Empowering Indigenous peoples’ biocultural diversity through world heritage cultural landscapes: A case study from the Australian tropical forests

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**Abstract**

The Australian tropical forests have been recognised as a globally significant natural landscape through world heritage listing since 1988. Aboriginal people have occupied these forests and shaped the biodiversity for at least 8000 years. The Wet Tropics Regional Agreement in 2005 committed Australian governments and region’s Rainforest Aboriginal peoples to work together for recognition of cultural heritage associated with these forests. The resultant heritage nomination process has empowered community efforts to reverse the loss of biocultural diversity. The conditions that enabled this empowerment included Rainforest Aboriginal peoples’ governance of the process; the shaping of the heritage discourse to incorporate their concept of biocultural diversity; and their control of interaction with their knowledge systems to identify the links between culture and nature that have created the region’s biocultural diversity. We commend further investigation of the theory and practice in Indigenous governance of international heritage designations to empower community efforts to reverse biocultural diversity loss globally.

Key words: biocultural diversity, Aboriginal, Indigenous, rainforest, heritage
Introduction

Cultural landscapes are the interface between nature and culture, ecosystems that exist in their current state due to the complex interactions between people and the environment over time (Rössler 2005). Since 1992 the World Heritage Convention has recognised such places, which are of outstanding universal value resulting from associations of natural and cultural elements, as Cultural Landscapes on the World Heritage list. (Aplin 2007). Adoption of the WHCL (World Heritage Cultural Landscape) designation marked a new approach, involving recognition of traditional management mechanisms and customary law as appropriate forms of protection for globally-significant heritage. The initiative clearly had the potential to empower the transmission of Indigenous cultural diversity, traditional knowledge and resources to future generations (Rössler 2004). Indigenous peoples at Tongariro National Park and Uluru-Kata, the first two WHCL designated for their associations with Indigenous living cultures, have indeed used the recognition to empower some of their aspirations. (Lennon 2006). Anangu people developed an information and management system based on their customary law Tjukurpa at Uluru-Kata Tjuta (Lennon 2006). The paramount Indigenous leader of Tongariro, Tumu Te Heuheu, facilitated international dialogue and understanding of customary law, including through becoming Chairman of the World Heritage Committee (Metge 2008). However, empowerment of Indigenous and local peoples is not a universal outcome. WH listing of the rice terraces of the Crodilleras in the Philippines as a cultural landscape has not enabled local people to maintain their cultural traditions (Villalón 2005). Rainforest Aboriginal people in the Australian Wet Tropics World Heritage Area (WTWHA), are pursuing listing as a Cultural Landscape as a means to empower their Indigenous culture, rights and interests in the management of this site, currently
only recognised as globally significant for its natural valuesiii. The contribution of this initiative to theory and practice regarding the capacity of international designations to empower biocultural diversity forms the focus of the co-research reported in this paper.

Biocultural diversity has been defined as the total variety exhibited by the world’s natural and cultural systems (Loh and Harmon 2005). Biocultural diversity denotes three concepts: that the diversity of life includes human cultures and languages; that links exist between natural biodiversity and human cultural diversity; and that these links have developed over time through mutual adaptation and possibly co-evolution (Maffi 2007). Interrogations of global patterns of biocultural diversity have shown that correlations exist between areas of high biodiversity and areas of high cultural diversity—and that the current biodiversity extinction crisis is paralleled by a related extinction crisis affecting linguistic and cultural diversity (Bradshaw et al. 2009; Loh and Harmon 2005; Maffi 2005). The notion of Cultural Landscapes is closely aligned with this concept of biocultural diversity, explicitly recognising the interface between biological and cultural diversity, and tangible and intangible heritage (ICOMOS 2009; Rössler 2005). However, the concept is relatively recent, and many sites on the current World Heritage List because they meet natural criteria are also the homelands of Indigenous people, whose roles in creating these biocultural landscapes have not been recognised (Fowler 2003). The Australian wet tropical rainforest region is a living Indigenous cultural landscape, imbued with significant spiritual meaning, useful plant and animal resources, languages, traditional ecological knowledge, culture sites and human history, which is potentially globally significant and warranting international designation (Hill 2008).
The WTWHA was inscribed on the World Heritage list in 1988 for its natural values, at which time it met all four criteria for a natural property (Valentine and Hill 2008). It (Figure 1) is one of the world’s hotspots of rainforest biodiversity and is an area rich in cultural heritage (Stork and Turton 2008). The region in which the WTWHA is located is experiencing unprecedented rates of population growth and urbanisation which threaten the environmental, economic and cultural values of the WTWHA (Stork et al. 2008). The Wet Tropics Management Authority (WTMA) is the statutory agency which manages the WTWHA. A Wet Tropics Regional Agreement in 2005 committed the Australian and Queensland governments to work in partnership with the region’s Rainforest Aboriginal People, including through seeking cultural heritage listing. Eighteen tribal groups have traditional connections to the WTWHA: Bandjin, Djabugay, Djiru, Girramay, Gugu-Badhun, Gulpay, Kunggandji, Jirrbal, Koko Muluridji, Kuku-Yalanji, Ma:Mu, Ngadjon-jii, Nywaigi, Warrgamay, Warungnu, Yidinji, Yirrganydji and Wulgurukaba peoples. The Aboriginal Rainforest Council (ARC), an Indigenous civil society organisation whose contemporary governance structure incorporates the eighteen tribes, obtained government support, in partnership with other organisations, to prepare a nomination for associative cultural landscape heritage recognition, starting with National Heritage recognition. The ARC governance structure placed Traditional Owners in the driving seat of the heritage nomination process.

As Sullivan (2004) notes, the process of world heritage listing is achieved by a submission, authored by a national party (the Australian Government), to an international committee with the aim of achieving recognition of a value of universal
significance. This process can be mysterious and alienating to local people and Traditional Owners, creating a high potential for the resentment, misunderstanding and hostility, which often characterize relationships between the ‘edges’ and the ‘centre’ of the world community. Community-based approaches to heritage are gaining recognition as a key means of creating local empowerment and overcoming these risks of alienation and conflict (Greer 2010; McIntyre-Tamwoy 2004). However, world heritage nomination processes are still largely top-down, without clearly established means of enabling Indigenous and local communities to own the process—most focus has been on engaging community after the site is listed (Cullen et al. 2008; Sullivan 2004). These engagement processes continue to be seriously challenged by fundamental critiques that conservation management undermines local peoples’ rights and interests and requires re-modelling that starts from the ground up and involves local governance, networks and linkages across various institutions (Berkes 2007; Smith 2007). In this context, research that presents and interrogates an Indigenous-governed heritage nomination process is timely and useful.

We write this paper as a team of Indigenous and non-Indigenous scholars and practitioners (within a university, a government and a non-government organisation) who have been working for many years to support recognition of Indigenous peoples’ biocultural diversity within the WTWHA. The paper aims to investigate whether the heritage nomination process towards re-listing the WTWHA as a cultural landscape has empowered community efforts to reverse the loss of biocultural diversity. We firstly consider the key theoretical underpinnings and issues surrounding biocultural diversity, heritage and Indigenous governance. The context of biocultural diversity in the wet tropics is described, including the ongoing struggle to transform towards perception and joint management as a biocultural landscape. We
then describe the empowerment of community efforts for biocultural diversity and analyse these results using frameworks drawn from the international literature. The paper concludes with suggestions relevant to the ongoing development of theory and practice in the protection and management of biocultural diversity.

**Biocultural diversity and Indigenous governance: key issues and definitions**

The concept of biocultural diversity is gaining recognition. However, the nature of the linkages between culture and biodiversity are not yet well elucidated, and clear conceptual frameworks for assessment remain elusive (UNESCO 2008). Where correlations exist between cultural and biological diversity, studies have not yet identified whether this has arisen from co-evolution, asymmetric causation (e.g. human modified landscapes) or by third factors that affect both (Zent 2009).

Furthermore, culture and linkage to place are both contested concepts. The ideal of distinct local communities that are adapted to their local environment through homeostatic feedback loops has not withstood scholarly scrutiny: communities are now recognised as contingent and dynamic, resulting from interactions between social actors at multiple scales, with institutions and governance as significant drivers (Leach et al. 1999). Culture itself is best understood as a dynamic process of transcultural exchange with critical and complex processes of intercultural hybridization in which Indigenous and local peoples are key actors and drivers of change (Cocks 2006). Without a clear framework for recognising these tensions, research into “biocultural diversity” holds similar risks to those of research into “Aboriginal heritage”: reinvigorating a colonising scholarship and reinforcing networks of power relations that control Indigenous interests and futures for the purposes of others (Hemming and Rigney 2010). We situate our research within a governance theoretical framework to recognise the multiple regimes of credibility.
pertaining to the different contexts in which Indigenous people, scientists, practitioners, decision-makers, community members and other actors work (UNESCO 2008).

We acknowledge concepts of social interaction, complexity, uncertainty, dynamism and evolution that respond to the contested definitions of culture and nature discussed above are encapsulated in the theory of adaptive co-management (Armitage et al. 2007). Adaptive governance builds on this by adding the dimension of accounting for Australian Indigenous peoples’ explicit claims to a distinct and separate political status (Hill and Williams 2009). Governance addresses recognition in the UN Declaration on the Rights of Indigenous people that Indigenous peoples have rights to political and cultural self-determination (United Nations 2008). We define governance as the structures and processes by which people in societies make decisions and share power, incorporating human values and perceptions that structure the interactions (Folke et al. 2005). Indigenous governance therefore encapsulates the processes by which Indigenous people define their culture, their biocultural diversity, and means for cultural sustainability (Hemming and Rigney 2010; Sveiby 2009). Indigenous governance played a key role in both the conduct of the co-research, and the control of the nomination process, interrogated in this paper.

**Wet tropics context: from a natural to a bio-cultural landscape**

During the period of territorial acquisition and settlement of Australia by the British, the wet tropical rainforests were viewed primarily as a barrier to progress. Much later, between the 1930s and 1960s, following extensive clearing for agriculture, the rainforest came to be valued as an important, and potentially ongoing, source of timber resources (Valentine and Hill 2008). The listing of the Wet Tropics onto the
World Heritage List in 1988 signalled a shift towards valuing the rainforests as a natural landscape of global significance, ending the era of timber extraction. At the time, Rainforest Aboriginal groups were divided between those who supported the listing because cultural maintenance was strongly linked to rainforest protection, and those who opposed it as a limitation on their rights (Horsfall and Fuary 1988).

Since 1988, Rainforest Aboriginal people have engaged in a long struggle for recognition of their rights and interests in the WTWHA (Pannell 2008). This struggle has been promulgated through seeking recognition of: (1) rights, using the Australian native title system for legal recognition, which has resulted in formal Indigenous Land Use Agreements to underpin their involvement in conservation and management (Hill 2006); (2) cultural values, entering into negotiations with the Australian and Queensland governments for engagement in management of the WTWHA, through a formal review and establishment of an Interim Negotiating Forum, leading to the Regional Agreement (Cochrane 2003; Lawson 1998); and (3) management, engaging through Australian government’s Natural Resource Management programs to propel the adoption of Aboriginal-driven environmental management, using initiatives including a Aboriginal Management Plans, Ranger groups and Indigenous Protected Areas (Pannell 2008). These three strategies are acting in parallel, essentially aiming to achieve reconciliation between the Aboriginal and settler societies through changing the perception and management of a natural landscape, into the perception and management of a bio-cultural landscape (Figure 2). This paper address the second strand of that overall strategy, aimed at recognition of Aboriginal cultural values.
World heritage cultural landscapes: empowering or inhibiting community efforts?

Our co-research focuses on the processes of nomination of the Aboriginal cultural values of the wet tropics for heritage list, one stage of the ongoing process depicted in Figure 2. Community efforts to reverse the loss of biocultural diversity were empowered in the heritage nomination process through mechanisms that include:

1. Rainforest Aboriginal governance: the establishment of Aboriginal governance of the processes of heritage nomination.
2. Rainforest Aboriginal shaping of the heritage discourse: engagement by Aboriginal people in expressing their culture within to shape the heritage discourse to meet their requirements.
3. Rainforest Aboriginal knowledge systems: exploration and revelation by Aboriginal people themselves of the interactions between culture and nature that have led to the biocultural diversity evident in the Wet Tropics region today.

Empowerment of community efforts through Rainforest Aboriginal governance

Rainforest Aboriginal peoples decided to establish the Aboriginal Rainforest Council (ARC) as an independent, decision-making organisation to represent their strategic interests in the WTWHA in March 2003. The ARC constituted a new regional element within a contemporary multi-level Indigenous governance system with nested governance arrangements including at sub-regional (e.g. Girringun Aboriginal Corporation), local (e.g. Djabugay Tribal Council) and extended family scales (e.g. Bana Yaralji Corporation). The Wet Tropics Regional Agreement recognised the Aboriginal Rainforest Council as the entity charged with establishing
and maintaining the authority to represent the views of the Rainforest Aboriginal people regarding management of the WTWHA (WTRA 2005). In 2006, ARC and Girringun, in partnership with Terrain NRM, an environment non-government organisation, obtained funding for a Cultural Heritage Mapping Project with two goals: (1) enabling local Traditional Owner groups to record, store and apply their cultural heritage information in relation to the management of their traditional country; and (2) preparing a document to support nomination as a cultural landscape for firstly national and subsequently world heritage listing (Hill and Williams 2009).

The Cultural Mapping Project worked from the principle that Traditional Owners should take control of knowledge production concerning their culture. Through recording activities, Traditional Owners are in a better position to ensure that co-management of the WTWHA effectively addresses their self-defined cultural values, knowledge and practices. A team of social and biophysical scientists to support the nomination work was funded through the Marine and Tropical Science Research Facility of the Australian Government. The ARC appointed an Indigenous Intellectual Property Sub-committee to guide the nomination process. A Memorandum of Understanding between the ARC and the other organisations ensured Indigenous governance of the whole undertaking (Figure 3). This required ongoing reports on progress to meetings of representatives of all eighteen tribal groups, hosted by the ARC.

Insert Figure 3 near here

The scientists worked within a co-research framework under this Rainforest Aboriginal governance arrangement, based on acknowledgment that relationships of
trust and respect are critical. The co-research framework recognised that the co-generation of knowledge by Indigenous peoples and scientists, through research, can be used to build knowledge with credibility in both domains (Cullen et al. 2008; Maclean and Cullen 2009). The ARC Intellectual Property Sub-committee met with the scientific research team many times during the preparation of the nomination, which occurred between July 2006 and December 2007. The co-research team were responsible for both preparation of the nomination document, and the subsequent interrogation of the process to consider the question of empowerment of community efforts for biocultural diversity conservation.

**Empowerment of community efforts through Rainforest Aboriginal heritage discourse**

The ARC Intellectual Property Sub-committee began the heritage process by examining documents previously prepared as the basis for nomination. They directed that the archaeological, anthropological and historical aspects, be supplemented with a greater emphasis on living cultural traditions. A number of elders made DVD recordings in which they explained their understanding of the global significance of their living cultural traditions, emphasising that this globally significant landscape had been created by their ancestral beings, was maintained by their ongoing connections, and therefore their culture was also globally significant. In effect, they argued that if the “bio” part of a globally significant biocultural landscape was significant, than the “cultural” part must also be. An Expert Panel was hosted during the Australian International Council on Monuments and Sites conference held in Cairns in August 2007 at which Rainforest Aboriginal people presented their draft “statement of significance” to national and international cultural and natural heritage experts. The
Expert Panel advised that the biocultural significance argument would not meet current heritage criteria, and suggested the ARC focus on the uniqueness of their long occupation of rainforest, and associated innovative food processing and fire technologies, while including material about Aboriginal cultural connections. They also emphasised the need for published material to support the claims. The DVDs would be useful illustrative material, but would not hold weight in the assessment of the nomination.

The ARC made a decision to align their nomination document with the current heritage criteria, but to also include their DVD recordings, and substantial material explaining their understanding of the biocultural values of the WTWHA. The nomination was submitted in December 2007, and is currently being assessed by the Australian Government. The nomination document itself focused clearly on the living cultural practices that have created and maintained the wet tropics landscape, while also addressing current heritage criteria—in effect an amalgam that produced a new Rainforest Aboriginal heritage discourse focused on biocultural diversity.

Empowerment of community efforts through Rainforest Aboriginal knowledge systems
The compilation of the heritage nomination document was led by Rainforest Aboriginal people exploring and revealing the interactions between their culture and nature that have produced the biocultural diversity. As noted above, in addition to preparation of the nomination document, the Cultural Heritage Mapping Project enabled local Traditional Owner groups to record, store and apply their cultural heritage information. Through this process, Rainforest Aboriginal people gained access to resources that enabled them to spend time on their traditional country,
recording traditional knowledge and language systems, and interacting with these landscapes through cultural management practices. The cultural recording process re-invigorated inter-generational transfer of knowledge, renewing respect by the younger generation for the role of the Elders. Empowerment also occurred through Indigenous exploration and revelation of interactions between their culture and nature that have produced the biocultural diversity.

**Analysis of the empowerment of community efforts**

UNESCO has recognised the urgent need for better conceptual models and frameworks for analysis of biocultural diversity (UNESCO 2008). We based our analysis on available frameworks, which we acknowledge required improvement. The Bio-cultural Community Protocols (BCP) provides a framework for analysis of how the heritage listing process had empowered community efforts through Rainforest Aboriginal governance and heritage discourse (UNEP 2009). A BCP is a protocol that is developed after a community undertakes a consultative process to outline their core ecological, cultural and spiritual values and customary laws relating to their traditional knowledge and resources. The BCP establishes the basis for clear terms and conditions to regulate access to their knowledge and resources. BCPs enable communities to affirm their role as the drivers of conservation and sustainable use of biodiversity in ways that support their livelihoods and traditional ways of life. We analysed the processes developed through this heritage nomination against the framework for BCPs from international applications (Table 1). The governance processes supported Rainforest Aboriginal people to address all the categories recognised globally as required to enable communities to drive efforts in biocultural conservation.
The UNESCO framework of “areas of interdependence between biological and cultural diversity” provided the basis for our analysis of how the nomination process had been empowering of the content of biocultural diversity. We found that the nomination document provides insight into all the categories of linkages between nature and culture recognised in this global framework (Table 2). Rainforest Aboriginal peoples’ exploration and revelation of the interactions between their culture and nature have empowered an understanding that takes account of all the categories of biocultural diversity currently recognised globally.

Concluding Remarks

We use this example in the Australian wet tropical rainforests to demonstrate that international heritage designations can be empowering of community efforts to reverse the loss of biocultural diversity. The conditions that enabled this empowerment included Rainforest Aboriginal peoples’ governance of the process; the shaping of the heritage discourse to incorporate their concept of biocultural diversity; and their control of interaction with their knowledge systems to identify the links between culture and nature that have created the region’s biocultural diversity. The concept of biocultural diversity appears capable of encapsulating the ontological and epistemological differences of Indigenous knowledge, recognising the viewpoint that only knowledge that is Indigenous-governed can be Indigenous knowledge (Agrawal
2002). We suggest that the actual reversal of the loss of biocultural diversity in this landscape is tied to a process with three major strands running in parallel including recognition of Rainforest Aboriginal peoples’ rights, cultural values and management (Figure 2). It is likely that such reversal of biocultural diversity loss will start to be noticeable only when all three processes have culminated in a Wet Tropics Biocultural Landscape recognised as of global significance.

Our co-research confirms the recent findings by Hemming and Rigney (2010) that Indigenous-driven regional research, planning and development is the means of transforming heritage practices to empower Indigenous peoples. The approach requires collaborative research practices, and significant ongoing work in local, regional, national and international contexts. In the Wet Tropics, the process of Indigenous-driven regional research relied on an Aboriginal governance structure, the Aboriginal Rainforest Council (ARC). This organisation was integral to the success of the governance guiding the heritage nomination process, which in turn led to the empowerment of Traditional Owners in a bid to reverse the loss of biocultural diversity. However, the Aboriginal Rainforest Council as a formal incorporated organisation no longer exists, being disbanded following problems with administration and funding. Rainforest Aboriginal people are now developing alternative structures to provide the necessary regional governance arrangements, and have established the North Queensland Traditional Owners Water and Land Management Alliance. Without an adequately resourced arrangement for engaging Aboriginal governance at the regional scale, ensuring ongoing empowerment of community efforts to reverse biocultural diversity loss through the cultural relisting process will be challenging. There is a critical and growing need for governments to support Indigenous governance organisations and their roles in enabling Indigenous
knowledge systems for any chance of successful reversal of the loss of biocultural diversity. We commend further investigation of the theory and practice of Indigenous governance in efforts to empower community efforts to reverse biocultural diversity loss globally.

Acknowledgements

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and Heritage - For Management Wet Tropics World Heritage Area. Wet Tropics Management Authority, Wet Tropics Regional Agreement: Cairns.


Table One: Analysis of Rainforest Aboriginal Peoples’ strategies in the nomination process according to the framework provided by the Biocultural Community Protocol (UNEP 2009)

<table>
<thead>
<tr>
<th>Bio-cultural Community Protocol Framework</th>
<th>Rainforest Aboriginal peoples’ strategies in the nomination process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-definition of the group and its leadership and decision-making</td>
<td>Nested regional (Aboriginal Rainforest Council), sub-regional (e.g. Girringun), tribal (e.g. Jabalbina) and clan (e.g. Bana Yaralji) contemporary arrangements provide Rainforest Aboriginal peoples’ self-definition and decision making structures (Hill and Williams 2009)</td>
</tr>
<tr>
<td>Links between customary laws and biocultural ways of life</td>
<td>Wet Tropics Regional Agreement, Aboriginal Natural and Cultural Resource Management Plan, Country-Based Plans (WTAPPT 2005)</td>
</tr>
<tr>
<td>Spiritual understanding of nature</td>
<td>See “belief systems” in Table 1</td>
</tr>
<tr>
<td>How they share their knowledge</td>
<td>Leadership role in systems to protect IP through: 1993 Julayinbul Statement on Indigenous Intellectual Property Rights (Rainforest Aboriginal Network 1993); 2007 Aboriginal Rainforest Council Intellectual Property Sub-Committee established</td>
</tr>
<tr>
<td>What constitutes FPIC to access their lands or knowledge</td>
<td>Agreement-making under the Native Title Act through Indigenous Land Use Agreements (Hill 2006), and Indigenous Protected Areas are gaining acceptance as appropriate means of FPIC (WTAPPT 2005)</td>
</tr>
<tr>
<td>Local challenges</td>
<td>Colonial legal arrangements under Queensland legislation present barriers to empowerment of biocultural diversity (Hill 2006)</td>
</tr>
<tr>
<td>Rights according to national and international law</td>
<td>Wet Tropics Regional Agreement recognised that these rights may exist, but the agreement itself has no legal status and has therefore not bound either Queensland or Australian Governments to respect these rights</td>
</tr>
<tr>
<td>Call to stakeholders for respect</td>
<td>The Regional Agreement is such a call.</td>
</tr>
</tbody>
</table>
Table Two: Analysis of Rainforest Aboriginal Peoples’ documentation of the links between cultural and natural diversity according to the framework provided by UNESCO (2008)

<table>
<thead>
<tr>
<th>Area of interdependence between biological and cultural diversity</th>
<th>Wet Tropics example(^1) (Aboriginal Rainforest Council Inc. 2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Language and linguistic diversity</strong></td>
<td></td>
</tr>
<tr>
<td>Language terms concepts and categories relating to nature</td>
<td>The ancestral being Gulibunjay made that part of the country Yidinji through his journey in which he named places after species in Yidinji language (Dixon 1991)</td>
</tr>
<tr>
<td>Linguistic diversity relation to biological diversity</td>
<td>“Our songs link us to the rainforest and also to the sounds of the rainforest – the scrub turkey song sounds like a scrub turkey, as do songs about cassowaries (Dixon and Koch 1996)”</td>
</tr>
<tr>
<td><strong>2 Material culture</strong></td>
<td></td>
</tr>
<tr>
<td>Material culture objects created from and/or representing biodiversity</td>
<td>Unique bicornual baskets, bark blankets, decorated tree buttress shields, huge wooden swords, slate grindstones with cut grooves, nut-cracking rocks, T-shaped stone implements known as “ooyurkas’ and large edge-ground axes (Horsfall 2003)</td>
</tr>
<tr>
<td><strong>3 Knowledge and technology</strong></td>
<td></td>
</tr>
<tr>
<td>Technology and techniques related to natural resources</td>
<td>Toxic food processing techniques (Cosgrove et al. 2007)</td>
</tr>
<tr>
<td></td>
<td>Specialist fire management practices (Hill and Baird 2003)</td>
</tr>
<tr>
<td>Traditional and local knowledge about natural resource, ecological relationships etc.</td>
<td>“Our seasonal calendars link environment to our cultural practices: the call of the green cicada announces the arrival of the stormy season (Davis 2001); dropping of a certain flower in the river signals that fresh water mussel are ready for harvest (Hill et al. 2004)”</td>
</tr>
<tr>
<td>Transmission of knowledge between generations</td>
<td>Knowledge is transferred from the older generations to the young ones through going out on country together to hunt, gather, light fires and tell stories (Hill et al. 2004)</td>
</tr>
<tr>
<td>Mechanisms for traditional knowledge revitalisation</td>
<td>Cultural mapping projects that empower Rainforest Aboriginal people to use digital technology are proving effective mechanisms for knowledge revitalisation (Roder 2008)</td>
</tr>
<tr>
<td>Mechanisms for the adoption of new</td>
<td>Oral traditions and poetry now record the arrival of “waybala” and the history of clearing A</td>
</tr>
</tbody>
</table>

\(^1\) The Nomination form completed by the Aboriginal Rainforest Council for heritage listing cited numerous published and unpublished accounts of these links; in the interests of brevity, a selected few only are supplied for those interested in scholarly pursuit. Direct statements from the nomination form are in quotation marks.
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>bulldozer nosing into Guymaynginbi (Dixon and Koch 1996)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4 Modes of subsistence</strong></td>
<td></td>
</tr>
<tr>
<td>Natural resource livelihoods</td>
<td>Indigenous knowledge of country and culture is the basis of contemporary tourism businesses of Yalanji, Tjapukai, Ngandonji and others Rainforest Aboriginal people (Zeppel 2002)</td>
</tr>
<tr>
<td>Land/sea use and management</td>
<td>Tracks served to connect the rainforested uplands to the coastal plains and facilitated the movement of people to harvest seasonal resources, attend ceremonies, visit story places, avoid tabu sites and maintain kin and affinal relations with other groups (Pannell 2008)</td>
</tr>
<tr>
<td>Plant/animal domestication and selective breeding</td>
<td>Growing evidence that Aboriginal aboricultural practices have, over the space of thousands of years, selected for certain floral species and hybrids (Pannell 2008)</td>
</tr>
<tr>
<td>Supplementing economies through sustainable harvesting</td>
<td>Fish are an important supplement food source; traditional plant materials are used in running water, as opposed to still water, to stun fish and allow collection in nets without killing the fish (Worboys 2002)</td>
</tr>
<tr>
<td><strong>5 Economic relations</strong></td>
<td></td>
</tr>
<tr>
<td>Economic relations through partnerships based on natural resources</td>
<td>Aboriginal people’s trade of rainforest products with miners enabled them to live independently of government control after European settlement (Anderson 1983); major rainforest tracks associated with substantial trade in material culture (e.g. shell, beeswax) are in use as roads and highways today (Pannell 2008)</td>
</tr>
<tr>
<td>Management of common property resources</td>
<td>Indigenous techniques for harvesting materials including fish, wood, bark, grass, and lawyer cane are important to ensuring sustainable use of the rainforests, and linked to ecological knowledge of seasonal indicators (Hill and Williams 2009)</td>
</tr>
<tr>
<td><strong>6 Social relations</strong></td>
<td></td>
</tr>
<tr>
<td>Attachment to place</td>
<td>Rainforest Aboriginal peoples relate to the land in a holistic sense as a living cultural landscape (Hill 2008)</td>
</tr>
<tr>
<td>Social relations with natural resource</td>
<td>“Social relationships with our Elders, old people and ancestral creators that co-exist with us in our country continue as forms of social memory in the landscape and form part of our traditions and practices” (Talbot 2005).</td>
</tr>
<tr>
<td>Gender relations with natural resource</td>
<td>“Marra [cycad nuts] comes from the Ngujakura, from the beginning of time. Marra is a woman’s thing. The two sisters, they made marra” Dolly Yougie, Kuku Yalanji woman (Hill et al. 2004)</td>
</tr>
<tr>
<td>Political relations with natural resource</td>
<td>Land ownership and tenure systems reflect interrelationships between different language, tribal, clan and family groups, and links to rights and responsibilities on country (Pannell 2008)</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Legal institutional e.g customary law regarding resource use, access</td>
<td>Law/Lore originates from ancestral beings in the creative epoch, the <em>Buluru, Ngjakurra</em> and <em>Jujaba</em></td>
</tr>
<tr>
<td><strong>7 Belief systems</strong></td>
<td></td>
</tr>
<tr>
<td>Rites and rituals</td>
<td>Our dances like the cassowary dance also link us to the rainforest (Hill et al. 2004).</td>
</tr>
<tr>
<td>Sacred sites (landscapes)</td>
<td>Numerous sites: story places, birth, burial and conception sites; ceremonial grounds, occupations sites some people are named after camping grounds and regard these places as part of themselves (Dixon 1972)</td>
</tr>
<tr>
<td>Mythology, worldview, cosmology</td>
<td><em>Buluru</em> or Storytime brothers, Guyala and Damarri, are central ancestral figures responsible for providing the plant foods in the rainforest, instituting the laws and customs; the supine body of Damarri can be seen in the contours of the Barron River and Redlynch valley, and the surrounding hills and outcrops (Pannell 2008)</td>
</tr>
<tr>
<td>Identity with the natural world e.g. totems</td>
<td>“Our moiety and section systems create inter-linkages between rainforest species and ourselves: in Kuku Yalanji society the two moiety names <em>walarr</em> and <em>dabu</em> refer to the open forest and rainforest bee respectively, while the <em>walarr</em> totem is <em>birrmba</em> the white cockatoo and the <em>dabu</em> totem <em>kunurrbina</em> the black cockatoo” (Patz 2002)</td>
</tr>
</tbody>
</table>
Figure 1 Wet Tropics World Heritage Area
Figure 2: Parallel processes of recognition of rights, cultural values and roles in environmental management to transform a perception and management of a natural landscape into perception and management of a bio-cultural landscape.
RAINFOREST ABORIGINAL TRADITIONAL OWNER GROUPS

ABORIGINAL RAINFOREST COUNCIL & GIRRINGUN

PROJECT PARTNERS
ARC, GIRRINGUN, JCU
FNQNRM, BDT, CSIRO

STEERING GROUP

TECHNICAL GROUP
WTMA, GBRMPA, EPA
DNR&M, DPI&F

Project Coordination:
FNQNRM, ARC, TLJV
(JCU & CSIRO)

Project Coordinator
GIS Officer

MTSRF Indigenous Landsapes Project
Research Team

ARC Intellectual Property
Sub-committee

Cultural re-listing of the
Wet Tropics

Cultural heritage mapping
and planning &
management of country

Training:
GIS, GPS, video,
oral history etc.

Storing and
managing
information

Figure 3: Rainforest Aboriginal governance arrangements for the heritage nomination process
Outstanding universal value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. (Operational Guidelines WHC. 08/01January 2008)

The concept of Indigeneity is highly contested in the academic literature, although Indigenous peoples through the United Nations have maintained that no formal universal definition is necessary. This article is guided by Martinez-Cobo’s (1986) working definition, essentially “Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them”. In this article, we use the term “Indigenous” generically to refer to peoples whose origins fit this description, and the word “Aboriginal” for wet tropics people, according to their own convention.

The World Heritage Convention lists places as either natural, cultural, or joint cultural/natural properties.

Traditional Owners is the term adopted for Rainforest Aboriginal people who hold rights and interests over land and cultural practices according to traditional law and custom.