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AMY KIMBER
Amy Kimber is the Communications Coordinator for the Northern Australia hub of the National Environmental Research Program. The hub’s goal is to improve biodiversity conservation across Australia’s wet-dry tropics. In this edition, Amy examines the largest freshwater fish in the world, the critically endangered largetooth sawfish.

LOUISE ERRINGTON
Media Officer Louise Errington, in her first edition as an Origins writer, reveals how maps can help reduce West Timor’s very high number of maternal and neonatal deaths, and takes a walk on the wild side with Conservation and Land Management students in the Top End.

LEANNE COLEMAN
In this edition, science communicator and staff writer Leanne Coleman looks into some cutting-edge research dedicated to solving corrosion-related damage that costs industry trillions of dollars annually worldwide. She also talks to a team of linguists who use modern technology to throw a lifeline to endangered Indigenous literature, ensuring its preservation for future generations. This is Leanne’s sixth edition writing for Origins.

PATRICK NELSON
Based at the Alice Springs campus, staff writer Patrick Nelson has been writing about Territorians, telling their stories and taking their photos for the past 30 years. In this edition, Patrick explores cookery lecturer Ingolf Eigenwillig’s “Outback classroom”, and catches up with mature-age law student Ken Lechleitner for a chat about his learning journey and ambitions.
The pioneering spirit that inspired and delivered a stand-alone university to the remote Northern Territory community almost 25 years ago continues to be reflected in the work on our campuses today. Now that its roots are planted firmly in the ancient soils of the Territory, the university is even more focused on working with business, government and communities to advance our region. The results are quite remarkable.

Since the last edition of Origins, the university has opened the North Australian Centre for Oil and Gas (NACOG), which is located on Casuarina campus. The $7 million centre houses facilities for research and training for the Northern Territory’s burgeoning oil and gas industry. Much of CDU’s development is the result of partnerships, and this building is no exception. NACOG was built with support from the NT Government and the oil and gas industry through INPEX, Total and other participants in the Ichthys LNG Project Joint Venture.

The facility signals a new phase in the development of the university by enabling us to expand our education, training and research capabilities. It also means that we are at the forefront of developing a locally based workforce for the Territory’s resources sector. We are also researching some of the complex problems experienced by the oil and gas industry.

And just a few months ago, we welcomed Prime Minister Julia Gillard on to Casuarina campus to open the $30 million Australian Centre for Indigenous Knowledges and Education. This spectacular complex is a collaborative venture between CDU and the Batchelor Institute for Indigenous Tertiary Education, and focuses on diversifying and broadening access to higher education for Indigenous people. It is the largest building of its type in an Australian university and was built with the support of the Australian Government.

You will read about both these ventures in this edition of Origins. You also will discover how CDU researchers are using mapping techniques to reduce maternal mortality in West Timor; the lifeline that is being extended to endangered Indigenous literature through a living archive project; and the intriguing findings about river sharks and the sawfish.

I hope you enjoy this taste of CDU.
Charles Darwin University and the Mawul Rom Board have signed a historic agreement that brings together and recognises Madayin Law of the Dhurili Nation in East Arnhem Land and Australian Law.

The agreement follows a decade of detailed negotiations between the Yolngu peoples of East Arnhem Land and senior academics at CDU.

The agreement formally underpins the University’s partnership with the Mawul Rom Board in the delivery of a Masters of Indigenous Knowledges (Mawul Rom).

The program involves cross-cultural education and training in dispute and conflict resolution, and decision-making and leadership utilising Indigenous traditional and non-Indigenous ways of learning.

Already, the program boasts more than 20 graduates, and more than 100 students are enrolled this year. The graduates will be well placed to become accredited mediators and leaders in cross-cultural contexts.

Legal studies in the Northern Territory has reached a milestone with the appointment of a new Head of Law at CDU and the development of a stand-alone School of Law.

After several years abroad, Professor Ned Aughterson has returned to the Territory to take the helm of the School of Law.

Professor Aughterson brings to the position 30 years’ experience as a scholar, academic and practising lawyer.

As the Foundation Dean of Law at the Northern Territory University from 1990 to 1996, he was responsible for setting up the NT’s first law faculty before it transitioned to CDU.

Taking back the reins as Head of Law at CDU, Professor Aughterson said the newly formed School would focus on broadening the learning experience of students.

“There is a shift towards the globalisation of legal education, so that lawyers are comfortable in operating on the international stage and across jurisdictions,” he said. “But in the Northern Territory we should also look to enhancing understanding of traditional Indigenous law.”

The $7 million North Australian Centre for Oil and Gas (NACOG), a research and training facility for the Northern Territory’s burgeoning oil and gas industry, is operating on Casuarina campus.

Opened by the former NT Chief Minister Terry Mills, the cutting-edge facility was built with support from the NT Government, INPEX, Total and other participants in the Ichthys LNG Project Joint Venture.

NACOG houses teaching and training facilities for both VET and Higher Education.

It will encourage more students to consider careers in the resources sector and will help to expand the local workforce.

The centre also boosts the university’s research capabilities with two laboratories for conducting solution-oriented research and consultancy for the oil and gas industry.

The Multiphase Flow Laboratory houses a PVT cell, and places CDU at the forefront of research into CO2 mitigation during oil and gas production and power generation.

The second laboratory houses material and testing equipment for research into prevention and control issues facing the oil and gas industry in Northern Australia with industry partners Incospec and Associates.
A 50-kg Flatback Turtle rehabilitated at CDU’s Aquaculture Centre has been released into the wild, fitted with a satellite transmitter to monitor its progress.

The turtle, thought to be more than 20 years old, was given a new lease on life with the help of the ARK Animal Hospital and was released by Department of Land and Resource Management on a high tide at Lee Point in Darwin.

A concerned member of the public rescued the Flatback Turtle from Cape Hotham late last year where it was found “floating”, a term describing a build-up of air or gas that prevents the animal from diving to feed.

Aquaculture technician Kathy Kellam said the turtle was one of several being rehabilitated at the Aquaculture Centre.

“The turtles rescued are diagnosed and treated by staff at the ARK Animal Hospital before being moved to big saltwater tanks at CDU for rehabilitation,” Ms Kellam said.

“The saltwater tanks at our facility enable the turtles to readjust to the saltwater environment, assisting with final recovery, and improve their condition to get them ready for release.”

To check the turtle’s progress, a satellite transmitter has been fitted to it by Kiki Dethmers, a marine biodiversity Research Fellow working with the North Australian Marine Research Alliance.

The transmitter provides valuable data to contribute towards conservation efforts.

A new capacity development project will assist Papua New Guinean women who work in agriculture to develop their leadership skills and knowledge to improve food security.

The collaborative project is supported by a $500,000 grant from AusAID and is being coordinated by trainers from CDU, alongside the National Agricultural Research Institute and the PNG Women in Agriculture for Development Foundation.

Horticulture lecturer Tania Paul said more than 85 per cent of food in PNG was grown by women, who played a key role in improving food security for their families and communities.

“PNG has many talented women in the agricultural public sector who are delivering improvements in agriculture, but often lack resources and opportunities to develop skills in leadership and decision-making,” Ms Paul said.

“The aim of the project is to run workshops to provide professional and personal development opportunities for women in leadership and decision-making roles in the agricultural sector.

Horticulture lecturer Tania Paul is working to assist women in Papua New Guinea to develop their leadership skills to improve food security.

“Lifting the leadership capacity of women in key roles will help improve food security on a wide scale, and in the long-term influence policy and funding decisions for the benefit of women,” she said.

Work is under way on a state-of-the-art VET training facility on Casuarina campus after the Federal Government awarded it more than $21 million to build the complex.

The training facility will house plumbing, electrotechnology, instrumentation, refrigeration, oil and gas industry operations, and in the future, environmental trades.

It will allow CDU to further develop new and existing programs in trade areas and is expected to produce an extra 750 VET graduates a year at Certificate III level and above.

The project will provide targeted pathways and educational support for Aboriginal and Torres Strait Islander people, recent migrants and refugees in skills relevant to the liquefied natural gas, energy and resources, and personal services sectors.

The complex will be completed in 2014.
Looking towards the central ceremonial space, which is bordered by water features.
The world’s oldest living culture and 21st Century technology and design have come together in a spectacular $30 million complex that will be at the centre of Indigenous education and research in Australia.

The Australian Centre for Indigenous Knowledges and Education (ACIKE), which was opened recently by Prime Minister Julia Gillard, is a collaboration between two Northern Territory institutions at the forefront of Indigenous education: Charles Darwin University and the Batchelor Institute of Indigenous Tertiary Education.

ACIKE has a mandate to diversify and broaden Indigenous people’s participation in higher education, policy development, employment, wealth generation and business development.

Located at CDU’s Casuarina campus on Darwin’s northern beaches, ACIKE is the largest building of its type in any university in the country. Its teaching and research program is multidisciplinary and includes fields of Indigenous knowledges and other general disciplines such as nursing, education and arts at both undergraduate and postgraduate levels.

The celebrations to mark the opening of ACIKE spanned a week and included the two-day Charles Darwin Symposium 2013 entitled “Indigenous Knowledges In a Changing World”. The Symposium included a community showcase of business enterprises that are growing from traditional knowledge systems, and a day of discussion and presentations involving Indigenous academics from Australia and New Zealand, and Indigenous elders.

Part of the $30 million Australian Centre for Indigenous Knowledges and Education on Casuarina campus.
An orchid (Dendrobium affine) growing on a cycad (Cycas armstrogii) is a rare sight, something that can occur only in areas that have remained unburnt for a long time.

Only a juvenile, this orb-weaving spider (Araneomorph) has spun a fine-meshed web that is difficult for its prey to spot and it lies in wait in the lacelike, innermost wheel to disguise itself.

Vocational Education and Training lecturers ANDREW SPIERS and SAMANTHA SAYNOR lead a group of Conservation and Land Management students on an annual four-week biodiversity study in the Territory Wildlife Park collecting research information.

TEXT
Louise Errington

IMAGES
Fiona Morrison
It is 5.15 am and a busload of bleary-eyed CDU students has just arrived at the Territory Wildlife Park. At this time of day, there are no excited tourists, the sky is dark, the temperature a balmy 26ºC, and the only sound comes from treading on damp leaves.

This is a classroom with a difference. Vocational Education and Training lecturers Andrew Spiers and Samantha Saynor are leading a group of Certificate IV and Diploma Conservation and Land Management students on a four-week biodiversity study in the park.

“It’s the best time of the day for checking our mammal traps,” Mr Spiers said. Throughout the morning, spirited bursts of chatter erupt out of the bushland, signalling a thrilling new discovery.

“The most exciting find last night was a sugar glider. We don’t see many because they often lose their habitats to fire. They are reliant on hollows, which are easily burnt,” Mr Spiers said. “Today we found a juvenile frill-necked lizard. You don’t see them around here very often since the cane toads arrived.”

Aside from being one of the Top End’s most popular tourist attractions, the 400-hectare Territory Wildlife Park is a research and education hub. It is the perfect venue where the next crop of conservation scientists and researchers can hone their skills.

Each year’s class combs the same 30.9-hectare area of eucalypt forest to collect baseline data. This vital information allows Territory Wildlife Park management to conduct comparative studies a few years down the track to understand any changes in biodiversity among small mammals, reptiles, invertebrates, amphibians and birds that make their way into the enclosures, as well as flora that occur naturally in the area.

In collecting the data, students gain hands-on experience with camera and live-animal trapping, identifying plant and animal species, navigation, spotlighting, and litter searches, resulting in a Biological Survey Report and Management Plan.

“We want our students to do real projects and produce real reports for real clients,” Mr Spiers said. “They have to work in teams and find ways of getting on with one another and make the best use of the talents in the group. In the professional world, you always work in a group to do biosurveys and management plans. Our students get a taste of this and are assessed on how well they perform in a team situation.”

Artistic/Narrative Coordinator at the Territory Wildlife Park, Jasmine Jan praised the relationship between the Park and CDU that produces graduates with real industry expertise.

“The CDU students have access to Park staff with diverse backgrounds, who can teach them correct and safe animal handling techniques, as well as identification techniques that are used in real field situations,” she said.

The pre-dawn start at the Park might be a test for some of the students, but it is a cracking way to gain an advantage in launching a career working with wildlife.

We want our students to do real projects and produce real reports for real clients.
After 15 years of working in social welfare, Susan Foster needed some time out and moved into a caretaking job at a large property near Darwin River in the NT. The land-management units at CDU, which she undertook to become a more skilled manager of the property, ignited a deep interest in the discipline. She soon decided to continue studying at diploma level.

A keen photographer, Susan has always used plants as subjects. So it was a natural progression that she readily volunteered to join the team responsible for the botanical biodiversity survey, which is part of the overarching report and land management plan for the Territory Wildlife Park.

“Throughout my studies I was able to combine my two passions: botany and photography,” Susan said. “You need to include high-quality photographs in management plans for species identification and to understand any changes in biodiversity over time. Photography is a very powerful tool in speaking on behalf of the environment.”

Following the training pathway, Susan enrolled in CDU’s Bachelor of Environmental Science. “I don’t see myself as a traditional ranger – lighting fires, poisoning weeds and chasing pigs. “When I graduate, I’d like to be able to combine photography and environmental science to create interpretive displays in parks and reserves, as well as provide publication and media support. I hope I can play a role in communicating the importance of the natural environment and saving what we have.”

Plant biodiversity studies are a key component of the students’ work at the Territory Wildlife Park. Through their meticulous measurements and species identification, they have discovered a small pocket of cycad and stringybark forest that has been spared from the ravages of fire and cyclones for decades, seeing it classed as old growth forest.

Lecturer Andrew Spiers could not be happier. “This is an incredible find for a place like Darwin, where everything is so transient and seemingly temporary because of our harsh weather conditions. We are hoping to find out what our woodland should consist of, and how to keep it that way,” he said.

ROOKIES MAKE ANCIENT DISCOVERY

When dealing with one of the most feisty of rodents, correct technique can save the handler from the powerful teeth of the Black-footed Tree Rat (Mesembriomys gouldii).

A Black-footed Tree Rat in a captive program is weighed to track its development.

The Black-footed Tree Rat is sedated under the supervision of a veterinarian.

Former Conservation and Land Management student Susan Foster is shown correct animal handling techniques by lecturer Andrew Spiers.

ROOKIES MAKE ANCIENT DISCOVERY

Lecturer in Conservation and Land Management, Andrew Spiers leads Certificate IV and Diploma students on their journey to becoming the NT’s next crop of wildlife warriors.
Outback chef’s recipe for success

The harsh Central Australian Outback has been kind to the highly skilled pastry chef and CDU commercial cookery lecturer INGOLF EIGENWILLIG.

Ingolf Eigenwillig has one of the biggest “offices” in the Northern Territory. While his desk is located next to the Desert Lantern training restaurant on the Alice Springs campus, his workplace extends 500 km north to Tennant Creek and nearly as far to Yulara in the south-west.

It contrasts with the strict confines of his native East Germany, from where the young Ingolf and his parents escaped on 12 August 1961, just one day before construction began on the infamous Berlin Wall.

After some time “as a refugee in [my] own country”, the family settled in southern Germany where Ingolf followed in the footsteps of both sides of his family. He recalls, as a child, helping his mother bake cakes and make sweets. “It runs in the family. There are professional cooks and teachers on my father’s side. It’s no surprise that I ended up teaching cookery,” he said.

Now CDU’s Central Australian Commercial Cookery lecturer, Ingolf received superb training in Europe. He completed a three-year apprenticeship as a pastry chef, and worked in West Berlin hotels and in Kaufhaus des Westens (or KaDeWe), continental Europe’s largest upmarket department store, where the sixth floor accommodated an expansive food court.

“It is where you would go to buy anything and everything from around the world. I was one of 55 pastry chefs working there, preparing food for six restaurants, including a very high-class fine-dining silver service restaurant.”

Adventurous by nature, Ingolf and his wife Renate moved to Sydney in 1983, without a word of English between them. The couple soon found themselves in the heart of Australia, where Ingolf began working in the then brand-new Alice Springs Sheraton.

“I Alice is a nice place to live and work. Opportunities have opened up from time to time, which I have grabbed with both hands.”

Ingolf has been the Central Australian Commercial Cookery lecturer for the past decade. He estimates that work has taken him to Uluru 40 times in the past eight years. “Sometimes the driving is tedious, but I always find the landscape to be incredible,” he said, referring to the desert dunes, the blue sky, the age of the geology and the vast distances.
Timor-Leste’s long struggle for independence has been well documented and analysed over the past decade. But one issue that has flown largely under the global radar is the country’s alarming problem with nutrition.

In August 1999, the East Timorese people voted overwhelmingly in favour of independence from Indonesia during a United Nations–sponsored referendum. The lead-up to the polls and its aftermath, however, were marked by widespread violence during which the health system was devastated.

Since becoming an independent nation in May 2002, the government, assisted by a raft of organisations, has faced the enormous challenge of rehabilitating its health sector, virtually from scratch. That assistance has come from far and wide, including from Alice Springs in Central Australia.

Margo Bell, a clinical dietician with Alice Springs Hospital, first worked with East Timorese when a group of Timorese nutritionists visited the hospital recently. She is now one of a growing number of health professionals helping to address the desperate nutrition situation experienced by Australia’s northern neighbour Timor-Leste, located 720 km north west of Darwin.

“To say the country’s nutritional services are in a poor state would be a major understatement,” Ms Bell said. “Malnutrition rates have not improved in the last eight years.”

When a recent visit to Timor-Leste coincided with an in-country component of the Menzies School of Health Research (Menzies) short course entitled “Nutrition and food security – approaches to improving the health of women and children”, Ms Bell and her husband, Clive, leapt at the opportunity to observe the program and visit the national hospital.

“I had always taken a keen interest in Timor-Leste, given the recent political events,” she said. “It just so happened that our visit coincided with the in-country module, and I was invited to attend one of their day sessions.”

The course, supported by AusAID through the Australia Leadership Awards Fellowships program and The Fred Hollows Foundation, was developed by Menzies for nutrition partners working in remote Australian Indigenous communities as well as in Asia and the Pacific region.

Ms Bell said that malnutrition, stunting and wasting among all demographics continued to be a major challenge for the Timor-Leste Ministry of Health. One
out of every three adolescent women in the country was malnourished, while almost one in every five women had anaemia (deficiency of red blood cells). Evidence-based information now indicated that women’s nutritional status has the potential to contribute to a cycle of undernutrition resulting in low birth weight and undernourished children.

As part of her visit to Timor-Leste, Ms Bell toured the national hospital to witness firsthand the challenges that Timorese nutritionists faced on a daily basis. “Staff have to feed in excess of 350 patients with only the very basic in resources available,” she said. “They face an entirely different set of challenges such as ensuring the availability of electricity. They’ve started from such a limited knowledge base with few skills to treat massive amounts of malnutrition.”

But what seems like a hopeless situation is in fact just the opposite. “There is certainly a strong sense of optimism in health professionals in Timor-Leste, which is mirrored through the country’s broader population. They certainly have a long way to go in addressing their malnutrition problems, but they’ve come so far,” Ms Bell said.

She said that a recent visit to Alice Springs Hospital by Timorese hospital nutritionists provided a further opportunity to develop the capacity of the nutritionists to work with families and encourage good health and nutrition practices.

“We placed a particular emphasis on developing an adult malnutrition screening tool outside the use of everyday resources such as scales and other digital devices because these just aren’t available. We also focused on food service and highly nutritional menu planning options using foods easily accessible in Timor-Leste.

“These practical observations and professional placements with Australian hospital dieticians will enhance the ability of the Timorese nutritionists to improve the delivery of health services in hospitals – especially management of severe malnutrition of children – and to improve continuous care, from the hospital to home communities,” she said.

Ms Bell said it would be great to see the Menzies’ short course continue irrespective of the programs being implemented in Timor-Leste. “The aim is to help these senior Timorese nutritionists develop transferable skills, broaden their knowledge, skills and clinical nutrition experience to apply in Timor-Leste settings and to train other Timorese nutritionists,” she said.
Language specialists MICHAEL CHRISTIE and BRIAN DEVLIN are leading a web-based project to breathe life into more than 25 Australian Indigenous languages through a unique living archive of endangered literature.

With many Australian Indigenous languages and literature under threat, a team of dedicated researchers has travelled thousands of kilometres throughout the Northern Territory, working to preserve more than 4000 Indigenous stories.

For thousands of years, traditional stories have been the vehicles through which Indigenous Australians have passed knowledge and language from one generation to the next. Now the internet is providing an interface not only to help Indigenous people preserve some of these stories, but also to provide an educational and research resource for academics and the broader community.

Professor of Education and project leader Michael Christie said that during the era of bilingual education in the NT (1973 to 2000), more than 4000 books, recordings and audiovisual materials in excess of 25 languages were produced in 20 Literature Production Centres.

“Almost 40 years on, much of this literature is endangered and the texts are vulnerable,” Professor Christie said.

As valuable tools chronicling Indigenous cultural heritage, the topics of these stories range from environmental knowledge to traditional practices, oral literature, ethno-botany and history.

“It was part of an international movement to allow children to begin reading and writing in their own languages at school,” Professor Christie said.

“Thousands of books and other school materials were produced in Australian Indigenous languages by Aboriginal people, in collaboration with staff in school bilingual education programs across the NT. Many were traditional elders who were interested in bilingual education because it would allow their children to learn both traditional Indigenous knowledge and mainstream Australian knowledge. Although often illiterate themselves, they were committed to the possibility of preserving their knowledge using whatever tools were available.”

Realising the texts were vulnerable, Professor Christie and CDU Associate Professor in Bilingual Education Brian Devlin set up the “Living Archive of Aboriginal Languages” project, aiming to build a digital archive of endangered literature in collaboration with the language-owning communities. With more than 4000 titles on their list the team, Waymamba Gaykamaŋu, originally from Milingimbi, 440 km east of Darwin, remembers her father telling the story about the Makassan fishermen he met as a boy. As he told it, Waymamba’s father was standing with his uncle fishing off Howard Island, east of Milingimbi. They were approached by a Makassan captain named Gätjin, who gave Waymamba’s father the Makassan name Garra Mäŋalay. “It was the name of a city from far away; maybe from where the Makassan was from,” she said. “He kept that name because it was given to him. He kept it until the day he passed on.”

This story and others told by her father are included in the archive. Waymamba, alongside Professor Michael Christie, formed the first Yolŋu studies group and taught language and culture for more than 20 years at CDU. She is now working with the team to record audio files of her father’s stories in the Gupapuyŋu language to add to the repository.

“The books were compiled in the community schools to help teach the children how to read and write in their own language,” she said. “The community got together and some people told the stories in language, while others recorded them or illustrated them with pictures.

“This archive is very important, not only to Yolŋu Indigenous people, but also the whole Indigenous community, to keep their language and culture strong.”

Eight of her father’s stories, published between the mid-1970s and the late 1980s, will feature in the archive.
Living Archive of Aboriginal Languages

www.cdu.edu.au/laal

Proudly sponsored by Northern Territory Government
A speaker of the Yolŋu language Gunawuli, Associate Professor Brian Devlin has worked in applied linguistics in the NT for more than 30 years. Having been employed in the Indigenous communities of Yirrkala and Galiwin’ku during the bilingual era as a teacher-linguist and school principal, Dr Devlin is a chief investigator of the “Living Archive of Aboriginal Languages” project alongside Professor Michael Christie. He has seized the opportunity to bring these important historical records to life using 21st Century technology.

“Back in the early ’80s, we recorded the stories using typewriters and basic printing equipment,” he said. “This [Living Archive] project provides us with a great opportunity to make the archive as interactive as possible by combining the text and images with sound, so that those using the archive will be able to hear how the words are pronounced in language. Indigenous children will be able to listen to the recording and read along with some of the stories.

“Many of the schools and literacy centres had well-catalogued collections, but we also found books in dusty sheds covered in spider-webs and piled up in wheelie bins,” she said.

“Back in the early ’80s, we recorded the stories using typewriters and basic printing equipment,” he said. “This [Living Archive] project provides us with a great opportunity to make the archive as interactive as possible by combining the text and images with sound, so that those using the archive will be able to hear how the words are pronounced in language. Indigenous children will be able to listen to the recording and read along with some of the stories.

“Many of the schools and literacy centres had well-catalogued collections, but we also found books in dusty sheds covered in spider-webs and piled up in wheelie bins,” she said.

“In some cases there was only a single copy of a book left and a few books had disappeared or been destroyed altogether. Without this digital archive, these stories could have been lost forever.”

Ms Bow said that respecting ownership by seeking permission for digitisation, and building the archive in collaboration with the language-owning communities has enabled the communities to make decisions about sharing their intellectual property. It has also reconnected lost stories and illustrations with the places and people of origin. “We have found family members who had no idea that their father or mother had been involved in the creation of these books, or of the family stories the books told,” she said.

Professor Christie said the website was more than simply a repository of materials to preserve language. It also aimed to engage academics and the wider community. “The web-based archive will enable researchers nationally and internationally to engage with the texts and related resources, and with the original language-owning communities to pursue collaborative and grounded research,” Professor Christie said.

“Australia’s languages have evolved over many thousands of years to enable and enact unique human relationships with the social, cultural, technical and natural worlds. This resource will make publicly available a large archive of previously unavailable resources to support this work.

“As a living archive that will continue to grow, this resource will facilitate connections with knowledge and language owners, most often descendants or relatives of the original storytellers.”

The project was funded through the Australian Research Council and conducted in partnership with the Australian National University and the Northern Territory Government Department of Education and Training.
The largetooth sawfish, the largest freshwater fish in the world, is at risk of extinction. Research Fellow PETER KYNE is working to understand this species before it is too late.

The waterways of Northern Australia are famous for their extraordinary wildlife: crocodiles, iconic migratory birds and unique amphibians, but the region is also the world’s last remaining stronghold for some threatened sharks and rays that live in both fresh and salt water.

The largetooth sawfish is the world’s largest freshwater fish, reaching up to seven metres in length. Of the 321 sharks and rays in Australia, it is one of only five species that venture upstream from the coast into fresh water.

Charles Darwin University Research Fellow Dr Peter Kyne is one of several hundred researchers funded by the Australian Government’s National Environmental Research Program, which aims to improve Australia’s understanding, management and conservation of the country’s unique biodiversity and ecosystems.

Very little is known about the population size and status of sawfish and speartooth sharks, which makes their effective management and conservation problematic. “Both these species are at risk of extinction, and their threatened status requires recovery plans for their protection under the federal Environmental Protection and Biodiversity Conservation Act,” Dr Kyne said.

“Juvenile speartooth sharks seem to be relatively common in protected areas like the rivers of Kakadu National Park, but we know nothing about the adults including where they occur and the threats they face. There is no record of anyone having ever caught or seen an adult speartooth shark.”

Fishing practices incorporating gill nets might hold some clues to the apparent absence of adults. Gill nets hang like a mesh fence in the water, and range in length and mesh size. They are commonly used by commercial fishers because of their effectiveness in snaring commercial fish such as barramundi, usually by the gills once they have passed part way through the mesh. The introduction of gill nets by fishers in the 1960s and 1970s has had a significant impact on sawfishes around the world. The populations of all five sawfish species have crashed globally, and they have become extinct in many countries where they were once described as “common” or “abundant”.

“The toothed edges of sawfish rostrums [snouts] are easily tangled in nets and because they can be difficult to handle, they were often killed instead of released,” Dr Kyne said. “Their fins are also popular in shark fin soup.”

Search for secrets of river sharks and sawfish
Despite the largetooth sawfish being fully protected in Australia, it is still at risk from fishers.

Kakadu National Park has one of the best remaining populations of sawfish and river sharks in Australia. Oliver Scheibe, Chief Ranger for the Park’s South Alligator region, said he has seen sawfish as far inland as Yellow Waters, more than 100 km from the coast.

“People sometimes cut the rostrum off and take it home as a trophy,” Mr Scheibe said. “Some time ago I found a sawfish that still measured six to seven feet without its rostrum.” Rangers and Fisheries Police work together to ensure people are complying with fishing regulations in the park, with penalties for killing, injuring or trading in threatened species ranging up to two years’ jail and $110,000 in fines.

Venturing on to the South Alligator River in Kakadu each month, Dr Kyne’s research team uses a gill net 58 metres long and almost three metres deep in the shallows of river bends where sawfish feed. The net is stretched across the river at various sites upstream of the river mouth for at least four hours at a time. It is set around the incoming and outgoing tides, and checked for catches every half hour.

“When we catch a sawfish or shark, we take a number of measurements, a tissue sample for DNA analysis and we implant a tag, which allows each fish to be individually identified if it is recaptured,” Dr Kyne said. “These recaptures can give us information about the animals’ movements and how they are using the river. The sawfish and sharks are released once we have collected the data.”

Because adult sawfish and speartooth sharks are difficult to capture, the team is taking tissue samples from juvenile species to start to develop a “family tree”, using a technique known as “close-kin” genetics. It is the first time in the world this technique has been used without any data about the adults. This approach will allow the researchers to predict the size of sawfish and speartooth shark populations across Northern Australia. Very little research has been undertaken on freshwater sharks in Northern Australia, and while sawfish have received more attention, there are still many knowledge gaps. A group of Japanese scientists undertook the first intensive study of freshwater sharks and rays in the north as recently as 1989.

For a long time, all sharks in North Australian rivers were thought to be bull sharks until a closer investigation revealed the presence of two other river shark species. Both were given scientific names just four years ago.

“This really serves to underline how poorly we understand the extent of biodiversity in these northern river systems,” Dr Kyne said. “Largetooth sawfish and speartooth sharks are more susceptible to changes in land use than marine species. If they can’t migrate upstream due to reduced river flows, or run-off affects water quality, this could have an impact on their populations.”

The monthly sampling program will help to determine whether existing management strategies are effective and what other management might be needed to ensure the survival of these species. For more information on this project, visit W: nerpmarine.edu.au/sawfish.
The age of Northern Australia’s oil and gas boom

Researcher KRISHNAN KANNOORPATTI, who became an engineer after exploring the profession’s ancient past, is now at the forefront of research into a problem plaguing the oil and gas boom in Northern Australia.

Associate Professor in Engineering Krishnan Kannoorpatti is at the forefront of research into corrosion damage, which is challenging the oil and gas industry.
Passionate about his field of corrosive materials, Associate Professor in Engineering Krishnan Kannoorpatti said he believed it was the understanding of materials that defined civilisations in the past, and defined a country's place in the world today. “Modernisation of society happens when materials are understood,” Mr Kannoorpatti said. “Beginning with the Stone Age, right through until today, the advancement of a civilisation has been defined in history according to the materials utilised.

"It was Sir Henry Bessemer (b. 1813, d. 1898) an English engineer who triggered the Industrial Revolution when he discovered a process to form steel after blowing air into iron. The Bessemer process was then the first process used to manufacture steel on a large scale.”

In light of the burgeoning oil and gas industry in Northern Australia, Mr Kannoorpatti said he hoped that research to better understand corrosive processes of materials would enhance protective solutions, saving companies millions of dollars. “Corrosion-related damage costs the industry between 3 and 5 per cent of GDP, which equates to trillions of dollars each year worldwide. Corrosion is an issue for any industry, but especially for petroleum production and processing operations located offshore or near the coast. But very little research has been undertaken to understand the processes in tropical waters.”

The recently opened North Australian Centre for Oil and Gas (NACOG) on CDU’s Casuarina campus has a focus on corrosion-related issues relevant to the oil and gas industry in tropical environments. The research being conducted by Mr Kannoorpatti and his team through NACOG is the first of its kind in the Northern Territory.

“With higher-than-average temperatures and humidity, Northern Australia’s extreme wet tropical climate makes for a particularly challenging environment,” he said. “We also have very little understanding of the corrosive processes in this environment. With the current oil and gas boom, Darwin is the ideal location to investigate corrosion prevention and control in the wet tropics.”

The research is being supported by the oil and gas industry, with INPEX, Total and other participants in the Ichthys LNG Project Joint Venture and the Northern Territory Government funding the NACOG facility.

Mr Kannoorpatti said he believed that with research many corrosion issues could be prevented or mitigated through appropriate selection of materials and design, material processing, monitoring and control systems.

“At NACOG, alongside industry partner Incospec Global, we have set up a lab to specifically look at corrosion issues to assist operating companies with their maintenance and asset management programs,” he said. “Our research will help industry reduce its maintenance cost and extend the effective life of plant and equipment.”
The CDU team hopes this groundbreaking research will shed light on the underwater lives of microbes, how they attach to certain structures, and why they prefer particular materials.

“When materials are submerged in water, organic matter is absorbed on to the surface,” Mr Kannoorpatti said. “The accumulation of organic matter conditions the surface for the attachment of bacteria and plankton. During the colonisation of the material, bacteria tend to change the surface they are adhering to by secreting a conditioning film composed of exopolysaccarides and other cellular components.

“The biofilm that is formed changes the wettability, surface charges of the substrate and creates conditions suitable for further bacterial accumulation. Microbiologically influenced corrosion is produced when the bacteria processes nutrients for its sustenance.”

Mr Kannoorpatti said that previously, biocorrosion research has focused on sulphate-reducing bacteria because they were identified as the major bacteria associated with MIC. But molecular-based analyses of corrosion biofilms had revealed that a complex bacteria community was associated with MIC.

“This is an exciting area especially when microbes create conditions for corrosion of metals when the material is thought to be immune to the marine environment,” he said. “It is also especially important, because the oil and gas industry produces a number of microbes from the drilling sites in addition to what is found in the marine environments.”

While trying to shed some light on how micro-organisms impact the integrity of materials, Mr Kannoorpatti also will investigate the microstructure of the material, or how a material is made up. Observation of how processing behaviour such as welding and heat treatment affects MIC could provide clues to improving the structure of a material.

“Welding is the main fabrication method used in most industrial structures. Previous research suggests that welds may be more prone to MIC than the base metal. Materials that have sufficient copper and silver are less prone to MIC. We will test the weldments of aluminium and duplex stainless steels that are being used extensively in the infrastructure of the oil and gas industry.”

Manipulation of materials has been used to solve problems since the dawn of man. Manipulating a material’s microstructure may not only improve the integrity of a material but also may create new ways of solving modern day processing issues to improve industrial practices of the future.

“Altering the microstructure through changes in the welding or the alloying process could improve the material’s resistance,” Mr Kannoorpatti said. “Hopefully, in the end, industry will benefit from better application of materials that will result in more optimal designs of structures.”

For the NT, the age of oil and gas is just beginning and Charles Darwin University is at the centre of it.
Dianne McCarthy, 54, has stage-four lung cancer. From her bed in a Northern Territory Palliative Care Unit, she explains that the diagnosis came as a shock. “I was in hospital for something else and they found it in my lungs. That was just a few weeks ago.

“I’ve lived with rheumatoid arthritis since I was 25, so I am used to being sick. But God must be saying my time is up. I’m trying to face it with a peaceful heart. My kids aren’t ready though.” Ms McCarthy’s 20-year-old daughter, Klarissa, sits by her mother’s bedside. She casts her eyes to the floor. “They’ve given us about two months. But they can’t really say for sure.”

Cancer is second only to heart disease in the cause of death in Indigenous Australians. Associate Professor Patricia Valery, of the Menzies School of Health Research, said that while there were no hard facts about when cancer began affecting Aboriginal Australia, scientists linked its increased appearance to improved life span.

“It’s only recently that we’ve learnt about cancer in the Indigenous population, but that’s not because the disease wasn’t there,” Dr Valery said. “Earlier on, people were dying from infectious disease, such as measles, cholera, flu and tuberculosis. As life expectancy improves, we’re starting to see more cancer.” Assessing cancer’s impact among this group has been challenging because cancer registries previously did not identify patients’ ethnic backgrounds.

For the past eight years, Dr Valery and her colleague Associate Professor Gail Garvey have been filling in the blanks. “What really stands out is that the likelihood of an Indigenous person getting cancer is similar or even lower to that of a non-Indigenous Australian. But the mortality rate is significantly higher, more than four times in the case of cervical cancer. There are lots of question marks as to why this is,” Dr Garvey said.

On a wet Brisbane morning, the pair discuss the reasons behind this disadvantage. A key reason, as in Dianne McCarthy’s case, is late diagnosis. Indigenous cancer sufferers often have multiple health issues, making it difficult for GPs to detect the disease in the first place. And as this group is up to 10 times more likely to live remotely than non-Indigenous Australians, access to health care is often difficult.

“Chemotherapy, radiotherapy and surgery are the three most common treatments for cancer. From our research in Queensland we know that Aboriginal and Torres Strait Islander people are less likely to receive these,” Dr Garvey said. “Even just accessing treatment is a challenge.”

The researchers also reported a lack of open discussion and general awareness of cancer in many communities. “There’s no Aboriginal word for cancer,” Dr Garvey said. “They see cancer as death. So it’s not talked about. It’s kept very quiet.”

A review by Dr Sophia Koelever, of James Cook University in Queensland, confirms this assertion. She cited a study of Western Australian Indigenous people interviewed about their attitudes and beliefs towards cancer. Its findings were surprising.

“Many Indigenous people believe cancer is contagious. They attribute cancer to spiritual curses, bad spirits or as punishment from a past misdeed,” she said. “In addition, the Indigenous cancer sufferer may feel ashamed of their ‘wrongdoings’ and hide their symptoms, delaying diagnosis.”

When an Indigenous person developed cancer, it was often one of the more fatal varieties. Dr Valery said this was partly due to lifestyle. Lung and liver cancer featured prominently among the group, which could be linked to smoking, chronic (long-term) infection with hepatitis B virus and high alcohol consumption.
A cancer diagnosis is more likely to kill an Aboriginal person than a non-Aboriginal Australian. Researchers PATRICIA VALERY and GAIL GARVEY are asking “Why?”

According to figures reported by the Cancer Council, Indigenous lung cancer mortality rates here were 3.6 times higher than non-Indigenous rates. With late diagnosis, poor awareness and difficulties surrounding care considered, Drs Garvey and Valery said they believed that one of the keys to turning the high cancer death rates around was focusing on the first year postdiagnosis.

“In that year, Aboriginal people have a 50 per cent higher chance of passing away than a non-Indigenous person. But if they make it through to the second year, survival rates are about the same.”

The key messages, they said, were for patients to take up cancer screening, seek medical help early if they had symptoms, adhere to treatments and attend appointments. More broadly, the researchers said there was a strong need to raise GP awareness and training, and develop large-scale, Indigenous-specific prevention programs surrounding smoking and alcohol intake.

“Until now cancer has not been a high priority on the Indigenous health agenda, despite the number of deaths it brings about,” Dr Garvey said. That fact, however, was changing rapidly. The researchers recently received funding for a Centre for Research Excellence – in cancer and Indigenous peoples.

“This will allow us to bring together key researchers, practitioners, and consumer advocacy groups from across Australia,” Dr Garvey said. Key would be launching the National Indigenous Cancer Network in partnership with the Lowitja Institute, the Australian Indigenous Health InfoNet and Cancer Council Australia. This would ensure research data and cancer knowledge were shared nationally and cancer tackled.

“At present, cancer initiatives and research largely operates with state-based borders. So, we’re trying to share and build upon the activities cancer researchers are doing at a national level,” she said. “We’re aiming to network and work together more closely. That way we can grow from what we already know and get better data about what to do about lowering cancer diagnoses and deaths.”

Drs Garvey and Valery intend to work with partners to ensure the latest, nationally collated information is available to researchers, practitioners and families. The four organisations also would work to develop a strong, forward-looking cancer research strategy.

While the Centre would address all types of cancer, it would also pursue cancer-specific initiatives, such as one that related to cervical cancer: “We’ll conduct Australia’s largest ever data-linkage project – Indigenous or non-Indigenous – linking cervical screening data with hospital data and cancer registry data. This will investigate Indigenous women’s participation in cervical screening, comparing it with non-Indigenous women, and we’ll also examine whether follow-up after an abnormal Pap test result varies by Indigenous status, remoteness of residence, and socioeconomic status,” Dr Garvey said.

As the researchers pack up their documents and prepare to get on with the rest of their day, the rain continues to fall in Queensland. In the NT, Dianne McCarthy grows weaker. While this forward-looking news may be too late for her, Ms McCarthy’s case underlines one of Drs Valery and Garvey’s key messages: the importance of diagnosing cancer early.

As Ms McCarthy said: “I smoked most of my life, but I tell my kids this: quit now. You don’t have to die young.”
When it is time to give birth, women in remote West Timor have two choices: travel for hours to the nearest health-care facility and face up to a week's wait in a *rumah tunggu* (waiting room) until going into labour, or have an untrained village *dukun* (traditional midwife) deliver their baby.

In this part of the world, where the maternal mortality rate is more than 70 times that of Australia, a simple map could help prevent hundreds of tragedies each year.

Research Institute for the Environment and Livelihoods (RIEL) Research Fellow Rohan Fisher has been using Geographic Information Systems (GIS) in West Timor for 10 years in natural resource monitoring and mapping. In 2006, while speaking at a mapping conference at UNDANA University in Kupang, he was approached by a group of delegates from the TTS district health department. The group had a vision of using GIS to overcome the high rates of infant and maternal deaths in their district, but needed help.

"In Australia, we'd use something like Google Maps to construct the maps, but as these systems rely on the internet and are based on roads and transportation routes, they wouldn't be useful in TTS. Here, the people are the poorest of the poor and don't have internet access; there aren't many roads and very few people own a vehicle," Mr Fisher said.

"However, just about everybody has a mobile phone. GIS technology is traditionally expensive and complex, so I developed an approach using free software and straightforward training materials that made health mapping easy to integrate into the daily work of TTS Health Department staff."

The project, funded by AusAID, uses mobile phones with an integrated GPS that runs alongside data collection and GIS mapping software, and allows the TTS Health Department to map health-care facilities to construct models showing vulnerable communities that are remote from health services.

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A Sanitation Officer with the TTS Health Department, Nelson Sula, was one of the delegates who attended the mapping conference in Kupang, and one of the few chosen to participate in the mapping training. Mr Sula travelled to Darwin in 2012 to receive intensive one-on-one coaching, enabling him to return home to provide further training to his colleagues. “We need to continue to put the right tools into the hands of the right people, like Nelson,” Mr Fisher said.

These new-found mapping skills have improved the capacity of the TTS Health Department to submit evidence-based proposals to their district government for improved health service delivery. These appeals have helped create strategies aimed at providing transportation to health facilities for pregnant women, as well as targeting clinics in most need of upgrade to emergency obstetric care facilities.

“CDU’s work has had an influence on the entire TTS district, and this project has shown that GIS is an appropriate technology for improving the delivery of life-saving health services in developing countries,” Mr Fisher said. Through the hard work of local government departments, NGOs and aid agencies, TTS’s maternal mortality rate has almost halved since 2003.

Since its humble beginnings in TTS, the maternal health mapping modelling has also been introduced in the district of Ngada (Central Flores), with subsequent expansion into the districts of East Sumba, East Flores, Kabupaten Kupang and Kota Kupang.

“Really neat thing happened at the end of 2011,” Mr Fisher said. “I got an email from an NGO based in Jakarta, requesting that I provide the same training to staff from the national Department of Health and other NGOs. I told him that I couldn’t do it without the assistance of my project partner, Nelson. It was quite a revolution to see a young man from rural West Timor pass on his knowledge to his big city counterparts.”

“We are continuing the momentum generated by the initial mapping project with a new project using inexpensive mobile phones and SMS-enabled laptops to improve communication of health information in remote rural areas of Eastern Indonesia.”

“People living in remote villages will be able to receive first aid advice and reminders about doctors’ appointments and to take medication by SMS, which we hope will improve health outcomes in isolated areas.”

Dr Suzanne Belton, Menzies School of Health Research medical anthropologist, was conducting a pilot study – funded by Menzies and CDU – in a sub-district of Nusa Tenggara Timur (NTT) to complement Rohan Fisher’s mapping work. Subsequently, their research merged and broadened to investigate the cultural, social and geographic barriers to providing effective maternal and infant health care in the region.

“The work was multidisciplinary. It coupled medical anthropology with geographical mapping to understand the issue at hand,” Dr Belton said.

Along with RIEL’s Dr Bronwyn Myers and Mrs Frederika Rambu Ngana Hamel, of the University of Nusa Cendana in Kupang, Dr Belton took on the physically and emotionally gruelling task of travelling to remote villages to conduct verbal autopsies with families of deceased mothers.

“In Australia, it’s near impossible to die in childbirth, but in developing countries nearly everyone knows someone who has.” By deconstructing the events in the lead-up to the maternal death, the research team found that isolation was a main cause of high maternal death rates, and that isolation came in geographic, financial, gender-bias and cultural forms.

“People living in rural villages still live in huts with mud floors, no electricity, no running water and no toilet facilities. For them, any fee involved in trying to seek medical help is insurmountable,” she said. “Women who had fallen pregnant out of wedlock were often shunned by their family. When these women experienced complications in childbirth that could easily be fixed with medication or correct midwifery techniques, their families didn’t feel they could seek medical care because of their immense shame. In some cases, these women took over 24 hours to die.”
In his final year of a Bachelor of Humanitarian and Community Studies, PETER CLOUTING is completing a communications internship with CDU’s Media office as he prepares to continue working with the most disadvantaged people in strife-torn destinations.

Peter Clouting, 30, is taking his work in disaster relief to a whole new level through the world’s only Bachelor of Humanitarian and Community Studies, offered by Charles Darwin University.
You’ve spent half your life volunteering around the world and you’re still only 30 years old. Where does this drive come from?

It’s what I know. My dad was a Rotarian from age 21 in a club based on community development, so I was brought up in the life. Being able to help people in some sense is all I have ever wanted to do; volunteering around the world has the added advantage of amazing experiences at the same time.

How does a 15-year-old enter the humanitarian world?

An organisation called Antipodeans came to my school as part of their in-school program. The program involves Year 9, 10 and 11 students going to a Third World country to volunteer, and the students organise the trip themselves. My school chose Zimbabwe and worked in rebuilding a local school, Numbwa Primary School.

Why did you decide to gain formal qualifications through CDU?

I am now trying to get into the field as a paid worker, so qualifications are needed. The Bachelor of Humanitarian and Community Studies at CDU is the first of its kind anywhere.

What is the most challenging experience you’ve had as a humanitarian worker?

Just before Christmas 2011, I was working in The Sudan. This was the first time I had been deployed to a conflict response, and my first time being a team leader. While we were working, it was clear that we did not have enough equipment to respond to the number of people migrating across the border from the north to vote in the 2012 referendum to separate north and south. We tried to do the best we could, providing equipment to the most at-risk people. There were families of mothers and children, but no fathers; there were the elderly – an elderly woman looking after her nine grandchildren, an elderly woman who was blind. We got the job done. But when the team was at the airport to go in different directions, we discussed the fact that many of the people we had helped would be dead within six months at the most. During the next year, the area where we had been working, Abyei, was bombed and taken over by the north.

What is your most memorable destination?

I guess Tanzania has been the culmination of my travels. Africa varies depending on where you are on the continent. Tanzania, in Eastern Africa, offers culture, wildlife, environment and people in a package where a trip is never long enough. Relaxing on the beach under the Zanzibar sun after snorkelling in water that seems to come from an Evian bottle. Camping on Kilimanjaro and making the summit for sunrise; getting bogged in the Serengeti less than 10 metres from an adult male lion; mice crawling up my back to escape monsoonal rains that were washing away my mud hut in Maasai land; or having malaria and pneumonia at the same time.

After spending three months volunteering at an orphanage and one month building school desks for a local school in Maasai land, getting to know the people, how they live, their history and learning their language, it is definitely the place that has given me the most amazing experiences in such a short time.

What are your plans after you graduate?

I would like to stay in the field of disaster relief. I’m only beginning my career in relief work and would like to change the way some people work in the field, where they unknowingly create more problems. For example, a team deployed to Pakistan several years ago was working in the mountains where people were dying from cold. I was volunteering for one of two organisations that specialise in tents for disaster relief work. Our tents were designed to withstand most climates. The other team found that their tents had fallen due to the weight of the overnight snowfall. We replaced the collapsed tents with ours and redistributed the fallen tents under the snow line. This was not a small inexperienced NGO but a worldwide large NGO. Simple mistakes like these occur and people die.

Ideally, I would like to continue travelling the world. At the end of this year, I am hoping to make it to Antarctica.

What is the best piece of advice you have received and who offered it?

“Just do your best.” It sounds really corny, but every time I raise a question I am always told just do my best. My mum started it when I was young and my lecturers say it to me now. I have turned this into “Never turn down an opportunity without good reason”.

I signed up to go to Nepal for three months in 2002, but due to political reasons I couldn’t go. The humanitarian organisation offered me several other places: I chose Ghana because I had never heard of it and didn’t know where in the world it was. I thought that was the most exciting choice I could make. Even in the humanitarian field, it is not about feeding the millions of people who are starving around the world, it is feeding the 10 that you can.

Who inspires you?

I get inspired by everyday people, who are doing amazing things. In China I met a French woman who studied biology in Canada, did a Masters with the Bushmen in Ghana, and is now doing her PhD on snow leopards in China. I also met a Belgian guy who was riding a motorbike from Belgium to Australia. There were countries where he had to sell the bike (for varying reasons mostly import limitations) and buy another one after leaving. These people may not be changing the world, but they are living.

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

Nelson Mandela. He’s the ultimate example in our time of overcoming adversity. After being persecuted and imprisoned for decades, he brought change to his own country and positively impacts the world.

Henri Dunant, founder of modern humanitarian aid and co-founder of the Red Cross and the Geneva Convention. He saw the necessity for neutrality, and created something that has changed billions of people’s lives. He was also the first Nobel Peace Prize winner in 1901.

Millicent Thapa, Beijing Hikers guide. Just an amazing person who makes you feel amazing. She has travelled the world, speaks seven languages fluently, and while she is in her fifties, she is still hiking to the most remote places in the world. And she’s hilarious!

Heston Blumenthal, world-famous gastronomist. Bringing together science and food to create the most weird and delicious feasts. I would like him to cook the dinner, but teach me a few tricks at the same time.
Hunting and gathering is a normal part of life for Central Australian identity Ken Lechleitner – although not in the way many people might associate with the term.

“You’ve got to have the skills to hunt and gather in the modern world,” Mr Lechleitner said, an urbane 44-year-old Anmatjere man, who lives and works in Alice Springs. “I have traditional knowledge and skills, but to be effective in the modern world, I have had to engross myself with modern skills as well.

“I go hunting and gathering in Coles and Woolworths ....,” he said.

Mr Lechleitner’s thirst for knowledge and passion for the law prompted him to enrol in an undergraduate law program at Charles Darwin University last year. “At first, I had to learn how to learn,” he said. “Then there was all the legal terminology and the rules around citation. It was like learning a new language.

“The secret to learning is [what I call] needs basis. Sometimes, I hear something but don’t get it, but when I’m ready, it’s like ‘ping’, the penny drops. That’s the exciting thing about [learning].”

Mr Lechleitner is studying part time. “I’m in no hurry and I’m not trying to impress anyone. It’s a long journey in pursuit of a piece of paper … my journey of life-long learning.

“I’m on the path and one day I’ll finish the degree and become a lawyer, maybe even a judge. For now, it’s important that I can apply [in my workplace] what I learn.”

Mr Lechleitner, who runs a part-time crosscultural consultancy business in his spare time, works for the Central Australian Aboriginal Legal Aid Service as a legal support officer during the day. He also works with senior lawyers who are developing a training program for night patrol workers.

“I’d like to have a positive influence on the direction of legal policy [and] to engender positive change in a way that people embrace it. We need to have laws that people can carry in their hearts.”

Modern hunter-gatherer pursues passion for law

Modern man KEN LECHLEITNER takes ancient lore on his learning journey into the future.

TEXT
Patrick Nelson

IMAGES
Patrick Nelson

Law student Ken Lechleitner outside the Alice Springs Law Court: “Then there was all the legal terminology ... it was like learning a new language.”
International Students in the Asia Pacific: Mobility, Risks and Global Optimism

Authors: Gillian Vogl and Peter Kell (Professor of Education)
Publication details: 2012, Springer: New York, USA
Description: This book explores questions around the mobility of international students in the context of the global economy and an increasingly competitive trans-national education market. It also explores questions about the experience of international students principally from the Asia–Pacific region at a time of increased global insecurity and growing hostile reactions to foreigners in the post–September 11 era.

On Leichhardt’s Path, Kakadu 1845: Reflections Bushwalking a Time Tunnel

Author: Dan Baschiera (Lecturer, Humanitarian Studies)
Publication details: 2011, Uniprint: Darwin, NT, Australia
Description: Dan Baschiera loves the Outback, bushwalking, sailing and history. In 2008, Dan and his wife Annie Whybourne discovered a Ludwig Leichhardt campsite blaze in Kakadu National Park, after 100 years of people looking for it. It took Dan two years of untangling the distortions created by a 19th Century colonial Australia and, as he believes, its attempt to discredit Leichhardt and hide his ethnological findings from the then-scientific circles in London.

Structural Analysis for Engineers

Author: David M. Lilley (Professor, Structural Engineering)
Publication details: 2013, Cengage Learning Australia: South Melbourne, Victoria, Australia
Description: This book contains notes, worked examples and solutions to tutorial questions that have been developed over many years as a learning aid for undergraduate students studying Civil Engineering and/or Structural Engineering. Much of the material forms the basis for teaching Structural Analysis at CDU, while the remainder is similar to that taught in units in the earlier years of the BEng Degree in Civil Engineering at CDU. The text will be a useful learning and revision aid to students studying similar courses at other universities in Australia and elsewhere.

**CHAPTER CONTRIBUTIONS**

The Edinburgh Companion to the History of Democracy

Chapter title: Singapore
Contributor: Doran, Christine (Senior Lecturer, History)
Description: Re-examines the history of democracy, broadening the traditional view with previously unexplored examples. It explores the origins of democracy and new examples from around the world: from ancient India, Native America and Iraq to Women’s Suffrage, the Anti-Apartheid movement and directions democracy may take in the future. Each of the nine parts introduces the period, followed by case studies. It is the first book to study the lesser known histories of democracy alongside familiar examples.

Biodiversity Monitoring in Australia

Chapter title: Monitoring Australian Birds to Meet International Obligations
Contributor: Stephen Garnett (Professor, Conservation and Sustainable Livelihoods)
Publication details: 2012, CSIRO Publishing: Collingwood, Victoria, Australia
Description: Ecological and biodiversity-based monitoring has been marked by an appalling lack of effectiveness and success in Australia for more than 40 years, despite billions of dollars invested in biodiversity conservation. This book tackles many aspects of the problem of biodiversity monitoring. It arose from a major workshop held at the Australian National University in February 2011, attended by leaders in the science, policy-making and management arenas of biodiversity conservation. Chapter contributors examine what has led to successful monitoring, the key problems with biodiversity monitoring and practical solutions to those problems.
Nancy Nungurrayi (1935–2010) was a Pintupi artist born in the desert region of Pollock Hills, Western Australia. As a small child, she lived with her parents at Wala Wala, west of the Kiwirrkura Community. She remained there after she was married, and when her husband passed away, Nungurrayi walked to Mount Liebig carrying her first child Marlene Nampitjinpa. She commenced painting for Papunya Tula Artists in 1996, along with her older sister Naata Nungurrayi (born 1932). With Naata and eight other Pintupi women artists, Nancy Nungurrayi contributed to the Kintore Women’s Collaborative Painting (1999), to support the Western Desert Dialysis Appeal. She was represented in numerous group exhibitions from 1999 onwards, nationally and internationally, and held one solo exhibition in Brisbane in 2007. Her work is held in national and international public and private collections. Following a brief illness, Nancy Nungurrayi passed away in 2010.

This etching is one of a series created by senior and younger Pintupi artists during printmaking workshops conducted at Kintore and Kiwirrkura in June 2009 by Dian Darmansjah, former Workshop Manager at Northern Editions Printmaking Studio. It depicts designs associated with Marrapinti, a site of great cultural significance to the artist and a recurring theme in her art. The narrative song cycles associated with Marrapinti relate that ancestral women travelled there to perform dances and sing songs connected to the site. They made nose bones (also known as marrapinti), today only worn on ceremonial occasions by the older generation. The lines in this work represent tali [sandhills] surrounding Marrapinti.

Nancy Nungurrayi’s etching was created in three stages. The main “drawing” was made directly onto the plate in a ground, acting as a “block-out”. The plate was then lightly “bitten” in nitric acid and the ground removed, leaving a trace of the original drawing for the artist to elaborate. Dots were added using sugarlift, then the plate ground and open bitten. Finally, the drawing was embellished with sugarlift, aquatinted and bitten again. Three different layers could thus “take ink”, creating a range of textured and tonal qualities – at once haloed, burnt and linear – deploying the technical and aesthetic possibilities of one-plate etching to great effect.

Artist’s CV & Print Certificate information © the artist’s estate & courtesy Papunya Tula Artists. PR31
Personal communication with Dian Darmansjah, 4 April 2013
The late Nyuju Stumpy Brown was a senior Wangkatjungka woman and a leading artist at Mangkaja Arts, Fitzroy Crossing, in Western Australia. She was born on the Canning Stock Route at Ngapawarlu, and was full sister to the late Joolama Rover Thomas (?1926–1998).

After the loss of her parents at an early age, she was raised by her uncle who brought her to the Catholic Mission in Balgo, where she “learnt kartiya [white people] ways” before moving to Fitzroy Crossing. She says of her early life: “I came to Balgo on a camel. This was the first time I came in from the bush. I was a young girl with no breasts. Later I worked in the kitchen at Bohemia Downs Station. We got no money for work. We got tea, meat and tobacco.”

Nyuju was an important woman at Fitzroy Crossing for law and culture. She “carried the Women’s Law” from Wangkatjungka country through to Balgo. At Nyangpi [corroboree] time she ran the ceremonies for young children. “No sleep. All night making Nyangpi right through to daylight. Then we go back to sleep.”

Regarding this work, the artist relates: “This country is called Juntujuntu. It is stony country, there are little pirinki [caves] here that jamarnti [rock wallaby] live in. There is also living water there and lots of pinkirrijarti [turkeys] and karnanganyjia [emu] that drink from here. The pink area is the animals’ tracks.”

Nyuju’s art is premised on an intimate understanding of her ancestral country at Kukapunyu in the Great Sandy Desert: experiences and familial knowledge of its contours, flora, fauna and sources of “living water”. She painted with exuberance, creative confidence and wisdom of “the time before we knew kartiya”, of a desert country where there “are no rivers … only creeks after the rain; only jiljil [sandhills]”.

Work by the late Nyuju Stumpy Brown, along with that by a selection of other artists from Fitzroy Crossing (WA) and the Daly River region, Ngukurr, Borroloola and Lajamanu (NT), feature in the joint Batchelor Institute and Charles Darwin University Art Collections exhibition Common Ground, on display in the CDU Art Gallery from 18 April until 28 June 2013.

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

PHOTOGRAPHY
Fiona Morrison
PADDY BEDFORD (?1922–2007) Paddy, or Kuwumji pronounced “Koomsie”, was born at Bedford Downs Station. Although Paddy painted ceremonial paintings all his life, his works on paper and canvas received international attention. Bedford depicts traditional Gija camping places in his distinctive abstract style. Waterholes, caves and hills are among the geographic features he paints. His achievements include numerous group exhibitions and acquisition by major museums and galleries. Northern Editions is proud to be representing the works of Bedford in the Northern Territory. All prints and imagery are courtesy of the Paddy Bedford Estate.