

Bringing the community into World Heritage through biocultural diversity – issues and policy implications

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Cultural landscapes represent the interface between nature and culture and exist due to the complex interactions between people and the environment over time. Since 1992, the World Heritage Committee has recognised ‘cultural landscapes’ as a category of site within the Convention’s Operational Guidelines. This addition marked a new approach that recognises the linkages between natural and cultural diversity, and acknowledges traditional and local management systems as appropriate forms of protection for globally significant heritage (Rössler, 2005). Eight-six properties, including five trans-boundary properties and one de-listed property have now been included as Cultural Landscapes on the World Heritage List.

Global analyses have now established that areas of high natural diversity co-occur with areas of high cultural diversity. This association between cultural and natural diversity is encapsulated in the term “biocultural diversity”, defined as the total variety exhibited by the world’s natural and cultural systems (Gorenflo et al., 2012). The term denotes three key concepts: (1) the diversity of life includes human cultures and languages; (2) biodiversity and cultural diversity share common links; and (3) these links have developed over time through mutual adaptation and possibly co-evolution. Biocultural diversity recognises that the communities in many world heritage sites are integral to shaping and maintaining biodiversity values—and exclusion of these communities may result in degradation of these values (Loh & Harmon, 2005). Nevertheless, the inter-linkages are not well understood—correlations between natural and cultural diversity could result from co-evolution, asymmetric causation, or other factors affecting both simultaneously. Further insight into these inter-linkages and the biocultural diversity produced through the culturally-embedded practices of associated communities is required to ensure the outstanding values of World Heritage sites are protected into the future.

Biocultural diversity in the Australian continent

In Australia, Indigenous peoples continue to practice land and sea management, often referred to as “caring for country” through a wide range of environmental and cultural heritage management activities. These activities reflect the holistic relationship between Aboriginal and Torres Strait Islander societies and their customary land and sea estates that have existed for at least 50,000 years (State of the Environment Committee, 2011; Hill et al., 2012a). Remote parts of Australia that have been



Tommy George Senior at Giant Horse Gallery Laura Sandstone Escarpment. Photo © Kerry Trapnell



Cassowary plum (*Cerbera floribunda* K. Schum.), recognised by Rainforest Aboriginal people as a vital food source for cassowary © Wet Tropics Images

little modified by industrialisation, once considered “wilderness”, are now recognised as Indigenous cultural landscapes (Hill & Figgis, 1999). The “Vegetation Assets, States and Transitions” framework classifies vegetation by degree of human modification as a series of states, from intact native vegetation through to total removal (Lesslie et al., 2010). Those parts of Australia considered to contain residual native vegetation are shown in Figure 1. Apart from Australia’s southern territories (Macquarie and Heard Islands) that appear to have been unoccupied prior to the 19th century, all of Australia has been shaped, and continues to be in many areas, by Indigenous occupation and management practices. The areas shown as residual native vegetation on Figure 1 are more properly considered residual biocultural diversity.

Indigenous peoples in Australia have long argued that continuation of their presence, and their cultural practices, is vital to the health and well-being of both the land and sea (Rose, 1996). The Australian Government’s funding for Indigenous land and sea management, through programs like the Working on Country Rangers, and the Indigenous Protected Areas, is supporting a renaissance in Indigenous activities to protect and restore biocultural diversity. Indigenous groups all over the continent have responded to opportunities to apply for funds to support their

activities on country (Figure 2). Indigenous people are leading collaborative approaches that support the integration of scientific and Indigenous knowledge in new, effective “two-way” management systems that address contemporary and emerging threats, including climate change and invasive species (Ens et al., 2012). Indigenous governance arrangements are critical here. Indigenous governance systems connect knowledge with rights—knowledge of story (such as dance, song, ceremony) points to the rights and relationships between the knowledge-holder and the country to which the story refers. Indigenous governance provides for the exercise of customary law authority that enables Indigenous peoples to develop innovation that deploys their Indigenous ecological knowledge while maintaining its integrity (Hill et al., 2012b). Therefore managing biocultural diversity and cultural landscapes requires both Indigenous knowledge and Indigenous governance.

Biocultural diversity in the Wet Tropics World Heritage Area

Within the Wet Tropics World Heritage Area (WTWHA), Aboriginal people have occupied the forests and shaped their biodiversity for at least 8000 years (Cosgrove et al., 2007). Twenty distinct tribal groups are recognised as holding traditional connections to the

WTWHA: Bandjin, Djabugay, Djiru, Girramay, Gugu-Badhun, Gulnay, Kunggandji, Jirrbal, Koko Muluridji, Eastern Kuku-Yalanji, Ma:Mu, Mbabaram, Ngadjon-jji, Nywaigi, Warrgamay, Warungnu, Western Yalanji, Yidinji, Yirrganydji and Wulgurukaba peoples. The biocultural inter-linkages are mediated under Indigenous governance through belief systems, social and economic relations, modes of subsistence, knowledge, material culture and languages (Hill et al., 2011a). This landscape of Indigenous biocultural diversity is imbued with deeply significant spiritual meaning, traditional ecological knowledge, human history, cultural sites, useful plant and animal resources, and languages, stories and songs that reflect the bird-songs, insect-calls and other animal voices of the forest.

Collaborative research with Kuku-Yalanji people, traditional owners of the northern third of the WTWHA has identified that their fire practices produce a fine-scale patterning on the heterogeneity of vegetation patterns over both space and time. These Indigenous fire management practices protected both fire-prone and fire-sensitive species, attracting animals, stimulating fruiting of plants, and making food sources abundant, convenient and predictable all year round (Hill et al., 1999; Hill et al., 2004). The influence of Kuku-Yalanji fire management is discernable in small patchers of open forest that would otherwise be rainforest, in yam availability in rainforest margins protected from fires, in clusters of tree nuts species (e.g. *Beilschmiedia bancroftii*) on water courses and close to campsites. Disruption to these Indigenous fire management practices is reflected in rainforest incursions in the previously fire-maintained open forest patches, reducing the overall landscape and plant species diversity. The reapplication of Indigenous knowledge and practices is required to reverse this trend (Hill & Baird, 2003).

Biocultural diversity: implications for World Heritage areas

World Heritage Cultural Landscapes recognise linkages between natural and cultural diversity, and acknowledge traditional and local management systems as appropriate forms of protection for globally significant heritage (Rössler, 2005). Recognition of biocultural diversity is consistent with cultural landscapes but with a nuanced difference: traditional and local management systems are identified as not just *appropriate* but *essential* to maintain globally significant heritage. Currently, few of Australia's World Heritage Areas recognise both cultural and natural outstanding universal values (these include Kakadu, Uluru-Kata Tjuta and Willandra Lakes). Australian World Heritage sites that are known to have been densely occupied by

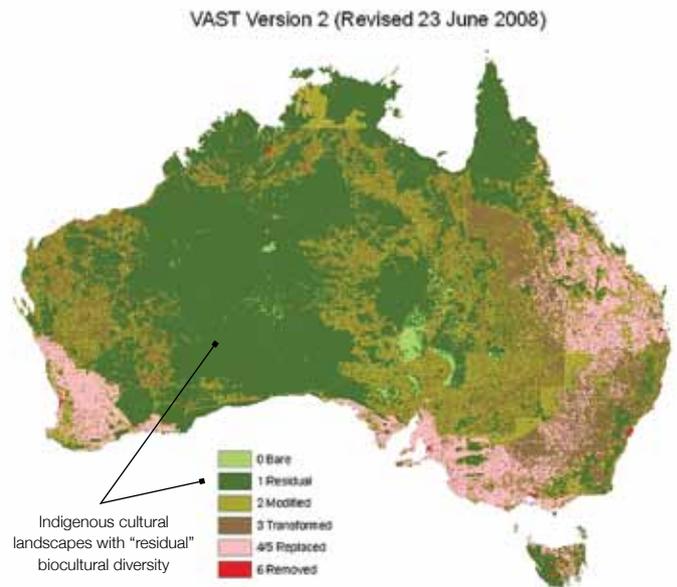


Figure 1: Vegetation Assets, States and Transitions (VAST) classification of Australia showing areas with potential residual Indigenous biocultural diversity (Source: Lesslie et al. 2010). Map re-printed with permission of the Australian Bureau of Agricultural and Resource Economics and Sciences

Indigenous peoples for millennia, whose associations continue today, include the Wet Tropics, Great Barrier Reef, Ningaloo Coast, Purnululu, and others. An assessment of these sites from the perspective of biocultural diversity is clearly critical to identify inter-linkages and potential inter-dependencies between the "natural" heritage being protected, and the cultural practices of the associated Indigenous peoples. Ongoing attrition of the very "natural" values for which the sites are listed may result from a lack of appropriate support for the Indigenous-driven cultural-natural inter-linkages that shape these landscapes.

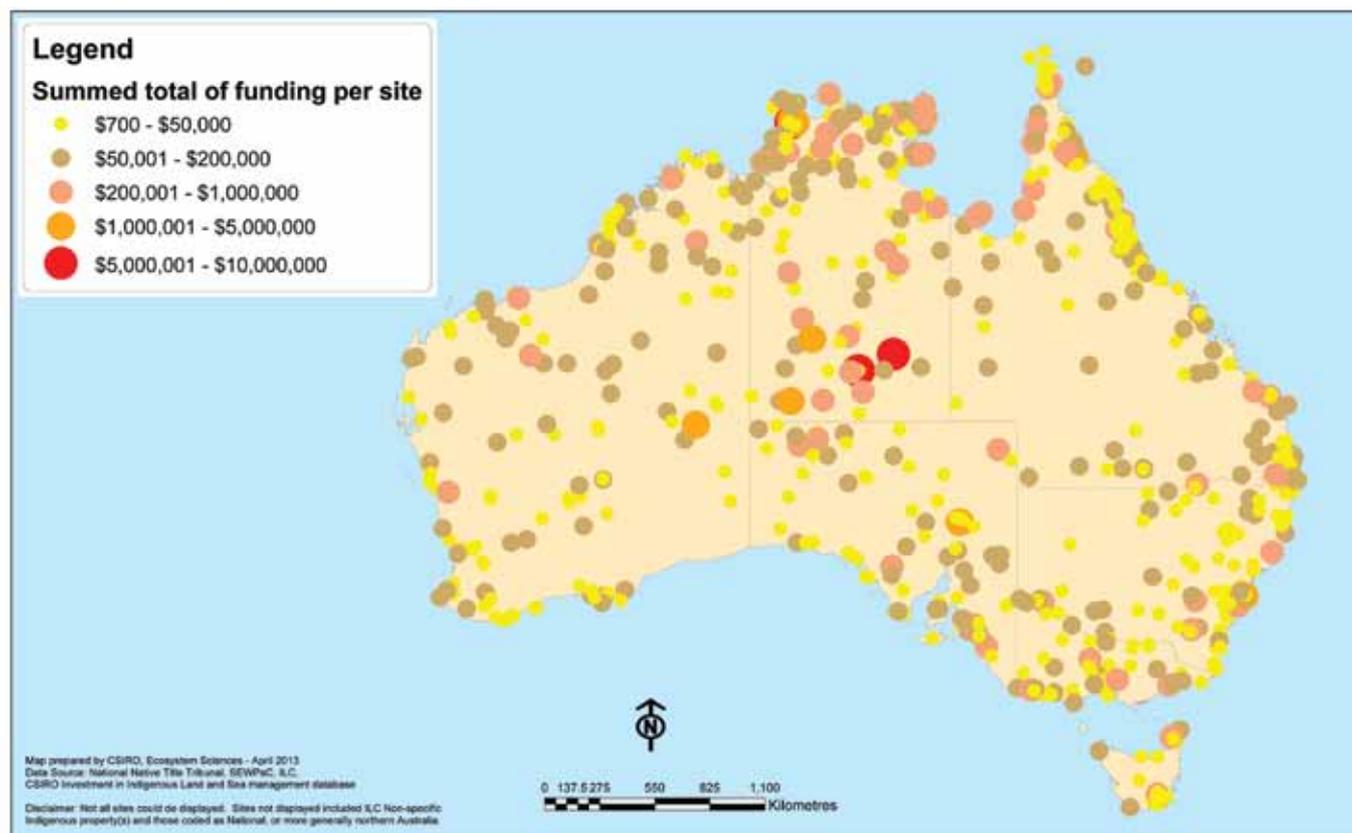
Biocultural diversity assessment is a growing area of endeavour. Traditional Owners in north Queensland, together with CSIRO, the Queensland Government and James Cook University have recently established the Tropical Indigenous Ethnobotany Centre to support Indigenous-driven applications of Indigenous cultural knowledge and practices (Hill et al., 2011b). Globally, biocultural community protocols are gaining recognition as providing a positive framework for assessments of biocultural diversity (Argumedo and the Potato Park Communities, 2011). Assessment and Indigenous-driven knowledge integration activities are a critical first step in understanding the relationships between biocultural diversity and protection of outstanding universal values in world heritage sites. However, protecting biocultural diversity requires appropriate Indigenous governance arrangements that will enable engagement of Indigenous knowledge and cultural practices into environmental management. Indigenous co-governance in World Heritage, through Indigenous

Protected Areas and other effective collaborative approaches that recognise Indigenous peoples' rights, interests and roles are necessary to underpin biocultural diversity management (Hill et al., 2011a).

The future: keeping the outstanding exceptional

Biocultural diversity adds a new perspective on World Heritage Cultural Landscapes; one that requires a shift from accepting traditional and local management systems as not just *appropriate* but potentially *essential* to maintain globally significant heritage. Excitingly, biocultural diversity is now being recognised as a key contributor to local processes of innovation through biocultural design that can explicitly meet communities' contemporary aspirations for sustainable development (Davidson-Hunt et al., 2012). Biocultural diversity assessment and management is potentially a creative arena for catalysing synergies between protecting natural and cultural values, and meeting the pressing development needs of local and Indigenous peoples who inhabit virtually all sites of high natural heritage value globally. We recommend further investigation of biocultural diversity assessment and Indigenous co-governance, as a key means of keeping the outstanding exceptional in World Heritage Areas for now and the future.

Figure 2: Investments in Indigenous projects on-country 2002-03 through to 2011-12, predominantly funded by the Australian Government with the balance from Queensland government and philanthropic sources. (The project investment figures underestimate total investment as the data were sourced only from online sites and documents, and data was not readily available for state/territory investments, other than Queensland, and for other potential investment sources across corporate, research and private providers). Source: Hill et al. 2012a



References

Argumedo, A. and the Potato Park Communities. (2011). *Community Biocultural Protocols: Building mechanisms for access and benefit-sharing among the communities of the Potato Park based on Quechua norms*. ANDES (Peru), the Potato Park Communities and the International Institute for Environment and Development, Cusco, Peru.

Cosgrove, R., Field, J. & Ferrier, A. (2007). The archaeology of Australia's tropical rainforest. *Palaeogeography, Palaeoclimatology, Palaeoecology* **251**: 150-173.

Davidson-Hunt, I. J., Turner, K. L., Mead, A. T. P., Cabrera-Lopez, J., Bolton, R., Idrobo, C. J., Miretski, I., Morrison, A. & Robson, J. P. (2012). Biocultural Design: A New Conceptual Framework for Sustainable Development in Rural Indigenous and Local Communities. *SAPIENS* **5**: 33-45.

Ens, E. J., Finlayson, M., Preuss, K., Jackson, S. & Holcombe, S. (2012). Australian approaches for managing 'country' using Indigenous and non-Indigenous knowledge. *Ecological Management & Restoration* **13**: 100-107.

Gorenflo, L. J., Romaine, S., Mittermeier, R. A. & Walker-Painemilla, K. (2012). Co-occurrence of linguistic and biological diversity in biodiversity hotspots and high biodiversity wilderness areas. *Proceedings of the National Academy of Sciences* **109**: 8032-8037.

- Hill, R. & Baird, A. (2003). Kuku-Yalanji Rainforest Aboriginal people and Carbohydrate Resource Management in the Wet Tropics of Queensland, Australia. *Human Ecology* **30**: 27-52.
- Hill, R., Baird, A., Buchanan, D., Denman, C., Fischer, P., Gibson, K., Johnson, J., Kerry, A., Kulka, G., Madsen, E., Olbar, A., Olbar, L., Pierce, J., Schuan, J., Shipton, E., Shipton, H., Smith, J., Sykes, R., Walker, E., Walker, W., Wallace, P., Yerry, B., Yougie, D., Ball, D., Barney, E., Buchanan, R., Buchanan, R., Denman, H., Fischer, R., Gibson, R., Talbot, L., Tayley, E., Tayley, N., Walker, D., Walker, K., Wallace, M. & Yougie, L. (2004). Yalanji-Warranga Kaban. *Yalanji People of the Rainforest Fire Management Book*. Little Ramsay Press, Cairns.
- Hill, R., Buchanan, D. & Baird, A. (1999). Aborigines & Fires in the Wet Tropics of Queensland, Australia: Ecosystem Management Across Cultures. *Society and Natural Resources* **12**: 205-223.
- Hill, R. & Figgis, P. (1999). A conservation initiative: ACF Wilderness and Indigenous Cultural Landscapes Policy. *Habitat Australia* **27**: 8-10.
- Hill, R., Cullen-Unsworth, L. C., Talbot, L. D. & McIntyre, S. (2011a). Empowering Indigenous peoples' biocultural diversity through world heritage cultural landscapes: A case study from the Australian tropical forests. *International Journal of Heritage Studies* **17**: 571-590.
- Hill, R., Turpin, G., Canendo, W., Standley, P., Crayn, D., Warne, S., Keith, K., Addicott, E. & Zich, F. (2011b) Indigenous-driven tropical ethnobotany. *Australasian Plant Conservation* **19**: 24-25.
- Hill, R., Pert, P. L., Davies, J., Robinson, C. J., Walsh, F. & Faclo-Mammone, F. (2012a) *Indigenous Land Management in Australia. Diversity, scope, extent, success factors and barriers*. Cairns: CSIRO Ecosystem Sciences. Draft Report to the Australian Landcare Council, Cairns.
- Hill, R., Grant, C., George, M., Robinson, C. J., Jackson, S. & Abel, N. (2012b). A typology of Indigenous engagement in Australian environmental management: Implications for knowledge integration and social-ecological system sustainability. *Ecology and Society* **17**: 23.
- Lesslie, R., Thackway, R. & Smith, J. W. N. (2010). A national-level Vegetation Assets, States and Transitions (VAST) dataset for Australia (version 2.0). Canberra: Australian Government Bureau of Rural Sciences.
- Loh, J. & Harmon, D. (2005). A global index of biocultural diversity. *Ecological Indicators* **5**: 231-241.
- Rose, D. B. (1996). *Nourishing Terrains*. Australian Heritage Commission, Canberra.
- Rössler, M. (2005). World Heritage Cultural Landscapes: a global perspective. In: *The Protected Landscape Approach Linking Nature, Culture and Community*. (Eds. J. R. Brown, N. Mitchell & M. Beresford). pp. 37-46. IUCN, Gland, Switzerland and Cambridge, U.K
- State of the Environment 2011 Committee. (2011). *Australia State of the Environment 2011*. Independent report to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (SEWPaC). Department of SEWPaC, Canberra.

Links

Indigenous Australians Caring for Country <http://www.environment.gov.au/indigenous/index.html>

Terralingua. Unity in Biocultural Diversity. <http://www.terralingua.org/overview-bcd/>

World Heritage Centre Cultural Landscapes. <http://whc.unesco.org/en/culturallandscape/>

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Biography

Dr Rosemary (Ro) Hill is a human geographer who specialises in adaptive governance and collaborative planning research with communities at multiple scales to foster sustainability. She has a particular focus on Indigenous peoples' environmental knowledge and management systems. She joined CSIRO in 2006 as a senior scientist, and is currently Site Leader of CSIRO Cairns, and an Adjunct Associate Professor at James Cook University.

Ro is a member of the IUCN World Commission on Protected Areas and the Commission on Economic, Environment and Social Policy. She was appointed by the Australian Minister for Agriculture to the Australian Landcare Council in 2010 and by the Queensland Environment Minister to the Board of the Wet Tropics Management Authority in 2012. She is Vice-President of the Australian Conservation Foundation and a Board Member of Ecotrust Australia.