

What has STEM got to do with Native Title?

Rod Kennett, Questacon – *National Science and Technology Centre*
Peter Radoll, *University of Canberra*



- 500 000 visitors per year
- Local, regional and national outreach programs
- Media and communication networks
- 150 seat performance theatre
- TV and broadcast quality studio
- International reputation and connections
-

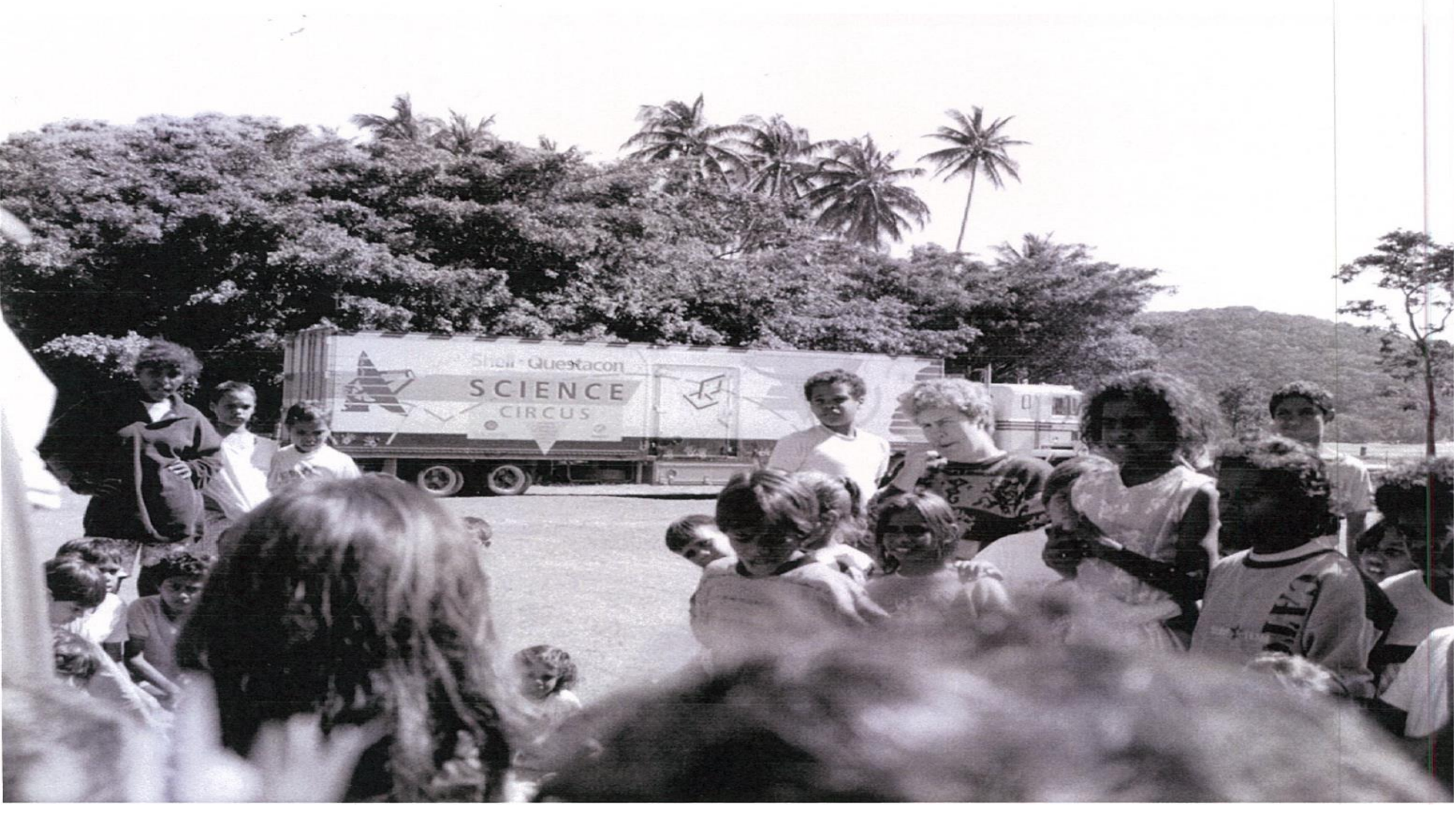


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The National Science and Technology Centre

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Questacon - Remote and Indigenous Outreach

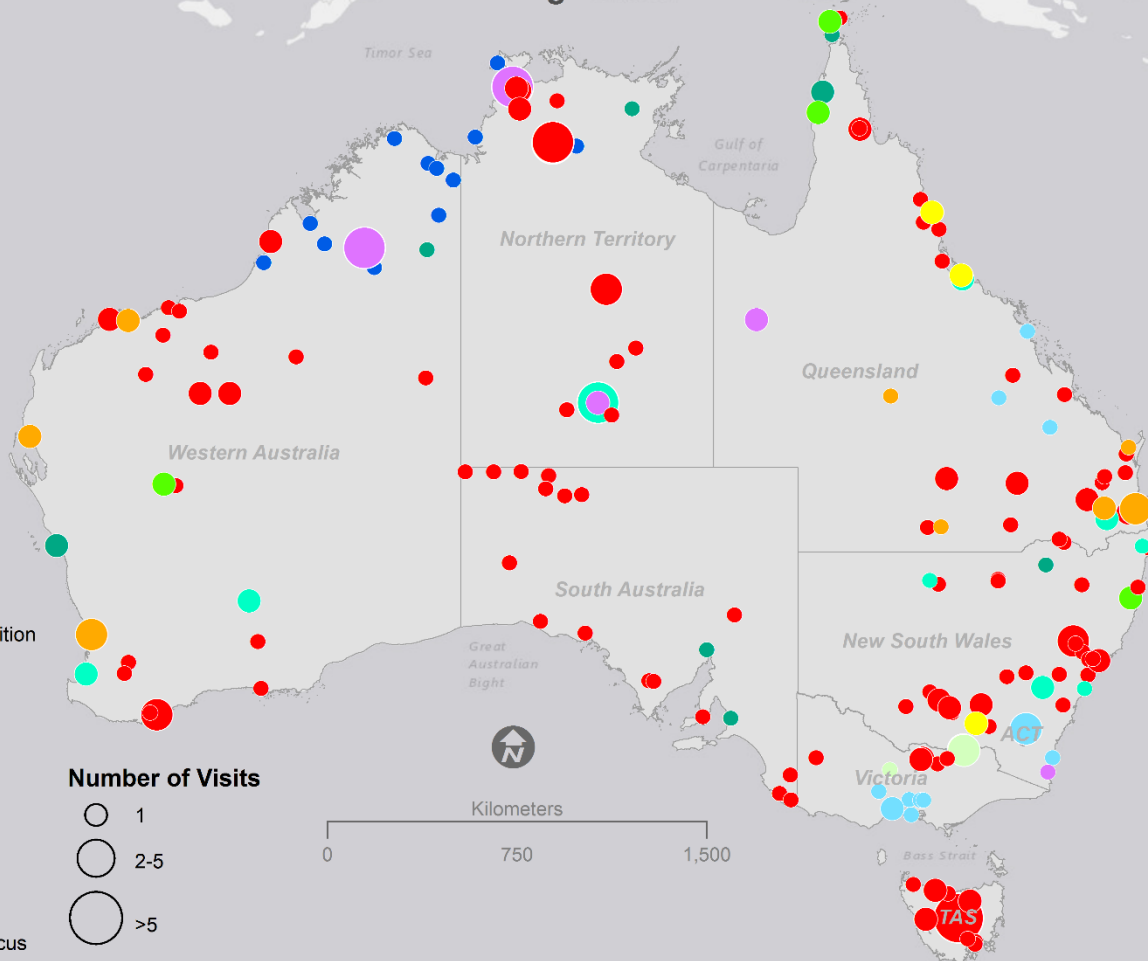
Salomon Sea

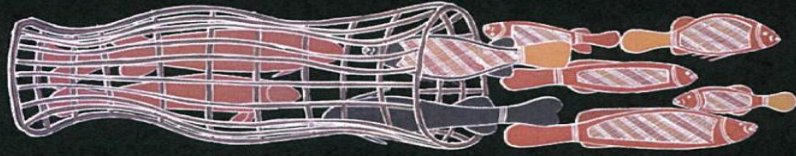
Engagement Type

- Indigenous Festivals
- Indigenous Knowledge Exhibition
- Mathematics Skills
- Questacon Science Lines
- Questacon Science Play
- Questacon Smart Moves
- Remote area program
- Science Theatre
- Starlab
- Shell Questacon Science Circus

Number of Visits

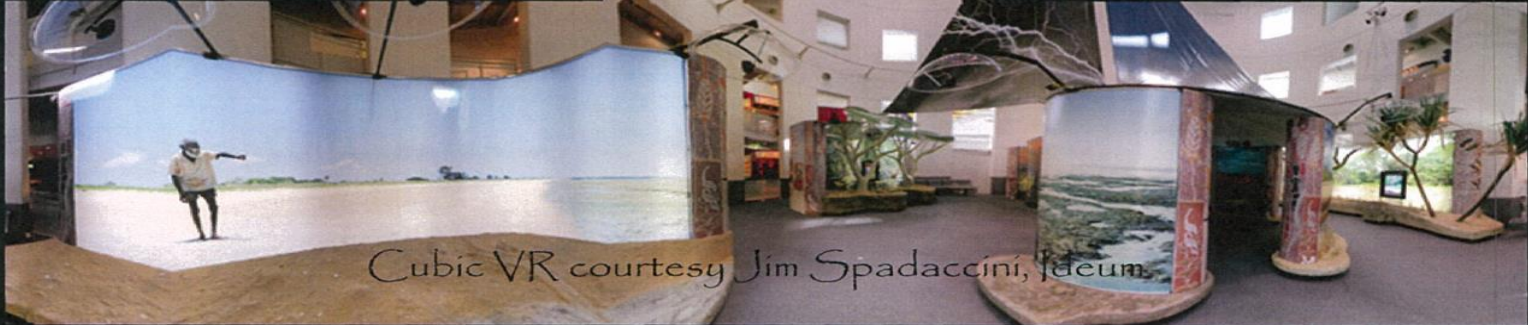
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- 2-5
- >5





Burarra Gathering

Sharing Indigenous Knowledge



Cubic VR courtesy Jim Spadaccini, Ideum

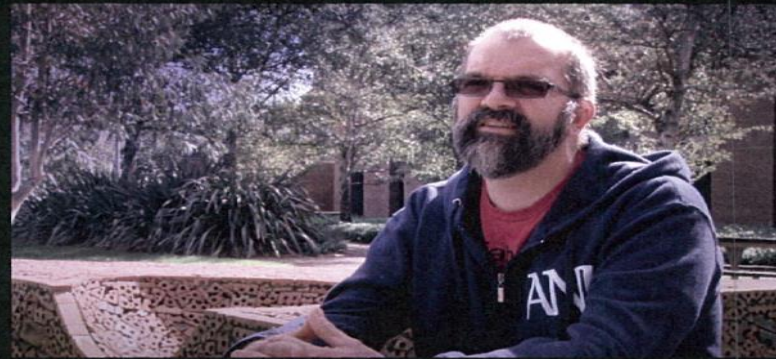
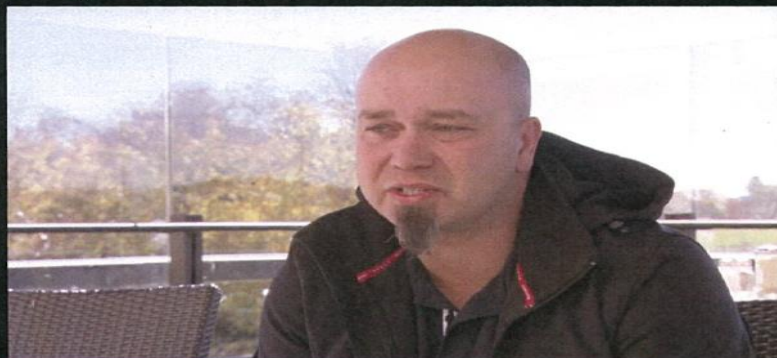
Burarra Gathering exhibition of Indigenous knowledge is now at the Queensland Museum

Indigenous scientist role models



Leanora Laughton - tour guide at the Alice Springs Desert Park

Bradley Moggridge - program manager of the NSW Aboriginal Water Initiative and a nominee for the inaugural Science Deadly Awards category for 2013



Peter Radoll - Associate Professor in Information Technology

Mikaela Simpson - intern at CAAMA Radio which broadcasts from Alice Springs across the NT, SA ,Victoria and NSW



Moving forward...

- Indigenous presence in our programs and exhibitions



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- Play Science on Country Video



Moving forward...

- Indigenous presence in our programs and exhibitions
- A platform for Indigenous STEM leaders



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“Indigenous Agency” - Indigenous led organisations with mandate and capacity to identify, promote, resource and deliver Indigenous priorities, goals and aspirations.



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ECONOMIC DEVELOPMENT AND EMPLOYMENT

- Indigenous Chambers of Commerce
- IBA, ILC, Supply Nation
- Over 3000 **ORIC-registered Indigenous corporations**
- **Indigenous-led entrepreneurial and STEM initiatives** - accelerators, innovation programs, digital tech training, community platforms

SAFETY, COMMUNITY WELL-BEING AND CHILD PROTECTION

- A national Indigenous legal services **peak body**, community-controlled legal services in all states and territories
- **Child protection state peaks**
- Indigenous **housing state peaks**

HEALTH

- 140+ **Aboriginal Community Controlled Health Organisations**
- Regional alliances
- **Industry representative bodies** for Indigenous health professionals

INDIGENOUS RESEARCH

- 2 national **peak research bodies**
- 42 **University Indigenous Units/ Research Centres**
- A **National Indigenous Research Network**

LEARNING AND EDUCATION

- **Indigenous Education Consultative Groups** in each state and territory
- 42 **University Indigenous Units/Research Centres**
- **Indigenous RTOs and training providers**

RECOGNITION AND IDENTITY

- A **National Congress** (approx 9,000 indiv and 150 org members)
- **National reconciliation movement**
- National advocacy bodies and peak body alliances

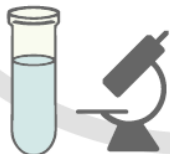
CONNECTION TO COUNTRY

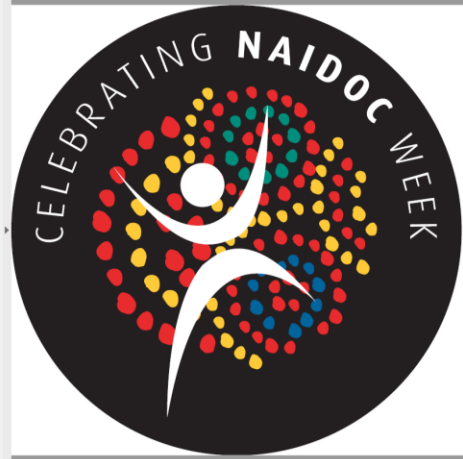
- **Native Title Organisations** - 170+ PBCs/RNTBCs, 10+ NTRBs/ NTSPs
- **LALCs** - KLC, CLC, NLC
- **Indigenous Rangers**
- 75 **Indigenous Protected Areas**
- **Joint management arrangements**
- **Indigenous-led land and sea management orgs and partnerships**

CONNECTION TO CULTURE

- **Regional peak bodies and alliances** across artforms
- **Regional and local Indigenous language centres, theatre and dance companies, art centres**
- **Indigenous media associations, broadcasters and remote media orgs**
- **Indigenous tourism state peaks** - Tourism Operators Councils

INDIGENOUS AGENCY





BECAUSE OF HER, WE CAN!

8-15 JULY 2018

Indigenous Women in Science Panel

Questacon - the National Science and Technology Centre

Indigenous Science Forum
Questacon - the National Science
and Technology Centre



Moving forward...

- Indigenous presence in our programs and exhibitions
- A platform for Indigenous STEM leaders
- National outreach and community engagement in STEM



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STEM education is the learning of science, technology, engineering and mathematics in an interdisciplinary or integrated approach.

Students gain and apply knowledge, deepen their understanding and develop creative and critical thinking skills within an authentic context. It may include inquiry and project-based learning.

A vibrant capacity in science, technology, engineering and mathematics (STEM) is pivotal to increasing our nation's productivity.

NSW Department of Education



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“Extraordinary technological change is transforming how we live, work, communicate and pursue good ideas. We need to embrace new ideas in innovation and science, and harness new sources of growth to deliver the next age of economic prosperity in Australia.” – *National Innovation and Science Agenda, 2018*





NORTHERN
LAND COUNCIL



Our Land, Our Sea, Our Life

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Rockets to launch in north east Arnhem Land

Date: Oct 31, 2017

Publication Type: [News](#)

The Arnhem Land Aboriginal Land Trust has granted a lease over 275 hectares of land near Gulkula in north east Arnhem Land to Gumatj Corporation Limited for use as a commercial rocket launching facility.



Native Title Determinations

As at 31 March 2018

Determination Outcomes

- Native title exists (exclusive)
- Native title exists (non-exclusive)
- Native title does not exist
- Native title extinguished
(Not within determined areas)

Some or parts of some determinations may not yet be in effect or on the National Native Title Registrar (NNTTR). The court may decide that the determination of native title will take effect conditional upon some future event occurring, for example, the registration of an Indigenous Land Use Agreement or the establishment and registration of a prescribed body corporate (PBC). In these cases, the determination, or relevant part, will not be registered on the NNTTR until the condition has been met.

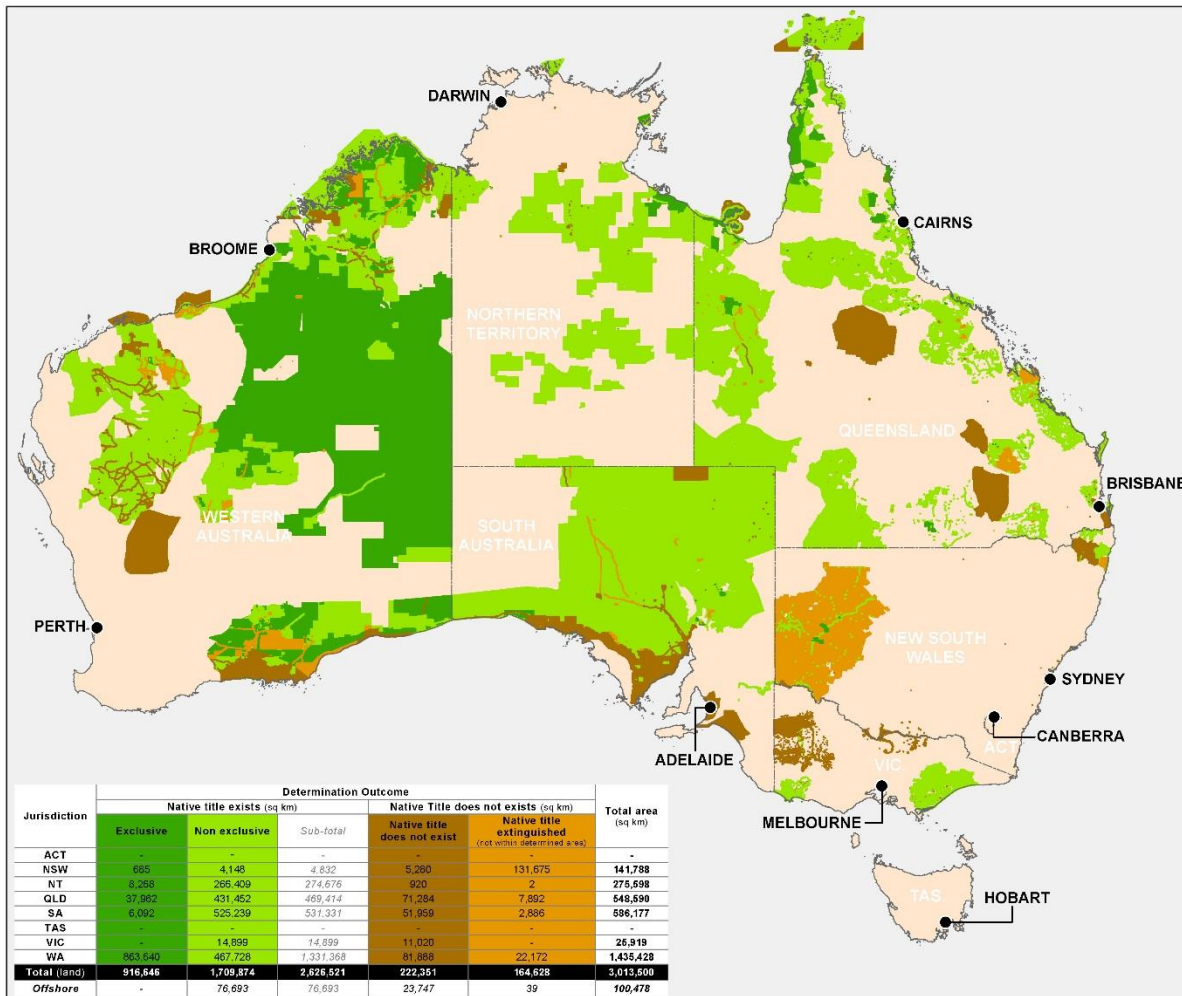
Spatial data sourced from and used with permission of: Landgate (WA), Dept of Natural Resources & Mines (Qld), © The State of Queensland, Land & Property Management Authority (NSW), Dept of Lands, Planning & the Environment (NT), Dept for Planning, Transport & Infrastructure (SA), Dept of Environment and Primary Industries (Vic) and Geoscience Australia, Australian Government, © Commonwealth of Australia.

Areas have been calculated using Australian Albers projection (EPSG 3577) in square kilometres. Reference to ACT also includes Jervis Bay Territory.



With the creation of the Commonwealth Coat of Arms, and where otherwise noted, this map is provided under a Creative Commons Attribution-NonCommercial-ShareAlike license: <http://www.commons.org/licenses/by-nc-sa/4.0/>

While the National Native Title Tribunal (NNTT) and the Native Title Registrar (Registrar) have exercised due care in ensuring the accuracy of the information provided, it is provided for general information only and on the understanding that neither the NNTT, the Registrar nor the Commonwealth of Australia is providing professional advice. Appropriate professional advice relevant to your circumstances should be sought rather than relying on the information provided. In addition, you must exercise your own judgment and carefully evaluate the information provided for accuracy, currency, completeness and relevance for the purpose for which it is to be used. The information provided is often supplied by, or based on, data and information from external sources, therefore the NNTT and Registrar cannot guarantee that the information is accurate or up-to-date. The NNTT and Registrar expressly disclaim any liability arising from the use of this information. This information should not be relied upon in relation to any matters associated with cultural heritage.



Jurisdiction	Determination Outcome						Total area (sq km)
	Native title exists (sq km)			Native Title does not exist (sq km)		Total area (sq km)	
	Exclusive	Non exclusive	Sub-total	Native title does not exist	Native title extinguished <small>(not within determined areas)</small>		
ACT	-	-	-	-	-	-	-
NSW	685	4,148	4,832	5,280	131,675	141,789	141,789
NT	8,268	265,409	274,676	920	2	275,698	275,698
QLD	37,962	431,452	469,414	71,284	7,892	548,590	548,590
SA	6,092	525,239	531,331	51,059	2,886	586,177	586,177
TAS	-	-	-	-	-	-	-
VIC	-	14,899	14,899	11,020	-	26,519	26,519
WA	863,640	467,728	1,331,368	81,888	22,172	1,435,428	1,435,428
Total (land)	916,646	1,709,874	2,626,521	222,351	164,628	3,013,500	3,013,500
Offshore	-	76,693	76,693	23,747	39	100,478	100,478

Indigenous Protected Areas July 2015

Declared Indigenous Protected Areas

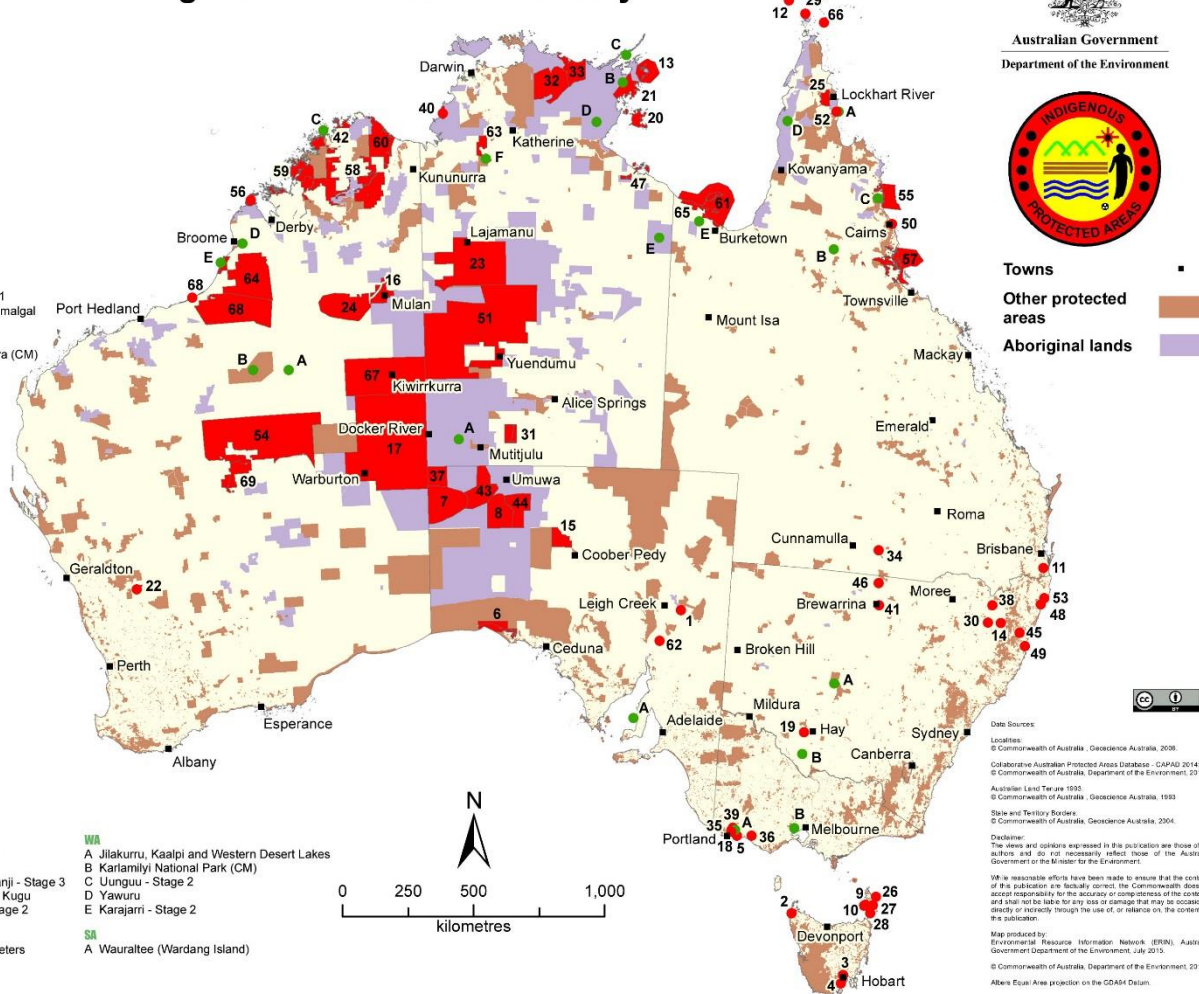
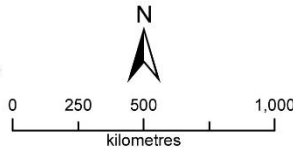
- | | |
|----------------------------------------|--------------------------------|
| 1 Nantawarrina | 49 Gumma |
| 2 Preminghana | 50 Mandingbalbay Yidinji |
| 3 Risdon Cove | 51 Southern Tanami |
| 4 putalina | 52 Angkum - Stage 1 |
| 5 Deen Maar | 53 Ngunya Jargoan |
| 6 Yalata | 54 Biriliburu |
| 7 Watarru | 55 Eastern Kuku Yalanji |
| 8 Walaklaka | 56 Bardj Jawi |
| 9 Mount Chappell Island | 57 Girmingun (CM) |
| 10 Badger Island | 58 Wilinggin |
| 11 Guanaba | 59 Dambimangari |
| 12 Wanul Kawa Island | 60 Balangarra |
| 13 Dhimurru | 61 Thuwathu/Bujimulta |
| 14 Wattleridge | 62 Yappaia |
| 15 Mount Willoughby | 63 Wardaman - Stage 1 |
| 16 Paruku | 64 Karajarri - Stage 1 |
| 17 Ngaanyatjarra | 65 Nijnda Durlga - Stage 1 |
| 18 Tyrendarra | 66 Warraberalgah & Porumalgal |
| 19 Toogimble | 67 Kiwirrkurra |
| 20 Anindilyakwa | 68 Nyangumarta Warrarn |
| 21 Laynhapuy - Stage 1 | 69 Matuwa Kurrara-Kurrara (CM) |
| 22 Ninghan | |
| 23 Northern Tanami | |
| 24 Warlu Jilajaa Jumu | |
| 25 Kaanju Ngaachi | |
| 26 Babel Island | |
| 27 Great Dog Island | |
| 28 lungatalanana | |
| 29 Pulu Islet | |
| 30 Tarniwa Kurrukun | |
| 31 Angas Downs | |
| 32 Warddeken | |
| 33 Djelk | |
| 34 Jamba Dhandan Duringala | |
| 35 Kurtonji | |
| 36 Framlingham Forest | |
| 37 Kalka - Pipalyatjara | |
| 38 Boorabee and The Willows | |
| 39 Lake Condah | |
| 40 Marri-Jabin (Thamurrurr - Stage 1) | |
| 41 Brewarrina Ngemba Billabong | |
| 42 Uunguu - Stage 1 | |
| 43 Apari - Makiri - Puntli | |
| 44 Antlara - Sandy Bore | |
| 45 Dorodong | |
| 46 Weilmoringle | |
| 47 Yanyuwa (Barni - Wardimantha Awara) | |
| 48 Minyumai | |

Note:
CM = Co-Managed IPA

Indigenous Protected Area Consultation Projects

- | | |
|--------------------------|----------------------------------|
| NSW | QLD |
| A Mawonga | A Angkum - Stage 2 |
| B Werai Forest (CM) | B Tallaroo Station |
| | C Eastern Kuku Yalanji - Stage 3 |
| NT | D Wik, Wik Way and Kugu |
| A Kaititj Petermann | E Nijnda Durlga - Stage 2 |
| B Laynhapuy - Stage 2 | |
| C Marthakal | VIC |
| D South East Arnhem Land | A Lake Gorrie and Peters |
| E Waanyi Garawa | B Wurdli Young |
| F Wardaman - Stage 2 | |

- | | |
|----------------------------------------------|------------------------------|
| WA | SA |
| A Jilakurru, Kaalpi and Western Desert Lakes | A Waurattee (Wardang Island) |
| B Karlimilyi National Park (CM) | |
| C Uunguu - Stage 2 | |
| D Yawuru | |
| E Karajarri - Stage 2 | |



Australian Government
Department of the Environment



Towns ■
Other protected areas ■
Aboriginal lands ■

Date Sources:
Localities:
© Commonwealth of Australia, Geoscience Australia, 2008.
Collaborative Australian Protected Areas Database - CAPAD 2014.
© Commonwealth of Australia, Department of the Environment, 2014.
Australia: Land Use June 1995.
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State and Territory Borders:
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We make reasonable efforts to have been made to ensure that the contents of the publication are factually correct. The Commonwealth does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.
Map produced by:
Environmental Resources Information Network (ERIN), Australian Government Department of the Environment, July 2015.
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Allens Equal Area projection on the GDA84 Datum.

Species in a IPA/region

Home → Locations → Regions → Djelk

Region name: **Djelk**

ALA Occurrence records: **7,880** | Total patents: **315**

Species

Group	Species	Records	Patents
▼ All Species			
▶ Mammals			
▶ Birds			
▶ Insects			
▶ Amphibians			
▶ Reptiles			
▶ Fish			
▶ Molluscs			
▶ Crustaceans			
▶ Plants			
▶ Fungi			
1.	Gossypium hirsutum : Commercial Cotton	2	64
2.	Solanum lycopersicum : Tomato	1	35
3.	Morinda citrifolia : Cheese Fruit	2	21
4.	Euphorbia heterophylla	2	15
5.	Portulaca oleracea : Pig Weed	2	15
6.	Paspalum notatum : Bahia Grass	2	9
7.	Sus scrofa : Pig	4	9
8.	Cyperus rotundus : Nut-grass	3	8
9.	Euphorbia hirta : Ara tanan	4	8
10.	Felis catus : Cat	5	8
11.	Vigna radiata : Green Gram	3	8
12.	Cajanus cajan	3	7
13.	Callitris intratropica : Arnhem Cypress Pine	3	7
14.	Eleusine indica : Crab Grass	2	6
15.	Amaranthus viridis : Green Amaranth	1	5
16.	Clitoria ternatea : Blue Pea	1	5
17.	Urtica pedicularis : Devils	1	5

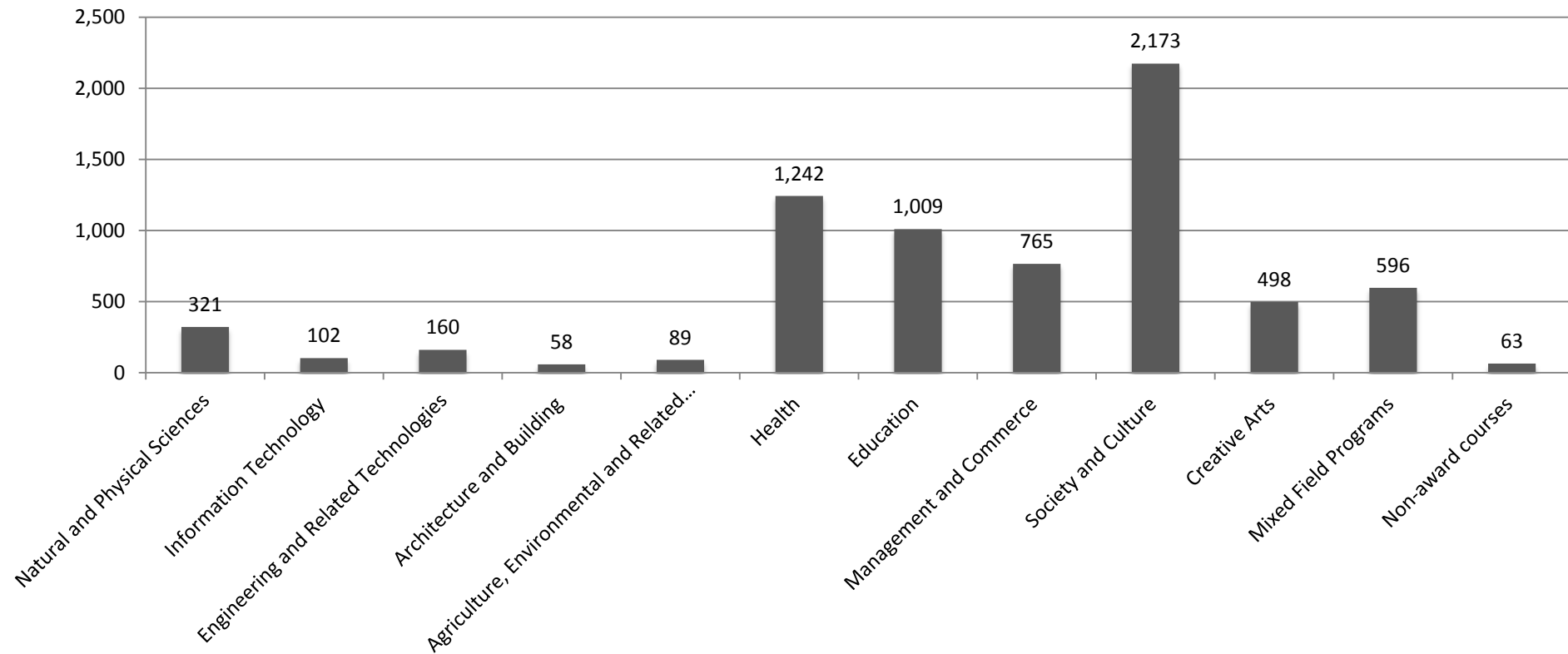
Map

Patent Summary

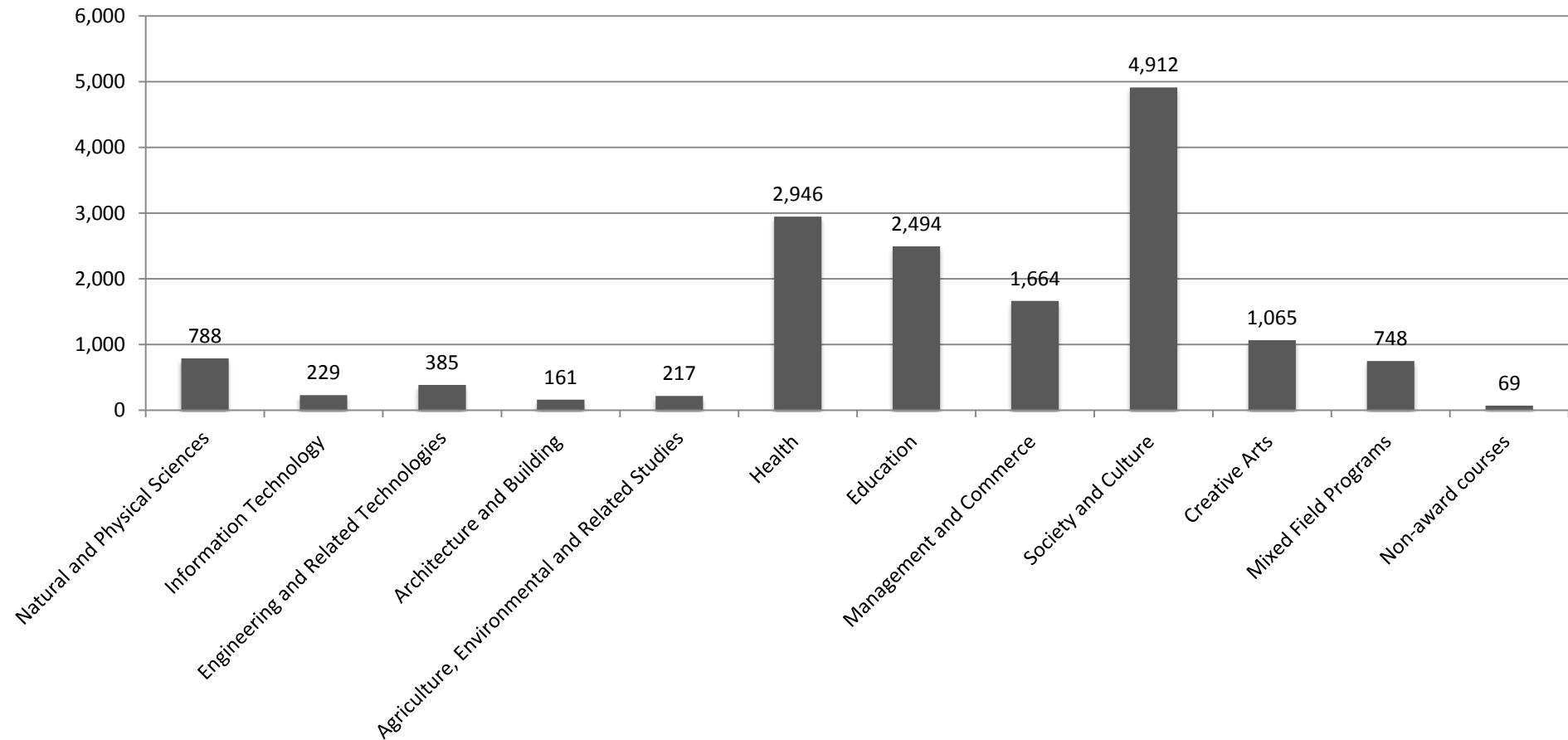
Species Profile



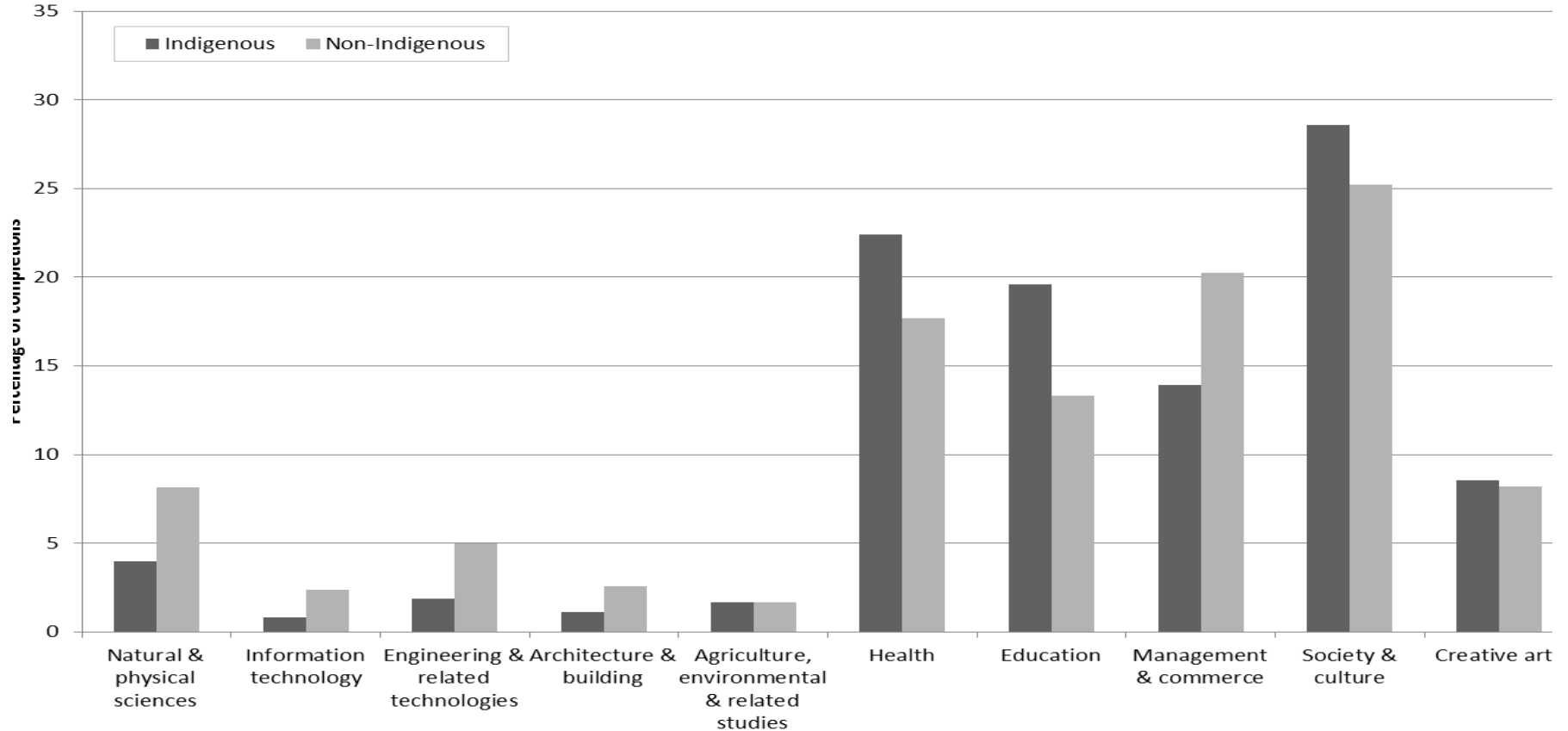
All commencing Indigenous students by broad field of education - 2014



All Indigenous Enrolments by broad field of education - 2014



Award completions by field of study by Indigenous status, Australia, 2010–12



Challenges

- Lack of understand of STEM education
- Perceived lack of Indigenous role models – growing number of non-Indigenous researchers
- Lack of mathematics in School
- Time on task – impact of cultural programs, tutoring programs, time out of class.
- The way we “market” university to schools and students
- Link between STEM and Indigenous cultures

If you would like to talk about Questacon and
STEM engagement...

Rod Kennett

Rod.Kennett@questacon.edu.au

0428938480

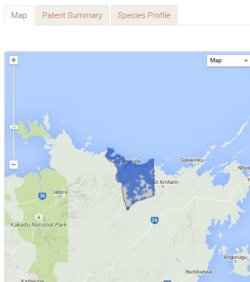
Data & Knowledge - connect

Home > Locations > Regions > Djelk

Region name: **Djelk**

ALA Occurrence records: 7,880 | Total patents: 315

Group	Species	Records	Patents
All Species			
Mammals			
Birds			
Insects			
Amphibians			
Reptiles			
Fish			
Molluscs			
Crustaceans			
Plants			
Fungi			
1	Cosyrium heratum	2	54
2	Commercial Cotton	1	35
	Tomato		
3	Morinda citrifolia - Cheese Fruit	2	21
4	Euphorbia heterophylla	2	19
5	Portulaca oleracea - Pig Weed	2	15
6	Passalum notatum - Bahua Grass	2	9
7	Sua socrata - Pig	4	9
8	Cyperus rotundus - Nut-grass	3	8
9	Euphorbia hirta - Aca taran	4	8
10	Fala sativa - Cat	5	8
11	Vigna radiata - Green Gram	3	8
12	Cajanus cajan	3	7
13	Callitris intratropica - Annhem Gopena Pine	3	7
14	Elyonine indica - Crab Grass	2	6
15	Amaranthus viridis - Green Amaranth	1	5
16	Ottonia ternata - Blue Pea	1	5
17	Ottonia androcarpa - Cheechee	1	2



Australian Government IP Australia

Species Profile

Name: **Morinda citrifolia**

Common name: **Cheese Fruit**

Occurrence records: **2**

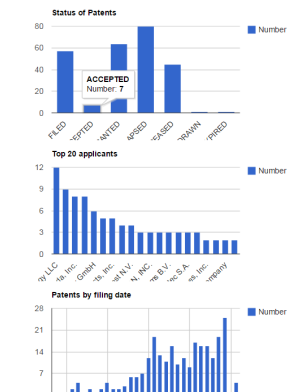
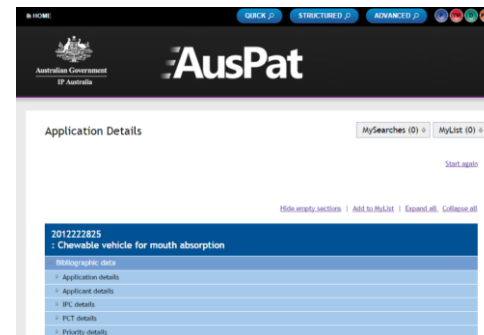
Patent count: **21**



Patent List

- Chewable vehicle for mouth absorption
- Chemosensory receptor ligand-based therapies
- A composition for buccal absorption of nicotine for the purpose of smoking cessation
- Composite particles having an antioxidant-based protective system, and topical compositions comprising the same
- Morinda Citrifolia-Based Formulation 5-Lox and 15-Lox
- Method of manufacturing a mabe pearl
- Morinda citrifolia based antifungal formulations and methods

Map Patent Summary Species Profile

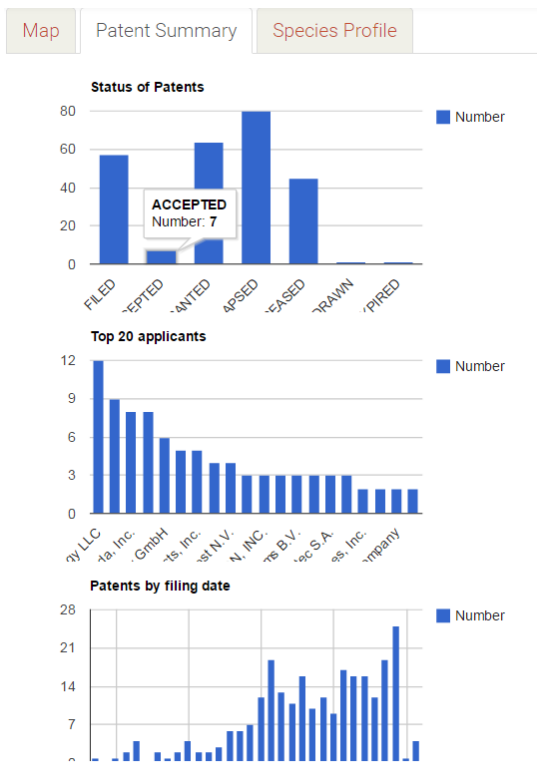
AusPat

Application Details

2019222815
Chewable vehicle for mouth absorption

- Biological data
- Application details
- IPC details
- PCT details
- Priority details

Patents mentioning a species



Species Profile

Name: *Morinda citrifolia*

Common name: Cheese Fruit

Occurrence records: 2

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Patent List

Chewable vehicle for mouth absorption ...

Chemosensory receptor ligand-based therapies ...

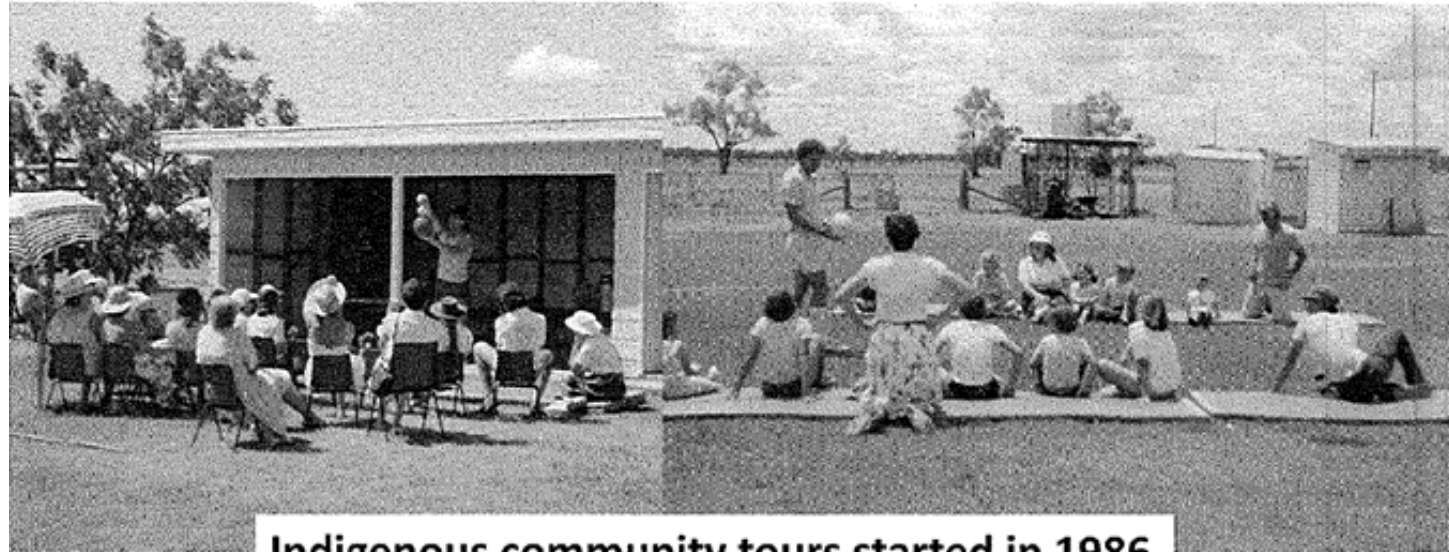
A composition for buccal absorption of nicotine for the purpose of smoking cessation ...

Composite particles having an antioxidant-based protective system, and topical compositions comprising the same ...

Morinda Citrifolia-Based Formulation 5-Lox and 15-Lox ...

Method of manufacturing a mabe pearl ...

Morinda citrifolia based antifungal formulations and methods ...



Indigenous community tours started in 1986

