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Creating an Authorizing Environment to Care for Country

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ABSTRACT

Typically, Western Science approaches the study of complex systems by examining the component parts outside of their contextual relationships. In contrast, Indigenous people continue to advocate the need for land and seascape approaches that include all aspects of life, particularly the special relationship between Kin (people), Country, and Knowledge. Globally, Indigenous people are lobbying for environmental research to take a rights-based approach that improves economic opportunities; confers greater authority over the stewardship of Country; delivers equity in managing Country; emboldens control to integrate knowledge systems; values and promotes culture; and recognizes Indigenous self-determination. In Australia, the National Indigenous Environment Research Network (NIERN) proposal offers a solution that supports the rights-based approach driven by Indigenous Australians through the establishment of a community of practice guided by Indigenous researchers and Indigenous Knowledge holders. We describe this Indigenous-led solution to the self-determination of Indigenous environmental research priorities by exploring the concept, the authorizing environment, and the mutual benefits that could be delivered by such a network. The empowerment of Indigenous people in research is possible if an all-of-system approach is taken. This approach must involve Indigenous people in all decision-making processes including the development of research priorities, the design of methodologies, the interpretation of findings, and finally the evaluation of outputs and outcomes.

1 | Bridging the Divide

As approaches to biocultural conservation gain traction globally, both Indigenous and non-Indigenous people are seeking new ways to bring Western Science and Traditional Ecological Knowledge systems together. The impetus to reset the current paradigm is reinforced by the value of Indigenous-owned and -managed lands and waters, due to its spatial extent and its underutilized opportunity to bolster economic development, its environmental positive outcomes, and the social and cultural well-being of Indigenous people and their communities.

Advocacy for Indigenous rights within academia and research institutions has contributed to structural changes (in some countries), which ensure scientific inquiry protects Indigenous Cultural and Intellectual Property (ICIP), recognize Indigenous rights to data sovereignty, and facilitate negotiated research agreements that stipulate benefit sharing (Parsons, Fisher, and Nalau 2016; Moewaka Barnes et al. 2021; Hoffman et al. 2022).

This movement has also shifted the dial on the global stage. Global best practice for research with Indigenous groups now has at its heart the principle of Free, Prior and Informed

Consent (FPIC) as outlined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (UN General Assembly 2007). This principle has been reinforced in Target 3 of the Kunming–Montreal Global Biodiversity Framework (GBF) when it speaks of "recognising and respecting the rights of Indigenous people and local communities, including over their traditional territories" (CBD 2020). Global best practice offers a fundamentally important mechanism for achieving enhanced outcomes and ultimately redressing health, economic, social, and environmental disparity by improving the alignment and participation of Indigenous people in environmental scientific research.

Research agendas involving Indigenous people have long been criticized as inherently biased against Indigenous people in design, execution, and adoption, resulting in the disempowerment of Indigenous people, together with minimal investment in research that supports Indigenous-led research (Parsons, Fisher, and Nalau 2016; Maclean, Greenaway, and Grünbühel 2022). Further, inequalities are ingrained, and national institutions, whether due to inertia or preconceived policies and business practices about alternative knowledge systems, make it difficult to deal with Indigenous people, especially if they are not represented by formal Indigenous representative organizations (Maclean, Greenaway, and Grünbühel 2022).

Global studies have demonstrated that Indigenous-led organizations are in a unique position to generate important cross-sector understanding of Indigenous communities, Indigenous economic ventures, Indigenous and non-Indigenous corporations, industries, and governments. Indigenous-led organizational power lies in their ability to identify overlapping interests and values, to recognize the common ground for partnership, to reframe the context, to reorganize assets in new and innovative ways, and then to mobilize reconfigured and novel relationships to achieve better results, higher impacts, and enduring outcomes (Colbourne et al. 2020).

This paper will describe an Indigenous-led approach that has at its core the vision of fostering self-determination for Indigenous people in environmental research. We use an Indigenous-led Australian case study to describe how a genuine co-governance arrangement with Indigenous Australians can empower Indigenous voices and decision-making in environmental research and management.

2 | The Australian Context

For decades, Indigenous Australians have been lobbying for a voice in the Western Science agenda. Indigenous Australians have been advocating for opportunities to improve all forms of research practice involving Indigenous Australia. These opportunities include improving the resource base for Indigenous-led and Indigenous-governed research institutes, Indigenous academics, and Indigenous research networks. Opportunities are also present in the inclusion of communities in decision-making; the embedding of Indigenous research priorities and execution of ethical guidelines; and the regular uptake of co-designed research protocols. Furthermore, understanding that Indigenous research priorities and outputs (such as reports and publications) are not always considered a part of the science currency and that novel methods and approaches to evaluate effectiveness are required to be more culturally inclusive.

The National Environment Science Program (NESP) is at the core of the Australian government's obligation to manage and protect the unique and diverse Australian environments and heritage. NESP draws on the best science and Indigenous Knowledge across Australia to provide a significant evidence base to inform policy and decision-making (DCCEEW 2023a). Yet, Indigenous Australians, who are our Indigenous Knowledge holders, have criticized the conduct of research, engagement by researchers, and Western Science practices (Hill 2024).

The Indigenous Estate (Fry 2016; KPMG 2016) is fundamental to improving national environmental outcomes and not surprisingly is central to the delivery of NESP as administered by the Australian Government (Wensing and Callinan 2020). The Indigenous Estate is formed by a patchwork of tenure and comprises both tangible (land, waters, and other resources) and intangible (Traditional Knowledge and practices) assets. The Indigenous Estate is managed exclusively or with joint management partners by Indigenous Australians who are the custodians of a knowledge system that contains a detailed awareness of the processes and patterns that control the distribution of biodiversity and influence the condition of the Australian environment (Goolmeer, Skroblin, and Wintle 2022).

In 2015, Indigenous Business Australia (Fry 2016) estimated the value of the Indigenous Estate (including, land, trusts, funds, and agencies) to be between $10 and $15 billion. However, the capacity for continual improvement of economic, social, environmental, and cultural development outcomes on this vast and growing Estate has not achieved its full potential largely due to a lack of enabling policies and practices. These deficiencies have resulted in limited improvements to the well-being of Indigenous Australians as illustrated by the failure to improve health, education, economic development, housing, justice, and family outcomes for Indigenous Australians as per the Closing-the-Gap reports (COAG 2018).

As demand for Indigenous Knowledge and the value and size of the Indigenous Estate grow, some Indigenous Australians claim that the environmental research agenda and relevant strategies and policies have not kept up with the obligations and needs of Indigenous Australians (Goolmeer, Skroblin, and Wintle 2022; Weir et al. 2024). Indigenous Australians now want to move beyond colonial paternalism, "*they now want research to be Indigenous-led, done with and by them, not to them or on them*" (Stephen van Leeuwen, Wardandi Noongar, personal communication, May 2023).

3 | An Indigenous-led Solution

The National Indigenous Environment Research Network (NIERN) has been initiated and developed by Indigenous Australians as an Indigenous-led strategic organization to establish a community of practice led by Indigenous researchers and Indigenous Knowledge holders. NIERN's intent is to shift the paradigm of the current environmental research needs and

priorities; enhance future research agendas; mobilize investment opportunities for Indigenous researchers and communities; bolster the impact, durability, and range of research outcomes; and, above all, empower Indigenous Australians to participate in the national environmental scientific research agenda.

A scoping project has been funded under NESP to ensure NIERN builds on the significant body of work undertaken over the last two decades by Indigenous Australians in the Australian environmental scientific research arena. This scoping project will co-design the roles and functions of NIERN, along with the membership model and business structures that will confer Indigenous leadership. The scoping project will acknowledge the contribution of time, energy, and intellectual effort, with little to no recognition or compensation, made by Indigenous leaders who are determined to establish Indigenous agency in research and monitoring of Australia's environment.

The scoping of NIERN coincides with one of Australia's most ambitious environmental reform periods; with the Indigenous Estate, its expansion and its stewards are set to be heavily impacted by these reforms. As Australia moves toward a nature-positive agenda, with obligations to deliver GBF targets, there has been a commitment to protect and conserve 30% of Australia's landmass and 30% of Australia's marine areas by 2030, in which the Indigenous Estate will be a major contributor. Government recognizes there is a clear need to strengthen the national environmental and heritage legislation to protect Indigenous Knowledge and obligations to managing land and seascapes explicitly (Samuel 2020). It will also be critical to recognize the role of the Indigenous Estate and 'People on Country' as a fundamental principle of nature conservation and biodiversity management in Australia (Goolmeer, Skroblin, and Wintle 2022). Country is the term used by Indigenous Australians to describe the lands, water, and seas to which they are connected. The term contains complex ideas about lore, place, custom, language, spiritual belief, cultural practice, material sustenance, family, and identity (Goolmeer and van Leeuwen 2023).

NIERN also seeks to build on the NESP investment, upscaling Indigenous participation and emphasizing Indigenous research needs and priorities, particularly when those needs relate to matters that impact Indigenous Australians and their relationship to Country (Resilient Landscape Hub 2023). Upholding Indigenous intellect, integrity, leadership, self-determination, and decision-making is critical to the foundation of NIERN; this paper will consider opportunities and challenges for reform, including co-governance arrangements and the true interface between Indigenous Knowledge and Western Science practices.

3.1 | Authorizing Environment

Creating an authorizing environment that can influence decisions (program priorities, research design, implementation, and funding allocation) at a national level and be informed by place-based needs will be key to the success of NIERN. To achieve an effective authorizing environment, NIERN will need to establish enduring business and cultural governance structures that reflect both non-Indigenous legal, fiduciary, and policy requirements and Indigenous customary and cultural obligations and ways of working (Talbot 2017).

Sustained effort to promote Indigenous Knowledge, Kin, and Country in all aspects of nature conservation is also required, including in decision-making, on-ground management, legislative reform policy, and research design, a role that could clearly reside within the remit of NIERN. A topical example of the consequence of the lack of Indigenous voice at the national level has been evident in Australia's national environmental reform process, resulting in an absence of Indigenous perspectives informing critical reforms that heavily impact the Indigenous Estate and Indigenous research priorities (Jack Pascoe, Yuin, personal communication, May 2023). Further, despite the significant area covered by the Indigenous Estate, and the intersecting reliance on this Estate for agricultural production, agricultural research also demonstrates a significant lack of Indigenous representation (Jacobsen, Howell, and Read 2020). This has prompted calls for the development of an Indigenous agricultural research and development corporation to ensure a self-determining organization prioritizes these decisions (Gilbert et al. 2023).

Empowerment of Indigenous people in collaborative research is possible if an all-of-system approach is taken, which involves Indigenous people in the decision-making process. Both Indigenous and non-Indigenous organizations are taking the lead in environmental research to recreate governance structures to ensure Indigenous voices are heard and have the authority to inform change.

3.2 | Right-Way Science

Indigenous Australians are not passive bystanders in the national effort to shift to a right-way science approach and are investing resources in active land and sea management, often collaborating with government agencies and other stakeholders in the delivery of nature-positive outcomes. Right-way science is a term used in Australia to describe best practice partnerships with Indigenous people and researchers (E. Ens et al. 2023). Indigenous Australians are developing innovative partnerships with researchers to embebed Indigenous Knowledge, solve identified problems and upskill scientists as an integral part of the development of their own natural resource management programs (E. J. Ens et al. 2012; McKemey et al. 2022) bolstering their ongoing stewardship of Country (Woodward et al. 2020).

Ideally, right-way science projects should involve Indigenous and non-Indigenous participants in all stages of project delivery including conceptualization, design, implementation, interpretation, monitoring, evaluation, and dissemination, grounded in principles of FPIC and mutual benefits (AIATSIS 2020; Woodward et al. 2020; Hill 2024).

NIERN will be an Indigenous-led and operated organization that will be connected and responsive to the Indigenous community. Right-way science will be embedded in the organization fabric, and NIERN will exhibit and develop best practices in Indigenous leadership (Woodward et al. 2020). It will be underpinned by Indigenous intellect, integrity, leadership, self-determination,

TABLE 1 | Allocation of federal environmental funding to five programs with a comparison of current procurement setting (IPP) versus funding that would be received if precedent was followed, or funding was allocated in proportion to the scale of the Indigenous Estate.

Program	Total funding	Indigenous projects (current)	National Indigenous Procurement Policy (IPP) (3%)	Great Barrier Reef Foundation Reef (GBRF) precedent (10%)	Indigenous Land Ownership (16.2%)	Total Indigenous Estate (57%)
NESP Phase 1 (2015–2021)[a]	$145 million	Unclear—IPP commitment of 3% applies	$4.35 million	$14.5 million	$23.49 million	$82.65 million
NESP Phase 2 (2022 – current)[a]	$149 million	Unclear—IPP commitment of 3% applies	$4.47 million	$14.9 million	$24.14 million	$84.93 million
National Land Care Program[b]	$1 billion	Unclear—IPP commitment of 3% applies	$30 million	$100 million	$162 million	$570 million
Australian Institute of Marine Science[c]	$62.9 million	Unclear—IPP commitment of 3% applies	$1.89 million	$6.29 million	$10.19 million	$35.85 million
Great Barrier Reef Foundation[d]	$443 million (GBRF 2023)	$51.9 million	$13.2 million	$44.3 million	$71.77 million	$252.51 million

[a]DAWE (2021).
[b]DEE (2024).
[c]DCCEEW (2023b).
[d]GBRF (2023).

and decision-making and will be buttressed by the inherent link between Indigenous Australians and Country. NIERN will also be well-positioned to engage nationally with governments, independent research providers, and international organizations to coordinate, integrate, and amplify Indigenous research needs and to act as a conduit with the broader research community. Creating mutual benefits for both Indigenous Australians and researchers who engage in the national environmental agenda is a fundamental service that NIERN will support.

3.3 | Funding Indigenous-led Research

As discussed by E. J. Ens et al. (2012), the current non-Indigenous authority over how projects are managed, run, and administered is the result of Australia's sociopolitical history and the current funding environment. As long as Indigenous research initiatives rely on national priority and outcome-driven funding (where outcomes are often defined externally), there will be constraints on what Indigenous-led research activities are undertaken.

There are several clear opportunities to care for Country using Indigenous Knowledge and management practices through innovative policy and funding arrangement that recognize the fundamental role of Indigenous Australians, Indigenous Knowledge, and the Indigenous Estate in environmental research. Further, revisiting the commitment to both national and international biodiversity strategies provides a key opportunity for Australia to rethink how to measure and invest in Indigenous-led environmental research.

To highlight the lack of funding invested in Indigenous partnerships from some of the largest national conservation and environmental research programs, Table 1 outlines current funding allocations. We accentuate the following percentages based on current commitments by government and private organizations: National Indigenous Procurement Policy (3%) (NIAA 2020), Great Barrier Reef Foundation Reef Trust Traditional Owner partnership (10%) (GBRF 2023), Indigenous Land Ownership (16.2%) (Productivity Commission 2023), and Total Indigenous Estate (57%) (Jacobsen, Howell, and Read 2020).

Unfortunately, in our assessment, it was unclear how much funding reaches on-ground organizations due to limited evaluation of funding allocations to Indigenous-led or co-designed projects—this includes funding under the IPP allocation. Some programs mention Indigenous partnerships being core to their program, but the total value of funds committed is unclear, except for the Great Barrier Reef Foundation, which transparently promotes the amount of funds dedicated to Indigenous partnerships through grant processes. Our interpretation of the data highlights that the amount of funding invested into Indigenous partnerships, Indigenous-led research, and conservation activities is not proportional to the area protected, conserved, and managed by Indigenous Australians.

Not surprisingly, Indigenous Australians are advocating to see the values of the Indigenous Estate reflected in policy design and funding allocations. This could be achieved with the use of meaningful targets and mandates along with clear and

accountable monitoring frameworks. Without targets that reflect the scale and value of the Estate, supported by mandates to include the Indigenous Estate (tangible and intangible), and effective methods to monitor the impacts on environmental research, we will continue to see Indigenous participation largely limited to goodwill partnerships with few Indigenous people engaged. There is a significant need to ensure Indigenous organizations are supported financially and have the capacity and capability to respond to the demands and obligations placed on them.

One of the biggest challenges for NIERN in moving beyond a scoping project and becoming an established functioning Indigenous-led organization will be in securing adequate funding. As many Indigenous groups advocate globally, there is an urgent need to rethink existing funding structures, with collective investment being a necessity (Doering et al. 2022)

4 | A Global Benchmark

Indigenous and non-Indigenous groups globally are attempting to promote the Indigenous voice in Western Science practice; consequently, there is an urgent need to establish and support Indigenous-led organizations. In Australia, NIERN offers an Indigenous-led pathway to self-determination with support and recognition from governments, research institutions, the corporate sector, and other nongovernment organizations. We believe this will lead to a transformational change in how environmental research is conducted with Indigenous Australians.

Empowerment of Indigenous people in environmental research is possible if an all-of-system approach is taken. This approach must involve Indigenous people in all decision-making processes—from the development of research priorities, to the design and delivery of methodologies, to the interpretation of findings, and to the final evaluation of outcomes. Investing in co-governance arrangements that support Indigenous cultural governance systems promotes rights-based approaches, unlocks economic opportunities, fosters greater authority over the stewardship of Country, delivers authority in managing Country, advocates right-way science, and values culture. Recognizing Indigenous cultural authority will be a step change toward addressing the inequitable distribution of resources and power in the delivery of environmental research.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing is not applicable as no new data were generated or analyzed during this study.

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