



# O EDITION 1 2011 ORIGINS

## **NEW GUARDIANS OF THE SEA**

PHARMACISTS TRACK  
ANCIENT SECRETS

TURNING UP THE HEAT  
ON A COMPLEX KILLER



# ORIGINS

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# ORIGINS

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COVER IMAGE  
Feathers from a rainbow bee-eater.



## CONTRIBUTORS



### KATE FREESTONE

This is Kate's first photographic assignment for *Origins*. Raised in Darwin, Kate studied photography and imaging in Sydney and worked at the University of Western Sydney as the university photographer. Since returning to the Territory, Kate continues to develop her skills as a features and documentary photographer.



### LEANNE COLEMAN

In her second edition of *Origins*, long-time Territorian Leanne Coleman draws on her specialist skills in science communications to explore some groundbreaking scientific research. She also extends her reach to some of the NT's prominent artists and travels remotely to speak with "our new guardians of the sea".



### RICHMOND HODGSON

CDU Media Officer Richmond has the unique opportunity to share in some of the university's most important research. In this edition he examines a super-bug which is ravaging Indigenous communities, lifts the lid on the precarious situation of our native wildlife and probes research which could see traditional bush remedies on pharmacy and beauty shelves around the world.



### ROBYN MCDOUGALL

Robyn is editor of *Origins* as part of her work as the university's Public Relations and Media Manager. She is a long-time newspaper journalist and editor, and one-time journalism academic. In this edition she catches up with an academic whose research is sure to impact our future.

# IMAGES OF LIVES CHANGING

**I**n this edition of *Origins* tells a rich story of how universities change lives. In particular, it illustrates how Charles Darwin University is contributing to life in Northern Territory remote communities, in coastal villages of Timor-Leste, and even in a future that is some way off.

CDU's location in the north of Australia helps to shape our research and teaching, the breadth of our vocational training programs and the nature of our partnerships and collaborations. It encourages us into roles across the local, national and international arenas.

Two research projects at the Menzies School of Health Research clearly illustrate the global reach of our research. Both projects focus on bacteria that claim millions of lives around the world each year, and both have great potential to reduce suffering.

In this edition Menzies' researchers talk about their contributions to the scientific knowledge that underpins medical advancement: to understand a new antibiotic resistant strain of "golden staph" and to develop new treatments for "sepsis", which has devastating mortality rates in developing countries.

On a different scale but with the same capacity to impact lives, an Indigenous marine rangers training program at Maningrida is creating a stubborn line of defence against illegal fishing in the seas that skirt the Territory. This edition of *Origins* visits the Djelk Sea Rangers of Maningrida to find out what difference training is making both in the water and on land.

Many of the articles in this edition have a strong environmental theme, none more so than an account of pioneering research into human social interaction with birds, which could help guide the country to better protect our native species. Australia is home to 720 known bird species and currently one in five is identified as threatened. This research is nationally important.

You will also discover how CDU's architecture and design students are working with external groups to create environmentally sound designs for structures in a community garden.

And, finally, an IT researcher discusses his work toward a future in which computational intelligence has a life of its own. I hope you enjoy this edition.

**Professor Barney Glover**  
Vice-Chancellor



CDU's location ... encourages us into roles across local, national and international arenas

## SNAPSHOT

### SIX AUSTRALIAN BIRDS MISSING, BELIEVED LOST

A recent review of Australian birds has concluded that the nation has lost six more bird types than was previously acknowledged. This represents a 25 per cent increase in the number of Australian bird extinctions.

Leader of the study Professor Stephen Garnett, of Charles Darwin University, said: "It is a tragedy we might have prevented had only we realised how scarce these birds were."

The six birds, one species and five subspecies, are the White-breasted White-eye from Norfolk Island, the form of Pied Currawong from western Victoria, the Thick-billed Grasswren from near Alice Springs, the Hooded Robin that once lived on the Tiwi Islands, the Spotted Quail-thrush from the Mount Lofty Ranges near Adelaide and the southern form of Star Finch that once occurred between Townsville and northern New South Wales.

The grasswren and currawong probably disappeared in the early 20th Century, but all the others were alive in the 1980s and the robin and finch were last seen in the early 1990s. The University of Queensland, Birds Australia, BirdLife International, Biosis and the Australian Wildlife Conservancy also took part in the study.



### \$14.7M FOR BIODIVERSITY RESEARCH IN NORTH

Charles Darwin University is leading a consortium that secured \$14.7 million in Commonwealth funding to undertake critical biodiversity research in Northern Australia.

The Northern Australia Biodiversity Hub will be one of only five research hubs that will provide first-class science essential for sustainably managing Australia's biodiversity.

To be led by CDU's Director of Tropical Rivers and Coastal Knowledge, Professor Michael Douglas, the hub will conduct critical biodiversity research to address issues such as the decline of native mammals, threats to floodplain ecosystems and the management of biodiversity on Indigenous land.

It brings together the NT's leading researchers on biodiversity conservation from CDU, CSIRO, the NT Government's NRETAS and the North Australian Indigenous Land and Sea Management Alliance and will work in collaboration with Indigenous rangers from the Djelk and Warrdeken Indigenous Protected Areas.



## PHD CANDIDATE WINS PM'S AWARD

Research by a CDU PhD candidate has been recognised with a prestigious Prime Minister's Australia Asia Award.

Sarah Hobgen is one of 20 successful Australian postgraduate recipients recognised among the best and brightest university students from Australia and Asia.

Her thesis focuses on the Kambaniru River catchment in Sumba, Indonesia, which provides the domestic and agricultural water for the town of Waingapu and the surrounding rice fields.

Sarah's research is considered integral to reducing sediment loads and ensuring the prosperity of agriculture livelihoods in eastern Indonesia. As part of her scholarship valued at \$63,500, Sarah will undertake an internship or work placement in Indonesia after she finishes her study component at the Universitas Nusa Cendana.



LEFT

Sarah Hobgen, one of Australia's 20 best postgraduate students.

## NEW BOOKS DOCUMENT HISTORY AND POLITICS OF EAST TIMOR

Two new books exploring some key events in the history of the political relationships forged between South-east Asia and Northern Australia are recent additions to the CDU Press collection.

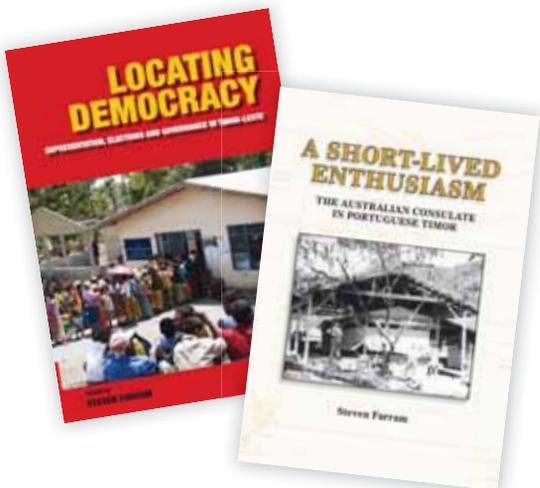
Author and editor, Dr Steven Farram celebrated his labour of love as he launched his two CDU Press titles, *A Short-lived Enthusiasm: The Australian Consulate in Portuguese Timor*, and *Locating Democracy: Representation, Elections and Governance in Timor-Leste*.

*A Short-lived Enthusiasm: The Australian Consulate in Portuguese Timor* is illustrated with rare photographs, and looks at why Australia established the Dili consulate in 1946.

*Locating Democracy: Representation, Elections and Governance*, contains a selection of papers presented at a symposium, held in Dili on 26 to 27 April 2010.

Acclaimed author and journalist, Jill Jolliffe officially launched the books at a special ceremony held on CDU's Casuarina campus.

Steven Farram received his doctorate in history from CDU in 2004. He has published widely on the history and politics of East Timor, Indonesia and the Northern Territory. He works at CDU as a research associate.



# SNAPSHOT

## RECOGNITION FOR TEACHING EXCELLENCE

The Australian Learning and Teaching Council (ALTC) has named a CDU lecturer among the nation's top university teachers. Senior Lecturer in Zoology with the School of Environmental and Life Sciences, Dr Keith McGuinness has received an ALTC award for teaching excellence.

Honoured by the former Carrick Awards in 2006 with two citations for outstanding contributions to student learning, Dr McGuinness' latest award stems from his efforts in the Biological Sciences, Health and Related Studies category. In his 25-year career, Dr McGuinness has taught people from pre-school age through to retirees on topics ranging from philosophy to parasitology.



LEFT  
Dr Peter Kell

## NEW HEAD FOR EDUCATION

A lifelong educator with global research interests has taken up the position of Head of School and Professor of Education at CDU. Dr Peter Kell was formerly Director of the UNESCO-UNEVOC Centre in the Centre for Lifelong Learning Research and Development at the Hong Kong Institute of Education. He said he hoped to consolidate and build on the great work already under way within the School. His research interests include global student mobility.

## ON BOARD FOR CO2CRC

CDU has become a "supporting participant" in one of the world's leading research organisations that develops technologies for carbon dioxide capture and geological storage. The Cooperative Research Centre for Greenhouse Gas Technologies is a joint venture with participants from industry, universities and government agencies. Organisations providing research are: Geoscience Australia, CSIRO, GNS Science (NZ), and Curtin, Monash, Adelaide, Melbourne, NSW and Western Australia universities.

## LEADER OF VET SECTOR

A member of the senior executive of the NT Department of Education and Training (DET) has taken up one of CDU's key portfolios. The Deputy Chief Executive, Tertiary, Corporate and Portfolio Services with DET, John Hassed, has taken up the position of Pro Vice-Chancellor, Vocational Education and Training after the retirement of Dr Barry McKnight. Vice-Chancellor Professor Barney Glover announced Mr Hassed's 12-month secondment to the university, saying that few people were as experienced in the training sector in the NT as Mr Hassed.

## SCHOLARSHIP HONOURS 'FRIEND'

Northern Territory Chief Minister Paul Henderson has launched a scholarship to honour the memory of a distinguished Indonesian delegate and great friend of the NT, Dr Frans Seda AM. Mr Henderson marked the first anniversary of Dr Seda's death by announcing \$29,700 for the Frans Seda English Language scholarship to be awarded over the next three years. "Frans Seda played an important role in progressing the relationship between the Northern Territory and Indonesian governments," Mr Henderson said. The scholarship will be awarded each year to three Indonesian students at CDU to improve their fluency in English.

## YAZMIN CLAIMS NATIONAL TRAINING AWARD

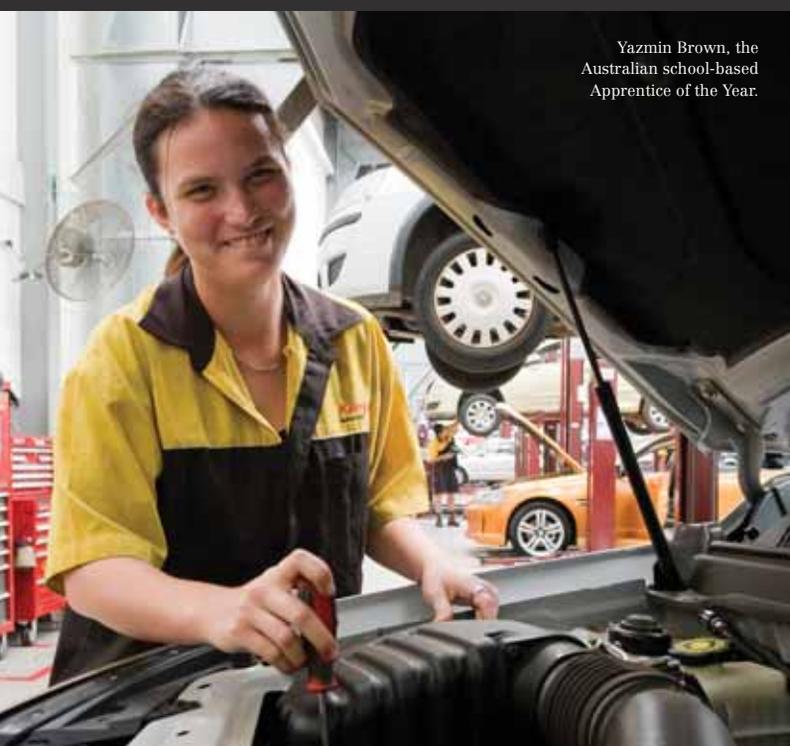
School-based apprentice Yazmin Brown has been named the Stella Axarlis Australian School-based Apprentice of the Year at the Australian Training Awards.

The Casuarina Senior College student has been undertaking a Certificate III in Automotive Technology (Light Vehicle) through CDU and working at Kerry's Automotive Group.

She works two days a week at the dealership, trains one day at CDU and spends the other two days at school. She also works full time at the dealership during school holidays.

Yazmin is not fazed being a female in a male-dominated environment. "I don't see being a girl as an issue," she said.

Kerry's Automotive Group operations manager Mark Dresher said Yazmin was considered a very capable apprentice.



Yazmin Brown, the Australian school-based Apprentice of the Year.



# CHEEKY DOGS ETCHED IN STONE

TEXT

Leanne Coleman

IMAGES

Kate Freestone





**LEFT**

Tennant Creek artist Dion Beasley communicates through quirky sketches of daily life in remote Northern Territory Aboriginal communities.

**A**lready famous for the clothing label Cheeky Dog, Dion Beasley's recently extended skills into fine art printmaking have already caught the attention of the National Gallery of Australia. Dion, who suffers from muscular dystrophy and is profoundly hearing impaired, has just produced a series of engaging etchings and the National Gallery has reserved a special selection of one-off hand-coloured trial proofs.

For Tennant Creek-based Dion, sketching his favourite images of animals and family helps him to communicate. And his messages have been heard loud and clear at Charles Darwin University's Northern Editions' gallery.

When Dion travelled to Darwin to exhibit his first edition of etchings, printmakers at the gallery saw an opportunity for him to extend his talents and to interact with other Territory artists. He has just worked alongside renowned Northern Territory artist Rob Brown, and CDU printmakers Leon Stainer, Jacqueline F. Gribbin and trustee Kevin Banbury.

Mr Stainer, also a remote area teacher at CDU, had worked with Dion in Central Australia and introduced him to etching on zinc plates. "With Dion in Darwin to exhibit his etchings it was a great opportunity to work with him on new etching techniques such as lithography, with materials that are difficult to transport to regional areas of the Territory," he said.

Only one of a few printmakers practising the technique of lithography in the NT, Mr Stainer uses dense limestone from Bavaria. "The texture of limestone is similar to paper to sketch on and was the most appropriate technique to translate Dion's sketches to the plate. The end result represented a significant development in his artwork."

In 2008 Dion evolved his love for drawing from paper to t-shirts, leading him to create the clothing label Cheeky Dog, which has received national recognition. He has also exhibited his work in galleries throughout Australia. Last year he won the CDU Arts Award at the NT Young Achiever Award.



**BELOW**

Renowned NT artist Rob Brown collaborates with Dion at the etching workshop.

**BELOW CENTRE**

Each of Dion's sketches has a storyline ranging from daily events in remote communities, to fictional stories of naughty dogs being hauled away by police.

**BELOW RIGHT**

Wife of the NT Administrator, Mrs Tessa Pauling visits Northern Editions.

For Tennant Creek-based Dion, sketching his favourite images of animals and family helps him to communicate. And his messages have been heard loud and clear at Charles Darwin University's Northern Editions' gallery.



# WHEN MAN MEETS ANIMAL: HOW TO VALUE OUR NATURAL HERITAGE?

**LEFT**

The rainbow bee-eater is one of Gill's favourite birds.

**TEXT**

Leanne Coleman

**IMAGES**

Kate Freestone  
Ashley Herrod  
Dean Ingwersen  
NT Tourism

**A** native Australian bird stands tall on the Australian coat of arms but what value do we put on our native bird species generally? This value could be the key to preserving the rich and colourful diversity of native birds, researchers at Charles Darwin University (CDU) argue.

Of the 720 known bird species in Australia, one in five is currently identified as threatened with millions of dollars spent each year keeping them from becoming extinct.

CDU PhD candidate Gill Ainsworth's research, entitled the "Social Values of Australian Threatened Birds", will see the entwining of two scientific disciplines, one that focuses on the biological science and the other on social science.

Gill's research is the first study of its kind that will focus specifically on the social interactions of humans with birds and brings together a team with extensive knowledge in both scientific disciplines.

"Traditional threatened species management has taken a biophysical science approach – populations are counted, threats are identified and money is invested in gathering more biophysical data," Gill said.

"My approach is slightly different. I'm looking at the social dynamics of threatened species management – who is involved, who holds the power and who's decisions count."

She first connected with Australian wildlife as an 11-year-old while doing a school project in her hometown of Edinburgh in Scotland.

Gill's desire to live in the Australian bush and a deep sense of wanting to give back to the natural world steered her to Darwin and a PhD with CDU in social science.

"As a child the flora and fauna of Australia gripped my imagination and inspired me with its exotic creatures and colour," Gill said. "I guess the value they had for me was the inspiration to travel and help with the conservation of species."

Through her PhD research Gill aims to find out what values Australians hold regarding birds, to see if there is any correspondence between value and the success of conservation programs.

"Everywhere you look, often you can see something to do with birds, whether it is a piece of artwork, a wild bird flying freely in the sky or a poultry dish on a menu at a restaurant," she said.

From bird baths in backyards to bird nets protecting crops, how Australians feel about their feathered friends or foes is under the spotlight of researchers from the **SCHOOL for ENVIRONMENTAL RESEARCH**.

“No one had ever really explored the social aspects of birds and their value. I wanted to find out why someone had hung that painting and did it have consequences for the conservation of that bird species.”

Over the next year Gill hopes to build a database of information about how birds are valued by Australians.

“Through my research, which includes surveys and case studies with the Australian public and bird conservation experts, I hope to better understand the importance people place on birds in Australia,” she said.

“Birds offer humans all sorts of things from pollinating plants to regulating agricultural pests. They teach us about ourselves and they inspire us to fly, to sing and dance.

“Economically tourism is the largest sector in the world economy and nature-based tourism is growing faster than any other sector.”

Gill said that as children we are told stories and myths that encouraged us to have a relationship with other species, but with development and advancing technology many people were losing their connection with nature.

“I want to find out how to communicate the importance of threatened species conservation with those disconnected,” she said.

“I am excited about the prospect that this will provide an opportunity for society to have a greater role in the conservation of the natural world rather than leaving it up to the experts. I am also hopeful that in the future this research can be adapted to other threatened species around the world.”

Gill’s PhD research is associated with the Australian Research Council Linkage Grant: “Increasing the effectiveness and efficiency of Australian threatened bird conservation.” Her research is also supported by the Birds Australia Stuart Leslie Bird Research Award 2010.

**LEFT**

Gill Ainsworth is investigating the social aspects of birds and their value to people.

**RIGHT**

The Australian bustard is listed as “near threatened” in the NT.



# A SOCIAL SCIENCE PERSPECTIVE

**T**wo experts in their fields, Research Fellow and environmental sociologist Dr Heather Aslin, and internationally recognised environmental scientist Professor Stephen Garnett are supervising Gill Ainsworth in her research.

Dr Aslin said she believed that looking through a social science lens alongside the biological aspects was vital to understanding the conservation value of wildlife.

“Biologists are members of scientific communities who share common interests, but they are not the only

players on the conservation scene,” she said. “Many other communities that are not formal scientists also have interests in birds and threatened birds, such as aviculturalists, artists, landowners, Indigenous people, government policy-makers, politicians and non-government conservation organisations.

“Conservation”, strictly speaking, is about “wise use of natural resources, so it is fundamentally about people and their relationships to the natural world. We need to be aware of this diversity of interests and how the

different players can influence conservation efforts.”

Professor Stephen Garnett, who has been working with conservation management, particularly of threatened species, for more than 30 years agreed. “Conservation is one-tenth biology and nine-tenths people,” he said.

“In fact conservation of other species is really a very new social value that is only partly understood,” he said. “Gill’s work is really cutting edge in terms of understanding the value threatened birds have to a whole range of people.”



**TOP RIGHT**  
Professor  
Stephen Garnett.

**RIGHT**  
Dr Heather Aslin.



# A BIRDING PASSION

**F**or Ian Hance collecting bird eggs and feathers as a young boy has grown into a life-long birding obsession.

For the past 20 years Ian has worked as a volunteer for Birds Australia, collecting information on rare and threatened birds. “I have always had a sensitivity to nature and a strong connection to birds. It wasn’t until I realised the urgency of the situation and that I could do something to help that I got passionate about bird watching,” he said.

As a landscape artist for more than 30 years, Ian values the aesthetics of birds the most, but admitted he still got a thrill when he’s on the hunt for a species he has never seen before. “Nothing can prepare you for seeing a new species

in the wild,” he said. “Books can’t convey the intrinsic beauty and sheer joy you receive from seeing something new.”

One rare Australian species became a passion for Ian. “The painted snipe was a real challenge because they are so elusive and cryptic, so you never know where they are and they only come out at dawn or dusk,” he said. “Because they are rarely seen, they had become a bit of a lost cause. I guess I became a little obsessed!”

One night wearing gumboots in the middle of a swamp Ian’s honed birding skills helped him to witness something highly unusual. “I had really only ever expected to see one painted snipe in my lifetime,” he said. “This extraordinary night we saw 20 of the critically endangered species feeding in the swamp. Needless to say, that swap is now protected,” he said.



**BELOW**  
The elusive painted snipe.

**BELOW**  
Ian Hance.



**S**ome of the world's leading climate change experts will converge on Charles Darwin University later this year for a symposium on climate change that aims to be carbon neutral.

Entitled "Climate Change: Will we be up to the Challenge?", the clean and green symposium will not only tackle issues and risks surrounding climate change, but will also outline and develop strategies to adapt to climate change by bringing together an impressive range of specialists from around the globe.

Expected to generate much interest from national and international speakers and delegates, the Symposium will endeavour to limit its generation of greenhouse gases by minimising national and global travel to the event, by using communication technologies, employing local people, and showcasing north Australian products and services.

Also fulfilling the Northern Territory Government's requirement to review the Climate Change Policy through an annual forum, Symposium themes will include: Risk and climate change, Resilience, and Restructure.



# CLIMATE CHANGE:

## ARE WE UP TO THE CHALLENGE?

**"CLIMATE CHANGE: WILL WE BE UP TO THE CHALLENGE?"** will be held at the Darwin Convention Centre from 12 to 15 October. The event is free, but prior online registration is required. To register and for more information visit [W: www.cdu.edu.au/cdss2011](http://W: www.cdu.edu.au/cdss2011).

# TURNING UP THE COMPLEX KILLER

**TEXT**  
Leanne Coleman

**IMAGES**  
Kate Freestone



Research by PhD candidate **CHRISTABELLE DARCY** could help to improve treatment for an infection that kills millions of people globally every year.



**S**evere sepsis is the leading cause of death in intensive care units, killing thousands of Australians each year. Alarming, sepsis affects 18 million people worldwide each year with mortality rates in developing countries up to 50 per cent.

In Australia severe sepsis has a mortality rate of between 20 and 30 per cent. The Northern Territory has the highest recorded incidence of the infection in Australia, with the Indigenous population at greatest risk.

**LEFT TOP**  
Christabelle Darcy retrieves immune cells from liquid nitrogen to test immune system response.

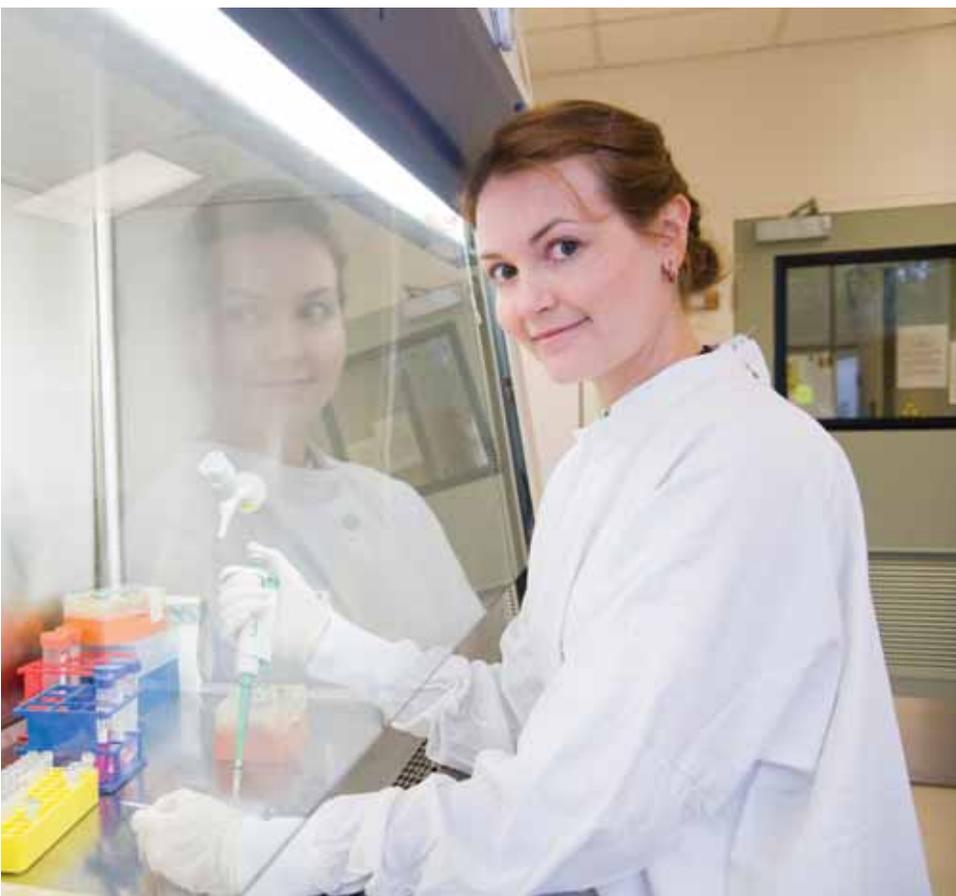
**LEFT**  
Testing immune cell function to find out how amino acid concentrations contribute to the development of sepsis.

**FAR LEFT**  
Extracting amino acids from plasma that could hold the key to finding a new treatment.

Treatments are already available for sepsis, but with the high mortality rates PhD candidate Christabelle Darcy is on a mission to find additional treatments to help in the fight against the infection. She is carrying out her work through CDU's Menzies School of Health Research.

"Sepsis develops when the body is unable to fight an infection effectively and can be caused by a range of organisms," Christabelle said. What makes research into sepsis so complex is that there are many types of bacteria, fungi or viruses that cause it. "All sepsis can potentially develop into severe sepsis. It is this unpredictability that makes sepsis so worrying.

# HEAT ON A



## LEFT

PhD candidate Christabelle Darcy is working to identify potential new treatments to an infection that kills thousands of Australians each year.

# SEPSIS TO a T

In sepsis, T cells (a protective part of the immune response) are suppressed and unable to fight the infection. Inflammation (a harmful part of the immune response) is uncontrolled, causing tissue damage. Meanwhile, the blood vessels are unable to deliver enough blood to the organs, leading to organ failure and death.



“Whether an infection develops into severe sepsis seems to depend on the person affected rather than on the causative organism. For example, most people with infections caused by *Staphylococcus aureus* (‘golden staph’) will recover quickly with the right treatment; however some patients develop severe sepsis, vital organ failure and death. Why this occurs in some individuals and not others is not entirely understood.”

To help find new treatments Christabelle first needed to understand how sepsis affected the body and why people died of it. It was two amino acids called arginine and tryptophan that held a vital clue and the key to unlocking a possible new treatment.

“We knew that sepsis affected the immune system and blood vessels in the body, but we weren’t sure how. Arginine and tryptophan help to regulate the body’s immune response and blood circulation. If these amino acids helped to regulate the body’s immune response they may help lead us to a new treatment.”

To find out how the amino acids contributed to the development of sepsis in patients, Christabelle worked with senior research fellow and infectious diseases specialist Dr Joshua Davis.

Dr Davis conducted a study at Royal Darwin Hospital, where staff collected blood and measured blood vessel function in sepsis patients and hospital controls. With this blood, Christabelle

also measured amino acid concentrations and tested immune cell function.

“In the body, these amino acids can be broken down into harmful toxic products,” Christabelle said. “We found that a higher rate of breakdown of these amino acids into toxic products led to the dysfunctional immune response and impaired blood circulation found in sepsis.

“Patients with severe sepsis had the lowest concentrations of important amino acids and the highest concentrations of toxic breakdown products.”

The team now hopes that this improved understanding of how sepsis affects the body will help to save lives.

“The next step is to find a way to slow the breakdown of these important amino acids and to restore immune cell function to improve the treatment of sepsis in the future. We are now working to identify several potential new treatments for sepsis, one of which is currently being trialled at Royal Darwin Hospital,” she said.



W: <http://menzies.edu.au>

Sepsis affects 18 million people worldwide each year with mortality rates in developing countries up to 50 per cent.

# STARING DOWN CLIMATE CHANGE

Hope is a powerful weapon, just ask the people of Timor-Leste – a country that has overcome crippling violence and tragic loss of human life to gain independence. And it will look to researchers such as **ABILIO DA FONSECA** to help prepare for one of its biggest trials yet.

**A**bilio da Fonseca is a driven man. The PhD candidate and Timor-Leste citizen wants one thing above anything else, and that is to contribute to helping the island nation and its one-million-plus population to prosper. But prosperity will never come unless the world's youngest democracy can repel the newest threat to its shores.

Raised in a fishing village where lives depend on the resources of the sea, Abilio is a young man fighting a new peril that is snapping at his nation – climate change.

Born in a small village in the Sub district of Tutuala, in eastern Timor-Leste Island, Abilio's family of nine brothers and sisters survived by subsistence farming and fishing. A keen interest in marine life and passion for improving the lives of his people saw Abilio study at the Fisheries High School in Aquaculture in Indonesia before completing an undergraduate degree in fisheries and aquaculture at Hasanuddin University, Indonesia.

He returned to Timor-Leste to carry out fisheries research for the Government of Indonesia to increase

the aquaculture "farming" opportunities of several sources of protein for his people, including sea cucumbers and gold fish.

But in 1999, while he was working as part of the local staff for the United Nations Mission in Timor-Leste to help prepare his people for the independence referendum, Abilio's life changed abruptly. The struggle for independence turned bloody in the lead up to voting. Abilio's wife and son fled to Indonesia and he was forced to hide in the jungle for three months, laying low while order was gradually restored.

In 2002, the year Xanana Gusmao was sworn in as President, Abilio's talents were acknowledged with a scholarship to study for a Master of Tropical Environmental Management at Charles Darwin University (CDU) in Darwin.

The similarity of the tropical environments of the Top End of Northern Australia and Timor-Leste struck a chord with Abilio, who wanted to learn from lessons already being taught in Australia about the urgency of climate change and how to protect the people and resources of his country.

Finishing his Masters in 2004, he returned to his home country and took up an influential position with the still fledgling Government. He began working with the United Nations Development Program to counsel the Government of Timor-Leste on the Kyoto Protocol, aimed at reducing greenhouse gas emissions worldwide, and to advise the Secretary of State for the Environment on implementing the convention and protocol obligations at a national level.

Again his dedication and contributions were recognised last year when he was awarded a joint scholarship to complete a Doctorate at CDU in which he is investigating how climate change impacts coastal communities of Northern Australia and Timor-Leste.

He said that one of his greatest challenges was in educating his people on the potential impacts of climate change. "Climate change can impact directly on industry in coastal areas including physical infrastructure through erosion or flooding," Abilio said. "We need to understand how communities can cope with this issue and provide options and suggestions to help.

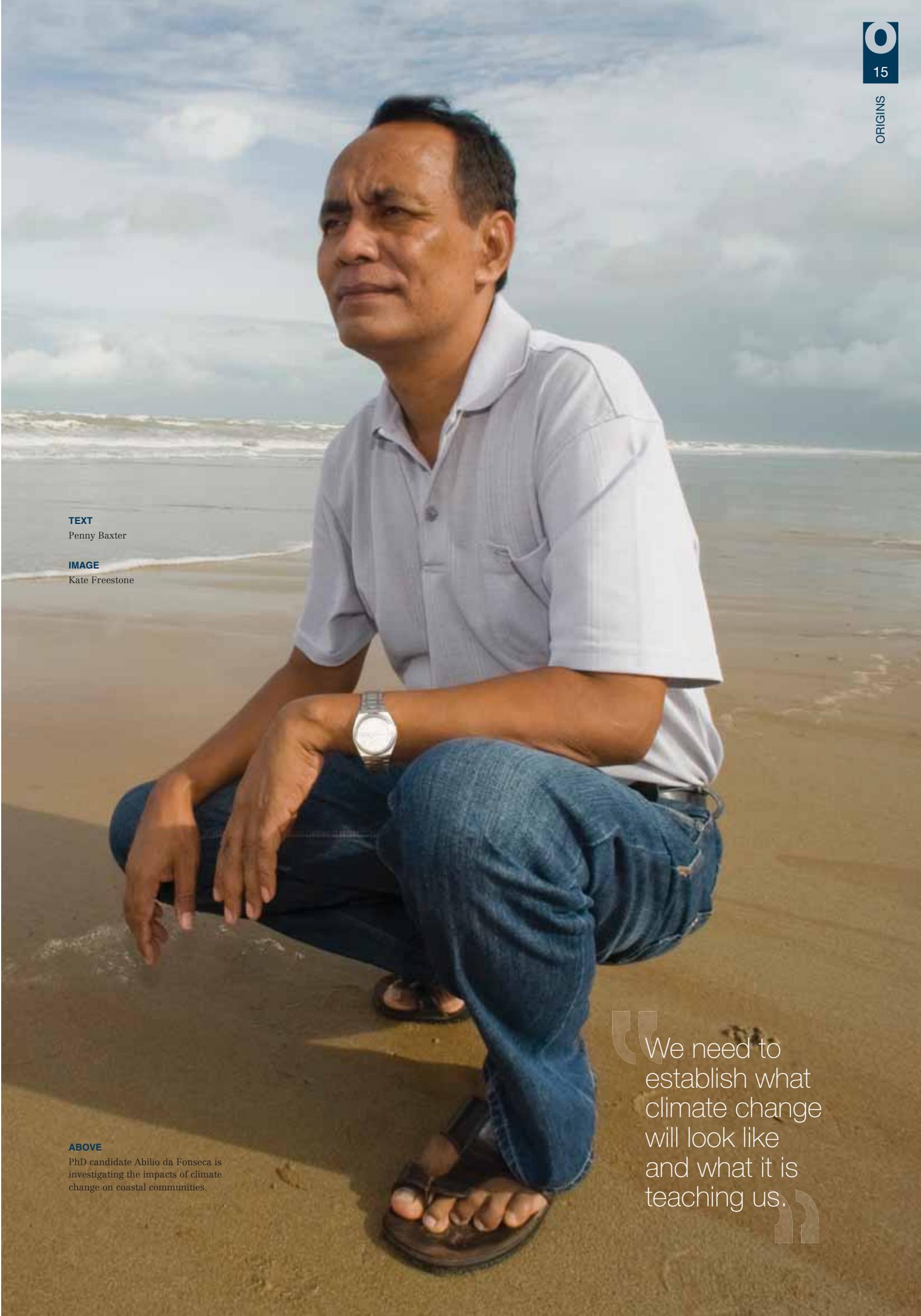
"Climate change is a big issue for Timor-Leste and we need to establish what climate change will look like and what it is teaching us," he said. Its affect on natural resources could mean livelihoods and homes are lost. The developing nation is already experiencing unexpected weather conditions and unprecedented flooding, and its capital Dili is dangerously close to sea level.

"If we don't reduce the problems now it will be a big problem in the future," Abilio warned. While the next four years of Abilio's studies will map and measure the physical and natural resources that could be affected, he must also convince the people of Timor-Leste about the dangers of climate change.

It is a task all the more challenging when the fishermen in the researcher's own village need to change their behaviours to protect the maritime and coastal resources, even if it means no food on the table that night.

"I urge them to consider that if we don't do this now there will be nothing left for our children," Abilio said.



**TEXT**

Penny Baxter

**IMAGE**

Kate Freestone

**ABOVE**

PhD candidate Abilio da Fonseca is investigating the impacts of climate change on coastal communities.

“We need to establish what climate change will look like and what it is teaching us.”

**BELOW**

CDU Adjunct Professor John Woinarski baits one of the cages.

# INTO EXTINCTION: OUR COUNTRY WITHOUT WILDLIFE

The great Australian Outback. Vast, untouched and teeming with unique wildlife. Well, that's how it used to be. **JOHN WOINARSKI** has discovered a very different, very alarming Australia.



**E**ven in the most far-flung corners of this continent, our precious wildlife is disappearing. The shameful fact is Australia has one of the worst extinction records of any country in the world, particularly for mammal species.

Along with many species of bandicoots, possums and bettongs, the northern quoll has thrived for tens of thousands to millions of years in Northern Australia, surviving ice ages, surging sea levels and human hunters.

But many of these native mammals are unlikely to survive another decade or two, according to a new report that reveals an abrupt, stunning plunge towards mass extinction in the past few years.

The report, *Into Oblivion: The disappearing native mammals of northern Australia*, produced for the environment group, The Nature Conservancy, collates many lines of evidence into the status of this region's biodiversity, including one of the most comprehensive wildlife monitoring studies undertaken in the region.

At the 136 sites across Kakadu National Park in the Northern Territory that have been surveyed repeatedly since 2001, the mammal populations have dropped by an average of 75 per cent. The number of sites classified as "empty" of mammal activity rose from 13 per cent in 1996 to 55 per cent in 2009. Monitoring programs in other national parks in the Top End reveal similar trends.

"Twenty years ago we would go out into the bush and it would be a bonanza of native animals," report co-author and internationally recognised biodiversity researcher Professor John Woinarski said. "Now, in most places, we catch nothing – it's silent."

**TEXT**

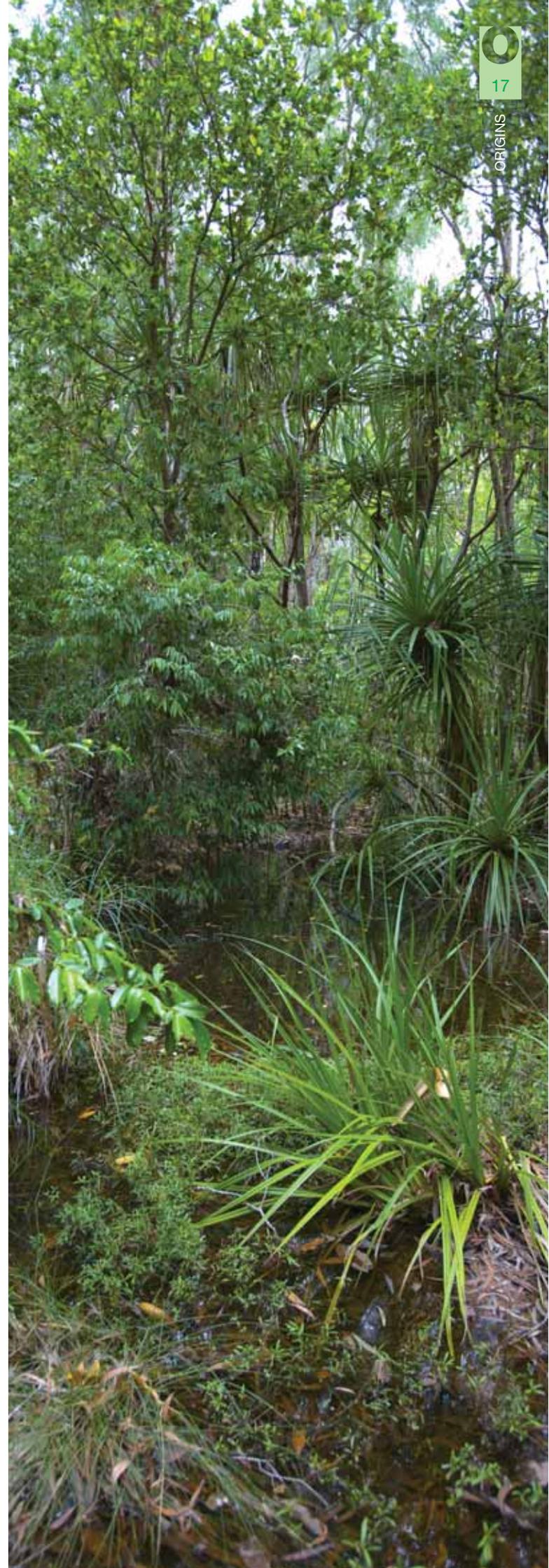
Richie Hodgson

**IMAGES**

Kate Freestone  
NT Tourism

**RIGHT**

A number of species in Kakadu National Park are showing a marked decline.



The report, *Into Oblivion: The disappearing native mammals of northern Australia*, is available at W: [www.nature.org/wherewework/asiapacific/australia/files/ausmammals.pdf](http://www.nature.org/wherewework/asiapacific/australia/files/ausmammals.pdf).

An Adjunct Professor with Charles Darwin University and one of Northern Australia's leading scientists, Professor Woinarski said he believed that evidence of encroaching extinction on individual species had been accumulating for decades, but researchers were not necessarily aware that so many species across Australia's north were experiencing the same steep declines.

As well as years of direct observation, researchers visited many Aboriginal communities in Northern Australia, with stuffed specimens of various native mammals and tapped local knowledge. That knowledge corroborated and extended the scientific sampling.

The brush-tailed rabbit-rat is one species likely to become extinct in the near future. A CDU PhD study by Dr Ron Firth used modelling from an intensive field-based study to predict likely extinction within a decade, with that likelihood varying between different fire regimes.

The causes of the population decline for mammals in Northern Australia varied from case to case, the report said, but they include changes in the size and frequency of fires, predation by feral cats, and – in the case of northern quolls in particular – the relentless advance of cane toads.

So dire is the problem of biodiversity conservation in Australia that the Australian Government has admitted it is powerless to save every endangered species. Preserving our wildlife has fallen increasingly to private donors.

The continent's most endangered species may not all be cute and cuddly, and certainly not household names, but the fact is Australia is their only home.



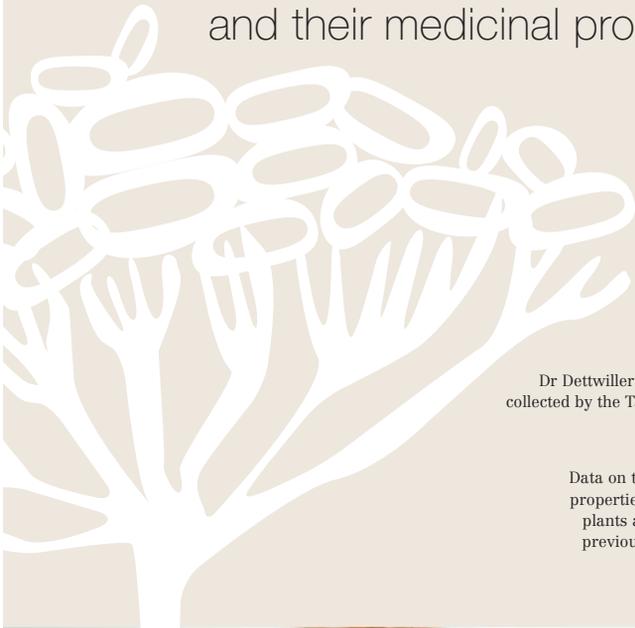
# PHARMACISTS TRACK

# ANCIENT

Aboriginal people in Northern Australia have used native plants, seeds and fruit to make medicines and remedies for hygiene and well-being over the centuries. Now

**PASCALE DETTWILLER**

and a team of pharmacists are analysing these ancient compounds for their potential use in science and their medicinal properties.



**T**amarrurr Rangers from Wadeye, an Aboriginal community 450km southwest of Darwin and the largest in the Northern Territory, have come to Charles Darwin University's Pharmacy unit to trial the chemical safety and therapeutic properties of their trusted bush products.

This testing could lead to traditional bush remedies on pharmacy shelves and in beauty stores around the world. There is much to discover about traditional knowledge in cosmetics. One example is an ancient Egyptian recipe for *khol* or *khal* that has survived centuries and which is still popular today. This preparation still follows the original basic recipe and is sold under various labels around the world.

It is known that the ancestors of Indigenous Australians made home remedies, medicines, insect repellent and even skin products for many centuries, perhaps millennia. The tradition

of using native flora is still strong because of the oral history tradition of Aboriginal cultures.

Wadeye Ranger Barbara Gumbaduck learned the process of selecting and preparing the plants in the traditional way and even today after collecting the ingredients, "... we then go back to the ranger base and boil it and we make soap, shampoo and lip balm," she said.

Pharmacists at CDU have put the samples collected by the rangers through preliminary analysis to identify any scientific qualities they might have. If results are positive these old bush products may have an exciting future in the marketplace far beyond the NT.

Pharmacy Discipline Leader at CDU, Associate Professor Pascale Dettwiller said the early results were quite promising. The university and the rangers are discussing terms of cooperation for the future and the intellectual

**BELOW**

Dr Dettwiller examines samples collected by the Tamarrurr Rangers.

**BELOW RIGHT**

Data on the pharmaceutical properties of the traditional plants and seeds have not previously been recorded.



# SECRETS

property rights of the outcomes from the analytical data.

Dr Dettwiller said the research team was optimistic after positive outcomes of early testing. “We know there is a wealth of unexplored possibilities in all these Indigenous plants. Interestingly, the use of plants for medicines is how the whole pharmacy story started more than 10,000 years ago,” she said.

“We want to have the right systems and procedures in place for the traditional landowners and ensure that the future is sustainable and viable, as well as ensuring the products are safe and replicable for mass production.

“The collaboration between the Wadey Community and CDU is about building commercial capabilities for the Wadey people and to expand the opportunities to other neighbouring communities, sharing the same traditional knowledge and skills to make use of native flora in a sustainable process.”

The entrepreneurial women from Wadey are not waiting idly-by, however, to see what science has to say. They are confident their goods can do the job and have opened stalls at Darwin’s most popular markets to sell to tourists and locals.

The CDU Pharmacy Team’s interest in “cosmeceuticals”, cosmetics made from pharmaceutical products, started in 2009 when Dr Jackson Thomas joined the staff. Hailing from the University of Tasmania, Dr Thomas is prominent for his work on a natural essential oil extracted from Kunzea, an endemic tree Melaleuca alternifolia.

“Dr Thomas’s appointment first sparked my interest in the cosmeceuticals area,” Dr Dettwiller said. Equipped with the necessary tools for the analysis, a high-pressure liquid chromatograph and gas chromatograph, and a mass spectrometer, the pharmacy team has everything it needs for the identification and characterisation of chemical products. “I decided that as we had the capacity to conduct such experiments, we should investigate any opportunities that presented,” she said.

“Putting the traditional plants through modern testing techniques is a challenging part of the venture,” Dr Dettwiller said. “There is no data available to reference in any of the chemistry or pharmacological databases yet the research part of the project is to validate methods that can be used for the original compounds.”

The holistic approach to the partnership has also created considerable unexpected interest from other experts who have wanted to discuss botanical taxonomy, environmental sustainability, chemical composition, pharmaceutical formulation, and business models.

“The Northern Territory is a unique place, where wonderful opportunities and achievements can be gained from good science and meaningful collaboration. This is what makes the Territory a special place,” she said.



W: [www.cdu.edu.au/ehs/sels/](http://www.cdu.edu.au/ehs/sels/)

**TEXT**

Richie Hodgson

**IMAGES**

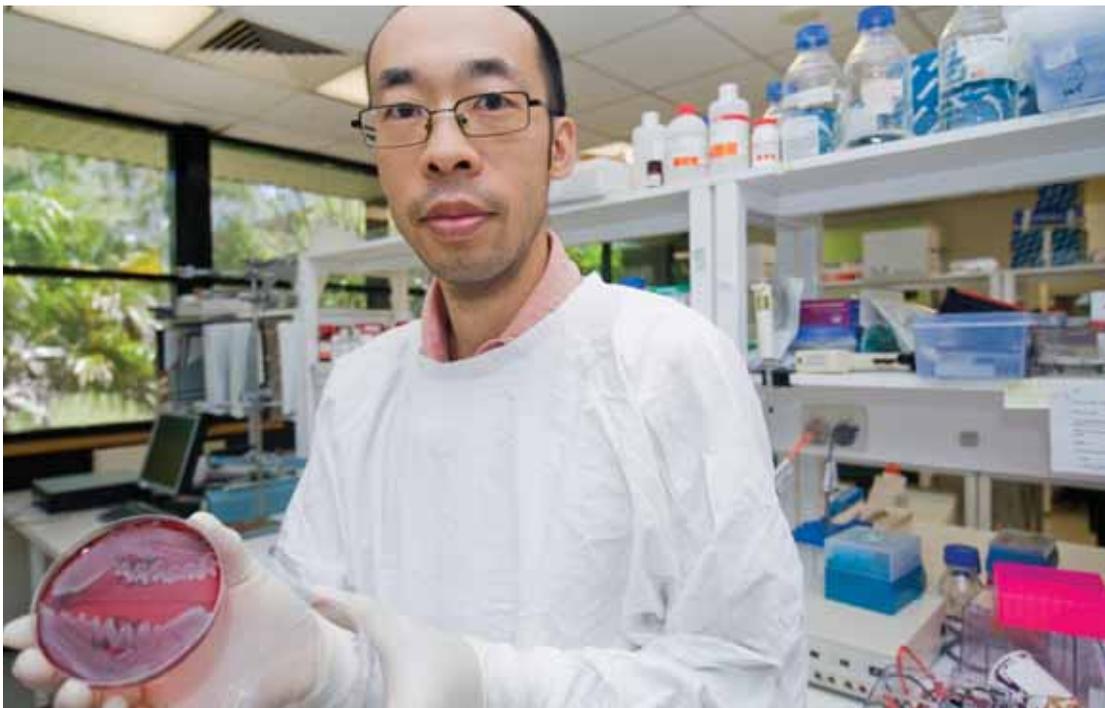
Kate Freestone  
Richie Hodgson

**BELOW**

CDU’s Pharmacy Discipline Leader Associate Professor Pascale Dettwiller with the Tamarurr Rangers from Wadey.



# NEW STRAIN OF SUPER-BUG: RESEARCHER TAKES UP BATTLE FOR ANSWERS



Researcher **STEVEN TONG** is on the case of one of the most aggressive infections known as it reaches epidemic proportions in remote Indigenous communities.

**F**or years it's been the super-bug in hospitals around Australia. But now a potentially lethal antibiotic resistant strain of golden staph bacteria is posing a grave threat to the health of Indigenous Australians, even in the most remote communities.

This robust strain of golden staph was recognised nearly 20 years ago in Western Australia's far north, but now there's a unique strain right in the Northern Territory. With more than 3000 Australians a year contracting the blood infection, and more than one-quarter of reported cases proving fatal, the threat is as real as it is perplexing for medical researchers who are trying to fight its onslaught.

Golden staph, or *Staphylococcus aureus*, is one of the most aggressive infections imaginable and has been a leading killer of

“The annual incidence of golden staph bloodstream infections is six times higher in the Indigenous community.”



adults and children alike for hundreds of years.

A Research Fellow with the Menzies School of Health Research, Dr Steven Tong, said the number of infections in Aboriginal communities was reaching epidemic proportions. “The annual incidence of golden staph bloodstream infections is six times higher in the Indigenous community compared with the non-Indigenous population,” he said.

The outbreak is puzzling medical practitioners because most of the sufferers have never set foot inside a hospital, the usual source of the bacteria. “It is being found on skin sores on quite a lot of kids in remote Top End communities who have had no contact with hospital environments,” he said.

“When we have taken swabs about two-thirds of them

will have golden staph and one-quarter of those will have the antibiotic resistant strain. Something as innocent as an ingrown toenail can lead to problem infections with golden staph.”

Dr Tong said that the golden staph found in remote Indigenous communities varied largely from that found in hospitals. “It is not an escaped hospital bug. What we think is happening is that there is lots of golden staph in the communities. The use of lots of antibiotics is then leading to this golden staph becoming resistant to the antibiotics.”

Dr Tong’s ground-breaking research is exploring the epidemiology of golden staph in Northern Australia and has developed molecular tools (genetic fingerprinting techniques) to discriminate various clones.

He said that overcrowded houses, poor hygiene and high rates of skin infections were the most likely reasons for the emergence of antibiotic resistant strains. “It is likely that these antibiotic resistant golden staph strains have arisen in remote Indigenous communities where staphylococcal disease is highly prevalent,” he said.

Investigations are under way into alternative treatments for staphylococcal skin disease in remote communities. Dr Tong said that community-level interventions were essential to combat this non-discriminating killer.

“In particular, measures need to be put in place that will involve improving housing and housing standards, ensuring that houses have adequate facilities to actually wash children and improve their skin hygiene.”

Also of concern was that close to 50 per cent of staphylococcal isolates were found to produce a toxin called Panton-Valentine Leukocidin, which resulted in more severe disease in younger and healthier patients.

The Menzies School is continuing to conduct trials to find alternative antibiotics to treat the superbug.



**TEXT**  
Richie Hodgson

**IMAGES**  
Kate Freestone

**LEFT**  
Research Fellow with the Menzies School of Health Research, Dr Steven Tong

# STUDENTS, COMMUNITY BUILD MORE THAN A GREEN FUTURE

**BELOW**

Bindi Isis and her four-year-old son, Darli, are helping to grow the community garden.



# DESIGN and ARCHITECTURE students are helping to bring life to a community garden.

**RIGHT**  
The community garden concept. Map courtesy of CDU Design and Architecture students.

The latest in environmentally friendly building design will help a new community garden to grow, thanks to a group of Charles Darwin University Bachelor of Design and Architecture students.

The Lakeside Drive Community Garden (LDCG) is taking shape on a one-hectare site near CDU's Casuarina campus in Darwin, close to the mangroves of Rapid Creek. Already the project has more than 250 community members aged from just six months to well over 60.

Fusing sustainable architecture that meets carbon neutral design standards, the students became involved as part of a new CDU community engagement and outreach program. The LDCG needed shelter and storage facilities and the students developed the designs for them.

CDU design and architecture lecturer Marianne Dyason said the new outreach program aimed to provide students with an opportunity to improve their community engagement skills and, at the same time, help to improve lives in the community.

"Design and architecture can have a huge impact on people's lives," Ms Dyason said.

"Designing infrastructure that is an appropriate fit for communities and their environment is one of the most important aspects for design students to learn. Whether it's a building or a public space, it is vital that students understand the needs of the public to ensure their designs have a positive impact."

**TEXT**  
Leanne Coleman

**IMAGE**  
Kate Freestone

The Lakeside Drive Community Garden (LDCG) is taking shape on a one-hectare site near CDU's Casuarina campus in Darwin and close to the mangroves of Rapid Creek. Already the project has more than 250 community members aged from just six months to well over 60.



Based on a concept plan developed by the LDCG community group, the students developed designs relating to the environmental principles behind the community garden space.

Using the environment as inspiration, the students designed buildings that aimed to "free themselves from fossil fuels" and embodied the natural environment.

One concept used to create designs for the LDCG was Ecomimicry, which involved mimicking local animals and plants (or ecological settings) to produce sustainable, eco-friendly, socially responsible designs for landscapes, technology and artwork.

Bachelor of Design and Architecture student Hamish Green said that just as the nearby mangroves were a community comprising many elements, so too was the LDCG.

"Mangrove communities serve as a bridging ecosystem providing protection against erosion and acting as a filter contributing significantly to the quality of surrounding areas," he said.

"These attributes are reflected in the garden, which serves as a 'bridging ecosystem' between the university and wider community, and served as the concept behind our building designs."

LDCG coordinator Anjea Travers said the project helped to prepare students to be creative thinkers and contributors to the broader community. "Collectively at the new Lakeside Drive site we hope to create a thriving, healthy centre for producing food, knowledge and inspiration based on permaculture ethics, principles and design," she said.

"Through CDU's integration of teaching and learning with community and civic engagement and social responsibility, we have built a community space where people can come to learn."



# GENERATING ARTIFICIAL SOLUTIONS TO REAL PROBLEMS



LEFT

Dr Darius Pfitzner works on developing “tools” of the future.

“I would expect that in the next 10 years we will see the first practical learning systems capable of learning and solving basic problems. Perhaps even machines that can learn human language.”



Head of Information Technology at CDU **DARIUS PFITZNER** envisages a bright new world in which humankind can look beyond itself in the search for solutions.

***You've developed a deep interest in artificial intelligence. Where do you envisage this research area will take us in the next decade?***

First of all, I would like to move away from using the words "artificial intelligence" because people normally imagine robots and some type of sentient machine when using these words. I would prefer to use the words "computational intelligence" to reflect highly developed hardware and software systems that perform sequential logic tasks requiring complicated but well-defined or understood decision paths such as those a doctor or pilot might use in their everyday practices.

In this light, sequential logic task-driven systems are already ubiquitous in first world countries and more so everyday in second and third world countries. These types of systems can be seen in things such as washing machines, microwave ovens, traffic control systems, banking/financial systems, vehicles, phones, spell checkers...

All the current "intelligent" systems require humans to manually identify all the variables in a situation, including the extent of any fuzzy boundaries, and build a "response" system around them to make appropriate responses. This is a well researched field that will see small incremental improvements to this development process over the next decade. The really interesting developments, however, will come from researching systems that will see a machine capable of learning a problem and appropriate response without the humans to hardwire it. So I would expect that in the next 10 years we will see the first practical learning systems capable of learning and solving basic problems. Perhaps even machines that can learn human language.

***Can you give some concrete examples of how it might impact our everyday lives?***

The examples I mentioned of doctors and pilots demonstrate humans performing tasks in an automata-like fashion of recognising the set of variables in a situation and making decisions dependent on the mix of variables. These fields, as do many, have had their problems and solutions well mapped for decades. So to answer your question by way of example, I would point to the fact that pilots of modern airline aircraft don't do much as the systems are so automated all they really do is drive the aircraft from the terminal to the runway and back, so in reality all they do is give the passengers some form of comfort. Let's face it, the most fallible thing in a cockpit or a doctor's surgery is the human. So in that light we will see more autonomous systems taking over jobs that humans do now but with more efficiency, better outcomes and perhaps one day with "real comforting human-machine emotion".

***Will we ever be able to substitute machines for humans routinely?***

We already do. Think of the average automotive plant pumping out modern cars, they are mostly populated by machines and this is rapidly becoming the norm for most mundane, repetitive or dangerous jobs. Who wants to screw lids on to toothpaste tubes? Boring! Let a machine do that.

***The western world seems to believe that technology will rise to the occasion and solve all our problems. Is that faith well-placed?***

To this all I can say is that technology, in whatever form it comes, is simply a tool. As such, the answer to your question falls to the human and what they use that tool for. If humans are honest and selfless in the use of technology, it certainly can play a major role in solving our problems.

***Who or what inspires you?***

It is not the tall-poppies, the legendary or the famous who inspire me but the everyday person who just gets on with the job, at whatever level they are, without fuss and who is willing to admit error and learn from mistakes. They inspire me! They are the people who populate the 20 of Pareto's 80-20 principle, which states that for many events roughly 80 per cent of the effects come from 20 per cent of the causes. In other words, about 20 per cent of the people in an organisation are responsible for 80 per cent of the useful output.

***Where do you do your best thinking?***

Mostly in my office and in groups brought together to solve a specific problem, but sometimes my best thinking seems to happen subconsciously, which sees solutions pop into my conscious at any time or place.

***What is your idea of a "good read"?***

How about a list? The Foundation series, the 1st and 2nd Chronicles of Thomas Covenant, I robot, Neuromancer, The Moon is a Harsh Mistress, The Void series... I think you get the picture.

***If you could change one thing about you life what would it be?***

I would like more time to train for triathlons and read.

***What do you consider your greatest achievement?***

Maintenance of sanity and a family while doing a PhD, although the sanity is still in question.

***Which three people, living or dead, would you like to have to dinner?***

The only people I would like dinner with are my wife, daughter and son. Anyone else would just be glorified strangers.



#### INTERVIEW

Robyn McDougall

#### IMAGE

Kate Freestone

“We found illegal fishing nets in the water and took photos and GPS coordinates, then logged the information in a cyber tracker.”

# NEW GUARDIANS OF THE SEA

Illegal fishers beware: There is a new generation of **INDIGENOUS SEA RANGERS** patrolling Top End waters and they have never been better equipped or trained to secure convictions.

Indigenous guardians have watched over the Northern Territory coastline for many generations, and now a new breed of sea rangers is continuing the tradition – but this time they are armed with the latest technology.

In 2009, 21 Indigenous sea rangers from nine of the 16 coastal marine ranger groups across the Northern Territory were the first to complete a course that is helping to protect their country for future generations.

The award-winning Certificate II in Seafood Industry (Fisheries Compliance Support) was developed by Charles Darwin University’s Maritime Unit, in conjunction with NT Police

Marine Fisheries Enforcement (PMFES) and the NT Department of Resources Fisheries Group.

With the course now up and running, each year a new crop of graduates joins the ranks of marine rangers to protect the rich waters of the Northern Territory coastline.

And there is no mistaking what is driving Indigenous people to take up this work: “to protect country”. That’s the unanimous response of the Djelk Sea Rangers of Maningrida.

Senior Djelk Sea Ranger Sam Gulwa said long before he became a sea ranger seven years ago, his father had taught him to look after the Maningrida coastline the traditional way.

#### TEXT

Leanne Coleman

#### IMAGES

Kate Freestone



# Not just men's business

Sea ranger training began as "men's business", but women from all over the Territory also wanted to take part in protecting their coastline. As a result, the CDU Maritime Unit has now run two courses for women only.

Sisters Felina and Selma Champion are leading the charge in Maningrida, becoming some of the first women Indigenous sea rangers in the Northern Territory.

For senior Djelk ranger Felina Champion, who heads the group of six women Djelk Sea Rangers, becoming a sea ranger was not only about protecting country, but also about imparting new and traditional knowledge to her children.

"This is my mother's country," Ms Champion said. "I learnt from her and now I want to teach my children how to look after country, its biodiversity and our sacred sites."



**TOP LEFT**  
Training in surveillance and evidence-gathering techniques has already proved successful.

**TOP RIGHT**  
Continuing their tradition with all the advantages the latest technology.

**ABOVE LEFT**  
Sisters Felina and Selma Champion are leading the charge for women rangers in Maningrida alongside William Dennis.

**ABOVE CENTRE**  
Djelk Sea Rangers of Maningrida dedicated to protecting country.

**ABOVE RIGHT**  
Senior Djelk ranger Felina Champion heads the group of six women Djelk Sea Rangers.

"Being a sea ranger we not only look after our country, we look after the community," he said.

Before local people were trained, they were forced to stand by and watch illegal fishing boats come to Maningrida and leave with the rich harvest of its waters. "We could call the police, but couldn't protect the country ourselves," Mr Gulwa said.

But the formal university training has changed all this. "After the CDU training we have used the new technology together with our traditional knowledge to help Customs and the police to stop the illegal fishermen," he said.

Training in surveillance and evidence-gathering techniques

has already proved successful with the Djelk Sea Rangers collecting valuable evidence to assist police prosecute a commercial fisherman.

Djelk Sea Ranger Dion Cooper was one of the rangers who collected the evidence that secured the conviction against a fisherman caught on their country last year. "We knew what season the illegal fishermen would come and try to hide in creeks on our country," Mr Gulwa said. "All we had to do was wait."

At daybreak the sea rangers sped out of their hidden camp to gather the evidence required by Customs and the PMFES to prosecute. "When the fishermen heard us, they made a run for it, but we were still

able to get photographs of the vessel," he said. "When we got to the spot where they had been fishing we found illegal fishing nets in the water and took photos and GPS coordinates, then logged the information in a cyber tracker."

Back at base the sea rangers downloaded the evidence and sent it to Northern Territory Customs. Several months later using the evidence collected by the sea rangers, the illegal fisher was prosecuted and fined \$34,000.

And this is only part of the training that CDU offers to help protect NT waters.

Long-time seafarer and CDU Vocational Education and Training lecturer Milton Miller

has been training Indigenous sea ranger groups for the past eight years. "Over 100 sea rangers have completed their Eight Metre Coxswain Certificate of Competency, which provided them with their coxswain and safety training," Mr Miller said.

"The Certificate II (Fisheries Compliance Support) now gives the rangers the edge when it comes to assisting authorities to help prosecute offenders found illegally fishing on their country. The opportunity to develop a course tailored specifically to suit Indigenous sea rangers ... had not previously been attempted in Australia," he said.



## LIMITED EDITION

Dorothy Napangardi  
*Sandhills*  
2010

Etching and aquatint

**IMAGE SIZE**

59 x 45 cm

**PAPER SIZE**

80 x 60 cm

**COLLABORATOR**

Jacqueline F Gribbin

W:[www.northerneditions.com.au](http://www.northerneditions.com.au)



**D**orothy Napangardi belongs to the Warlpiri language group, and paints in the traditional manner of the Kurrawari (dreaming). Living a traditional life style until the early 1960s when her family group walked into the pastoralist station of Mt Doreen, Dorothy was taught about her country and the Dreamtime by her mother through story telling, song and dance.

Holding a senior position in the field of traditional law within the Warlpiri society, Dorothy's works play an integral role in the preservation and communication of her Dreamings. Her father is the most senior custodian of the Pikilyi sacred site. Having inherited her rights through her patrilineal line, the importance of her contribution to the Aboriginal art movement is magnified.

Highly patterned and intricately woven designs detail her signature style. Using more traditional colours, she creates depths and perspectives, leading the eye into highly detailed maps and journeys of her Dreamings.



# DRIVEN FROM WITHIN

**A**n Indigenous woman born in Darwin of Yawuru, Indonesian and Welsh heritage, Kalinda Griffiths has quickly become a strong voice for Indigenous women around Australia. The 29-year-old graduated from CDU in 2009 with a Bachelor of Biomedical Science and a Masters of Public Health a year later.

Kalinda took her first steps toward a career in health research through a laboratory traineeship with a Cooperative Research Centre (CRC) for Aboriginal Health. She worked as a research technician largely on the Diabetes and Related Conditions in the Urban Indigenous Darwin study, the most comprehensive dataset on diabetes-related conditions in urban Indigenous populations.

“Health equality between minority populations in Australia, particularly Indigenous women is a challenging feat,” she said. “Without appropriate and equitable services that are driven from the ground level through collaborative approaches, Indigenous people will continue to miss out on the same health status as their fellow Australians,” she said.

Kalinda’s research with CDU’s Menzies School for Health Research now focuses on improving the evidence base for Indigenous health and social policy, which will

ultimately help reduce the health disadvantage of Indigenous people.

“Health disparities across Australia exist. In the Indigenous population disparities are complex and challenging. But, considering our systems, support and ability as a nation, we have the potential to be creative, through equitable approaches, to prevent disparities in this population group.”

One of her current projects involves analysing large sets of data to determine the difference in rates of cancer incidence and survival between Indigenous and non-Indigenous Australians. “Until now there have been no national statistics on cancer in Indigenous people,” she said.

Kalinda also plans to embark on a PhD that she hopes will contribute to positive change in health and social policy as they affect Indigenous people. This young woman is so highly regarded for her research that she was named the 2011 Northern Territory Young Australian of the Year. In the past few years she has been selected to attend the Oxfam Aboriginal and Torres Strait Islander Women’s Strait Talk Summit and invited to speak in the “Strong Women, Strong Leaders” lectures in the National Indigenous Community Leadership program.



A burning desire to improve the lives of her fellow Indigenous Australians led **KALINDA GRIFFITHS** into the field of health research and beyond.

**TEXT**  
Richie Hodgson

**IMAGE**  
Kate Freestone

**BELOW**  
High-achieving researcher at the Menzies School of Health Research, Kalinda Griffiths with her award for the 2011 Northern Territory Young Australian of the Year.



## BELOW

The physicality of the land and the sensations unique to the Territory influence Dr Rannersberger's work.



# PAINTING NORTHERN AUSTRALIA

## TEXT

Leanne Coleman

## IMAGES

Kate Freestone  
NT Tourism

A longing to understand her place within the Australian landscape and her own philosophy behind her artistic medium drove **CAROLINE RANNERSBERGER** to Arnhem Land in the Northern Territory for answers. What she found was re-invigoration and inspiration.

**A**s a four-year-old living in South Australia, Caroline Rannersberger began her informal art education on a chalkboard, encouraged by a friend's artist mother. It was the seed that grew into her becoming the celebrated painter and printmaker that she is today.

But it was not until 2001 that Dr Rannersberger finally realised her dream of becoming a full-time artist, choosing Kakadu National Park in the Northern Territory as the place to begin her new career.

The palpable power of the Kakadu environment soon ignited a need in Dr Rannersberger to know more about her relationship to the northern landscape and her role as a painter of it.

"I knew when I arrived there was something deeper to understand within the

Territory landscape," Dr Rannersberger said. "There was a real sense of space and a feeling that the landscape of the north could open up new possibilities.

"I wanted to find out where I fit and how I experienced the country as an artist. How did I find a sense of place without encroaching on the people already here?"

That quest led her to study with Charles Darwin University, where she discovered her own philosophy behind painting the northern landscape, documenting her experiences through art and producing an outstanding body of work, now held in major collections throughout Australia.

As Dr Rannersberger began looking into the history of the northern landscape from a European explorer's point of view, her studies soon

became enmeshed with the perceptions of Indigenous people and their belief systems in relation to country and mythology.

"I drew on the historical features of the land and studied the early explorers of the NT, particularly German scientist and explorer Ludwig Leichhardt's interpretation of the landscape," Dr Rannersberger said. "I was also interested in how people throughout history had perceived far off lands and played with images from historical contexts such as old maps and with grotesque 16th Century creatures."

Dr Rannersberger looked at the perceptions of western myth as a concept parallel to traditional Indigenous painting practices. She observed how myth might contribute to the experience and representation of country

and felt that the sensation of the invisible, the realm of the unknown, might actually be rendered visible through the process of painting.

"I think that taking images from historical ideologies and unique phenomena partly reflected my way of saying 'I wonder what the land holds' and 'is there more here than I can perceive'?" she said. "Many aspects of Indigenous culture operate on a different plane to my reality and Indigenous artists live in parallel worlds, where their ancestors are tangible entities."

On completing her Master of Visual Arts Dr Rannersberger still wanted to deepen her understanding. A Doctor of Philosophy in visual arts presented the opportunity to immerse herself in an interdisciplinary fusion of painting and philosophy and

# REMOTE NORTH PERSPECTIVE

The body of work Dr Rannersberger produced during her Master of Visual Arts, entitled *Sublime Territory*, examined the concepts of exploration and colonisation from her personal perspective and experiences as a painter in remote Northern Australia.

One of the pieces, *Sublime simplicissima 2006*, was recently acquired by the National Gallery of Australia to feature in the gallery's collection of artworks exploring the Australian landscape.

Dr Rannersberger's new body of work, entitled *Unsettling Country*, formed part of the visual arts research undertaken during her PhD.



The palpable power of the Kakadu environment soon ignited a need in Dr Rannersberger to know more about her relationship to the northern landscape and her role as a painter of it.

to further explore the impact of sensation on the aesthetics of painting.

"I wanted to challenge traditional ideas of landscape painting as a label and search for my own way of experiencing and expressing country," she said. "It was not only the landscape but the aesthetics of the environment and the sensations I felt while painting directly on site that formed the basis of my work."

It was the work of contemporary French philosopher Gilles Deleuze in particular that helped her to read her work and form her philosophy that painting from direct experience in the remote north of Australia could lead to the development of a unique aesthetic.

"The philosophy of Deleuze describes our state of being in the world," she said. "It

shifts the idea that the artist is the master in the centre of everything. Rather, there is a kind of tripartite dissolution between the painter, the painted and the painting itself, where everything, including the environment, is connected and exerts its own powerful force. This philosophy resonated very intimately with me. It is the physicality of the land and the sensations that are unique to the Territory that shaped my work.

"Here, the difference between the painter and the elements of the land merge and transform, somewhat like individual droplets of humidity forming sheets of monsoonal rain," she said. "Works of art created themselves independently of the painter."



**BELOW**

Artist Dr Caroline Rannersberger with some of her earlier works.

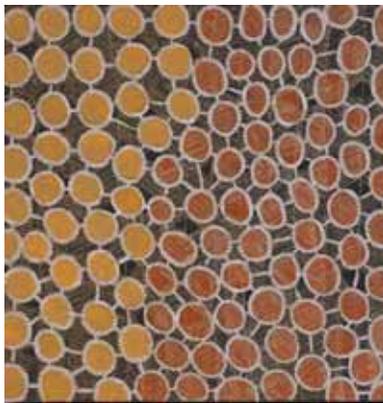




Marina Strocchi  
*Brancusi Palms* 2003  
Acrylic on paper, 75 x 56.5cm  
Gifted by the CDU Foundation,  
2010 to the CDU Art  
Collection – CDU1852  
Image © and courtesy the artist



Jean Baptiste Aputimi  
*Purrikuparri* [Old Bark painting]  
2005, natural ochres on linen,  
150 x 100cm  
Gifted by the CDU Foundation,  
2010 to the CDU Art Collection –  
CDU1775  
Image © the artist and courtesy  
Tiwi Design Aboriginal Corporation



Maria Josette Orsto  
*Kulama (Yam) Jilamara* [Kulama  
Ceremony Yam designs] 2010  
Natural ochres on canvas, 80 x 80cm  
Gifted by the CDU Foundation, 2010 to  
the CDU Art Collection – CDU 1775 Image  
© the artist and courtesy  
Tiwi Design Aboriginal Corporation



# PRESERVING NORTH'S DISTINCTIVE CULTURE

**U**niversities worldwide have a long and distinguished history of fostering permanent collections as the foundation for public art galleries and science museums. Today, more than 200 collections based in Australian universities comprise a substantial part of the “distributed national collection” of our country’s cultural heritage. Collections contribute to the well-being of communities, they act as visual teaching tools and as cultural data; they contribute to the quality of campus life and promote contact between universities and their communities.

Established in 1980 with the gift of a limited edition print by an American artist-in-residence, the Charles Darwin University Art Collection today comprises more than 2000 art works of regional, national and international significance. Its strength remains works on paper, in particular, limited edition prints.

Since 1993, through a unique pact of joint benefaction and automatic acquisition brokered between the university’s printmaking workshop and artist-printmakers, workshop proofs of prints have been donated to the Art Collection on an on-going basis, augmenting its scope and profile as a distinct regional collection with a north Australian focus. Today, more than 1000 prints (including etchings, lithographs, drypoints, linocuts and screenprints), created by Australian Indigenous, non-Indigenous and South-east Asian artists, comprise its core.

Since 2004, others from the Northern Territory and interstate have gifted more than 300 works. And since 2008, the CDU Foundation, through its Art Acquisition Fund, has provided \$30,000 a year for the purchase of art works.

The acquisition strategy – for gifts and purchases alike – does more than merely “fill gaps”. It never succumbs to market trends or art world fashions, and resists the beguiling but fruitless pursuit of works by ostensible “master” artists. The selection process is rigorous yet non-prescriptive, based on fieldwork, research, scrutiny and comparison. It is an exercise of judgment guided by *looking* at art – not personal taste.

To date, the CDU Foundation’s Art Acquisition Fund has assisted in buying 82 works in various media, many of which have been displayed in the first cycle of exhibitions at the CDU Art Gallery during 2010, or elsewhere on campus. Exhibitions scheduled for 2011 include existing and pending acquisitions made possible with the Foundation’s and other donors’ indispensable and on-going support for what will be, in the future, a significant portion of Northern Australia’s cultural patrimony – collected, preserved, promoted and displayed by the NT’s first university.



**TEXT**  
Anita Angel  
Curator, Charles Darwin University  
Art Collection and Art Gallery

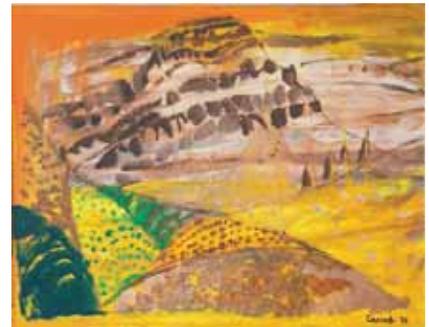


Tjunkiya Napaltjarri  
*Untitled - Designs associated with the  
 rockhole site of Umari 2008*  
 Acrylic on linen, 122 x 91cm  
 Gifted by the CDU Foundation, 2010 to  
 the CDU Art Collection - CDU1830  
 Image © the artist's estate and courtesy  
 Papunya Tula Artists Pty Ltd

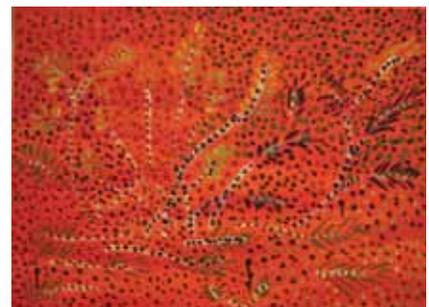
Mary Kanngi [Kannyi]  
*Dried Leaves 1998*  
 Acrylic on canvas, 100 x 99cm  
 Gifted by the CDU Foundation, 2010  
 to the CDU Art Collection - CDU1864  
 Image © the artist's estate and courtesy Merrepen Arts

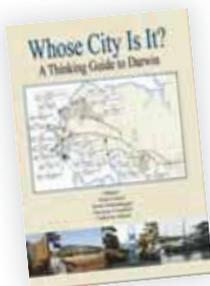


Judy Cassab  
*Ross River Road 1972*  
 Oil on board, 44 x 35cm  
 Gifted by the CDU Foundation, 2010 to the CDU Art  
 Collection - CDU1853  
 Image © the artist & courtesy Bridget McDonnell Gallery



Veronica Marrar  
*Untitled [Bush medicine plants] 2010*  
 Acrylic on canvas, 70 x 95cm  
 Gifted by the CDU Foundation, 2010  
 to the CDU Art Collection - CDU1865  
 Image © the artist & courtesy Merrepen Arts





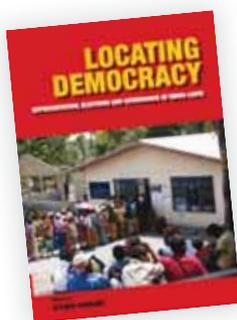
**Dean Carson,  
Doris Schmallegger,  
Suzanne Campbell and  
Catherine Martel (eds)**  
Paperback  
ISBN: 9780980665062

## Whose City Is It? A Thinking Guide to Darwin

This book aims to provide a thinking guide to Darwin to encourage locals and visitors alike to debate the various aspects that determine the way the city is functioning as a place to live, work, invest or visit. It reports on a variety of information and perspectives, including formal research and informal accounts of personal experiences provided by guest commentators in leading positions within Darwin society.

The “Whose City is it?” guide aims to help Darwin contextualise the opportunities and challenges it faces as it continues to grow.

The editors are based at The Northern Institute of Charles Darwin University. Dean Carson is Principal Research Fellow in Population Studies, and Doris Schmallegger, Suzanne Campbell and Catherine Martel are Research Associates.



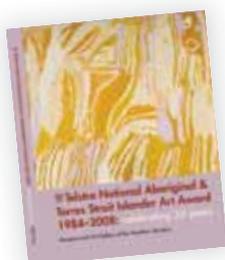
**Steven Farram (ed)**  
Paperback  
ISBN-13: 978-0-9806650-9-3

## Locating Democracy: Representation, Elections and Governance in Timor-Leste

Locating Democracy: Representation, Elections and Governance, contains a selection of papers presented at a symposium held in Dili on 26 and 27 April 2010. At this time, four districts were being prepared for the first municipal elections. The symposium was organised in response to the local government and decentralisation reform policies of the Timor-Leste Government.

There has been much discussion about this process in Timor-Leste and a symposium to bring together a range of stakeholders concerned with the reform program before the associated laws were to be introduced to parliament was considered timely. Only days before the symposium was to be held, however, the President, followed by the Prime Minister and various MPs, announced that more time was needed before the districts would be ready for municipal elections, and it was generally conceded that they were unlikely to take place before 2014.

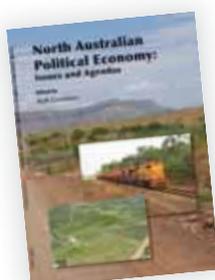
Steven Farram is a Research Associate at Charles Darwin University. His research interests are the history and politics of the Northern Territory, Indonesia and Timor-Leste.



**Museum and Art  
Gallery Northern Territory**  
Paperback  
ISBN: 9780980665086

## Telstra National Aboriginal & Torres Strait Islander Art Award: celebrating 25 years

This publication formally acknowledges the extensive body of artwork produced over the duration of the award. It celebrates the creativity, ingenuity and application of Australia's Indigenous artists by documenting the artistic achievements of a selection of significant artists, past and present, whose work has been exhibited in the award during its 25-year history.



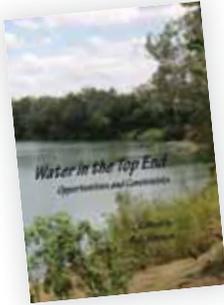
**Rolf Gerritsen (ed)**  
Paperback  
ISBN: 9780980864106

## North Australian Political Economy: Issues and Agendas

This book assembles a diverse group of scholars with long experience of analysing northern development issues. Its chapters cover the notion of development from a range of perspectives: social, cultural, economic and environmental. The papers range broadly, from trying to explain the operating processes that shape the north to analysing some of the core and crucial issues for the future of Northern Australia.

Readers wishing to see advocacy for damming northern rivers and pumping their waters to Australia's southeast – or similar grandiose schemes – will be disappointed. This book dispels simple nostrums about the development of the north.

Rolf Gerritsen is Research Leader Central Australia at Charles Darwin University's Alice Springs campus.



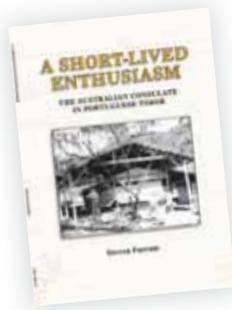
**Bob Wasson (ed)**  
Electronic  
ISBN: 9780980665048

## Water in the Top End: Opportunities and Constraints

The use of water in the Top End of Australia is a hot topic, with competing interests and pressure from drought-ravaged southern Australia. Water is now a potential lightning rod for conflict between economic uses, environmental concerns, and cultural values.

This collection of papers comes out of the Charles Darwin Symposium “Water in the Top End”, held at Charles Darwin University, Darwin in May 2008. The Symposium focused on the future and explored a range of perspectives on the two questions: What are the opportunities for and constraints on water use? Should we continue to think of the Northern Territory as a frontier with boundless possibilities? There is an obligation on the present to frame the future of water use in the Top End, and this volume provides valuable fuel for this debate.

Bob Wasson is the Deputy Vice-Chancellor, Research and International at Charles Darwin University. Educated in earth sciences with a PhD in geomorphology, he is recognised nationally and internationally for research that underpins the management of natural resources.

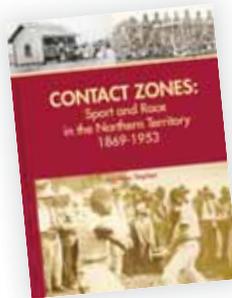


**Steven Farram**  
Paperback 17.5 x 25  
ISBN-13: 9780980665055

## A Short-Lived Enthusiasm: The Australian Consulate in Portuguese Timor

This book is illustrated with rare photographs, and looks at why Australia established the Dili consulate in 1946, but by late 1949 was considering withdrawing its consul and closing the facility altogether. It details the appointment of Charles Eaton as Australia’s first consul to Portuguese Timor to develop trade and defence arrangements with the Portuguese. By the time Eaton was replaced in October 1947, this enthusiasm began to wane and a description is given of the situation until the consulate’s closure in 1971. Australia, however, seems to have lost interest in the colony well before then.

Steven Farram received his Doctorate in history from Charles Darwin University in 2004. He has published widely on the history and politics of East Timor, Indonesia and the Northern Territory. He works at CDU as a Research Associate.



**Matthew Stephen**  
Paperback 17.6 x 25  
ISBN-13: 978-0-9806650-7 -9

## Contact Zones: Sport and Race in the Northern Territory, 1869-1953

*Contact Zones* traces the extraordinary journey taken by the Northern Territory’s non-White sportsmen and women from sporting exclusion and segregation to integration and liberation. In the Territory sport is hotly contested social and political terrain, a form of public theatre where issues of race and identity continually collide.

Sport was, and remains, an active and powerful social agent and an important barometer of changing values. From 1869, to the end of the South Australian administration in 1911, sport was strictly segregated excluding Aborigines, Chinese and other non-Whites. Then, from World War I to 1953, sport, particularly Australian football, played an important role in transforming the Northern Territory into a more representative and inclusive society.

Matthew Stephen is a historian with deep and abiding interest in sport and the role it plays in understanding society. This book is based upon his Charles Darwin University PhD thesis.

## CDU Press

CDU Press is the publisher based on Casuarina campus of Charles Darwin University. The Press was founded in 1989 and has developed a publication list that is a unique blend of titles, often focused on the Northern Territory, Northern Australia and the Asia-Pacific region and/or written by staff and students from CDU. The books range from collections of academic papers to textbooks and monographs, through to biography and high-quality art volumes.

Visit our website for details of CDU Press titles and order by email or online via the CDU Press website. CDU Press titles are also available from the CDU Bookshop on Casuarina campus.

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