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PERSPECTIVE

CENTENARY ARTICLE

Moving beyond ontological (worldview) supremacy: Indigenous insights and a recovery guide for settler-colonial scientists

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ABSTRACT

Greater engagement and representation of Indigenous voices, knowledges and worldviews in the biological sciences is growing globally through efforts to bring more Indigenous academics into scientific research and teaching institutions. Although the intentions of such efforts may be admirable, these spaces often become sites of great personal tension for the Indigenous scholars who must 'bridge' or 'facilitate' a dialogue between Indigenous and settler-colonial (predominantly Western) knowledge traditions and worldviews. We are a small collective of early career Indigenous scholars from Australia, the United States and Aotearoa New Zealand, and we have gained insights into this situation through the unique experiential learning afforded by navigating such tensions. Here, we discuss tensions that bear remarkable similarities across geographies, cultures and settler-colonial contexts. In doing so, we aim to support other Indigenous scientists and scholars navigating settler-colonial and Western research institutions, while offering guidance, suggestions and reflections for the scientific community to allow the development of more nuanced strategies to support Indigenous academics than simply increasing Indigenous representation. We imagine transformed, innovative research and teaching agendas where Indigenous knowledges can thrive, and Indigenous scientists can apply themselves with mutual and balanced respect and reciprocity.

KEY WORDS: Indigenous knowledges, Decolonisation, Environmental sciences, Settler-colonialism

Science, sovereignty and ontological supremacy

Today, biological scientists often assume an 'objectivist' and universal knowledge stemming from early Western science philosophy (Stewart, 2001). The UK Science Council defines science as 'the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence' (The Science Council, 2009). But 'the scientific method' is not captured by a single, simple pattern. Pursuing the 'myth of scientific objectivity' (Bauer, 1992; Halpin, 1989; Leonelli, 2015; Mitroff, 1972; Woodcock, 2014), scientists working on natural systems often engage with the natural world as an 'object' (Halpin, 1989), contrasting with relational ethics and Indigenous ways of being and knowing (Box 1; Althaus, 2020).

Although the pursuit of objectivity is a powerful tool, it can lead scientists and science learners to mistakenly deem other forms of science as 'unscientific'. When scientists pigeon-hole their views on how knowledge can be created, they constrain and erase opportunities for more holistic science, including collaborations between Western and Indigenous scientists [e.g. understanding the biophysics of rivers as living entities in Aotearoa (Brierley et al., 2022) or investigating the genetic–linguistic links between grizzly bears and Indigenous communities (Henson et al., 2021)]. Part of the issue with the corporate model of contemporary research and teaching institutions is the tendency to commodify, co-opt, market and assimilate Indigenous knowledges for consumers trained to look at scientific knowledge and data through a settler-colonial (see Glossary) lens.

Academic knowledge systems (see Glossary) preserve a power imbalance with Indigenous ways of knowing and being, often by omitting, misinterpreting, extracting from and devaluing Indigenous knowledges while creating singular narratives of 'truth' and 'discovery' (Brown and Strega, 2005; Liboiron, 2021a; O'Brien, 1993; Shiva, 2016). Indigenous peoples are inherently sovereign peoples (Goenpul scholar Moreton-Robinson, 2003; Moreton-Robinson, 2015; UN General Assembly, 2007), which can raise anxieties and discomfort for settlers who must reconcile their own ontology (see Glossary) and diasporic relationship with the lands they live and work on (Carroll et al., 2020; McCredden, 2020). As visitors (trespassers?) on Indigenous lands, settlers are subject to Indigenous laws, even though these are usually not recognised by the colonising powers (Birch, 2007; Lloyd and Wolfe, 2015; Moreton-Robinson, 2007, 2015; Shrinkhal, 2021).

We, as Indigenous peoples, connect through our deep cultural responsibilities and ethics as custodians of the worlds that hold us (Graham, 1999; Suchet-Pearson et al., 2013; Kimmerer, 2013; Wilson, 2016). Contemporary institutional science must learn to respect the pluriversal, context-specific and often sacred nature of Indigenous knowledges to help shape the grounded narratives of truth and knowledge we develop as scientists. As a small collective of early career Indigenous environmental scholars, our relationships reach across oceans to Australia, the United States and Aotearoa New Zealand. We find solidarity and support in one another's experiences, and our collective lived experience provides insights which, in this Perspective, we offer to the wider scientific community. The settler-colonial institutional science systems founded on universalist 'enlightenment thinking' places blinders on science learners, reinforcing an 'ontological supremacy' (Fig. 1). It is in all our interests to combat this illusion and move forward toward a paradigm where Indigenous sciences are truly respected.

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Glossary

Country
A term used by many Indigenous peoples from so-called Australia that holds complex and interrelated notions of identity, environment, spirituality, culture, kinship and law/governance.

Knowledge systems
The philosophies of knowledges and methodologies developed by societies with histories of interactions with their surroundings. Knowledge systems/traditions are highly cultural and heterogeneous both within and between systems. For simplicity, we refer to Indigenous and settler-colonial (predominantly Western) knowledge systems but acknowledge that these terms are reductive of the complexity of knowledge systems within each.

Respectability politics
Describes the situation when individuals striving for societal transformation express their demands in a manner that conforms to the prevalent norms of their society to reduce dissonance and increase their chance of success.

Neo-colonialism
The impacts of colonisation are ongoing in colonised Nations. The subject matter of neo-colonialism refers to these continuing impacts in societies.

Ontology
In philosophy, ontology speaks to a reflection of our varied beliefs and assumptions regarding the true nature(s) of reality and what exists and can exist. In anthropology, it is argued that ontology is embedded in our ways of life (i.e. communities live according to the ontologies they produce).

Positionality
How socio-political contexts and experiences create identities (e.g. racial, gender, sexuality, class, ability), and how these identities construct and shape social position, power, privilege and access in society.

Settler-colonialism
A racist structure that seeks to remove the Indigenous body politic through genocide and systematic oppression, replacing it with an invasive settler-state that develops its own illegitimate sovereign identity (e.g. Australia, Canada, New Zealand, South Africa, the USA).

Box 1. Indigenous kinship and cultural responsibility

Many understandings of nature exist in Indigenous cultures, and attempts to portray a single 'Indigenous experience' are reductive. Nevertheless, there are some commonalities across Indigenous cultures that hold relevance to understanding how Indigenous scholars experience tensions in settler-colonial scientific institutions.

For example, Indigenous ways of being are highly relational (Tynan, 2021) and philosophically complex, expressed through 'culturally specific and gendered axiologies, ontologies, and epistemologies that are connected to the earth' (Moreton-Robinson, 2017). Consider Ngāi Tahu relationships with the Hurunui River in Aotearoa New Zealand: 'I would describe it as part of my genealogy, [the] Hurunui and all of those basins, catchment areas, tributary streams. I am as much a part of them as they are a part of me. They have provided wealth, sustenance and a future for all generations before me, so therefore I have a responsibility to be kaitiaki (guardian with the responsibility of stewardship and caring for something), and look after it now… I'm a part of it, physically as well as spiritually and mentally' (Thomas, 2015).

Indigenous kinship systems comprise relationships with the environment and 'more-than-human' (animals, plants, spirits) kin, challenging the separation of nature and culture dominating settler-colonial ways of thinking (Haila, 2000; Wright et al., 2012). These complex relationships centre reciprocity and community, underpinning Indigenous legal frameworks, ethics and governance. Indigenous kinship systems 'describe ways of living well, laws for strengthening human and more-than-human life and restoring and nurturing social and emotional wellbeing' (Dudgeon and Bray, 2019). These 'kincentric' Indigenous cultures (Kanngieser and Todd, 2020; Reo, 2019; Salmón, 2000) are 'constituted by our histories, our culturally embodied knowledges and life force that connect us to our respective lands, our creators, all living entities and our ancestors' (Moreton-Robinson, 2017).

Tensions and suggestions

Though our local contexts vary, we share parallel experiences in the current shift within the scientific community to engage more Indigenous peoples, and we attempt to highlight some issues here. We provide suggestions for change and offer a non-exhaustive list of guiding advice and questions for the scientific community (Table 1). However, we cannot realistically hope to provide all the solutions: we encourage settler-scholars to share in the workload, which is disproportionately shouldered by Indigenous peoples. We need to move past tokenistic gestures to build genuine and equitable partnerships with Indigenous knowledge holders and institutions, instead of assimilating them into settler-colonial constructs that commodify, misappropriate and distort them.

Indigenous knowledges

In the push to engage more Indigenous peoples, little attention is paid to engaging minds and 'bodies of culture' (Menakem, 2017); there is a failure to engage with Indigenous sciences as legitimate ways of knowing. The pursuit of 'objective' science often leads biologists to ignore the social and political context of their projects. All scholars can exercise integrity through engaging with their own positionality (see Glossary) in their research, which underpins their epistemological assumptions (Holmes, 2020; Jafar, 2018). Considering the myth of scientific objectivity (Bauer, 1992; Halpin, 1989; Leonelli, 2015; Mitroff, 1972; Woodcock, 2014), understanding how your ways of being and doing inherently influence the questions you ask and the way you do science can shed light on how your research could be at odds with Indigenous peoples and communities.

Science endeavours engaging Indigenous peoples often prioritise knowledge extraction and assimilation (Potawatomi scholar Whyte, 2018), i.e. 'what can (Western) science gain from Indigenous knowledge'. For example, in climate research, most studies show outside researchers extracting from Indigenous knowledge systems with minimal participation or decision-making authority from communities that hold the knowledge (David-Chavez and Gavin, 2018). More examples include the exploitation of Havasupai peoples' biological material (Santos, 2008), or exploitative research against Lumbee peoples (Lumbee scholar Emanuel and Bird, 2022). These extractionist approaches fail to recognise the validity of Indigenous science on its own terms, and the rights and responsibilities of Indigenous peoples and our kin. Amidst the extractive discourse among our colleagues, we find ourselves repeatedly providing counter-narratives to disrupt this hindering and harmful trajectory. For example, we find the need to explain that field-based experiments should include the free, prior and informed consent of local sovereign peoples and communities. We interpret these issues as deriving from institutional sciences born from capitalist, neo-liberal, settler-colonial, racist and patriarchal societies, where engagement with knowledge historically prioritised extraction, profit, power and gain. The solutions to many of these tensions are not straightforward. We all inherit these institutions, and we ask that settler-scholars commit to working with Indigenous scientists to minimise these issues.

The academe

Scientific institutions reflect settler-colonial design, with knowledge traditions built upon the dispossession, genocide and erasure of our

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A guide for the recovering ontological supremacist

Settler-colonial education has led many scientists to limited understandings rooted in assumptions and inter-related fallacies linked to assumed superiority of knowledge systems. Indigenous ways of knowing and doing offer guidance for reaching beyond these limitations.

Settler-colonial fallacies in science

Performative protocols

Engaging with Indigenous peoples/cultures/communities to further one's own career, tick boxes or simply make oneself look good in the eyes of colleagues.

Sovereignty ignorance

Conceptualising Indigenous peoples as stakeholders not rightsholders, while extracting and profiting from our lands and failing to engage with us.

Urgency culture

Contributing to a career-based academic culture which ignores time needed to build the relationships necessary for good engagement.

White fragility

Projecting one's feelings and discomfort when being decentred/unsettled, while remaining callous of the ongoing historic harms of marginalised peoples.

Settler-colonial blinders

Assuming Indigenous ways of thinking and knowing are less correct than, or inferior to, Western scientific positions, or irrelevant to scientific research agendas.

Western superiority

Privileging scientists as knowledge holders and engaging with Indigenous knowledges through a Western lens without respecting them as parallel ways of knowing.

Columbusing knowledges

Claiming scientific 'discovery' of concepts, practices, species, etc., while failing to credit or acknowledge long-standing Indigenous knowledge and understandings thereof.

Neocolonial reinforcement

Failing to realise how settler-colonial science frameworks exist within and contribute to a neo-colonial settler-state, to the detriment of Indigenous peoples and their kin.

Techniques for shift

Listen to our voices

Read outside of your scientific field on Indigenous history and perspectives. Challenge biases, and read from and cite Indigenous scholars. Question where our voices are lacking and if we've been excluded.

Disrupt whiteness

Create the opportunity for vulnerability and uncomfortable conversations. Sit in the awkwardness of your ontological privilege and challenge the student–teacher power dynamic.

Commit to change

Continue to educate yourself and others, participate, and commit to working with Indigenous peoples towards an anti-colonial and inclusive science paradigm. Centre Indigenous rights as a responsibility.

Step up to the plate

Engage with us reciprocally, do the work before you ask for ours. We can't be expected to work for everybody while representing a fraction of the population.

Derridean flip

Flipping the narrative between science and Indigenous knowledges can help you to see the 'invisible' power structures inherent in the discussion. Did that recent 'scientific' finding really prove ancient knowledge was right?

Curiosity over capital gains

Interrogate how your work upholds settler-colonial capitalist institutions which exist and benefit off the continued oppression of Indigenous peoples and their lands. Fight back against these neo-liberal structures.

Build equitable partnerships

Engage following codes of ethics and foster relationships which centre Indigenous priorities, free prior and informed consent, and mutually agreed terms. Move beyond 'power over' into 'power with' relationships.

Identify your positionality

Explore how your cultural, familial, political and social identity intersect to influence your power and privilege in science and an unjust society. How might you leverage these to address ongoing oppression and marginalisation of peoples relevant to your work.

Fig. 1. A guide for the recovering ontological supremacist. Ontological supremacy can show up as fear, shame, rejection of and even anger toward engaging with diverse ways of knowing and the different ways knowledge is encoded in the stories and data we share. We challenge all scientists to lead with openness, curiosity, humility and respect. There is something meaningful to learn in practices and stories that have been developed and applied over countless generations, and ongoing knowledge generation born from Indigenous methodologies.

Table 1. Questions, advice and strategies towards an Indigenist science paradigm

Institutions and publishers	Scientists and science professionals	Indigenous scientists
Ensure Indigenous peoples have the opportunity to connect with Indigenous scientists. Support and prioritise high-level collaborations and partnerships with Indigenous organisations and communities. Realise that Indigenous peoples have additional responsibilities to uphold, and seek ways to support us.	Strategise for change within your spheres of influence (i.e. including your institutions and publishing bodies). We ask that scientists engage with the values and ethics embedded in their research practice and principles.	Join and be active within networks of Indigenous STEAM (Science Technology Engineering Art & Math) professionals. Talk with your colleagues – find ways to vent and to share your stories and ideas!
Is your science excluding whole bodies of knowledge? Set explicit standards for scientists and educators. Where Indigenous presence, ways of knowing and voices are not present, invite them in to lead and guide. Consider positionality in publication of articles. Hire Indigenous Editors and embed flexibility around 'more-than-human' authors. Accept Indigenous research methodologies.	Listen to and understand the tensions of Indigenous scientists. Reflect on whether you contribute to such tensions in your jobs. Realise that we are exhausted! Consider educating yourself and prioritising reciprocity before engaging with us. We know you want to help, but have you done the work before you ask us to work?	Don't be ashamed for choosing to walk away, to say no – especially if you feel unsafe. These spaces weren't built for us.
Where are your institution's knowledge and data gaps? Do you know the histories there, the Indigenous relationships and contributions? Reconciliation first requires truth-telling and knowing. Is listening following up with accountability and action? Do protocols account for ethics and harms (past or present) towards Indigenous communities who have suffered and are suffering at the expense of settler-colonial wealth and resource accumulation and settler-colonial institutions? Are you building relationships? Are you building opportunities for balanced knowledge exchange (centuries overdue)?	Commit to continual exposure, education and re-education/unlearning on Indigenous rights and knowledges in science and society more broadly. It's great to think about ways to change, but we really need to better understand why these changes are required. There is a strong need for non-Indigenous folks to understand the legitimacy of Indigenous knowledges and how the dominant knowledge systems of the day benefitted from our oppression and silencing. We ask that issues of social justice in your workplace are centred rather than just being peripheral to daily academic life.	Ensure you give an equal voice to Indigenous philosophers and artists and other community members to lead discussions around Indigenous sciences and knowledge production. Avoid replicating the inherent power dynamics that privilege scientists and perpetuate harm on our communities and knowledge systems.
Embed Indigenous rights-based policies and protocols into core business. How much are you paying quality consultants, expert scientists, etc.? How are you reciprocating and investing in the communities and community knowledge holders (curriculum, funding, scholarship opportunities, leadership/governance roles, etc.)? Look beyond diversity as a means of changing spaces to be more culturally safe. Understand and seek ways to mitigate the 'cultural load' that an Indigenous scientist shoulders by being Indigenous within the settler-colonial academy.	Learn about the inroads that are being made all over the world, such as the AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Studies used in so-called Australia (AIATSIS, 2020); the commitment of Aotearoa universities to meaningfully reflect Mātauranga Māori and seek to ensure its parity with other bodies of knowledge; the progression of Indigenous data sovereignty and data ethics policy in the United States and globally, including tribal partnerships in the development of tribal data governance principles.	Reflect on your responsibilities to your community – put your people first and bring your kin with you in what you do. Always remember who you are and where you come from – your Ancestors are proud!

A non-exhaustive list for the scientific community. Fig. 1 is required comprehension before engaging in practices offered here. Taking action is important; however, we first need a genuine commitment from our colleagues to actually understand why these changes are necessary.

ancestors (Patel, 2021; Smith et al., 2021); therefore, we see the disruption of these spaces by Indigenous peoples as inevitable and necessary. For the sake of our shared futures, we invite settler-scholars to interrogate how their short-term benefit from current neo-colonial (see Glossary) systems occurs at the expense of Indigenous and other marginalised peoples and our shared healthy futures. Settler-scholars should realise they work on occupied lands and move past land acknowledgements, instead asking what is required of them should they want to become 'proper guests' (Stewart-Ambo and Yang, 2021).

The academy (i.e. academic institutions and related communities of scholarship) often functions as an 'elite club', accessible to a select, privileged group of individuals rewarded for their personal prestige more so than interpersonal/kinship relationships. We experience this in our annual performance reviews, where our outputs are measured by prestige and publications rather than our relationships and positive broader impacts. This misaligns with Indigenous ways of being, knowing and doing, often privileging one set of Indigenous scholars over others who may not fit the standards of 'excellence' espoused and enforced by Western research institutions. Indigenous knowledge systems have their own contexts, institutions and scholars worthy of honouring and supporting. A vast imbalance persists in how much money goes towards academics, whereas community knowledge holders are consulted, exploited and tokenised with scarce reciprocity (Tachera, 2021). Institutions and researchers should communicate with local Indigenous communities for guidance towards where their support should go (AIATSIS, 2020). We, as Indigenous peoples, have responsibilities to our communities and kin to uphold. In many of our laws, philosophies and customary governance systems, human ethics are tightly interrelated with animal, plant, land, water and other kin ethics; ethics committees and the academy more broadly fail to accommodate these responsibilities (Wong et al., 2020). Prioritising community collaborations, relationships and trust as indicators of researcher success, as well as working with and empowering Indigenous communities to make sure they are upholding community expectations, can increase ethical science among scholars (AIATSIS, 2020). New context-specific models of ethical engagement in scientific research are emerging, such as

Ikaarvik and the SciQ concept led by Inuit youth in the Arctic (Nowosad and Beattie, 2023).

Balancing our science institutions would require a dramatic rethink of institutional values and governance, disrupting hierarchies and instilling 'power with' instead of 'power over' relationships between scientists and their subjects. This could look as simple as embedding ethics in project protocols (AIATSIS, 2020) with equitable leadership of Indigenous peoples; encouraging interdisciplinary and transdisciplinary research projects and considering the impact they have on the wider community; and challenging the extractive nature of scientific 'discovery' on stolen lands (i.e. 'Columbusing' knowledges, David-Chavez, 2020; or 'firsting in research', Liboiron, 2021b).

Cultural safety

The nuances of being an Indigenous educator working within and disrupting the dominant settler-colonial science mode presents a great strategic challenge for our 'cultural safety'. Being asked to represent institutions to our communities, and vice versa, creates tricky pathways and personal risks (Tachera, 2021). The academy is often incompatible with local Indigenous cultures and politics. For example, we may be expected to comment on matters outside of our cultural authority, particularly when working outside of our ancestral homelands. We have experienced being taken to sacred and taboo sites without local permission. Many biologists work in field sites without permission from local Indigenous peoples in violation of Indigenous laws, and we are often expected to be complicit in these violations. Furthermore, scientists too often treat our more-than-human kin as if they were objects, on a purely rational basis (Halpin, 1989). Would you do the same kinds of experiments if the 'object' were your family member? These are Indigenous realities, and the socio-political landscape on which biological scientists often unknowingly tread when undertaking experiments on stolen lands.

Additionally, we inherit culturally insensitive language, research protocols/practices and course activities/materials that we must remedy in fulfilling our job duties. We have witnessed numerous courses where origin stories of scientific fields erase Indigenous presence and contributions. Naturally, we make the appropriate corrections, filling data gaps and addressing the bias of these datasets – often involving heavy course revision/preparation. Concurrently, we are expected to remove our perspectives from the course so that it is transferable to settler-scholars and educators. We feel major tensions in the growing push to bring Indigenous academics into universities. Why would we bring more Indigenous peoples into the academy before changing the space to ensure their safety from systemic harms (Walters et al., 2019)? Should this change not be the first priority? Equity, diversity and inclusion (EDI/DEI) committees are not enough to solve these deeper-rooted tensions.

Respectability politics

Forced into roles as 'harmonisers', 'facilitators' and 'translators' to accommodate the need to bring people with us to effectively disrupt colonial norms, Indigenous scholars can experience 'translation exhaustion' (https://twitter.com/Indigenia/status/1087762882983538689). There is a need for spaces in which to unpack our experiences and recharge from niceness and 'respectability politics' (see Glossary). Navigating these issues increases our workload, leading to a kind of racial battle fatigue from 'cultural taxation' (Padilla, 1994). We are asked to heal histories, lead service efforts, become overnight experts in EDI, justify whole bodies and theories of knowledge in addition to our scientific fields of scholarship. We must justify our position at every turn and uphold cultural responsibilities, while dominant settler-colonial science practices are disproportionately privileged and affirmed by the institutions. We feel that these issues push for our removal from academic spaces. Yet our roots reach deeply beneath and beyond these institutions, to sources of life and value in community and Country (see Glossary).

Ways forward

We call on scientists to question their hidden assumptions about scientific knowledge and challenge power relationships between their institutions and Indigenous peoples and worldviews. Despite the tensions discussed above, many Indigenous people remain in academia to create a future where we can exist and flourish within the sciences. Our persistence benefits the entire academic community who share like-minded interests in understanding and protecting the planet.

Many scientists working on natural systems do so from a place of love for and connection with the natural world, yet can unknowingly inherit from colonial science ways of working which are harmful to Indigenous peoples. Scientists must ask: how does engaging with the natural world solely as an object hinder our understanding and engagement with relational ethics and Indigenous ways of being and knowing? Scientists can benefit from building a better appreciation of the cultural significance of their study systems and field sites, and challenging assumed knowledge superiority over Indigenous knowledges. Scientists on stolen lands should ask how they can support Indigenous peoples in upholding their cultural responsibilities, and whether their methodologies violate these responsibilities. The scientific community must honour Indigenous rights, including free, prior and informed consent, mutually agreed terms, and access to benefits in engagement with relevant Indigenous communities (Adams et al., 2014; UN General Assembly, 2007).

Indigenous scholarship is reclaiming Indigenous spaces in the engines of knowledge production. As Kishebakabaykwe scholar McGuire (2010) highlights: 'We can then fill it with words that reflect who we are and what our dreams and aspirations are… We, as scholars, do this work so that the next generation of scholars will have Indigenous spaces to build on'. There is much work to do in the biological sciences towards this goal. Settler-scholars must learn to engage with Indigenous knowledges on our terms, as legitimate and worthy ways of knowing. As Watego (Mununjali, South Sea Islander; 2021) writes: 'We simply don't need more texts that teach whitefullas about us on their terms'. This will require many settler-scholars to approach Indigenous knowledges in ways that ask for greater acceptance of diverse values and beliefs about the nature of realities. It also requires supporting Indigenous scientists, so we can maintain our connection, education and solidarity with each other, and apply Indigenous frameworks and knowledges, while navigating the unique tensions inherent in these roles (Reano, 2020; Masta, 2018; David-Chavez, 2020; Hernandez, 2022; Cajete, 1994). We call for integrity, bravery and commitment from scientists, institutions and publishing bodies to help us in realising a shared vision for a future where Indigenous peoples can thrive as leaders and respected contributors in science.

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Competing interests

The authors declare no competing or financial interests.

Author statements

Coen Hird is a trawlwoolway pakana (Briggs family) and accountable to the Tasmanian Aboriginal community. Coen grew up as a visitor/trespasser on many stolen lands across Australia, particularly southeast 'Queensland'. Coen was trained in institutional environmental sciences and is an early-career researcher at the University of Queensland. Coen has worked with Indigenous peoples and communities around southeast Queensland in the environmental sciences, with an interest in centring decolonial thought, Indigenous sovereignty, and Indigenous/environmental rights in scientific thought and practice.

Dominique David-Chavez, PhD, is multicultural Indigenous Caribbean (Arawak Taíno) carrying Indigenous Boricua, African, Spanish and East-European ancestry. She has been raised in and works within numerous Indigenous communities across Turtle Island, and now lives in Nunt'zi (Ute), Hinono'eino' (Arapaho) and Tsistsistas (Cheyenne) traditional homelands in northern Colorado in the USA, where she directs the Indigenous Land and Data Stewards Lab.

Shanny Spang Gion, MSc, is Só'taeo'o and Tsitsistas (Northern Cheyenne) and Apsáalooke (Crow), whose lands and waters helped raise her (Montana, USA). Her career and training have been focused on water working for her own community. Currently, she resides in the homelands of the Nimiipuu (Nez Perce), Palus (Palouse) and Schitsu'umsh (Coeur d'Alene) tribes working with tribal nations in research that centres Indigenous relationships and responsibilities to water and land.

Vincent van Uitregt is of Māori (Ngaa Rauru, Te Ātihaunui-a-Pāpārangi, Ngāi Tūhoe) and Dutch descent. Born and raised in Australia, he has worked with First Nations peoples in the Northern Territory and South Australia in environmental programmes, and now works with his own tribal communities from Whanganui to Taranaki in Aotearoa New Zealand to strengthen their voices and values in environmental management systems.

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