Recognizing culturally significant species and Indigenous-led management is key to meeting international biodiversity obligations

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Abstract
Increasingly the importance of Indigenous participation is acknowledged as central to effective biodiversity conservation. Traditional management emphasizes the importance of a holistic, integrated approach to safeguard species and ecological communities of cultural significance. This is discordant with many instruments for biodiversity conservation. Indigenous Australians have consistently lobbied for domestic laws to be amended to establish comanagement as the preferred approach to managing significant species and ecological communities – an approach that aligns with international obligations such as the Convention on Biological Diversity and the United Nations Declaration on the Rights of Indigenous Peoples. We describe amendments to Australia’s biodiversity legislation and the use of biocultural indicators that would support Traditional management of Culturally Significant Entities (species and ecological communities), and in turn, assist Australia to effectively conserve biodiversity and meet international obligations. The ongoing challenge will be in empowering Indigenous peoples and their governance structures to implement enduring change.

Keywords
biocultural indicators, biodiversity, comanagement, culture, Indigenous Knowledge, legislation, policy, reform

1 | INTRODUCTION

Indigenous peoples, globally and increasingly in Australia, are participating in international mechanisms for biodiversity conservation. However, there is a growing frustration with the lack of recognition of these international obligations in Australian domestic settings (Wintle et al., 2019). This reflects a lack of support for Indigenous peoples to meet their cultural obligations and contribute to fulfilling international obligations (George, 2014).

Many Indigenous groups are lobbying for relevant domestic laws, strategies and policies to be amended to...
align with international obligations and mandate comanagement, in which Indigenous Knowledge and practice form the foundation of the management approach upheld by formal resource-sharing and decision-making arrangements. Not only does comanagement align with Indigenous people’s aspirations, it offers a tangible hook for policy-makers and conservation practitioners to integrate Indigenous Knowledge into national biodiversity strategies and planning mechanisms.

Strategically linking biodiversity conservation to cultural aspirations results in enhanced human health, community well-being and ecosystem condition (Garibaldi & Turner, 2004). As key international initiatives adopt this concept, there is a move toward increased use of biocultural indicators, which measure place-based cultural values and recognize the relationship between ecological state and Indigenous well-being (Sterling et al., 2017). Signatories to international conservation agreements, such as the Convention on Biological Diversity, now have a responsibility to better align national, regional and local management plans to ensure more transparent monitoring of outcomes.

Globally, Indigenous peoples are seeking the recognition of plants and animals which are of cultural significance known as Cultural Keystone Species, or in the Australian context Culturally Significant Entities (CSE), which encompass both species and ecological communities (George, 2014; Coe & Gaoue, 2020; Fraser et al., 2020; Gore-Birch et al., 2020; Marsh et al., 2020). Australian Indigenous peoples attribute tremendous spiritual, cultural and/or symbolic value to many animals, plants and ecological communities (landscape/seascapes), and these values are critical in Indigenous people’s relationship with and adaptation to their traditional lands and seas (Coe & Gaoue, 2020; Gore-Birch et al., 2020). Accordingly, the protection and management of CSE is fundamental to maintaining Australian Indigenous culture and knowledge (Gore-Birch et al., 2020).

Several United Nations mechanisms support and recognize the rights and interests of Indigenous peoples in biodiversity conservation. Primarily, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), Articles 25, 26, and 31 recognize Indigenous people’s connection and responsibility to their traditional lands and seas, and its resources including species (UN General Assembly, 2007). The Convention on Biological Diversity (CBD) provides an international framework for the management of biodiversity. Articles 6, 8 (j), and 10 (c) of the Convention oblige all parties to develop and implement national biodiversity strategies, promoting the wider use of Indigenous Knowledge and encouraging customary use of biological resources (CBD, 2019).

These “soft law” mechanisms help to reinforce Indigenous rights and promote self-determination by influencing government agendas and domestic legislation, and creating obligations for national policy and management plans to be codesigned with Indigenous peoples (Mauro & Hardison, 2000). As countries work toward creating domestic settings that recognize international obligations, it creates empowerment of Indigenous peoples and the formal recognition of Indigenous Knowledge and its application in biodiversity conservation (Forest Peoples Programme, 2016). This application of Indigenous Knowledge was highlighted in the CBD’s Local Biodiversity Outlook Report, which demonstrated the significant contribution that Indigenous peoples themselves had made to the Aichi Biodiversity Targets. It concludes that greater recognition and support for Indigenous-led action is needed (Forest Peoples Programme, 2016).

With greater recognition and support for Indigenous-led action in mind, this paper will explore how governments can concurrently recognize Indigenous Knowledge and achieve multiple cobenefits by empowering the Indigenous-led management of CSE. We first explore realignment of strategic direction, indicators, and outcomes, proposing a set of biocultural indicators that could be used to report on Australia’s Strategy for Nature and the corresponding Aichi Biodiversity Targets and Sustainable Development Goals (SDG).

With Australia as a case study, we then examine legislative reform. We consider the flexibility and adaptability of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), to sustainably comanage CSE and incorporate deep insights from Indigenous Knowledge. We then explain the necessary redesign of policy and practice to meaningfully integrate of CSE and help countries meet their international obligations. Finally, we emphasize the importance of empowering Indigenous-led governance and the devolution of authority to make decisions for Country and species.

1.1 | The Australian context

Australia has been identified as a mega-diverse continent, with high levels of endemism, where species persistence is strongly impacted by habitat loss and degradation and invasive species (Kearney et al., 2019). During the past decade, species in Australia have continued to decline and there is an urgent need for both legislative reform and more effective management and resourcing to address the extinction crisis (Wintle et al., 2019).

The management of the Indigenous Estate is fundamental to Australia curbing species decline, improving
national biodiversity outcomes and fulfilling international obligations under the CBD, United Nations Sustainable Development Goals, and UNDRIP (Leiper et al., 2018; Fraser et al., 2020; Goolmeer et al., 2022).

The Indigenous Estate comprises 57% of the Australian landmass (Figure 1), including some of the highest conservation priority lands and 46% of the National Reserve System (Jacobsen et al., 2020). The Estate is managed by Indigenous Australians who are the custodians of a knowledge system that contains a detailed awareness of the processes that control the distribution of biodiversity and that influence the condition of the Australian environment (Goolmeer et al., 2022).

As both the value and the size of the Indigenous Estate grows, some Indigenous Australians claim that legislations and relevant strategies and policies have not kept up with the aspirations and needs of Indigenous Australians (Goolmeer et al., 2022), acknowledging aspirations are in both biodiversity conservation and contemporary land management practice such as sustainable resource use (Archer, 2020; Yu, 2020).

2 | REALIGNMENT OF STRATEGIC DIRECTION, INDICATORS, AND OUTCOMES

There is a need and opportunity for national strategies and policies to become a vehicle of change that supports the use of biocultural indicators with a more holistic integration of measures relevant to the Indigenous Estate. The integration of biocultural indicators within policies such as Australia’s Strategy for Nature could serve as a template for other parties to the CBD and SDG to adapt their metrics when reporting on biodiversity targets.

Progressively, Australian Indigenous groups and their governance structures are seeking to align regional priorities under Indigenous-led management actions for the Indigenous Estate. This is supported by the growing trend to identify and measure the management of the Indigenous Estate via the health and well-being outcomes attained by Indigenous Australians (Jarvis et al., 2019).

We advocate that formally recognizing CSE and integrating Indigenous Knowledge into international and
domestic strategies will lead to a more meaningful set of measures for countries to effectively report on international obligations. As we move toward the Post-2020 Global Biodiversity Framework (an outcome-oriented approach for the development of national and regional biodiversity targets), participating governments need to establish aligned priorities, strategies, and action plans, which ensure a suitable allocation of resources in partnership with all stakeholders, including the full and effective participation of Indigenous peoples (CBD, 2019).

To address the current gap in the strategic and policy recognition of the Indigenous Estate, we describe a set of biocultural indicators that focus on the recognition of CSE and the application of traditional management practices to protect and sustainably manage those entities that can enhance Australia’s environmental policies and plans (Table 1). Importantly, biocultural indicators differ from measures of resourcing such as the number of Indigenous rangers employed because they target outcomes, rather than activities. This is a vital distinction because, for example instead of measuring the “Number and extent of terrestrial and marine areas managed by Indigenous Protected Areas (IPAs) or other co-management arrangements” (Commonwealth of Australia, 2019), we are interested in the degree to which cultural landscape management delivers benefits to environment, culture, and peoples, such as “Number of protected areas improving measured environmental outcomes by using Indigenous Knowledge and deploying customary management practices.”

As such, our biocultural indicators are designed to flexibly convey key principles, so that the subsequent place-based and locally relevant indicators can describe specific outcomes sought and direct measures of those outcomes. The outcomes may be biodiversity, cultural, economic, or well-being focused with direct or indirect benefits to conservation. For example, “Number of CSE protected” could measure the biodiversity outcomes of actions that enhance food security (well-being outcome) and generational transfer of Indigenous Knowledge (cultural and well-being outcomes).

While the proposed biocultural indicators have not been tested, they offer a starting point for the Australian Government to codesign a national strategy with the full participation of Indigenous Australians. More effort is required to understand how locally held conservation values of Indigenous Australians align with national and regional planning mechanisms (Bach et al., 2019), with the basic aim to better align local, regional, and joint management plans to the national agenda, therefore, ensuring more transparent monitoring of outcomes including through the application of biocultural indicators.

For example, the Indigenous-led Strong peoples-Strong Country monitoring framework and indicators aim to measure the progress of Indigenous objectives in the Reef 2050 Plan (Jarvis et al., 2019). The framework is the first reef-wide assessment using Indigenous-led methodologies, with subjective and objective indicators providing a social-ecological systems view of the health of Country, people, and heritage of the Great Barrier Reef and its catchments. The framework is based on local context, opinions, community members, and community governance, offering an invaluable case of empowerment of Indigenous groups which moves beyond participation (Jarvis et al., 2019). Interestingly, baseline data showed to improve the condition of Indigenous heritage, future actions should empower Indigenous peoples and improve their economic prospects (Jarvis et al., 2019).

Indigenous-led decision-making based on culturally and locally relevant indicators tends to result in initiatives that reflect Indigenous aspirations and priorities (Thompson et al., 2020; Skroblin et al., 2022). Participatory monitoring, narrowly defined to focus on the measurement of entities prioritized by governments and scientists without full engagement of Indigenous peoples tend to coerce Indigenous peoples rather than enabling transformation and meaningful place-based outcomes (Thompson et al., 2020). We encourage the development and adoption of indices by and with Indigenous communities to support policy and action necessary to confront environmental challenges (Sterling et al., 2017; DeRoy et al., 2019). By proposing a set of biocultural indicators, we seek not to prescribe measures, but to seed ideas and prompt dialogue around which indicators will be most appropriate to empower Indigenous Australians.

3 LEGISLATIVE REFORM

In Australia, the EBPC Act is the key legal instrument to ensure Australia meets its international obligations under the CBD (Samuel, 2019). As such, there is a clear need to reform and strengthen the EPBC Act, in order to recognize CSE and Indigenous Knowledge and to promote the role of the Indigenous Estate as a foundation of biodiversity conservation (Goolmeer et al., 2022).

There are existing challenges to overcome when legislating the protection of CSE. For example, Indigenous groups may have differing views about the importance of listing threatened species as the resulting conservation advice can be in conflict with traditional management approaches if Indigenous participation in listing is inadequate or token (Gore-Birch et al., 2020). There is also the ongoing debate about the dangers of separating rather than
| Table 1 | Suggested biocultural indictors, including indicators for CSE, to more explicitly account for the value of the Indigenous Estate in fulfilling Australia’s obligations under the Convention on Biological Diversity |
|------------------------|--------------------------------------------------|--------------------------------------------------|
| **Australia’s strategy for nature** | **Aichi biodiversity targets** | **Suggest biocultural indicator measures** |
| **Goal 1: Connect all Australians with nature SDG 3, 12, 15** | | |
| Encourage Australians to get out into nature | 1 | Number of Indigenous groups with unrestricted access to traditional Country and access to sustainable management CSE |
| Empower Australians to be active stewards of nature | 1, 20 | Number of Indigenous groups engaged in stewardship of Country activities |
| Increase Australians’ understanding of the value of nature | 1, 2, 7 | Number of Indigenous groups able to reclaim and support intergenerational knowledge transfer of cultural and participate in sustainable customary management practices associated with connection to Country |
| Respect and maintain traditional ecological knowledge and stewardship of nature | 14, 18 | Number of management strategies for threatened entities that have Indigenous Knowledge integrated throughout the Conservation Advice and/or Recovery Plan |
| **Goal 2: Care for nature in all its diversity SDG 6, 11, 12, 13, 14, 15** | | |
| Improve conservation management of Australia’s landscapes, waterways, wetlands and seascapes | 5, 10, 11, 14, 15, 18 | Number or scale of cultural land/seascapes protected and degree to which the condition of those ecosystems is improving |
| Maximize the number of species secured in nature | 6, 12, 13 | Number of CSE sustainably managed on the Indigenous Estate |
| Reduce threats and risks to nature and build resilience | 2, 5, 8, 9, 10, 15 | Extent to which traditional management programs reduce incursion and spread of new and emerging threats, i.e., right way burning |
| Use and develop natural resources in an ecologically sustainable way | 2, 3, 4, 5, 6, 7 | Use of Indigenous Knowledge to inform nature-based agricultural and horticultural practices, i.e., seasonal harvest times and seasonal calendars |
| Enrich cities and towns with nature | 4, 8, 14 | Number of urban-based Indigenous nature-based tourism enterprises |
| **Goal 3: Share and build knowledge SDG 12, 17** | | |
| Increase knowledge about nature to make better decisions | 19 | Programs established to capture, curate, and share Indigenous Knowledge accord with CARE principles of Indigenous Data Sovereignty |
| Share and use information effectively | 19 | Explicit Indigenous Knowledge supporting effective management of biodiversity |
| Measure collective efforts to demonstrate our progress | 2, 14, 19 | Adoption of data sharing agreements founded on the principles of Free, Prior, and Informed Consent (FPIC) |
| | | Number of place-based biocultural indicators for CSE with appropriate resources |
integrating Indigenous-focused policy from mainstream policy (Goolmeer et al., 2022).

To address these issues, the Australian government should consider simultaneously recognizing CSE and modifying the criteria and processes of threatened species listing and assessment under domestic legislation, to ensure Indigenous Knowledge and values are genuinely considered in the preparation of Conservation Advice and Recovery Plans. Unfortunately, a major impediment to this approach is that the International Union for Conservation of Nature (IUCN) criteria for assessing a species for inclusion on the IUCN Red List do not currently include Indigenous Knowledges and values (Miller et al., 2007). Recognition of Indigenous peoples priorities in guidance and rule sets of peak biodiversity conservation bodies such as the IUCN and ICOMOS will help instigate meaningful change within national jurisdictions such as Australia.

In Australia, even though some government and environmental bodies informally recognize CSE, there is no statutory mechanism to protect these entities from a threatening process unless they are already EPBC-listed. During the 2019 EPBC Act review open submission process, several organizations called for the recognition of CSE as a means to empower Indigenous groups to manage the Indigenous Estate using traditional management (Archer, 2020; Gore-Birch et al., 2020; Marsh et al., 2020; Spina, 2020).

There are many ways the EPBC Act could be amended to afford protection and sustainable management of CSE (acknowledging that this will require a distinct set of identification criteria and measures). For example, CSE could be protected by redefining the terminology of “Indigenous cultural heritage” in the EPBC Act to encompass both “tangible” and “intangible” aspects of cultural practices, spirituality, resources and language and knowledge systems for the listing process of a National Site of Significance (Pepper, 2014). The consequences of such a change would be protection of the tangible (the species themselves) and the intangible (the cultural connection to species). A more robust approach could be the development of new provisions under the EPBC Act that focus on the Indigenous Estate and Indigenous Knowledge, in which the listing of CSE would be a significant protection and management mechanism (Gore-Birch et al., 2020).

It is important to recognize that changes to legislation alone may not guarantee greater consideration of Indigenous Knowledge and values of species. The Canadian Species of Risk Act, which mandates a legal requirement to consult Indigenous peoples, has a less than 50% inclusion rate of Indigenous Knowledge and values in recovery and management plans (Hill et al., 2019). While tailored legislation sets a clear mandate, legislation is just the first step. Realignment of policy and practice to promote the traditional management of CSE will be required, and indeed could achieve much even without legislation change.

4 | REDESIGN POLICY AND PRACTICE

As CSE gain recognition, proponents are translating cultural values into a set of criteria to assist policy-makers in developing meaningful policy and programs to empower Indigenous management (Cristancho & Vining, 2004; Garibaldi & Turner, 2004). In the Australian context, there are three interconnected domains to simultaneously consider in assessing if an entity is a CSE (Figure 2). Indigenous Australians (Kin) manage the Indigenous Estate (Country), which house the entities (Culture) (Sangha et al., 2015).

As Australian governments move toward regional economic development models, we must consider the impact of recognition on the economic potential of CSE and the overall value of ecosystem services for local Indigenous groups (Sangha et al., 2015). Governments have an opportunity to develop policies to stimulate and promote economic opportunities of the Indigenous Estate, which holds significant potential in global markets for biodiversity positive carbon (Garnett et al., 2009). These policies would include government-endorsed methodologies for measuring and reporting on CSE, drawing on what is provided here and through ongoing Indigenous-led development of CSE indices.

Importantly, when assessing and managing CSE, Indigenous practices such as traditional take is not negotiable for Indigenous groups who depend on the customary use and consumption of species and ecological communities for their well-being (Sangha et al., 2015). Indigenous groups have advocated for compensation, if they voluntarily relinquish their rights to the traditional take of threatened species, in order to abate threats, aid conservation efforts, or improve the trajectories for recovery outcomes. Moreover, Indigenous Australians will need to fully understand the implications of future listed CSE triggering the EPBC Act.

Only robust and flexible policy can accommodate a place-based approach to protect and manage CSE in a traditional management setting. The foundational policy principle must be that the subsequent listing of CSE should not impinge on the traditional and customary sustainable use of resources by Indigenous peoples (Gore-Birch et al., 2020).
5 | EMPOWERING INDIGENOUS-LED GOVERNANCE

While the solution for the recognition and comanagement of CSE may be achievable, the challenge moving forward will be for governments and alike that operate under an entrenched patriarchal western paradigm, to support and empower Indigenous peoples and their governance structures (Ens & Turpin, 2022). While we have outlined a starting point for the Australian setting, the final legislation, policy, and metrics for the protection and management of CSE must be Indigenous-led in collaboration with an extensive range of Indigenous Australians.

In addition, the process must recognize the role of Indigenous governance structures who have the sole authority to assess the species against criteria. It is of high importance that all processes protect culturally sensitive information and support cultural and customary practices, acknowledging that they may be less transparent than those within a western system. This is because for some species the spiritual, cultural or symbolic value to the Indigenous community may be secret (i.e., initiated community members only) or privileged information (i.e., women’s business) which customary lore may preclude from sharing with the wider community (Gore-Birch et al., 2020).

In Australia, over many years of building mutually beneficial partnerships with Indigenous groups, key lessons have been conveyed about the devolution of power to Indigenous peoples, including prioritizing mutual benefits and reciprocity; ensuring plenty of time for relationship, knowledge sharing and project development; maintenance of Indigenous Intellectual Property; Indigenous empowerment; two-way capacity building; transparency and ethical project governance (Ens & Turpin, 2022). For Indigenous peoples, it’s time governments and conservationists consistently put these learnings into practice.

6 | CONCLUSION

There is a clear opportunity to protect and sustainably manage CSE and their traditional management under domestic legislation, thus recognizing the role of Indigenous peoples and their Estate as a fundamental principle of biodiversity conservation in Australia. Further, the resetting of both national and international biodiversity strategies provides a key opportunity for Australia and other countries to re-think how they measure and invest in biodiversity outcomes. While the way forward for the recognition and true comanagement of CSE is achievable, the real challenge for governments will be supporting and empowering Indigenous Australians and their governance structures under an entrenched patriarchal western paradigm, to implement enduring change.

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DATA AVAILABILITY STATEMENT
Data sharing not applicable to this article as no data sets were generated or analyzed during the current study.

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