, rather than bottles, they can keep their rubbish to a minimum and transport it back home with them,” he said.

Weipa and Western Cape Tourism spokesperson, Aimee Robinson, said the number one reason people travel in Cape York is to experience its remote and pristine natural environment but that increased littering and illegal dumping were becoming a problem.

“We all want to enjoy the natural environment of Cape York, whether it’s for fishing, camping or other activities, but arriving at your destination and finding it spoilt by plastic packaging, bottles, cans and even toilet paper, is not what any of us want.

“This campaign is about ensuring that travellers have the practical information they need to deal with rubbish disposal responsibly and encouraging them to be considerate of other travellers who will visit that spot afterwards” she said.

Cape York NRM’s Conservation Sector Director Barry Lyon said littering didn’t just look unsightly. “When travellers are thoughtless about leaving rubbish behind it can have devastating affects not only for the local wildlife and environment but also on public health. By adding your rubbish to piles that may already be gathering, you are inviting mosquito-borne

diseases to come and take up residence.”

People who are planning a trip on the Cape are reminded to plan ahead, take minimal plastics and non-biodegradables, choose cans rather than bottles and use bulk water containers. Taking plenty of sturdy rubbish bags to transport rubbish back home is also recommended.

## *About Thoughtful Travelling Cape York*

Thoughtful Travelling Cape York is an alliance of Cape York organisations working together to reduce the damaging environmental impacts caused by people travelling on Cape York. Rubbish, spreading weeds, illegal dumping, unplanned fire and illegal access can all create longer term problems for the environment.

The key organisations currently involved in Thoughtful Travelling Cape York include: Cape York Natural Resource Management, South Cape York Catchments, Tangaroa Blue, Cook Shire Council, Cape York Weeds and Feral Animals Inc, Weipa and Western Cape Tourism, Lama Lama Rangers, Yuku Baja Muliku Land Trust, Tourism Cape York, Department of Environment and Heritage Protection, Northern Australia Quarantine Strategy, Queensland Parks and Wildlife Service, Steve Irwin Wildlife Reserve, Western Cape Turtle Threat Abatement Alliance, Wenlock Catchment Management Group, Protect Cape York and Regional and Remote Newspapers.

## *Reporting and Fines*

The Queensland Government encourages travellers to report illegal dumping incidents online at <https://report-littering-dumping.ehp.qld.gov.au/> or to the Litter and Illegal Dumping Unit on 13 QGOV (13 74 68) or by emailing [illegaldumping@ehp.qld.gov.au](mailto:illegaldumping@ehp.qld.gov.au). Fines start from \$1884.

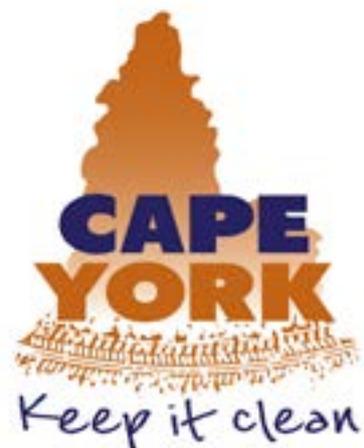
**To find out how your organisation can get involved call Lyndal Scobell at Cape York NRM on 0488 656 690.**

*This project is supported by the Queensland Government’s Litter and Illegal Dumping Community and Industry Partnerships Program.*

**KEEP CAPE YORK LITTER FREE**

**#CapeYorkKeepItClean @ThoughtfulTravelling**

*This project is supported by the Queensland Government’s Litter and Illegal Dumping Community and Industry Partnerships Program*



# Surveying White-bellied Crimson Finches at Kowanyama

By Ray Pierce and Pam Schultz

**A recent survey of threatened White-bellied Crimson Finches (*Neochmia phaeton evangelinae*), near Kowanyama has found them to be common in the area, with nearly two birds per hectare being found at surveyed sites.**

The survey is the first step towards developing a Kowanyama habitat management plan for the subspecies, which is listed as Vulnerable under Australia's Environmental Protection and Biodiversity Conservation Act 1999 and the Nature Conservation (Wildlife) Regulation 2006 (QLD). The White-bellied Crimson Finch (*pictured below*) is endemic to Cape York Peninsula.

Mitchell River Watershed Management Group and Kowanyama Aboriginal Land and Natural Resource Management Office carried out the surveys with funding from Cape York NRM's small grants program which is supported through the Australian Government's National Landcare Programme.

Researcher Ray Pierce, Pam Schultz from MRWVG and KALNRM rangers surveyed the finches in the lower Mitchell River catchment between 16 and 22 August this year.

MRWVG's Pam Schultz said that groups of White-bellied Crimson Finches were in different life stages ranging from pairs with recently fledged young to small flocks of up to 19 finches containing adults and independent juveniles.

"Detection rates of the finches were highest in areas of riparian vegetation which also contained stands of the exotic grader grass (*Themeda quadrivalvis*) on which finches were mostly feeding. Water was also in close proximity. Much of this riparian habitat had been



Above: Ray Pierce, Nigel Coleman, Pam Schultz and John Clark conduct surveys for White-bellied Crimson Finches *Photos supplied* burnt this dry season, including large areas adjacent to the riparian habitat" she said.

A number of issues were identified by the team and which need to be addressed in the forthcoming management plan for finches at Kowanyama. These include minimising the impacts of fire on riparian habitat including potential nesting sites, managing grader grass and native grasses, managing the impacts of livestock and pigs throughout and particularly at key finch sites, and monitoring the population of White-bellied Crimson Finches and their habitat.

Pam's and Ray's full report on the survey will be available in early November followed by a draft management plan at a later date.

*For more information contact Mitchell River Watershed Management Group on 07 4092 7457.*



# Gamba grass friend or foe:

## NPARC Apudthama Ranger Project

Story supplied by Northern Peninsula Area Regional Council



**Gamba grass (*Adropogon gayanus*) is a perennial grass introduced to Australia as a pasture grass, and it was hailed a great success by pastoralists in providing feed for cattle.**

The grass has beautiful green foliage that looks very attractive in young plants; it grows strongly in clumps and with good growing conditions becomes a very tall plant that produces a lot of dry matter. The dry matter increases fuel loads and the intensity of fires.

However the pasture grass that was widely planted in Queensland in 1983 has quickly naturalised and moved outside of grazing areas becoming a major problem spreading into native forests.

“The grass grows very tall and surrounds native trees, pushing out other vegetation,” said Warren Strevens, NPARC Apudthama Ranger Coordinator.



Above: Gamba Grass leaf Photo: Lyndal Scobell

“The grass burns 15 times hotter than native grasses and kills more of the trees than would occur in fire a native forest.”

In a past joint effort, staff from Cook Shire Weeds and Feral Animal Program, were coming to the Council boundary areas to spray gamba grass.

“The grass grows best in wet conditions but its hard to get out on country in the wet, limiting the time that treatment could be done while the Cook Shire staff were in the area,” said Mr Strevens.

“The Apudthama Rangers undertook training in chemical usage and commenced regular monitoring and treatment of gamba grass to keep the program going over a longer period of time.”

Cape York Natural Resource Management also supported the work of the Rangers, contributing equipment and chemicals, improving the ability to maintain vigilance and treat areas on a regular basis.

Mr Strevens said the extended period of treatment and more regular monitoring has been successful with Cape York Natural Resource Management indicating that over the past four years gamba grass density has been reduced from approximately 700 hectares of pure gamba grass to 160 hectares.

*Under Queensland's Land Protection (Pest and Stock Route Management) Act 2002 gamba grass is a declared Class 2 pest – land managers must take reasonable steps to keep land free of the species and it is an offence to introduce, keep or supply the species without a permit. In 2012 Gamba grass was declared a Weed of National Significance.*

# Innovative solutions to overcome north's tough environment

*submitted by Charles Darwin University*

**A number of Australia's top experts in emerging environmental monitoring methods involving drones, underwater cameras and novel uses of DNA have brought their expertise to northern Australia.**

The researchers shared their insights at a workshop as part of a Northern Australia Environmental Resources Hub project investigating a range of high tech solutions to monitor northern Australia's challenging landscapes.

"Managing environmental resources requires a sound understanding of how land, water and biodiversity are changing over time" project leader, Charles Darwin University Associate Professor Dr Alison King said.

"However this is made even more challenging in northern Australia, where remote areas are frequently isolated and inaccessible during the wet season. Crocodiles, cyclones and flooding only add to our region's complexities."

Dr King says researchers are always looking for more effective and efficient ways of monitoring the biodiversity and ecosystems of the north.

"Drones, for example, are a relatively cheap way of allowing us to cover large areas of inaccessible terrain" she said.

"Cutting-edge ideas relating to aquatic biodiversity monitoring are also worth investigating. The presence of rare, threatened or exotic species can now be detected from the DNA they leave behind in the environment, while underwater cameras allow us to monitor freshwater species without disturbing them."

The two-day workshop brought together both experts in a range of techniques and those who will put them

into practice, such as state and territory government scientists, Indigenous rangers and other land managers.

"It was an opportunity for attendees to not only learn about the latest monitoring techniques, but to discuss their potential limitations in northern Australia" Associate Professor King said.

You can view a number of the PowerPoint presentations from the researchers here: [www.nespnorthern.edu.au/2016/05/09/experts-share-new-solutions-overcome-norths-tough-environment/](http://www.nespnorthern.edu.au/2016/05/09/experts-share-new-solutions-overcome-norths-tough-environment/)



Above: Research experts, Dr Renee Bartolo from Environmental Research Institute of the Supervising Scientist, holds a drone  
Photo: Charles Darwin University



## Napranum's Inaugural Beach Clean-up

Napranum Aboriginal Shire Council, Napranum Rangers and Tangaroa Blue joined forces to hold the inaugural beach clean-up at Napranum town beach. The clean-up was held over two days in September.

Left: Napranum Rangers' Ebony removes fishing line from rocks.

Right: Council and Rangers teamed up with Tangaroa Blue for the event.



# Burning Country in Cape York

**The smoke has dissipated and new growth is emerging from the ashes as the sun sets on the 8th annual Cape York Indigenous Fire Workshop.**

Over 150 people from across Australia converged in Wujal Wujal in August to take part in the event, organised by Cape York Natural Resource Management and Mulong. The event was hosted this year by Wujal Wujal Aboriginal Shire Council, Kuku Yalanji Traditional Owners, Jabalbina Yalanji Aboriginal Corporation and Jabalbina Yalanji Rangers.

Indigenous rangers, Traditional Owners, Country Fire Service personnel, Parks and Wildlife staff, land managers and farmers have returned home to Tasmania, Victoria, New South Wales and throughout Queensland, eager to burn and improve fire management on their own Country, following the Cape York Indigenous Fire Workshop.

### **Traditional fire practices**

Aboriginal people have used fire to manage the landscape for thousands of years to encourage new



vegetation growth – to keep Country ‘clean’. Fire is an important part of Aboriginal lore and ceremony and burning ‘the wrong way’ brings serious consequences.

“If you burn the wrong way you can harm the country, kill the plants and hurt the animals that live there that rely on those trees for food and shelter” said Victor Steffensen, who has developed the traditional burning workshops each year with traditional owners around the region of Cape York (*pictured below left*).

“A good fire is one that is right for the place where you are burning. You need to learn to read Country and learn when and where to burn depending on the vegetation type, the soil type and amount of moisture in the soil and what the landscape is like.

“There’s a lot to know about traditional burning and healing Country.

### **Honouring the knowledge of Elders**

Around 1992 Elders, Dr Tommy George (20/09/1928–29/07/2016) and Dr George Musgrave (20/11/1920–8/02/2005) began work with Victor Steffensen in the Laura area to undertake the Traditional Knowledge Revival Project (TKRP) to document and share their knowledge so that it would not be lost.

The Cape York Indigenous Fire Workshop is one of the outcomes from the TKRP and the subsequent Kuku Thaypan Fire Research project, which was initiated in 2004 by Dr Tommy George, Dr George Musgrave and Victor Steffensen, supported by co-researcher Peta Standley.

2016 Cape York Indigenous Fire Workshop cont.

Dr Tommy and Dr George were awarded honorary Doctorates from James Cook University in 2005 in recognition of their vast knowledge of fire and Country.

This upfront acknowledgement at the initiation of their fire research project was important as it showed a respectful approach to research, recognising the old men as research leaders in their own fire project, rather than the subject of research.

Peta-Marie Standley (*below*) has been involved with developing the Kuku Thaypan fire research project over the past thirteen years. She is now the Operations Manager for Cape York Natural Resource Management, a major supporter of the fire workshop. Her work to date has supported the research and documentation of the methodology developed by Victor, Dr George and Dr Tommy through *The Importance of Campfires* thesis dissertation.

“They wanted to share their knowledge with people, so that people could return to their Country and put in fires to make the country healthy again, importantly mentoring that Indigenous fire management should be led by Indigenous people” said Peta-Marie.

“The fire workshop helps people to understand the depth of the knowledge and practically enables them to work with fire, so that they CAN go back to their country and burn” she said.

“We’ve developed a methodology for monitoring as part of the fire research project and teach this as part of the workshop” she said.

“It’s important for people to monitor the burning using western tools to communicate rather than validate or question the knowledge, so communities can share what they are doing and speak with government in a language that they understand. Hopefully this will encourage investment directly in community driven fire projects across Australia” she said.



Victor said that the country in many parts of Australia is sick. “You can see it everywhere” he said. “You talk to old people (Indigenous and non-Indigenous) and they tell you about how much Country has changed, about how water has dried up and how feral species have taken over in places where they don’t belong. Native foods like berries have disappeared and the land is suffering from many threatening circumstances everyday. There is a lot of sick Country” he said.

### **Burning rainforest country**



Wujal Wujal is about 300 kilometres north of Cairns on the spectacular Bloomfield River. Access to Wujal Wujal (*so nice you have to say it twice, says Mayor Desmond Tayley, pictured above*) is via ‘the inland road’ through Lakeland or via ‘the coastal road’ through the World Heritage listed Daintree rainforest and along the Bloomfield track. Wujal Wujal has a population of around 350 people.

Desmond Tayley is the recently returned Mayor of Wujal Wujal. Mayor Desmond said it was extremely important for the Wujal Wujal community to host the event.

“It has been a really good thing to work with Victor, the Jabalbina Yalanji Rangers and Cape York NRM and to have this workshop here. The whole community have gotten behind it and we are proud to showcase Wujal Wujal to people from across Australia.

“We have been working with Victor to improve the fire management at Dawnvale (Desmond’s Country), which will help prevent wildfires and stop the rainforest from spreading to places it shouldn’t be. If the rainforest takes over the drier forest, there won’t be food available to native species like our Jarribina (tree kangaroo).

“We don’t want to see that happen and we want

2016 Cape York Indigenous Fire Workshop cont.

our forests to be healthy again so they can be more resistant to the impacts of climate change” Desmond said.

**Traditional Owner and local Ranger involvement key to success**

Every year the fire work continues with local Traditional Owners and rangers to incorporate local traditional knowledge into the workshop. Colin Doughboy (*below*) is a Kuku Yalanji Traditional Owner and is a Ranger Team Leader with Jabalbina. Together with the Australian Tropical Herbarium’s Gerry Turpin, Colin hosted the botanical walk and Traditional Ecological Knowledge workshop along the Bloomfield River to the Bloomfield Falls.

“It was wonderful to share our place with the visitors from all over Australia” Colin said. “We’ve been working on our fire program for two years. Already we are seeing good results and the country is starting to improve” he said.



Cape York NRM and Mulong are working together with Jabalbina Aboriginal Corporation and other groups in the Normanby, Hahn and Archer River sub-regions together over the next few years to improve fire management on the eastern coast of Cape York.

“Frequent high intensity fires can increase bare ground, accelerating the potential for erosion. Erosion has been a major problem on Cape York and a key contributor to the sediments entering the Great Barrier Reef off Cape York. However, Indigenous burning promotes low intensity fire that leaves fine and coarse woody debris and importantly, the organic matter and ash remains at the site. This in turn improves soil condition. This is great news for the Great Barrier Reef as it means reducing the sediment run-off and reducing carbon emissions that increase ocean acidification ” Ms Standley said.

**Planning for the next fire workshop is already underway. It will take place in June 2017. To join the mailing list for workshop updates (including dates and venue) go to [capeyorkfire.com.au](http://capeyorkfire.com.au)**



Above: Workshop participants learn and shared knowledge at the fire workshop

All photos this story: Lyndal Scobell

# Our Cape Kids



Here's a special treat for our Cape York Kids.

In each issue of Healthy Country newsletter we will have a special section for kids.

Let us know what you want to see, or send us a short story about your favourite Cape York place, animal or plant. We will also put your stories on our website.

Contact us at: [capekids@capeyorknrm.com.au](mailto:capekids@capeyorknrm.com.au)

## Can you find the EXTRA word?

Find the words from the list on the right in the find-a-word below. Can you find the extra word in the puzzle which is not on the list? Hint: It is what the puzzle is about.

Send your answer to [capekids@capeyorknrm.com.au](mailto:capekids@capeyorknrm.com.au) by 31 November 2016. All correct entries will go into the draw for the gorgeous Cape York Fire book.

*Conditions of entry* Entries must include name, age, location (town or area), and parent/guardian phone number. Entrants must be primary school age or younger. The winner's name will be published in each newsletter (with consent from parent/guardian). There will be a new competition for each newsletter.

S	T	F	L	A	M	E	S	C	H	N	N	D	G	W
J	E	M	Y	T	I	S	R	E	V	I	D	O	I	B
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FLAMES  
ASH  
BIODIVERSITY  
GRASS  
CURING  
CARBON  
WATER  
BURNING  
CULTURE  
MOSAIC  
WILDFIRE  
TREES  
ANIMALS  
PLANTS  
SEASONS

# Participating in a sustainable Cape York



**Above:** Green Army graduation at Laura on 27 September. From left: Team leaders Dwayne Musgrave and Felicity Bowen, Cape York NRM's Peta Standley, participants Dale Musgrave and Sherry-Anne Dick, Campbell Page's Adrian Hogg, participant Nikita Jack-Tayley, Cape York NRM's Michael Goddard. Cape York NRM is proud to support the Thenacull and Maryvalley Green Army projects. Congratulations to you all for graduating!

**Below:** The Wenlock Catchment Management Group held their Annual General Meeting at Steve Irwin Wildlife Reserve in September. The new management committee are (top row left to right, from third left) Sarah Barkley (Deputy Chairperson), Geraldine Mamoose (Secretary), Jason Jia (Chairperson) and Bec Kilpatrick (Treasurer). Congratulations to the new committee!



# Crocodile research tackles climate change

by Lyndal Scobell

Photos: Ben Beaden, Australia Zoo



**The University of Queensland and Australia Zoo have been collaborating on estuarine crocodile research since 2003. With the acquisition of part of Bertiehaugh station (with the assistance of the Australian Government as part of the National Reserve System\*) to form Steve Irwin Wildlife Reserve, the crocodile research team has been able to conduct long-term research in one of Australia's most important crocodile breeding sites – the Wenlock River – since 2008. Every August a team of researchers from UQ and specialist crocodile handlers from Australia Zoo spend the month on the river, capturing crocodiles, monitoring data and implanting trackers into the apex predators. Cape York NRM caught up with the man responsible for leading the research, UQ's Professor Craig Franklin, following the 2016 Croc Trip.**

*Can you tell us about the research you are doing at Steve Irwin Wildlife Reserve?*

“Our work on Steve Irwin Wildlife Reserve started in 2008. At the time, one of the main things missing in crocodile research was understanding movement patterns and long-time patterns, so our goal was to set up long-term research to span over a decade. The technology we use is acoustic telemetry. We implant the acoustic transmitters into crocodiles with a minor surgical procedure. The transmitters send a series of pulses, like a Morse code, which is unique to each crocodile and record individual body temperatures. The transmitters last for 10 years.

“We now have 150 tagged animals and we are collecting an enormous amount of data on crocodile movements, as well as data on the Wenlock River system. We have five million individual recordings of body temperature from the past eight years. This is significant because we know little about crocodile behaviours under natural conditions, so this data can help us understand those behaviours. It is also extremely valuable because to understand climate change and impacts, we need long-term data.

“This year we retagged some of the animals that were tagged in 2008, which means we now can track them for 18 years. The last two years have been the hottest on record and now we can look to see if there are any changes or patterns in terms of thermal physiology and movement patterns, as a result of these warmer than average years. This year we were recording temps of 28 degrees in the Wenlock. Temperatures this high have not been seen during August since the research here began.

*The National Reserve System is Australia's network of protected areas, conserving examples of our natural landscapes and native plants and animals for future generations. Based on a scientific framework, it is the nation's natural safety net against our biggest environmental challenges. The reserve system includes more than 10,000 protected areas covering 17.88 per cent of the country - over 137 million hectares. It is made up of Commonwealth, state and territory reserves, Indigenous lands and protected areas run by non-profit conservation organisations, through to ecosystems protected by farmers on their private working properties. (<https://www.environment.gov.au/land/nrs>)*

“The other side to our research is understanding the basic biology of crocodiles and informing people about it. Crocodiles have an important role in ecosystems and also for ecosystem health. The more we can inform people about living alongside crocs safely, the better.

#### *What have you learnt over the past eight years?*

“We’ve learnt that animals can move up to 60 kilometres in a day, showing they travel vast distances in a short period of time. Our research shows that animals have travelled more than 1000 kilometres over a 3-6 month period.

“Crocodiles have remarkable homing ability and diving physiology, as they can hold their breath for up to five hours. Our research showed that one held its breath for seven hours. Crocodiles are remarkable and fascinating animals and the public can get excited about these findings, which aids in protection and conservation.

“We have also found that some crocs are specialist feeders. We use stable isotope analysis to look at the diet of animals. It has shown that some animals have a particular diet, such as fish or land-based prey. Depending on the size of the animal, the diet changes quite markedly. Another surprise was that fish are an important part of diet even in large animals. Large golden catfish that live in deep waterholes are a prime target of crocodiles of all sizes. This may be because they are sluggish fish and therefore easy prey.

#### *How is the crocodile research being used?*

“This research is providing fundamental information on how ecosystems work and how these apex predators function within an ecosystem. Although we are studying estuarine crocodiles, much of what we have developed in terms of technology and tracking, has been applied to other species of crocodylian around the world, including critically endangered species.

“This work has a much broader impact as it aids in understanding of how ecosystems function and the role of apex predators. The methodology we have developed to effectively track the animals is being used worldwide. We were the first to use satellite transmitters on crocodiles and also the first to use acoustic transmitters on crocodiles. We have arguably the largest and longest-running tracking program on crocodiles that’s ever been conducted. We have also played a key role in leading field-based research on crocodiles.

#### *What is the most important thing about this work for you?*

“Professionally I think I’m most proud of some of the discoveries that we’ve made through engaging local communities and providing opportunities for young scientists. I have had PhD and Honours students coming through the program and it’s been great to create these opportunities to engage them in a really solid research program.

“On a personal level it is working with such an incredibly motivated group of people. There is real pleasure when you are working together with a great team. I love the community up in the Weipa/Mapoon district. I’ve given a number of lectures to schools and community groups and that is important too, to be able to communicate more broadly and to have discussions. That is how we should be conducting our science, by making it more open and transparent to help people understand why we do what we do.

#### *What’s next?*

“Well we now have animals that we’ll be tracking for the next 10 years. I’ve still got lots of questions about what might happen in the future as a consequence of climate change and I’m also interested in the social network of the population of crocodiles in the Wenlock river. We now have hundreds of animals we are tracking so we can look at relationships between them and how they interact with each other. We have genetic samples, which has provided us with information on which crocodiles are related, so it’s exciting to be able to go into more of the behavioural side of things.

“And I’m sure there will be new technology that will pique our interest as well!”



Professor Craig Franklin (left) is an eco-physiologist and conservation physiologist, who looks at how animals function in relation to their environment and how environmental change influences physiology and the behaviour of animals.

Australia Zoo has immense experience and expertise in capturing large animals. They also have extensive logistical experience and intellectual expertise.



## Crocodile's gully restoration commences

by Lyndal Scobell

**Earthworks have commenced at Crocodile Station as part of the Australian Government's Reef Trust programs, aimed at improving water quality for catchments that flow into the Great Barrier Reef.**

Crocodile Station is owned by the Indigenous Land Corporation and together with neighbouring Welcome Station, it covers 124,800 ha of land. The Laura River flows through the properties and eventually joins the Normanby River, which empties into Princess Charlotte Bay. The Normanby River is the fourth largest catchment that drains to the Great Barrier Reef.

The project will use \$780,248 received from the Australian Government's Reef Trust to reduce gully erosion from the Normanby Catchment by 50% at priority sites. The majority of the work will take place at Crocodile.

Cape York NRM's Will Higham said that the majority of the gully stabilisation work would involve gullies impacted by secondary phase incision.

"The real value of targeting these secondary phase gullies is that they will undercut the landscape by up to two metres. If we stop them travelling now we can prevent erosion into the future, as well as the erosion that's happening now."

The gullies are the result of poor land management practices in the past, such as heavy grazing, over stocking and poorly constructed roads on Cape York's fragile and ancient soils.

Cattle pads created from stock accessing water are often associated with the start-up of gullies. Part of

the work on Crocodile involves fencing to keep stock out, which will help the land to recover.

"There is very little native grass or native shrub cover here, so part of what we need to do is to revegetate the site with native, perennial grasses and shrubs" Will said.

"The key purpose is to show the practical treatment of gully erosion. We know what we need to do and we are doing it at a scale that can be achieved by other people. We will be able to iron out some of the logistical issues like where do we get rock from? which seeds do we use and where is the seed source? and we'll incorporate training and capacity building on the back of it.

"This site is close to the road, with easy access as a demonstration site to bring in land managers and show them what we've done and how they can also do it".

Cape York NRM have already been working with Green Army teams from Laura and Mary Valley. The Green Army have been doing seed collection from roadside and neighbouring properties. They are collecting native black spear grass, giant spear grass and native sorghum, shrub species such as acacia and leguminous plants.

"When you look around here you see the entire shrubby layer is missing and so are perennial grasses. If we can get nitrogen fixing shrubs to grow, we can start the process of healing" said Will.

The project so far has involved cattle exclusion fencing, grass collection and weed management.

Stabilisation work on the gullies has now commenced. It involves:

1. A rubber-tyred bulldozer is brought in to scrape back the soil into the appropriate batter (slope). This soil is being removed as it is unstable and it is difficult to pack, plus there is a risk it will dissolve and wash away. The soil removed is taken into the top scalded areas, treated with gypsum and then spread out to treat the other areas in the gully complex area.
2. After the soil is removed, geo-fabric is placed over the gypsum-covered surface which prevents sub-surface flow of water from running and dissolving and forming tunnels.
3. Appropriate sized rocks are then placed on top. Where the water comes in, the rocks will be bigger and the batter will be lower, while on the bank where there is much less overland flow, smaller stones can be used which are cheaper and the batters can be higher.
4. The floor of the sites also need to be stabilised so that another phase of erosion doesn't intrude and undermine the rock work. To do this a series of small check dams, weirs or drop structures are constructed which hold the bed at the grade. This also helps because when the erosion stops, the sand supply and the sediment supply reduces.



“The work will take a week and a half to complete and the gullies are actually stabilised once the geo-fabric and rocks are down. The work is designed for a one in 100 year flood event, so as long as we don't get a catastrophic flood, we will see marked improvement within two years. By then there will be sediment trapping in the upstream, native grasses and shrubs will be re-established.



“The work at Crocodile has cost around \$100,000 in materials, scrapers and labour, just for this one hectare area. That doesn't include the revegetation, fencing and ongoing maintenance of the larger 15 hectare plot.

“The intention is to reduce the sediment which leaves this site and ends up on the Great Barrier Reef by 50%, so ultimately, it is worth every cent” Will said.

The Reef Trust: *fifty percent reduction in gully erosion from high priority sub-catchments in the Normanby* project is funded by the Australian Government.

The project is being undertaken in conjunction with Griffith University and Indigenous Land Corporation (Crocodile Station) and the Green Army.



Photos: Gully restoration work at Crocodile State (Will Higham and Michael Goddard)

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## Cape York Calendar

### October

29 Cape York NRM Annual General Meeting

### November

5 Cooktown Races

29 South Cape York Catchment meeting  
& Pecha Kucha Cooktown

### December

7-8 Cape York Fire Forum

23 Cape York NRM office holiday closure

25 Seasons Greetings!

### January

1 Happy New Year!

2 Cape York NRM office reopens

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