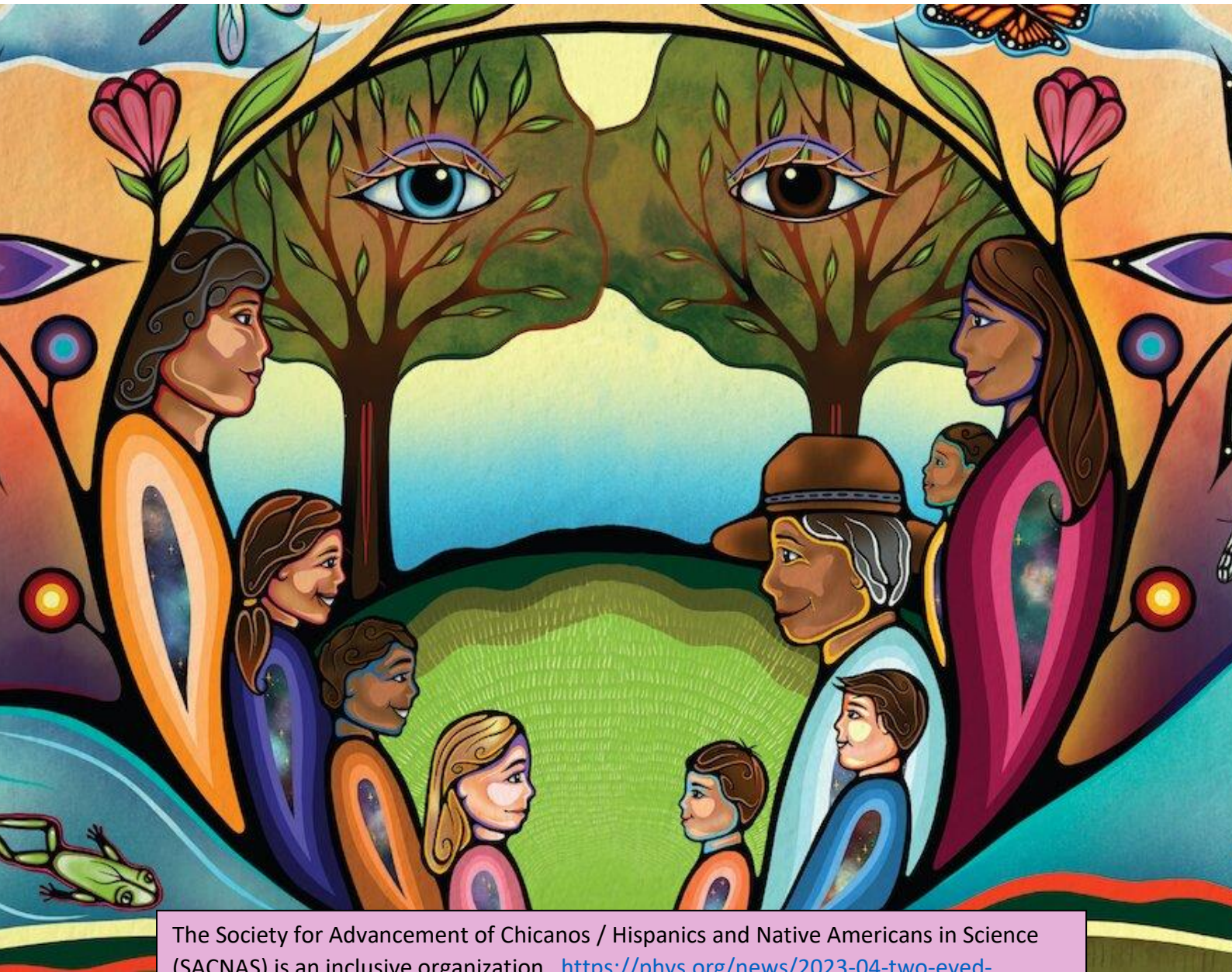
Indigenous Science Network Bulletin

June 2023 (Volume 24, Number 2) **ISSN 1449-2091**

Website: research.acer.edu.au/isn/ **Contact:** IndigenousSciNet@yahoo.com

Promoting First Nations' science, teaching & education



The Society for Advancement of Chicanos / Hispanics and Native Americans in Science (SACNAS) is an inclusive organization https://phys.org/news/2023-04-two-eyed-etuaptmumk-outdoor-play-early.html When we walk together in a good way, we learn to see the world from multiple perspectives. *Image accessed from Twitter, 30 April 2023*

FROM THE COORDINATOR

We present another collection of articles and resources related to First Nations peoples and their science knowledge for a global audience of teachers, scientists and interested community members. Along with science, we also consider the effects of colonisation on the learning and teaching of First Nations students and communities across other curriculum areas. This edition contains our first story from Papua New Guinea and 2 stories from the Cook Islands! **Please note that nearly ALL images in this bulletin will contain hyperlinks which go either to the exact web location of the image OR to a story related to the image.** In this issue we have stories from the following countries / First Nations peoples:

Australia: Aboriginal – Palyku, Pintupi, Yidinji, Yolngu, Bardi, Gunditjmara, Ngemba, Yuin, Noongar, Walbunja, Murrinpatha, Barkindji, Malyangapa, Gurindji. **Torres Strait Islands** – Badulaig, Meriam, Dauareb, Erubam, Mualgal
New Zealand: Maori – Muaūpoko, Ngāi Tahu, Ngāti Apa
USA: African American; **Native American** – Mohawk, Yurok, Cree, Cheyenne Arapaho, Shoshone, Apache, Pawnee, Potawatomi, Dinė; **Native Hawaiian**
Canada: Dene, Métis, Mi'kmaw, Inuit, Inuk, Gwich'in, Ojibwe, Yup'ik
Mexico: Maya
Colombia: Yucuna
Nigeria: Yoruba
Finland: Sámi
Philippines: Higaonon
Fiji: iTaukei
Nepal: Yamphu
South Africa: Khoi and San
Cook Islands, Papua New Guinea, India, Namibia, Zimbabwe, Kenya

FURTHER CHANGES TO OUR EDITORIAL BOARD

We say goodbye to Michael-Shawn, Jesse, Joe and Femi after 2 years on the Board and thank them for their service. We welcome Keith Langerhoven from South Africa representing African science, who joins recent arrivals Ron Vave of Fiji representing Pasifika science and Indra Mani Rai of Nepal representing Asia. You can read more about them here.

SIGNIFICANT AUSTRALIAN TV SERIES CHARTING INDIGENOUS INVENTIONS

Premiering on Thursday 15 June, a ground-breaking TV series explores the ways Indigenous Australians created and invented tools and processes to thrive and survive for 65,000 years across all Australian environments. **The First Inventors** is the story of how entire landscapes were transformed, how prehistoric events were recorded as far back as the last ice age, how people navigated over extraordinary distances, and how whole societies were organised. For more on this wonderful series see here.

Another significant Australian resource is the looming publication of a series of three high school earth science textbooks written by inaugural ISN member Theo Read. Created in collaboration with Indigenous communities, they weave western and local site-specific Indigenous knowledge of the environment to produce fascinating and informative learning materials and activities that shine a light on the value and worth of Indigenous knowledge as an integral part of the curriculum. Read more about these wonderful materials here.

Mark Linkson, Coordinator ISN, Gimuy (Cairns), Queensland, AUSTRALIA

Original artwork for the ISN from Tiwi Designs by Jennifer Coombs, Melville Island, NT, AUSTRALIA

We acknowledge and pay respect to the past, present and future Traditional Custodians and Elders of the Aboriginal and Torres Strait Islander peoples of Australia and all First Nations peoples across the world. We celebrate and promote the continuation of their cultural, spiritual and educational practices.

Aims of the Indigenous Science Network

Originating from a meeting in 1998 of science educators and Indigenous community members in Darwin, Australia. We agreed that there should be a central place for Indigenous knowledge in any science curriculum. We have grown to cater for scientists, educators and Indigenous community members from across the world:

- To promote First Nations science, teaching and education
- To support all educators who would like to improve their knowledge and understanding of Indigenous science and how to access and use it in their teaching
- To involve Indigenous scientists, educators and community members who support the inclusion of Indigenous knowledge in teaching science and are open to dialogue and sharing about their own experiences.

Regional Correspondents

The Indigenous Science Network is managed from Gimuy (Cairns), on the unceded lands of the Gimuy-Walubara Yidinji peoples of Far North Queensland, AUSTRALIA.

ISN Facebook page and Twitter account

The Facebook page now has around 1600 followers and the Twitter account has 2380 followers (as at 2 June 2023). Most of these people are not official members of the network (not having supplied an email address) but some do contact us via those sites to join. It means we can improve and widen our reach by posting to those media. Items posted on Facebook focus on Indigenous science, environmental, welfare and equity issues. More pointedly, the Twitter account covers many Indigenous issues, much more than just science and has contributions from First Nations peoples of all settler countries. If you are not yet a Tweeter, we would encourage looking into it. The logos above contain hyperlinks to our live and continuing everyday media presence. However, the Bulletin is our most important and significant work, although some of the issues and stories that first crop up on social media do translate to future stories in the Bulletin.

INDIGENOUS SCIENCE NETWORK: BULLETIN ITEMS

Items are listed under five headings being **News and Views; Resources; Papers; Indigenous Astronomy** and **Conferences / Seminars**. We further categorise some of these sections with sub-headers of **Australia** or **The World**, to make finding your areas of interest easier. (See the Contents tabled following). We also have sub-sections for each of five regions of the globe within **News and Views (The World)**. Weblinks for most items are contained as hyper-linked addresses or as hotspots within illustrations. All links were active at the time of publication (15 June 2023).

All members are encouraged to submit links to items of interest OR submit reports, narratives or academic papers created by themselves that relate to the aims of the network. The strength of the network derives from the interests and motivations of the membership. Get involved!

ACER PROVIDES AN ONLINE HOME FOR THE BULLETINS AND THIS NETWORK

The Indigenous Science Network and the Australian Council for Education Research (ACER) are in a partnership, with ACER providing a permanent online home for the network as part of their Research Repository. We thank ACER for this kind gesture and hope that our regular bulletins provide their readers with plenty of useful material regarding the role and value of Indigenous knowledge in education at all levels. All ISN Bulletins issued since 2020 are stored on this website.

CONTENTS

The boomerang logo is a new feature of the Bulletin. It appears at the end of every section and is a hyperlink that will return you to this Contents Page.

Aboriginal and Torres Strait Islander people should be aware that this bulletin may contain images and names of deceased persons.

Carly Jia *is a Yidinji, Badulaig and Meriam woman from Far North Queensland and is currently the Principal Lead for First Nations Education Research at the Australian Education Research Organisation. Prior to this she was the inaugural Senior Advisor for Aboriginal and Torres Strait Islander Education with the Australian Institute for Teaching and School Leadership, leading the work on building a culturally responsive Australian teaching workforce. Over the past 19 years, Carly has held senior public service roles in a range of federal and state government agencies primarily in policy development and program delivery. For the past decade she has been active in Aboriginal and Torres Strait Islander Education and has a passion for ensuring that the needs and desires of Aboriginal and Torres Strait Islander learners are understood, respected and supported.*

Australian Education Research Organisation

First Nations Education Research

The Australian Education Research Organisation (AERO) respectfully acknowledges the First Nations Peoples of Australia and their ongoing connection to and custodianship of these lands, skies, sea country and waterways and their enduring contributions to community. We pay our deepest respects to First Nations Elders, educators, and scholars, past and present, from whom we are constantly learning. We actively commit to valuing and engaging with the perspectives, knowledges, and educational practices of First Nations people of Australia.

Improving outcomes for Aboriginal and Torres Strait Islander children and young people is one of AERO's key research priority areas. In recognition of this collective responsibility, we are committed to improving the evidence available for education practitioners and policymakers across Australia that reflects the truth telling movement and embodies the voices of First Nations Peoples of Australia.

"We are committed to continuing to listen, learn and engage. We recognise that in order to contribute to a better education and future for First Nations children and young people across Australia we must start by working closely and purposefully with First Nations people", says Dr Jenny Donovan, CEO.

AERO is committed to enabling and supporting the achievement of excellence and equity in educational outcomes for First Nations children and young people through the effective use of evidence. AERO aims to achieve this by ensuring:

- First Nations education research is led and carried out by Aboriginal and Torres Strait Islander people in both the workforce and advisory roles.
- we understand the priorities and expectations of how First Nations people and communities want to work together and apply these in our practice.
- Purposeful, sustained and ongoing engagement in our work with First Nations people.
- First Nations voices and perspectives are embedded into every aspect of AERO's work.

The research

AERO's First Nations Education Research team is working to understand and advance predictors of educational success for First Nations children and young people.

So far, we have conducted literature reviews, data analyses, and extensive consultations with First Nations educators and experts, as well as First Nations young people, to understand the needs and aspirations of First Nations people, and to identify the factors of teaching and learning that contribute to their educational success. These factors include: culture, language and identity, school and community engagement, leadership, addressing racism in education, teacher effectiveness, location-specific education, initial teacher education, literacy, and numeracy.

In response to stakeholder interest, in 2023 AERO is focusing on two factors: culturally responsive teaching and the representation of Aboriginal and Torres Strait Islander people in the teaching workforce. AERO is working on a range of outputs in these two areas. Our goal is to surface and make accessible and relevant the evidence that already exists on these two factors, as well as generate new evidence that is needed to advance our collective understanding. While some of our work will speak to the national context, we will endeavour to deliver resources and reports built on localised studies and contextualised data analysis.

> *"We understand at AERO that this work requires a collective effort from the profession, as well as privileging and centring of First Nations voices and perspectives in all we do",* says Carly Jia, First Nations Education Research Project Lead.

Get involved

AERO will continue to build the visibility of First Nations education research through engaging and collaborating with First Nations voices, knowledges, and communities to ensure that the work we do reflects the priorities and expectations of First Nations people.

If you'd like to find out more or get involved in our work, go to edresearch.edu.au or drop us a line at **info@edresearch.edu.au**.

Carly Jia
Principal Lead for First Nations Education Research
Australian Education Research Organisation

NEW BOARD MEMBERS FOR 2023

Over the following pages, please find short biographies of our four new First Nations Editorial Board members. We are very pleased to welcome them and look forward to their future contributions.

Dr Keith Roy Langenhoven

Research Fellow University of the Western Cape, UWC, SOUTH AFRICA
(PhD; MPhil; BEd; HDE(PG)Sec; BA; BSc)

My professional teaching career spans a period of forty-eight years (1974 to 2022) of teaching and learning experiences at Primary, Secondary and Higher Education levels. My current and future goals are the pursuance of collaborative research work into decolonization of Higher Education programming, materials and curriculum development, Relevance of Science Education (ROSE), Integrating Science and Indigenous Knowledge Systems (SIKSP) through classroom-based action-research, Inquiry - based Science Education (IBSE), Historicity of Mathematics, Science and Language Education Projects (MSLEP), African Socio-Cultural Studies, Technology Curriculum Program Design for Tertiary Institutions, Multi-model sensory/digital literacies and Argumentation pedagogical models.

I am currently located at the Science Learning Center for Africa and act as Secretariat Manager for the African Association for The study of Indigenous Knowledge Systems (AASIKS).

Growing the African correspondent role for the Indigenous Science Network (ISN) is a re-imagined innovation. My scholarly projection is to magnify and acknowledge contributions made by First Nations Peoples specifically the Khoi and San in Africa, to science, through the cosmology of Indigenous Knowledge. My heritage roots are mixed with influences from this group, the Dutch and Indian. Furthermore I have successfully supervised and co-supervised doctoral and masters students to graduation in studies promoting the integration of science and Indigenous Knowledge Systems.

Finally my (2015) doctoral thesis on 'The effectiveness of an argumentation instructional model for enhancing pre-service science teachers' efficacy to implement an integrated science-indigenous knowledge curriculum', is reflected through ongoing academic research and activities.

Dr Ron Vave

Postdoc Research Fellow
Coastal Studies Institute, Department of Coastal Studies, East Carolina University, USA.

Ron Vave is an iTaukei (indigenous Fijian) whose worked for the University of the South Pacific in Fiji between 2000 to 2014 where he was involved in trainings on natural resource governance and monitoring as part of the Locally Managed Marine Area (LMMA) network across seven countries in the Indo-Pacific region. He completed his PhD in Marine biology at the University of Hawai'i at Manoā in December 2021, where he researched the funerals of his people (the indigenous Fijians) and is currently a Postdoctoral Research Fellow at the East Carolina University.

His interdisciplinary PhD research sought to determine how the cultural practice of indigenous Fijian funerals in Fiji influences and affects Social and Ecological resilience. This PhD produced three firsts for Fiji and the South Pacific region: (1) first documentation and map of culturally protected water body (CPWB) practices of indigenous Fijians across Fiji, (2) first socioeconomic study on financing and expenditures of indigenous Fijian funerals across Fiji, and (3) the first countrywide documentation that compares all the funeral rituals (from start to finish) for all 14 provinces across Fiji (Table 2-7, page 57 of dissertation, with explanations for all rituals from 58-72).

Assistant Professor Indra Mani Rai (Yamphu), PhD

Central Department of Education, Tribhuvan University, Kathmandu, NEPAL
Visiting Faculty at Kathmandu University, School of Education, Kathmandu, NEPAL

- represents Yamphu Indigenous group, under Rai or Kirat from Eastern hill Nepal
- facilitates the courses related Educational Philosophies, Development Studies, and Research Methodology in graduate levels for about eight years
- has expertise on 'Sociology and anthropology of education', 'Indigenous knowledge', and 'Sustainable/development'.
- has several publications – journal papers and book chapters in his field of interest.
- conducted several researches on Indigenous issues
- has supervised dissertations of MPhil and PhD in his area of expertise.
- attended several national and international conferences making presentation of papers

First Nations Editorial Board (continuing members)

Keith, Indra and Ron join our continuing Board members:

Professor Liz McKinley (NEW ZEALAND)
Chair, First Nations Editorial Board
Atlantic Fellows for Social Equity
University of Melbourne, AUSTRALIA

Associate Professor Michelle M. Hogue
Coordinator: Indigenous Student Success Cohort
Faculty of Arts & Science
University of Lethbridge, CANADA

Carly Jia
Principal Lead, First Nations Education Research
Australian Education Research Organisation
Melbourne, AUSTRALIA

Yolanda Lopez-Maldonado PhD
Environmental Science Consultant (MEXICO)
Currently based in Vienna, AUSTRIA

Torres Webb
Cultural Capability Advisor
Commonwealth Science and Industrial Research Organisation
Cairns, AUSTRALIA

‘One of the most significant Aboriginal items in any museum collection’ returned as ancient kelp water carrier is repatriated to Tasmania

(Callan Morse, National Indigenous Times, 23 Feb 2023)

An ancient kelp water carrier or "rikawa" as it is known to Tasmanian Aboriginal people has been returned to the island state more than two centuries after being taken by French explorers. The kelp water carrier which was taken from Tasmanian Aboriginal people 230 years ago is made from bull kelp, wooden skewers and plant fibre ties, designed by First Nations Tasmanians to hold and carry water. Collected from near Recherche Bay in 1792 by the expedition party of Bruni d'Entrecasteaux, and after being mislabelled in an African collection for more than a century, the significant Tasmanian Aboriginal ancestral object was rediscovered by Dr Gaye Sculthorpe in 2019 at Paris' Musée du quai Branly - Jacques Chirac after many years of searching.

A significant Ancestral cultural object of the Tasmanian Aboriginal people, a rikawa (kelp water carrier), has returned to Country 230 years after being taken. Image: Tasmanian Museum and Art Gallery.

The ISN has permission to use text and images from NIT stories granted by Reece Harley, COO, via email 22 Feb 2023. With the condition that authorship is clear and links to original stories are included.

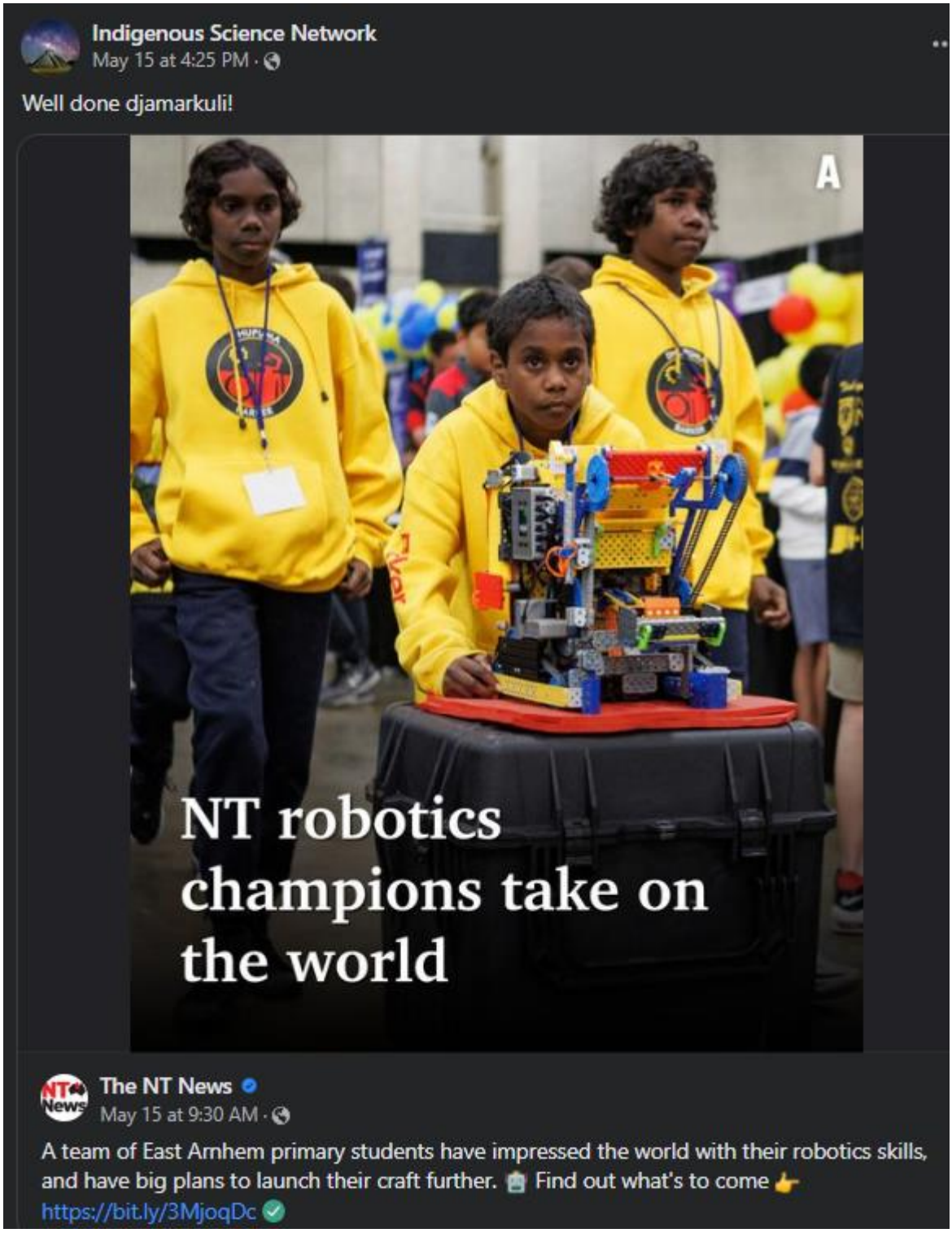
Aim for the stars: Young Indigenous Women's STEM Academy

(Monika Andersen, CSIROscope, 23 Feb 2023)

The Young Indigenous Women's STEM Academy recently had a special opportunity to work with the United States Embassy to create an event for NASA's Deputy Administrator and retired Astronaut, Pamela Melroy. The Academy helps the young women to connect with their local community and STEM professionals. The event took place at Curtin University's yarning circle on the lands of the Whadjuk Noongar people. The Academy invited Elder Kerry-Ann Winmar to perform a Welcome to Country, surrounded by game-changers and leaders in the aeronautical and space industry.

Photo credit: Robyn Jean Photography. With permission of Monika Anderson, CSIRO, via email 26 April 2023.

The group asked Pamela questions about her STEM journey. This included discussions about the challenges Pamela faced being a female astronaut. Pamela spoke about her three missions as an astronaut and building the International Space Station. She spent more than 38 days in space! Pamela's stories awed all in attendance, being only one of two females to ever command a space shuttle. It was inspiring for the group to learn how her many achievements rose from a childhood passion of flying and had the full support of her parents. Now as Deputy Administrator, Pamela assists, acts for and represents the Administrator in the governance of NASA. "I'm sure there are astronauts among you. You'll do many things to change the world, but it would be great to see one of you on the moon," Pamela said.


Indigenous Science Network
May 15 at 4:25 PM ·
Well done djamarkuli!
NT robotics champions take on the world
The NT News
May 15 at 9:30 AM ·
A team of East Arnhem primary students have impressed the world with their robotics skills, and have big plans to launch their craft further. Find out what's to come
https://bit.ly/3MjoqDc

A dive into the deep past reveals Indigenous burning helped suppress bushfires 10,000 years ago *(Alan N Williams, Mark Constantine IV, Scott Mooney; The Conversation: 17 April 2023)*

Indigenous Australians have conducted cultural burning for at least ten millenia and the practice helped reduce bushfire risk in the past, our new research shows. The study provides more evidence of the very long history of cultural burning in southeast Australia. While the burning was probably not specifically used to manage bushfires, our data suggest it nonetheless reduced fire extremes. Indigenous cultural burning involves applying frequent, small and low-intensity or "cool" fires to clean out grasses and undergrowth. But the scientific evidence for when in history Indigenous Australians used cultural burning, and what they were seeking to achieve, is unclear. Our findings suggest Indigenous cultural burning in the past may have helped reduce the intensity of bushfires. These findings are important because evidence suggests cultural burning can assist modern land management as climate change worsens.

Joseph Lycett, Aborigines using fire to hunt kangaroo (c.1817) National Library of Australia

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

Connecting to culture: here's what happened when elders gifted totemic species to school kids *(Natasha Ward, Bradley J. Moggridge, Georgia Garrard and Sarah Bekessy; The Conversation: 14 April 2023)* *Link*

Researchers used totemic species, as gifted by Elders to schools, as a means to ensure care for threatened species.

Image accessed from Facebook 1 May 23 Link

In Aboriginal and Torres Strait Islander culture, a totem is a spiritual emblem from the natural world, such as a plant or animal. The totem is gifted to an individual by a parent or elder, usually around the time of their birth. Some people have several totems. The connection is mutually beneficial: the totem is a protector of the person, who in turn shows their respect for the totem by caring for it. We wanted to find out if totemic species, when gifted to schools by Traditional Custodians, could generate care for threatened species - while also embedding cultural awareness and Indigenous knowledge in the Australian science curriculum. We ran a pilot program to test the idea and build an evidence base. The program was successful. Care for the totemic species increased and students expressed enthusiasm for this approach. And there were other benefits too.

Read the full article on The Conversation

First Peoples' knowledge of 'mysterious fairy circles' in Australian deserts has upended a long-standing science debate

(Fiona Walsh, Purungu Desmond Taylor and Theo Evans, The Conversation: 8 April 2023) Link

What are "fairy circles"? They are polka dots of bare earth, regularly scattered across arid grasslands. Scientists first described fairy circles in Namibia in the 1970s and sparked a global debate in the scientific community about the causes of the phenomenon. In 2016, a group of international scientists concluded that, in the Australian Pilbara, "fairy circles" arose from spinifex plants competing for water and nutrients—a similar explanation to the one they proposed for fairy circles in Namibia. These stories were amplified by the media, but the voices of Aboriginal desert people were not reported. In a study published in Nature Ecology & Evolution today, we show what our Aboriginal co-authors have always known—that fairy circles in the Western Deserts of Australia are flat, hard "pavements" inhabited by spinifex termites (Drepanotermes species).

Drone photograph of ‘fairy circles’ in spinifex on Nyiyaparli people’s country, east Pilbara, Western Australia.

Credit: Dave Wells. Image accessed from Twitter 2 May 23 Link


Indigenous Science Network
May 10 at 11:44 AM ·
The science of footy!!
ABC.NET.AU
Adelaide Crows swoop into regional towns with new STEM learning program for kids
See insights and ads
Boost post
3

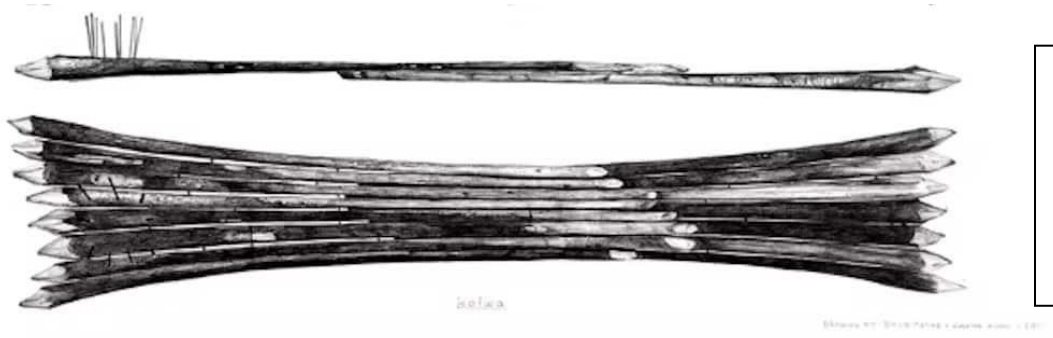
Five Indigenous engineering feats you should know about

(Cat Kutay, The Conversation: 27 March 2023) Link

For many millennia, Indigenous Australians have engineered the landscape using sophisticated technological and philosophical knowledge systems in a deliberate response to changing social and environmental circumstances. These knowledge systems integrate profound understanding of Country, bringing together an understanding of the topography and geology of the landscape, its natural cycles and ecological systems, its hydrological systems and its natural resources, including fauna and flora. This has enabled people to manage resources sustainably and reliably. Engineering is about process, and the process of engineering was very different in Australia before the English colonised the land. However, when our Aboriginal or Torres Strait Islander students take the step into engineering, or other STEM subjects, there is little material provided that relates to their experience or their peoples' technical and management knowledge. This is a result of historic denial of the First Nations of Australia as enduring scientific and technical civilisations.

1. The Kimberley raft

The King Sound region of the Kimberleys in Western Australia is renowned for its strong tides, rips and whirlpools. Navigation can be difficult, though there are areas of calm water in the bays. The Bardi community, from One Arm Point, call their raft the kalwa.



Side view and plan of the kalwa raft, a traditional watercraft from the Bardi community of north-west Western Australia. *WA Museum*

2. Thuwarri Thaa Aboriginal ochre mine

The Thuwarri Thaa (aka Wilgie Mia) Aboriginal ochre mine is located in central WA in the Weld Range, between Mount Magnet and Meekatharra. It has been in use for probably tens of thousands of years, including by non-Aboriginal miners from the 1940s to 1970s.

3. Budj Bim eel traps

The Budj Bim area (also known as Lake Condah), a dormant volcano in south western Victoria, was continuously occupied for thousands of years. The Gunditjmara community farmed eels and harvested galaxia fish in a series of dams and water channels constructed out of the basalt lava flows, an amazing surveying feat.

4. Yidaki

When Ben Lange, an Aboriginal man from Cairns who plays the Yidaki, came to the University of New South Wales to study electrical engineering, he worked with the physics department to look at how the Aboriginal people created sounds with this instrument. This work led to greater understanding of the use of the mouth and its components in speech production, providing inspiration for new approaches in speech therapy.

5. Brewarrina fish traps

The Brewarrina fish traps, called Biame Ngunnhu by the local Ngemba people, were created by Biaime in the Dreamtime – there is no oral record of other events that locate the period of construction. They are considered the oldest and longest-lasting dry wall construction on earth.

Professor Alex Brown joins CSIRO Board

(Mignon D'Souza; Manufacturers' Monthly: 27 March 2023) Link

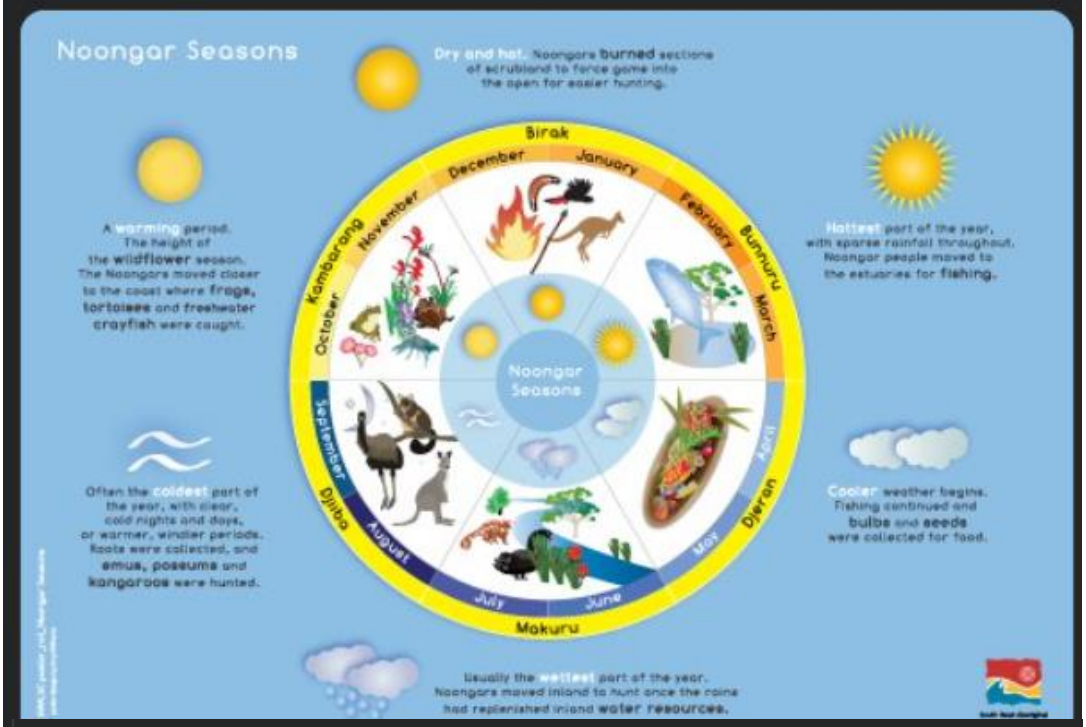
The Australian Government has appointed Professor Alex Brown to CSIRO's board of directors, becoming the first Indigenous scientist to serve on the national science agency's board. An internationally recognised clinician and researcher with a background in Aboriginal and Torres Strait Islander health, Professor Brown is the Professor of Indigenous Genomics at the Telethon Kids Institute and the Australian National University. A proud member of the Yuin nation, Professor Brown is the first Indigenous scientist appointed to the CSIRO Board, bringing a wealth of experience in understanding and overcoming health inequalities and bridging connections across science ecosystems. Minister for industry and science Ed Husic said Professor Brown's appointment puts First Nations representation at the heart of Australia's national science agency.

Professor Alex Brown. Image accessed from Twitter 2 May 2023 Link

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!


CSIRO @CSIRO · Mar 27
Torres Webb has always been passionate about science and education.
He's bringing his knowledge to a Cultural Capability Advisor role with our Indigenous Science and Engagement team.
Learn about our Indigenous Graduate Program and join #TeamCSIRO: spr.ly/6018OBz4o
IMPOSSIBLE WITHOUT TORRES WEBB
ALT
1
7
3,148

Indigenous Science Network
May 6 at 10:51 AM ·



AIATSIS
May 5 at 7:47 AM ·

Did you know on Noongar Boodja there are six seasons? These seasons aren't fixed to certain dates either, instead they're dictated by the changing environmental signs. Each Noongar season is represented by a phase of the life cycle.

Here is how to recognise the seasons on Noongar Boodja.

Djilba: The season of conception. The season can be identified by the behaviour of birds, with many now nesting and becoming protective. Djilba was the perfect season for hunting, and its temperature is right.

Kambarang: The second spring. As the dry weather becomes longer, life burst across the landscape. It is the season of birth. Each indicator of the season is also a guide for how to care for Country, where to move and what food and medicines are available.

Birak: The first summer. Birak's arrival is signalled by a clockwork-style pattern of winds. The land is heated by the easterlies blowing in from the desert in the morning and cooled during the afternoon by the sea breeze. The heat is emulated through the changing colour of the Moodjar tree.

Bunuru: Second summer. During Bunuru, the summer heat becomes harsh. White flowering gums boom and bloom with the heat. It is a time for learning, with the warmer weather, you lay down to look to the stars as they tell you stories of the past.

Djeran: Autumn. After the blistering heat of Bunuru, the earth begins to cool. During Djeran, the plants and animals are reaching adulthood. It's the time of red flowers and flying ants. They indicate that the salmon are ready and nectar is ready for plants to be harvested for medicine.

Makuru; Winter
When the winds shift to strong south-westerlies, Makuru has arrived. White flowers of the tea tree or weeping peppermint begin to show, and flashes of purple begin to brighten winter days. This is the season of fertility; seeds are spreading, and animals are pairing up, getting ready to breed. The life cycle begins again.

You can read more about the Noongar seasons, as told by Noongar people to ABC here: https://ab.co/40F0aQC

Image courtesy of South West Aboriginal Land and Sea Council
#AIATSIS #Summit #Noongar #SWALSC #AIATSISsummit

Medical gels made from spinifex grass to provide 'safer' treatments, jobs for Indigenous Australians *(Julia André Morse; ABC North West Qld: 8 March 2023)* *Link*

Scientists are using traditional Indigenous knowledge of native spinifex grass to potentially create "stronger, more reliable" medical treatments and foster STEM-related careers for Indigenous people. Covering nearly a third of Australia, spinifex grass has previously been harvested for its thin, strong nanofibres that are used to reinforce latex and rubber products. Now, scientists have created a medical gel they believe will better treat conditions such as arthritis and aid the injection of other drugs in the medical and cosmetic industries. Brisbane-based bioscience company Trioda Wilingi, which is associated with the University of Queensland, has received an investment of $2.6 million from its shareholders to develop the medical gels using spinifex.

Spinifex country near Barrow Creek, NT. 1992. *(John Coppi, CSIRO)* *Wikipedia Commons*

New centre aims to be Indigenous higher education leader

(Kalinga Seneviratne, University World News: 22 February 2023) Link

The New South Wales state government has announced a grant of AU$78.5 million (US$54 million) to Western Sydney University (WSU) under its WestInvest programme to help establish an Indigenous Centre of Excellence (ICE) at the university. WSU's Parramatta South Campus, set among some heritage-protected buildings, is located on Darug land, which was an important gathering place for the Indigenous community before European colonisation. This area has the largest Indigenous community in Australia and the university views the new centre as a way to celebrate both the university's and the region's long-standing connection with Indigenous people.

Artist's Impression of new Indigenous Centre of Excellence. *Image with permission of Amanda Whibley, Manager, Media and Public Relations, Hawkesbury Campus via email 8 May 2023*

The WSU's ICE will be established in collaboration with the university's Elders Advisory Committee and key Indigenous stakeholders, with the university's planning department to launch a national design competition for the building that would incorporate Indigenous architectural and artistic traditions. Environmental sustainability and Aboriginal and Torres Strait Islander peoples' connection to country will be central to the building's architectural design and position within the surrounding natural landscape.

US visitor says Indigenous knowledge can tackle climate crisis

(Emma Ruben, Cosmos Magazine: 22 February 2023) ***Link***

A US official who draws her knowledge from the trauma of her own community has called for Australia to heed the understanding of First Nations people in tackling climate change. US Secretary of the Interior Deb Haaland this month called for Indigenous-led conversation to combat climate change in Australia and beyond. Speaking at the Perth US Asia Centre in WA, the first Native American to serve as a United States cabinet secretary gave a keynote address on the importance of Indigenous knowledge and leadership in tackling the climate crisis. Haaland was visiting Australia to highlight the importance of collaborative conservation and international partnerships to inform the global effort to fight the climate crisis. Haaland spoke candidly of her own Indigenous heritage and how important it had been to her in her current role. "At one point in time, the department I now lead was tasked with either exterminating or assimilating Indigenous like me, a painful history that our two countries intimately share," Haaland said. "I'm the first cabinet secretary who brings the trauma of surviving federal assimilation policies to the decision-making table. "As secretary, I stand on the shoulder of those who came before me who survived those painful pages of our history, so that I can be here today."

Perth USAsia Centre executive officer Gordon Flake, US Secretary of Interior Deb Haaland, and US Ambassador to Australia Caroline Kennedy. Photo credit: Emma Ruben. *Image accessed from Facebook, 5 May 2023.* *Link*

Sea urchin harvest trial brings scientists, traditional owners and fishers together to help save kelp forests ***(ABC South East NSW / By Vanessa Milton and Simon Lauder: 21 Feb 2023)*** ***Link***

It has been a creeping problem along the coastline of south-eastern Australia for decades, but a breakthrough may be on the way. The urchin barrens already cover 50 per cent of the NSW coast and as ocean temperatures rise, the urchins are now degrading coastal reefs in Victoria and Tasmania. But a new initiative is bringing together scientists, traditional owners and commercial fishers to selectively harvest urchins from barren areas, while also encouraging a sustainable commercial urchin harvest. A trial site will be chosen on the far south coast of NSW, the "epicentre" of the sea urchin infestation. "What we're trying to do is turn those extensive barrens … into a productive mosaic, with enough kelp and seaweed to fatten up the urchins so that we get a commercial harvest," said the project's lead scientist, Professor Adriana Verges from UNSW Sydney.

Image taken from Twitter, accessed 5 May 2023 Link

The growing problem of sea urchin infestation is an urgent priority for south coast Indigenous communities, according to Walbunja elder Wally Stewart. Last year, Joonga trained a team of six Indigenous scientific divers to address the sea urchin issue, targeting traditional cultural fishing sites. For Mr Stewart, it is crucial that traditional custodians are not treated as "stakeholders" in conservation decisions, but play a central role in the management of sea country. "Our mob have been fishing and diving these waters forever. But our science has never been taken seriously," Mr Stewart said.

First Nations people often take on the 'cultural load' in their workplaces—employers need to ease this burden

(Nina Sivertsen, Courtney Ryder & Tahlia Johnson, The Conversation: 31 Jan 2023) Link

Image created by cutout.pro AI art generator on 5 May 2023

It's good practice for employers to consult staff when forming policies or guidelines. However, for some staff from diverse backgrounds, this creates extra work and pressure. "Cultural load" in the context of the workplace is the invisible workload employers knowingly or unknowingly place on Aboriginal and Torres Strait Islander employees to provide Indigenous knowledge, education and support. This is often done without any formally agreed reduction or alteration to their workload. Consultation and transparency around policies which relate to and impact on First Nations voices is essential for reconciliation. However this should be built on reciprocity and respect, and not create additional staff burden or burnout.

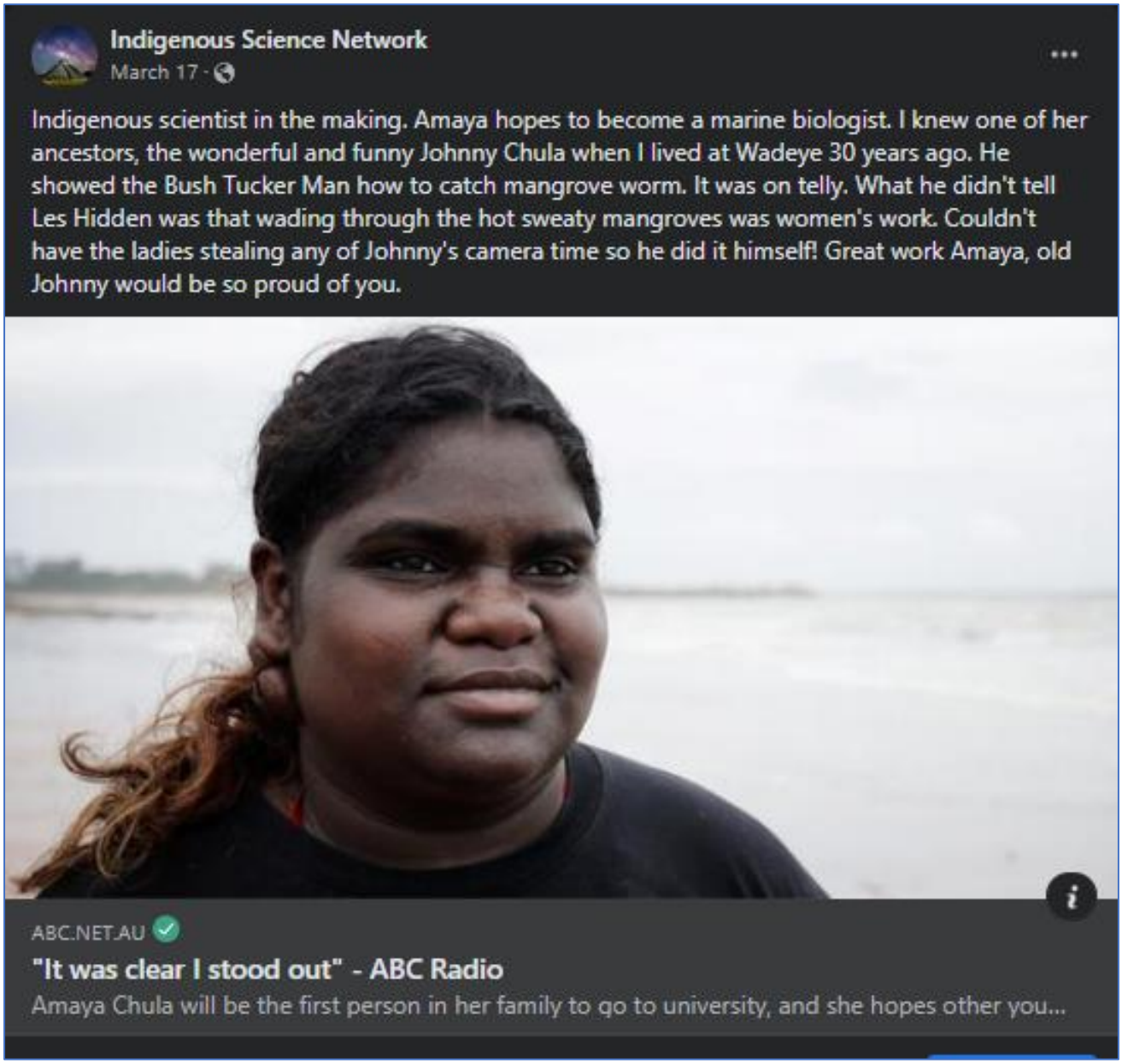
Aboriginal and Torres Strait Islander employees commonly bear the cultural load in their workplaces. They are in high demand to act as role models, mentors, members on committees and be a point of contact for enquiries around any First Nations matters from other staff. A 2020 survey of more than 1,000 Aboriginal and Torres Strait Islander workers found 78% of respondents felt it important to identify as Indigenous at work. But almost two-thirds (63%) reported high levels of identity strain. This meant feeling different to or not meeting expectations of the dominant culture in the workplace. Some 39% said they carried the burden of "high cultural load", which came in the form of extra work demands and the expectation they would educate others.

Banksia: Zena Cumpston Talks to Vanessa Morris About the Emu Sky Exhibition

(Accessed from rrr.org.au on 21 May 2023) Link

Hosted by Vanessa Morris, Banksia is a new pop-up show on RRR celebrating First Nations arts and culture. On her first show, Vanessa is joined by Barkandji researcher and curator Zena Cumpston. Zena speaks to Vanessa about curating the exhibition Emu Sky which explored Indigenous land management, knowledge, science, plant use, language and truth telling. “I’m really concerned about the way that country is being managed,” she explains. “And I really wanted to open up a conversation about what we are all missing out on when Indigenous perspectives aren’t empowered within those spaces of managing country.”

Please note that the physical exhibition is now closed but the VR version is still available here.



The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

IndigenousStudies
@IndigenousUoM

Congratulations @corey_tutt and BlaK Douglas for your award - first prize in the children's literature category for The First Scientists: Deadly Inventions and Innovations from Australia's First Peoples
abc.net.au/news/2023-05-2... via @ABCaustralia

abc.net.au
'Accidental writer' wins $85,000 and top prize at literary awards for memoir ...
Indigenous author Debra Dank has won a record four out of 14 NSW Premier's Literary Awards and $85,000 for her memoir of family and place, and says sh...

Barkandji/Barkindji artists share travels together on Country in a new exhibition at Bunjil Place Gallery

ngaratya (together, us group, all in it together)
14 May – 3 September 2023

ngaratya (together, us group, all in it together) is a fresh and vibrant exhibition that brings together six Barkandji/Barkindji artists, Nici Cumpston, Zena Cumpston, David Doyle, Kent Morris, Adrianne Semmens, and Raymond Zada, exploring and illuminating the artist's homelands and ancestral connection through newly commissioned works.

Featuring more than 50 works of art by contemporary First Nations artists and creators within the stunning Bunjil Place Gallery, *ngaratya* is a contemporary capsule of stories, memories and conversations as shown through sculpture, prints, moving image, photography, writing, and design.

Press release supplied by Zena Cumpston and reprinted with permission.

Barkandji curator and photographer **Nici Cumpston** OAM and her sister, writer, researcher, and storyteller **Zena Cumpston** have worked together to co-curate, as well as make their own works as part of this collective exhibition. They bring together Barkindji/Malyangapa carver, educator, and poet **David Doyle**; Barkindji photographer **Kent Morris**; Barkandji performer, dance maker and educator **Adrianne Semmens**; and Barkandji multi-media artist and broadcaster **Raymond Zada**.

Media enquiries: Ali Webb | house of webb | 0438 190 328 | ali@houseofwebb.com.au

Sharing their journey and story in curating this exhibition, **Nici and Zena Cumpston** said: *"This exhibition is an exercise in custodial responsibility – we are sharing these stories to introduce people to our Country. This is an opportunity to learn about and to celebrate our homelands, so we can together, be a part of the solutions needed to keep people and Country healthy."*

The six artists spent time travelling together on Country, engaging with cultural landscapes, their Elders, community, and each other, resulting in a rich, immersive installation that comes straight from the heart. This exhibition offers a dynamic portal into Country and connection.

Barkandji/Barkindji are the people of the Baaka (Darling River), culturally responsible for the waterway and vast Country spanning more than 100,000 square kilometres across western New South Wales.

The narratives explored by the artists are shared with joy and passion. Whilst this Country and its people have suffered through the ongoing pressures of colonisation, *ngaratya (together, us group, all in it together)*, is ultimately a journey of love, empowerment, respect, and connection.

Collectively the works speak to many diverse stories of Barkandji/Barkindji people and culture; the plight of the Baaka (Darling River), waterways as our lifeblood, ancestral connection, Indigenous plant use, deep knowledge of Country and innovation, bloodlines, cultural continuance, belonging and intergenerational learning.

Works in a variety of mediums are presented in this exhibition including carving, bronze casting, weaving, stringmaking, linocuts, etched acrylic, hand-coloured photographs, photographic installations, moving image, screendance and soundscapes.

***ngaratya (together, us group, all in it together)* premieres at Bunjil Place Gallery, on display from 14 May to 3 September 2023, before touring nationally.**

ABOUT THE ARTISTS

Nici Cumpston travels along the backwaters and inland lakes of the Murray Darling basin to create large-scale hand-coloured black and white photographs. Through these works she shares stories of ongoing Aboriginal occupation of this land. By visiting new sites alongside the other artists, she has developed a new series of photographs. Her expertise as a curator is guiding and supporting the artists to develop their ideas and present dynamic new artistic commissions for the exhibition.

Zena Cumpston is a writer, storyteller, and researcher and will present her artistic practice publicly for the first time as part of this exhibition. Zena's work centres around her interest in plant knowledge. Through her multi-disciplinary storytelling she illuminates the innovation of her people, shining a light on the ways Aboriginal peoples have used plants for nutrition, technologies, and medicines over many thousands of generations.

David Doyle is a carver, poet and educator creating works of art across a diverse range of media. His ongoing research into traditional methods of harvesting and processing traditional food sources provides great inspiration for his visual arts practice.

Media enquiries: Ali Webb | house of webb | 0438 190 328 | ali@houseofwebb.com.au

Kent Morris creates photographs, photographic installations and moving image works that reconstruct the built environment to reveal the continuing presence and patterns of Aboriginal history, of culture and knowledge embedded in the contemporary Australian landscape, despite ongoing colonial interventions in the physical and political environments.

Adrianne Semmens is a dance practitioner with experience working across the arts, education, and community sectors. In her multi-disciplinary practice, she explores identity and connection to place that is enabled through embodied movement and text.

Raymond Zada is a visual artist working primarily with photography, printmaking, video, and digital design. Through innovative techniques he examines and presents the complexities of Australian history and the disconnect between language and reality.

ngaratya (together, us group, all in it together) is a Bunjil Place Gallery exhibition toured by NETS Victoria. Curated by Nici Cumpston and Zena Cumpston.

This project has been assisted by the Australian Government's Visions of Australia program, as well as receiving assistance from NETS Victoria's Exhibition Development Fund, supported by the Victorian Government through Creative Victoria.

Images from top:

Nici Cumpston
Old Mutawintji Gorge I, from the series ***mirrimpilyi, happy and contented, 2023***
pigment inkjet print on Hahnemühle paper, hand coloured with PanPastel, crayon and pencil
44.0 x 120.0cm
Courtesy the artist and Michael Reid Gallery
photo by Michael Haines

Kent Morris
Karta-kartaka (Pink Cockatoo) #2, 2023
inkjet print on Moab Somerset Museum Rag paper
100.0cm x 150.0cm
Courtesy of the artist and Vivien Anderson Gallery

Zena Cumpston
untitled #5, 2023
linocut collage and kopi on Fabriano paper
76.0 x 56.0 cm
Courtesy the artist
photo by Christian Capurro

Bunjil Place

2 Patrick Northeast Drive Narre Warren 3805

Exhibition Dates: 14 May – 3 September 2023
Open 10.00am to 4.00pm. Tuesday to Sunday.
Entry free

Media enquiries: Ali Webb | house of webb | 0438 190 328 | ali@houseofwebb.com.au

a) Pasifika

Cook Islands' first science expo

(Ranitea Teihoarii, Kealakai, 15 Feb 2023) *Link*

“Andrea George, a sophomore [at Brigham Young University-Hawaii] from Aitutaki, Cook Islands, majoring in marine biology and presenter at the Expo, said, “There's work to be done in the gardens, and I'm excited because I can see a wave of interest in connecting back to how our ancestors would conserve. There's a generation of scientists coming, and they are going to be incredible.

“Spencer Ingley, assistant professor in the Faculty of Sciences [at Brigham Young University-Hawaii], said it would be interesting to build a space on campus where using traditional knowledge from the Cook Islands would be combined with different scientific projects on campus. He said it would be useful to have a space where the students and professors can bring together traditional with scientific knowledge on plants and ecosystems and show that they are compatible.”

”Ingley explained “Climate Change Cook Islands [is] a government agency that works under the Office of the Prime Minister. The agency is responsible for coordinating, carrying out and designing projects that relate to climate change and resiliency. They were looking for people who were finding synergy between traditional knowledge and science.”

Photo by Spencer Ingley

Image taken from Facebook 29 April 23 *Link*

Amplifying the voice of indigenous women in science

(Melina Etches, Cook Island News: 14 Feb 2023) *Link*

Climate Change Cook Islands celebrated International Day of Women and Girls in Science, on February 11, 2023, acknowledging the indigenous women who are key members of the team, key partners and have contributed to the organisation over the past few years. The International Day of Women and Girls in Science is an annual observance adopted by the United Nations General Assembly to promote the full and equal access and participation of women in Science, Technology, Engineering and Mathematics (STEM) fields celebrated on February 11. In the Cook Islands, Celine Dyer, the Cook Islands Climate Change coordinator, said they acknowledge all those who have empowered and inspired youth in Science, Technology, Engineering, Mathematics and Arts (STEAM) fields, during their Science Expos in Rarotonga and Aitutaki last year and especially in the climate change workshops, activities and projects.

"Indigenous women are holders of scientific and technical knowledge," says Climate Change consultant Melina Tuiravakai. "They are key and instrumental in the traditional knowledge of water, land, ocean, sky, flora and fauna, traditional teachings and practices from medicines, legends, arts, planting, fishing and food gathering practices, as well as the preservation of culture and language."

Charlene Akaruru supporting University of Auckland and Otago Museum at the first Science Expo in Rarotonga 2022. CLIMATE CHANGE CI/23021240.

Image accessed from Facebook 23 May 2023 Link

Wildlife Wins When Western Science and Traditional Knowledge Work Together

(Monica Evans, Hakai Magazine: 9 March 2023) Link

When conservation scientist Junior Novera was growing up in Mapisi Village, on a bend of the Sinamut River in Bougainville, Papua New Guinea, he'd never heard the term conservation. There were sacred sites, treasured species, and complex rules governing people's interactions with nature. But it wasn't until he left the island for university and attended an intensive course with the Wildlife Conservation Society that the concept—as defined by Western science—became clear. "I had traditional knowledge about hunting and all these other skills," Novera says. "But conservation, in that external context, was new to me." Just like Indigenous communities all around the world, he says, his community "understands conservation in our own ways, in our language, and in our way of life."

But there's value in bridging those worldviews. And Novera, in a new study, details his and his colleagues' attempt to combine these different understandings to protect imperiled species on his clan's customary land. Novera was inspired to blend the two perspectives by his experiences conducting conservation projects on mainland Papua New Guinea. Not long out of school, Novera was working mostly from the Western scientific perspective he'd been trained in. Time and again, though, he saw conservation projects fail to sustain long-term change.

Junior Novera (right), a conservation scientist, is working with his community in Papua New Guinea to protect imperiled Bougainville monkey-faced bats and other local species. *Photo courtesy of Salit Kark.*

Image and text with permission from David Garrison, Publisher, Hakai Magazine via email 25 April 2023.

Māori knowledge can help us combat climate change

(Rod Oram, Newsroom: 17 April 2023) ***Link***

Around the world, indigenous knowledge is playing a growing role in helping societies respond to the climate crisis. Tribes and other indigenous entities own a high proportion of native forests in many countries, for example and they are applying their traditional knowledge to restore that land and other natural resources. This expanding practice is evident, for example, in major chapters on such knowledge in reports by the IPCC, the United Nations' climate science body, and the roles indigenous leaders are playing at the UN's annual COP climate summits. Likewise, here in Aotearoa mātauranga Māori is working hand-in-hand with Western science to help us restore our ecosystems. For example, that partnership is one of the five principles of our 11 National Science Challenges; and in Environment Aotearoa 2022, our most recent national environmental stocktake. The role of such indigenous knowledge in Aotearoa is the subject of this 8th episode of The Way Forward, our Newsroom video series on the first seeds of transformative change in our responses to the climate crisis.

Image accessed on 1 May 2023 from Facebook Link

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

NgāPaeoteMāramatanga
@NgaPaeotM

Ka Mau te Wehi Linda Tuhiwai Smith!!

waateanews.com
International recognition for Indigenous science champion

9:40 AM · May 18, 2023 · **36.1K** Views

41 Retweets **9** Quotes **143** Likes **3** Bookmarks

b) Asia

Indigenous youths keep ancient forestry traditions alive in the Philippines

(Keith Anthony and S. Fabro; Mongabay: 6 March 2023) ***Link***

Michellejean Pinuhan, an Indigenous Higaonon, completed her bachelor's degree in agriculture entrepreneurship in 2022. Then, instead of working in the city after graduation, she chose to return to her roots in the Mount Sumagaya region, in the southern Philippines. The 23-year-old is part of a cohort of Indigenous youths known as basbasonon (second-liners): volunteers keeping alive an ancient forest monitoring practice known as panlaoy that helps protect ecosystems on the slopes of this biodiversity-rich mountain in Misamis Oriental province. Elders prepare the basbasonon to be the next cultural bearers and forest vanguards, and expose them to panlaoy and other cultural traditions.

Higaunon youth like Michellejean (with the GPS device) join their elders in the annual forest monitoring called panlaoy in the mossy forests of their Pina daw bahaw-bahaw, or their ICCA within their ancestral domain. *Image by Archie Tulin / NTFP-EP Philippines. Image accessed from Facebook 3 May 2023 Link*

Panlaoy has become an informal school for passing on the Higaonon traditional ecological knowledge from one generation to the next. Participants say it also provides an opportunity for youths to internalize traditional forest resource management practices, and to learn about their people's collective struggle for land and self-determination. During the panlaoy, Pinuhan says, she learned how Higaonon customary law forbids anyone from uprooting plants, especially those with known medicinal value. When sick, customs allow only for the collection of leaves, bark or roots based on the dosage prescribed by their balyan (tribal healer). "Through panlaoy, I've understood better the importance of our forest to us natives; it's where we get our daily sustenance, from food to medicine, so without it we won't exist," Pinuhan says of her experience. "That's why panlaoy is crucial because it allows us to monitor our vast forest and its state."

UNESCO-NFSJ Science dialogue series on "Ethnobotany and Indigenous knowledge" commences *(The Himalayan Times Online: 27 Aug 2022)* *Link*

KATHMANDU, AUGUST 27 - The United Nations Educational, Scientific, and Cultural Organization (UNESCO), in collaboration with the Nepal Forum of Science Journalists (NFSJ), organised its first science dialogue session on the theme of "Ethno-Botany and Indigenous knowledge" on Friday. Tribhuvan University Professor Emeritus Ram Prasad Chaudhary spoke during the session where he emphasized the intimate relationship between ethnobotany and indigenous knowledge systems. He shared his thoughts on the contribution of women to knowledge generation and preservation and highlighted the significance of protecting Intellectual Property Rights (IPRs) through evolving legal frameworks.He also discussed how organisations, forums, and media play a crucial role in showcasing the origin and usefulness of indigenous knowledge systems and in disseminating the findings of ethno-botanical research.

Delegates meet in Kathmandu. *Image taken from Facebook, accessed 25 May 2023* Link

c) Africa

Science Commission Hosts Consultation Workshop on Draft National Indigenous Knowledge Systems Policy

(Clifton Movirongo, Namibia News: 18 Apr 2023)

The National Commission on Research, Science, and Technology (NCRST) Chief Executive Prof. Anicia Peters on Tuesday addressed stakeholders from across the country on the Review of the Draft National Indigenous Knowledge Systems Policy at a stakeholders consultation workshop in Windhoek. The purpose of the two-day workshop is to provide a platform for stakeholders to share their expertise, knowledge, and insights on the integration of indigenous knowledge systems into national development plans, research, and developmental and educational programmes.

Pictured in Windhoek are stakeholders from across the country at the opening of the stakeholders' consultation workshop on the Review of the Draft National Indigenous Knowledge Systems Policy. *Image from Facebook Link*

"During this workshop, we will explore the nexus between indigenous knowledge and education, science, and technology. We will also examine the best practices for the preservation, promotion, and development of indigenous knowledge in Namibia," Peters said in her welcoming remarks. According to her, indigenous knowledge systems are a critical part of "our cultural heritage and identity." It encompasses knowledge, practices, and beliefs developed over time, passed down from generation to generation, she added. "This knowledge is deeply rooted in our traditions and customs and is a source of resilience, innovation, and creativity. Indigenous knowledge systems play a vital role in various fields, including agriculture, healthcare, environment, and natural resource management," the Chief Executive noted.

Villagers tap into indigenous knowledge to protect Zimbabwe's wetlands

(Nokuthaba Dlamini, The Standard: 18 Apr 2023)

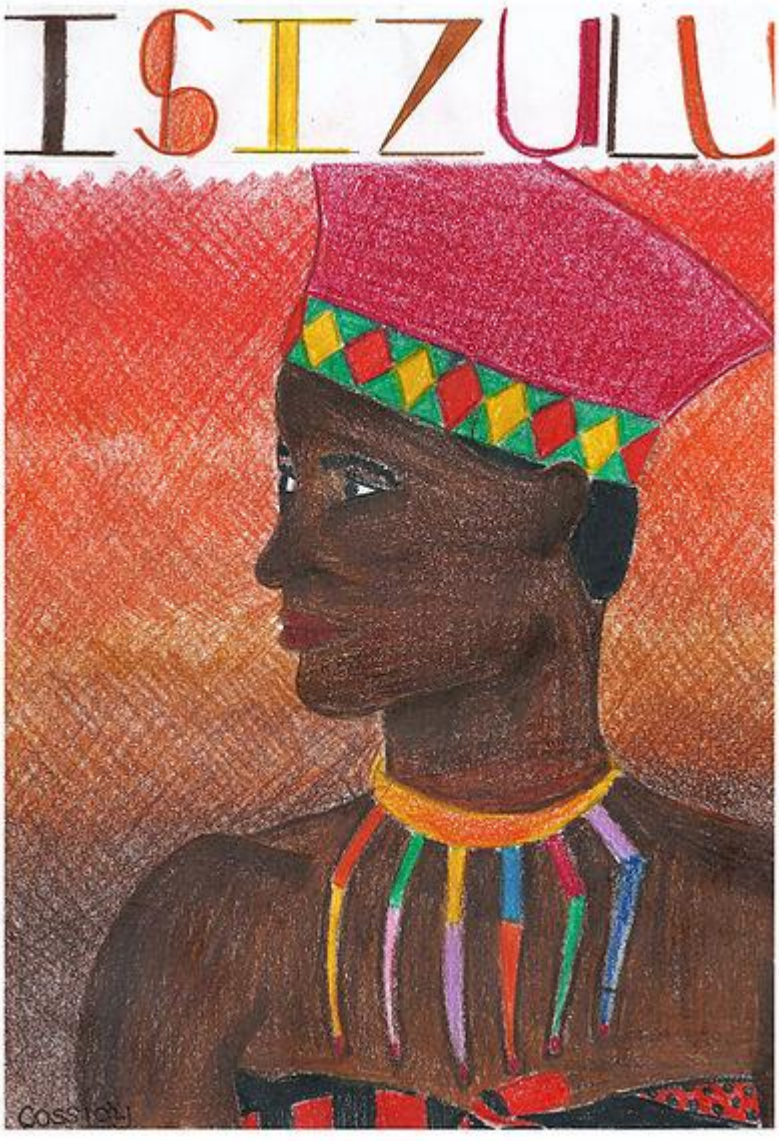
After suffering from persistent droughts, villagers in Matabeleland South's Matobo district have taken the initiative to restore wetlands in their communities, which are crucial for guaranteed ground water. The communities identified the Ntunjambila and Gulathi wetlands where various strategies are being implemented as part of the restoration and protection programme. To counter the challenge, communities organised themselves to come up with strict regulations and formed committees at ward level to enforce them. They also tapped into long forgotten indigenous knowledge systems to protect the two wetlands. Clifford Khanye, chairperson of the Ntunjambila Wetlands Committee, told The Standard that the community was prompted to act after realising that climate change had resulted in rainfall being more erratic and devastating water shortages.

Image accessed on 1 May 2023 from Twitter Link

Why Indigenous knowledge has a place in the school science curriculum

(Moyra Keane Dlamini; MENAFN: 8 Apr 2023) ***Link***

I posed this question to university foundation students for a research project into place-based science learning. The group of about 18 isizulu-speaking students told me one after the other that their "local knowledge" was irrelevant. No, they weren't interested in traditional ways of knowing. Their grandparents may have had"indigenous knowledge", but this wasn't for them. Sipho was the last to join the conversation. He laughed:"They are all lying!" But his voice was bitter and sad. His comment provoked uneasy laughter and took the discussion in a new direction. One young man explained that he had given me what he thought would be an acceptable answer. Others now said:"Yes, sure, of course – I mean, we know things differently" and"We have one way of knowing at home and another at school."



Indigenous knowledge includes a local community's traditional technology; social, economic and philosophical learning grounded in spirituality skills, practices and ways of being in nature. It encompasses many areas from farming to law and psychology to mathematics. Efforts to integrate this knowledge into formal schooling via the science curriculum have focused on astronomy, living in nature, agriculture, technology, food and plant uses. The Science and Indigenous Knowledge Systems project at the University of the Western Cape has done pioneering work to produce teaching materials. But most school textbooks do not deal adequately – or at all – with indigenous knowledge.

Ethnographic relevance of Nigeria's indigenous knowledge

(Nkechi Bello-Odofin; The Guardian: 18 April 2023)

Today, science determines the wealth, power and prestige associated to countries. This is because technology has its root embedded in cultural history, cultural values and traditions. This highly valued ancient Indigenous Knowledge (IK) has been carried to the contemporary times. In Nigeria, the Yoruba refer to it as Imo; the Igbo people call it Amamihe and the Hausa call it Ilimi. This paper shall ex-ray the ethnographic relevance of Nigeria's indigenous knowledge. To put the paper in proper perspective, the nature of Nigeria Indigenous Knowledge shall be brought to bear. Finally, the challenges and prospects of Nigeria's IK shall be discussed.

Image accessed 1 May 2023 from Twitter Link

Indigenous Knowledge is a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural resources through relationships between humans and their landscapes. It cannot be separated from the people inextricably connected to that knowledge. It applies to phenomena across biological, physical, social, cultural, and spiritual systems.

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

FAO urges Kenya to leverage indigenous knowledge, boost forest conservation

(Xinhua, China.org.cn: February 20, 2023) *Link*

NAIROBI, Feb. 20 (Xinhua) -- Food and Agriculture Organization of the United Nations (FAO) Director-General Qu Dongyu said Kenya should harness indigenous knowledge in its quest for sustainable forest management. Speaking Sunday evening during a tour of Karura forest on the outskirts of Nairobi, the Kenyan capital, Qu stressed that combining science and indigenous knowledge will strengthen the country's efforts to protect forests and other ecosystems that sustain livelihoods. "The management of forests requires a multi-stakeholder approach where local communities are included and are allowed to share their knowledge in the management process," Qu said as he launched drones that are earmarked for promoting forest conservation in Kenya.

FAO Director-General QU Dongyu. *Image accessed from Youtube, 5 May 2023* *Link*

He noted that the restoration of forests will not only boost climate resilience at the grassroots but also revitalize the sustainability agenda in the East African nation. Qu commended Kenya for its role in mitigating climate change through the restoration of its indigenous forests while establishing woodlots to increase the tree cover. He observed that the approach resonates with the FAO strategic framework that advocates for land and nature-based solutions to address the triple crisis of climate change, biodiversity loss, and environmental degradation.

d) Americas

How two-eyed seeing, 'Etuaptmumk,' is changing outdoor play in early childhood education *(Louise Zimanyi and Albert D. Marshall, The Conversation: 18 April 2023)* Link

A knowledge and research collective at Humber College has been working to create, teach and evaluate a new course in the early childhood education program, Two-Eyed Land-Based Play and Co-Learning. Etuaptmumk (eh-doo-ahp-duh-mumk) or Two-Eyed Seeing is the gift of multiple perspectives in the Mi'kmaw language. We are Louise Zimanyi, professor and researcher of French-Canadian and Hungarian descent living as a guest in Tkaronto/Toronto, Ont., Treaty 13 territory, and Mi'kmaw Elder Albert Marshall, Moose Clan from Eskasoni, Unama'ki/Cape Breton, Nova Scotia, the territory of the Mi'kma'ki. We are part of the Two-Eyed Land-Based Play and Co-Learning Knowledge and Research Collective and have been co-learning together since meeting in early 2020.

Co-learning means enhancing each other's understandings and perspectives, by sharing your gifts through relationships and the exchange of stories. Two-Eyed Seeing inspired the reimagining of Humber's nature program for young children, and is the focus of Louise's doctoral work. Exploring children's outdoor play through Two-Eyed Seeing led to rethinking post-secondary training for early childhood educators through this unique and timely course.

When we walk together in a good way, we learn to see the world from multiple perspectives. *Image accessed from Twitter, 30 April 2023* Link

Indigenous women record age-old knowledge of bees in Colombia's Amazon

(Astrid Arellano | Translated by Maria Angeles Salazar, Mongabay: 8 Feb 2023) *Link*

A team of Indigenous Yucuna women in the Colombian Amazon are rescuing and documenting the remaining oral knowledge on bees and their roles in the ecosystem, along with the traditional classification system of diverse bee species. With the help of nine elders, they are documenting and sketching tales and songs to gather bee names, characteristics, behaviors, roles in their crop fields and the places where bees build beehives. Biologists are part of a bee inventory program and the women from the reserve are working to compare each other's findings on bee species in the Indigenous territory, where researchers say bees are better protected than other regions of Colombia. Some of the traditional tales and knowledge are even surprising to the women documenting it; they say the details and scientific information will be shared with the communities and local schools to raise awareness on the importance of protecting bees.

The information that Carmenza Yucuna and her colleagues have collected, with stories, songs, illustrations, and scientific information, will be part of a brochure that will be edited and printed in Spanish and Yucuna language to be distributed in the community and, especially, in the schools that are part of the reserve. "We'll take all this knowledge to schools so that teachers can share it with the kids and show them the tales, the drawings, and the classifications and talk about the value of bees in culture. But also, so that they know that bees aren't beings without importance," says Carmenza. "They care for us without realizing it. They, through the pollination of trees and flora, help the world breathe."

One of the Indigenous Yucuna women holds up a labelled drawing of a native bee during a workshop. *Image accessed from Twitter 25 May 2023* *Link*

Indigenous knowledge systems and water guardianship

(Yolanda Lopez-Maldonado; spaceway4water.org: 4 Apr 2023) ***Link***

Yolanda is a First Nations Board member of the Indigenous Science Network.

Can you explain how your community relates to the environment?

Much of our relationships with nature relies on the inherited knowledge from our Mayan ancestors. We express deep spiritual connection to nature reflected over millennia of stewardship, maintaining ecosystems that are essential to produce food, to provide freshwater and for climate stability. We learn about the environment and from the environment and this led us to a profound understanding of the natural world, the cosmos and the use of technologies.

Yolanda in front of an "open air" cenote in Yucatan. *Image supplied by the author with permission.*

Can you explain how your community relates to water?

The Mayas were a water-oriented society, everything was related to water including their ceremonies which were, and still are, performed to honour the God of Rain (God Chaac). The Mayan Indigenous people's perspective of water management and the many challenges they face are based on their historical dependence on their environment in general, and groundwater, in particular, along with their values, world views and belief systems.

In Yucatan, for example, water management has evolved from a traditional commons system that has survived for thousands of years. The Maya emerged in this place more than 4 000 years ago and, nowadays, there is plenty of evidence to suggest that water helped our civilisation to flourish. Archaeological evidence suggests that there was a close link between water and society as a whole. Maya knew, for example, how to take care of their water resources. The Maya were also able to deal with stress variation in environmental conditions by transforming their local environment. They significantly modified their landscapes to centralise their water needs, capture rainfall and create channels to provide several communities with water.

Clarkson University Receives Nearly $400,000 National Science Foundation Award

(Staff writers, Clarkson University News & Events: 14 Feb 2023) *Link*

Clarkson University Assistant Professor of Civil and Environmental Engineering Abul Basar Baki and Phillip White-Cree, coordinator of Indigenous community support and outreach and instructor of history at Clarkson, have received an award in the amount of $398,544 from the National Science Foundation (NSF), which will renew the Research Experiences for Undergraduates (REU) program called Aquatic Science, Engineering, and Technology (ASET). The award will bring 10 undergraduates to Clarkson each summer for a 10-week research experience during the summers of 2023 to 2025. ASET will focus on the Great Lakes-St. Lawrence River watershed environmental research. “By working with the different Environment Divisions in Akwesasne and especially the St. Regis Mohawk Tribe Environment Division, Clarkson is creating a truly unique connection for both Indigenous and non-Indigenous students to learn about Indigenous Traditional Ecological Knowledge of the Great Lakes-St. Lawrence River,” White-Cree said.

An Indigenous perspective on climate change: Shoshone Nation leader shares insights at Colorado Mountain College

(Carolyn Paletta, Vail Daily: 18 Feb 2023) *Link*

Walking Mountains Science Center invited Darren Parry, the former chairman of the Northwestern Band of the Shoshone Nation, to share his thoughts and observations on climate change from an Indigenous perspective as part of its annual Climate Speaker Series. Over the course of an hour Thursday night at Colorado Mountain College, Parry described how the increasingly catastrophic water crisis in the Western United States is the inevitable result of a value system built on ownership and extraction of the land rather than reciprocity and stewardship. “We are caretakers, not owners, a distinction that is misunderstood in the world today,” Parry said. “How do we reconcile the past, where Western values have taught us that we have rights — we can use the land for extraction and depletion — versus Indigenous values that have always taught me that I have obligations. Obligations to the past, present and future. Obligations to my community.” Parry explained how the Western approach to land and resource management ignores an essential truth that Indigenous communities have always known: that all living things are connected, and that the health of the people will always parallel the health of the environment.

Darren Parry, the former chairman of the Northwestern Band of the Shoshone Nation, poses with Gina McCrackin, manager of the Climate Action Collaborative, at Thursday's Walking Mountains' Climate Speaker Series event. *Walking Mountains Science Center / Courtesy photo. Image taken from Twitter 15 May 2023* *Link*

Simon named patron of foundation that supports Indigenous students in STEM

(Nunatsiaq News: 18 April 2023) ***Link***

Gov. Gen. Mary Simon has been named a patron of an organization dedicated to increasing the representation of Indigenous university students in pure and applied science, engineering, and mathematics programs. The Verna J. Kirkness Education Foundation announced Tuesday that Simon, the first Indigenous person to serve as the King's representative in Canada, had been named a patron due to her history of serving and supporting Indigenous Peoples in Canada. The foundation provides scholarships to Indigenous high school students to spend a week at a Canadian university learning from professors and their teams. The goal is to develop motivated role models who foster the importance of graduating high school and completing post-secondary education, the foundation's news release said.

Canada's Governor General Mary Simon, who is Inuk, wants to build ties between Indigenous people across the globe. And she is leveraging a colonial institution, Rideau Hall, to advance reconciliation abroad and bolster centuries of collaboration. *Image accessed from Facebook 29 Apr 2023* Link

Academics Discuss Indigenous Knowledge and Climate Adaptation at Mahindra Humanities Center

(Adelaide E. Parker and Tilly R. Robinson; The Harvard Crimson: 17 Apr 2023) ***Link***

University of Washington Bothell Earth Sciences professor Margaret H. Redsteer discussed the role of Indigenous knowledge in climate adaptation during a lecture hosted by the Mahindra Humanities Center on Thursday. Redsteer's lecture was followed by a talk by University of Arizona Law professor Rebecca Tsosie. Afterward, Redsteer and Tsosie participated in a question-and-answer session about Indigenous knowledge and United States climate policy. Redsteer began by discussing current American climate policy, describing the majority of U.S. climate initiatives as focused on "the mainstreaming of climate action," or adding climate change considerations to existing federal programs.

"Whatever the agency goals are, those are the goals that are being examined," she said. "This favors those with privileges and connections and ignores the different ways that climate could be experienced." Incorporating Indigenous knowledge into climate work provides researchers with a more nuanced understanding of climate change, Redsteer said. Because Indigenous language and culture are "based on the need to have detailed knowledge about local environments in order to survive," she said, "Indigenous communities are tuned in to their local changes" in a way that other knowledge systems are not. Redsteer said the "co-production of knowledge," where scientists rely on and credit Indigenous knowledge to inform their analysis, has become widespread. She added, though, that scientists often see Indigenous knowledge as just another tool to gather data and plug it into models, instead of considering the unique context of that knowledge.

Thunder Bay science centre pegged at $80M

(Ian Kaufman, TBNewsWatch.com: 18 April 2023) Link

THUNDER BAY — Science North has unveiled an $80-million price tag and other new details about its proposed Thunder Bay science centre. Science North CEO Ashley Larose presented the organization's vision for the 3,850 square metre facility to city council on Monday, saying it would serve as a tourist draw and an entertainment hub for locals, and boost science education with innovative approaches. "What we are really presenting here is the next generation of what a science centre can be," she said. The Thunder Bay science centre, designed with significant input from an Indigenous advisory council, will meaningfully incorporate Indigenous scientific knowledge, Larose emphasized to council. "For the first time in this country, a science centre will be built from the ground up incorporating both western and Indigenous knowledges at the same time," she said. "Not something added in later, not a specific gallery, but really integrated and braided together from the get-go."

Image accessed from Facebook 1 May 23 Link

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

J'Shon Lee, an Indigenous educator from Albuquerque, explains why she teaches
(Accessed on Instagram 21 April 23 - https://www.instagram.com/p/CnOGaxms26P/)

US to restore more bison to tribal lands by tapping into 'Indigenous Knowledge,'

(Bradford Betz | Fox News: 5 March 2023) Link

The U.S. Interior Department on Friday said it is working to restore populations of American bison to tribal lands by tapping into Indigenous knowledge. Interior Secretary Deb Haaland, who is the first Native American to serve as a U.S. Cabinet secretary, said restoration efforts will be funded by more than $25 million from the Inflation Reduction Act. "This holistic effort will ensure that this powerful sacred animal is reconnected to its natural habitat and the original stewards who know best how to care for it," Haaland said in announcing her order Friday, during a World Wildlife Day event at the National Geographic Society in Washington, D.C. "When we think about Indigenous communities, we must acknowledge that they have spent generations over many centuries observing the seasons, tracking wildlife migration patterns and fully comprehending our role in the delicate balance of this earth," she added.

FILE: Bison awaiting transfer to Native American tribes walk in a herd inside a corral at Badlands National Park, on Oct. 13, 2022, near Wall, S.D. *(AP Photo/Matthew Brown) Image accessed from Twitter, 3 May 2023 Link*

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

Knowledge Keepers bring wealth of experience to College of Nursing

(ALAN MACKENZIE; UM News: 5 March 2023) Link

For UM alumni Brenda Longclaws and Linda Williams, being a Knowledge Keeper means bringing cultural and spiritual knowledge to students and educators who wish to incorporate more of an Indigenous perspective into their programming. Longclaws and Williams have been Knowledge Keepers with the College of Nursing, Rady Faculty of Health Sciences since September 2022. They bring a wealth of experience to their shared role. The college has had an Elder/Knowledge Keeper in place for several years through the Mahkwa omushki kiim: Pathway to Indigenous Nursing Education (PINE) program, a pathway for First Nation, Inuit and Métis students entering the bachelor of nursing program. Leslie Spillett, Knowledge Keeper for Ongomiizwin – Indigenous Institute of Health and Healing, last held the position.

Knowledge Keepers Brenda Longclaws and Linda Williams. *Image accessed from Twitter, 3 May 2023 Link*

Previously the Knowledge Keeper was onsite once a week, but Longclaws and Williams are each there two days a week, significantly increasing access for nursing students and faculty. “With the growing number of Indigenous nursing students, it’s important to provide additional support by Knowledge Keepers,” said Dr. Netha Dyck, dean, College of Nursing. “Students appreciate the ability to have one-on-one discussions and participate in sharing circles and cultural activities offered by the Knowledge Keeper,” Dyck said. “In addition, Knowledge Keepers will support our faculty in their integration of Indigenous knowledge and practices into program curricula.”

Cheyenne elder demands institutions to seek out tribal knowledge

(Brian D. King; Transcript Staff Writer: 11 April 2023) ***Link***

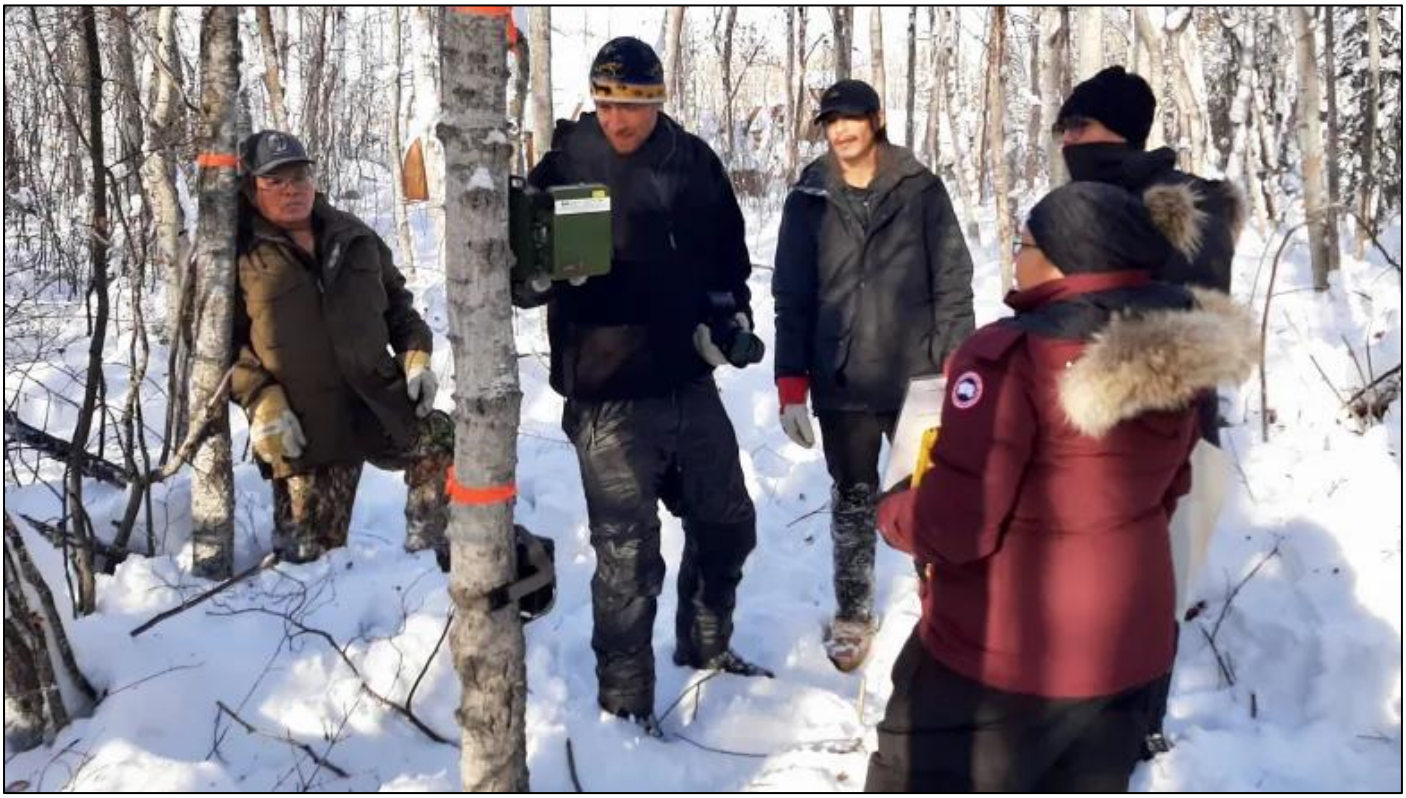
When it comes to ecological policy, the U.S. government, state institutions, and researchers in the hard sciences should lean on Indigenous knowledge, a Cheyenne elder said Tuesday. Chief Gordon Yellowman Sr. of the Cheyenne Arapaho Tribes spoke during a luncheon event at the National Weather Center on the University of Oklahoma campus about the importance of weighing institutional knowledge from the original stewards of the American continent when enacting policy changes that will alter the earth's surface. "Our tribal leaders, our state leaders, our national leaders, and recently a new Biden administration came up with an act encouraging these federal agencies that they must now use and recognize and acknowledge traditional knowledge into their decision-making," Yellowman said. "And so for me, I felt proud that that happened." Referring to a memorandum dated Nov. 15, 2021, from the Office of the President of the U.S. Yellowman states: "Where appropriate, (Indigenous Tribal Ecological Knowledge) can and should inform Federal decision making along with scientific inquiry."

Gordon Yellowman gives a presentation, Tuesday, April 11, 2023, at the National Weather Center on the University of Oklahoma campus. Kyle Phillips | The American. *Image accessed from Facebook 2 May 23* *Link*

Canada wants more Indigenous knowledge in IPCC climate reports

(Chloe Williams; Cabin Radio: 11 April 2023)

Canadian delegates to the Intergovernmental Panel on Climate Change have called for broader inclusion of Indigenous knowledge in future climate reports. The comments were made at an IPCC meeting in Switzerland, where 195 nations' delegates negotiated the wording of a report that summarizes years of climate change research for policymakers. In closing remarks at the March meeting, Canadian delegates highlighted the importance of Indigenous peoples and stressed the need to incorporate Indigenous knowledge from the start of the next reporting process, according to the Earth Negotiations Bulletin, a non-profit that reported on the deliberations. Lisa Qiluqqi Koperqualuk, president of the Inuit Circumpolar Council of Canada, said Canadian delegates acknowledging the importance of Indigenous knowledge shows respect. She said the Inuit Circumpolar Council, which sent delegates to the March meeting, had suggested the comment be made.



Edéhzhíe guardians undertake wildlife camera training, together with guardians from the Ts'udé Niljné Tuyeta protected area. *Photo: Ashley Menicoche. Image accessed from Twitter, 2 May 23* *Link*

Get to know ISC's new Knowledge Keeper

(Chelsey Hill; University of Manitoba News: 15 March 2023) Link

The Indigenous Student Centre is excited to welcome Knowledge Keeper Kimberly Guimond, alongside Elders-In-Residence Norman Meade and Carl Stone, to the University of Manitoba community. Kim comes to the university with a robust background, having graduated from UM in 2000 with a degree in Education. Upon graduation, Kim returned to her home community in Sagkeeng to teach middle years students for 17 years. In 2018, Kim had the opportunity to join the Ojibwe Bilingual Program at Seven Oaks School Division – a program that was the first of its kind in Winnipeg. UM Today sat down with Kim to chat about her background and what brought her to the UM, today.

Kimberly Guimond joins the Indigenous Student Centre as a Knowledge Keeper. *Image accessed from Facebook, 2 May 23 Link*

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

Black and women scientists are less likely to have multiple research grants

(Mallory Locklear; Yale News: 28 Feb 2023) Link

Black and women scientists are less likely than white men to have more than two research grants, a disparity that affects career paths and innovation. A growing number of researchers have more than two grants simultaneously from the National Institutes of Health (NIH), but women and Black researchers are less likely than white men to be among them, a new Yale study finds. This disparity, the researchers say, has implications for research innovation and public trust and can impact career trajectories. The findings were published Feb. 28 in JAMA Network Open. "Having multiple grants yields career advantages," said Mytien Nguyen, an M.D.-Ph.D. student at Yale School of Medicine and lead author of the study. "Researchers are more likely to be retained and promoted, have more of a voice at their institutions and in shaping national research agendas, and have bigger labs that train more young researchers."

Black women were 71% less likely to attain super PI status than white men in the years since 2015. These inequities likely have wide-reaching effects on biomedical research "Concentrating resources among investigators who are more likely to be white and male has implications for the level of innovation we're going to see in the science that's produced. It's also going to affect the trust that people in the United States have in scientific research,"

Strengthening STEM Teaching in Native American Serving Schools through Long-Term, Culturally Responsive Professional Development Link

PROJECT DETAILS

LEAD ORGANIZATION(S):
Northern Arizona University
AWARD NUMBER:
1908464
FUNDING PERIOD:
September, 2019 to August, 2023

This project will explore how a nationally implemented professional development model is applied in two distinct Indigenous communities, the impact the model has on teacher practice in Native-serving classrooms, and the model's capacity to promote the integration of culturally responsive approaches to STEM teaching. Although there is a long-established body of knowledge about effective professional development for STEM teachers, very little of it has been applied and studied with teachers in Native American-serving school districts. This project will explore how a nationally implemented professional development model is applied in two distinct Indigenous communities, the impact the model has on teacher practice in Native-serving classrooms, and the model's capacity to promote the integration of culturally responsive approaches to STEM teaching. This project will substantially grow the data and knowledge available within this unique context, which is critical given the persistent gaps in educational achievement and STEM career participation among Indigenous people in the U.S. K-12 teachers will participate in an 8-month cohort designed to increase their STEM content knowledge and facilitate their efforts to develop academically rigorous, culturally responsive STEM instructional units for use in their classrooms.

Native American women struggle to find footing in STEM fields

(Brenda Cain, cleveland.com: 15 Feb 2023) ***Link***

CLEVELAND, Ohio – America's Indigenous people were the first scientists, yet despite thousands of years of knowledge in ecological and medical fields, Native Americans are under-represented in Science, Technology, Engineering and Math (STEM) fields. And while women of any color find it challenging to break into – and succeed -- in STEM fields it is even more difficult for Indigenous women. That was the message Sarah EchoHawk shared during a recent City Club of Cleveland forum.

"While only 20 percent of professionals in STEM fields are women in this country, the number of native women is so small it is almost insignificant," EchoHawk said. EchoHawk – a citizen of the Pawnee Nation of Oklahoma – is the CEO of the American Indian Science and Engineering Society (AISES), an organization dedicated to advancing indigenous people in STEM fields. To date, the organization has awarded more than $13 million in scholarships. "It's a real struggle for young Native women to find a role model in STEM, which is why we lose so many strong minds that could improve the future for all of us. They are out there, but without making a groundbreaking change in society, it's hard for our young women to see them."

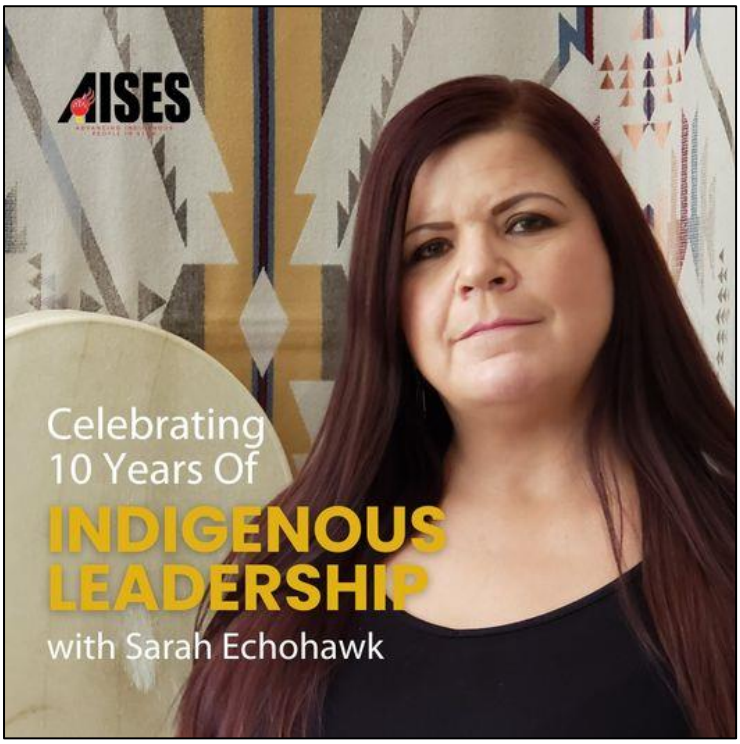


Image taken from Facebook 23 May 2023 Link

Native islander uses ancestral wisdom to help return Puerto Rico to its indigenous roots

(Josee Malavi, Palabra, AL.com: 16 Sept 2022) ***Link***

The jungle is alive along the dirt path to the ancient ball fields of Tibes Indigenous Ceremonial Park. Leading the way on the familiar stretch, Po Araní walks through the abundant green foliage, passing familiar flora and fauna that is eager to provide the tools for healing and sustenance. Ancestral knowledge buzzes through his brain as he recalls centuries of information passed down through generations of his taíno indigenous roots on the island of Puerto Rico, or as his ancestors called it, Borikén.

Most Puerto Ricans identify interchangeably with the words Puerto Rican and boricua – the latter derived from the taíno name for the island. Despite the unmistakable presence of their influence on modern Puerto Rican culture, taínos such as Po Araní have been fighting to reverse the long-held myth that their peoples have been extinct since the Spanish conquest in the late 1400s. Unlike other Native American tribes, the taíno remain unrecognized by the government that occupies their ancestral land, despite centuries of practicing traditional medicine, ceremonies, and rituals both on and off the island. And while various foreign interests have dominated their homeland over the past 500 years, the taíno have persisted under the cover of culture, language, food, and music.

Po Araní offers grass to approaching wild horses at Tibes Indigenous Ceremonial Park outside Ponce, Puerto Rico. Oct. 2021. *Photo by Josee Molavi for palabraPhoto by Josee Molavi for palabra. Image taken from Twitter 21 May 2023* Link

Sealaska Heritage Institute has a new building dedicated to Indigenous approaches to teaching science ***(Yvonne Krumrey, KTOO News: 22 Feb 2023)*** ***Link***

Last week, Sealaska Heritage Institute announced the purchase of a building next door to its Walter Soboleff building. The organization said it plans to create a multi-subject learning environment for its STEAM program, which encourages Alaska Native youth to engage with science, math, technology, art and engineering while incorporating traditional knowledge. “We’re hoping that our programming can bridge some of the standing gaps of where Indigenous science has been left out in those subjects, and build some interest and pathways for our Alaska Native youth,” said Becca Soza, SHI’s STEAM manager. Soza said this new building makes room for more hands-on learning in a central place. “It’s going to be a really innovative space where people can come and learn together,” she said. Plans for the building include a digital recording studio, a kitchen where students can learn about traditional food and nutrition, and even potentially a virtual reality system for trying out different learning environments, according to Soza.

The totem pole at Sealaska Heritage Institute’s art campus shown in front of the Walter Sobeleff building in Juneau on June 1, 2022. The building to the right will become a new learning space for SHI. *(Photo by Paige Sparks / KTOO). Image accessed from Twitter, 4 May 2023* *Link*

Linguistics program gives Native students a leg up on STEM

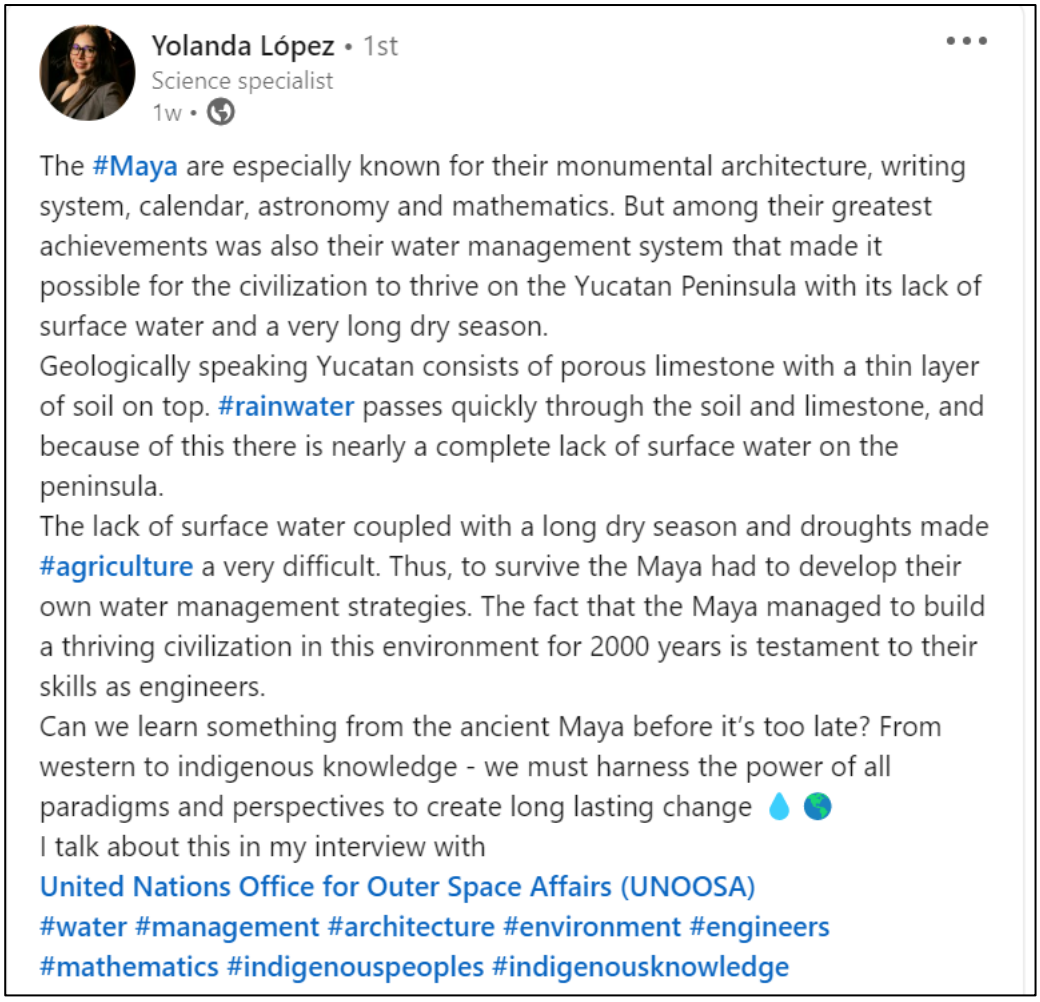
(Victoria Sanchez, Around the O: 12 Sept 2022) ***Link***

Two University of Oregon linguistics professors have received funding from the National Science Foundation for a collaborative seminar, Research Experiences for Undergraduates, to be conducted over three summers. Melissa Baese-Berk and Gabriela Pérez Báez developed the program to offer opportunities to engage in linguistic research for students who have either limited or no access or opportunities to pursue majors in the science, technology, engineering and math fields, known as STEM. Using the $342,051 grant, Research Experiences for Undergraduates began this summer and will run again for eight weeks each summer for the coming two years, hosting a group of eight students who identify as American Indian or Alaska Native. By teaching broadly applicable research skills and using linguistics as a lens, the program opens the door for students to engage in research across STEM fields.

Image taken from Twitter 23 May 2023 Link

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!



New land-based program combines Western science and Indigenous culture

(Feleshia Chandler · CBC News · Posted: Aug 19, 2022) Link

Far from his home in northern Ontario, Moxy Manitowabi recently joined 16 other Indigenous youth in rural Nova Scotia to meld traditional knowledge with Western science in a program called Melkiknuawti — Mi'kmaw for 'which gives you strength.' "I moved here from Ontario, just me and my mom and I felt really disconnected from the land and the culture around here… I felt like I needed to be more connected. So, yeah, it's been very fun," said Manitowabi, a member of the Wiikwemkoong First Nation on Manitoulin Island in Lake Huron. "It's important to stay connected and not forget our culture, our language, and our land." The week-long program is hosted at a former farm now called Windhorse on Nova Scotia's South Shore. It's developed by Ulnooweg Education Centre, an Indigenous registered charity, and SuperNOVA , an initiative from Dalhousie University promoting STEM — which stands for science, technology, engineering and mathematics.

Indigenous kids learn about robotics at summer camp

(Kevin Fleming, CTV News: 10 Aug 2022) ***Link***

A group of Indigenous students are split into two classrooms at the University of Calgary where one group learns how to code and the second builds robots from Lego kits. Rob Cardinal is the co-founder of IndigeSTEAM and the STEM coordinator for the Siksika Board of Education. He's not physically at camp but overseeing it with the help of an Ohmni Telepresence Robot. It allows him to listen in to the teaching and even help students learn though a video monitor and camera attached to a stand on wheels that he can maneuver from his computer. The students see and talk to him in real time. "With IndigeSTEAM we're really trying to make access to camps like this more available to our Indigenous youth," said Cardinal. "It's the hands-on learning that we're after giving them."

Indigenous Leadership Initiative
@ILInationhood

ICYMI: “Our ultimate goal is that every First Nation that wants a guardian program should be able to have one in the same way as health funding & education funding and all of the other issues...Environment is just as important as those other programs.”

thestar.com
Indigenous guardians help restore nature and community
OTTAWA - On the shores of the eastern arm of Great Slave Lake in the Northwest Territories, Iris Catholique and the Ni Hat’ni Dene Indigenous ...

6:33 AM · May 18, 2023 · **968** Views

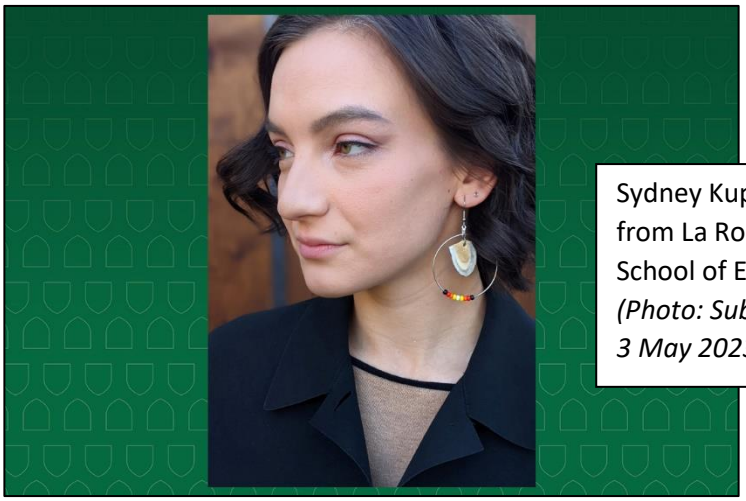
Drum dancing and science: Tuktoyaktuk summer camp pairs STEM with traditional skills
(Karli Zschogner, CBC News, 7 Aug 2022) ***Link***

On a rainy Thursday in Tuktoyaktuk, N.W.T., last week a group of children, using paper and a sewing needle, built an amplifier for the turntables they were learning to make. It was part of a four-week camp in July that incorporates traditional learning with science, technology, engineering and math — also known as the STEM fields. "I'm finding it amazing," said 10 year-old Olivia King, who was part of the camp. "The people here are amazing, they really do care about everyone. Make sure they're safe." Making turntables was part of the music and storytelling part of the camp, where King and over 15 youth in Tuktoyaktuk learned about the history of recording music. The day was incorporated with local elders giving drum dancing lessons.

Indigenous student achievement: seeking sustainability

(James Shewaga, USask News: 2 March 2023) Link

As Sydney Kuppenbender sits down to tell her story, she begins by introducing herself in Michif, the traditional language of the Métis. For the University of Saskatchewan (USask) graduate student in the School of Environment and Sustainability (SENS), it is an important part of proudly reaffirming Métis heritage and language, reclaiming her connection to the homeland of the Métis, and reprising family history that traces back to relatives like the late great Gabriel Dumont, one of the most prominent leaders of the North-West Resistance of 1885.



Sydney Kuppenbender, a Métis graduate student from La Ronge, is working on her master's in the School of Environment and Sustainability at USask. *(Photo: Submitted). Image accessed from Facebook, 3 May 2023 Link*

"Part of how we introduce ourselves is to place our family within our nation's history and part of our responsibility as Métis individuals is to articulate our family history and sometimes that can be really hard," said Kuppenbender, who was raised in La Ronge in northern Saskatchewan. "People like my grandpa who was taught to be ashamed despite the fact that my great, great, great, great, great, great, great uncle was Gabriel Dumont. There is a lot of family oral history that has been lost because our ancestors were ashamed to share that. So, it can be really hard sometimes for some of us to place ourselves in the greater history of our nation. But I think part of claiming Métis identity is doing that work."

"I applied for a semester back home in Saskatoon and I was immediately struck by the presence of Indigenous people, students, staff, and faculty on campus at USask, and I just really got this feeling of being at home and welcomed within the colonial academic system that I hadn't really experienced before that," said Kuppenbender. "So that really carried me through and I wound up transferring permanently to USask to finish my undergrad Bachelor of Science in renewable resource management and that carried me further into doing my master's."

Charting a course to make maths truly universal

(Rachel Crowell, Nature: 30 Jan 2023)

Mathematicians leading decolonization efforts say that building knowledge-sharing partnerships with communities is key. Yes, this is not science BUT the lessons to be learnt here regarding decolonising curricula contain universal truths and so will be of benefit to all teachers working in First Nations contexts.

Illustration by Bex Glendining. *Image accessed from Facebook, 5 May 2023.* [Link]

Mathematics has the potential to be a great equalizer. Compared with other scientific and technical fields, it requires few expensive physical resources. Sometimes, a whiteboard and a marker are all that's needed. However, maths is one of the least diverse of the STEM disciplines of science, technology, engineering and mathematics. For instance, the Survey of Earned Doctorates conducted by the US National Science Foundation) showed that, of all 1,915 doctorates awarded in mathematics and statistics in the United States in 2021, none went to people identifying as American Indian or Alaska Native. Just 28 (1.5%) were awarded to Black or African American mathematicians or statisticians, and 33 (1.7%) to researchers who identify as belonging to more than one race.

Some mathematicians seeking to reform maths curricula taught in North American institutions are doing so by incorporating Indigenous cultural and community concepts. This makes courses relevant to a wider range of students, and boosts their engagement by linking content back to people and cultures. Edward Doolittle, a mathematician at First Nations University of Canada in Regina, contrasts Indigenous mathematics with the mainstream, global way of teaching maths, in which instructors essentially present the same content regardless of where they're teaching. Indigenous mathematics involves getting inside a culture and examining the mathematical thinking in it.

e) Europe

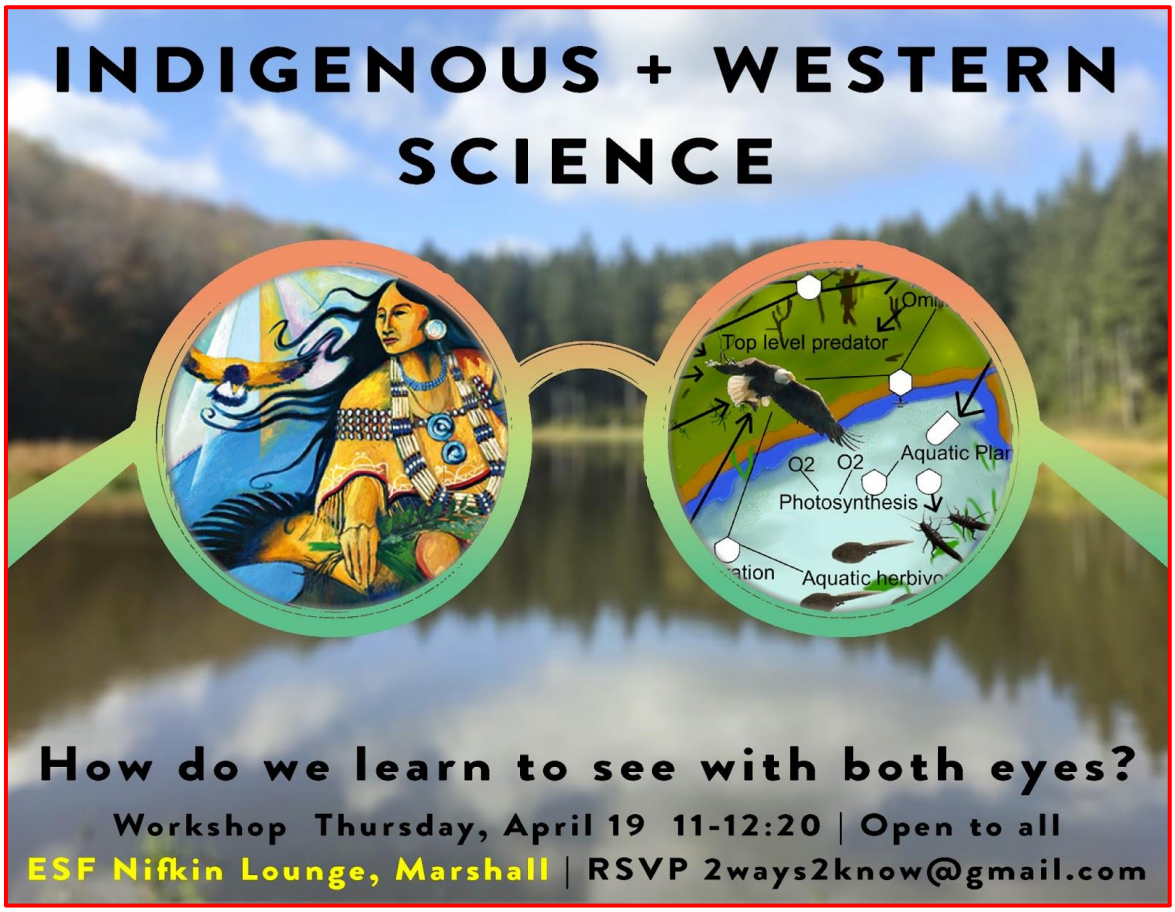
Finland adopts decree on Sámi Climate Council to bring indigenous knowledge into climate policy processes *(Finland; Helsinki Times: 10 March 2023)* *Link*

On March 9th, 2023, the Government of Finland adopted the Decree on the Sámi Climate Council, marking a significant milestone in the country's efforts to address climate change. The Sámi Climate Council is an independent expert body established under the new Climate Act with the primary purpose of bringing the knowledge base and perspectives of the Sámi people into the climate policy processes. The Sámi people are an indigenous group that has inhabited the northern regions of Europe, including Finland, for thousands of years. Their traditional livelihoods and cultural practices are closely intertwined with the Arctic environment, making them particularly vulnerable to the impacts of climate change. The Sámi Climate Council will help to ensure that their voices and perspectives are heard in the decision-making processes that affect their lives and communities.

As stated by Minister of the Environment and Climate Change Maria Ohisalo, "the warming climate has very particular impacts on the Sámi culture and traditional livelihoods that are based on the Arctic environment. This is why it is an absolute necessity to integrate the knowledge of the indigenous Sámi people strongly into the decision-making concerning climate policy."

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

INDIGENOUS AND WESTERN SCIENCE – DECOLONISE, COLLABORATE, CELEBRATE



Beginning with energetic discussions in New Zealand in 2021 regarding the place of Māori knowledge in their school and university science curricula (see articles in the previous six bulletins from Aug '21 to Mar '23), the debate continues. We have also included a series of commentaries on issues around decolonisation and racism.

Why I'm sticking up for science

(Richard Dawkins, The Spectator: 4 March 2023) *Link*

I'm in New Zealand, climax to my antipodean speaking tour, where I walked headlong into a raging controversy. Jacinda Ardern's government implemented a ludicrous policy, spawned by Chris Hipkins's Ministry of Education before he became prime minister. Science classes are to be taught that Māori 'Ways of Knowing' (Mātauranga Māori) have equal standing with 'western' science. Not surprisingly, this adolescent virtue-signalling horrified New Zealand's grown-up scientists and scholars. Seven of them wrote to the Listener magazine.

Richard Dawkins *(Credit: Jana Lenzova). Image accessed from Twitter, 3 May 2023* Link

Perhaps the most disagreeable aspect of this sorry affair is the climate of fear. We who don't have a career to lose should speak out in defence of those who do. The magnificent seven are branded heretics by a nastily zealous new religion, a witch-hunt that recalls the false accusations against J.K. Rowling and Kathleen Stock.

New Zealand children will be taught the true wonder of DNA, while being simultaneously confused by the doctrine that all life throbs with a vital force conferred by the Earth Mother and the Sky Father. Origin myths are haunting and poetic, but they belong elsewhere in the curriculum. The very phrase 'western' science buys into the 'relativist' notion that evolution and big bang cosmology are just the origin myth of white western men, a narrative whose hegemony over 'indigenous' alternatives stems from nothing better than political power. This is pernicious nonsense. Science belongs to all humanity. It is humanity's proud best shot at discovering the truth about the real world.

Mātauranga Māori is no threat to science, it is complementary

(Ariana Estoras; StuffNZ: 3 Apr 2023) ***Link***

Ariana Estoras is AgResearch's director Māori research and partnerships.

OPINION: Tūpuna Māori (ancestors of Māori) arrived on these lands voyaging from Polynesia between 1200 and 1300AD, and with them arrived the first science of these lands. This equates to around 28 generations between then and now, and many millions of ancestors across those 28 generations. Oral-based knowledge systems are predominant among indigenous nations and Māori are no exception. Oral narratives are passed within a generation and onto the next generations for many reasons including (but not exclusively) to teach skills, transmit cultural values, record family and community histories, and explain the natural world. It then follows that if this knowledge – built up over generations and connected to these lands, water and environment – is available to use, why wouldn't you consider what is available to us? What possibilities does that knowledge hold given the significant challenges we experience such as severe weather events, flooding, drought and climate change impacts. All challenges that science alone is unable to solve.

Ariana Estoras, AgResearch director Māori research and partnerships. *Image accessed from Twitter, 2 May 23.* *Link*

UW professor sues school over indigenous land acknowledgment

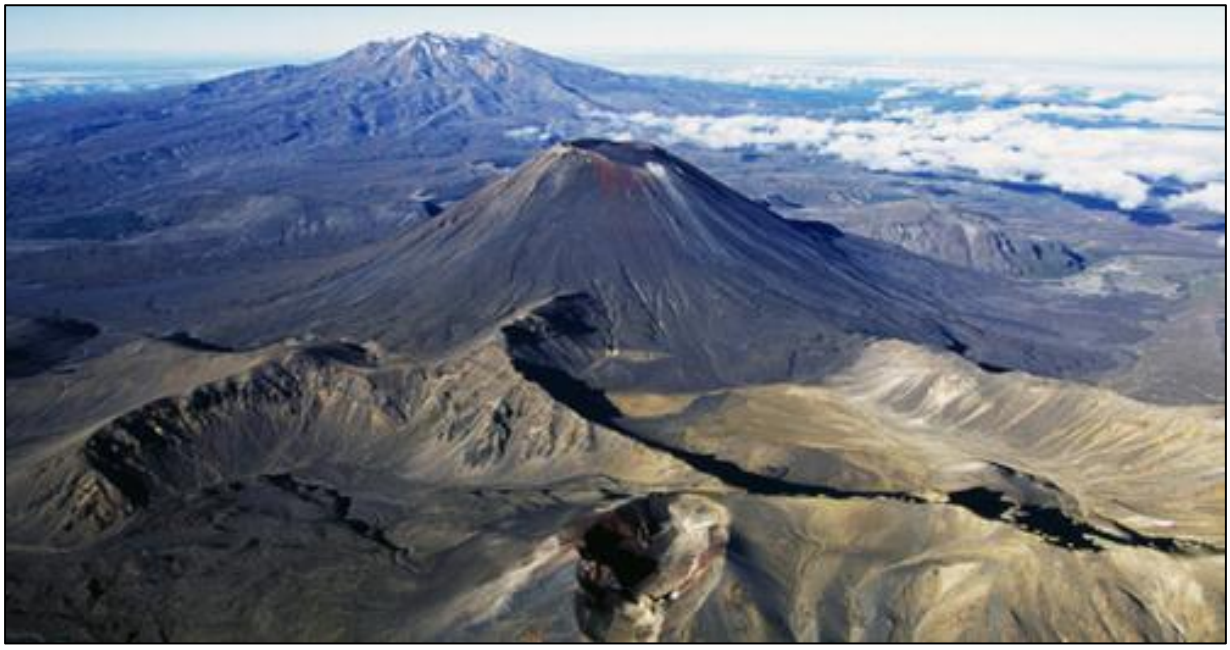
(Cameron Sheppard, Vashon Beachcomber: 26 July 2022) ***Link***

Anyone who has recently attended a city council meeting, a school board meeting, or a college graduation has probably heard an indigenous land acknowledgment spoken as part of the ceremony. It is a statement intended to recognize the privilege and prosperity enjoyed by institutions and communities established by colonizers and settlers on land that had long been the ancestral lands of the Coast Salish people and their many tribes across the region. A land acknowledgement is a tip-of-the-cap, so to speak, that has been widely adopted by institutions in the Puget Sound region. But for many, its value is little more than an empty gesture. Recently, a University of Washington professor protested the recommended inclusion of an indigenous land acknowledgment in the syllabus of his computer science course in objection to both the principle and the message. He is now under investigation and faces possible disciplinary action or even termination for his stance on the issue.

Matauranga adds depth to volcano histories

(Gideon Porter, WAATEA.news.com: 3 Feb 2023) Link

A Māori volcanologist says it may take a while for his international colleagues to accept that indigenous peoples have valuable knowledge to add to their observations and data. More than 900 scientists are in Rotorua for the annual Scientific Assembly of the International Association of Volcanology and Chemistry of the Earth's Interior. It will include field trips to the central Taupo Volcanic Zone and to the site of the globally famous Pink and White Terraces, which were buried by the massive eruption of Mount Tarawera in 1886. Professor Jonathan Procter of Muaūpoko, Ngāi Tahu, and Ngāti Apa has spent years researching mātauranga Māori and natural hazards, and says it's a way to flesh out the scientific data. "There are pockets of mātauranga existing around the country that observed changes in the land, changes in our waterways, changes in our lakes, changes in cloud patterns above our volcanoes. So it's recognising that some of our traditional narratives, our waiata, all contain information about those observations," he says. Professor Procter says Māori have centuries of knowledge scientists can draw on.



A Māori volcanologist says it may take a while for his international colleagues to accept that indigenous peoples have valuable knowledge to add to their observations and data. *Image accessed from Facebook, 5 May 2023. Link*

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

What does a 21st-century research and science system look like?

(Jim Metson, The Times Higher Education: 21 Feb 2023) ***Link***

New Zealand's Ministry of Business, Innovation and Employment has recently launched Te Ara Paerangi – Future pathways, which provides insights on how to transform the country's research, science and innovation system. The goal should be clear: we need to create a much larger and more capable research and innovation ecosystem that embodies Te Tiriti (New Zealand's founding document, the Treaty of Waitangi), makes best use of existing research capabilities, nurtures the next generation of talented thinkers and doers and empowers our researchers to share their mana and knowledge alongside the best in the world. This is a once-in-a-generation opportunity to get it right.

The pathway by which this research, science and innovation ecosystem evolves is critical. This evolution goes nowhere without the embodiment of the principles and values of Te Tiriti. Māori must have decision-making roles in these initiatives to achieve genuine change and to create a space for tino rangatiratanga or the sovereignty of the Indigenous people of Aotearoa, as expressed in the treaty, to be exercised. By doing this, the country can recognise and benefit from the potential offered by Mātauranga Māori, the body of knowledge of Indigenous people of New Zealand.

Robin Wall Kimmerer Explains Indigenous Traditional Knowledge

(Tim Peterson, Grand Canyon Trust: 18 Apr 23) Link

Image taken from Facebook accessed 1 May 23 Link

In 2016, scientist, professor, enrolled member of the Citizen Potawatomi Nation, and bestselling author of "Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants," Robin Wall Kimmerer, traveled to Moab, Utah. She was there to participate in a gathering the Grand Canyon Trust had convened to discuss the future of what are now known as America's public lands — lands that are, in fact, the ancestral homelands of Indigenous peoples. During that visit, Dr. Kimmerer spoke at length about Indigenous traditional knowledge. Indigenous traditional knowledge — sometimes referred to simply as "traditional knowledge" and often abbreviated TK — comes up frequently in discussions about how best to manage public lands, so we thought it might be useful to revisit Kimmerer's explanation of what it is. Kimmerer also shared the idea of a "knowledge garden" in which Indigenous traditional knowledge and Indigenous science help to guide Western science, just as corn and beans are planted together by traditional farmers.

Indigenous traditional knowledge, as Kimmerer describes it, is a way of knowing the world that is much older than Western science. Traditional knowledge isn't just the result of observing the natural world. As Kimmerer explains it, while Western science demands objectivity, Indigenous traditional knowledge not only makes room for and acknowledges human relationships with land, but also respects the innate intelligence of the natural world. "To me, the power and the promise of traditional knowledge is that traditional knowledge, instead of excluding emotion and spirit, invites it in," Kimmerer explains. "We live in almost an intellectual monoculture which has rendered traditional knowledge invisible and marginalized that knowledge," Kimmerer says. "Though it is the elder knowledge, is the most solid, grounded, whole knowledge."

Science needs structural reform to tackle racism, says report

(Richard Blaustein, Physics World: 21 Feb 2023) Link

US educational institutions and workplaces must be pro-active in combatting racism and supporting people from minority groups. That's the conclusion of a new report from the US National Academies of Sciences, Engineering and Medicine (NASEM) that was initiated in response to the Black Lives Matter protests in 2020 that followed the murder of George Floyd. Written by an 18-strong committee, the report was instigated by Eddie Bernice Johnson, former chair of the House Committee on Science, Space and Technology, who called on the national academies to examine anti-racism and inclusion in science, technology, engineering, mathematics and medicine (STEMM).

Surveying historic cases of discrimination and including interviews with minority STEMM professionals, the report lays out measures for leaders and managers to make STEMM more inclusive of people from Black, Indigenous, Latine, Asian-American and other communities. Fay Cobb Payton from North Carolina State University, who co-wrote the report, says it also provides "a comprehensive vision for the future of diversity science". The report also says that STEMM "gatekeepers" – such as university deans, administrators and lab directors who control resources, recruitment and workplace atmospheres – often cannot assess their own biases. Such gatekeepers, it adds, usually have "attitudinal biases, cognitive mechanisms, and social motives that keep the white status quo intact". People in gatekeeper positions must ensure that all member of their group feel psychologically safe, the report says, and also "promote equal status among team members".

Here are some tips for covering Indigenous communities, for non-Natives

(Valerie Vande Panne; Poynter: 14 Feb 2023) ***Link***

Although this story refers to journalists working with Native American communities, the lessons to be learnt about how to engage sensitively across cultures can easily carry across to anyone working with First Nations peoples: teachers and researchers please note!

Journalism is inherently extractive. Especially when it comes to covering the coveted, so-called "marginalized communities." On these assignments, the reporter asks people who have already been taken advantage of (often severely, for generations), to share their story, for free, so it can be packaged and sold. Or so their outlet can sell it, or ads or subscriptions around it. The reporter gets paid. The outlet gets paid. The source gets nothing. And the reporter often justifies it by saying, "This story will help these poor people. I'm doing them a favor by covering this." In reality, this type of story doesn't help. In fact, it often hurts. Badly.

So how does a well-meaning reporter who isn't Native American cover Indigenous communities? **First, I gently suggest, don't.** Your newsroom might be wise to hire someone who is Indigenous, from the community you seek to cover, to do the work. And pay them well for their expertise. If your job requires that you cover Native American issues or communities (and this advice can go for any community you are not a part of), **start by being in the community.** Don't parachute in and helicopter out. Don't come in with questions. **Sit and listen. Even if it takes weeks, or months. Or years.** Yes, you might see this as time consuming. But it is absolutely necessary if you want to cover Indian Country accurately. **Share of your self (two words). Support the community.** That might mean sharing your own story, or giving clean water to a community that has none. Journalism "ethics" says that's unethical. Yet, I think it's unethical to not share of your self, to not give water to those who have none. **Listen. Be quiet. Don't try to hide who you are, or your ignorance.**

Few things are more demeaning than when people think the words they use to describe you and your place are the correct ones — and that, somehow, the words you use to describe yourself and your own community are wrong.

Answer questions. Ask for permission. Listen.

Stop taking. *(and stop talking!!)*

Repeat your understanding of situations, so those sharing their stories can know and understand if you understand. If you don't understand, let them correct you.

Refrain from all-encompassing Indigenous statements, such as, "Sage is a sacred herb used for cleansing by Native Americans," or, "Turtle Island is how Native Americans refer to North America." All Native Americans are not the same.

Share your story with everyone involved once it is published. Listen to their feedback. Check in to learn how the story impacted the people and the community, weeks, months, years later. Listen.

Understand that you, the reporter, are in a position of power.

Be honest in Indigenous communities, even if it means being uncomfortable.

SciQ: A new approach to ethical research in the North

(Dani Nowosad, Canadian Geographic: 15 Feb 2023)

The history of Qallunaat (non-Inuit peoples) on Inuit Nunangat, or Inuit homelands, is a tale that leans towards extractive at best and acutely violent at worst. As with most interactions between Indigenous Peoples in what is now called Canada and eager explorers, settlers, and colonists, the relationship between Inuit and Qallunaat began from a place of altruism. Europeans turned up in the North woefully unprepared, lacking thousands of years of carefully honed skills and knowledge about how to not only survive, but thrive in the Arctic. Inuit are exemplary engineers, naturalists, scientists, nutritionists, hunters, knowledge mobilizers, artists, and healers. Unlike Qallunaat who colonized Canada, they did not need to "master" their territories; instead of shaping the environment to suit them, they lived in harmony with the tundra and the sea with the utmost respect and a bottomless depth of understanding of non-human processes and kin. Inuit have tread so softly that Qallunaat still refer to vast swaths of northern land as "pristine" and "untouched" – untouched, perhaps, by Qallunaat, but Inuit have been lovingly and tenderly caring for the land and the sea that has in turn cared for them for millennia.

Arctic researcher Dani Nowosad snapped this photo on the final leg of a 45-kilometre canoe trip on Inuit Nunangat to collect samples for her PhD. The trip took place east of Iqaluktuuttiaq (Cambridge Bay), Nunavut in 2021 and was supported by Polar Knowledge Canada, Viventem and Arctic BIOSCAN. (Photo: Dani Nowosad)
Image accessed from Twitter, 19 May 2023 Link

Did bacteria exist before we had microscopes?

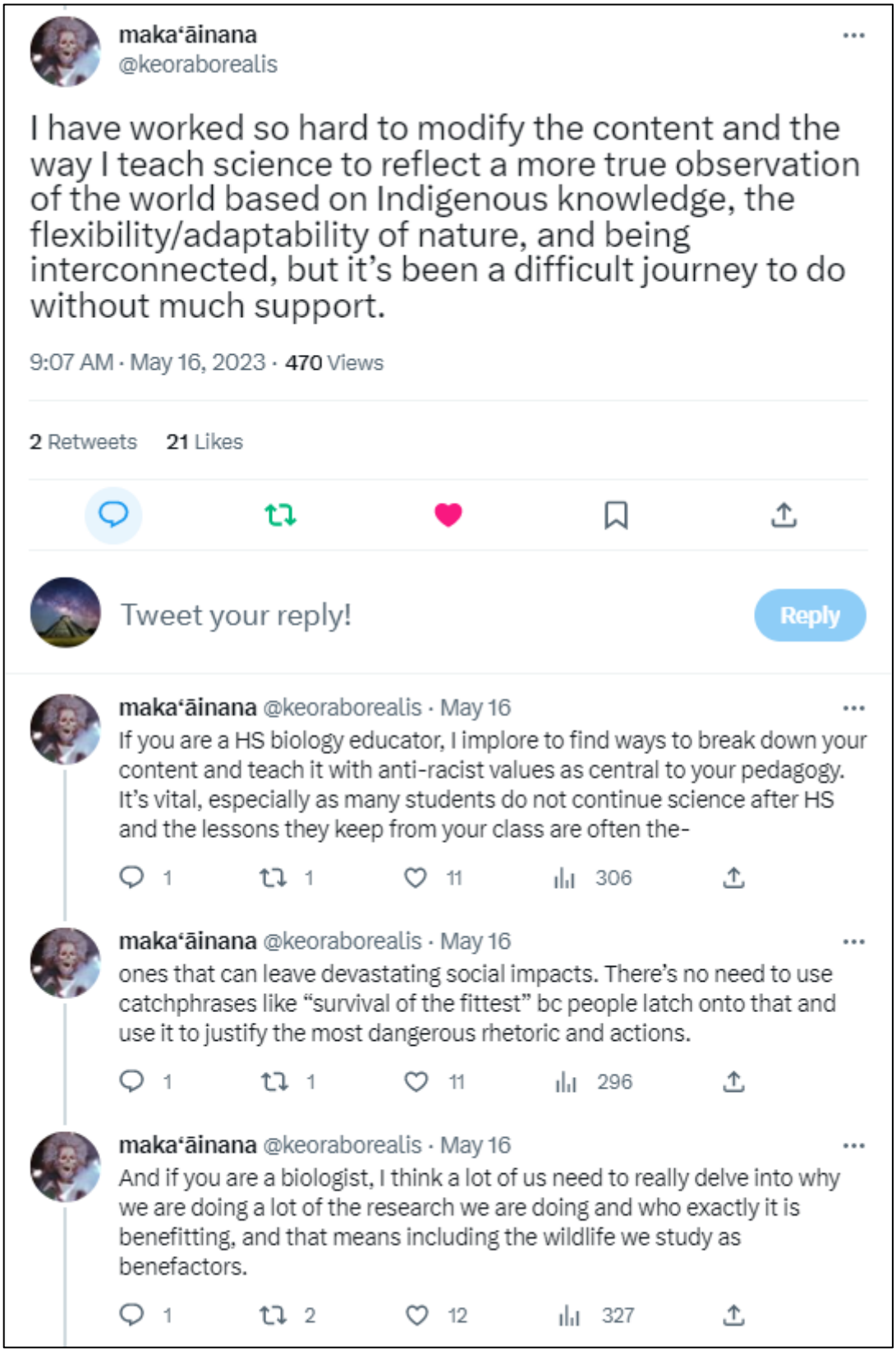
(WEKA; TheStandard.org.nz: 13 March 2023) Link

Following below is an interesting discussion on the disparate world views / conceptual frameworks problem that besets any attempt to discuss the merits or otherwise of Indigenous science. Once again within the NZ context. The author has an anonymous name WEKA so we cannot vouch for the credibiity of the ideas presented. Those 7 academics at Auckland University lit the blue touch paper almost 2 years ago and the firecrackers just keep sputtering along! And yes, there is now also a Wikipedia page on the topic.

I was in a twitter conversation recently about Mātauranga Māori, where a comparison had been made between rejection of Mātauranga Māori and acceptance of Traditional Chinese Medicine practice of acupuncture. Someone pointed out that chi, one of the core concepts used in traditional acupuncture practice, had never been tested/evidenced in a repeatable experiment. I don't know if that's true, but the idea that if chi hasn't been measured by Western Science, it doesn't exist, strikes me as irrational. By all means hold a belief that chi doesn't exist, and make an argument for that belief. But presenting it as a fact rather than a belief is, well, not very scientific. It's like belief is seen as a dirty word, which is part of the problem with this debate. Belief is used to cast aspersions but there's also a fair amount of denial of the rationalist caster's personal beliefs. Let's just be honest about our biases and see how we get along.

Both Traditional Chinese Medicine and Mātauranga Māori require conceptual literacy that is not common in Westerners. It's like speaking two languages with someone who isn't even aware that the other language exists but where both languages are need to discuss certain concepts. If this sounds snobby, consider talking with a theoretical physicist or mathematician without knowing what physics or maths is. We're seeing scientists with no expertise or even basic understanding of Te Ao Māori talking about it in disparaging ways (looking at you too Dawkins). The presumption is that because they are scientists their opinion on Mātauranga Māori is somehow relevant despite their profound ignorance of it. It's hard not to see this as a long-standing hubris from science culture that is also systemically racist. In addition to people of influence promoting that ignorance, they're also feeding into the strong political narrative of racism in New Zealand.

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.


maka‘āinana
@keoraborealis
I have worked so hard to modify the content and the way I teach science to reflect a more true observation of the world based on Indigenous knowledge, the flexibility/adaptability of nature, and being interconnected, but it’s been a difficult journey to do without much support.
9:07 AM · May 16, 2023 · 470 Views
2 Retweets 21 Likes
Tweet your reply!
Reply
maka‘āinana @keoraborealis · May 16
If you are a HS biology educator, I implore to find ways to break down your content and teach it with anti-racist values as central to your pedagogy. It’s vital, especially as many students do not continue science after HS and the lessons they keep from your class are often the-
1 1 11 306
maka‘āinana @keoraborealis · May 16
ones that can leave devastating social impacts. There’s no need to use catchphrases like “survival of the fittest” bc people latch onto that and use it to justify the most dangerous rhetoric and actions.
1 1 11 296
maka‘āinana @keoraborealis · May 16
And if you are a biologist, I think a lot of us need to really delve into why we are doing a lot of the research we are doing and who exactly it is benefitting, and that means including the wildlife we study as benefactors.
1 2 12 327

Massimo Pigliucci @mpigliucci · Mar 28

Is indigenous science actually pseudoscience?
dropbox.com/s/xra2bmafevao... @SkeptInquirer @center4inquiry

from: Indigenizing the University: Diverse Perspectives
edited by Frances Widdoson, Frontier Center for Public Policy
2021, pp. 199-214

10

Is Indigenous Science Pseudoscience? A Response to Gorelick

Massimo Pigliucci

There has been much debate of late about alternative ways of doing science, particularly within the delicate context of Indigenous practices in Canada, Australia, and other countries around the world. Some authors have called for the integration of what they refer to as traditional ecological knowledge into university science education curricula (Snively and Corsiglia 2000); others have made an even broader call pertinent to science in general (Michie 2002). Some have suggested that not just science education, but science proper, will benefit from the integration of Indigenous methods, especially when it comes to practical applications (Johnson et al. 2016).

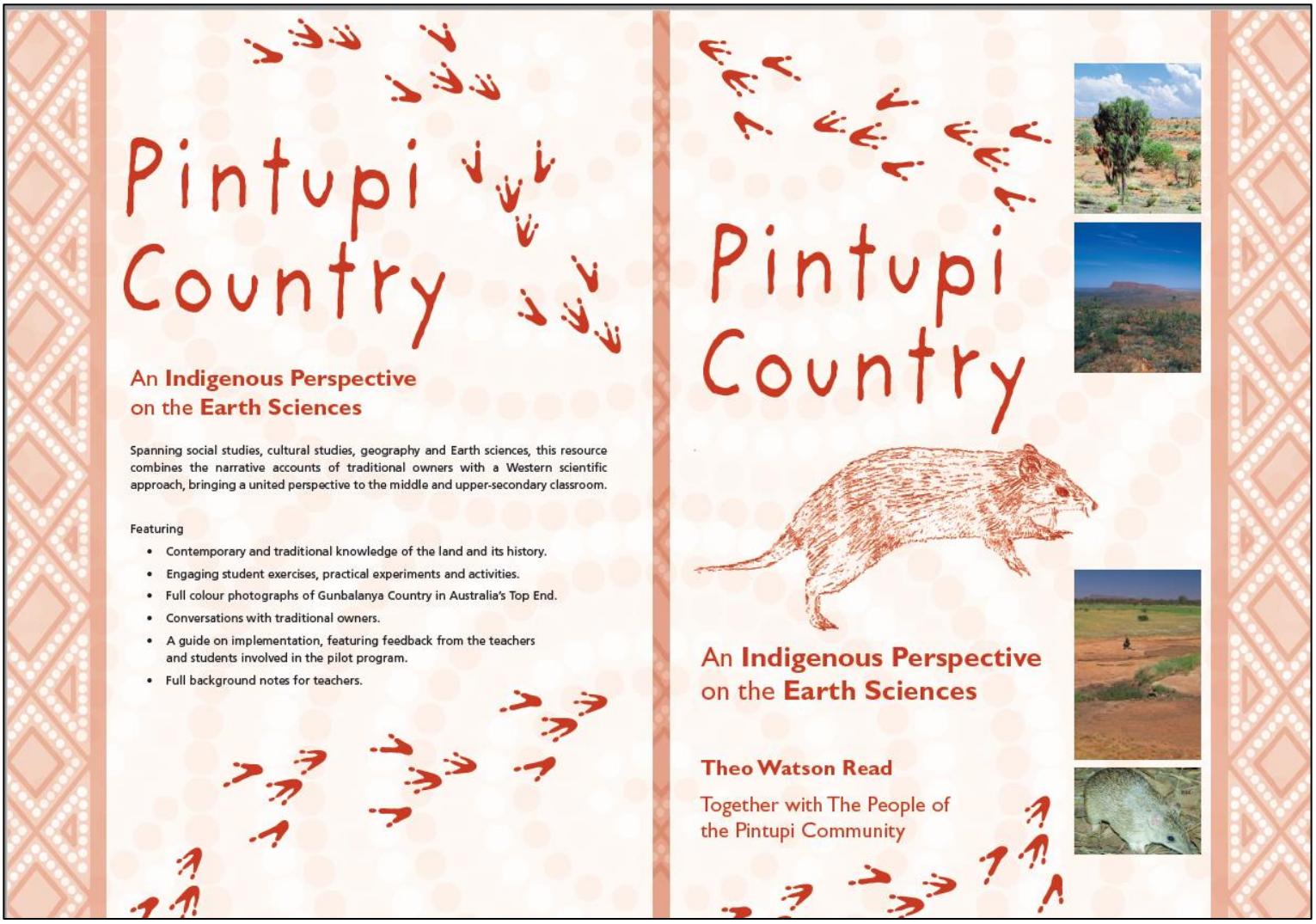
The debate is often understandably emotional, as it is set against the background of the lingering aftermath of colonialism (Williams and Chrisman 2013), and within the broader issue of multiculturalism (Race 2015) and the productive coexistence of different traditions within a given society. It is also often framed in terms of pseudoscience (Pigliucci and Boudry 2013), with (some) critics of Indigenous approaches dismissively labelling the latter as pseudoscientific, and defenders of such approaches striving to show that they represent legitimate alternatives to what is often characterized as "Western" science.

31 27 155 38.2K

RESOURCES - AUSTRALIA

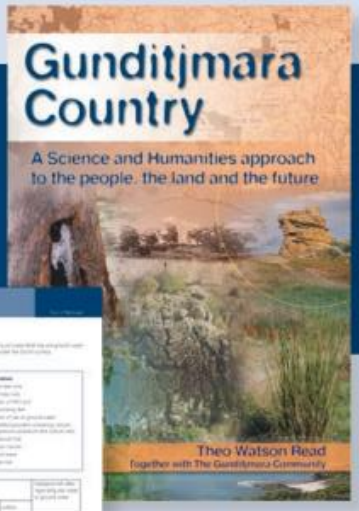
Three Earth Science textbooks based on Indigenous country and cultures to be published soon ***(Mark Linkson, Coordinator ISN: 2 May 2023)***

Theo Read, a high school science teacher with many years experience working with Australia's First Nations Peoples, is hoping to see his three earth science textbooks published soon. He writes "I have continued to work in the background with getting my three Earth Science textbooks published. The first of which, Gunditjmara Country is now out of print, but Hawker Brownlow is currently negotiating a new contract with me to publish all three. Apparently the education market, especially the secondary section, is becoming a lot more receptive to cross-cultural science materials." Theo has sent through the cover image for the textbook written with the Pintupi community of Western Australia:



On the next page is a flyer produced by publisher Hawker Brownlow about the first of the three textbooks (currently out of print) *Gunditjmara Country*. Theo is an original member of the Indigenous Science Network and worked closely with network founder Dr Mike Michie to research and collaborate with First Nations communities in creating these significant intercultural science textbooks. He is currently negotiating to sign the publishing rights over to the communities. We will let you know when these resources become available. We wish Theo and the communities every success in this endeavour!

Gunditjmara Country



A Science and Humanities approach to the people, the land and the future

Gunditjmara Country presents a comprehensive integrated unit covering a wide range of curriculum areas, including science, geography, history and cultural studies. Focusing on the country, knowledge, traditions and culture of the Gunditjmara, this text goes a long way in exploring two distinct, distinctive and yet not incompatible world-views.

Topics covered include:
- The Lake Condah Mission
- Geothermal Energy
- Archeology in Gunditjmara country
- Gunditjmara houses
- The Gunditjmara volcanoes

Each topic is fully explored with the aid of background teacher notes, engaging student exercises and educational practical activities.

Hawker Brownlow Education is proud to release this timely and invaluable resource, with all the promise that it offers for improved cross-cultural communication and understanding.

HB3380 · $79.95

Also available in sets of 5, 10 and 15. See back for pricing.

About the Author Theo Watson Read

A maths and science teacher in a Victorian state secondary college, author Theo Read developed this text as a result of his 14-year association with the Gunditjmara people of western Victoria, with whom he has worked closely on the Kormilda Science project. The cultural content in the book is covered with sensitivity and accuracy, and the text has been approved of by key members of the Gunditjmara community, who also share authorship of this text, as belonging to Gunditjmara country.

Aboriginal and Torres Strait Islander Engagement Framework

(Mark Linkson, Coordinator ISN: 16 May 2023) ***Link***

Created by the Queensland Department of Education, the engagement framework is a set of principles and behaviours to be considered by departmental staff to improve their ongoing engagement with Aboriginal and Torres Strait Islander children, students, parents, families, communities, organisations and employees. The framework identifies key principles and behaviours that can support engagement being undertaken in an effective and culturally appropriate way. The importance of engagement with Aboriginal and Torres Strait Islander parents, families and communities has been known about and recognised for some time by successive governments. However, many departmental staff feel ill equipped to effectively engage with Aboriginal and Torres Strait Islander people. The framework was therefore developed to assist departmental staff to undertake engagement with Aboriginal and Torres Strait Islander children, students, parents, families, communities, organisations and employees.

Principle 1: Building on strengths

The department will ensure its engagement activities recognise and build on the strengths of Aboriginal and Torres Strait Islander peoples and communities.

We will do this by:

- valuing Aboriginal and Torres Strait Islander peoples' views and voices to deepen and enrich the community and the work of the department
- supporting high expectations and aspirations for Aboriginal and Torres Strait Islander children and students, and celebrating and showcasing positive narratives
- enacting co-design arrangements that include Aboriginal and Torres Strait Islander peoples and communities in decision-making
- seeking Aboriginal and Torres Strait Islander community expertise and local knowledge to gain insights into community strengths, cultural considerations, protocols and areas for improvement
- building on established community governance structures, networks, services and relationships

Principle 2: Cultivating relationships and connections

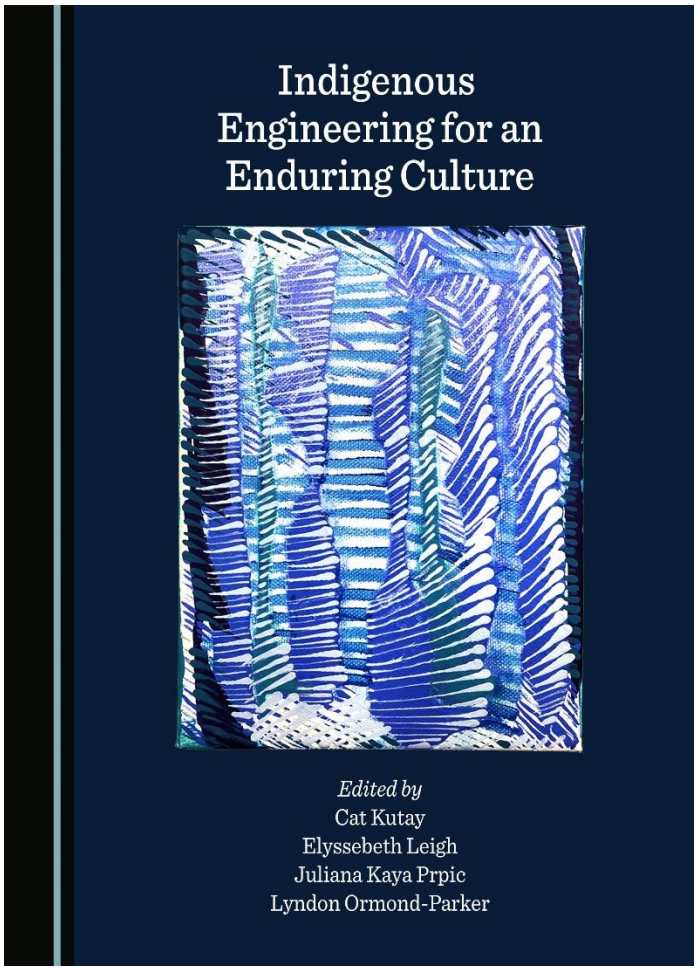
The department will cultivate networks and relationships with Aboriginal and Torres Strait Islander stakeholders to strengthen connections and engagement.

We will do this by:

- creating supportive environments where people feel empowered to act and self-determination can be exercised
- recognising each relationship is unique and takes time to establish and nurture
- engaging from the earliest stages of project, program and policy development
- checking that timeframes and engagement styles are suitable for all stakeholders and addressing barriers to stakeholder participation
- establishing ongoing arrangements, such as advisory groups, to facilitate and foster contributions over time
- being involved in, supporting or attending community events, meetings and functions as a way of meeting the community and establishing relationships

Indigenous Engineering for an Enduring Culture

(Edited by Cat Kutay, Elyssebeth Leigh, Juliana Kaya Prpic and Lyndon Ormond-Parker; Cambridge Scholars Publishing: 3 Oct 2022)



For many millennia, Indigenous Australians have been engineering the landscape using sophisticated technological and philosophical knowledge systems in a deliberate response to changing social and environmental circumstances. These knowledge systems integrate profound understanding of country and bring together knowledge of the topography and geology of the landscape, its natural cycles and ecological systems, its hydrological systems and natural resources including fauna and flora. This enables people to manage resources sustainably and reliably, and testifies to a developed, contextualised knowledge system and to a society with agency and the capability to maintain and refine accumulated knowledge and material processes.

This book is a recognition and acknowledgement of the ingenuity of Indigenous engineering which is grounded in philosophical principles, values and practices that emphasise sustainability, reciprocity, respect, and diversity, and often presents a much-needed challenge to a Western engineering worldview.

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

The Koori Curriculum
April 28 at 7:00 AM

We are super excited to announce that Dr Helen Milroy author Willy-willy Wagtail Tales from the Bush Mob, The Sweetest Egg of All: Tales From the Bush Mob and Backyard Beasties is a speaker at the Koori Curriculum 2023 Book Summit!

Tickets on sale now: https://buff.ly/3YaMjiL

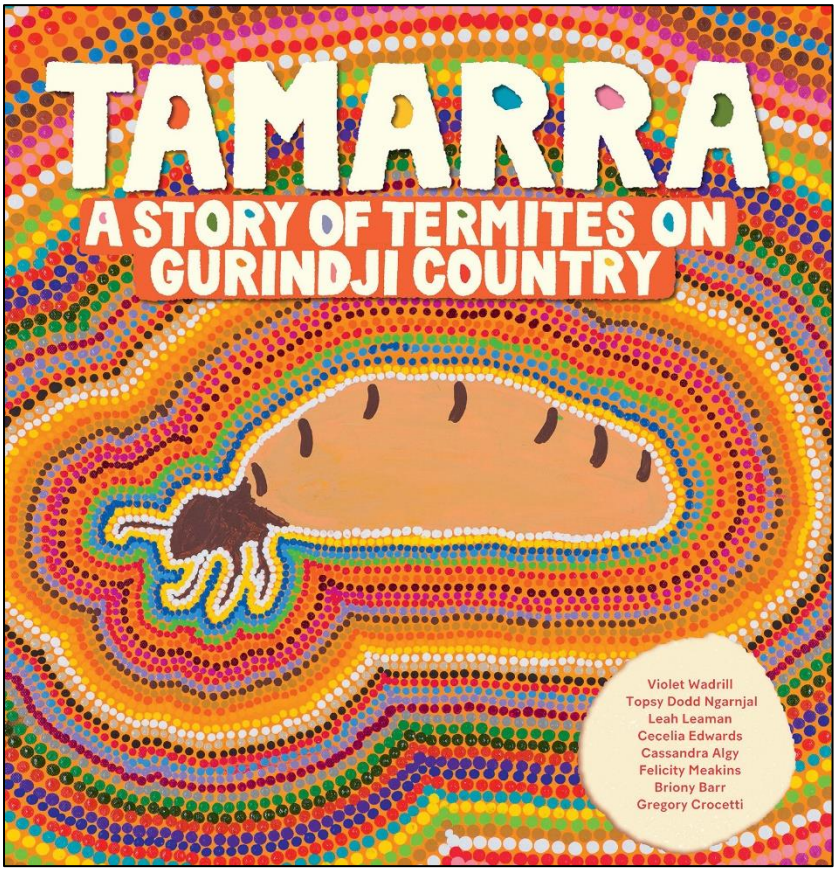
Dr Helen Milroy is a descendant of the Palyku people of the Pilbara region of Western Australia. She was born and educated in Perth and has a passionate interest in health and wellbeing, especially for children.

She is currently a professor at UWA, a consultant child and adolescent psychiatrist, and Commissioner with the National Mental Health Commission.

Don't miss out on joining Dr Milroy at the Koori Curriculum 2023 Book Summit, tickets on sale now: https://buff.ly/3YaMjiL

Tamarra - A Story of Termites on Gurindji Country

(Violet Wadrill, Topsy Dodd Ngarnjal, Leah Leaman, Cecelia Edwards, Cassandra Algy, Felicity Meakins, Briony Barr, Gregory Crocetti; Hardie Grant Publishing: 2023) Link



"Tamarra: A Story of Termites on Gurindji Country" is a fascinating, illustrated science book that takes kids inside the life of termites through storytelling from the Gurindji People. Did you know there are four types of termite poo? Or that a warm paste made from termite mound is used to strengthen a Gurindji baby's body and spirit? Or that spinifex (which termites eat) is one of the strongest plants in the world?

Created as a collaboration between over 30 First Nations and non-Indigenous contributors, the story and artworks explore how termites and their mounds connect different parts of Country, from tiny Gurindji babies and their loving grandmothers, to spiky spinifex plants

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

Paramount Australia & New Zealand
@ParamountANZ

.@NITV & Network 10 are excited to premiere The First Inventors, celebrating the world's longest surviving culture – that of Aboriginal and Torres Strait Islander peoples.

The First Inventors
Thursday, 15 June
On 10, 10 Play, NITV & @SBS On Demand
paramountanz.com.au/news-and-insig...

The First Inventors - The Ground-Breaking Documentary Series That Will Rewrite Australian History.

(Paramount +: 16 May 2023) ***Link***

The First Inventors Premieres On NITV And Network 10, Thursday 15 June At 8.30pm. The Four-Part Series Uncovers Ancient Traditional Knowledge And Insights, Which Could Help Navigate Some Of The Biggest Challenges Of Our Time. National Indigenous Television (NITV) and Network 10 will premiere a new, four-part documentary series, The First Inventors, celebrating and exploring the world's longest surviving culture – that of Aboriginal and Torres Strait Islander peoples. The First Inventors premieres on Thursday, 15 June at 8.30pm, with new episodes airing weekly. The co-commission, which is a first of its kind between NITV and Network 10, is presented and narrated by Logie Award-winning actor and proud Tiwi Islander man Rob Collins, who leads a team of First Nations investigators, uncovering more than 65,000 years of invention and innovation. The First Inventors is the story of how entire landscapes were transformed, how prehistoric events were recorded as far back as the last ice age, how people navigated over extraordinary distances, and how whole societies were organised.

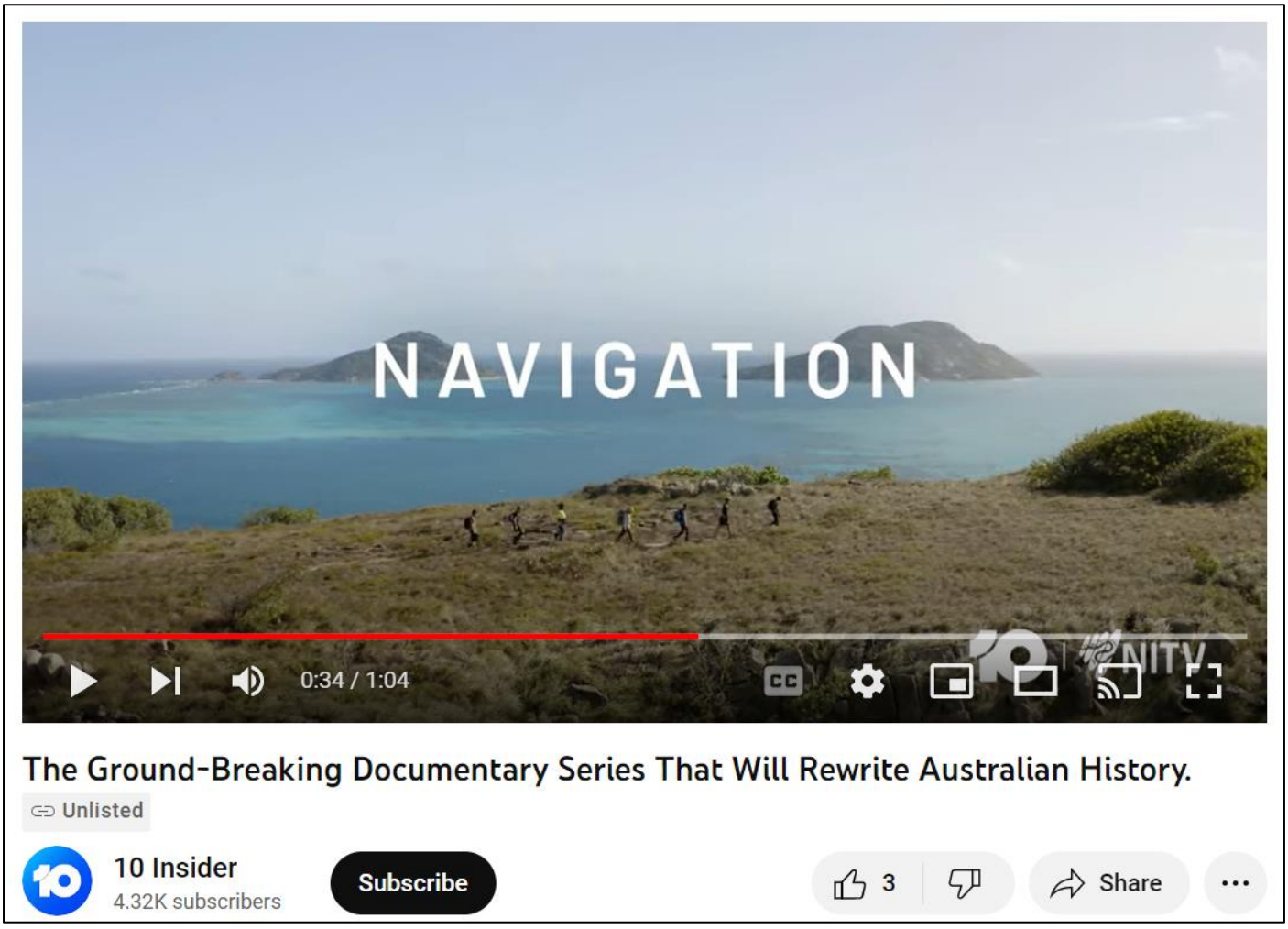
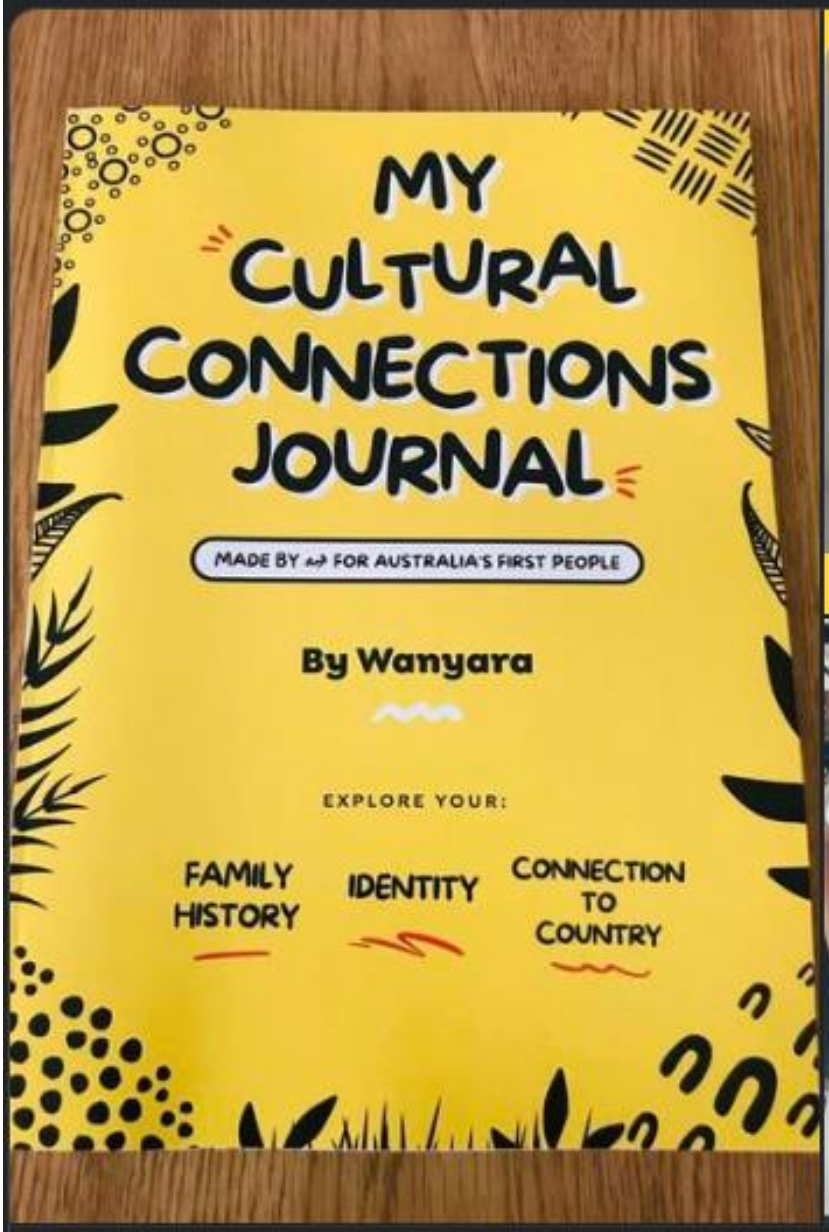
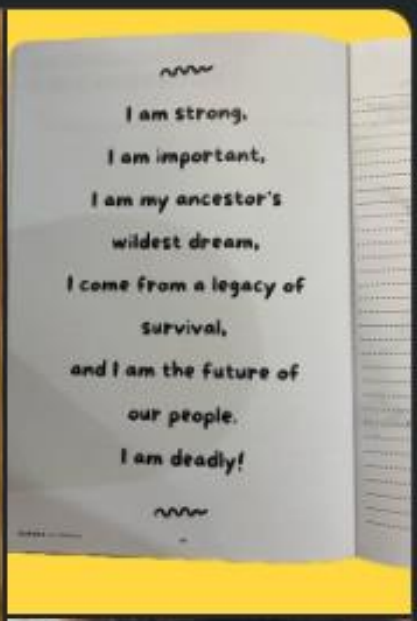


Image taken from Youtube accessed 25 May 2023 Link

Indigenous Science Network
March 19 ·



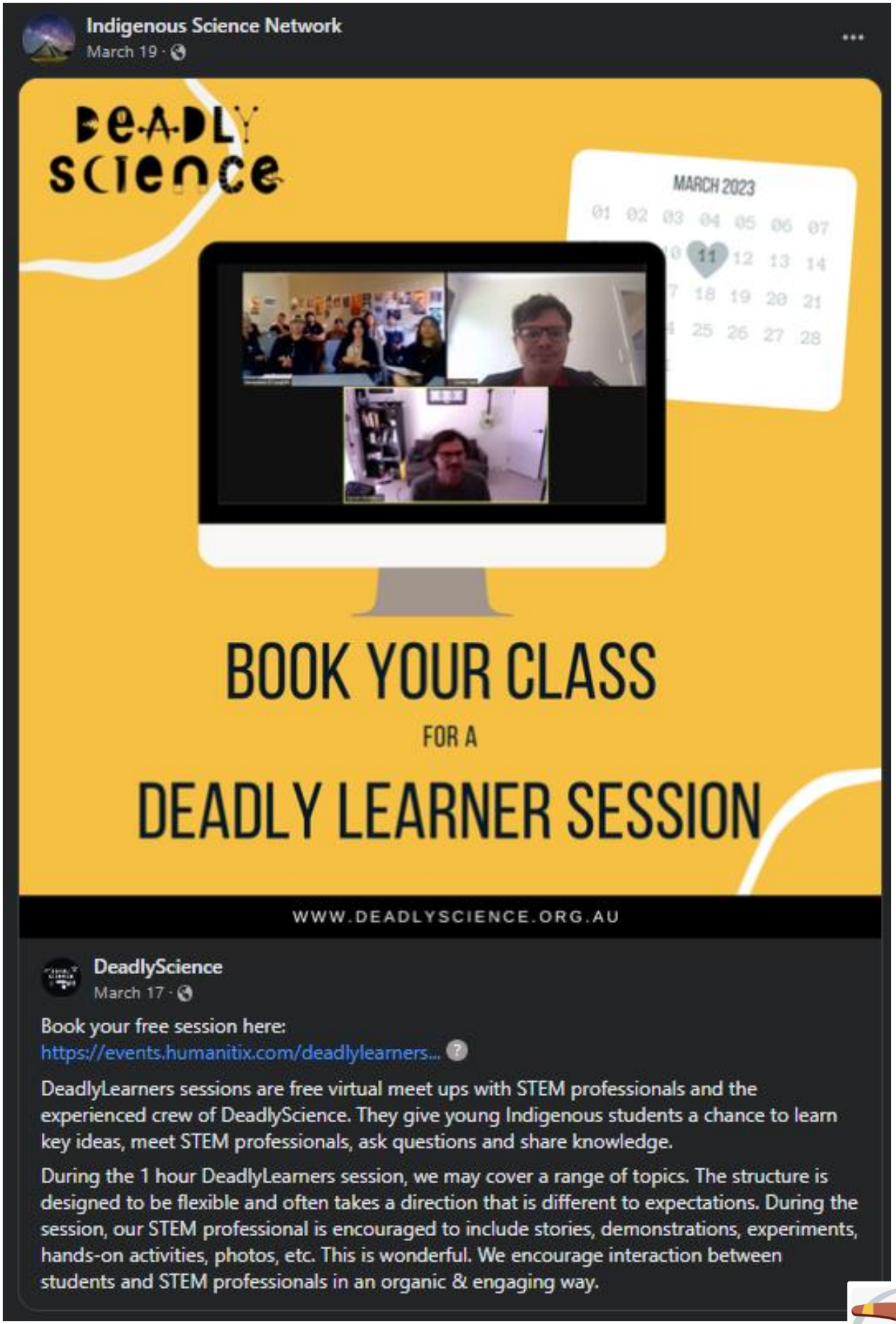


Riley Callie Resources
March 12 ·

The Cultural Connections Journal is a unique resource which encourages Aboriginal and Torres Strait Islander children and young people to deepen their understanding of their cultural identity; through exploring connection to family and community histories; and by strengthening their relationships with Country.

The Journal was created to support First Nations young people in building pride and confidence in their Aboriginality, and to become culturally and socially grounded in their communities.

https://www.rileycallieresources.com.au/.../cultural...


Indigenous Science Network
March 19 ·
DEADLY SCIENCE
MARCH 2023
BOOK YOUR CLASS
FOR A
DEADLY LEARNER SESSION
WWW.DEADLYSCIENCE.ORG.AU
DeadlyScience
March 17 ·
Book your free session here:
https://events.humanitix.com/deadlylearners...
DeadlyLearners sessions are free virtual meet ups with STEM professionals and the experienced crew of DeadlyScience. They give young Indigenous students a chance to learn key ideas, meet STEM professionals, ask questions and share knowledge.
During the 1 hour DeadlyLearners session, we may cover a range of topics. The structure is designed to be flexible and often takes a direction that is different to expectations. During the session, our STEM professional is encouraged to include stories, demonstrations, experiments, hands-on activities, photos, etc. This is wonderful. We encourage interaction between students and STEM professionals in an organic & engaging way.

Advocacy and Water Protection in Native California - High School Curriculum and Teacher's Resource Guide

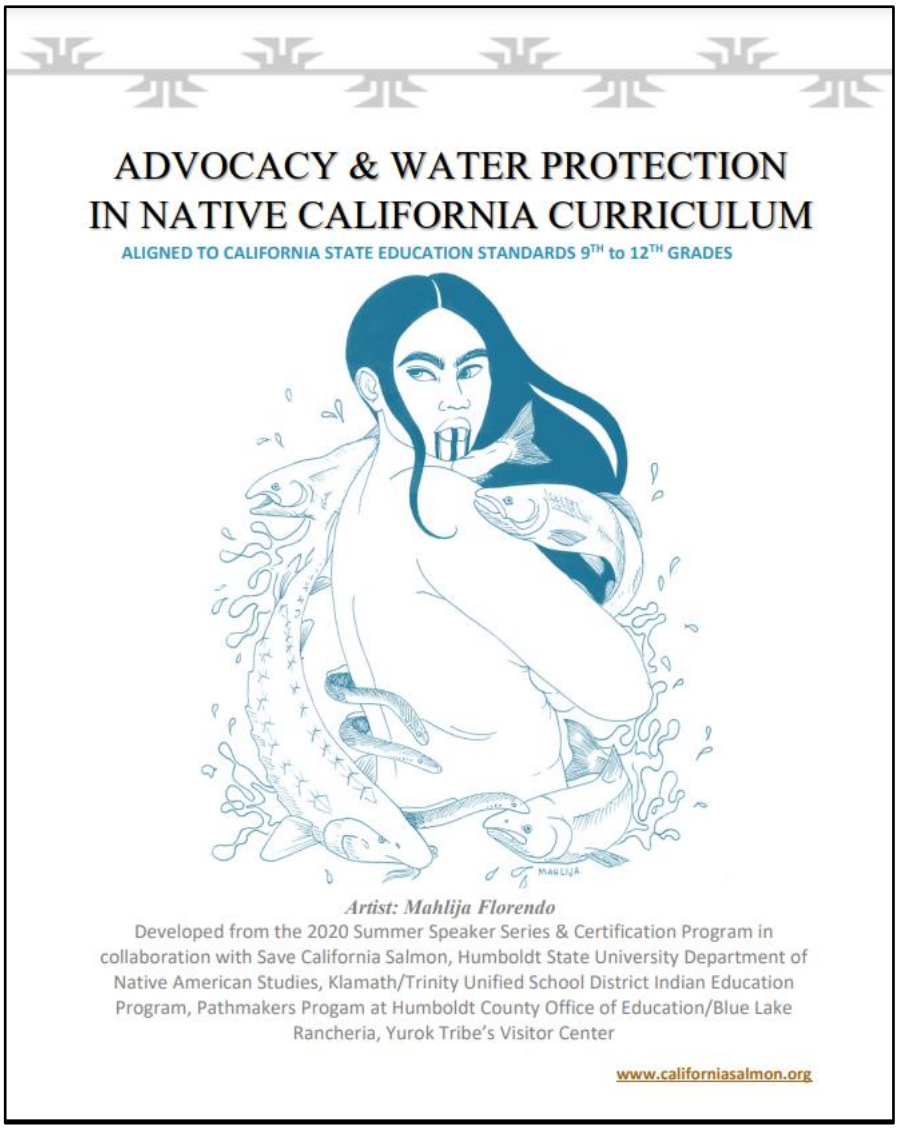
(Department of Native American Studies, Humboldt State University et al; 10 Mar 2021) *Link*

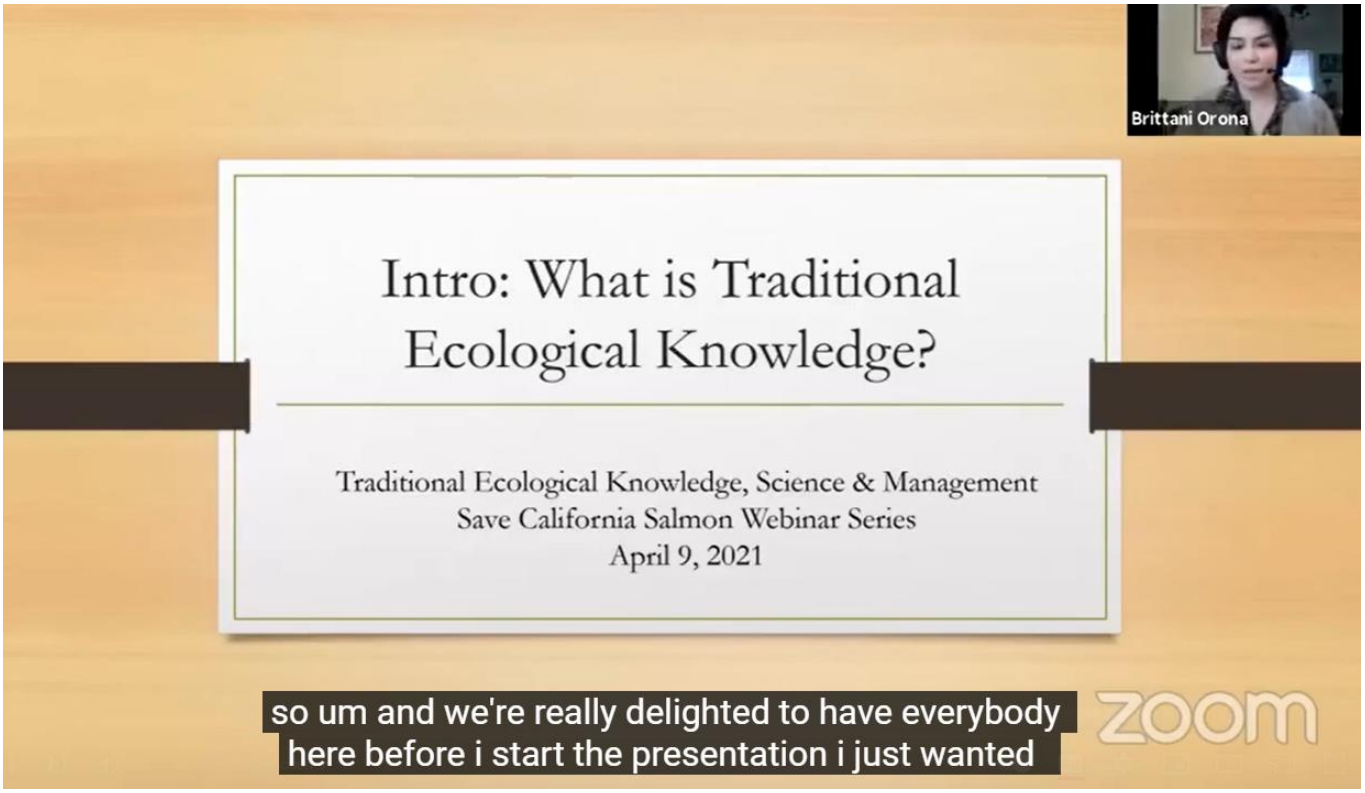
March 2021 - Save California Salmon, the Blue Lake Rancheria, the Yurok Tribe's Visitor Center, KTJUSD's Indian Education Program, Humboldt County's Pathmakers Program, Humboldt State University's (HSU) Native American Studies Department, and the Hoopa High School Water Protector's Club released the Advocacy and Water Protection in Native California High School Curriculum and Teacher's Resource Guide.

The curriculum, which meets California state standards in science, social studies, health, history and language arts responds to California's urgent water, climate and educational crises, along with the need for Native American culturally informed education and representation in schools.

The curriculum features online, classroom, and nature-based learning and responds to reports that Humboldt, Del Norte, and other counties are failing Native students, and that Native youth are facing a mental health crisis due to COVID-19 and the state's water and climate crises.

"This curriculum was created for high schools, however all of California's primary and university students and faculty can benefit from the culturally-informed lessons it provides"





What is Traditional Ecological Knowledge? (TEK, Science & Management Webinar Series)

Save California Salmon
280 subscribers

Subscribe

37 Share

1,594 views Apr 13, 2021 Traditional Ecological Knowledge (TEK), Science & Management Webinar Series
Brittani Orona, Hupa/Save California Salmon/U.C. Davis
Ron Reed, Karuk Tribe
Sibyl Diver Ph.D., Earth Systems Program, Stanford University

Chapters

View all

4:02 Meet Ron and Sibyl

5:14 What is Traditional Ecological Knowledge

7:28 Fire Management

9:21 Environmental Destruction

For Indigenous youth aged 14-16

Aki Kikinomakaywin

An Indigenous-led, land- and water-based science, technology, engineering, arts and mathematics (STEAM) experiential learning program for Indigenous youth in northern Ontario.

Thunder Bay, Ontario • July 16-22, 2023

Through learning lead by Elders and Knowledge Keepers, youth will:

- Get closer to nature and feel more connected to the land, water, spirit, and yourself.
- Learn how to combine Indigenous and Western knowledge to find creative solutions and explore the exciting world of environmental science.
- Boost your confidence to pursue higher education and kick-start your career in STEAM!

Our program is **free!**

Learn more and apply:

www.akikikinomakaywin.com

@aki.kikinomakaywin

Aki Kikinomakaywin

The above images and text on Aki Kikinomakaywin supplied for publication by Lydia Johnson via email 1 June 2023

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

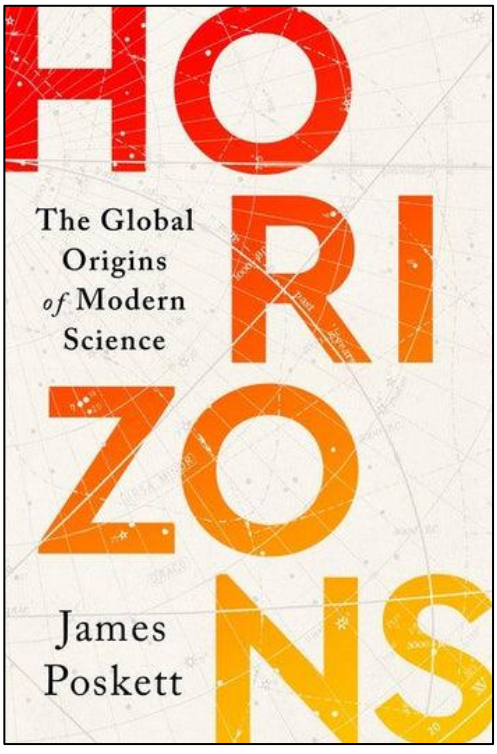
How Not to Tell the History of Science

(Eric Moses Gurevitch, Boston Review: 22 Feb 2023) Link

Two recent books force us to rethink what knowledge is, where it is located, and how it moves.

> ***Horizons: The Global Origins of Modern Science***
> James Poskett
> Mariner Books, $30 (cloth)
>
> ***From Lived Experience to the Written Word: Reconstructing Practical Knowledge in the Early Modern World***
> Pamela H. Smith
> University of Chicago Press, $35 (paper)

According to a familiar story, science was born as a pastime of seventeenth-century European gentlemen, who built air pumps, traded telescopes, and measured everything from the size of the earth to the eye of a fly as they sought to uncover the laws of nature. Through careful experimentation and observation of nature, these men—who called themselves natural philosophers—distinguished themselves from the scholastic schoolmen of yore, who had instead busied themselves with writing commentary upon commentary on Aristotle and Aquinas. They also wrote about themselves. They formed societies, took notes at their meetings, compiled their notes into journals, and penned books recording their achievements; it was a mere seven years after the founding of the Royal Society in 1660 that Thomas Sprat published its first history. Reason had finally come into its own, and it arrived with a diligent group of stenographers. Of course, these men were not actually the first to make observations or perform experiments. But their self-congratulatory narrative provided a powerful resource to explain the economic and political hegemony of Europe in the centuries to follow.



Both the word and the narrative that came along with it stuck, but "this story," historian James Poskett declares at the start of his book Horizons: The Global Origins of Modern Science, "is a myth." The idea that science is the product of a small number of men living in half a dozen European cities, as they dared to question the knowledge they were handed down, is a "convenient fiction"—one that continues to be told and retold throughout popular culture, from K–12 and college textbooks to Neil deGrasse Tyson's Cosmos and popular histories such as David Wootton's The Invention of Science (2015).

Critical Cartography

(Center for Community Geography, University of New Mexico: accessed 15 May 2023) ***Link***

Critical cartography is a set of mapping practices and analytical approaches grounded in critical theory. Critical cartographers merge humanistic and scientific questions in their work, recognizing maps as expressions of power and knowledge. In spring 2021, Geography & Environmental Studies launched a new class on Critical Cartography, where students learn about participatory mapping, countermapping, data sovereignty, and more.

The academic literature on Indigenous Cartography is large and growing. This semester, students in "Critical Cartography" read a small sample of relevant articles, shown below. Please contact the Center for Community Geography if you would like a PDF copy of any of these articles.

- Caquard, Sébastien, and William Cartwright. 2014. "Narrative cartography: From mapping stories to the narrative of maps and mapping." *The Cartographic Journal* 51 (2):101–106.
- Hirt, Irène. 2012. "Mapping dreams/dreaming maps: bridging Indigenous and Western geographical knowledge." *Cartographica: The International Journal for Geographic Information and Geovisualization* 47 (1):105-120.
- Hunt, Dallas, and Shaun A. Stevenson. 2017. "Decolonizing geographies of power: indigenous digital counter-mapping practices on Turtle Island." *Settler Colonial Studies* 7 (3):372-392.
- Lucchesi, Annita Hetoevėhotohke'e. 2020. "Spatial data and (de)colonization: incorporating Indigenous data sovereignty principles into cartographic research." *Cartographica* 55 (3): 163-167.
- Offen, Karl. 2011. "Edge of empire." In *Mapping Latin America: a cartographic reader*, edited by Jordana Dym and Karl Offen, 88-92. Chicago: University of Chicago.
- Palmer, Mark, and Cadey Korson. 2020. "Decolonizing world heritage maps using Indigenous toponyms, stories, and interpretive attributes." *Cartographica* 55 (3): 183-192.
- Pearce, Margaret Wickens. 2008. "Framing the days: place and narrative in cartography." *Cartography and geographic information science* 35 (1):17-32.
- Rose-Redwood, Reuben, Natchee Blu Barnd, Annita Hetoevėhotohke'e Lucchesi, Sharon Dias, and Wil Patrick. 2020. "Decolonizing the map: recentering Indigenous mappings." *Cartographica: The International Journal for Geographic Information and Geovisualization* 55 (3): 151-162.
- Scassa, Teresa, Nate J Engler, and DR Fraser Taylor. 2015. "Legal issues in mapping traditional knowledge: Digital cartography in the Canadian north." *The Cartographic Journal* 52 (1):41-50.
- Snipp, C Matthew. 2016. "What does data sovereignty imply? What does it look like?" In *Indigenous data sovereignty: Toward an agenda*, edited by Tahu Kukutai and John Taylor, 39-55. ANU Press.
- Sparke, Matthew. 1998. "A map that roared and an original atlas: Canada, cartography, and the narration of nation." *Annals of the Association of American Geographers* 88 (3):463-495.

Indigenous Cartographies @ UNM Panel

(Center for Community Geography, University of New Mexico: accessed 15 May 2023) ***Link***

Indigenous cartographers and communities have been at the forefront of recent innovations in critical cartography. We created the public panel event so that UNM students, faculty, and partners could learn and take inspiration from thinkers and practitioners working in this exciting domain. Panelists discussed projects and ideas relevant to research and teaching across campus, and especially for community engagement. Our panelists were: Christine Ami, Deana Dartt, Rudo Kemper, Annita Lucchesi and Reuben Rose-Redwood.

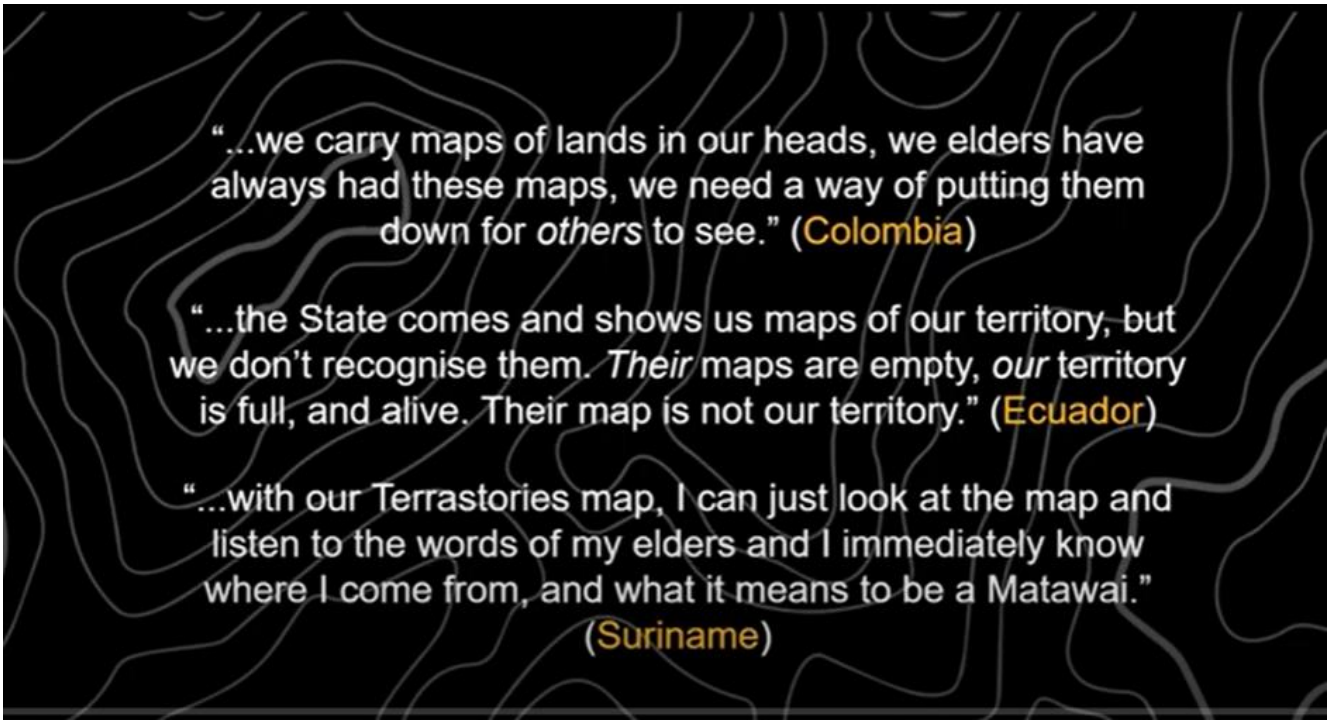


Image taken from Youtube accessed 15 May 2023

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

Western and Indigenous Science

(Leila Rquibi & Molly A Blaszkowski, College of Biological Sciences, University of Minnesota: 2023) Link

Much of what we consider to be "science" excludes the wealth of indigenous knowledge. This is knowledge which has been acquired through generations of interaction with the land, and which is deeply coded in indigenous language, making efforts to preserve indigenous knowledge necessarily ones of language preservation as well.

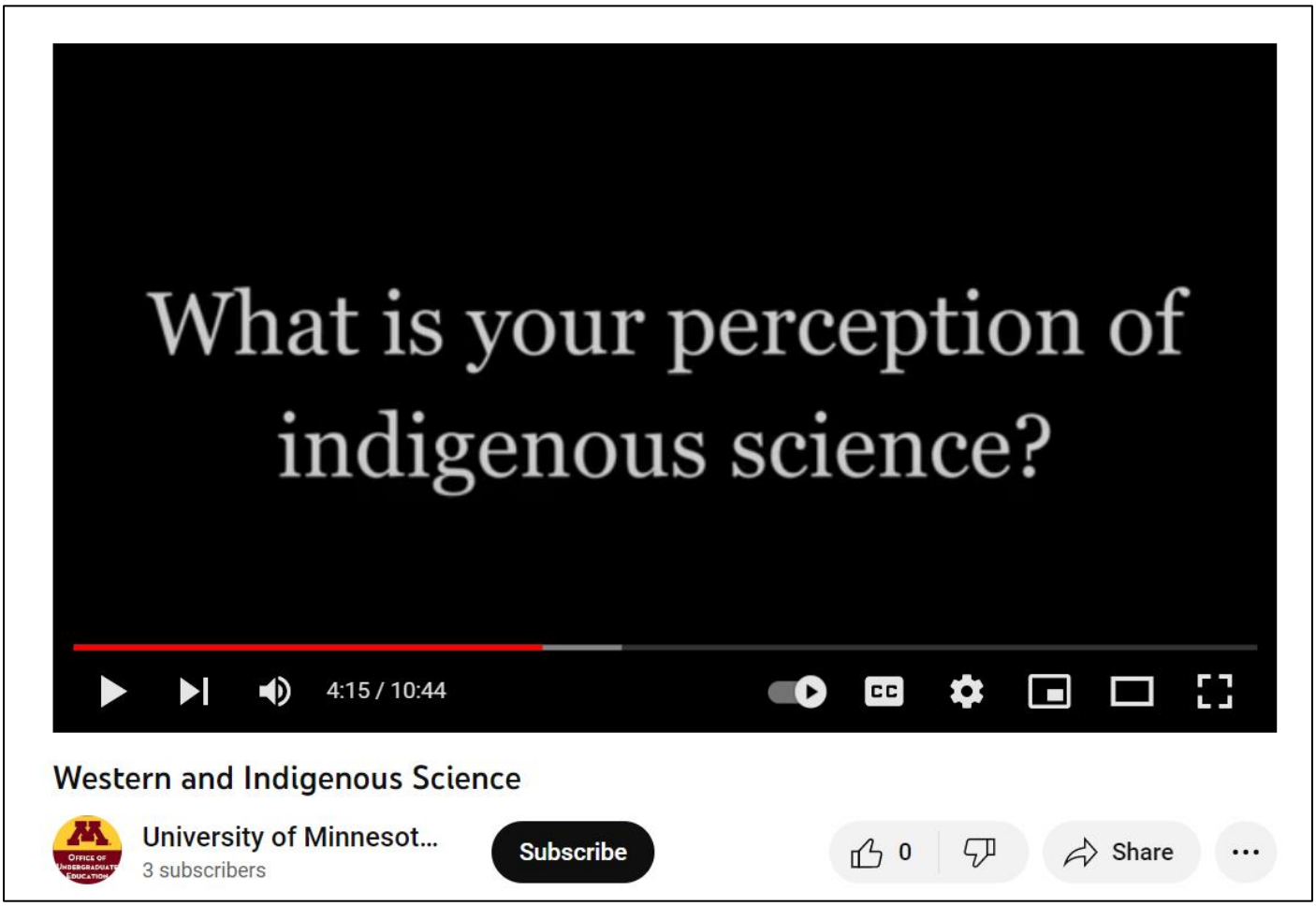
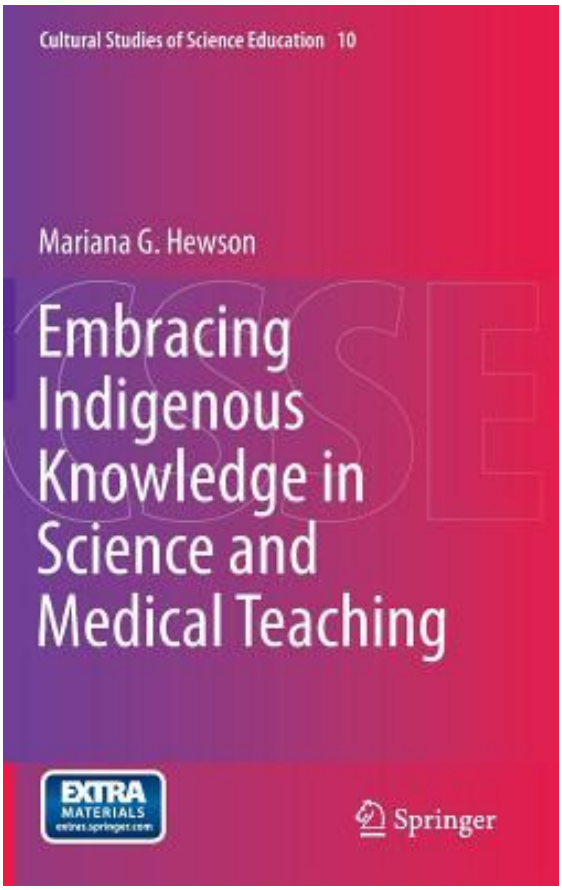


Image taken from Youtube, 5 May 2023

Embracing Indigenous Knowledge in Science and Medical Teaching (Cultural Studies of Science Education #10) (Hardcover)

(Cultural Studies of Science Education Series, Springer Publishers: 29 Sept 2014) Link



The focus of the book is on different ways of knowing: the western scientific way (reductionist, dualistic and materialist) versus the indigenous approach (holistic, non-dualistic, and spiritual). It discusses both science and medicine in the context of the challenges experienced in introducing science and medicine into Africa through imperialism, colonization, and globalization. It looks at selected indigenous African paradigms, the dominant western paradigms, and the practitioners that represent these practices.

The book deals with questions concerning compatibility and incompatibility of different ways of knowing and delves into epistemological stances, and the assumptions underlying these epistemologies. The volume investigates whether, and how a person can accommodate different epistemologies, and the nature of such accommodations.

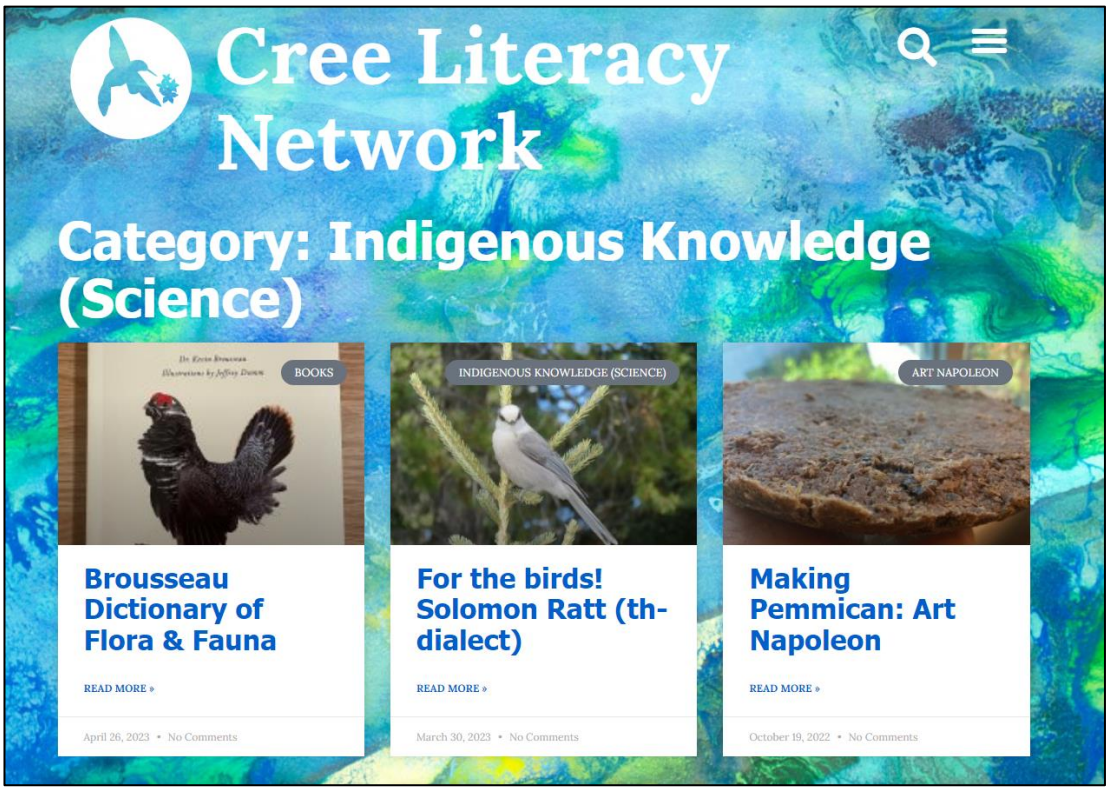
Incorporating Indigenous Knowledges into Federal Research and Management: What are Indigenous Knowledges? *(Melonee Montano and Dr. Daniel Wildcat: 28 April 2023)* *Link*

Webinar Series Summary

The National CASC is hosting a virtual webinar series on "Incorporating Indigenous Knowledges into Federal Research and Management" that discusses how to integrate Indigenous Knowledges (IK) into Federal ecological research and resource management programs. Running bi-weekly from April 6 to June 1, 2023 (3 PM ET), this series centers Indigenous perspectives to explore ethical, legal, and scientific considerations inherent in working within different knowledge systems and provides guidance and case studies reflecting best practices for collaborating with Tribes and Indigenous communities. Learn more about and register for the series here.

Webinar Summary

In this "What are Indigenous Knowledges (IK)?" webinar, speakers Melonee Montano and Dr. Daniel Wildcat have a conversation on what are Indigenous Knowledges and what it means to ethically engage with Indigenous Knowledges in resource management and conservation spaces.



Resources for Cree science are linked to the image above, *accessed 5 May 2023.*

The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

PAPERS

Climate, caribou and human needs linked by analysis of Indigenous and scientific knowledge *(Gagnon, C.A., Hamel, S., Russell, D.E. et al. Nat Sustain: 2023).* *Link*

ABSTRACT

Migratory tundra caribou are ecologically and culturally critical in the circumpolar North. However, they are declining almost everywhere in North America, probably due to natural variation exacerbated by climate change and human activities. Yet, the interconnectedness between climate, caribou and human well-being has received little attention. To address this gap, we bridged Indigenous and scientific knowledge in a single model, using as example the Porcupine caribou herd social-ecological system. Our analysis, involving 688 (fall season) and 616 (spring season) interviews conducted over 9 years with 405 (fall season) and 390 (spring season) Indigenous hunters from 9 communities, demonstrates that environmental conditions, large-scale temporal changes associated with caribou demography and cultural practices affect hunters' capacity to meet their needs in caribou. Our quantitative approach bolsters our understanding of the complex relationships between ecosystems and human welfare in environments exposed to rapid climate change, and shows the benefits of long-term participatory research methods implemented by Indigenous and scientific partners.

https://doi.org/10.5061/dryad.msbcc2g2z.

Developing an Indigenous Science Curriculum for Kindergarten in Philippines

(Greg Tabios Pawilen, Manabu Sumida; Asia-Pacific Journal of Research in Early Childhood Education: 2007 Vol.1 No.1) *Link*

ABSTRACT

This study discusses the process of developing an indigenous science curriculum for kindergarten in the Philippines. It is inspired by a vision to utilize the rich experience and indigenous knowledge of the people to enhance and enrich the science curriculum for the kindergarten level. This study aims to make the kindergarten science curriculum more relevant and responsive to the daily-life culture of the learners and to make culture a part of science. In this paper, important data from the socio-cultural systems of selected communities are analyzed and discussed in order to determine the context in which the curriculum is situated. Likewise, the responses of the learners, perceptions of teachers and community folks, and the government documents on developing indigenous curriculum were analyzed and presented to develop an indigenous science curriculum for kindergarten.

Concrete in the city

(Kate Harriden; Australian Journal of Water Resources: 2022) ***Link***

ABSTRACT

Despite the hydrological imperative and engineering capacity for change, concrete storm water infrastructure remains obdurate in the urban waterscape. This obduracy manifests both as an unwillingness to remove existing infrastructure and the continuing construction of new infrastructure in locations previously free of these systems. This paper identifies four critical socio-political values underlying the obduracy of concrete storm water infrastructure and the resultant urban stream syndrome. Following a brief critique of reactive storm water management frameworks to manage this syndrome, this paper articulates four common values of Indigenous science(s) that are well placed can contribute to improve storm water management. Supporting this argument is an example of Indigenous science(s) changing the form and function of a reach of an extant concrete storm water channel in Canberra, Australia. While these interventions will be assessed primarily from water quality perspectives, they contribute to a greater range of environmental processes than purely hydrological.

https://doi.org/10.1080/13241583.2021.2002508

African Indigenous knowledge versus Western science in the Mbeere Mission of Kenya

(Julius M. Gathogo, HTS Teologiese Studies: 6 Feb 2023) ***Link***

ABSTRACT

This article sets out to explore the way in which Western science and technology was received in the Mbeere Mission of central Kenya since August 1912 when a medical missionary, Dr T.W.W. Crawford, visited the area. Crawford, a highly trained Canadian medical doctor, was sent by the Church Missionary Society (CMS) at Kigari-Embu, in 1910, to pioneer the Anglican mission in the vast area that included Mbeereland. Contending with the African indigenous knowledge in medicine, environmental conservation, agriculture and other forms of indigenous science, the introduction of Western science and technology, 1912 to 1952, the article argues, did not erase the former; rather, it complimented it. Pockets of general resistance were evident, though Mbeereland, unlike its neighbouring Mutira Mission of 1912, did not offer elaborate opposition to the Western science and technology, partly because the locals could have learnt about it from their neighbours who had experienced it much earlier. Through a historico-narrative design, the research article endeavours to primarily review the coming of Western medicine in Mbeereland: Did it conflict with the African medicine?

Overlapping Scales of Place Based Indigenous Knowledge and Hydroclimate in Australia

(Rachel L. Coleman, University of Maine; PhD thesis 2022) ***Link***

ABSTRACT

Indigenous Peoples have been monitoring and adapting to uncertainty and change in their local regions for millennia, resulting in a holistic view of the interlinkages within the occupied complex socio-environmental systems. This research consists of investigating the overlapping scales of knowledge within Indigenous Australian seasonal calendars and colonial methods of hydroclimate assessment for improving adaptability to climate change impacts. The analyses began with a sample of 25 Indigenous seasonal calendars providing a glimpse into interlinkages among biota, environment, and meteorology of the localised regions. Across the calendars, five themes of information and multiple categories within these themes became apparent and were explored for relevance to climate change and adaptability.

Climate change is increasing the risk of droughts and bushfires through increasing variability and long-term trends in the local and remote ocean-atmospheric phenomena as represented by two climatic indices: Southern Ocean Index and Indian Ocean Dipole. These two indices, sea surface temperature, and historical Standardized Precipitation Evapotranspiration Index were used to assess the nature of variability and spatial patterns in the bushfire season, as delineated from five Indigenous seasonal calendars. Results indicated increased water stress across the four eastern locations during the bushfire season while the western location is experiencing a change in rainfall seasonality. Indigenous place-based knowledge has substantial awareness of the holistic interlinkages that make up the biota, environment, and climate of a region. Collaboration with knowledge holders on resource stewardship has the potential to improve adaptability of humans and ecological systems to the increasing challenges brought by climate change.

Decolonizing the Map: Indigenous Maps and GIS

(Henry Osborne Beimers, Minnesota State University, Mankato: 2022) ***Link***

ABSTRACT

Indigenous mapping practices have yet to be widely considered by geographers outside of a historical context. In this paper I critique the geographic research paradigm through the lens of settler colonial and critical cartographic theory. I present evidence for the value of Indigenous mapping practices through a historical-critical GIS analysis of two Indigenous maps, and a creation of a story map to present those results. Finally, I suggest future routes to integrate digital mapping and Indigenous mapping practices, for pedagogy, and for preserving cultural resources, language, land, and traditional Indigenous knowledge.

Is Validation of Traditional Ecological Knowledge for Natural Resources Management and Climate Change Adaptations Against Western Science a Wise Idea: Exploring Relevance and Challenges *(Shivani Rai & Shalini Dhyani; Traditional Ecological Knowledge of Resource Management in Asia: Published 2 Jan 2023)* Link

ABSTRACT

In the last few decades, loss of biodiversity, ecosystem services, and climate change have emerged as the biggest environmental issues of the Anthropocene. Ongoing international discussions (especially IPCC and IPBES) have only recently started recognizing the importance of traditional and indigenous knowledge systems in solving the global biodiversity loss and climate concerns. Hence, the significance of Traditional Ecological Knowledge has gradually gained popularity in the scientific community. Understanding the capability of this unique knowledge is crucial for providing nature-based solutions for the conservation of ecosystems, sustainable land use, climate change adaptation, etc. However, due to scarcity of information and less evidence-based practice, traditional knowledge struggles for recognition and acceptance in a broader community. Moreover, Western science, the dominant form of knowledge in our society, often disregards other knowledge systems and demands science-based validation. The present chapter paper explores and provides an overview of the relevance, reasons, and need of validating Traditional Ecological Knowledge systems to Western Science while highlighting the synergies and trade-offs in the process.

Understanding Jhum (shifting cultivation) farmers' place-attachment and ecocentric attitude: Towards a place-based approach for sustainable mountain agriculture in Nagaland, India

(Rajarshi Dasgupta, Mrittika Basu, Shalini Dhyani, Pankaj Kumar, Shizuka Hashimoto, Bijon K. Mitra; Wiley Online: Published 14 July 2022) Link

ABSTRACT

Place attachment and ecocentric attitude are the important determinants of conservation behaviour, especially for traditionally managed landscapes. In this paper, we explore the relationship between place attachment and the ecocentric attitude of farmers engaged in Jhum cultivation (shifting cultivation or slash-and-burn cultivation) in the Zunheboto District of Nagaland, India. We administered a questionnaire survey (n = 153) based on a widely used four-dimensional place attachment framework and a well-known cognitive scale for measuring ecocentric attitude. The results indicate that Jhum farmers' modest ecocentric attitude is significantly associated with their place attachment, especially with place identity and place dependence, although their behaviour of organized deforestation is in apparent contradiction. While an ecocentric attitude generally contributes to environmentally responsible behaviour, we argue that, for Jhum farmers, the absence of such a causal relationship is influenced by other rationalities, particularly owing to the lack of alternative livelihood opportunities. The findings of this study establish the inherent positive ecocentric attitude of Jhum farmers who are often held responsible for deforestation and environmental degradation. Furthermore, we argue that such an inherent positive ecocentric attitude and a strong place attachment are imperative to implement place-based models for sustainable mountain agriculture.

Bridging Knowledge Systems in the Peruvian Andes: Plurality, Co-Creation, and Transformative Socio-Ecological Solutions to Climate Change

(Domenique Ciavattone; Capstone Collection. 3277: 2023) ***Link***

ABSTRACT

In the current era of anthropogenic climate change, Quechua farmers in the Peruvian Andes are some of the most impacted by, yet some of the lowest contributors to global warming. Dominant Western systems alone have proven insufficient in tackling the climate crisis, and there have been increasing efforts to elevate and center Indigenous voices and epistemologies when addressing climate change. Researchers and communities are calling for a bridging of knowledge systems, in which Indigenous and Western methods collaborate to co-create innovative solutions to climate challenges. This research sought to explore methods and successes in bridging Indigenous and Western knowledge systems in Parque de la Papa (Parque) in the Peruvian Andes.

Endorsing Scientific Hybridization of Traditional Ecological Knowledge (TEK) for Enhancing Climate Change Adaptation (CCA) Across Diverse Sectors ***(Suvha Lama, Shalini Dhyani, Atya Kapley, Rakesh Kumar; Climate Change and Sustainable Development: 2023)*** ***Link***

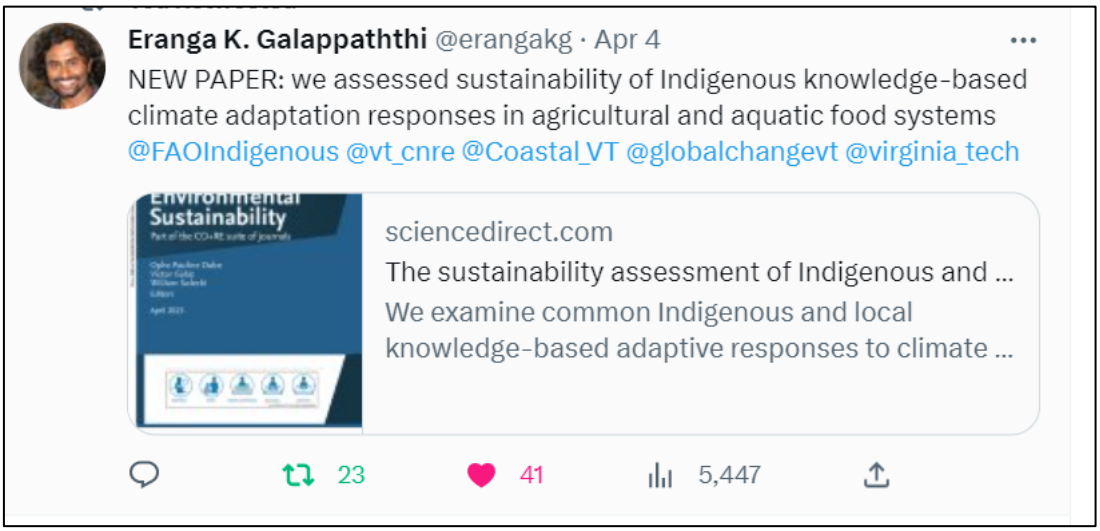
ABSTRACT

Climate change and its associated impacts are one of the most prevalent issues being faced by humanity. Climate change may encompass the whole of the planet, but different segments of our society feel its impacts disproportionately. Indigenous communities faced the brunt of the effects of climate change due to their dependency on climate-sensitive natural resources. However, indigenous communities have been adapting to climate-related hazards for generations, and of late, various international agencies are endorsing TEKs as an essential part of any CCA strategies. TEKs boosts the community's resilience to shocks related to climate extremes. Yet these traditional knowledge systems face limitations in combating the current impact of climate change due to the increase in the frequency and intensity of extreme weather events (EWE).

Conventional science–based CCA strategy is a top-down approach designed with regional or national scales in mind without considering the local scenarios, processes, and dynamics. Therefore, for a sustainable and long-term CCA in vulnerable indigenous communities, both these knowledge systems need to be hybridized to promote its strengths and shore up its weakness. This chapter reviews various methodologies listed in the literature concerning the knowledge integration, knowledge co-production, and knowledge hybridization of traditional ecological knowledge and science-based knowledge systems (SBKS). Further, the chapter illustrates a holistic model for the sustainable hybridization of climate change adaptation strategies using traditional ecological knowledge.


Dr. Jessica Hernandez
@doctora_nature
📢CALL FOR PAPERS📢
Special Issue: Indigenous Peoples & Environmental Justice!
Deadline: October 13, 2023 (Please share)
Indigenous-led special issue*.
*All first authors must be Indigenous.
INDIGENOUS
PEOPLES &
ENVIRONMENTAL JUSTICE
DEADLINE: OCTOBER 13, 2023
INDIGENOUS-LED SPECIAL ISSUE
*ALL FIRST AUTHORS MUST BE INDIGENOUS
6
266
384
43.9K

The link to the Galappaththi paper below via Twitter has expired. Please use this link (and thanks to Board member Ron Vave for the new link!):



INDIGENOUS ASTRONOMY

indigenouseducators

indigenouseducators We are grateful for the natural patterns of life that occurs throughout the different seasons.

We honor our winter solstice and wish a safe winter to our relatives as we enter a new season of life.

We extend this acknowledgment and remember the tribal nations who continue to have prayers and ceremonies in honor of this solstice.

Throughout this season we continue to center Indigenous children and the spaces who teach ancestral understandings of this solstice AND it's significance to the different tribal nations.

Strength and love to all from @indigenouseducators ❤️

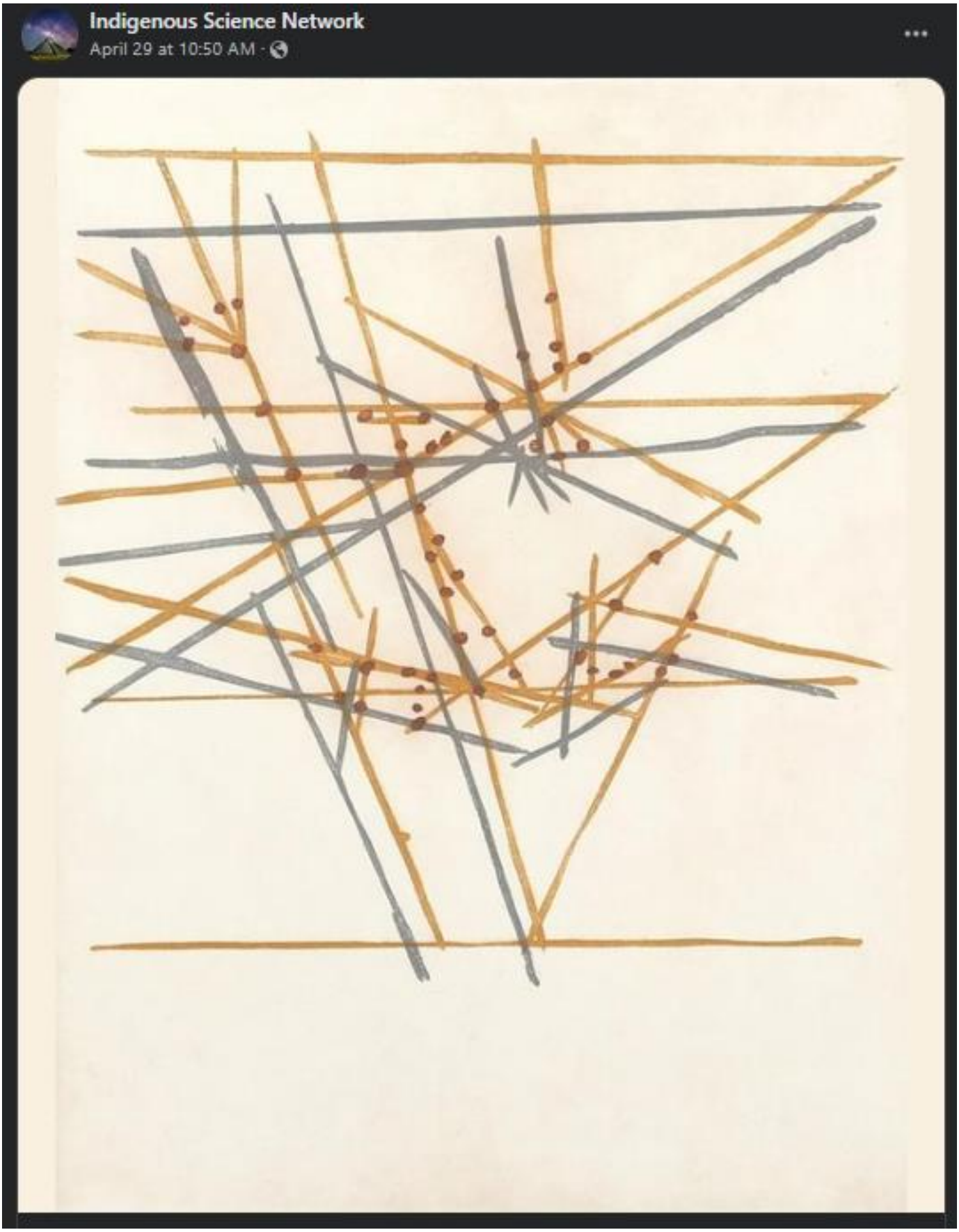
Edited · 12w

686 likes

DECEMBER 22, 2022

Add a comment... Post

***Star Navigation of the Torres Strait* by Gail Mabo (2018)**



See a description of this image on page following:

Australian Indigenous Astronomy
April 27 at 4:00 PM ·

Star Navigation of the Torres Strait (Tagai Bamboo Map) by Gail Mabo.

Tagai is constellation that is used to navigate through the Torres Strait. When the hand of Tagai touches the horizon, that means it is time to go hunting. When Tagai is in the sky in a particular way, this represents the different seasons, telling us when to plant and harvest things like taros and yams, plus when the turtles are mating etc. Bamboo maps are used as memory aides to work out paythways between islands and oceanic currents, reflected in the positions of the stars of Tagai.

Gail Mabo is a multidisciplinary artist working across sculpture, installation, printmaking and painting. Her artistic career commenced in 1979 with local Townsville Dance troupe 'New Blood Dance Troupe' which was founded by Shane and Bronwyn Williams. Gail was part of this 15 strong Indigenous contemporary dance troupe for 4 years; her involvement in this group encouraged her to pursue training through an accredited dance school, which she applied for and was accepted. In 1983 she enrolled into the National Aboriginal and Islander Dance Academy (NAISDA) formerly known as the Aboriginal and Islander Dance Theatre (AIDT) in Sydney. Gail attended the Aboriginal and Islander Dance Theatre for four years which provided a foundation for traditional and contemporary movement, which established appropriate protocols and traditional dance techniques for both the Aboriginal and Torres Strait Islander cultural dance practices. During this time Gail also toured with the Dance Theatre throughout New South Wales as well as nationally and to the remote Indigenous communities within Australia. She is a daughter of Eddie Koike Mabo.

https://shop.umbrella.org.au/products/tagai-gail

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

Melpal Mari Pathanu (the ghost has taken the spirit of the Moon) **by David Bosun**

See a description of this image on page following:

Australian Indigenous Astronomy
April 22 ·

Predicting the Eclipse Ceremony in the Torres Strait

In the Torres Strait, an eclipse of the Sun or Moon is the focus of a sacred ceremony. It is planned in the months leading up to it, informed by the Zugubau Mabaig (astronomer).

In the traditions of the western Torres Strait, the islands were once inhabited by constellation people known as the Zugubau Thituil. They interacted with the first humans to reach the Torres Strait and taught them all of the knowledge of the land, sea and sky. The tradition of passing on sacred star knowledge continues to this day.

It is the role of a Zugubau Mabaig to carefully observe and track all of the movements, positions and changes in the properties of celestial objects to know what is happening on the land. The Elders refer to this as 'reading the stars'.

Melpal Mari Pathanu, meaning 'the ghost has taken the spirit of the Moon', is this special ceremony, which takes place during an eclipse of the Moon. The term can refer to both solar and lunar eclipses.

Learn more in the books "Eclipse Chasers" (CSIRO Publishing, 2023) by Nick Lomb and Toner Stevenson and "The First Astronomers" (Allen & Unwin, 2022) by Duane Hamacher and six Elders, including David Bosun.

Artwork by David Bosun: David Bosun is a Mualgal man and artist from the village of Kubin on the southern coast of Moa island in the western Torres Strait. His father was a Zugubau Mabaig, and David continues to pass down deep levels of traditional star knowledge today, reflected in David's artworks.


Indigenous Science Network
May 4 at 9:22 AM ·
"MERIAM PEOPLE HAVE AN AREA WE LOOK AFTER, AND WE KNOW HOW EACH ELEMENT PLAYS A PART IN OUR ENVIRONMENT."
"THE SUN, STARS, RAIN... EVEN THE NOISE OF A BIRD AND THE WIND THAT RUSTLES THROUGH THE TREES."
imgflip.com
Australian Indigenous Astronomy
May 1 at 4:00 PM ·
Uncle Alo Tapim OAM is a Meriam Elder and Dauareb man from the island of Mer the eastern Torres Strait. He is a trained linguist, published scholar, and co-author of the book "The First Astronomers". He has appeared on several films, including the 2020 Werner Herzog documentary "Fireball: Visitors from Darker Worlds".

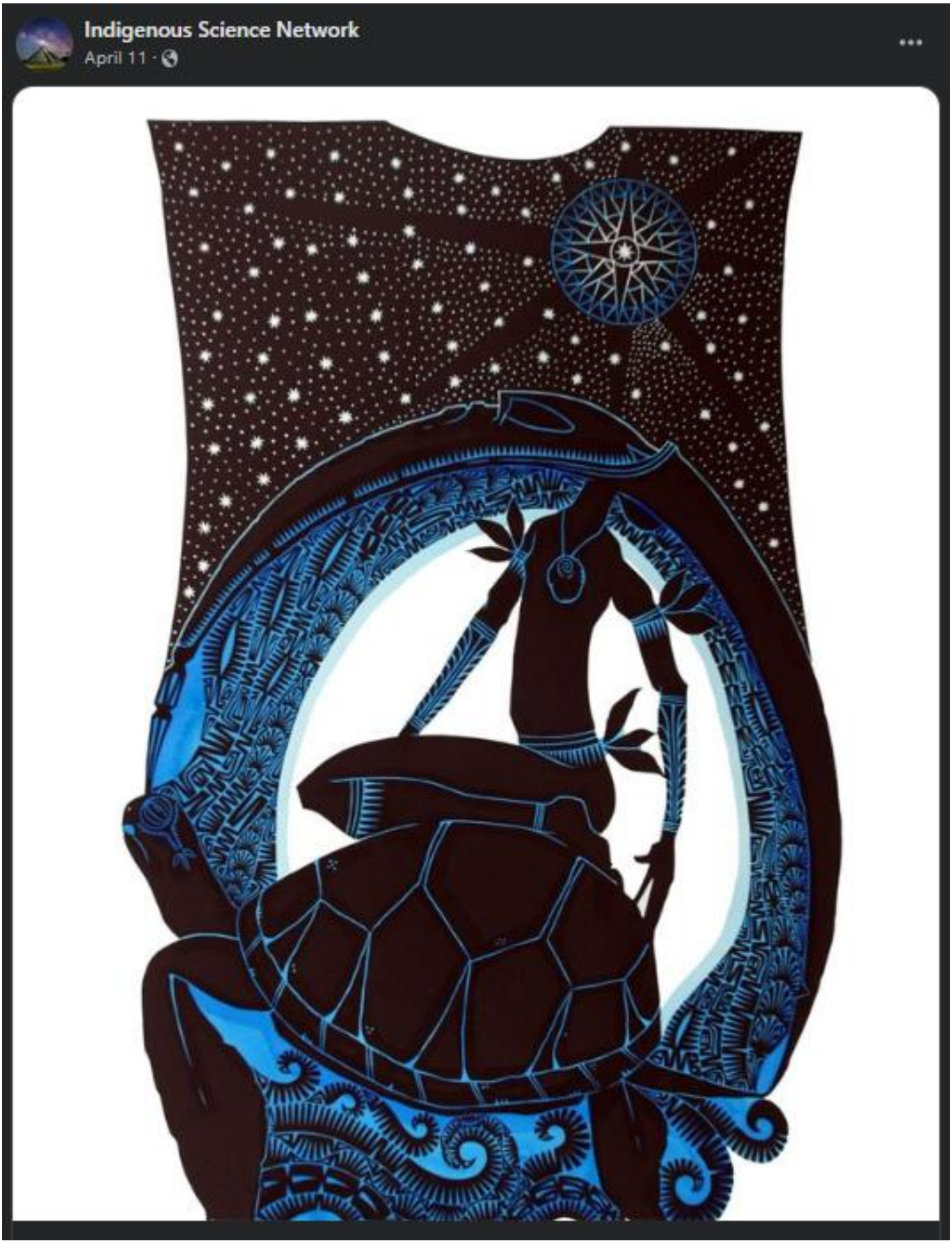
Putting Science in its Place

(May Wang; Jstor Daily: 7 April 2023) ***Link***

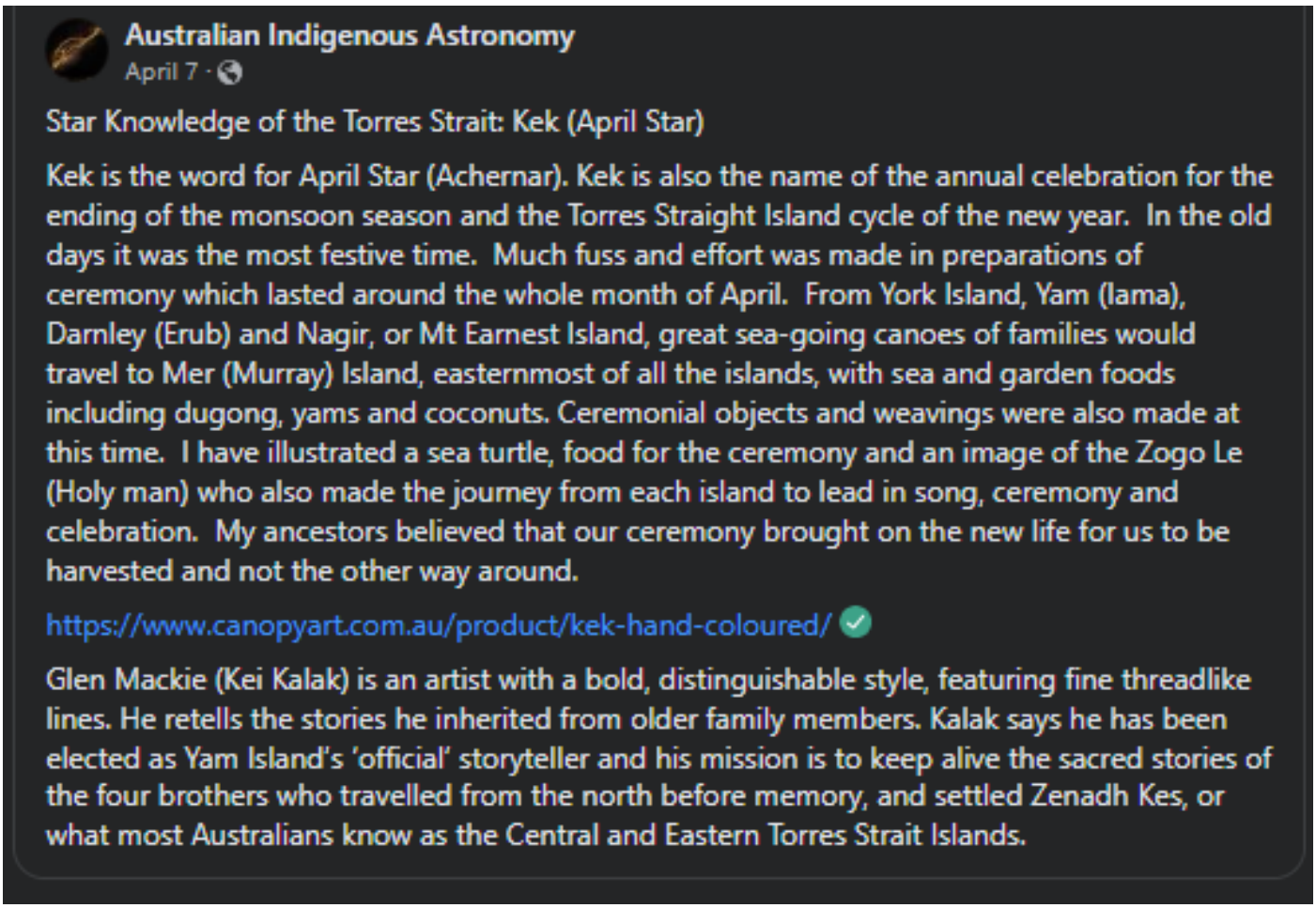
In January 2023, at the annual meeting of the American Astronomical Society, the astronomy community was introduced to the eleven-member Mauna Kea Stewardship and Oversight Authority (MKSOA). Signed into existence by the governor of Hawai'i, the panel is tasked with managing oversight of Mauna Kea, the mountain considered the ancestor and elder sibling of Native Hawaiian communities—and host to a dozen astronomical observatories in the so-called modern scientific tradition. Mauna Kea (or *Maunakea*, short for "Mauna a Wākea" in the Native Hawaiian tradition) has been the center of attention for the past decade or so, as a global consortium of astronomers in the European scientific tradition strive to break ground on the Thirty Meter Telescope, which would be the largest telescope in the Northern Hemisphere. The ground-based telescope would also be one of the most sensitive ever built, possibly offering observations in the infrared that are four times sharper than those of the James Webb Space Telescope that caused such a stir in summer 2022. This, all atop peaks that are the dwelling places of Hawaiian deities—including Wākea, father of the sky.

Computer rendering of the Thirty Meter Telescope via Wikimedia Commons

***Kek* by Glen Mackie**

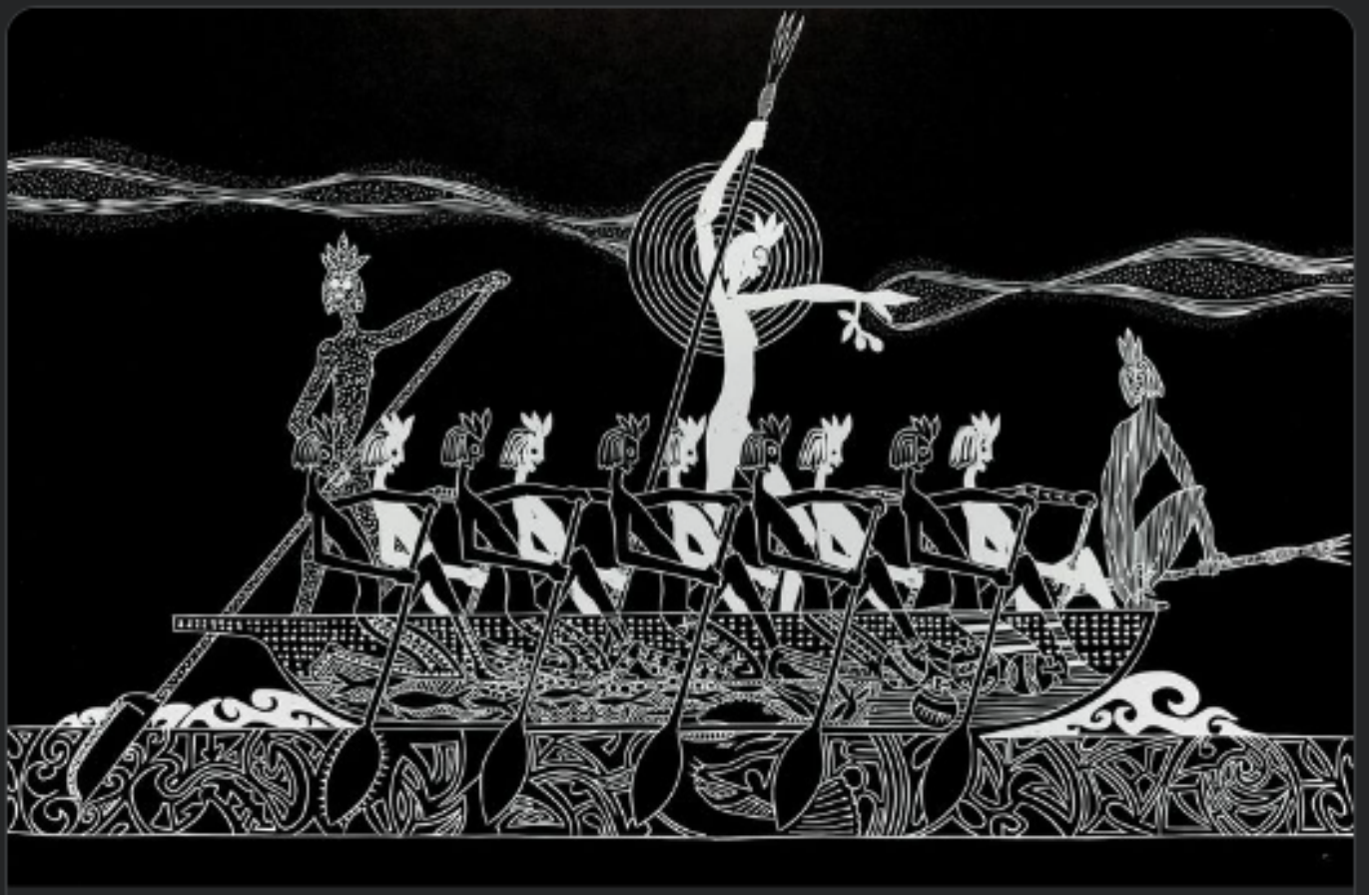


See a description of this image on page following:



The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

Indigenous Science Network
March 19 ·



Australian Indigenous Astronomy
March 15 ·

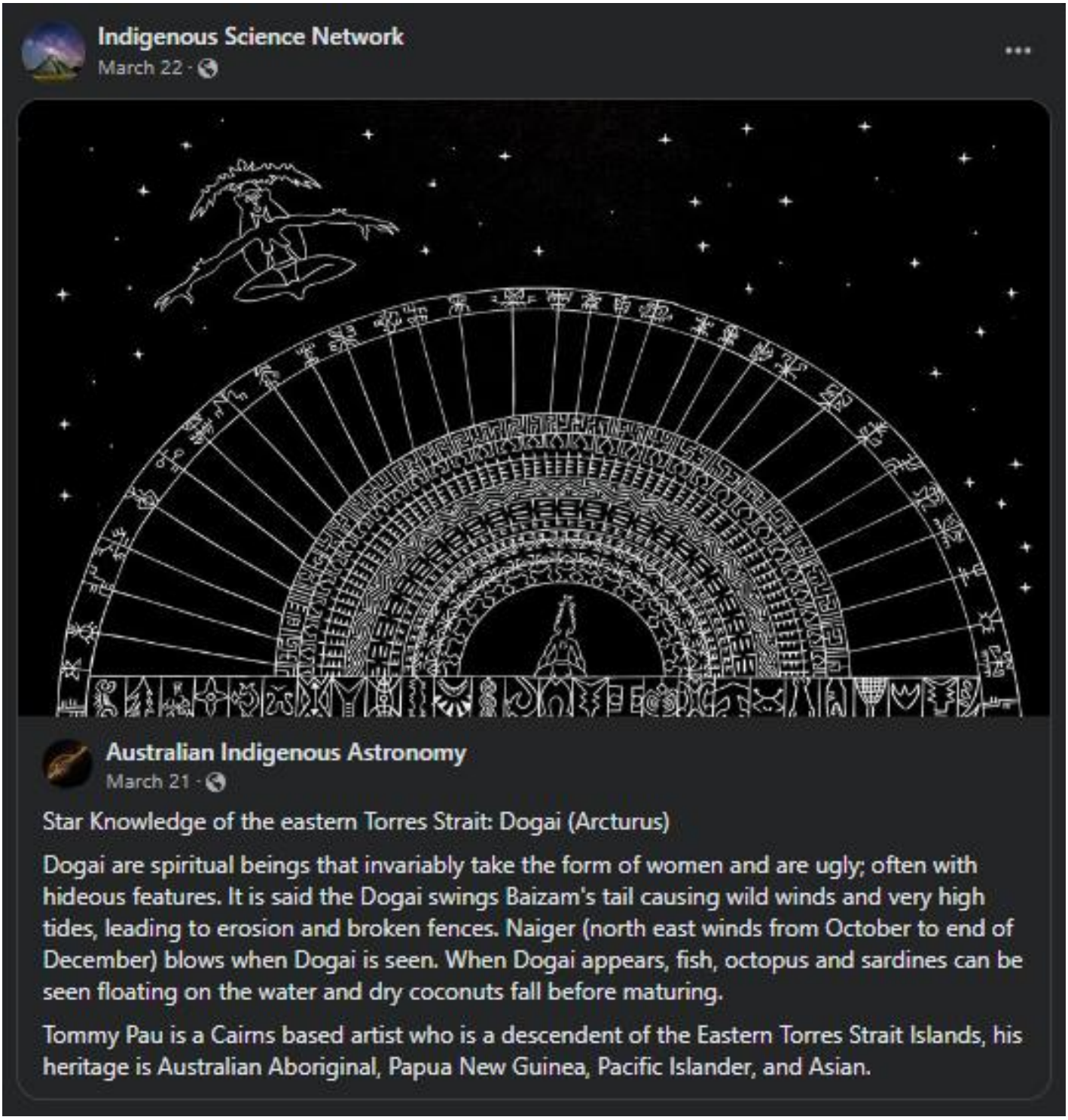
Star Knowledge of the eastern Torres Strait: Tagai and Crew

The story of the Tagai constellation is rooted in the traditions of Tagai, Kareg and his crew of twelve out spearing fish. It is said that Tagai and his crew came from the Australian mainland and some suggest he came from Western Torres Strait. While Tagai was out spearing fish away from the canoe, his crew got hot and dehydrated and needed to drink water, but they were told by Tagai not to, but to save it for the right time to drink.

Swimming in the sea did not cool the crew's thirst, so they drank the water. When Tagai returned he saw the water containers were empty, he was furious and in his rage killed his crew, except Kareg. As the crew were spirit beings they could not be killed so Tagai banished the crew to the skies as Seg and Usium.

This artwork depicts Tagai and his crew on their finishing journey. In every journey it is customary to have a zogo le (spiritual man) for bidding fair weather or to combat any other spiritual forces. Tagai must have been a zogo le, warrior, hunter and clan leader. The artwork depicts Tagai drawing and bidding from the spiritual world to control the natural through the spiritual.

Tommy Pau is a Cairns based artist who is a descendent of the Eastern Torres Strait Islands, his heritage is Australian Aboriginal, Papua New Guinea, Pacific Islander, and Asian.



WEBSITES

To learn more and attend upcoming events, please follow us on social media and visit our website

- www.aboriginalastronomy.com.au
- www.facebook.com/AboriginalAstronomy
- twitter.com/aboriginalastro
- http://ocaf.pbworks.com/

CONFERENCES / SEMINARS / WEBINARS - AUSTRALIA

As there are now many events occurring it is not possible to easily keep track. Hence, after listing upcoming events, we will also now include accounts of gatherings that have already been held. Members, please notify the network of any future events!

UPCOMING EVENTS

Looking Back, Moving Forward: Event 3—13 June

Join the Australian Academy of Science for the 2023 annual public speaker series

Aboriginal and Torres Strait Islander Peoples are the oldest continuous cultures on Earth. The wealth of knowledges gathered over 65,000 years has growing and continued relevance to modern scientific discoveries.

Hear how the intersection of Indigenous knowledges is informing our understanding of topics including climate change, agriculture and astronomy. Join Indigenous knowledge holders, researchers, innovators and industry experts to explore the power of combined ideas in 2023!

This is the third event in the series. More information about speakers will be announced soon.

Event details

Date: Thursday 13 June

Time: 5.30pm – 7.00pm AEST

Venue: The Shine Dome and online

National Education Summit Australia

Inspiring professional development for Australian educators

The National Education Summit has continued to be an important key professional development event for Australian educators since it first took place in 2016. The Summit is continually evolving and in 2023 will hold several innovative conference events for teachers in two major cities, Melbourne and Brisbane. **Keep up-to-date** by subscribing to our mailing list

The Brisbane event will take place on Friday 4 and Saturday 5 August 2023 at the Brisbane Convention & Exhibition Centre.


ASERA 54
2023 Conference
27th-30th June 2023
ASERA
AUSTRALASIAN SCIENCE EDUCATION RESEARCH ASSOCIATION LTD
Australasian Science Education Research Association (ASERA) 2023 Conference
ASERA 54
Tuesday 27th to Friday 30th June 2023
Cairns Convention Centre
Sponsored by
JCU
JAMES COOK UNIVERSITY
AUSTRALIA
Conference Website
Photo: Tourism Tropical North Queensland


ASERA
Home
About
Conferences
News
RISE
Contact
ASERA 54 - 2023 Conference
Face to Face (F2F) Conference at the Cairns Convention Centre
Tuesday 27th June to Friday 30th June 2023
Banner Image courtesy of Tourism Tropical North Queensland

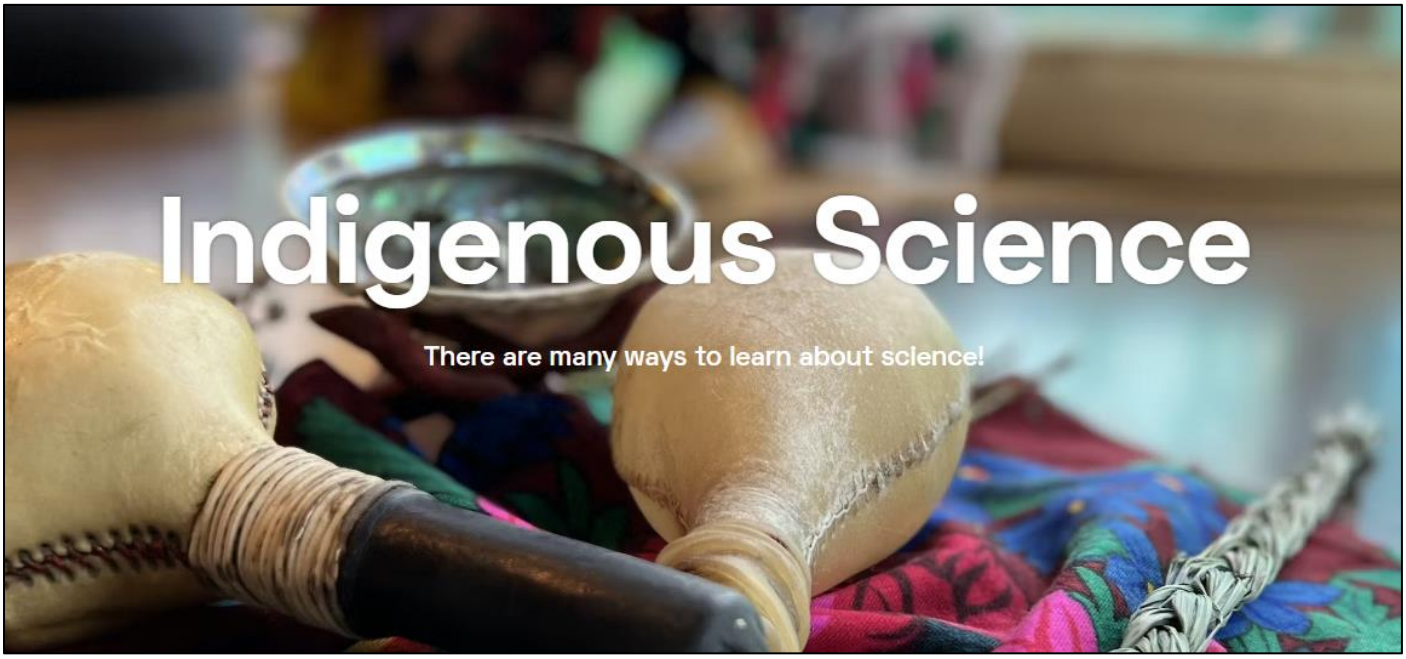
The Bulletin of the Indigenous Science Network is distributed four times a year via email notification directly to members. Membership is open to all. If interested in being a part of the Network, please contact Mark Linkson, the Coordinator, via email at IndigenousSciNet@yahoo.com. Issues distributed in March, June, September and December each year.

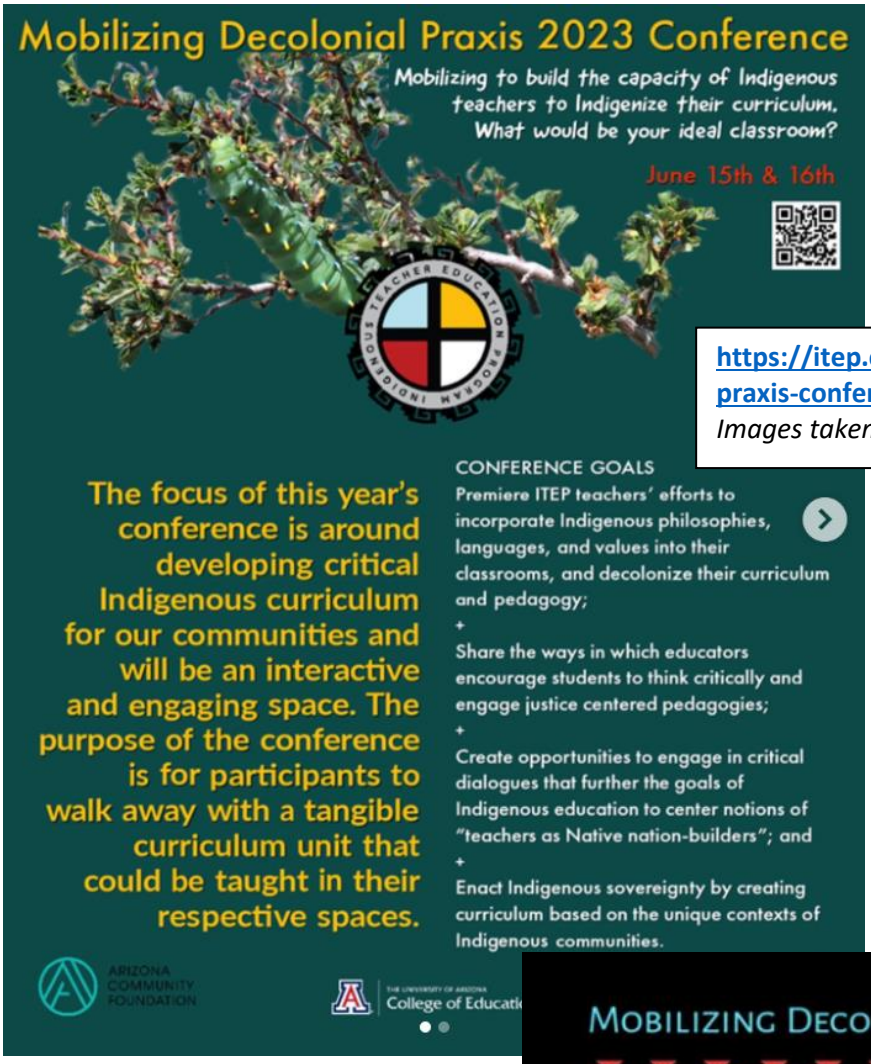
UPCOMING EVENTS

Calgary Science centre – TELUS Spark

Events and presentations continually available – check their website

TELUS Spark, Calgary's science centre, is a city jewel. When it opened in its current location in 2011, it was the first purpose-built science centre in the country in 25 years. It houses the largest dome theatre in western Canada and attracts hundreds of thousands of visitors a year and launches blockbuster shows. It changes lives and opens doors to the world of science, technology and innovation. Indigenous science themed events at TELUS Spark are linked to the image below:





https://itep.coe.arizona.edu/mobilizing-decolonial-praxis-conference-2023

Images taken from Instagram accessed 20 May 2023 Link

14th Annual Indigenous Teacher Education Conference/ Hybrid Event

Returning to our Languages and Ways of Knowing

June 23-24, 2023

Northern Arizona University College of Education will host the 14th Indigenous Teacher Education Conference June 23rd and 24th in the Eastburn Education Building. This conference for preschool, K-12, tribal, college, and university educators and concerned community members includes panels, workshops, and papers to share ideas for improving the lives and education of Indian children. Join your colleagues for two and a half days of career-empowering knowledge, practices, networking, and practical teaching solutions. The conference is designed with your specific needs in mind—providing strategies you can use immediately across all grade levels and subjects. NAU's College of Education has worked with Tribal Nations to improve the education of American Indian students for decades. It has hosted a variety of American Indian teacher and administrator preparation programs.

ISN members are encouraged to submit items exploring any aspects of Indigenous science, teaching or education. As the Bulletin is not an official journal or organ of any recognised institution, we are not required to enforce any formatting, editing or reviewing regimes. We do have an Editorial Board made up of First Nations Co-Editors from across the globe who view all items before publication. If you are doing something valuable in Indigenous science, teaching or education, please consider telling your story here!

Food and Agriculture Organization of the United Nations

2023 II SESSION OF THE UN GLOBAL INDIGENOUS YOUTH FORUM

16 – 20 October 2023 I Rome, Italy

UN Food & Agriculture Organization (FAO) Headquarters

Call for Applications Now Open!
Deadline to Apply: 30 June

Information about the Forum **How to Apply** **Download the Form here!**

The Biannual UN Global Indigenous Youth Forum hosted by the Food & Agriculture Organization of the United Nations (FAO) and organized by the Global Indigenous Youth will take place in October 2023 in Rome, Italy. The Forum will provide a space of dialogue between Indigenous Youth and Countries, UN Agencies, Universities, Research centres and other stakeholders to:

- Discuss policies affecting the future of Indigenous Peoples' food and knowledge systems in the context of climate action.
- Advance the recommendations stated by the **2021 Global Indigenous Youth Declaration for Sustainable and Resilient Food Systems.**
- Build upon the **"My Food Vision is..." Indigenous Youth campaign** launched in October 2022.
- Build a line of work with the leadership of the **Coalition on Indigenous Peoples' Food Systems** to advance the objectives of the Coalition and campaign.
- Hold dedicated discussions with the **FAO Investment Forum**, the **FAO Science & Innovation Forum**, the **World Food Forum**, and the **Committee on World Food Security**.

Applications are now open for Indigenous Youth who are actively working for the future of Indigenous Peoples' food and knowledge systems in the face of climate change, and want to engage in policy spaces related to the five topics listed above.

To apply, please read and complete the application package below and submit to **indigenous-peoples@fao.org** by 30 June 2023.

The "My food vision is..." campaign, led by the Global Indigenous Youth Caucus, seeks to address the challenges faced by Indigenous Youth and provide sustainable solutions for food systems, while also combatting climate change. The Indigenous Youth created a position with their hands, to symbolize mutual respect, reciprocity, and a need to protect Indigenous Peoples' food systems, highlighting the importance of supporting Indigenous Youth and Mother Earth. The campaign was launched live at the World Food Forum in October 2022, making strides towards the upcoming 2023 UN Global Indigenous Youth Forum.

The Campaign's 4 Key Messages are connected to FAO's Four Betters:
1. Better Production: Indigenous youth connect intergenerational science, knowledge and techniques that are the keys to sustainable food generation.
2. Better Nutrition: Nothing can substitute the nutrition of Indigenous Peoples' foods. Keep the lifelines alive for Indigenous children.
3. Better Environment: Led by the teachings of our Elders, Indigenous youth are learning to follow the laws of nature where responsibility, servitude, and reciprocity are the ways to revive a healthy planet.
4. Better Life: Our foods are our Relatives; if they are healthy, we are healthy.

ICIET 2023: 17. International Conference on Indigenous Education and Training

December 06-07, 2023 in Kuala Lumpur, Malaysia

Conference Code: **23MY12ICIET029**

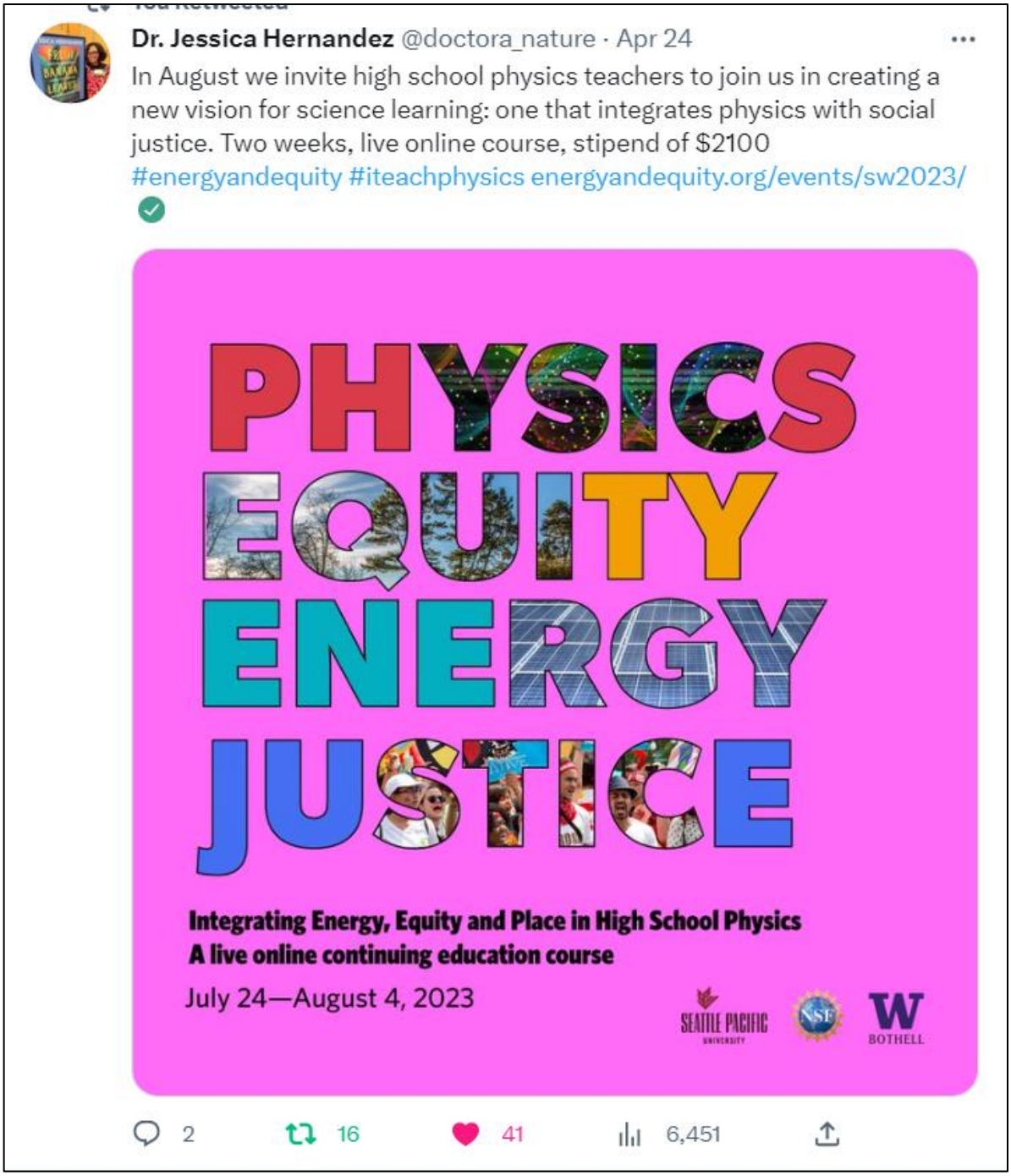
Submit Your Paper | Author Registration | Listener Registration

About | Venue | Call For Papers | Important Dates | Committees | Registration Fees | Program | Conference Photos | Flyer

The International Research Conference Aims and Objectives

The International Research Conference is a federated organization dedicated to bringing together a significant number of diverse scholarly events for presentation within the conference program. Events will run over a span of time during the conference depending on the number and length of the presentations. With its high quality, it provides an exceptional value for students, academics and industry researchers.

International Conference on Indigenous Education and Training aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of Indigenous Education and Training. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical


Dr. Jessica Hernandez @doctora_nature · Apr 24
In August we invite high school physics teachers to join us in creating a new vision for science learning: one that integrates physics with social justice. Two weeks, live online course, stipend of $2100
#energyandequity #iteachphysics energyandequity.org/events/sw2023/
PHYSICS
EQUITY
ENERGY
JUSTICE
Integrating Energy, Equity and Place in High School Physics
A live online continuing education course
July 24—August 4, 2023
SEATTLE PACIFIC UNIVERSITY
NSF
BOTHELL
2
16
41
6,451

EVENTS ALREADY HELD

NWU host first of its kind indigenous astronomy conference

(NWU: 2 Aug 2022) ***Link***

The North-West University (NWU) proudly hosted the inaugural three-day International Indigenous Astronomy Conference from 27-29 July 2022 at the Royal Marang Hotel in Rustenburg. During the conference the International Indigenous Astronomy Experts Society was also launched. The theme of the conference, sponsored by the Department of Science and Innovation (DSI) and South African Tourism, was "Facing the reality, value and relevance of indigenous astronomy in the 21st Century". The aims of the conference were to advocate the value of indigenous astronomy, contribute to the development of communication programmes, and improve research methodologies, epistemologies and philosophy. NWU vice-chancellor Dr Bismark Tyobeka welcomed attendees, explaining that the NWU placed the IKS Centre in the Faculty of Natural and Agricultural Sciences for a reason. "We acknowledge the scientific status of indigenous knowledge systems and the contribution it makes in the development and growth of communities and society."

ICIES 2022: 16. International Conference on Indigenous Education Studies

December 01-02, 2022 in Auckland, New Zealand

International Conference on Indigenous Education Studies aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of Indigenous Education Studies. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Indigenous Education Studies.

NATIVE FEWS ALLIANCE

2023 Annual Gathering

"Engaging Communities for a Thriving Future"

March 22-24, 2023
University of Arizona
Tucson, AZ

- Cultural Immersion
- Guest Speakers
- Networking
- Student Programming

More Info at:
https://resilience.arizona.edu/events/2023-annual-native-fews-gathering

The vision is to build a diverse Native American workforce at the nexus of Food, Energy and Water systems (FEWS), and design curricula and mentoring that combine Indigenous ways of learning with physical sciences and engineering methodologies.

THE UNIVERSITY OF ARIZONA ARIZONA INSTITUTE FOR RESILIENT ENVIRONMENTS & SOCIETIES
Indigenous Resilience Center

Berkeley UNIVERSITY OF CALIFORNIA

AIHEC AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM

AISES ADVANCING INDIGENOUS PEOPLE IN STEM

The American Indian Graduate Program

Tohono O'odham Community College 1998

Himdag Ki: Hekihu, Hemu, Im B I-Ha'ap
Tohono O'odham Nation Cultural Center & Museum

National Science Foundation

NSF Cooperative Agreement Award # 2120035 entitled "Collaborative Research: NSF INCLUDES Alliance: Broadening Career Pathways in Food, Energy, and Water Systems with and within Native American Communities (Native FEWS Alliance)"

NRT-INFEWS: Indigenous Food, Energy, and Water Security and Sovereignty Indig-FEWSS; DGE-1735173

Indigenous Science -- A Spiritual Path

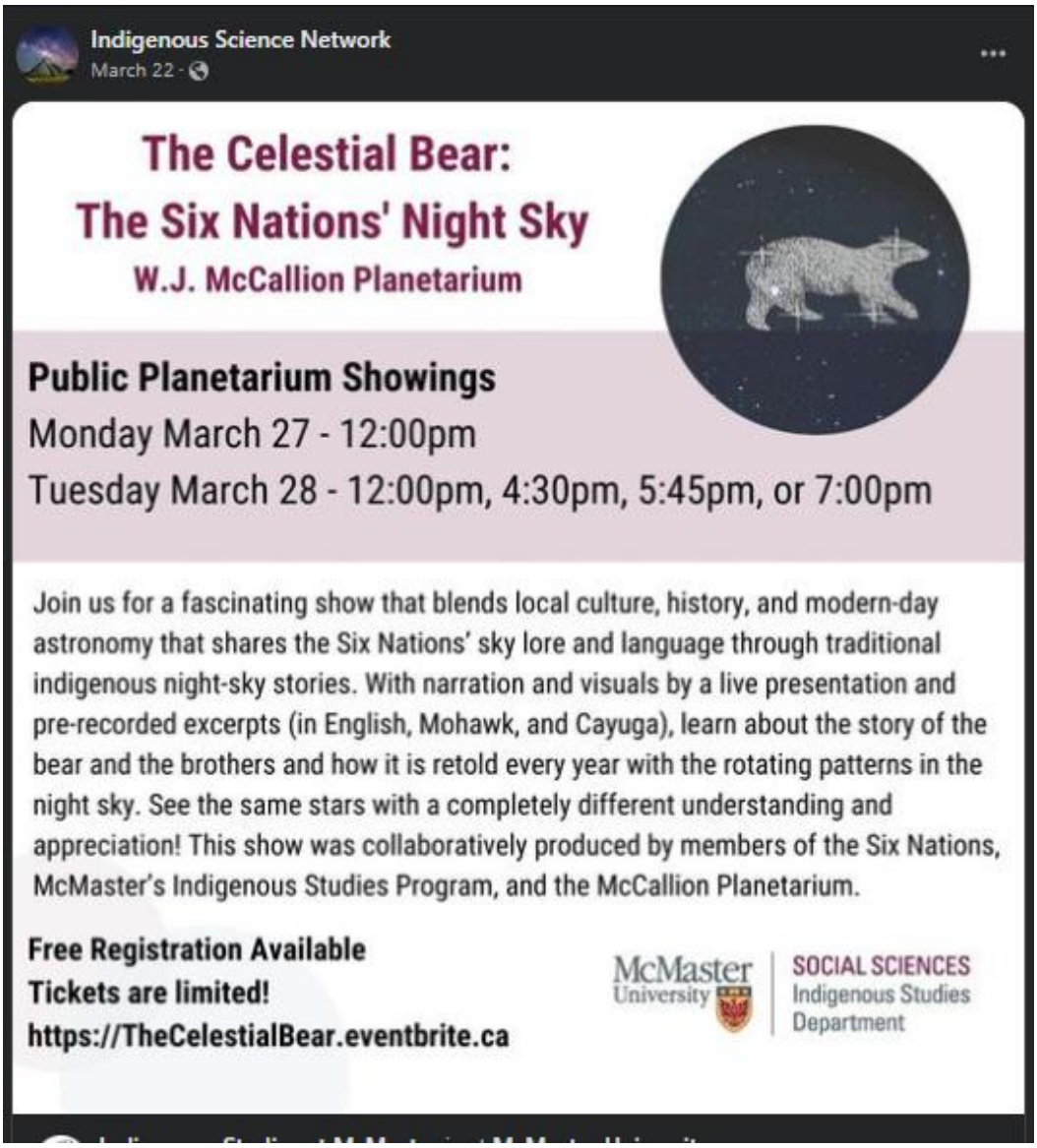
Thu., Nov. 17, 2022 10:00 a.m. - Thu., Nov. 17, 2022 11:30 a.m. [Link]

University of Regina, Saskatchewan CANADA

Location: Zoom

Please join us for the latest lecture in the series “Indigenous Science A Spiritual Path” featuring Kim TallBear. Dr. TallBear will deliver the lecture and speak about the Sacred and Dead Settler Ontologies. This presentation is part of the 2022 “Whisperings of the Land” Indigenous Speakers series, organized by the Faculty of Education, where Indigenous speakers share their perspectives on Indigenous science, and how all teaching and learning is spiritually imbued.

Talk Summary: Settler-colonial society works to separate so-called spirituality from the material. This worldview inhibits understanding Indigenous knowledges as knowledge based on centuries of observations and lived relations with other-than-humans. Instead, Indigenous peoples are viewed as “spiritual,” and the disciplines tend to implicitly denigrate Indigenous understandings of the world as beliefs rather than knowledges. The knowledge/belief divide stems from a hierarchy of life that the sciences share with major religious traditions. With this understanding of sentience and agency, some humans rank above others according to race or gender, for example, and humans rank above other life forms. More recently, “new materialists” and multi-species ethnographers have analyzed other-than-humans in less hierarchical and more “vibrant” or agential, if still secular terms. I bring such ideas into conversation with Indigenous ideas of being in good relation in ways that disrupt longstanding racial hierarchies of thought.



Indigenous Science Network