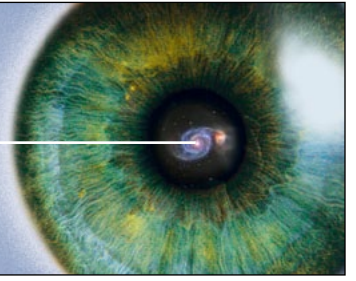


# Discover



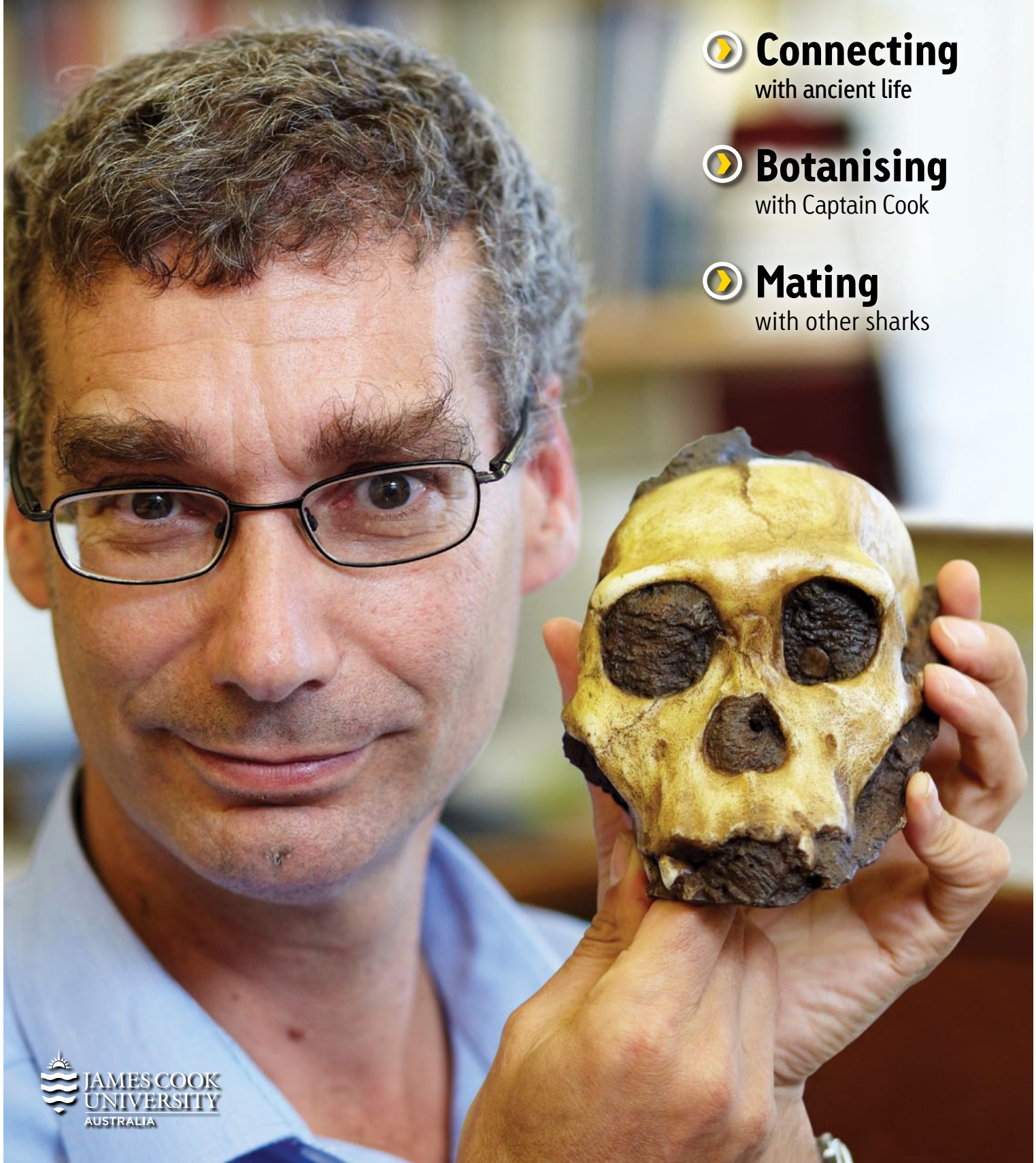
MAY 2012

JAMES COOK UNIVERSITY

 **Connecting**  
with ancient life

 **Botanising**  
with Captain Cook

 **Mating**  
with other sharks







Cover: Professor Paul Dirks.  
Photographer: Andrew Rankin

Twenty-five years ago, our University opened a new and significant chapter in its history as Australia's university for, and of, the tropics, with the establishment of a campus in Cairns.

Initially set up in cramped conditions on the TAFE site in Cairns, the campus opened with just 117 students and eight first-year subjects. In 1995, JCU Cairns moved to its own site at Smithfield and the development and expansion of that campus is ongoing.

In the beginning there were only three buildings, but the campus has grown to now include the Library, the Queensland Tropical Health Alliance Building, the Sir Robert Norman building, which houses the Australian Tropical Herbarium, the Dentistry School, and the student amenities complex including the Boathouse.

Work is underway on an 80-seat Oral Health clinic, where Dentistry students will treat public patients in a professional setting, and the iconic Cairns Institute Building, which will host researchers for advanced studies and research in the social sciences and humanities.

In its first 25 years, 5920 degrees have been conferred including 1102 teachers, 522 science graduates, 422 accountants, 336 social and community welfare workers, 143 tourism graduates, and about 200 law graduates. More than 200 students have completed their Masters of Business Administration.

There are now more than 4000 students on the campus and it is an integral part of James Cook University, a vital part of the Cairns community, and a substantial contributor to the region's economy and future development.

Celebrations of this significant birthday are continuing throughout the year culminating in a week of official celebrations in August. If you are one of our Cairns alumni I hope you will join us for the festivities and take the chance to not only visit the growing campus but also renew friendships.

In 2010, we celebrated the 40th anniversary of James Cook becoming an autonomous university in Townsville, and next year will be the 10th birthday of our campus in Singapore.

Today, JCU is one university, operating in two countries with three tropical campuses, and we have moved a long way towards achieving the vision of those who created the University as one that would not only serve the people of northern Queensland, but also be Australia's university of the tropics.

We have enshrined this in our Statement of Strategic Intent declaring that we are determined on "creating a brighter future for life in the tropics world-wide through graduates and discoveries that make a difference".

For the past 25 years, those who have studied, taught and conducted research at JCU Cairns have played an important role in the University as a whole being recognised as a leading tertiary institution in Australia, our Asia-Pacific region and among the universities of the world.

*Sandra Harding*  
Sandra Harding  
Vice-Chancellor



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#### Volume 6 No 1

Discover James Cook University

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# Prize for forest defender



**A James Cook University researcher, whose work has taken him to Australia, the Amazon, the Congo, Central America and Southeast Asia, has been awarded the 2012 Heineken Prize for Environmental Science.**

William Laurance, a Distinguished Professor and Australian Laureate at JCU Cairns, Australia, will receive the award in the Netherlands later this year.

The Heineken Prizes are among the largest and most prestigious awards in the sciences, with eleven former Heineken winners having gone on to become Nobel Laureates.

The award recognises Professor Laurance's research on the effects of habitat fragmentation, deforestation, hunting and fire on the Amazon, as well as his work as a science communicator, making an important contribution to public debate on the preservation of the South American rainforest.

"It's especially gratifying to be recognised for my efforts to communicate about the

environment," Professor Laurance said. "I believe researchers have a duty to engage the public, governments and policy-makers."

**“The rainforests we are studying are a global treasure – and many, such as those in Indonesia and South America, are falling at an alarming pace.”**

Professor Laurance has argued that intact tropical forests play a vital role in mitigating the effects of climate change.

"The clearing and degradation of tropical rainforests releases huge quantities of carbon dioxide into the atmosphere, as well as reducing the capacity of these ecosystems to absorb carbon.

"For that reason, international organisations are now promoting REDD initiatives – Reducing Emissions from Deforestation and Forest Degradation. This uses international carbon-trading funds from countries like Australia to help preserve and manage imperilled forests worldwide.

**“If applied effectively, REDD could encourage developing nations to leave tropical forests standing rather than fell them.”**

## JCU Singapore's community engagement efforts have been recognised by Prime Minister Lee Hsien Loong.

**The Prime Minister presented an award of appreciation to JCU's Vice-Chancellor, Professor Sandra Harding, at a special community event.**

Professor Harding said that the whole of the James Cook University community would be honoured by the award inaugurated by the Kebun Baru Link Residents' Committee to recognise organisations that make significant contributions to the community.

Since settling into its present campus at 600 Upper Thomson Road in 2008, JCU Singapore had supported many projects to benefit the local Kebun Baru community, Professor Harding said.

"As an institute of higher learning, we see it as our duty to deliver quality education and research but we are also very aware that we are part of the wider community," she said.

"As an institution with a focus on the peoples of the tropics, this recognition from our local community is particularly pleasing."

Deputy Vice-Chancellor and Head of JCU's Singapore campuses, Dr Dale Anderson, said students and staff had taken part in events including the Dragon Feast during Chinese New Year, Emergency Preparedness

Day, the Mid-Autumn Lantern Festival and the annual National Day Dinner.

"As well as working with the Kebun Baru grassroots organisations, JCU Singapore has also been making contributions to its adopted charitable organisations, Child at St 11 and the Ang Mo Kio Family Service Centres," Dr Anderson said.



Prime Minister Lee Hsien Loong presenting the award to Professor Sandra Harding.



# Rewriting the story of human evolution



Professor Paul Dirks is no ordinary geologist.

**He has already been involved in helping uncover the story of 1.9 million year old ancient skeletons which could rewrite the story of human evolution.**

And now the Head of the School of Earth and Environmental Sciences, together with colleagues based at JCU Townsville, has helped raise new theories on how changes in the Earth's crust might have shaped the African continent – the birthplace of the human species.

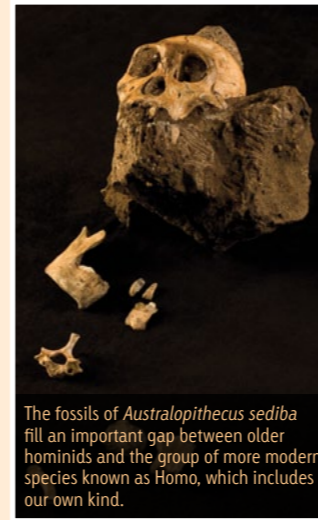
Professor Dirks admits that it is unusual for a geologist to be so ensconced in the world of anthropology and palaeontology. "I've always had a love of history, and enjoyed archaeology," he says. "In fact, coming face to face with ancient life still gives me goose bumps.

"Through my work at the University of Witwatersrand (Wits) in South Africa a few years ago, an opportunity arose for me to see how palaeoanthropologists work.

"Both myself and Lee Berger, from Wits University, realised there was a lack of input from geologists in looking for hominid fossils, so we came up with a project to explore for fossil sites in the Cradle of Humankind World Heritage Site and understand their distribution in the landscape.

**“We didn't set out to discover new hominid fossils – but that's what happened.”**

This was no normal discovery. In 2008, Berger and his son found, uncovered in cave deposits, the remarkable partial remains of two ancient human-like creatures – an adult female and a 10-year-old boy from almost two million years ago.



The fossils of *Australopithecus sediba* fill an important gap between older hominids and the group of more modern species known as Homo, which includes our own kind.

Professor Dirks says the creatures – assigned the name *Australopithecus sediba* – fill an important gap between older hominids and the group of more modern species known as Homo, which includes our own kind.

**“It's at the point of transition from an ape that walks on two legs to, effectively, us,” he says.**

"I was directly involved in the discovery and consequently took on the role of describing the geological setting and determining the age of the remains. The geological studies demonstrate the dynamic nature of the landscape in which sediba lived and died.

"From this discovery, we can assume that the creatures – probably mother and son – either fell into the cave complex or became stuck in it.

**“Very few people in palaeoanthropology have found hominid fossil material, so finding the skeletons of a new species of hominid was quite remarkable.”**

Professor Dirks says it was an emotional time following the discovery, especially in South Africa, where people realised it was the best candidate as an ancestor to Homo sapiens.

"It was all a very big deal," he said. "Perhaps one of the more moving moments was when we showed the remains to Professor Phillip Tobias, a prominent South African palaeoanthropologist.

"He is known for his pioneering work on the evolution of mankind, and has seen a lot in his lifetime. But when we showed him the skull, he had tears in his eyes. That's how much it meant to him. It's very emotional – it goes very deep for everyone involved in our line of work."

Professor Dirks has gone deeper himself. While at Wits University, he co-founded the AfricaArray programme, which investigates the structure and tectonics of the African plate, from the Earth's surface to the core-mantle boundary. It was through this programme that Professor Dirks became involved in the discovery of new hominid fossil deposits in South Africa.

In his latest research, which he is conducting with JCU's Dr Eric



Professor Paul Dirks is pictured at the Cradle of Humankind World Heritage Site where the hominid fossils were found.

Roberts and co-workers in the USA and South Africa, he has returned to his speciality of the tectonic history of terrains and belts to suggest that the Great Rift Valley of East Africa – the birthplace of the human species – may have taken longer to develop than previously believed.

"Our findings suggest there was a much more prolonged history of rifting and uplift in East Africa, which took place over a broad area. They also better explain how the landscape developed and, ultimately, how we evolved in this landscape.

"Humans by nature like variety and we enjoy varied landscapes. Tectonically active areas like the East African rift, with its earthquakes and volcanoes, continuously rejuvenate the landscapes.

"Although certain creatures may have struggled with these new

environments, I believe our human ancestors would have thrived. We have an extremely adaptable brain, suitable for varied landscapes, so perhaps humans evolved along rifts because we like variety.

"The onset of the ice ages, with its extreme climate variability, coincided with the rapid increase in brain size observed in the hominid record. We have learned how to adapt to dramatic changes, and we have used our relationship with the land to do so.

**“Africa is where the diverse landscapes of the rift valleys benefited our ancestors, and where the evolutionary train was put in motion, resulting in hominids.”**

Professor Dirks believes the worlds of geology and palaeoanthropology have never been more exciting.

"For example, there is still so much more to understand about the Great Rift Valley," he says. "When were the valleys formed? How fast? And particularly, why? And how rapidly did the landscape change as a result?"

**“There are still so many unanswered questions. The thrilling aspect is that the answers lie in the fossils we have, and the fossils we will discover in the future.”**

And there is what lies behind Professor Dirks' passion – how a two million year old skull can tell a story and change the theory of evolution. ①

– Gavin Broomhead



Professor Paul Dirks examines the ground at the Malapa site in the Cradle of Humankind.



a comprehensive botanical collection

# A botanical treasure trove



A statue of Captain James Cook overlooks the banks of the Endeavour River at Cooktown.

A veritable flood of specimens was sent back to England

## Picture the scene.

It's June 1770, you're stranded with a broken boat 15,000km from home in an uncharted tropical wilderness. You're unsure if you will ever return home.

**What's your next move? You get to work on a comprehensive botanical collection, of course.**

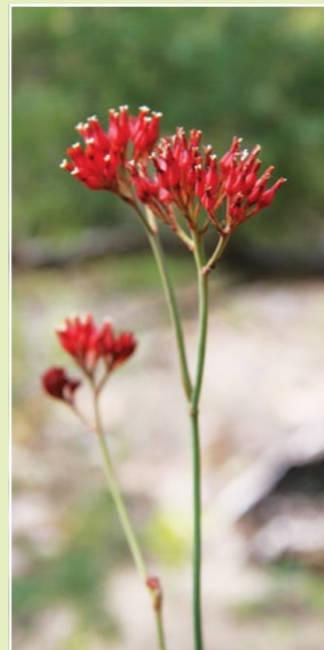
Professor Darren Crayn, Director of the Australian Tropical Herbarium at James Cook University, believes Joseph Banks' and Daniel Solander's work at the Endeavour River has been overlooked for too long.

Banks and Solander are certainly more famous for their discoveries at Botany Bay than their collections of native flora in far north Queensland, where Captain James Cook's ship struck trouble on the Great Barrier Reef.

But Professor Crayn, who has been collaborating with local botanist Bob Jago on researching Banks' and Solander's Endeavour River collection, believes their work in this part of the world is at least of equal significance to their discoveries further south.

"Botany Bay has been celebrated through the ages as a site of botanical discovery, whereas the Endeavour River has not," Professor Crayn said.

"There are several reasons for this, but I think it's a tragedy that the 48 days Banks and Solander spent collecting species around the



Part of Cooktown's Botanic Gardens is devoted to plants collected by Banks and Solander.

Endeavour River has often been ignored.

**“Their work in far north Queensland is actually a scientific treasure trove.”**

Banks and Solander collected 348 species of plants around the Endeavour River, of which at least 310 were estimated to be new to science, nearly three times more than were collected at Botany Bay during their eight-day stay there.

"It truly was a remarkable achievement," said Professor Crayn. "Nowadays, about 640 species are recorded for the five square kilometre area around the mouth of the river.

"In less than six weeks of the dry season, an unfavourable time of year, these botanists working 242 years ago managed to collect over



Professor Darren Crayn with *Leea indica* or Bandicoot Berry, a plant collected by Banks and Solander.



Photographer: Sue Wellwood

half of the species known today. It's impressive work."

Professor Crayn believes it is not only the volume of plants collected that should put this collection at least on par with Botany Bay, but also the historical significance of some of the plants gathered.

"It was the first collection of several well-known genera such as *Hoya*, *Schefflera*, and *Leschenaultia*, along with many others," he said.

"Interestingly, Banks and Solander also collected a morning glory species that is regarded today as a noxious weed in New South Wales, and is regarded as introduced in Queensland.

"That it was present at Endeavour River in 1770 suggests two possibilities. Either it should be regarded as native here, or perhaps it's a pre-Cook introduction, possibly brought here through trade between Australian and Malesian Indigenous peoples.

"Potentially this has major significance in science and conservation today."

So why has Banks' and Solander's work at Endeavour River been overshadowed by the work they did at Botany Bay?

"They were in the far north during the dry season when the flora does not look its best and only a fraction of the species are flowering," Professor Crayn said.

Furthermore, future botanists further surveyed the flora around the Botany Bay and Port Jackson region in detail from 1788 when the colony of New South Wales was established there, whereas the Endeavour River was not visited again for nearly 50 years and then only briefly.

"A veritable flood of specimens was sent back to England from other parts of Australia, especially the south east, creating a great deal of scientific interest in those areas and those floras.

**“Meanwhile, the Banks and Solander Endeavour River specimens languished unpublished in Banks' private collection in London.”**

Perhaps Banks' most important achievement was the influence he was able to exert as President of the Royal Society to establish the practice of including naturalists as crew on British expeditionary voyages.

"Some of the greatest ever scientific advances in biology and earth sciences were made as a result of that practice," said Professor Crayn.

**“The most notable was the theory of evolution by natural selection, a product of the prodigious mind of Charles Darwin, inspired largely by his adventures in the Galapagos Islands as a naturalist on the Beagle.”**

Today, the Australian Tropical Herbarium at JCU Cairns is home to three specimens collected by Banks and Solander during their stay on the banks of the Endeavour River.

**“We still use these in our scientific research,” Professor Crayn said. “It's hard not to get goose bumps when you know the circumstances of their collection, 242 years ago.”**

Banks and Solander may have felt a few goose bumps of their own, as they gathered plants from around the Endeavour River – unsure they would ever make it home and show their work to the world. ①

— Gavin Broomhead

Cooktown photography: Amanda Hogbin



Darren Crayn and Alberta Hornsby discussing Guugu Yimithirr plant names and usage on the banks of the Endeavour River.

historical significance



A Red Beech, *Dillenia alata*, near where the Endeavour was repaired.

The Australian Tropical Herbarium is home to three specimens collected by Banks and Solander.





Staff from the early days of JCU in Cairns have already cut the 25th birthday cake, but further celebrations are planned.

## Get in touch

**James Cook University's Cairns campus is celebrating its 25th birthday this year.**

To help plan the celebrations, JCU's Alumni office is asking former students and staff to get in touch and update their contact details.


"We're planning a range of formal and informal events to celebrate our first quarter of a century in Cairns," Deputy Vice-Chancellor Dr Stephen Weller said.

"We're asking past students and staff to let us know their current contact details so we can keep them informed of events throughout the year.

"It will be a great chance to catch up with your former classmates and colleagues.

"If you studied or worked at JCU Cairns, whether it was in the early days of demountable buildings on the TAFE campus, or more recently on our growing Smithfield campus, we'd really like to hear from you."

JCU began teaching in Cairns in 1987, offering eight first-year subjects to 117 students. In 1995 the University moved to its Smithfield campus, where enrolments are now in excess of 4,100.

Past students and staff can update their contact details online at [alumni.jcu.edu.au](http://alumni.jcu.edu.au) or by calling 07 4042 1850. 

## Career connections

Students, employers and professional organisations connected at the Careers Fairs on JCU's Townsville and Cairns campuses in March.

The annual Fair was a special event in Cairns this year, celebrating JCU's 25th year in Cairns.

JCU Graduate Employment Officer Lisa Crema said students from all faculties and year levels attended the Careers Fairs to talk to employers, professional associations and student groups.

"The Careers Fair leads to jobs for current students and graduates, mentoring opportunities as well as advice and information for all students," she said.

"Whether it is a first year student wanting an idea of what to do with their career or a final year student



Students and employers meet at the Careers Fair.

Photographer: Romy Siegmann


wanting advice on job applications, the Careers Fair is beneficial for all students."


In its first 25 years in Cairns, JCU has conferred 5,920 degrees. The campus opened with just 117 students and eight first-year subjects in 1987. This year there are 4,120 students and the campus now offers a huge range of courses from diplomas to doctoral programs.

Graduates have included 1102 teachers, 522 science graduates, 422 accountants, 336 social and community welfare workers, 323 nurses, 204 lawyers and 143 tourism graduates, while 206 students have completed their Master of Business Administration.

Deputy Vice-Chancellor Stephen Weller said a growing student body and expanded offerings meant the

Cairns conferrals were increasing rapidly.

"It might have taken two decades to produce our first 5,000 graduates, but our next 5,000 will take less than half that time," he said. 

 [www.jcu.edu.au/careers](http://www.jcu.edu.au/careers)



Lecturer of the Year, Professor Jim Burnell.

**Professor Jim Burnell has been named the UniJobs Lecturer of the Year for 2011.**

The national award recognises particularly diligent and inspiring lecturers who have helped enrich the lives of students and work colleagues.

More than 4000 university lecturers were nominated for the 2011 awards and more than 70,000 students voted across Australia.

Professor Burnell is a senior researcher in Biochemistry and Molecular Biology at JCU in

Townsville, and is also engaged in teaching and community engagement.

His research interests include making rice crops more productive (by increasing the plants' ability to photosynthesise) and investigating the protein components of jellyfish venoms.

But Professor Burnell says he still gets a great deal of pleasure from teaching, beginning with introductory biochemistry and

microbiology, and a first-year module for medical students titled Molecules to Cells.


**"The challenge is to interest students in what I find fascinating – how living cells obtain their energy to survive and grow," he said.**

"Once they understand some basic concepts, they recognise how simple things are."

Professor Burnell says he strives to show his students how relevant biochemistry and molecular biology subjects are to their everyday lives.

"My aim is to trigger that initial realisation in students that what they learn in biochemistry and molecular biology subjects actually is relevant to what we eat, how we live, everything," he said.

Professor Burnell has written a textbook for first-year medical students and would like to do much the same for the second-year biochemistry students.

"I'm also an active partner in the Scientists in Schools program and I would like to continue with that, coming up with activities to interest high school students in biochemistry." 



Bill Tweddell, ambassador and Cowboys tragic

## Alumnus ambassador

**JCU graduate Bill Tweddell is now Australia's Ambassador to the Philippines.**

Mr Tweddell, a senior career officer with the Department of Foreign Affairs and Trade, has also served as Australian Ambassador to Vietnam, Deputy High Commissioner to the United Kingdom, Consul-General in

Hong Kong and High Commissioner in Sri Lanka.

Earlier postings have been to India, Greece and Bangladesh. He was also Chief of Staff to the former Minister for Foreign Affairs, Alexander Downer.


Mr Tweddell said he still calls Townsville his home town, having lived in the city for 20 years and completing a Bachelor of Arts and Bachelor of Economics at JCU.

The Tweddell family had strong links to the University, he said. "All four of my siblings gained at least

one degree from JCU and our dad lectured part-time in Civil Engineering."

Mr Tweddell said as a student he had never envisaged a diplomatic career path. "However, I was always interested in international relations, current affairs and politics," he said.

In 2010 Mr Tweddell was honoured as an Outstanding Alumnus of James Cook University.

"I am never so happy and 'at home' as when I'm in Townsville," the self-confessed Cowboys tragic said. 



# Found: a brand-new shark

## A JCU researcher has discovered a new, hybrid breed of shark in North Queensland.

“This is the first time that two separate species of sharks have been shown to interbreed,” Dr Colin Simpfendorfer said.

The Director of the Centre for Sustainable Tropical Fisheries and Aquaculture (CTFSA) at JCU in Townsville, Dr Simpfendorfer said the discovery was made while examining the structure of shark populations along the Queensland coast.

“We realised that two parts of our research team – JCU’s morphology group and the genetics group from the State Department of Employment, Economic Development and Innovation – had results that didn’t match.

“Getting to the bottom of the issue resulted in our discovery of the hybrids.”

Dr Simpfendorfer said the occurrence of hybrids of the two species (Australian blacktip and common blacktip) appeared to be reasonably common, with more than 50 individual hybrids so far detected.

“Interestingly, unlike hybrids of some other types of animals, the shark hybrids appear to be able to reproduce and give birth to viable offspring,” he said.

“We don’t know what has caused the hybridization or how long it has been occurring.”

Contrary to some reports, this will not result in crosses between hammerhead and white sharks, or sharks developing laser beams on their heads.

“However, the find does have profound implications for our

understanding of shark mating and reproduction,” Dr Simpfendorfer said. “Our work on this phenomenon is ongoing.”

The project was helped by funding from the Fisheries Research and Development Corporation.

JCU’s Centre for Sustainable Tropical Fisheries and Aquaculture includes scientists focused on a wide range of shark research.

Dr Simpfendorfer said the main aim was to help ensure the long-term future of sharks in Queensland, Australia and globally.

“Sharks present a wide array of challenges to managers of the marine environment and in many parts of the world, populations of some species have been severely depleted,” he said.

“However, there is also a lot of misinformation on sharks. It’s important that marine resource managers have access to high quality science to achieve the best outcomes.

“Our group aims to provide that science and also the expertise, built up over many years working with sharks all over the world, to ensure a long-term future for sharks in the world’s oceans.”

Other research highlights include investigating sawfishes (a shark-like ray) and monitoring shark movement via acoustics.

Dr Michelle Heupel is examining the movements of reef sharks to better understand how to manage the species.

“Networks of acoustic monitors have been established off Townsville and in the Capricorn Bunker group off Gladstone, to examine how sharks move between reefs,” Dr Simpfendorfer said.

“To date, assessment and management of reef sharks has assumed that there is little or no movement of sharks between reefs.

“However, preliminary data shows that inter-reef movements are more common than expected. This project will quantify movements of reef sharks and help design appropriate management strategies.

Dr Colin Simpfendorfer is part of a global re-assessment of the status of sawfishes.

“This small group of shark-like rays is the most endangered group within the shark and ray family,” he said.

“Australia is one of the last places that significant numbers of sawfish can be found, and as such is in a position to provide the opportunity to collect data that will help save this group around the world.

“Work at JCU for this project is examining the population recovery potential of sawfish species.”

— Caroline Kaurila

The first record of sharks hybridising came from two species of Australian sharks – the Australian blacktip (bottom) and the common blacktip (top). The offspring are identical to one or other of their parents. Photographer: Alastair Harry.

A grey reef shark swims away after being tagged at Heron Island in the southern GBR. Photographer: Michelle Heupel.



OIRS Reef Shark Tagging: PhD student Audrey Schlaff fits a blacktip reef shark with an acoustic tag at Orpheus Island. The tag will be monitored for up to two years by listening stations positioned around the island as part of Australia’s Integrated Marine Observing System. Results from the project will help to understand the environmental drivers of movement in sharks. Photographer: Colin Simpfendorfer.



The narrow sawfish is a critically endangered ray species that occurs along the coast of Queensland. PhD student Jimmy White (right) prepares to release a juvenile fitted with an acoustic tag in Cleveland Bay. Results from listening stations in the bay will be used to improve management of this species. Photographer: Colin Simpfendorfer

### The researchers

#### Dr Colin Simpfendorfer

More than 100 scientific publications on sharks; regional chair of the IUCN’s Shark Specialist Group; current projects include examining the role of near-shore waters as nursery areas for sharks, the conservation status of sawfishes and sustainability of shark populations.

#### Dr Michelle Heupel

ARC Future Fellow at AIMS and JCU; specialises in the ecology of sharks; current projects including examining the movement patterns of coral reef sharks, and how effective current marine park zoning is at protecting mobile predators.

#### Dr Andrew Tobin

Senior Research Fellow studying the interaction of sharks with fisheries, identifying at-risk species and estimating sustainable use levels of Queensland sharks.

#### Dr Alastair Harry

Research Fellow examining the status of inshore sharks along the Queensland coast.

#### Students

More than 15 postgraduate students working on projects including life history, movements, habitat use and population status of various sharks and rays, and the effects of climate change.

— Caroline Kaurila



# Preparing to publish

Ten researchers from Papua New Guinea's Divine Word University, Pacific Adventist University and the PNG National Department of Health are completing a data analysis and scientific publishing workshop in Cairns.

The month-long workshop, hosted by James Cook University and funded by AusAID, was designed to assist the researchers to prepare and present their findings for publication.

The three universities are collaborating on an investigation of male circumcision as a possible way to reduce HIV transmission in Papua New Guinea, which has more than ninety per cent of all the cases of HIV in Oceania.

"Our PNG colleagues have guided the investigation of contemporary and traditional circumcision practices in Papua New Guinea, and whether male circumcision would be an acceptable approach to reducing HIV transmission," JCU researcher Dr David MacLaren said.

The researchers are investigating a number of topics including the different types of circumcision, acceptability of infant and adult circumcision, religious views of male circumcision, and leaders' attitudes towards male circumcision.


"As part of our contribution to the partnership, JCU is running this workshop for researchers who want to boost their success in a critical

part of life as an academic: getting your work published in scholarly journals," Dr MacLaren said.

The workshop has included sessions with JCU and visiting academics.

"Working with statistics is one of the areas the workshop participants wanted to focus on," Divine Word University's Dr Clement Manineng said. "The HIV and male

circumcision study has involved interviews with more than 860 men and 510 women, and has produced a lot of data for analysis."

"Our aim as researchers is to have manuscripts published in this important area," added Mrs Rachael Tommbe from Pacific Adventist University. 



Researchers from Papua New Guinea visiting JCU. Photographer: Sue Wellwood.

Nursing student Jade Walker helped raise funds for a cure and a classmate.



Photographer: Cameron Laird

## Braving the shave

This year students and staff in the School of Nursing, Midwifery and Nutrition had extra motivation to volunteer for the World's Greatest Shave.

Support for the national event surged when Townsville nursing students learnt that a third-year classmate was diagnosed with cancer.

Nursing student Jade Walker was one who went under the clippers.

"This semester, a classmate was told news that no one should ever have to hear, and has a long battle ahead of her," she said.

"For my classmate, for my mum, for the survivors and for those who fought the hardest but are now with God – I shaved my head.

"Thanks to everyone who has donated. We exceeded our target and raised more than \$7,000 for the Leukaemia Foundation and more for our classmate. The support has been fantastic."


The World's Greatest Shave raises funds for the work of the Leukaemia Foundation, which provides free


practical and emotional support to people with blood cancer and their families, as well as investing millions in research.

Since 1998, more than a million people have shaved or coloured their hair, raising over \$120 million for the Foundation.

As part of the fundraising efforts, JCU students also organised a Yellow Shirt Day to raise funds that will go directly to their classmate and her young family.

The Head of the School, Associate Professor Lee Stewart, braved the shave herself, and put out a call across the faculty for support and donations on the day.


"I'm extremely proud of our students who have organised this event," Associate Professor Stewart said. "It's a good cause, and this year it feels even closer to home." 

 [www.leukaemia.org.au](http://www.leukaemia.org.au)

Researchers at JCU's Mosquito Research Facility were excited to welcome Bill and Melinda Gates to the facility during their visit to Cairns late last year.

Mosquitoes reared at the facility by Professor Scott Ritchie and his team are infected with Wolbachia – a natural bacterium that reduces the ability of the mosquito to support and transmit dengue viruses. The mosquitoes are then released in local field trials as part of the Eliminate Dengue Program ([www.eliminatedengue.com](http://www.eliminatedengue.com)).

This wet season Wolbachia-carrying mosquitoes have been released in Machans Beach and Babinda, both communities in far north Queensland.

The Program is funded by the National Institutes of Health through the Grand Challenges in Global Health Initiative of the Bill and Melinda Gates Foundation. 

## Gates visit to the mozzie lab



Lovegreen Photography

Bill and Melinda Gates in the mosquito maternity ward with (from left) Professor Scott Ritchie [JCU], Professor Ary Hoffmann [University of Melbourne] and Professor Scott O'Neill [Monash University].

## Goats get friskier when the days get shorter

So far, the research has found Townsville goats are more sexually active when the days are shorter, with the largest percentage of conceptions occurring in autumn and winter.

"Autumn and winter conception results in spring kidding, when feed supplies and environmental conditions are usually most favourable," Mr Nogueira said.

Mr Nogueira is currently looking at whether high-protein foods could induce sexual activity and


increase the number of ovulations in rangeland goats – goats that have developed in areas that offer natural protection against predators – during the non-breeding season.

"I am using ultrasounds and other tests to measure hormones so I can profile the goats as to their individual ovarian activity," he said.

With \$20,000 in funding from the MLA, a face-to-face survey will also be conducted with farmers from around regional Queensland and New South Wales, collecting

information to help producers with planning and policy development.

"The purpose of the survey is to build a detailed understanding about the goat industry in Australia, to find out the problems or constraints, and to suggest possible strategies to improve productivity and policies," he said.

"When I return home I'm going to adapt the knowledge and techniques from Australia to improve the quality of goat production in the semi-arid region of Brazil." 

Daniel's looking for what gets your goat going.

Having grown up learning about goat production from his father on the family farm in Brazil, Daniel Nogueira will be able to teach his dad a few things when he returns home.

The PhD student is on a four-year Brazilian Agricultural Research Corporation scholarship at JCU in Townsville, studying the interactions between nutrition and reproduction in goats.

According to Meat and Livestock Australia (MLA), Australia is one of the world's largest exporters of goat meat, exporting almost 288 thousand tonnes in 2010.

The research is part of a new project for JCU's School of Veterinary and Biomedical Science, involving the purchase of 50 female goats as well as research materials.



@ iStock



## Learning Curve



Professor Bob Stevenson is making environmental sustainability part of education. Photographer: Romy Siegmann.

### From a high school maths teacher to a leading education academic, Professor Bob Stevenson's career is just where he wants it.

When Professor Stevenson was headhunted to become a tropical leader at James Cook University's Cairns Institute, the environmental education researcher liked the idea of returning to his homeland after a 26-year career in the US.

The more he looked into the proposal, the more excited Professor Stevenson got. This was a dream job with enormous opportunities for collaboration and the opportunity to focus on education research in environmental sustainability.

A tropical research leader in social sciences at The Cairns Institute, Professor Stevenson's research focuses on the relationships between theories, policies and practices in environmental education.

While Professor Stevenson believes Australia is well ahead of most countries in the process of embedding environmental sustainability in the education system, consensus has not been reached on its role within the system.

"There is an ongoing debate about whether environmental sustainability needs to be a separate school subject or should be integrated across areas," he says.

"That is more readily done in primary school so you tend to see a lot more happening at that level, for example the EarthSmart Science program in Queensland.

Another project with Griffith University and the Queensland University of Technology involves working with Education Queensland on whole-school approaches to environmental education.

**“Schools are required to have Environmental Management Plans so we are trying to integrate the management side with the curriculum so the kids are involved in managing the school grounds for diversity.”**

Professor Stevenson says JCU's School of Education is working on embedding environmental and social sustainability in teacher education programs.

"JCU has introduced a subject called Foundations of Sustainability as part of the Bachelor of Education program for primary education, as well as a fourth-year subject, Learning for Sustainable Futures, in which students undertake practical, community-based work.

The School of Education has identified education for environmental and social sustainability, which includes social justice and Indigenous perspectives, as a focus for teaching and research.

"It's building on JCU's strengths - JCU is the second most cited institution in the world for publications on climate change research, and that's amazing given the size of this place.

"JCU researchers have been focusing on the impact of climate change on the coral reefs and the rainforest, so now there's a concentrated effort to build up research on the human impact and human responses to climate change. Scientists here have been receptive to recognising that this work must be across multiple disciplinary areas and I think JCU is going to make a mark in this area."

Professor Stevenson was the 2010 winner of the North American Association of Environmental Education Award for Outstanding Contributions to Research in Environmental Education. ①

— Liz Inglis

### Disaster Recovery

Professor Stevenson is working with colleagues in the Schools of Education and Earth and Environmental Sciences on a study of recovery from disaster experience, funded by the Department of Climate Change.

The study examines how experiencing a natural disaster can affect perceptions of climate change risk. The study involves a comparison across four different types of disasters - Cyclone Larry in Innisfail, the 2009 Ingham floods, and bushfires and drought in Victoria. The two-year study will develop a model to predict responses to different disasters.

## The painted body

Anatomical body painting was on the agenda when 40 JCU medical students, many of them currently on clinical placements across northern Australia, converged on Cairns for two days of anatomy workshops.

The workshops, which showcased some of JCU's more innovative ways of teaching anatomy, were an initiative of the JCU Medical Students Association and its newest club - The Anatomy Society.

"The Anatomy Society is devoted to promoting the study of anatomy," organiser and medical student Andrew Hattam said.

"We've been motivated by the national concern about the lack of anatomy teaching in some medical

courses, and by our appreciation of the excellent opportunities we have at JCU to study what we know is a cornerstone subject for us."

The two-day workshop included classes with JCU staff as well as local surgeons and specialists.

The students used MRI and CT scan simulators, practised plastering techniques, examined normal and pathological anatomy, and discussed surgical techniques with local surgeons.

"We were overwhelmed by the support from local professionals, as well as the enthusiasm from the students, some of whom travelled from the Northern Territory to attend," Mr Hattam said.

"Anatomy is all about imprinting the detail of the human body on to



our long-term memory," Mr Hattam said. "As future doctors we know how important that is."

The workshop and launch were sponsored by Toshiba, McGraw Hill, Smith & Nephew, Investec and JCU's School of Medicine and Dentistry. ①

Who knew lungs could be so ticklish? Dentistry student Olivia Haselton helps classmate Matthew Moore brush up on his anatomy. Photographer: Anna Rogers.



Researching the carbon tax: Associate Professor Justin Dabner.

## Japan posting

Justin Dabner, a specialist in international comparative taxation law, has been appointed as the University of Tokyo's Visiting Professor in Australian Studies for 2012-2013.

Associate Professor Dabner, a member of JCU's Law School, is the first Australian legal academic to be appointed to the position, which he will take up in October.

"I am very excited by the appointment, and it will be a tremendous challenge to teach Japanese students about Australian culture from a legal perspective," he said.

During his tenure he will be

undertaking research on the lessons to be drawn from the introduction of the carbon tax in Australia.

"The Japanese climate change policy was predicated on nuclear energy and a carbon tax to be introduced in 2011," he said.

"However the tsunami, the subsequent nuclear disaster and the associated economic downturn changed all that, and introduction

of the carbon tax has been deferred.

"The Japanese Government is likely to be very interested in how the new tax plays out in Australia."

Associate Professor Dabner will devise and teach undergraduate and postgraduate subjects exploring Australian society and culture.

He also plans to take the opportunity to visit Japanese Law Schools to speak on developments in Australian legal education.

"Earlier this decade the Japanese undertook substantial reforms to their legal education model. It seems still to be a work in progress, so developments in Australia are of great interest," he said.

Associate Professor Dabner is no stranger to Japan, having visited there many times during the last decade, including a secondment to the Tax Policy Institute at Kansai University in Osaka.

The Visiting Professor in Australian Studies at the University of Tokyo is supported by the Australia-Japan Foundation [AJF], a non-statutory, bilateral foundation in the Department of Foreign Affairs and Trade, which aims to strengthen Australia-Japan relations. ①



# A call to end violence

Lateral violence or internalised colonialism was the central theme of the 2011 Mabo Lecture, presented by Aboriginal and Torres Strait Islander Social Justice Commissioner Mick Gooda.

Mr Gooda defined lateral violence as “organised, harmful behaviours that we do to each other collectively as part of an oppressed group, within our families, within our organisations and within our communities”.

Mr Gooda’s presentation was titled: *Strengthening our relationships over lands, territories and resources: the United Nations Declaration on the Rights of Indigenous Peoples*.

“Internalised colonialism is the expression of rage and anger, fear and terror, that is vented upon those closest to us when we are being oppressed,” he said.

Mr Gooda said he had been heartened by the support he had received from communities keen to confront this brand of violence.

“Aboriginal and Torres Strait Islander people across the country have told me that bullying, gossiping, jealousy and family feuding are critical issues within their communities,” Mr Gooda said.

**“There’s no excuse for this,” he said. “We must have a zero tolerance policy for any type of abuse.”**

The annual Mabo Lecture honours the life and work of Eddie Koiki Mabo and is hosted each year by JCU’s Faculty of Arts, Education and Social Sciences.

“The Mabo lecture is an important celebration for us. It commemorates Eddie Koiki Mabo’s victory and it signals the University’s commitment to social justice,” Professor Nola Alloway, the Faculty’s Pro Vice-Chancellor said.

While working as a gardener at JCU’s Townsville campus, Mr Mabo attended lectures, gave lectures, and spent many hours in the University library, which is now named after him.

At a land rights conference at JCU in 1981 Mr Mabo spelt out what land inheritance meant to him, inspiring a long battle for the recognition of native title. [i](#)



Aboriginal and Torres Strait Islander Social Justice Commissioner Mick Gooda before presenting the Mabo Lecture. Photographer: Sue Wellwood.



## Mud, sweat and gears

**Registrations are now open for the seven-day Cairns to Karumba bike ride.**

JCU is a proud sponsor of this ride, which began as a fundraiser for the Cairns School of Distance Education and now focuses on projects that benefit children in remote communities.

In 2011, riders raised \$50,000: \$30,000 for the Cairns School of Distance Education; \$2500 for each school in Mt Garnet, Mt Surprise, Georgetown, Croydon, Normanton and Karumba; and \$5000 for the Far North Queensland Hospital Foundation.

The goal this year is to raise \$60,000.

The 780km ride travels west across the base of Cape York Peninsula, from the rainforest to the savannah and on to the Gulf of Carpentaria.

**It will depart Cairns on Sunday June 24 and arrive in Karumba on Saturday July 30.**

A parallel Dirt Ride caters for experienced mountain bikers who want to get even further off the beaten track.

Whichever way you do it, this is a chance to set yourself a challenge, raise money for bush kids and pedal across some spectacular country.

Riders of all levels of fitness are welcome, and there are also roles for non-cycling volunteers. [i](#)

[www.ridefnq.com](http://www.ridefnq.com)



Ricky Beresford at work at Djumbunji Press. Photographer: David Campbell.

## Graduate update: Ricky Beresford

Ricky Beresford completed his Bachelor of Creative Industries with Honours in Cairns in 2011. He is now teaching painting techniques at James Cook University, working with KickArts Contemporary Arts Djumbunji Press teaching workshops

at Yarrabah, and working for Education Queensland teaching art and maths at Yarrabah.

“In between I try to produce my own work which mostly involves painting and drawing,” Ricky said.

**“I work with wood, using the grain and knobs to generate imagery which mostly has an element of the female form and is unconsciously driven at first.”**

Ricky’s technique happened by chance when he couldn’t afford to buy canvas for his painting so started working on plywood which had been thrown away.

“Initially I treated it as I would a canvas by washing it and painting it white before I started,” he said.

“However, I made a mistake, so I sanded it back and as I did the grain and knots came through and talked to me. I saw imagery evolve as I was working on it.”

Ricky’s work is not speaking just to him, but to a wider audience with three solo exhibitions held during the past 18 months with the most prestigious being *Strangely Familiar* at the Cairns Regional Gallery as part of the emerging artists’ program.

The past 18 months have been very productive for Ricky and his focus should continue now he has acquired studio space at Cairns artist-run art space crate59. Ricky has more exhibitions on the horizon, including a group showing in Melbourne, which he is currently working on. [i](#)

## Alliance to nurture Indigenous art

**As the inaugural manager of the Indigenous Art Centres Alliance, Pam Bigelow has hit the ground running with an agenda to help art centres develop professionally and commercially.**

The sole decoration in Pam’s office is a striking Tiwi Island wall hanging. Purchased 25 years ago, it is an apt reminder of the passion for Indigenous art which led to her new role overseeing Queensland’s peak Indigenous art body.

“Indigenous art has played a large part in my career dating back 25 years to when I was involved in public education in National Parks in the Northern Territory,” Ms Bigelow said.

“You can’t get involved with Indigenous people without getting involved in their art.”

Previously the Manager of the Indigenous Lead Centre at TAFE Queensland, Ms Bigelow will be supporting northern Queensland’s 12 Indigenous art centres which are full members of the Alliance, and its three associate members.

She is based at James Cook University in Cairns as part of a partnership between the Alliance and The Cairns Institute.

Director of The Cairns Institute, Professor Hurriyet Babacan, said the partnership promised to be an exciting and mutually beneficial one.

“The Cairns Institute is thrilled to be working with the Alliance as it will play a significant role in the development of creative industries for Indigenous people,” she said.

Arts Queensland provided \$100,000, matching the Federal Office for the Arts’ funding and enabling a manager to be appointed so the Alliance could begin working with the art centres in 2012.

Alliance Chairman Solomon Booth thanked Arts Queensland and the Commonwealth Government Office for the Arts for their support.

“The Board looks forward to working alongside JCU to help improve opportunities for artistic expression for Indigenous people living in remote regions,” he said. [i](#)



Artist Leonard Andy discusses a painting with Pam Bigelow at Giringun Aboriginal Art Centre. Photographer: Valerie Keenan



In their footsteps



Historian Dave Phoenix and his dog Cooper on their way to the Gulf of Carpentaria

JCU postgraduate research student, Dave Phoenix, was so fascinated by Australian exploration history, and particularly the story of explorers Burke and Wills, that he decided to follow their footsteps.

150 years after the two explorers set out on their mission, Dave spent 114 days walking the 3750 kilometres from Melbourne in the south to the Gulf of Carpentaria in the north.



Dave Phoenix walked for 114 days, following the trail of Burke and Wills.

Now he wants others to do the same.

To encourage today's explorers to follow the trail, not on foot but by car, he has produced the first in a series of three travel guides, mapping the route taken by Burke and Wills and detailing the places they camped along the way.

The guides include GPS readings to help you find significant places in the landscape, and historical information to bring alive every stage of this ill-fated trek.

The first guide covers the beginning from Melbourne to Swan Hill. The second will go as far as Innamincka in South Australia and the third will complete the journey to the Gulf.

Following Burke and Wills across Victoria: a touring guide

Dave Phoenix

www.burkeandwills.net.au

ISBN: 9780646564197



© Kerrie Kerr, iStock

On holidays

Studying what today's tourists do and what they experience is the basis of *Tourist Behaviour and the Contemporary World* by Foundation Professor of Tourism at James Cook University, Philip Pearce.

The book seeks to review and stimulate interest in how and why tourists choose to travel. Many issues related to contemporary tourist behaviour are addressed and glimpses provided of what fascinates people about travel, what motivates them to travel, and how they deal with new experiences.

Topics include tourist scams, crimes against tourists, safety and personal responsibility, personal growth, individual perspectives on sustainability, tourists connecting to others, health

challenges, altruism and how new technologies can influence a traveller's behaviour and experience.

Study of what tourists do and how they experience the world could help plan and manage better experiences and might in time reduce negative outcomes, Professor Pearce said.

"Not all tourists have the chance to travel in ways which can deepen friendships but nearly all can gain attachment and build a sense of care for places apart from their home regions," he said.

Tourist Behaviour and the Contemporary World

Philip L Pearce

Channel View Publications

ISBN: 9781845412210

Sweet stories

Global industry, local innovation: The history of cane sugar production in Australia 1820 – 1995 is the first comprehensive history of the Australian sugar industry.

Written by James Cook University historical geographer Dr Peter Griggs, the book follows Australia's sugar industry as it spread along the northeast coast in the late nineteenth century and grew into a global industry, with Australia now the world's second largest exporter of raw sugar, after Brazil.

It includes chapters on the refining and milling sectors, cultivation methods, breeding and improving cane varieties, combating pests and

diseases, and the harvesting and transport of cane.

By the 1920s, Australia's sugar industry was unique in the world, being structured around central mills supplied with cane grown on small, family-owned farms.

Australia's sugar industry became one of most regulated in the world until deregulation in the 1980s and 1990s. Government regulations once excluded sugar imports into Australia and controlled the price of sugar in this country and the amount of sugar produced at each sugar mill.

The book documents the early decades of sugar-related pollution

that saw many east-coast watercourses become 'rivers of refuse', carrying untreated waste and molasses discharged by local sugar mills.

It was not until the late twentieth century that much care or research was devoted to reducing the environmental impact sugar production was having on the environment of coastal north-east Australia.

Global industry, local innovation: The history of cane sugar production in Australia, 1820-1995

Peter D Griggs,

Peter Lang AG

ISBN 978-3-0343-0431-3

Dr Peter Griggs. Photographer: Sue Wellwood.



**AUSTRALIAN FESTIVAL OF CHAMBER MUSIC**  
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27 JULY - 4 AUGUST 2012  
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3pm, Sunday 5th August  
Cairns Civic Theatre

10am, Monday 6th August  
Whitfield House  
Concert Conversations with Piers Lane

TICKETS ON SALE TUESDAY 10 APRIL 2012

Tickets also available through Ticket Link at www.ticketlink.com.au, by phone on 1300 855 835, or in person at the Cairns Civic Theatre.

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The calendar

Mid-Year Information Evening – Cairns

Details: Learn about JCU courses  
Date: Tuesday 8 May  
Time: 5.30pm  
Location: Hilton Cairns Hotel  
Admission: Free  
Contact: 1800 246 446

Jocelyn Wale Seminar-Townsville

Details: Professor Grace Petty on 'The Dollars and Sense of Place – Psychological Understandings of Land Development Angst'  
Date: Friday 11 May  
Time: 4pm  
Location: DB 040-103, Townsville.  
Video linked to Cairns A21.002 and Singapore D 01.02  
Admission: Free  
Contact: (07)4781 4872

Mid-Year Course Information Evening – Townsville

Details: Learn about JCU courses  
Date: Tuesday 15 May  
Time: 5.30pm  
Location: Townsville Civic Theatre  
Admission: Free  
Contact: 1800 246 446

Faculty of Science and Engineering Public Lecture series – Townsville

Details: Professor Joe Holtum presents 'We are the guests of green plants'

Date: Thursday 17 May  
Time: Drinks and nibbles 5.30pm – 6pm. Presentation 6pm – 7pm  
Location: Central Lecture Theatre  
Admission: Free  
Contact: (07) 4781 6823

Mid-Year Information Evening – Rockhampton

Details: Learn about JCU courses  
Date: Tuesday 29 May  
Time: 5.30pm  
Location: Travelodge, Rockhampton  
Admission: Free  
Contact: Nancy Edwards (07) 4885 7127 nancy.edwards@jcu.edu.au

Mid-Year Information Evening – Mackay

Details: Learn about JCU courses  
Date: Wednesday 30 May  
Time: 5.30pm  
Location: Windmill Hotel Mackay  
Admission: Free  
Contact: Nancy Edwards (07) 4885 7127 nancy.edwards@jcu.edu.au

Public lecture – The Noblest Challenge to Science - Townsville

Details: Associate Professor Wayne Orchiston presents a lecture about Captain Cook, the Transit of Venus and the exploration of Nth Queensland  
Date: Wednesday 30 May  
Time: 6pm for 6.30 – 7.30pm  
Location: JCU Townsville  
Admission: Free  
Contact: (07) 4781 6259 or julia.nielsen1@jcu.edu.au

Public lecture – The Noblest Challenge to Science - Cairns

Details: Associate Professor Wayne Orchiston presents a lecture about Captain Cook, the Transit of Venus and the exploration of Nth Queensland  
Date: Thursday 31 May  
Time: 1pm  
Location: Sir Robert Norman building, Cairns  
Admission: Free  
Contact: (07) 4042 1808

AFTI seminar – Cairns

Details: Jan Goldberg presents Ghost Nets in Remote North Australia – Engaging Communities; Seeking Solutions  
Date: Thursday 31 May  
Time: 1pm  
Location: Sir Robert Norman building, Cairns  
Admission: Free  
Contact: (07) 4042 1808

Public lecture – The Noblest Challenge to Science – Cairns

Details: Associate Professor Wayne Orchiston presents a lecture about Captain Cook, the Transit of Venus and the exploration of Nth Queensland  
Date: Friday 1 June  
Time: 6pm for 6.30 – 7.30pm  
Location: JCU Cairns  
Admission: Free  
Contact: (07) 4781 6259 or julia.nielsen1@jcu.edu.au

Mabo Celebration – Townsville

Date: Sunday 3 June  
Time: TBA  
Contact: (07) 4781 6259 or julia.nielsen1@jcu.edu.au

International Women's Conference 2012 – Cairns

Details: Connecting for Action in the Asia-Pacific Region  
Date: 14 – 15 June  
Time: 9am  
Location: Pacific International Hotel, Cairns  
Admission: Early Bird \$490. Standard [after 30 April] \$590

Contact: (07) 4042 1887or cairnsinstitute@jcu.edu.au

Faculty of Science and Engineering Public Lecture series – Townsville

Details: Professor Lucy Wyatt on 'Using radar to measure the sea surface: Methods and applications'.  
Date: Thursday 21 June  
Time: 5.30pm – 6pm drinks and nibbles. Presentation 6pm – 7pm  
Location: Sir George Kneipp Auditorium  
Admission: Free  
Contact: (07) 4781 6823

Plant Identification – Introductory workshop – Cairns

Details: A three day short course presented by the Australian Tropical Herbarium  
Date: Tuesday 3 July – Thursday 5 July  
Time: 9am  
Location: Cairns  
Contact: (07) 4042 1837  
Admission: \$495

International Coral Reef Symposium

Details: JCU will host the 12th ICRS Conference – the world's largest and premier forum for the dissemination and discussion of coral reef science, management and conservation  
Date: 9-13 July  
Location: Cairns Convention Centre  
Contact: (07) 4781 4222

www.jcu.edu.au/events/





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[sustainability.jcu.edu.au](http://sustainability.jcu.edu.au)

\*Excellence in Research for Australia, ARC, 2011

\*Essential Science Indicators, Thomson Reuters, 2011