Prescient Custodians:

Biocultural Ecological Economics and Restorative Governance of the Wet Tropics

A Thesis submitted by

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for the degree

Master of Philosophy (Society and Culture)

College of Arts, Society and Education

James Cook University

August 2022

Acknowledgements

I pay my deep respects to all rainforest Aboriginal peoples, living and past Elders, and the Old People, in expressing my profound love of the Wet Tropics' biocultural spiritscapes, your countries, my home today. Country, culture and people - your kin and my kin - were foremost in my mind for the duration of my thoughts and studies reflected herein. Our collective futures will need truth, trust and respect.

I acknowledge and thank every research participant for your interest in the study, and for your time.

I could not have undertaken this study without the expert guidance and consistent encouragement of my academic Advisors, and the support of staff from the Graduate Research School and the Eddie Koiki Mabo Library, James Cook University. I thank the University for the opportunity to undertake this Masters in Philosophy, and for supporting me in securing a generous, and welcomed, research scholarship. I thank assessment panel members and thesis examiners for their interest and time.

My life partner made it possible for me to concentrate on this business, encouraging me all the way, keeping me well fed, and providing a steady sounding board for my musings - thank you, my love.

This work is dedicated to my mother Anna who breathed, lived and loved our northern tropics, and to my father Helmut who passed on his own knowledge at this same university over many years.

Statement of the Contribution of Others

Supervisory and Intellectual support

Overall research project supervision, data collection, editorial and intellectual support

Professor Allan Dale, Professor of Tropical Regional Development, The Cairns Institute.

Professor Hurriyet Babacan, Professor of Regional Development, The Cairns Institute.

Candidature support

Professor Rosita Henry, Department of Social Sciences, James Cook University.

Associate Professor Simon Foale, Department of Social Sciences, James Cook University.

Dr Nigel Chang, Department of Social Sciences, James Cook University.

SKIP 2021 support

Associate Professor Elizabeth Tynan, Department of Social Sciences, James Cook University.

JCU Human Research Ethics support

JCU Connect Human ethics team members, James Cook University.

Aboriginal and Torres Strait Islander Human Research Ethics Advisor

Associate Professor Felicia Watkin, Indigenous Education and Research, James Cook University.

Research Ethics

Human ethics approval for this research was granted by the JCU Human Research Ethics Committee, as Approval Number H8369 dated 5 May 2021. Informed consent was obtained in writing from each and every research participant in the study, including prior informed consent for all audio recordings.

Research Funding

Australian Government Postgraduate Research Training Scholarship: $57,194 over 2 years.

Australian Government's RTP Fee Offset.

Abstract

This study conceptualises the interrelationships between ecological economics, biocultural concepts, and leading practice governance; all with the aim of informing a restorative governance intervention for the Wet Tropics of Queensland World Heritage Area (the WT WHA), its peripheral buffer zone, and the broader Wet Tropics bioregion. The Wet Tropics of north-eastern Australia encompasses living biocultural landscapes of immense cultural and ecological richness and diversity, protected for their biophysical values at global scale. European settler states across the Australian continent introduced entirely foreign norms for valuing, accessing, possessing, and utilising local biocultural resources. Across the Wet Tropics, this has had profound cultural, ecological, and economic implications at bioregional scale.

Rainforest Aboriginal custodial lands and waters, deeply reshaped by colonisation and the settler state, form the substance of the WT WHA and of its peripheral buffer zone (the buffer). Rainforest Aboriginal custodians maintain their living custodianships of the Area and of the buffer, established over tens of millennia. Their cultural, custodial, and socio-economic ties to country manifest as place-vested relations, and as uniquely diverse complexes of biocultural ecological economic systems. Notwithstanding years of restorative land dealings, governance systems for the Area and its buffer are multi-jurisdictional but remain exclusively framed within the settler state's normative systems, including for the protection of the WT WHA's listed (biophysical) outstanding universal values. As the bioregion's life sustaining core, the impacts of human activities including resource exploitation and native habitat degradation render the WT WHA and its buffer increasingly vulnerable to biophysical stressors and to global heating impacts. The newly acknowledged Anthropocene presents immense challenges for humanity but also a singular potential for radical structural change to governance systems to embed a real sustainability for humanity on Earth.

The study applied critical theory, mixed methods social research, and decolonising research methodologies to define the research question; and to analyse governance and socio-economic systems intersecting with the WT WHA and its peripheral buffer zone. Research was conducted with Indigenous and non-Indigenous participants holding expertise in WT WHA and buffer governance, WT WHA and buffer management, and Indigenous Protected Areas, including related policy. The study explored ecological economic benefits delivered by Indigenous Protected Areas, and their application of biocultural concepts in looking after country. Additionally, the study explored the ecological economic and biocultural ideas of other governance actors within the bioregion.

The study found that Indigenous Protected Areas can be described as biocultural ecological economies, and that Indigenous Protected Areas apply biocultural concepts in their decision-making. Further, the research uncovered novel definitions and interpretations of ecological economics, biocultural concepts, and leading practice governance relevant in the Wet Tropics bioregional context. The study identifies that a new Wet Tropics regionalism in ecological economic understandings may

be emerging, and that place-vested (and transboundary) biocultural principles can inform a new suite of biocultural values and indicators for this increasingly vulnerable bioregion. The study concludes that, together with their diverse partners; Aboriginal custodians and Indigenous Protected Areas can inform a restorative governance of the WT WHA, its buffer, and of the broader bioregion; for the benefit of current and future generations in the face of these mounting vulnerabilities.

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List of Acronyms

CCC	Community Consultative Committee (WTMA statutory advisory committee)
CPR	common pool resource
EE	ecological economics
ENGO	environmental non-government organisation
EPBC	*Environment Protection Biodiversity Conservation Act 1999* (Cwlth)
FG	focus group
FPIC	Free, prior and informed consent (refer to UNDRIP articles 10, 11, 19, 29, 29 and 32)
ILSMP	Indigenous land and sea management program/s
ILUA	Indigenous Land Use Agreement (pursuant to the *Native Title Act 1993* (Cwlth)(Qld))
IPA	Indigenous Protected Area
IPCA	Indigenous Protected Conservation Areas (as dedicated in Canada)
IUCN	International Union for the Conservation of Nature
NCA	*Nature Conservation Act 1992* (Qld)
NHT	National Heritage Trust
NLP	National Landcare Program
NRM	natural resource management
NRS	National Reserve System
OUV	Outstanding Universal Value
PG	participant group
QPWS&P	Queensland Parks & Wildlife Service & Partnerships
RAP	Rainforest Aboriginal People(s)
RNTBC	registered native title body corporate
SAC	Scientific Advisory Committee (WTMA statutory advisory committee)
SES	social-ecological systems
SPA&P	statutory protected areas and partnerships [study data attribute]
Terrain NRM	Terrain Natural Resource Management [Wet Tropics' regional NRM body]
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHA	World Heritage Area
WT WHA	Wet Tropics of Queensland World Heritage Area
WTMA	Wet Tropics Management Authority
WTMP	*Wet Tropics Management Plan 1998* (Qld)

Chapter 1: Towards A Properly Valued, Shared Governance of the Wet Tropics

When you look behind you, you see the future in your footprints.

(Neale, Kelly, & National Museum of Australia, 2020, p. 2)

Australia's wet tropical rainforests comprise the sacred ancestral countries of Rainforest Aboriginal Peoples[1] (RAP), cared for by the Old People and their descendants across millennia. This highly diverse landscape is bestowed with places still present today as enduring legacies of great creation powers; shaped by both natural and human cultural processes, and retained as arrays of rich cultural land-sea and spiritscapes. At the same time, major aspects of RAP ancestral countries form a globally unique world heritage property; recognised by international convention, and governed under Australia's domestic statutory frameworks; with included protected areas forming part of Australia's National Reserve System (NRS) (Figure 1). As a world heritage property, the Wet Tropics of Queensland World Heritage Area (WT WHA, the Area) enjoys certain legal protections for its outstanding universal values (OUVs), presently defined as its biophysical characteristics. Within the mainstream political economy, the Area is largely perceived, utilised, and valued as a normative economic asset. However, the WT WHA is also the core of the Wet Tropics bioregion, extending over some 19,891 kms^2 of northeastern Australia, and of which about 10,541km^2 (53%) is afforded formal protected area status[2]

The Wet Tropics bioregion includes the Area in its entirety, and neighbouring lands functioning as the WT WHA buffer. An increasing proportion of the bioregion is now RAP (re-)owned, (re)managed, or collaboratively managed in partnership with statutory agencies. Although a central 'cog' of the bioregional economy, the WT WHA's existing statutory governance and management policy regimes - as human governance systems - remain largely determined and driven by actors external to the region. Nevertheless, diverse local and regional organisations, comprising individuals of multi-faceted socio-cultural backgrounds and with varying types of cultural connection(s), retain strong and vested interests in the Area, and the wider bioregion. These deeply held, place-vested interests express diverse - and often contrary - values in ecological and biocultural aspects of both the WT WHA, the WHA buffer and the bioregion. In the bioregion's contemporary multi-tenured context, Aboriginal custodians have established, or are initiating, Indigenous Protected Areas (IPAs) as holistic, country-based approaches to assert and express their agency in the WT WHA, its buffer, and beyond.

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[1] 'Rainforest Aboriginal Peoples' is the term I generally used in this thesis, in recognising regional scale representation in a contemporary context. I acknowledge and respect that the Aboriginal custodians of the Wet Tropics bioregion will self-identify in diverse other ways at individual, family, locality, or other levels.

[2] Collaborative Australian Protected Area Database, 2020; Interim Biogeographic Regionalisation of Australia, 2012).

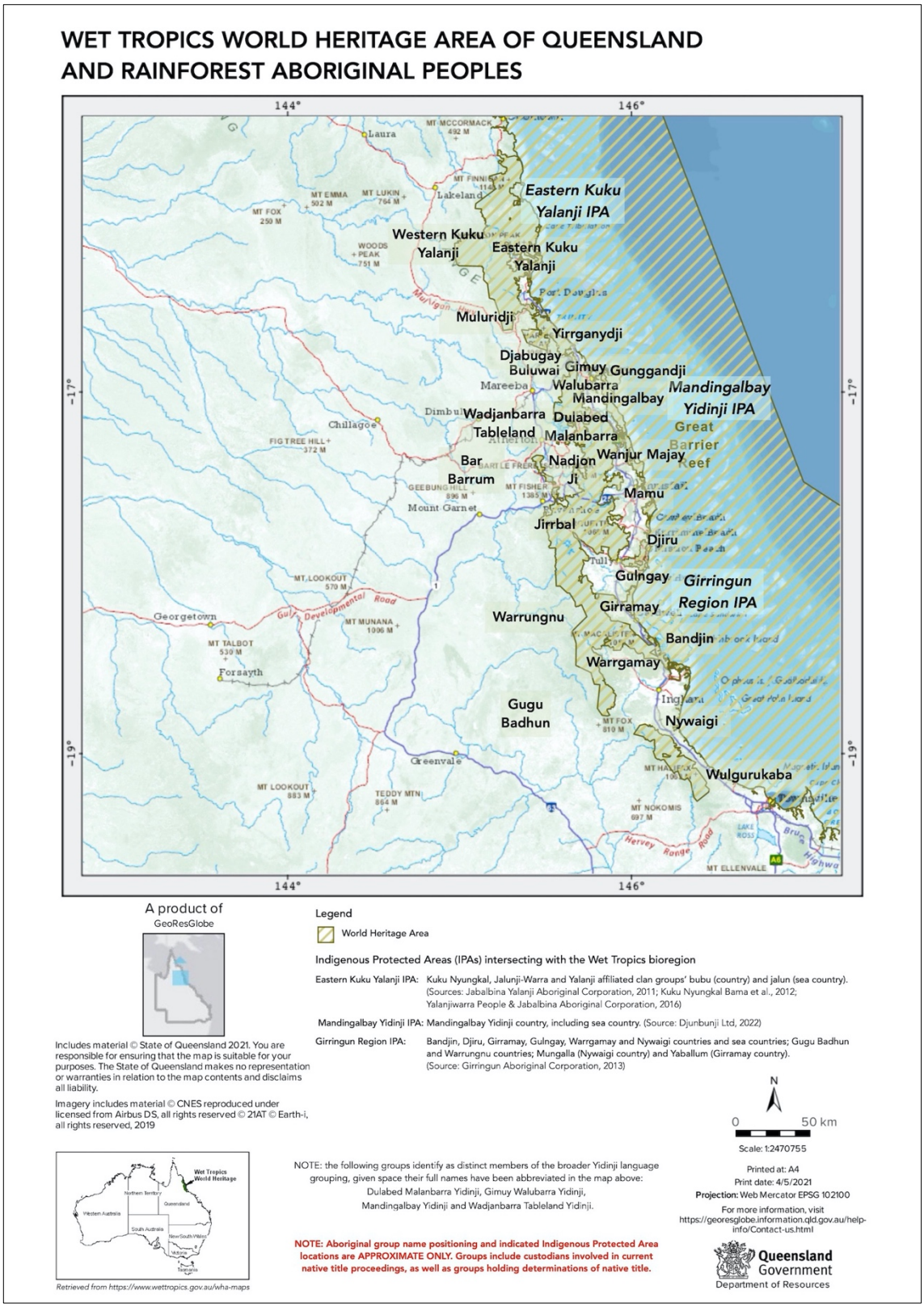


Figure 1. The WT WHA, Rainforest Aboriginal Peoples and generalised locations of extant IPAs. (Sources: Queensland Government GeoResGlobe, 2021; Native Title Vision, 2021)

1.1. World Heritage Governance and the Wet Tropics

World heritage is humanity's promise to ourselves now, and further, on behalf of all future generations, to protect exceptional aspects of our cultural and natural heritage. As an exclusively human undertaking, that promise arises within exceptionally dynamic climatic, ecological, economic, and inter-cultural contexts, at multiple scales (Morrison et al., 2020). As just one example, European-defined development and enjoyment of the conservation estate, as an omni-present aspect of World Heritage 'presentation', proceeded at the historic expense of Rainforest Aboriginal Peoples (Bama Wabu, 1995, pp. 38-39). Rainforest Aboriginal Peoples' early critiques of the statutory system underpinning the Area's legislated governance and regulatory management focused strongly on self-determined responsibility for Aboriginal agency, in addition to the needs for transparent mechanisms to negotiate fair and equitable dealings with agencies (Bama Wabu, 1995; Review Steering Committee, 1998). Having specific regard to the Wet Tropics, three critical factors were earlier identified for the devising and implementation of such mechanisms[3]:

- build in strongly representative authorisations from clearly identifiable constituent groups [based on cultural authority], with the ability and capacity [sustained resourcing] to fully and equitably participate in any policy development and accountability mechanisms;
- ensure every party has its facts right before undertaking its own pre-planning or prior to any negotiations commencing, with a commitment to data sharing where culturally and politically feasible; and
- adopt a firm commitment to effective [i.e. meaningful] bargaining and negotiating, including an initial requirement of recognition and respect for the legitimacy of the rights and interests of the other [party or] parties involved.

Planning, negotiation and dedication of IPAs within the Wet Tropics over the past decade, and substantive ongoing sustained investment into the region's existing (and proposed IPAs) attest to IPAs and partnering agencies developing more relationist relationships (Djunbunji Ltd, 2022; Girringun Aboriginal Corporation [Girringun], 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina Aboriginal Corporation [Yalanjiwarra People & Jabalbina], 2016). IPAs in the Wet Tropics represent a direct, and self-determined, Aboriginal intervention in how a restorative governance of the Area, and its OUVs, actually proceeds as discrete, place-based forms of biocultural ecological economy.

[3] The listed points are taken and adapted from Dale cited in Review Steering Committee, 1998, p. 76.

The *World Heritage Convention* (the Convention) fundamentally aims to protect heritage considered to be of globally outstanding value, and therefore in need of being preserved and transmitted as part of the world heritage of humanity (United Nations Educational, Scientific and Cultural Organization [UNESCO], 1972). The Convention states that:

> "...in view of the magnitude and gravity of the new dangers threatening them, it is incumbent on the international community as a whole to participate in the protection of the cultural and natural heritage of outstanding universal value by the granting of collective assistance which, although not taking the place of action by the State concerned, will serve as an efficient complement thereto,"
>
> and;
>
> "... it is essential for this purpose to [enact]... a convention establishing an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organised on a permanent basis and in accordance with modern scientific methods" (UNESCO, 1972, preamble).

Of critical importance for this thesis are the present and acute new processes and dangers facing the WT WHA and their implications for world heritage governance, enacted through the State Parties to the Convention. Present and acute new processes refer to the explicit threats - to life on Earth, to humanity, and to human heritage - arising from the anthropogenically driven climate crisis (Morel & oud Ammerveld, 2021; Wet Tropics Management Authority [WTMA], 2019). Additionally, biosecurity impacts and risks arising from a diverse range of human activities have major implications for the integrity and capacity of ecological systems and functions, and this is also the case for the WT WHA and its buffer, e.g.: yellow crazy ants (among other serious invasive species impacts) (Lach & Hoskins, 2015). Given the escalating "bioeconomic costs" imposed by pests and diseases on the Australian economy, environment and community; recent research has modelled a "biosecurity system", a concept also relevant to Australia's national and international heritage protection obligations (Dodd et al., 2020, p. 1). Biosecurity, including related fee-for-service, is one aspect of the significant and growing extent of on-ground collaborative management delivered by the region's IPAs.

The Australian Government is the State Party for every listed and potential Australian world heritage property, including the WT WHA. Solutions for world heritage protection (and for threat reduction), require efficient complementary and collective assistance; State [Party] action; an effective system of collective protection; and reliance on modern scientific methods (UNESCO, 1972). In these processes, the State Party's biopower arising from normative determined power-knowledge prevails (Foucault, 2003). For this thesis, the biopower concept is taken as just one aspect to human systems -

as historically contextualised operational technologies or mechanisms - of power relations, commonly expressed as “governance” (Cavanagh, 2018, p. 404). Cavanagh's (2018) insights into the Foucauldian conceptualisation of the *milieu* are instructive here. The sovereign (i.e.: the State Party) manages myriad intersections and interrelationships between human-ecological systems; i.e. the *milieu*, which Foucault describes as “the [artificial] co-production of 'natures' and 'human natures' through the practice of government” (Cavanagh, 2018, p. 406). Specifically;

> “[...] the sovereign will be someone who will have to exercise power at that point of connection where nature, in the sense of physical elements, interferes with nature in the sense of the nature of the human species, at that point of articulation where the milieu becomes the determining factor of nature. This is where the sovereign will have to intervene, and if he wants to change the human species [...] it will be by acting on the milieu” (Foucault, in Cavanagh, 2018, p. 406).

Any danger to a world heritage property presents real implications for the Convention's charge on humanity to identify, protect, conserve, present and transmit cultural and natural heritage of outstanding universal value to future generations (Khalaf, 2021; Mackay, 2013). Processes for placing a listed property on the World Heritage In Danger List are complex, contested and political, with considerations frequently mitigated through short-term (and routinely politicised) diplomatic effort, in effect delaying real action to avoid further endangerment of OUVs (Brown et al., 2019; Hølleland et al. 2019). In the face of significant challenges to the world heritage system, Khalaf (2021) proposes the concept of continuity as a revitalising driver for world heritage governance and management under the Convention's Operational Guidelines. Continuity implies, amongst other aspects, “bridging the nature-culture divide to maintain linkages, insoluble bonds, and interactions between people and properties”, and enhancing “the role of communities in World Heritage management to better respect their needs and rights” (Khalaf, 2021, p. 102).

Under its charter as the Area's governing statutory authority, the Wet Tropics Management Authority (WTMA, the Authority) places explicit emphasis on the WT WHA's role in playing “a function in the life of the community”, and in the protection of the Area's OUVs through “collaboration, culture, knowledge and passion” (Wet Tropics Management Authority [WTMA], 2020, p. 4). Institutionalised governance arrangements have not substantively changed since their inauguration in the 1990s (McDonald & Lane, 2000). In the face of the escalating climate crisis, innovative decision-making systems are needed to realise the desired efficient, complementary, and collective assistance to protect listed OUVs, and arguably more so from the perspective of continuity. Continuity here directly references the extensive and ongoing duration of Aboriginal peoples' occupation of the region now

known as the Wet Tropics of northeastern Australia, over countless generations: in the peoples' own words, “since time immemorial” (Bama Wabu, 1996, p. 6).

Through several processes, Aboriginal custodians of listed properties in Australia have expressed serious concerns about the limitations of the world heritage system's capacity to offer and embed respectful, and meaningful, recognition of Indigenous spiritual, cultural and other values as part of that system's statutory and regulatory mechanisms (Grant, 2013; Talbot; 2017). Demonstrating alternative, more empowering outcomes, the 2019 world heritage listing of the Budj Bim Cultural Landscape, Gunditjmara country, is grounded in integrated restorative governance and land justice approaches (Jackson, 2022; Weir, 2009). In the reconnection of invasion-splintered country as a Gunditjmara (re)vested cultural landscape, and in Gunditjmara country's global recognition as a holistic, living cultural landscape; the pervasive under-recognition and under-valuing of Indigenous cultural values (and norms) within the world heritage system starts to be addressed to an extent (Bell & Johnston, 2008; Smith et al., 2019). The lengthy and sustained efforts of Gunditjmara peoples in gaining the strongest level of global recognition (and domestic protections) for country cannot be discounted. However, every, and any, listed property represents fundamental relationships to and with Place[4]; the myriad (hi)stories of (and from) Place; and what has come before in terms of prior recognised OUVs. Relisting the Wet Tropics WHA to facilitate an international recognition of Rainforest Aboriginal cultural values, is a stated aim of Rainforest Aboriginal Peoples (Cultural Values Project Steering Committee [CVPSC], 2016).

1.1.1. Mechanisms for World Heritage Governance

The *World Heritage Convention* (the Convention) is a rationalist framework for the protection of natural (biophysical) and human cultural OUVs (Orbaşli, 2017; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021). The *Operational Guidelines for the Implementation of the World Heritage Convention* (the Operational Guidelines) define Outstanding Universal Value as:

> “...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,“ and, that:
>
> “As such, the permanent protection of this heritage is of the highest importance to the international community as a whole... “ (UNESCO, 2021, paragraph [para.] 49).

[4] This work uses the terms 'Place' and 'place': the former references the relationist theory of Place as conceptualised by Graham (2009; 2014); and the latter is used as a common noun or verb.

The Operational Guidelines are administered by the United Nations Educational, Scientific and Cultural Organization World Heritage Centre in its capacity as the Secretariat for the World Heritage Committee (UNESCO, 2021, para. 3c). The Convention binds its ratifying State Parties (United Nations member nation states), who "are encouraged to adopt a rights-based approach, and ensure gender-balanced participation of a wide range of stakeholders and rights-holders, including site managers, local and regional governments, local communities, indigenous [sic] peoples, non-government organisations [and others] in the identification, nomination, management and protection processes of World Heritage properties" (UNESCO, 2021, para. 12). The World Heritage Committee is made up of 21 member State Parties and is required to base its decisions on objective and scientific considerations, informed by "carefully prepared documentation"; "thorough and consistent procedures"; "evaluation by qualified experts"; and, as required, "expert referees" (UNESCO, 2021, para. 19 & para. 23).

Several advisory committees inform and assist in the decision-making of the World Heritage Committee: the International Centre for the Study of the Preservation and Restoration of Cultural Property, the International Council on Monuments and Sites and the International Union for Conservation of Nature (IUCN). The *Operational Guidelines* provide formats for State Party self-reported Periodic Reporting required every six years (UNESCO, 2021, Annex 7) and more frequent State of Conservation Reports outlining reactive monitoring by a State Party (UNESCO, 2021, Annex 13). The *State of the Wet Tropics Report 2020-2021*, the most recent report for the WT WHA, focuses on biodiversity and ecological restoration at the commencement of the United Nations Decade of Ecosystem Restoration 2021-2030 (Wet Tropics Management Authority [WTMA], 2021). Reactive monitoring aligns with, and supports, listed property assessment over time, and the implementation of the Convention's World Heritage in Danger listing procedures (UNESCO, 2021, Part IV).

1.1.2. Governance of the Wet Tropics World Heritage Area

The annual State of the Wet Tropics Report is a requirement of the *Wet Tropics World Heritage Protection and Management Act 1993* (Qld) and the *Wet Tropics of Queensland World Heritage Area Conservation Act 1994* (Commonwealth) (WTMA, 2021), as the primary legislative framework underpinning the governance of the WT WHA as a listed property. These statutes also intersect with major environmental protection and ecosystem management laws at state and national levels: e.g.:. the *Nature Conservation Act 1992* (Qld) (the NCA), the *Vegetation Management Act 1999* (Qld) (the VMA) or the *Environment Protection Biodiversity Conservation Act 1999* (Commonwealth) (the EPBC Act). The *Forestry Act* (Qld) applies for significant parts of the WHA buffer. However, despite Australia being a signatory to the Paris Agreement, these laws operate in isolation from any current state or

national greenhouse gas abatement legislation, and there no legal or policy framework at any Australian government level explicitly tying biodiversity harm and habitat loss reduction (ecosystem conservation) to (greenhouse gas) emissions reduction (Currell et al., 2020).

Following the 2022 federal election, the national legislative and policy context has potential to shift toward an integration of decarbonisation into economic decision-making (Grattan, 2022). However the nature of associated deeper structural change (if any) in terms of Australia's political economy system remains unclear. Until most recently, Australia has long been perceived internationally as having no effective or sustained policy regime for robust climate mitigation (Crowley, 2021). Systemic complexities at multi-level conceptual, jurisdictional, governance and political-economy scales have contributed to the delay in effective and meaningful policy reform at the national level (Daley, 2021; Daniell & Kay, 2018; Head 2014). Nevertheless, Crowley (2021) does find that innovation in lower carbon economies has been taking place at the sub-national level, including the adoption of explicit net zero emissions strategies, amid perceptions that "the structural context of climate action is changing as the economic and employment benefits [of such investment] steepen at the expense of fossil fuels" (2021, p. 7). The pervasive lack of effective whole-of-economy policy reform over past decades, essential to enabling the deep structural changes imperative in the immediate term, is partly attributed to the influence of vested commercial interests on successive national and state administrations (Crowley, 2021; Currell et al., 2020; Daley, 2021). That long-standing lack of coherence in a nationally consistent, emissions reduction regulatory framework has global implications, threatening the fragile and increasingly vulnerable integrity of the Wet Tropics bioregion, the WT WHA and the Area's buffer[5] (Maraseni & Reardon-Smith, 2019; Weber et al., 2020).

The Australian Government, as the State Party for the Convention, resources governance and management of the WT WHA in close association with the Queensland Government. Governance of the WT WHA is vested in WTMA as the responsible statutory authority established under the *Wet Tropics World Heritage Protection and Management Act 1993* (Qld) and the *Wet Tropics of Queensland World Heritage Area Conservation Act 1994* (Commonwealth). The Authority has a Board, whose members are variously appointed by Commonwealth and State ministers (generally the ministers holding environment portfolios), with two Rainforest Aboriginal identified Board positions. The present Chairperson is a Rainforest Aboriginal person, appointed for their explicit world heritage expertise (Wet Tropics Management Authority [WTMA], 2021b). Major WTMA policy initiatives,

[5] In effect, WT WHA adjacent statutory regimes (also policies) regulating resource extraction, land use and management activities on strategic environmental areas, conservation and other land tenures (Figure 5).

statute reviews or amendment of regulatory instruments such as the *Wet Tropics Management Plan 1998* (the WTMP) require governor-in-council (cabinet-level) consent.

The WTMA Board is supported by ministerially appointed statutory advisory committees: the Community Consultative Committee (CCC) and the Scientific Advisory Committee (SAC), respectively comprising skills-based community representatives and expert scientists[6]. The CCC and the SAC each have two Rainforest Aboriginal members. Statutory Rainforest Aboriginal advisory arrangements remain under progressive review and realignment, these in turn are influenced by the evolving dynamics of regional treaty-making and reparations processes, and a 'refresh' review of the *Wet Tropics Regional Agreement* (Wet Tropics Management Authority [WTMA], 2005). The present WT WHA management budget allocations (2018-19 to 2022-23) total in the order of A$4.5M p.a., made up of A$2.7M p.a. (Australian Government contribution) and A$1.8M p.a. (Queensland Government contribution) (Commonwealth of Australia, 2018). The Authority's operational income was $13.105M for the 2020-2021 financial year, with $11.568M expended over the same period (WTMA, 2021).

The Authority partners with various institutional actors including:

- the Australian Government Department of Climate Change, Energy, The Environment and Water[7] (DCCEEW);
- Queensland Parks and Wildlife Service and Partnerships (QPWS&P);
- the Queensland Government Department of Environment and Science, and the department's Science Branch and the Office of the Great Barrier Reef;
- the Queensland Government Department of Aboriginal and Torres Strait Islander Partnerships;
- Biosecurity Queensland (within the Department of Agriculture and Fisheries);
- local government - including the peak body Far North Queensland Regional Organisation of Councils (FNQROC);
- regional natural resource management (Terrain NRM, originally FNQ NRM Ltd);
- the conservation sector at local, sub-regional and regional levels;
- the tourism industry (through Tourism Tropical North Queensland);
- native title representative bodies (e.g.: North Queensland Land Council (NQLC)); and

[6] I declare that I am a past and current serving member of the Wet Tropics Management Authority Community Consultative Committee, and that I professionally facilitated the initial Girringun Region IPA.

[7] The Australian Government's administrative arrangements for World Heritage and environmental matters, including carriage of the EPBC Act, were transferred from the former Department of Agriculture, Water and the Environment (DAWE) to DCCEEW following the 2022 Australian federal election.

- registered native title bodies corporate.

Day to day statutory management of the Area is led by QPWS&P, but is increasingly frequently being delivered through collaborative management arrangements like Indigenous Protected Areas (IPAs). IPAs are driven by locally or sub-regionally aligned Rainforest Aboriginal Peoples organisations, and RAP-affiliated ranger groups which are resourced through Commonwealth and State programs[8], amongst other means. There are three existing IPAs in the Wet Tropics bioregion: the Eastern Kuku Yalanji Indigenous Protected Area (the Eastern Kuku Yalanji IPA); the Girringun Region Indigenous Protected Areas [9] (the Girringun IPA); and the Mandingalbay Yidinji Indigenous Protected Area (the Mandingalbay Yidinji IPA). Community partnerships facilitated by the Authority emphasise the unique custodianships and living responsibilities Rainforest Aboriginal Peoples maintain with their countries to this day (WTMA, 2020, pp. 14-16). Other WTMA community partnerships engage with local and regional conservation organisations; the education sector; and research institutions (WTMA, 2020). WTMA partnerships are increasingly framed in the context of climate change adaptation, and the collaborative implementation of strategic biosecurity containment (Weber et al., 2021; WTMA, 2019).

1.2. Remedying a Break in Governance Continuity?

The 1988 world heritage listing of the Area for only its natural OUVs was seen at the time to have effectively "neutralised" the diversity and the vibrancy of the many original meanings embedded in RAP custodians' living cultural landscapes, "all but emasculating political contestation" (Pannell, 2006, p. 16). Prior to the listing, scientific and conservation interests had provided a report outlining their case for international protection of the northeast rainforests to the Australian Heritage Committee (Rainforest Conservation Society of Queensland [RCSQ] & Australian Heritage Commission [AHC], 1986). In their report, the authors' acknowledged that "the section between Cooktown and Cardwell contains the only recognised Australian Aboriginal rainforest culture and is therefore a significant component of the cultural record of aboriginal society which has the longest continuous history in the world", whilst referencing "[one] of the largest rainforest and wilderness areas in Australia [centring] around the Daintree River valley" (RSCQ & AHC, 1986, p.3[10]). Further, the 1986 report states; "[the] oral pre-history of this surviving Aboriginal rainforest culture is the oldest known for any non-literate indigenous people... [the area] contains the only remaining, functioning Aboriginal

[8] Investment by specific IPA or ranger group is difficult to ascertain as an IPA and/or ranger host entity is directly contracted by state or Commonwealth agencies for associated delivery, and such contracts are not in the public domain; with related budget measures and public funding data pooled by allocation or by program.

[9] The Girringun IPA is of sub-regional scale, and inclusive of Yabullum Nature Refuge and Mungalla.

[10] RSCQ & AHC (1986) variably capitalise certain terms; all included quotes are as originally written.

culture using the coastal environment anywhere on the east coast of the mainland" (RSCQ & AHC, 1986, p.3). Nevertheless, together with the political preferencing of conservation over state rights (and Aboriginal land rights), the emphasis placed on Enlightenment derived science in the report's recommendations, and throughout the world heritage nomination process (including within nomination documentation), led to an entrenching and (re)assertion of regional Aboriginal identity and political activism (Bama Wabu, 1996, Pannell, 2006).

Writing critically from the Aboriginal perspective, Gilbert (1977) wrote about Aboriginal peer-to-peer learning and organisation in the generation of new approaches and opportunities for Aboriginal self-determination, and for the obtainment of greater rights of redress to historical and ongoing injustices. In contextualising the break in Aboriginal governance continuity following European invasion, Gilbert (1977) says:

> The original Aboriginal people lived in a delicate ecological balance with their environment. This balance allowed them to follow a way of life that set them free from material burdens so that they could lead an extraordinarily rich spiritual life. The traditional Aboriginal was drunk on religion, intoxicated by the metaphysics expressed through the physical features of his land.
>
> European invasion quickly destroyed the balance between Aboriginal and nature as the land was taken and the ecology altered by the introduction of cattle and sheep... The loss of land meant the loss of a metaphysics too, because the two were inextricable.
>
> As Aborigines began to sicken physically and psychologically, they were hit by the full blight of an alien way of thinking... hit by the intolerance and uncomprehending barbarism of a people intent only on progress in material terms, of people who never credited that there could be cathedrals of the spirit as well as of stone. White people's devaluation of Aboriginal life, religion, culture and personality cause the thinking about self and race that I believe is the key to modern Aboriginal thinking... Modern Aboriginals are the victim of this train of historical events (pp. 2-3).

Rainforest Aboriginal Peoples of the Wet Tropics not only consider their respective countries to be imbued with intimate Country-Kinship-Culture (or 'kin-country-culture') relationships, but as existentially (in)formed by Place and biocultural phenomena manifesting as living spirits (Wet Tropics Plan Project Team [WTPPT], 2005). The enduring power of creation beings continues to exist where

they “place themselves in the landscape”, in establishing the fundamental relationships between people and the natural order (Rainforest Aboriginal Peoples' Alliance [RAPA], 2013, p. 55). The Wet Tropics are deeply humanised cultural landscapes, where a cultural landscape “captures the relationship between Traditional Owners and the environment, [directing] our attention away from looking at Aboriginal space as a collection of disconnected sites or places” (WTPPT, 2005, p. 35).

These connections are relationist, custodial and enduring (Graham, 2012; Lee, 2017). In asserting their rights at diverse levels of cultural authority, Rainforest Aboriginal People are confirming and reaffirming their socio-political identity groups' “being made corporate by its birth from ancestral beings upon an area which became identifiable as a territory at the moment of birth of the group with whom the territory is identified” (Davis & Prescott, 1992, p. 132). Principles of identifying clan or language group domain boundaries or frontiers (or both) are embedded in languages far more complex in structure than those of Europe, and these are transmitted along song lines as inheritances (Dixon, 2019). This technique enables negotiation of permitted access to (shared) resources; with boundaries defined through oral traditions; the law of the land and customary practices in accordance with diverse place-centric instructions as set out by creation beings and/or ancestral spirits (Davis & Prescott, 1992). Other, more recently published Aboriginal academics, intellectuals, and critical thinkers further explore these central tenants of asserted rights, sovereignty and redress; e.g.: Brigg and Graham (2020a; 2020b; 2020c; 2020d); Gertz (2019; 2020); Larkin and Rigney (2021); Lee and Eversole (2019); Moreton-Robinson (2015); Petray and Gertz (2018); and tebrakunna country and Lee (2019).

Aspects of self-determined Aboriginal agency are also evident in the strategic and individual engagement of Rainforest Aboriginal Peoples with the WT WHA governance system over time (e.g.: Bama Wabu, 1996; Review Steering Committee, 1998; Talbot, 2017; Turnour & Cultural Values Project Steering Committee [CVPSC], 2016). RAP agency rests on - and vests in - in cultural authority, articulated more recently at regional level through a consolidation of Rainforest Aboriginal identity since the 1988 WT WHA's declaration, in the absence of their free, prior and informed consent (Bama Wabu, 1996; Buhrich et al., 2016). Recent consolidations of RAP self-identity are characterised by diffusion (or splintering) as ostensibly tactical (re)positionings among language groupings or clans, and by their strategic pan-regional or sub-regional alliances (Buhrich et al., 2016). Rainforest Aboriginal agency is further expressed through selective, self-determined engagement, dis-engagement and/or re-engagement with settler state imposed systems of protected area governance, representation and day-to-day management, with respect to the WT WHA and its institutional arrangements, as well as at pan-regional scale (Bama Wabu, 1996; McDonald & Lane, 2000; Cultural Values Project Steering Committee [CVPSC], 2016). Reality reflects the living continuity in Rainforest Aboriginal governance of

country despite imposed systems, where the policy intervention now required is culturally inclusive systems.

1.3. Representation Over Time: Under-resourced and Non-inclusive System Processes

Rainforest Aboriginal Peoples see the arrival of Europeans from the 1860s onwards as the greatest disruptions and depravations their diverse peoples, their Ancestors and Old People, had ever experienced across their histories, spanning thousands of years of continuous occupation of the wet tropical rainforests (Bama Wabu, 1996). With the arrival of European timber cutters in 1874, everything changed. Gaining an equitable presence in the colonially birthed and shaped systems of modern Australia is an unabating struggle for respectful and meaningful recognition, directly driven by Aboriginal and Torres Strait Islander self-determination and agency (Sullivan, 2018). Accommodation of an Indigenous worldview or the acceptance of Indigenous values are seldomly fully afforded as, inherently, settler colonialism's "governing logic is one of elimination" (Wolfe, 2000, p. 131). Instead, alien values are unilaterally imposed on the original peoples and their original countries (Reynolds, 1992). Assuredly not a relic feature of the past; these skewed and abusive power relations continue to underpin Australian institutions and their fragmented and transactionally-focused policy-making into the present (Ritchie, 2021b). This is evident in the deliberate, restrictive, and ethno-centric framing of Indigenous values as "cultural"; in the ongoing mainstream silences surrounding Aboriginal and Torres Strait Islander permanency of occupation as settlement in its own right; in the inferior ranking of "cultural values"; and in a perpetual legal and constitutional denial of first sovereignty (Moreton-Robinson, 2015).

Delimited legal recognitions afforded through exhaustive litigation (including native title) are in effect designed to corral the original peoples' rights and interests, so that the 'progress' of the dominant colonially instituted society maintains unfettered access to country, and to its resources (Wolfe, 2000). Human economic and governance systems that enable modern Australia are designed to facilitate capitalist growth precisely because the endless growth model is seen as salvation for the meritorious, in the claiming of dominion over diverse frontiers, and not as a seriously compromised ideology for a finite planet (Coffey & Marston, 2013). Conversely, human systems underpinning the original peoples' traditional societies and pre-European economies were explicitly framed to respect and replenish the biophysical limits of country, because Indigenous cultural norms went to the heart of the matter of (individual and group) survival (Pannell, 2006). Contrary to the rhetoric, current socio-economic systems are non-inclusive, redolent of a multitude of fragmented hierarchies, embedded within or favoured by the State's biopower (Foucault, 2004). Here I adopt a definition of biopower

grounded in political ecology, where Foucault's concept is interpreted as placing an “explicit focus on power and asymmetrical power relations”; and where the “normative vision” of human governance systems is backed in by the social sciences' “power-knowledge (Cavanagh, 2018, p. 405). The (human and non-human) 'Other' remains just that: marginalised, ostracised, denigrated - not worthy of representation in the national constitution - a bit player in the mainstream flow of “progress” (Larkin & Rigney, 2021). Until most recently, this has largely been the case for the WT WHA and the buffer.

1.2.1. Governance Representation Evolves

The IUCN defines a typology of four governance categories for listed World Heritage areas or places: i) governance by government; ii) shared governance; iii) private governance; and iv) governance by Indigenous peoples and local communities (Borrini-Feyerabend et al., 2013). The WT WHA is governed by government - legislation enacted by the Australian government (the Convention State Party) and the State of Queensland (the landholder) underpins the protection of listed OUVs, and governs the actions of WTMA. Nevertheless, the statutory authority does exhibit limited elements of shared governance, for example, a multiparty governance institution, albeit embedded within the Queensland Government bureaucracy (Borrini-Feyerabend et al., 2013; WTMA, 2021). Earlier typological analyses of Rainforest Aboriginal Peoples' caring for country (land, sea and resource management) governance is described in various published formal reports and journal articles (e.g.: Cullen-Unsworth et al., 2012, Hill et al., 2012). Representation of RAP interests within the Area's formal governance system has varied over time (Dale et al., 2000). Various iterations of RAP advisory networks and statutory mechanisms have arisen and been superseded since the early 1990s:

- Bama Wabu Rainforest Aboriginal Corporation: co-compiler of rainforest custodians' 1996 Wet Tropics Plan submission '*Reasonable Expectations or Grand Delusions'*;
- Rainforest Aboriginal Network: loose RAP network, rights and interests focus;
- Interim Negotiation Forum (IMF): facilitated 2005 *Wet Tropics Regional Agreement*);
- Aboriginal Negotiating Team: lead IMF in Regional Agreement negotiations;
- Aboriginal Rainforest Council: representative party to the 2005 Regional Agreement;
- Traditional Owner Advisory Committee: RAP advisors to FNQ NRM Ltd;
- Rainforest Aboriginal Peoples Alliance: interim RAP representative forum;
- Traditional Owner Leadership Group (TOLG): RAP leadership of appointed and/or elected RAP representatives (largely drawn from the WTMA Board, CCC and SAC; Terrain NRM Board and NQLC Board of Directors); and
- Rainforest Aboriginal Peoples' Think Tank: present iteration of earlier TOLG.

Rainforest Aboriginal Peoples' governance of their country is routinely reduced to aspects of the 'cultural' or the 'spiritual', ultimately determined or defined for inclusion (or not) by the institutional parameters of entities constructed under settler state colonialist prerogatives (Moreton-Robinson, 2015; Wolfe, 2006). The design and effect of settler-colonial institutions is to obscure the coherence and holistic standing of Rainforest Aboriginal Peoples in a temporal policy blizzard (Strakosch & Macoun, 2012). World heritage governance mechanisms in Australia have had a history of Aboriginal exclusion (Carter, 2010). The agency of Rainforest Aboriginal Peoples in moving beyond these deliberately narrowed and biased precepts is evident across the bioregion, at all scales relevant to their governance, from:

- an individual's agency in line with apical ancestry and bloodline lineage(s), validated by customary protocol, or other culturally accepted kin-country connections; to
- the integral role of families to the functions of 'barra' and 'warra' (locality or clan) groups; to
- multi-family identity groups (sometimes called tribal groups); through to
- language groups / language-based nations.

All of these scales are represented within the host entities of the bioregion's three IPAs, and their Aboriginal ranger operations within the bioregion, extending as transboundary arrangements across the multiple jurisdictional and administrative boundaries imposed on Rainforest Aboriginal People's countries (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016). IPAs are areas of land and/or sea voluntarily dedicated by their traditional custodians for the purposes of protecting and conserving cultural and ecological matters of significance, and, depending on the IUCN protected area category assigned, can permit low-impact socio-economic development (Smyth, 2015). IPAs are governed by their respective Aboriginal or Torres Strait Islander custodians through legal or other effective means on exclusive possession and non-exclusive possession lands (the latter through collaborative management arrangements or Indigenous Ranger groups, for example) (Smyth et al. 2016). For existing declared protected areas, such as those within the WT WHA, the originally assigned IUCN category remains. Australia's Indigenous Protected Areas program was established in the mid 1990s under the then Howard government's National Heritage Trust (NHT), as a component of the National Landcare Program (NLP). The IPA program remains resourced under the latter program. The NHT is considered to be an example of relatively positive policy-making by the Australian government on the basis of its original policy aims, program objectives and model of decentralised implementation; including the delivery of NLP funded regional natural resource management (NRM) (Samnakay, 2020).

Earlier research has engaged with some of the bioregion's IPAs and their co-management partners; identifying that collaborative governance involved "a continual solution building process not a fixed date involving extensive talking, negotiations and jointly learning, so it gets better over time" (Hill et al., 2014a, p. 31). IPAs and Ranger groups are highly effective mechanisms, on the basis of "their capability to be adaptive and collaborative;" and their provision of "a context that supports wider recognition of the rights and responsibilities of Indigenous peoples, and the ongoing project of reconciliation in Australia" (Hill et al., 2014a, p. 31; Hill et al. 2014b). Although acknowledged as a "vitally important mechanism", Indigenous Land Use Agreements (ILUAs) were considered "highly problematic, with conflictual negotiations and static agreements that do not provide for adaptive, collaborative management" (Hill et al., 2014a, p. 31). As the statutory authority for the Area, WTMA must consider the rights and interests of Rainforest Aboriginal People, (extending to their native title rights and interests, including registered ILUAs), and related cooperative management agreement-making pursuant to Division 5 Subdivision 2 of the WTMP (WTMA, 2020).

International research offers useful perspectives on Indigenous community-based experiences of Canadian collaborative environmental governance, and of the comanagement of natural resources in Aotearoa / New Zealand (Bullock et al., 2020; Tipa & Welch, 2006). Given past RAP experiences in WT WHA governance representation, of particular interests for this thesis is a recent Canadian study that identified four potential participation structures for collaborative environmental governance: the external advisory committee; the internal board subcommittee; the hybrid internal-external advisory board; and the internal ad hoc group (Bullock et al., 2020). The models arose from participant discussion of seven pre-identified aspects of collaborative governance: purpose and vision; decision-making structure(s); roles and responsibilities; engagement; capacity; leadership; and cultural suitability (Bullock et al., 2020, p. 7). While no model fully supported indigenous participation, and each model presented challenges and opportunities; the study found that understanding each model provided capacity and decision-making support for planning (Bullock et al., 2020, p. 12). Further, within cross cultural contexts, the creation of new networked spaces for "explicitly introducing, interrogating, and respecting a range of cultural norms, values, intentions, and practices" held potential for the building of mutual cross cultural understandings, as "ethical spaces" (Bullock et al., 2020, p. 12).

Tipa and Welch (2006) find the negotiation of collaborative arrangements challenged by a duality of state-community perspectives; which the authors specify as the need for the state to differentiate between Indigenous (traditional) knowledge, and the (local) knowledge held by non-Indigenous communities. Comanagement is frequently defined by some form of dual arrangement between the state and the people where resource ownership remains vested in the state, and the

people's usage is conferred as of right (i.e.: as legally recognised and permitted rights or interests), in the absence of either party holding overall responsibility for managing the resource(s) (Tipa & Welch, 2006). Commonly applied comanagement categories include consultative, cooperative or delegated management; however, all are considered inadequate from an Indigenous perspective, i.e.: as 'tokenism', and as discriminatory in their implicit conceptualisation of Indigenous interests as "community" interests (Tipa & Welch, 2006; p. 380). Because Indigenous perspectives and knowledges are continually challenged by the state; the systems underpinning collaboration hold the key, and, as such, must embrace and embody "empowerment, equal participation, and ultimately, the real recognition of indigenous status" (Tipa & Welch, 2006; p. 390).

1.3. Contextualising the Research Question

Intergovernmental policy direction and support for governance and management of the WT WHA was until recently coordinated through the Wet Tropics Ministerial Council, disbanded some time ago and amalgamated into an intergovernmental Environment Ministers' Meeting (Conran, 2020). Neither the environment nor world heritage appear to have enough importance for a standalone COAG[11] Council, in contrast with those implemented for Education, Energy, Health, Skills or Transport and Infrastructure (Conran, 2020, pp. 5, 35-36). Governance for and of Indigenous Australians is particularly complex and routinely under-reported (Jordan et al., 2020). Institutional change is imperative at the federal level to restore transparency; and the accountability of ministerial decision-making and the bureaucracy; to reduce the influence of political patronage; and to unblock the current barriers to policy reform (Daley, 2021, p. 3). Although more inclusive intentions for governance might be interpreted from the incoming federal government's stated suite of policy commitments, and in the various treaty negotiations progressing at state level, the results of these remain unclear at this time (Hobbs, 2019; Hobbs & Williams, 2019). Since 2009, compounding environmental and energy policy distortions and dysfunctionality has eroded business confidence, leaving a more rapid transition to climate safe socio-economic policy settings languishing, with grave implications for Australia's exceptional biodiversity and ecological systems (Hudson, 2019). Until very recently, Australia was perceived internationally as a laggard in addressing global heating mitigation and greenhouse gas abatement, with emissions reductions policy mechanisms and institutionalised carbon offsetting coming under particular scrutiny (Baumann, 2018; Hudson, 2019; Morel & oud Ammerveld, 2021).

Governance dysfunctionality and progressive policy absences in the energy and environment space have also shaped, and continue to influence, the northern Australia development agenda. Much

[11] The former Council of Australian Governments.

of the policy discourse over the past two decades has centred on large scale industrial and resource development or irrigated agricultural expansion, at the expense of culturally assured, locally-centred, holistic development, particularly with respect to northern Australian Indigenous communities (Jordan et al., 2020). Indigenous Australians comprise about one quarter of the total population of northern Australia, growing at a faster rate than the rest of the nation's non-Indigenous populations, and are therefore of growing socio-economic importance across northern Australia (Babacan & Gopalkrishnan, 2021). Diverse current regional health, education and economic participation indicators show ongoing entrenched Indigenous disadvantage, and the creation of meaningful and sustained Indigenous social and human capital remains fraught despite intentional policies such as Closing the Gap (Babacan & Gopalkrishnan, 2021). Significant governance dysfunctionality across Australia is well identified in the literature (e.g.: Babacan & Gopalkrishnan, 2021; Dale 2014; Dale, 2018; Jordan et al., 2020). Of particular relevance to this study are the following factors of dysfunctionality:

- government withdrawal (at all levels) from public service provision in preference of contractual outsourcing to the private sector;
- centralised definition of “social problems” and service priorities with the burden of resolving these pushed onto local communities;
- inappropriate ('unfit' for purpose) and ad hoc resourcing arrangements made worse by an ongoing lack of coherent and meaningful Indigenous representation at any level of institutionalised government; and
- homogenous (and disadvantageous) policy settings incapable of facilitating place-differentiated policy approaches or nuanced resourcing arrangements.

As Bekessy and others (2018) point out, the term 'ecosystem services' is merely one of many which position nature as an, in effect exclusively economic, 'asset' for human valuing, proprietarian acquisition and financialised trade in a globalised human world. The monetary valuation of biodiversity (as a perceived 'biocultural' ecological diversity) tabled at governance forums is all pervasive; cost-benefit analyses abound, and the costs of pollution or destruction are rarely measured or articulated against short-term monetarised gain. In contemporary communications at all scales, the terminology of 'ecosystem services', 'natural assets' and 'payments for ecosystem services' embeds acceptance of an extractivist, capitalist status quo (Bekessy et al., 2018). Ideas of 'conservation-as-development” revolve around the development of human capability to secure, restore and develop incentivised ecosystem capacity (Folke, 2006). Although the approach considers complex adaptive ecological systems to be impacted by complex adaptive socio-cultural systems, 'conservation-as-development' fundamentally categorises (natural) protected areas as capacity reserves for human (economic)

development. As Goyez and South (2019) find, while the dual discourses of 'conservation' and 'development' might frame debate on human-nature interactions at all levels as a “multiplicity of individual stories and group narratives”, 'conservation-as-development' routinely ensure Indigenous peoples' environmental disenfranchisement continues (p. 92).

Within the Wet Tropics, collaborative, but heavily bureaucratised, protected area management has significant implementation challenges and policy implications for RAP as custodians in their ability to access, and look after, country. This reality is most poignantly seen in the continued absence of embedded RAP WT WHA governance structures directly empowering Rainforest Aboriginal Peoples’ at scale, in culturally authoritative ways (Fache, 2014, p. 268). As an area-based designation interweaving the contemporary custodianship of Indigenous lands (and seas) with biodiversity and ecosystem conservation, IPAs and Australia's IPA program are viewed internationally as “a model for the shift towards Indigenous leadership in protected areas” (Zurba et al., 2019, p. 14). IPAs could be argued as acting to decentralise elements of the State's biopower in environmental governance; in their being *terrapolitical*, as sentient landscapes fusing being and political relations (Brigg, 2007). Anticolonial biocultural interventions “call for us to be aware of and present in Living“, as humans we “cannot deny biocultural transformation [as it] is a constant and we are part of its co-creation“ (Rostan, 2018, p. 74). Nevertheless, despite the many positive benefits attributed to IPAs, and their growing contribution to the comprehensiveness and representativeness of the NRS, the question of who holds the actual biopower remains trapped in the settler state's coloniality of power (Zurba et al., 2019).

This thesis investigates if a highly theoretical ecological economics (EE), together with biocultural concepts, could better inform the shared governance of this exceptional region of complex, long-standing human-nature interactions. On the basis of my longstanding professional interactions with IPAs over the past two decades, I contend that IPAs are a form of contemporary biocultural ecological economy (EE). In order to investigate the veracity or otherwise of my hypothesis, I aim to answer the research question: 'Do Indigenous Protected Areas deliver ecological economic and biocultural benefits for restorative governance of the WT WHA and its peripheral buffer zone? Overall, the study aims to inform current policy discussions around an inclusive restorative governance intervention for the WT WHA, its buffer, and the broader bioregion. In particular, the research aims to contribute to a deeper understanding of EE elements as these relate to IPAs in the wider bioregional context, and also in the more specific biocultural context. The study's theoretical contributions include a suite of locally derived EE parameters, and a suite of locally informed biocultural concepts (i.e.: biocultural principles, values and indicators), informed by research participant contributions. By exploring and verifying (admittedly to a limited extent) ideas about EE and the biocultural, the

conceptualisation of IPAs as emergent biocultural EEs within this study presents an intervention in existing and emerging discourses around a restorative governance of the Wet Tropics.

My study seeks to bring to the fore the biocultural place-centred relationism so integral to IPAs in the Wet Tropics as self-selected planning, negotiation, and policy change mechanisms for Rainforest Aboriginal Peoples' looking after country. RAP protected area governance, and on-ground caring for country, is given agency through their IPAs as contemporary culturally authoritative looking after country. I have purposefully conceptualised the study, and its central research question, as an exploration of IPAs as a protected area governance intervention holding real potential to engender a more ecological economics firmly grounded in Place. This approach moves the study's governance intervention design aim beyond system-embedded environmentalism, and potentially toward a radical meaning-filled ecologism, grounded in EE as interdisciplinary practices of restructuring and integration (Petrović, 2022, p. 51). In this way, the research sets out to better understand how EE may be more specifically mobilised to support locally and culturally valuable solutions in addressing the array of wicked problems now facing the exceptional WT WHA and its buffer.

Chapter 1 of this thesis has introduced the global and regional contextual setting for world heritage governance in the Australian Wet Tropics, aspects of the bioregional political economy, and their intersection with Rainforest Aboriginal Peoples' Indigenous Protected Areas. Chapter 2 provides an overview of the theoretical foundations to the research: i.e.; ecological economics, biocultural concepts, and governance), and introduces the study's conceptual framework. Chapter 3 details the epistemological and ontological basis of the study, scopes the empowered Indigenous methodologies adopted and the methods used for data collection, management and analysis. Chapter 4 outlines the findings of the research undertaken and limitations applying to the research. Chapter 5 provides for discussion and analysis of research findings elucidating the presence / absence / emergence of biocultural EEs within the study area, including the potential and/or actual benefits thereof; and what a restorative governance model for the WT WHA might look like, together with related policy needs. Chapter 6 documents the study's conclusions and the opportunities arising for further research.

Chapter 2 : **Theoretical Foundations: Place, Culture and the Present**

The human metals melt and melting down
Strike fault in fault and shattering neath the steel
The two base metals scream a new appeal.
(Gilbert, 2013, p. 210)

What is then is theory, and what is its purpose? A dictionary definition offers us this:

> ... a supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained. A set of principles on which the practice of an activity is based, or an idea used to account for a situation or justify a course of action... (Oxford Dictionary of English, 2022).

Theory is clearly a device crafted by the human species, a theory does not arise in life - nor in nature - of its own accord. In contemplating theory as either a supposition or a system of ideas, we humans are expressing a compulsion toward empirically derived (i.e.: observation- or experience-based) thinking, deeply grounded in a set of social rules often labelled 'norms' (Kelly & Setman, 2021). A norm's formal features may include intent (“prescription or proscription”), action (“obligatory, permitted, or forbidden”), or be hypothetical in nature, or categorical (O'Neill, 2017; p. 2). Norms can be taken to be rules set by a human group to delineate what is permissible (and what is not) for individual members, within that group's system of condoned behaviours (Kelly & Setman, 2021). Norms are critical dynamos of social learning and humanity's cumulative culture, arguably one of the key evolutionary achievements of our species (Boyd et al. 2011, p. 10924). Fundamentally, our norms govern our relationality: to Earth and to our fellow living beings; and to relations between ourselves. Together with our practices and values, the norms governing our societies are deeply culturally shaped (Lenard, 2020).

Definitional across our societies across millenia, human-nature relationships are frequently parcelled up as 'culture', a broad, ambiguous scholarly term that paradoxically comprises a myriad of diffuse aspects (Lenard, 2020). In their examination of the intersects between theory and culture, Zima (2007) define culture as a “problem complex: as a social and historical problematic which finds its expression in non-verbal and verbal sign systems” (2007, p. 19). As a problematic, culture is dynamic - regardless of similarity across problems (this is homogeneity) our human reactions to them are many and diverse, and at times contradictory or conflictual (this is heterogeneity) (Zima, 2007). Here I adopt an interpretation of *societal culture*: culture as a complex “constructed, dynamic and interactive process by which society determines its rules, structures, symbols, traditions, values, belief, practices,

customs and institutions, which moulds all aspects of life" (Babacan et al., 2007, p. 8). Societal cultures are constantly transforming in the dynamic and evolving region referred to as the Wet Tropics.

Human-nature relationships are deeply influenced by, and continually influence, human perceptions of the world as it manifests around us (our *Weltanschauung*, or worldview) and the philosophical nature of our intellectual inventions, including diverse theory (Dilthey, 1922; Staiti, 2013; Wolters, 1983). I declare that I have long considered myself an idealist, albeit well tempered by a realism gained through rich organic and pragmatic practice. Is this a metaphysical contradiction? Apparently not should I accept recent theorization in social psychology critiquing the individualist 'altruism' of neoliberal capitalism by way of a radical humanist take on critical social theory - or in the face of the Anthropocene (Alberro, 2021; Amaris, 2021). Assuming I am comfortable with that, how can a radical humanist paradigm help me lay out the usefulness, or otherwise, of high theory EE, and biocultural ideas (Spash, 2020a; Rozzi, 2013; Rozzi et al., 2018)?

I further discuss the philosophical pillars to my research methodology in Chapter 4. Relevant here, however, is that tensions between these concepts, as abstract human ideas, are not confined solely to the influences of ancient Greek scholars, nor to the diverse practitioners of the European Enlightenment, their inheritors or successors (Grayling, 2019). Notions of 'truth', of identity, of self-transformation, of ideological views and what constitutes (for example) 'sustainability' are all rooted in particular worldviews and philosophical traditions - in difference (Bell & Morse, 2012, p. 201; Foucault & Blasius, 1993). Likewise for perceptions of emotion (Shino-Konishi, 2020). As a 'new' Australian I have been fortunate to have gained direct, deeply personal and professional insights into the Wet Tropics' many diverse communities over four decades, at those vital intersections between societal cultures arising from radically different humanist perspectives. My lived experiences return me to Zima's argumentation of a dynamic cultural theory; shaped not only by pragmatic inquiry underpinned by cognitive engagement but also by the understanding that an explicit or implicit political engagement is required; an ideological involvement beyond value judgements (2007, p. 23). I take that call for an ideological involvement to heart: within the region's dynamic context, and as I have been privileged to live it.

2.1. Attempting to Make Sense of Culture

Despite contention over clear meanings for the term, culture is taken to be of concern to humanity in general, and to people and our communities more specifically, given *the value culture provides* to our lives at varying levels: "as an encompassing group, as social formation, in dialogic terms and in identity terms" (Lenard, 2020, p. 4). Humanity creates diverse and divergent cultures over time,

and until the ages of modern migration, these have arguably been closely associated with individual loci, as place or region (Escobar, 2001). Said (1993) sees culture, particularly at its intersections with imperialism, as a duality: i) as human practices generally autonomous of the political economy, often expressed in aesthetic form; and ii) as a "refining and elevating element" of that which is perceived ("almost imperceptibly") as "each society's reservoir of the best that has been known and thought" (1993, pp. xii-xiii). In the latter case, culture can generate nationalist xenophobia, spurring racist fundamentalism at the expense of multicultural hybridity (Said, 1993, p. xiv). As spiritual, traditional, historical, and contemporary complexes of Aboriginal country-kin-culture, the Wet Tropics bioregion has been transformed by newcomers for over 160 years by way of hybrid multiculturalism, initially arriving from elsewhere (Loos, 2017). As a result, the Wet Tropics is a multicultural mosaic, characterised by "a unique blend of cultures, landscapes and traditions", and as such also a diversity of norms and values (Babacan & Babacan, 2013). Cultural diversity can engender competing values.

Non-Indigenous Australians originated within a pooling of imported cultures, and the concept of an Australian culture has long been core to the identity of our settler state consciousness (Carniel, 2021). This(ese) imported culture(s) is(are) perceived, from one Aboriginal philosophical perspective, as "hold[ing] the immediate world at bay by objectifying it as the Observed System, thereby leaving it to the blinkered forces of the market place" until the impacts of economic 'externalities' force a change to that system (Graham, 1999, p. 117). In contrast, Aboriginal Law is "a system of natural moral law which establishes an extended spiritual identity between land and person", generating custodianship as [cultural] allowance for "natural wisdom to assert itself within the limits of accumulated community experience and knowledge", unrecognised in the settler state's positivist jurisprudential framework (Graham, 1999, p. 116-117). Modern Australia's imperialist-conceived legal system remains largely structured as it was in 1788: institutions may have morphed, however the general nature of the law and of judicial procedure, in particular as it relates to individual property rights and pursuit of monetary gain (at the expense of the land and its original peoples) has not (Reynolds, 1992). Coloniality, specifically the "coloniality of power" demands "deep colonising": the perpetuation of conquest as system processes (Kearney, 2019, p. 1). The system enables institutions and practices that continue to embed colonising processes, which manifest as prescriptive (at times arguably authoritarian) legal, policy or economic interventions, sill impacting Aboriginal peoples in the present (Kearney, 2019). (Re)establishing difference necessitates a transcending of entrenched settler state system hierarchies; coloniality's inherent extractivism, usurped sovereignties, and Indigenous 'erasure' (Arney et al., 2022). Nevertheless, Indigenous cultural authority is increasingly underpinning Australia's protected estate.

In our human inter-relations, and specifically over the past 250 years, a self-organising, cognitively dead ("mindless") Superorganism has been created: modern human culture is defined by a relentless pursuit of economic growth, and scientific reductionism trumping human interconnections with nature (Hagens, 2019, p. 9; Suzuki, 2012a). Our global hyper-connected economic system has ushered in Earth's sixth mass extinction - laying waste to biodiversity for the unceasing creation of individualised wealth, relentlessly homogenising diverse cultures, and destabilising social cohesion - we have arrived at the Anthropocene (Rizzo et al., 2018; Zalasiewicz et al. 2021). Analyses of the Anthropocene frequently intersect with the structural (dis)functionalism of neoliberalism, 'sustainable' resource use, social 'resilience,' and destabilisation (Birch & Springer, 2019; Brand et al., 2019). This thesis situates itself within the evolving Anthropocene discourse, recently pre-framed as an Integrative Anthropocene concept *sensu lato* (Zalasiewicz et al. 2021; p. 9). A broadly defined Integrative Anthropocene brings human responsibility to the fore, as discursive, transdisciplinary interventions in human systems perceived to be at the root of humanity's present existential biophysical dilemma.

Zalasiewicz and others (2021) offer a working discursive framework for "a possible integrative and extended multilevel Anthropocene concept", comprising an analytical level and a consequential metalevel aimed at "highlighting systematic and interlocking interdisciplinary and transdisciplinary approaches" (p. 9). Of particular interest here is the potential for a deeper understanding of the Anthropocene idea as a "cultural threshold" within certain de-limited bounds of complementarity: cross-system dynamics where an "Anthropocene Earth system" (originating in Earth System sciences) has potential interlinkage with a (geological, currently informal) "Anthropocene Epoch", yielding dual connectivity with a still to be defined "Responsible Anthropocene" (Zalasiewicz et al. 2021, p. 9). Human responsibility toward an Anthropocene Earth adopts and embeds an ecological ethics based in Earth's jurisprudence, and the rapid repositioning of human-nature systems interactions from the anthropocentric ego-centric to the holistic eco-centric (Washington & Maloney, 2020). IPAs as a form of biocultural ecological economy represent evolving examples of such repositioning at local scale.

Hagen (2019) states that a "coherent description of the global economy requires a systems view" (p. 1). Blackstone (2018) finds that "structural functionalism focuses on the interrelations between various parts of [our] society [and] how these parts act together" (p. 18). Dale (2018) finds that governance is frequently ill-defined if used in applied analysis, but that structural-functional ideas help to foster and support establishment of collaborative (more inclusive) and stable (more equitable) governance componentry within complex systems. Systems theory primes us to consider the whole, not its parts: "systems thinking is always contextual thinking, all systems are part of larger systems (context)" (Capra & Jakobsen, 2017, p. 834). Ladle and Jepson (2008) argue solely ecological data is

insufficient to effectively reduce species extinctions, and that cultural profile(s), as “contemporary and historic framings of the local human-nature relationship”, and organisational influence and capacity is critical in their applied biocultural theory of avoided extinction (p. 116). Ecological, social and economic interlinkages at bioregional scale underpin Earth governance (Washington & Maloney, 2020). In their origins and at their core, IPAs in the Wet Tropics contribute to such critical bioregional interlinkages.

Capitalism is the first human society that deliberately decouples producers from the means of production, generating perpetual market dependencies between producers and capitalists (Vergara-Camus, 2017). In divorcing itself from ecology, capitalist economics characterises essential life support systems as ecosystem 'services'; having a limited (i.e. definable) value within exchange systems, and failing to build in a full valuation of natural systems for human uses, or for nature's “very real esthetic [sic], spiritual and philosophical values” (Suzuki, 2012b, p. 50). The aforementioned decoupling is mirrored in conservation (amongst other) policy framing arising in the context of neoliberalism's new public management paradigms, and extending to public value management (Brown, 2021). Neoliberal rationality provides a compelling (ir)rationality: a ceaseless circularity of economic activity, promising endless growth and prosperity as 'progress' in purporting to deliver an ideal of 'development' (Lockie et al., 2013; Vergara-Camus, 2017). In contrast, the original IPA concept arising during the mid 1990s was initially informed by ecological economic ideas.

Classically interpreted and justified economic growth paradigms present continual economic growth as the achievement of human emancipatory potential and wealth, however the narrative of a 'progressive' capitalist modernity struggles for relevance in the face of persistently flat GDP per capita growth, increasingly extreme socio-economic inequalities, and the acute diminishment of ecological space (Mathai et al., 2018). Vergara-Camus (2017) argues that capitalist accumulation, not growth, is the fundamental cause of capitalism's ecological crisis. If humans could transcend “our (neoliberal) obsession with growth” through a (re)socialising of economic growth-contraction dynamics, we might (re)gain a qualitative (not quantitative) 'development' or 'quality of life' (pp. 224, 227). Neoliberalism substantively influences global and nation state environmental governance systems and policy-making (Cofrey & Marston, 2013; Ramutsindela et al., 2020). Nature's economy and the people's economy are excluded at the absolute benefit of globally homogenised corporate exchange (Shiva, 2008). This disconnect has bought globalised human society to the brink of ecocide, with particular implications for Indigenous peoples (Tekayak, 2016). IPAs are asserted place-based initiatives in ecocide avoidance.

2.1.1. A Relationist Weltanschauung

What is a meaningful Weltanschauung or suite of philosophical theory for Australia today? And, in particular, for an exploration of intercultural, biocultural social relations around places of global significance in the context of continuing colonial implications and legacies for our settler state, and the Anthropogenic realities confronting us? (Laurance et al., 2011; Lloyd & Wolfe, 2015; Nursey-Bray et al., 2020; O'Donnell et al., 2020). Earth jurisprudence and ecosystems' legal personhood articulate relationalist approaches at Earth systems scale, framing a more radical EE (Burdon, 2011; Washington & Maloney, 2020; Pirgmaier & Steinberger, 2019). Kearney (2019) sees interculturalism "as a form of emphatic understanding and being in good relations with difference", in transcending the structural limitations of policy mitred by coloniality and its foundational proprietarian ideology (2019, p. 1; Piketty, 2020). Graham (2013) urges the adoption of a relationalist ethos for understanding temporal-spanning Australian Aboriginal philosophy. The relationist ethos embraces Place (Graham, 2014). Graham's *Aboriginal Terms of Reference Underpinning Place* scope a set of terms or qualities, which "underpin the Aboriginal social praxis and ontological and epistemological basis of existence" (Graham, 2014, p. 5). A conceptualisation of First Law offers a useful contribution to relationalist theory in the Australian context (e.g.: River of Life et al., 2020).

In introducing the relationist concept, I turn here to Slife's (2004) comprehensive analysis of relationism's polycategorical ontologies as these relate to applied practice: weak relationality, strong relationality, and abstractionism. The weak relational perspective considers that "people, places and things (as well as practices) begin and end as self-contained individualities", albeit often taking information in (Silfe, 2004, p. 158). Relationships and practices are the actions of self-contained organisms, which may interact through reciprocal exchange but where identity stems solely from inside of that entity (Slife, 2004, p. 158). Conversely, strong relationality entails that all things - people, places, things and practices - have "a shared being and a mutual constitution" as they are "first and foremost a nexus of relations" which "start out and forever remain in relationship" (Slife, 2004, p. 159). A strong relationality is integral to the fulfilling of our shared obligations, under the Convention, to identify, protect, conserve, present and transmit cultural and natural heritage of outstanding universal value to future generations (UNESCO, 2021).

In setting the scene for a discussion of this thesis's central theoretical contentions, humanity's ability to regain a safer footing at the edge of biospheric sustainability is increasingly dependant on our capacity for, and our engagement with, dynamic socio-cultural and economic transformations (Figure 2).

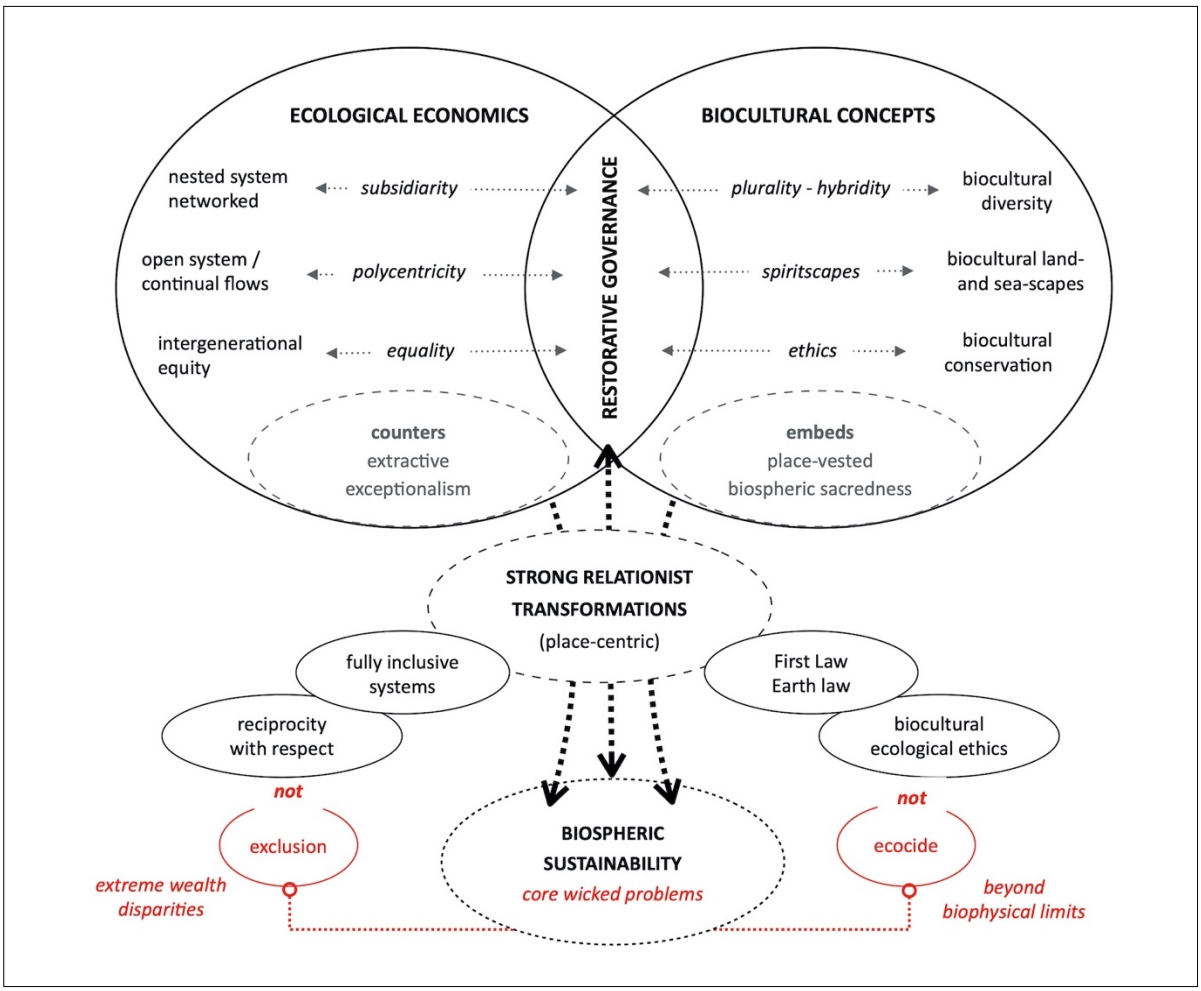


Figure 2. Conceptualizing the theory. To counter extractive exceptionalism, EE supports restorative governance through strong relationist, Place-centric transformations. Biocultural concepts support restorative governance by embedding Place and biospheric sacredness. Transformations are driven by fully inclusive systems that respect culture, and an ecological ethics grounded in First Law. Restorative governance aids biospheric sustainability in counteracting the core wicked problems of (socio-cultural) exclusion and ecocide.

Relationalist ontology binds context and the potential for change in human understandings of what is real, whereas abstractionist ontology "elevat[es] similarity over difference" (Slife & Richardson, 2008, p. 702). Superseding Aristotelian teleology, possibly at the expense of Renaissance strong relationality (culturally expressed then as magic), abstractionist individualism arose at the start of the European Enlightenment but remains the central relationist ontology of modern psychologists (Slife, 2004, p. 165). Fjaellingsdal and others (2021, preprint) find that, for collective problem solving, abstraction and cognitive flexibility appears enhanced in human groups (i.e.: beyond the individual). Abstractionist ontologies continue to dominate 'western' thinking: theories - stripped of their particulars - being one type of intellectual or academic abstraction (Slife, 2004, p. 165). Internationally, legislative and policy change is embedding Canadian First Nations' law and custodianship more firmly

across protected areas governance and management (Zurba et al. 2019). In Aotearoa New Zealand, landscape scale restoration effort gains effectiveness when embedding local knowledges, and relationships to, environmental systems (Cairns, Brierley, & Boswijk, 2021). In Australia, a relationist ethos vested in Place is emerging as a new approach in governance theory, speaking specifically to the holistic custodial governance of biocultural spiritscapes (River of Life et al., 2020; Graham, 2014). Strongly relationist place-centric transformations in the Australian context necessitate:

- repricocity with respect for culture, articulated in fully inclusive systems within the political economy; and
- a biocultural ecological ethics, articulated as Place relationist First Law, possibly encompassing Earth law.

2.2. Can Economics be Eco-logical?

Significant diversity persists in the views of theorists as to what might comprise the requisite 'new economies' in repositioning us on a trajectory of survivability as the dominant of all Earth's living biological species. Rapid transformations of energy use and fossil fuel driven modes of production are deemed imperative (Gills, 2020; Wironen & Erickson, 2020). Compelled by a dawning realisation of the seriousness of our collective human predicament, only heightened in the light of COVID-19, better understandings of human-non-human factors are urgently needed in helping to recalibrate the global political economy (Campbell-Verduyn et al., 2021). The mechanisms of mercantile extractionism are very firmly in the hands of globe-spanning transnational corporates and very high net wealth individuals, scarcely beholden to the regulatory or fiduciary powers of a nation state's elected leadership (Baker et al., 2021; Brown, 2021; Lucas, 2021). As a result, policy makers around the world remain obligated to capital wealth - admittedly a reality eighteenth century physiocrats dreaming up the virtuous cycle of capital accumulation did envisage - albeit apparently without forethought for its likely ultimate consequences (Dale, 2021). Money, not our socio-economic inter-relations or their ecological impacts, remains the axial norm on which our current cosmos spins.

Extractionism's mega-pollution and drain on public value imperils protected areas of all types, but most particularly those places that have exceptional biological and cultural diversity (Rizzo et al., 2020). This raises the critical issue of public value: what is (being) valued? who is doing the valuing, and why? why are some things valued over others? how does public value translate into contemporary public policy-making? what is invaluable? (Sullivan, 2018; Westbury & Dillon, 2019). Conceptualisation of what exactly comprises an outstanding universal value takes place within the geopolitical context, and can present as biopolitical reality if analysed in terms of power relations (Ramutsindela et al.,

2020). The spatial, historical, political and economic trade-offs presented by contemporary protected areas, emphasising that place attachment (place identity and place dependence) remains integral to the relational values of people displaced by protected areas (who specifically value their individual and cultural identities), and to "social cohesion [integration] and responsibility" (Cundill et al., 2017, p. 147). A radically eco-logical economics, relating to Place and fully cognisant of biophysical realities, appears increasingly necessary (Melgar-Melgar & Hall, 2020; Xiang, 2013). A globally oriented, theoretically determined EE is validated through applied research at the local-regional level, within the localised regional biophysical context (Hagens, 2020; Pirgmaier & Steinberger, 2019). This is the theoretical starting point for my interest in understanding if EE principles have any meaning, relevance and/or usefulness for Rainforest Aboriginal Peoples engaged in the study area's governance and management.

2.2.1. Theoretically, what is an Ecological Economics?

> *...humanity would do better to create an economic system that is smaller by design, not disaster. Social economy that reproduces itself in harmony with Nature rather than through domination over it. That is the job ahead.*
>
> (Spash, 2017, p. 15)

Rapid restructuring of human economic systems for a socially just and ecologically sustainable future lies at the heart of ecological economics (EE) and EE theory (Wironen & Erickson, 2020). Originating as a transdisciplinary conceptualisation of both economic sciences and ecological sciences in the 1980s, EE positions the human economy firmly within the finite boundaries of Earth's biological systems (Costanza et al., 1997) (Figure 3). Since emerging as an academic field in the 1970s, EE has developed fairly rapidly as a theoretical approach to critical ecological and socio-economic thinking (Røpke, 2004, 2005). Intersecting with fundamental concerns around nature, ethics, ecological sustainability and social justice, EE theory is characterised by live critiques of hegemonic orthodox economic systems and, more specifically, neoliberal economics and globalisation (Martinez-Alier & Muradian, 2015; Spash, 2020c; Washington & Maloney, 2020). Although a contested transdisciplinary space both theoretically and *in praxis*, EE nevertheless foregrounds systems thinking, with a increasing focus on complex adaptive systems and resilience thinking (Kish et al., 2021).

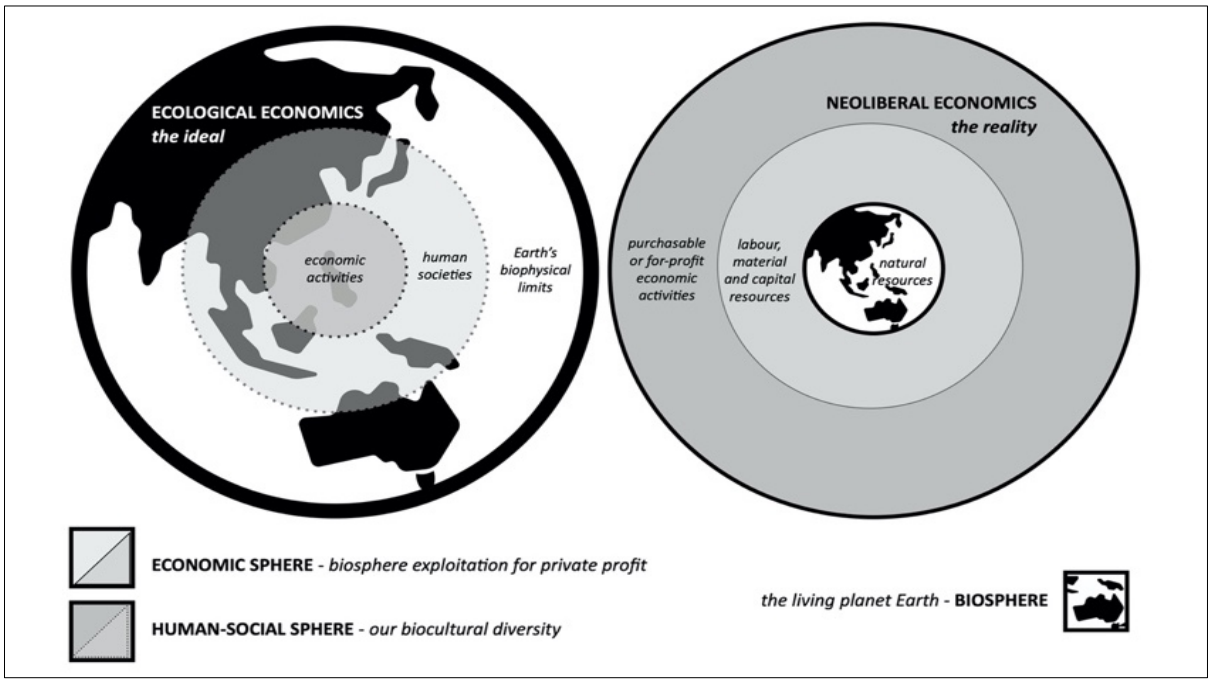


Figure 3. Ecological economics: the ideal vs the reality. (Adapted from Figure 1. *'The economy embedded in the institutions of human society and in the biosphere*', Martinez-Alier & Muradian, 2015, p. 2. After Rene Passet L'Économique et le Vivant, 1979. Published by Edward Elgar Publishing Limited).

Capital dynamics has driven unprecedented political-ideological transformations over the past 200 years, creating our present hypercapitalist reality of regressive taxation, dangerous inequality and the routine outsourcing of many public sector activities to privatised marketplaces (Piketty, 2020). Our digitally interconnected, ultra-globalised human civilisation - dominated by complex private and public systems at all levels and within all spheres of society - remains highly aspirational yet saps our collective agency to effect transformational change as culture is simultaneously homogenised and fragmented (Adorno, 2004; Bandura, 2002). We are sold that we may have everything and anything we want, as long as we work hard, with ready cash to hand (Harvey, 2014). Nevertheless, with all of the material wealth capitalism has generated, extreme inequality is escalating, mirroring an ongoing destabilisation and degradation of Earth's biosphere. Correcting this course requires an engaged governance; capable of resolving complex policy questions as a shared, capacity-rich enterprise; where policy-makers and theorists collaborate in a two-way exchange of translation and knowledge creation (Threlfall & Althaus, 2021).

For some theorists EE requires research innovation to better define it in *praxis* (Pirgmaier & Steinberger, 2019; Spash, 2020b; Wironen & Erickson, 2020). Applied research findings are more robustly institutionalised in sustainability economics for example (Drupp et al., 2020). Acceptance that EE is basically aspirational should not obstruct critical examination of inter-braided, systemic environmental and social problems (Pirgmaier & Steinberger, 2019). Considering power relations,

complex systems, and governance is an essential aspect of facilitating useful and practical EE outcomes (Boulot & Akhtar-Khavari, 2020; Kish & Farley, 2021). Not only must EE theory and practice consider power relations, complex systems, and issues of governance; an EE approach should also problematise "political science, public policy, organisational theory, institutional theory and especially the law" [through statute or common law] (Dovers, 2000, p. 4). Matters (or questions) of history are of particular relevance, as I concur that the "long view forward demanded by sustainability concerns should be matched with a longer view back than in neoclassical economics" (Dovers, 2000, p. 4). To achieve this, embracing pluralism by involving different communities and their work in the field should be a priority (Dube, 2021). For the better understanding and negotiation of EE's inter-disciplinary biophysical-social tensions, paradigm analysis and critical pluralist concepts move EE systems thinking into newer, regenerative thought paradigms (Kish et al., 2021). I consider Kish and others (2021) "new regenerative positionality" useful for contemporary EE systems thinking in the Australian context, as its inherent reflective shift complements Graham's (2014) relationist ethos of Place and Spirit (Table 2).

2.2.2. Mainstream or De-Growth?

Ecological economic theory is characterized by diverse ideological interpretations: ranging from the affirmation of environmental services provisioning for market-directed value exchange (e.g.: 'ecosystem services' or 'nature-based solutions'), to a social EE arguing for radical change, through to an entirely new ecological ethics aiming to avert ecocide (Costanza & Daly, 1987; Pirgmaier & Steinberger, 2019; Spash, 2011, 2020a; Washington & Maloney, 2020). There is a clear tension between functionalist systems thinking and critical systems thinking within the EE field (Kish et al. 2021). In their original conceptualisation of EE, Costanza and Daly state that achieving "a true synthesis of economics and ecology" is a critical task for humanity, and that "[w]ithout such an integration we will gradually despoil the capacity of the earth support life" (1987, p. 7). Others argue that to do so, in the absence of contextualising the (Place relationist) social or historical realities of human existence, only perpetuates those social constructs (the "myths") facilitating entrenched economic orthodoxy at the expense of a tangible sustainability (Spash, 2011). In one example, Spash (2020c) critiques the popular concept of Doughnut economics as a model based on adjustments to social and environmental factors for the benefit of further growth, and the concept's originator Raworth as an "apologist for growth" (Raworth, 2017; Spash, 2020c, p. 18).

Pirgmaier and Steinberger (2019) dissect the discipline by applying Marxist political analysis; finding that EE, as an aspirational field lacking applied research, further neglects political economy and power dynamics. They assert that EE "comforts" "not challenges", as the discipline remains reluctant

in posing questions about existing power relationships arresting more rapid sustainability transitions (Pirgmaier & Steinberger, 2019, pp. 1-5). Fetishization of capitalism deludes us into believing there is no alternative; expressing itself in debate around 'sustainable' [capitalist] economic typologies be they de-growth; steady state; green new deals; or circular/circular flow economics (Pirgmaier & Steinberger, 2019). On the other hand, biophysically focused EE thinking posits that - without radical transformation of energy production sources and waste minimisation - (ego-centric) human economic growth remains an all-devouring out-of-control, self-perpetuating "Superorganism" (Hagens, 2020). An EE that neglects critical appraisal of capitalism or neoliberalism will not engender change, as in such form EE remains captured by Malthusianism notions of growth (Gomez-Baggethun, 2019). Human development and 'sustainability' discourses direct United Nations institutions and their agendas; these discourses are steeped in proprietarian whitestream ontologies, and originate from an essentialist perspective while concealing their real political dimensions (Moreton-Robinson, 2015; Telleria, 2018).

An overarching aspiration to 'sustainably' attaining material standards of living such as those enjoyed by highly developed (rich) nation states runs into the "blind spot [of] ecological and socio-economic limits and cultural critique" (Beling et al., 2018, pp. 311; Shiva, 2008). De-growth narratives are attempting to arm-wrestle the rampaging Superorganism into submission, by challenging the many distortions and inequalities generated by capitalist modes of production (Beling et al., 2018; Hagens, 2020). However, in analysing the structure and intent of international economic theorisation around human development, de-growth and *buenos vivires*; Beling and others (2018) find that while each has certain positive features, each also shows significant weaknesses. While de-growth narratives do consider economic expansion to be the crucial issue in problematising growth-fuelled development, degrowth economics are characterised by an "implicit universality of quantitative methods" (i.e.: user pays, species population or 'health' counts) (Feola, 2019; Hickel, 2021; Kish et al., 2021; Stoner, 2020). Critical weaknesses of de-growth are a foundational anthropocentric dualism; a lack of political leverage; and the danger of co-option by interests vested in upholding the status quo, such as transnational enterprises and geopolitically dominant nation states (Beling et al., 2018, pp. 309-311; Shiva, 2008). In this sense, de-growth can be considered as political utopia: growth is built into the present industrialised system's core (entropic) dynamics, characterised by resource conflicts at varying scale generally impacting the periphery, e.g.: rural populations, future generations, other species (Gomez-Baggethun, 2017).

A radical EE and a communitarian ethos informs various interpretations of *buenos vivires'* across the Global South (Barkin, 2022). As one interpretation of the European degrowth paradigm, *buenos vivires* is seen as opening a pluralistic "dialogue of knowledges" between accepted knowledges

(i.e. normative sciences) and those "long denied" (e.g.: Indigenous knowledges), thereby generating a new "*glocal*discursvive" between modern and non-modern ontologies (Beling et al., 2018, p. 311). Nevertheless, hyper-capitalism's rampant extractivism embeds significant material-structural barriers, undermining *buenos vivires'* practitioners' holistic, collectivist intentions to live well with nature, and in harmony with others (Beling et al., 2018, pp. 309-311). Somewhat ironically, *Buen Vivir* arose as a mistranslation of an intrinsically Indigenous worldview, originating in a specific "indigenous-culturalist" epistemic community, and subsequently institutionalised across Ecuador's political economic systems (Cuestas-Caza, 2018).

A review of the literature identified various principles for eliciting insights into potential EE benefits arising for the study area. The literature review has guided the identification of important aspects of progressive EE theory, compiled as attributes (research inputs/data) for scoping a uniform set of query descriptors for applied research use and subsequent data analysis (Table 1). Research methodology and methods are detailed in Chapter 3. Theoretical aspects are further discussed below.

Table 1.

EE Descriptors Derived from Theory for Applied Research Data Analysis

Icon key	Theory element	EE descriptor	Source	Theoretical aspect
	Economy as a nested system Systems thinking is always contextual thinking, all systems are part of larger systems.	• Real economy is part of the organic web of life. • Earth's well-being is tied to the quality of human life.	Capra & Jakobsen, 2017.	Subsidiarity (Aßländer, 2021; Gramsci, 2011; Martini & Spataro, 2016; Wanzenböck & Frenken, 2020)
	Economy as networks Interaction of living organisms with their environment triggers structural change. Sustainability is achieved at the	• All economic activity is a servant of life: it must be essential and meaningful. • An economy is only alive (flexible, transforming) if organised as a network. • Inter-linked local and regional networks with	Capra & Jakobsen, 2017.	Polycentricity (Dale et al., 2013; Dale et al, 2016; Moran et al., 2014; Morrison & Lane, 2006; Studley, 2019)

Icon key	Theory element	EE descriptor	Source	Theoretical aspect
	collective level not at the individual level.	creative thinking and practical experimentation.		Shared governance (Gieseke, 2020)
	Economy as an open system of continual flows All living systems need continual flows of energy and matter and all living systems produce waste.	• Transformational by talking about different values and remaining open minded. • Economic practice must be adapted to changing regional conditions. • Circular value chains (e.g.: real re-cycling). • Reduced consumption and reduced waste. • Economy and culture go hand-in-hand. • Unlimited growth is not possible and dangerous to life on Earth.	Capra & Jakobsen, 2017	[Organic] living system
	Economy as cognitive interactions - a sense of ethics	• Free exchange of ideas. • Ethics always has to do with community - it is individual behaviour for the common good. • Ethics is about dignity and ecological sustainability. • Cooperation, solidarity (mutual support / like-	Capra & Jakobsen, 2017	A new ethics (Brigg & Graham, 2020a; McNiven, 2004; Plumwood, 2006; Washington & Maloney, 2020) Place (Graham, 1999, 2014; Joy, 2018)

Icon key	Theory element	EE descriptor	Source	Theoretical aspect
		mindedness) and compassion are essential.		Spiritscapes (McNiven, 2004, 2016)
	Equality	Equal access to resources and opportunity.	Brigg & Graham, 2020d; Piketty, 2020	Equality vs equity (Ince, 2018) inclusive development (Ife, 2016)
	Effective participation	Participatory decision-making / governance.		Whole -of-landscape approach (Dovers, 2000)
	Community economics	• Co-management • Co-operatives		Beyond self-interest, non-corporate approaches (Akbulut & Adaman, 2020)
	Dynamic and inclusive decision-making (ex ante not ex post)	• Participatory planning • Openness to cross-disciplinary institutional changes • Evaluation of policy interventions • Structured policy learning • Pillars of action across systems, governance, diversity and resilience		Governance Systems Analysis (Dale et al., 2013) Practical framework (Babacan et al., 2007; Bennett & Satterfield, 2018) Universal Precautionary Principle (Akins et al., 2019)

Table 1 provides a summary of key EE concepts I considered relevant to the research context, and illustrates the complexities inherent in selecting these from EE's diverse parameters and aspects. Intersects with EE as a living system; as a new ethics, and bioregional (biocultural) landscape approach, are discussed in subsequent sections exploring biocultural concepts and restorative governance. Additional insights for the study are offered by 'inclusive' governance concepts, subsidiarity principles, and polycentricity as a facilitatory mechanism for the effective framing and operation of subsidiarity (Fazey et al., 2020; Jayasuriya et al., 2005; Martini & Spataro, 2016; Wanzenböck & Frenken, 2020). I explore these theoretical principles, and their intersections with EE theory in section 2.7. Dale and others' (2013) governance systems analysis techniques, and Babacan and others' (2007) practical framework for policy making informed my analysis of the bioregion's current and emerging economic governance and policy systems. Further, I gave consideration to Akins and others' (2019) Universal Precautionary Principle (UPP) concept in developing additional aspects of the discussion in Chapter 5. The (theoretical) UPP comprises four core "pillars of action" to support human-nature *repricocity*, centred on systems, governance, diversity and resilience; by embedding three precautionary principles (PP); an environment PP, a socio-cultural PP, and an economic PP (Akins et al., 2019, p. 3, Figure 1). The authors' summarise their "pillars of action" (Akins et al., 2019; p. 13, Appendix A, Box A2) as:

- the use of a systems approach to safeguard and grow environmental socio-cultural and economic capital, being the "Systems Pillar";
- [shared] decision-making across multiple actors and scales for collective action, being the "Governance Pillar";
- the use of knowledge, economies and decision-making to identify risks and choices, being the "Diversity Pillar"; and
- [taking] preventative action in the face of uncertainty to enable adaptation and avoid intergenerational transfer of debt, being the "Resilience Pillar".

2.3. Theoretically: what is the Biocultural?

> *If change is the fundamental nature of reality or existence... then Place is the fundamental existential quantifier... Place is a measuring device that informs us of 'where' we are at any time, therefore, at the same time, it's also informing us 'who' we are.*
>
> (Graham, 2007, p. 6)

Biocultural diversity is said to bridge the intellectually conceptualised "nature-culture" divide, described as an ontological marker of western modernity or a duality of habituated (Euro-centric) thought (Merçon et al., 2019; Pannell,2006; Rotherham & Bridgewater, 2018). Biodiversity (the varietal

diversity of all life on Earth) and cultural diversity (humanity's diverse languages, beliefs, customs and practices) are considered intrinsically and manifestly interlinked (Maffi, 2018; Maffi & Woodley, 2012; Pretty et al., 2009; Sterling et al., 2017b). A widely adopted definition states: "Biocultural diversity comprises the diversity of life in all of its manifestations – biological, cultural and linguistic – which are interrelated (and likely coevolved) within a complex socio-ecological adaptive system" (Maffi & Woodley, 2012, p. 5). Biocultural diversity is an interdependence of biological and cultural diversity via coevolution, threatening, and geophysical processes; and the field requires more applied research (Gavin et al., 2015, Lukawiecki et al, 2022). The biocultural requires a real relationism, compelling a relationist understanding or ethos between "the land as a spiritual entity, and human societies as dependant upon the land" (Graham, 1999, p. 105; Rotherham & Bridgewater, 2018).

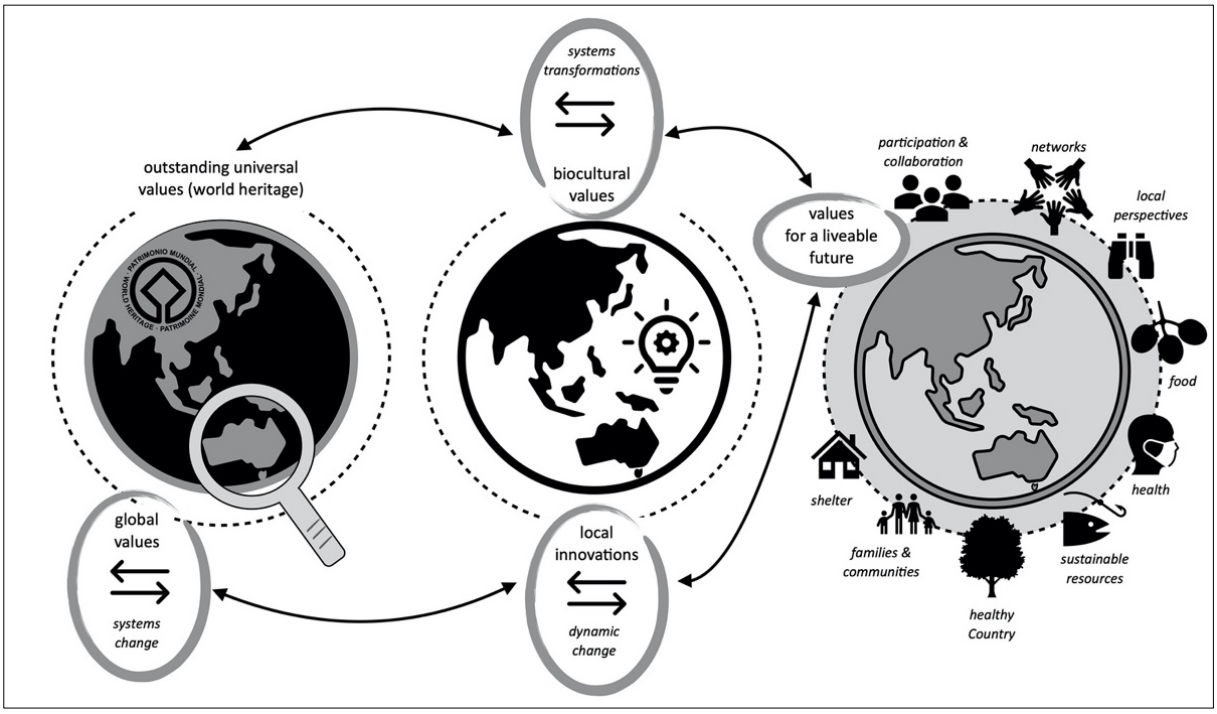


Figure 4. Biocultural concepts at systems scale: From OUVs to localised values for a liveable future.

Biocultural landscapes and biocultural conservation theorisation, with a particular focus on protected areas, are considered useful as they can embed plurality and adaptation (Gavin et al., 2015; Verschuuren & Brown, 2019). As illustrated in Figure 4, biocultural approaches can be considered global in overall scale, however they are regionally situated or locally place-based as they "explicitly start with" localised "human practices, knowledge and cultural beliefs" that arise as impacts for the respective lands (or seas) concerned, and which in turn impact the human communities there (Sterling et al., 2017b, p. 1800). A criticism of biocultural discourses, including conservation-related biocultural theory (and practice), is the lack of deeper engagement with power dynamics or political economy (Rotherham & Bridgewater, 2018, Merçon et al., 2019). Biocultural political and socio-economic history

is of some interest here, as these fields of study do attempt to understand the origins of complex social systems, their driving prompts, the constraints imposed upon them and their social (and other) implications (Callion et al, 2017). Foucauldian ideas of biopower and biopolitics, and recent biosocial theory, inform a wider contemplation of the biocultural (Brigg, 2007; Stinson & Lunstrum, 2021).

The theoretical concepts *biopolitics* and *biopowe*r originate in Foucault's critically influential *The Birth of Biopolitics* (1978-1979), specifically as these relate to the French historian/philosopher's inquiry into the meaning of government (as power, in governing a population) and governmentality (as a set of power relations, and their forms of rationalisation in practices and systems of practices) (Gutting & Oksala, 2021, p. 28). Foucault argues that, in order to govern, the modern state is charged with making decisions for the benefit (the well-being) of its population, as a historical political transformation from the sovereign's right to "take life or let live" to the modern state's power to "make" live and "let" die (Foucault, 2003, p. 241). The state engages in the biopolitics of life: its biopower frames the biosocial. The biopower system is intrinsically racist (and sexist); exposing people to death, or increasing the risk of death for some people (e.g.: political death, exile, rejection), "is acceptable only if it results...in the elimination of the biological threat to and the improvement of the species or race" (Foucault, 2003, p. 256).

A marriage of biological determinism (evolutionism) with the discourse of power, the notions of biopower and biopolitics are of real importance in unpacking the legacies of structured invasion, with its "colonizing genocide", in the modern nation state Australia (Foucault, 2003, p. 256-257; Wolfe, 2006). The state's assertion of its biopolitical right has major ongoing implications for policy making with respect to Aboriginal and Torres Strait Islander [first] nations, their assertion of self-determination, and for environmental governance (Strakosch, 2019; Gertz, 2019; Stinson & Lunstrum, 2021). As one clear-cut example of this, the original listing of the WT WHA in 1988 wholly excluded any conceptualisation of Rainforest Aboriginal biocultural spiritscapes, as Place fundamentally shaped by human existence, law/lore and cultural practices (McDonald & Lane, 2000; Memmott & Long, 2002). In critically reviewing the all-dominant Foucauldian biopolitics of Australian governance and policy-making, Brigg (2007) offers us a conceptual *terrapolitics* (the politics of land) as a more positive heuristic device to aid in progressing governance policy discourse for governance impacting Indigenous peoples in Australia. These ideas are further explored in this chapter's discussion of governance.

Babacan and others (2007) state that "[a]ll Australians have a culture", sustaining the meaning of our lives and our life-time understandings (p. 6). Governance is a cultural activity; culture definitively informs all aspects of governance, and the development of public policy as policy-making (Ritchie, 2021a). 'Enlightenment'-derived thinking has not radically shifted in Australia since colonisation; our

contemporary institutions remain dominated by it. 'Enlightenment' reasoning permeates all levels of policy, with a particular resonance in environmental governance (Ritchie, 2021b; Strakosch, 2019). Hybridity of (structural) economic form and hybridity of (organisational) substance can act to ameliorate rigidity in socio-economic and governance policy-making, through a better understanding of the work of social enterprises, such as those which host IPA operations in the study area (Gidron, 2017). Gramsci argues that our understanding of what is 'truth' and what is 'objective in the world' is discovered (by us) in our activity in the world, and that our philosophies should be reflective of the positive and the negative impacts of our actions (Harman, 2007). To avoid or avert cultural hegemony, as expressions of the 'common sense' in a routinised interpretation of the world, organisations need couscous leadership to come together to fight for new ideas. Hegemony, as a 'war of position' practiced by an ethico-political leadership, vests in civil society as a new 'alternative' power to political society (Smith, 2010). Civil society is the place where human ideas emerge to challenge society's dominant structures; transforming structures from the oppressive, assimilative and pacifying, into the means of freedom, renewal and innovation (Smith, 2010). Our biases; extending to a failure to critically analyse differing political foundations, culturally derived conceptualisations of socio-economic benefit(s), and divergent ethical foundations; pose potential disconnects in theorisation around hybridity in social enterprises (Bull & Ridley-Duff, 2019).

2.3.1. Why Use the Biocultural as a Theoretical Foundation?

Denial, denigration and dismissal of place-embedded knowledges underpinned usurpation of the original peoples' sovereignty and their rendering invisible by the invaders, legacies which persist into the whitestream present (Lloyd & Wolfe, 2015; Moreton-Robinson, 2015). Whilst traditional place-embedded knowledges are not wholly extinguished within the study area, the contemporary breadth of knowledge of Place has been transformed just as surely as country has (CVPSC, 2016; Grant, 2017; Turnour & CVPSC, 2016). Where Indigenous or other local peoples are the recognised 'managers' (carers, protectors and transmitters) of their ancestral homelands (as localised ecologies pursuant to conservation statute), the development and implementation of biocultural or similar 'sustainability' indicators has become increasingly commonplace (Bell & Morse, 2012; Sterling et al., 2017a; 2017b). Ecosystem services, and social-ecological systems (SES), approaches to environmental management tend to strongly rely on tailored indicators for the monitoring and evaluation of changes in ecosystems and biodiversity health (Berkes, 2017; Folke et al., 2003; McGinnis & Ostrom, 2014).

In this context, Graham's (2014) theory of the Law of Place and their associated *Aboriginal Terms of Reference Underpinning Place* provide for compelling theory “in reverse”; from the Aboriginal philosophical perspective to the contemporary now, to aid in repositioning this study metaphysically.

Biocultural thinking is socio-ecological, however biocultural interactions are framed within locally relevant cultural perspectives, emphasising localised feedbacks between people (culture) and their environments (ecology) (Callion et al., 2017; Dacks et al., 2019). In contrast, SES approaches and resilience strategies (as responses to severe natural disasters) routinely originate external to a local context, and are generally initiated by non-local actors (Callion et al., 2017; Sterling et al., 2017b). However, the biocultural is more than Indigenous or traditional ecological knowledges; the biocultural is living/aware, embedded in place and deeply political (Bradley & Hedrén, 2014; Brigg & Graham, 2020; Dove, 2006; Nadasdy, 2007). The biocultural is place-vested; intimately connected with Place as locality (Artelle et al., 2018; Ladle & Jepson, 2008). A (re)newed understanding of Place emerges when matters of foundational sacredness are afforded in-depth consideration (Verschuuren & Brown, 2019).

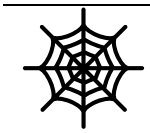
A review of the literature identified diverse biocultural concepts for research consideration. Selected biocultural concepts were compiled as attributes (research inputs/data) for use in scoping a uniform set of query descriptors for applied research and in subsequent data analysis. Research methodology and methods are detailed in Chapter 3. Theoretical aspects are further discussed below.

Table 2.

Biocultural Concepts Derived from Theory for Applied Research Data Analysis

Icon key	Theory element	Biocultural descriptor	Source/s	Theoretical aspect
	Place and Spirit Land is the law, not the laws of man.	• The Custodial Ethic - looking after country, looking after kin • Primacy of family, children, young people • Age and gender recognition and respect • Non-hierarchical with gender equality and Elder authority • Positive group dynamics • Consensus decision-making	Graham, 1999, 2014.	Law of Place, *Aboriginal Terms of Reference Underpinning Place* (Graham, 2014). A relationist ethos (Brigg & Graham, 2020b, 2020c).

Icon key	Theory element	Biocultural descriptor	Source/s	Theoretical aspect
		• Transcendence of ego • Positive conflict management • Non-competitiveness and maintenance of harmonious relations • Land as a moral entity • Land as Law • Spiritual integrity		
	Place-based / Place-vested Place-specific diversity of Life and diversity of human cultures and languages	• Origin of human cultural perspectives (values, knowledges, needs). • Place as well-being. • Gives voice to marginalised/local ontologies. • Tangible valuing of the sacred. • Radical plurality.	Callion et al., 2017; Sterling et al., 2017b; Verschuuren et al., 2021.	Place (Graham, 2009, 2014; Joy, 2018; River Of Life et al., 2020). Spiritscapes (McNiven, 2004; 2016; Rigsby, 1999).
	Language diversity Language arises from Place	• Variety as a reservoir for adaptability • Deeply creative interactions • Synthetic insights		Linguistics (Dixon, 2011, 2019; Dixon & Koch, 1996; Evans, 2016)

Icon key	Theory element	Biocultural descriptor	Source/s	Theoretical aspect
	Co-evolved biological and human diversity Diversity of all life is intimately related	• Self-regulating and sustainable use of Earth's biosphere. • Complex socio-ecological adaptive system.	Boulot & Akhtar-Khavari, 2020; Maffi, 2018; Pretty et al., 2009.	Agency (Bandura, 2002, 2018) Co-evolution (Ferrier, 2015; Thompson, 2016; Wood, 2016) Ethics (O'Donnell et al., 2020) Hybridity (Curchin, 2019)
	Biocultural conservation Culture is holistic, dynamic, ubiquitous and learned	• Socially just and practically focused. • Collaborative. • Genuinely inclusive. • Practiced in line with international norms (e.g.: UNDRIP and Biosphere reserves).	Verschuuren et al., 2021.	Complex systems (Gavin et al., 2015) United Nations Cultural Diversity lens (UNESCO, 2011)

2.4. Restorative Governance - A Proper Decolonisation of Governance?

Complex systems are underscored by human-environment interactions at local, regional, national and global scales, with particular implications for healthy forms of governance and resilience (Cajete, 2020; Dale et al., 2013; Dale et al., 2014). Governance systems have evolved from hierarchical structures of authority to a playing field of broader deal-making between diverse human actors, driving countless interactions between us, and between humans and the planet's environments (Dale et al., 2013; Stoker, 2018). Here I define governance as "the creation, execution, and implementation of activities backed by the shared goals of citizens and organisations who may or may not have formal authority or policing powers" (Asaduzzaman & Virtanen, 2016, pp. 1-2). In its theoretical evolution, the

idea of governance is also transitioning: from being primarily thought of as the specific practices of governing, or the affairs of a political system (e.g.: the nation state); to being understood as polycentric, or nested, systems of power relations and influence (Asaduzzaman & Virtanen, 2016; Dale et al., 2013; Daniell & Kay, 2018; Verbeek, 2017). The reality of the Anthropocene and the present COVID-19 pandemic add extra complexities at all scales (Spash, 2020b). The Wet Tropics is amongst Earth's most climate vulnerable regions: the 3rd most vulnerable of all of humanity's globally recognised protected areas is the WT WHA (Bellard et al., 2015; Le Saout et al., 2013; Roberts et al., 2021). The complexity of the Wet Tropics' biocultural landscapes; their ecological and cultural diversity; and their entrenched settler state institutional systems make governance debates particularly challenging to navigate, and to resolve. Indigenous governance is often defined as locally self-determined and culturally authoritative consensus-building, requiring proper representation, time and resources (Chen et al., 2019; Hill et al., 2014a). As illustrated in section 1.2.1., for Rainforest Aboriginal People, governance is a highly specific matter of cultural authority, joining custodial estates with inherited rights as determined by, and through, kinship relationships (Bama Wabu, 1996; RAPA, 2013; Talbot, 2017).

The Wet Tropics WHA and the buffer appear significantly challenged by dual causes (i.e. exclusion and ecocide) driving its core wicked problem, which I frame as its 'biospheric sustainability' (Figure 2). Ecological restoration is considered a primary strategic priority for the WT WHA's statutory governance agency (WTMA, 2021). Restoration evokes a bringing back of something lost; however beyond that, a restorative agenda for governance must also address historic and inherited removals, or denials, of power (Gills, 2020). A spiritual and ethical restoration at biocultural and ecological governance scales has particular resonance in contemporary Australia (Althaus, 2020; Cunneen & Hoyle, 2010; Nursey Bray et al., 2019; Redvers et al., 2020; River Of Life et al., 2020). Adopting a critical inquiry lens aids me in unpacking systematic and structural governance barriers to dynamic transformational change toward an empowered, inclusive bioregionally scaled restorative agenda (Brand et al., 2020; Di Gregorio et al, 2019). To scope the barriers for structural change, I consider Piketty's concept of proprietarian ideology as a working theory of government policy and regulatory intent, highlighted in the delusion of emancipatory social equity outcomes arising from neoliberal capitalism, and wholly entrenched invasion-imported property rights (Piketty, 2020).

The State's prerogative is to ensure that the marketplace has consistent access to both cheap capital and cheap labour: "a stateless capitalism is unthinkable" (Harvey, 2014, p. 72). Entrenched capitalist modes of production continue their 'business as usual' in exploiting biodiversity (natural) and labour (human) resources to generate highly distortive rentier income, which the State then charges

nominal rent on in order to have the cashflow necessary for investing in the public good (Piketty, 2013). Nation states, and other institutions central to our political economy and public policymaking, are increasingly severely constrained in their power and autonomy by highly mobile financial flows and the influence of transnational corporations (Wironen & Erickson, 2020). The fluidity of capital flows has significant implications for all levels of government, for a real 'good' governance that transcends cultural dissonances and shift policymaking beyond the transactional (Daley, 2021; Ritchie, 2021a, 2021b; Wolfe, 2006). Accordingly, the focus and intent of public investment into public good outcomes requires not only transparency and accountability as governance transactions, but also a publicly minded ethics specifically transcending reductionist normative economics (Brigg & Graham, 2020a; Choy, 2018; Mulberg, 2017; Nelson, 2011).

Perhaps only “an activist and interventionist state”, capable of moving beyond Australia's “radical and profound cultural dissonance”, holds potential for transcending the arguably “exclusive ground” of the settler state's transactional 'service delivery' maxims (Ritchie, 2021b, p. 223). Organic, location (in)vested community-centred integrated development has the potential to create and sustain ecologically aware, culturally empowered and socially just outcomes; embedding and strengthening universal human rights, particularly those of marginalised communities such as Indigenous peoples (Ife, 2016). In northern Australia, hybrid economies - as co-evolving and cross-cultural economic interactions between Aboriginal kin-based societies and market-based transactions - demonstrate both positive ecological governance outcomes, and livelihoods derived socio-cultural wellbeing improvements (Curchin, 2019). Moving beyond the transactional, and the proprietarian ideology underpinning a transactional dynamic, has urgent implications for the governance of both the WT WHA and the broader bioregion. In order for IPAs to realise their full potential, inclusive governance systems are necessary: effectively but dynamically linking RAP governance systems grounded in self-regulated cultural authorities; the State's tenured protected area system, and the State Party's global obligations.

2.4.1. Proprietarian Ideology

Proprietarian ideology drives 'Enlightenment'-derived governance policy, market economic regulations, or the lack thereof (Daley, 2021; Piketty, 2020). Market-based environmental policy settings are limited in effect precisely because the natural is made property, clearly delineated by legal rights, and thereby available for consumption as material resources utterly disembodied from living biodiversity and human communities (Lockie, 2013). Neoliberal ideology directly influences legislative design processes, policy settings and policy content, and the *policy failings* of public government institutions (Daley, 2021; Lockie et al., 2013; Ritchie, 2021b). A fundamental liability of neoliberalism's circular (ir)rationality - 'rational' actors growing enterprises to generate ever more growth - is that

critical risks (e.g.: excessive uncertainty, complexity, potential discontinuity, threshold effects) are purposively ignored, or dismissed, in governance and policy making (Lockie, 2013, p. 79).

Proprietarian ideology further underpins the function, role and status of State parties to the 1972 *Convention Concerning the Protection of the World Cultural and Natural Heritage* (the Convention): a State Party to the Convention is defined by its membership of the United Nations General Assembly, as an internationally recognised nation state (UNESCO, 1972). A State Party nominates, pursuant to the Convention, a defined (mapped) area of its recognised territory for the listing of certain selected OUVs. The Convention is not subject to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) or its principles of free, prior and informed consent (FPIC) (Hales et al., 2013). Heritage assessments are ostensibly framed by normative valuing, underpinned by positivist ideologies and conceptualisations of resource use and resource management, and therefore have powerful political dimensions and a governance context (Logan, 2013). Upon a successful listing, that area is referred to as a World Heritage property, emphasising the State Party's explicitly proprietarian status and role. Additionally, policy makers are afforded an exclusivity based on their role within governance systems, as people who are privy to a government's intimate machinations because they are inside the policy development 'black box', which remains largely obscure to everyone outside of that space (Ayres, 2021; Beer et al., 2020).

Until the 2019 listing of Gunditjmara Country's Budj Bim Cultural Landscape under the Convention, all existing World Heritage properties in Australia were nominated (and subsequently listed) for their natural, cultural, or natural and cultural ("mixed") OUVs. The WT WHA was listed solely for all four possible natural criteria in 1988, despite significant published research being available on the Area's unique cultural values as the contiguous homelands of Rainforest Aboriginal Peoples (Dixon, 2011). The State Party's assertion of constitutional rights against the State of Queensland's proprietarian regime, conveniently touted as an exclusively nature conservation imperative, facilitated and enabled the listing to proceed at the determined exclusion of the original peoples (McDonald & Lane, 2000). This legacy prevails in the present, exclusively government-vested, statutory regimes for WT WHA decision-making and protection, which determine all related governance modalities and institutional policy settings. The present Commonwealth and state statutory regimes do not expressly speak to the rights of Rainforest Aboriginal Peoples to make decisions concerning the care, protection and transmission of the WT WHA, nor in any respect to its buffer. Rather, a set of de-limited rights has arisen through (adversarial) common law actions subsequently embedded in statute, perpetuating the violence of dispossession as a denial of the original peoples' sovereignty (Reynolds, 1996).

2.4.2. Subsidiarity

The principle of subsidiarity in political theory concerns societal task-sharing (Aßländer, 2021). As Indigenous Protected and Conserved Areas, IPAs are established by Indigenous people independently, as polycentric partnerships framed on subsidiarity principles creating socio-cultural, political, and ecological benefits (Tran, Ban, & Bhattacharyya, 2020). In addition to delivering better Indigenous livelihoods, and increased Indigenous governance and management capacities; IPAs improve biodiversity and ecological protection outcomes (Stoeckl et al, 2019). Restrictive laws, demanding partnerships, and insufficient resources however limited benefits (Tran et al, 2020). A subsidiary societal order is characterised by corporate entities taking on specific roles or tasks within the broader political economy, as these socio-economic actors have the particular competencies and capacity to most effectively deliver services at discrete scale for the common good (Aßländer, 2021). The origins of this theory date back to Aristotle and the conceptualisation of a societal structuration of natural hierarchies (Aßländer, 2021, p. 6). At this intersect, however, the (assumed/presumed) non-hierarchical governance of pre-invasion Rainforest Aboriginal Peoples societal structures vis s vis culturally authoritative governance via contemporary incorporated entities arises. Related dynamics are further considered in Chapter 5. International research shows that the development, support, and recognition of Indigenous Protected and Conserved Areas were not found to be an overall solution to the recognition or improvement of Indigenous rights (or of Indigenous land or resource entitlements outside of shared management arrangements), as these remain embedded in settler colonial policies, and laws relating to Indigenous peoples (Watson, 2017; Tran et al., 2020). Nevertheless, subsidiarity holds significant resonance in our potential to move towards resolving complexities in contemporary environmental and resource use governance, toward a new “State of Culture” a la Toniolo; a culturally assured governance across jurisdictional divides (Aßländer, 2021; Martini & Spataro, 2016, p. 112).

Three competing policy narratives presently influence the northern Australian landscape (Dale, 2018, p. 204):

- Development that destroys foundational economic, environmental and cultural assets.
- Regulatory creep in environmental protection without consideration of social justice issues.
- Land reform without support for indigenous community development.

The consequent current policy context for the WT WHA and its buffer can be summarised as:

- OUVs highly threatened by anthropogenic global heating, exacerbated by business as usual settings, lack of nationally consistent emissions reduction policies.
- Regulatory unravelling of environmental protections, abandonment of precautionary principle, continued promotion of commercialised/intensive land uses in buffer.
- Emergent (discriminatory/ area de-limited) approaches at nexus of protected estate land tenure reform and RAP community development (2021 Eastern Kuku Yalanji handback, a precedent setting arrangement within the Wet Tropics bioregion).
- Continuing regulatory impact on the rights and interests of self-defining RAP groups, in the present context of a dynamic reshaping of rights and interests within the bioregion.

Potential solutions to designing a more effective and meaningful policy basis for the Wet Tropics bioregion - encompassing the WT WHA's globally recognised OUVs and their expanded, holistic protection within a potential future RAP cultural landscapes driven and authorised world heritage nomination - need to be grounded in real, meaningful and empowered subsidiarity. Research participant groups indicated that there are a number of critical subsidiarity constraints with respect to governance of the WT WHA and the WHA buffer:

- Federal government legislative reform agenda for the EPBC Act.
- Constitutional recognition of Aboriginal and Torres Strait Islander people, including treaty making, truth-telling, referenda and their intersection with .
- Historically perceived lack of transparency in *Wet Tropics Protection and Management Act 1993* (Qld) review agenda.
- The *Wet Tropics Management Plan 1998* (amended) offers expanded scope for RAP community and economic development within WT WHA, however does not solve governance subsidiarity.
- Presently unformalised culturally authoritative RAP representative governance arrangements: statutory agency default is to engage with RNTBCs, raising significant RAP governance subsidiarity issues (power relations, resourcing, capacity, cultural authority).
- RAP governance subsidiarity functionality and cohesion: RNTBCs, sub-regional entities and place-embedded custodial barra or warra (locality) groupings.
- The Australian government's IPA program enjoys bipartisan political support at federal level, has a committed budget to 2027 (also potential expansion), and is

augmented by federal and state Ranger programs, however policy tension exists between environmental-focused or employment-focused delivery.

- IPA delivery entities in Wet Tropics are extremely diverse, with multi-factor service delivery complicated by a myriad of inter-woven community responsibilities: capacity and focus distorted by COVID impacts, and ongoing externally demanded program obligations and reporting continue to impact the embedding of lateral capacity.
- Critical extra-regional and pan-regional initiatives requiring RAP governance input tax existing organisational capacity: restrictive imposed timeframes (time), limited funds.

A governance system underpinned by robust and viable polycentricity with deeply embedded subsidiarity must build on the existing (and potential) democratic and operational capacity of local and community governance entities (Dale, 2018). Effective and meaningful subsidiarity is supported by strong voluntary regionalism. Strong voluntary regionalism may grow into an endemic regionalism over time. Jurisdictional arrangements under the present Australian Constitution, related legislative roles and fiduciary obligations however are likely to continue to be held by Commonwealth and state levels of government, although the question of ultimate constitutional arrangements remains open at (Hobbs, 2019, 2020). Since the *Uluru Statement from the Heart* was offered to Australia in 2017, the creation of treaty making initiatives has become increasingly dynamic at all jurisdictional levels, and Rainforest Aboriginal custodians are actively considering what these might deliver for their families, communities and governance systems (Hobbs & Williams, 2019; Watson, 2018b).

2.4.3. Polycentricity

Polycentric systems of governance are characterised by multi-locational, multi-jurisdictional, and semiautonomous decision-making and action-taking centres, operating at multiple scales in interacting coherently toward a common goal (Bennett & Satterfield, 2018). Ostrom (2010) states that complex systems require more configural approaches in understanding the elements which underpin self-organised effort within multilevel polycentric systems, and that it is important to fit institutional rules to their specific socio-ecological setting (p. 642). A configural approach entails adopting a multifaceted perspective: not just seeing any one singular aspect of governance, but rather understanding the inter-woven dynamics and complex inter-relationships in play between the full diversity of decision-making centres (governance actors) involved in a particular context.

Discourse identified dimensions of polycentric governance[12] include:

- The governance issue (the common goal requiring solution/s).
- Statutory responsibilities of decision-making centres (statutory role/s of all actors involved).
- Types of interactions amongst decision-makers (e.g.: cooperation, competition, conflict resolution, mutual learning, mutual behavioural change / adjustment, negotiation).
- Rules-in-use (e.g.: self regulated, or constituted by Commonwealth or state statute).
- Degree of dependencies and decision-making among decision-makers (e.g.: extent of formal independence or formal interdependence of each decision-making centre involved).

Governance is fundamentally influenced by human political will (Bennett & Satterfield, 2018). Singular governmental units were historically commenced to tame the chaotic governance structures spawned by mercantilist capitalism, and to increase production and exchange efficiencies, delimit conflict, and promote homogenous public messaging by the hierarchical regulation of non-private resources: public goods and common-pool resources (CPRs) (Ostrom, 2010). Humans, as 'rational (economic) actors' may be capable of reasonable predictions in a competitive market context, however all individuals operate within an endless diversity of lived and changeable social dilemmas. Common-pool resources are vulnerable to the free rider problem (where users who benefit from the what is common property do not fully contribute to its maintenance); efforts aimed at ameliorating this phenomena frequently extend to “centralized governmental regulation or privatization” (Buck, 1992, p. 415). Ostrom's alternative theoretical approach is the design of “durable cooperative institutions [ ] organized and governed by the resource users” (Buck, 1992, p. 416). In the Wet Tropics bioregional context, Dale and others (2021) have determined that broader social adaptations will be necessary for the bioregion's increasingly vulnerable communities and ecologies to adapt to climate change impacts. Localised (placed-vested) adaptation means living with an increasingly dynamic, and unpredictable, climate system. A deep (networked) subsidiarity across human systems (at national, state, regional, sub-regional and local levels) is critical to supporting bioregionally-vested adaptation measures as well as longer-term adaptive governance models (Dale et al., 2021).

[12] Taken and adapted from *Table 1: Dimensions of polycentric and multi-level governance*. Heinen et al., 2021, p.57.

Ostrom and Ostrom (1977) conceptualise subtractability of (resource) usage as a duality between potential beneficiaries and the type of good/s being accessed, exploited or traded: common-pool resources, public goods, private goods or toll goods (e.g. user-pays). Goods are "fluid, heterogeneous and malleable concepts" - goods can further be re-bundled, in responding to disasters where any one actor is overwhelmed, or where a collaborative disaster response is desired or required (Rayamajhee & Paniagua, 2021. p. 71). What precisely constitutes a public good or a private good is subject to human cultural perceptions (i.e.: to ideology or worldview) and to varied interaction between technological and geographic factors, presenting as the biophysical attributes of the particular good or resource system in question (Rayamajhee & Paniagua, 2021). Environmental policy making by Australia's governance systems' (and the related policy valuing of ecology and the biocultural) is highly contested but essential to the public, and to the public good (Coffey, 2019). A user-pays approach to increase statutory funds for WT WHA governance and day-to-day management has been investigated, but was not pursued at the time (Wet Tropics Management Authority, 2017).

A criticism of Ostrom and Ostrom's (1977) definition of CPRs is its delimitation of excludability and subtractability as purely physical or technical attributes, and not as socio-cultural or socio-ethical perceptions (Choe & Yun, 2017). The concept of common property is critical to resource governance, and for initiating sustained green shifts in policy that aim to move beyond the market-state dichotomy through cross-fertilisation, support for collective networks embedded in civil society, and in the encouragement of regulatory cooperation not competition (Nogueira et al., 2021). Political regimes, legislative parameters and policy application can force movement in excludability and subtractability thresholds (Rayamajhee & Paniagua, 2021). Historically conceptualised, subtractability as such also defined by history; with excludability is a socio-ethical attribute shaped by human perceptions, and their economic translations (Choe & Yun, 2017).

I am interested here in Ostrom's (2010) conceptualisation of the common-pool resource (the WT WHA and the buffer) as a [culturally unaligned] duality of property systems, and the public good (shared governance, custodial care of country). In the context of the Wet Tropics that duality of property systems is expressed in; i) the holistic relationist worldview of Rainforest Aboriginal Peoples as enduring custodians of their inalienable (sovereign) countries; and ii) in the settler state's colonial-origin land tenure system as a systematic procedure of alienation (by way of initial violent and subsequent forceful/enforced dispossession) and as proprietarian items of alienable exchange (Reynolds, 1989, 1992, 1996). By definition, the WT WHA is a public good and its OUVs are common-pool resources (Ostrom, 2008; UNESCO, 2021).

Defining the Area's buffer as a public good is more challenging given its' nature as a complex fragmented mosaic of WHA-peripheral contemporary public and private tenured interests (Weber et al., 2021). Nevertheless, the buffer's ecological functionality in maintaining the integrity of the Area is clearly intended to protect, preserve and transmit both the WHA and its OUVs as common-pool resources (buffer ref). In any event, neither public goods or private goods remain static or unchanging in either their nature or their definition over time (Rayamajhee & Paniagua, 2021). Alves (2021) builds on Ostrom's (2010) design principles for successful polycentric, nested institutional systems governing common-pool resources in the context of better understood socio-ecological complexities, here summarised as:

Table 3.

Design Principles for Successful Polycentric, Nested Institutional Systems.

(Taken and adapted from Ostrom (2010) p. 653; and Alves (2021) Table 1: *Ostrom's design principles for long-enduring CPRs applied to Belize's marine resource governance context*, pp. 11-12*).*

Ostrom (2010, p. 653)	**Alves (2021)**	**WT WHA context**	**Buffer context**
1A. User boundaries	Clearly defined boundaries	gazetted conservation estate	non-gazetted, mixed land parcels
1B. Resource boundaries		diverse statutes	diverse statutes
2A. Congruence with local conditions	Connection between local conditions and provisioning rules	RAP cultural values excluded from OUVs, cultural heritage subject to statute, subject to native title statute	Privately and publicly held tenures, subject to statute, in part subject to native title statute
2B. Appropriation and provision			
3. Collective choice arrangements	Collective choice arrangements	governance under exclusive statute, shared management subject to statute or agreement	governance under diverse statutes, management subject to tenure regime and diverse statute
4A. Monitoring users		statutory authority via stand-alone statute, regulatory agencies' compliance action	statutory authorities via regulatory compliance action

Ostrom (2010, p. 653)	**Alves (2021)**	**WT WHA context**	**Buffer context**
4B. Monitoring the resource	Monitoring of resource system by users	statutory authority and diverse partners incl. RAP	diverse local stakeholders including RAP
5. Graduated sanctions	Graduated sanctions	statute determined regulatory penalties	diverse regulatory penalties
6. Conflict resolution mechanisms		ad hoc	ad hoc
7. Minimal recognition of rights	Minimal recognition of rights to organise	limited by statute	limited by statute
8. Nested enterprises		confined / delimited by way statutory framework	nested systems grounded in diverse arrays of tenures and uses

Polycentricity reflects this dynamism: many centres of decision-making, formally independent of each other, potentially functioning as either independent or interdependent systems of relations (Ostrom, 2010). The systematic nature of these multiple centres' coherent functioning generates consistency and predictability in their associated, polycentric, patterns of behaviour. Coherency of function in the study area context is currently delimited by top-down statute. By facilitating organisational diversity, and allowing for organic redundancy of purpose and function; a locally grounded, inclusive, and reflective polycentric environmental governance assists in buffering against unpredictable change ,and potential institutional collapse (Bennet & Satterfield, 2018).

2.4.4. Towards A Restorative Governance

Where the contextual chance to influence governance arrangements is able to be clearly articulated, a systemic analysis may assist to identify structural weaknesses and opportunities for interventions that create change towards more inclusive governance (Dale et al., 2013). Structural weakness may be apparent in a lack of subsidiarity, stifling regionally or locally generated innovations in governance policy and practice (Wanzenböck & Frenken, 2020). Analysis of governance systems and learnings from Australian and international practice points to the need to inclusively consider and integrate the rights of Indigenous and local peoples in world heritage protection and care (Carter, 2012; Grant, 2017; Larsen & Logan, 2018). The necessity and urgency of embedding the original

peoples' continuing propertied rights and interests within the settler state's statutory WT WHA governance system is reflected both in recent Rainforest Aboriginal Peoples' scholarship, and active negotiations between their representative agents and the state (Grant, 2017; Talbot, 2017). International examples of recent innovation in Indigenous governance of protected areas provide additional theoretical insights, albeit the systems concerned are different due to the difference in colonial experiences and resultant jurisprudence, administrative and governance institutions.

Zurba and others (2019) identify six major types of wicked problems confronting Canadian Indigenous Protected Conservation Areas (IPCAs) "that will need to be addressed before IPCAs can achieve both conservation and reconciliation objectives" (pp. 10-13), being:

1) exclusionary "wilderness paradigm" for protected areas: i.e. shifting public and policy misconceptions about continuing Indigenous responsibilities to their homelands;
2) siloed colonial governance: i.e. structural divisions and resource use and management styles that are incompatible with Indigenous governance and stewardship;
3) variations in Crown-Indigenous treaties and land claim agreements;
4) the non-devolution of power by the national [federal] government;
5) the diverse and federalist nature of [national] law and law-making;
6) reporting: i.e. structural barriers and inequality in the provisioning of resources; and
7) tension and uncertainty between scientific and traditional knowledge in protected area management, including issues of knowledge sharing and appropriation.

In formulating their 'problem - solution - process' model, Turnbull and Hoppe (2019) assert that social distance (which they define primarily as a "political differentiation"), and a higher/ lower degree of problematicity (which they define as "problem structuredness") are the actual dynamos for wicked problems (p. 333). In surveying 40 years of wicked problem theory, Xiang (2013) calls for a practice that moves us beyond the pugilist arena of "definitive" solutions to take up a holistic, process-oriented approach which is organically "adaptive, participatory and transdisciplinary" [the APT framework]. (2013, p. 2). Head (2018) proposes that, after 40 years of debating 'wicked problems' in a policy context, there is a deeper understanding of not only the complexities of public policy problems, but of the tools available through e.g.: analysis, management capacities and consultation mechanisms (Head, 2014, p. 181). The key is to moving beyond neoliberalism and NPM paradigms to synergistic, transboundary collaborations in policy design, governance and policy implementation (Coffey, 2019).

The matter of 'wicked problems' is further considered in the framing of the thesis's conclusion and the recommendations arising for further research. Relevant here is their preliminary consideration

as critical factors impacting the Indigenous custodianship and care of protected areas dedicated over Indigenous lands and waters. Restorative justice or procedural justice is a critical emerging pathway to a decolonisation of institutional systems in Australia, by restoring culturally valid approaches to legal jurisprudence, and the systems that operate (for example) criminal justice systems (Cunneen & Hoyle). It needs to be stated that, however that there will likely be some limitation to the potential of any restorative approach. As barriers to an organic restoration are inherent in the construction and operation of settler state institutions, restorative approaches are considered additional but not transformative (Cunneen & Hoyle, 2010). Nevertheless, Zurba and others' (2021) exploration of Canadian IPCA constraint; together with Turnbull and Hoppe's (2019) 'problem - solution - process' model, and Xiang's (2013) ATP framework; do offer useful approaches to inform a rigorous discussion in the conceptualisation of holistic bioregional governance interventions, in the context of the wicked problems confronting the Wet Topics bioregion. Holistic governance interventions - underpinned by hybridity in transformative collaborations - fosters culturally assured subsidiarity and the empowered polycentricity required for these times, for the bioregions' globally exceptional biocultural landscapes. Albeit normative systems vested at present, Australian IPAs are Indigenous-driven, originating in the Indigenous agency of their respective Aboriginal or Torres Strait Islander custodians. In this sense, Aboriginal custodians of IPAs intersecting with the Wet Tropics bioregion are prescient custodians; of their countries, and their inherent and unique biocultural elements, ecologies and biodiversity.

Chapter 3: **Methodology**

...the core value is that the project is placed, or begins, somewhere.

...agency has a placial origin.

(Graham, 2009, p. 72)

The methodological starting point for this study is Place as an originator of substantive meaning and inquiry (Graham, 2009; 2014). *Loci* in its locational primacy; as the focus of "context, interaction and social construction of meaning"; requires Place be included as an integral category for any inquiry seeking to engage with Aboriginal people and their perspectives (Graham, 2009, p. 72). In this study, the bringing together of theory and practice informs the creation of new loci-determined epistemologies, aiming to move beyond the dogmatic textuality and restrictive narration of the mainstream Australian settler state (Graham, 2014; Macdonald, 2019; Spivak & Harasym 1990). Recalibration, or rebalancing, of human metaphysical realities in place provides the impetus for a sober reflection on the limitations of commonly adopted methodologies; particularly those promulgated through a definitional exceptionalism of western scientific knowledge, including the social sciences (Graham, 1999; Gram-Hanssen, 2021; Verschuuren & Brown, 2019). "Place underpins inquiry in the deepest ontological sense, inasmuch as, from an Indigenous point of view, it is the fundamental existential quantifier: it informs us of *where* we are at any time, thereby at the same time informing us of *who* we are" (Graham, 2009, p. 75, original emphasis). Conversely, for settler Australians, being truthful about power relations and owning the realities of ongoing occupation; the "structure of invasion" having specific regard to Place, requires of us deep self-reflections about personhood, identity, ethics and morality (Graham, 2014; Lloyd & Wolfe, 2015; Wolfe, 2006). Only through critical self-reflection, a clear-eyed view of power relations, and the practice of thinking from and with place (as loci) will the occupying culture be able to arrest and counter the continuing erasure, usurpation and denial of the original peoples' traditional languages, customary norms, systems of Law and situatedness in their countries (Altman & Klein, 2017; Joy, 2018; Wolfe, 2006). This is the relationist perspective in action, as a serious contributor of knowledge-in-practice for the social sciences (Bensimon, Polkinghorne, Bauman, & Vallejo, 2004; Slife, 2004).

3.1. Methodological Approach to the Research

The overall study methodology invited involvement in a research and engagement process originally conceived to be collaborative in origin and intent, and transparently located *in situ* (place). As outlined in Chapter 1, Indigenous Protected Areas (IPAs) exist *in situ* at the interface of modern Aboriginal practices informed by tradition, Law/Lore and custom, and the settler colonial state and its

historical legacies of dispossession, development impacts (and their Euro-centric mitigation) and contemporary environmental protection (Smyth, 2015). As a suite of places, IPAs are governed by their respective Aboriginal or Torres Strait Islander custodians through legal or other effective means on exclusive possession and non-exclusive possession lands (the latter through collaborative management arrangements or Indigenous Ranger groups, for example) (Smyth et al. 2014). I engaged with a diverse range of Indigenous and non-Indigenous research participants to capture their diverse regional perspectives on IPAs in relation to the WT WHA and its peripheral buffer. The study invited participant insights to alternative economic ideas, biocultural concepts, and perceptions around the potential (or not) for these to inform a restorative approach to the governance of the WT WHA and its buffer. What might constitute good governance in this context has also formed part of the place-focused inquiry.

A transparent relationship with, and to, place is critical in placing the research's collaborative approaches to the construction of new knowledges concerning the governance and management activities of Rainforest Aboriginal Peoples, and their diverse IPAs, within their proper (culturally authoritative) country - in engaging with the right people for the right reasons, and at their self-determined times and locations (Kovach, 2009; Schultz & Rainie, 2014). Reconceptualising the educational value of the research as a mutually constructionist endeavour of applied place-specific inquiry engaging with Rainforest Aboriginal research participants aimed to aid in decolonising the foundational academic dynamic of the study (Alanazi, 2016; Thornton, Graham, & Burgh, 2020; Thuiwai Smith, 2005). In light of the diversity of the study area's communities, including the diversity of its Rainforest Aboriginal Peoples self-determined identity groups, the validity and necessity of self-expression and intellectual exchange assumed even more significance and importance (Ackermann, 2001; Zurba et al., 2018). Several distinct theories of reality (ontologies) informed the empowered research collaboration approach originally central to this project. These ontologies encompass:

- my personal theoretical perspectives as the principal research investigator; my own ethnic background as a first-generation immigrant German Australian to northern Queensland, and citizen of Earth / Gaian resident (Lovelock, 2003);
- those of Indigenous research participants, including Rainforest Aboriginal Peoples; and
- the views and interests of other (non-Indigenous) actors in the governance and/or care of the WT WHA and its buffer.

These dual-multiple (Indigenous : non-Indigenous; immigrant : non-immigrant) ontologies are located within the study area's regional political economy, ultimately shaped and driven by a globalised neoliberal ideology, which further directs the socio-cultural systems and institutions of governance

and management operating within the study area (Barnett, 2005; MacLeavy, 2019; Watts, 2016). Our regional political economy is predominately conducted within the constraints and distortions of a now globally pervasive neoliberal ideological bias (Harvey, 2007; Ince, 2018; McShane et al., 2016). The methodological position of this research is that alternative ontologies are not only desirable - they are now urgently required to inform the birthing of new loci-determined epistemologies (Artelle et al., 2018; Hemming & Rigney, 2010; Kruger, 2021; Mackinlay & Barney, 2014). Indigenous knowledge has explicit and crucial value for the construction of cost-effective, participatory and sustainable development processes, and ethical governance (Agrawal, 2014; Berkes, 2017). This study hinged on ethical and considered knowledge co-production between Indigenous participants, non-Indigenous participants, and myself as the researcher. Co-production in professional contexts is demonstrated in five key attributes: being context driven; having transdisciplinary scope; encompassing heterogeneity and organisational diversity; embedding reflexivity and undertaking quality control (Rodríguez-Labajos et al., 2021). Meaningful collaboration underpins effective knowledge co-production: international research finds that related partnerships frequently exhibit four interlinked principles (Zurba et al., 2021). These interconnected principles are, the:

1) recognition of contextual diversity bounding knowledge co-production (i.e.: recognising that knowledge co-production takes place within defined contexts);
2) pre-emptive (early) and intentional (sustained) engagement with Indigenous knowledge holders;
3) formation of shared understanding of the purpose of knowledge co-production; and
4) empowerment of knowledge holders throughout the co-production cycle.

During knowledge co-production, these four principles manifest as multi-faceted avenues for interpreting, bridging, applying and distributing power amongst the diverse knowledge systems and their originating epistemologies (Zurba et al., 2021). Zurba and others' (2021) suite of interlinked principles positively augment the attribute suite identified by Rodríguez-Labajos and others (2021), and both suites inform the overarching knowledge co-production methodology I have adopted for this study. Shareable biocultural, traditional ecological or other place-based knowledges informing the querying of the this project's three theoretical themes were to be generated and documented through a series of research focus groups (FGs) to be held with IPAs operating in the study area (Ayre et al., 2021; Ens et al., 2015; Kovach, 2009; Macdonald, 2019). My FG methodology was intended to be informed by locally applicable Rainforest Aboriginal protocols to scope the collaborative research approach, as initially stipulated or iteratively advised by a participating Rainforest Aboriginal group (Graham, 2009; Kovach, 2009; Thuiwai Smith, 2012). The approach aimed to respect the cultural

authority of each IPA invitee group to inform me, as the researcher, about the most appropriate approach to be taken within their local community context. Taking this approach meant that subtle differences could potentially evolve in the precise methods to be adopted with any one particular IPA participant group, or to any IPA FG session held, other than those stipulated under the study's ethics approval. Iterative tailoring of FG knowledge co-production approaches could then in this way respect localised Rainforest Aboriginal protocols, thereby potentially enhancing the depth of the research data ultimately able to be derived through any one IPA FG session (Brigg & Graham, 2020b; Graham, 2014). This initial methodological approach respected the duality of Indigenous perspectives arising from local applied practice vested in Rainforest Aboriginal cultural governance, and those arising from rights-based determinations through common law institutional mechanisms (Marshall, 2020; Review Steering Committee, 1998; River Of Life et al., 2020; Turnour & CVPSC, 2016). For a number of reasons, the originally envisaged IPA FGs were unable to be conducted. The reasons for this are outlined in Chapter 4. Research data was able to be obtained from regionally-focused Rainforest Aboriginal and non-Indigenous governance and/or management groupings, and from IPA policy experts through 12 in-depth semi-structured interviews; and from targeted textual analysis of selected relevant secondary sources as informed by the literature review (Appendix 2).

3.1.1. Critical Inquiry

In this study I have adopted a *critical inquiry lens* to uncover the relationship between people's everyday meanings with the socio-cultural environment, and the prevailing political economy. A critical inquiry lens helps to shift thinking and perceptions away from narratives of circular transformations toward radical axial transformations, by politicising and pluralising biodiversity conservation and sustainability discourse (Massarella et al., 2021). Axial transformation / revolution is defined here as "moving to a different way of thinking about the issues", and bought about through the development and application of "'non-conventional tools and approaches" which enable individuals to critically examine existing assumptions (O'Brien et al., 2013, p. 50). This requires not just systems change, but changing people's views or perception of the system(s) under inquiry, by addressing the originating mindset or paradigm (O'Brien et al., 2013, p. 51 & 57). Whilst I was unable, as a non-Indigenous researcher, to directly apply Talbot's *Empowering Indigenous Lens* (2017, pp. 30-33), I was informed by their experience as an Indigenous researcher undertaking a specifically governance-focused co-research methodology with Rainforest Aboriginal Peoples. Talbot's *Walking Together* process is an adaptive application of methodological innovation, empowering their Indigenous research work, and their research with RAP collaborators, centred on a circular five step process of invitation; conversation and interview; analysis; feedback and reinterpretation (2017, pp. 34-35). As a non-Indigenous,

hybridised 'dweller-in-place', I adapted elements of my own long-standing practice in applied planning for country - very similar to the *Walking Together* process in intent and implementation - to this study's methodology posited within the Cultural Interface (Yunkaporta, 2009). Key elements in my own ethical practice were; respect, repricocity and collaborative equity; the latter of which is delimited by the overarching academic context of the research, this thesis and any resultant policy improvement recommendations (Althaus, 2020). My ethical practice was evident in my research methodology seeking engagement with Indigenous participants; in my adherence to the university's ethics approval and codes for responsible research; and in my observance of the *National Statement on Ethical Conduct in Human Research*.

No research work is a linear process: research is a method of discovery that takes divergent pathways (Charmaz, 2006). Debate among social theorists around constructivism and constructionism is readily acknowledged (Andrews, 2012; Charmaz, 2006; Chilisa & Kawulich, 2012; Gergen, 2001). Nevertheless, the originating principal theory of knowledge (epistemology) I adopted for this study is social constructionism, which I define here as being reflective of the idea “that the world that people create in the process of social exchange is a reality *sui generis* [unique]” (Gergen cited in Crotty, 1998, p. 58). Social constructionism as a perspective viewing “all knowledge, and therefore all meaningful reality [as being] contingent [on] human practices”, as unceasing constructions arising from every interaction between humans and the world around us, and created and shared “within an essentially human social context” (Crotty, 1998, p. 42). Crotty further asserts that while, philosophically speaking, there may be interpretative differences between “the construction of social reality” and “the social construction of reality”, the fact is that the social and natural worlds inhabited by humans is (biophysically) one and the same (1998, pp. 52-57).

I share in this philosophical view: humans make sense of their environments from within socially lived sets of inherited norms (which, I argue, for continued human survival, must be malleable). However, I must take care in adopting a constructionist methodology. Stimulated by the deconstructive-reconstructive intent of research conversations, my own perspective shifts, and those of the research participants, could create new “patterns of relationship”, or “alternative forms of action” to progress transformational change, including cultural change (Gergen, 2001, p. 160; Kovach, 2009). In considering Papert's original idea of constructionism being an intellectual inquiry facilitated by the constructed learning and handling of visible, tangible objects, I adopted a methodology which pro-actively aided knowledge co-production and textual co-construction (Alanazi, 2016). In embracing the 'abstraction' so often banally assigned to the 'other', I acknowledge their centricity of feeling; of the sacred; of place as temporal, lived and located (Andrews, 2012; Brigg & Graham, 2020c; Spivak,

2015; Zurba et al., 2021). As elements of agency in Place, Indigenous (re)interpretations of highly theoretical concepts give voice to those frequently considered the voiceless "subaltern"; and reciprocal knowledge co-construction exchange holds potential to facilitate novel or alternate political autonomies (Gramsci, 2011; Spivak, 2015). Being open to an understanding of the philosophical underpinnings of explicitly Australian Aboriginal worldviews, and an Indigenist relationist perspective, allows for dynamic discourse beyond 'us versus them', where the subaltern 'other' is rendered continuously choiceless (Graham, 1999; River Of Life, 2020). By being place-grounded, for the explicit generation of a new loci-specific narrative, this study's intellectual collaborations have translated into newly made, newly woven "objects-to-think-with", as mutually shaped learning to learn (Ackermann, 2001, p. 4; Alanazi, 2016; Spivak, 2015). In doing so, I have built on social constructionism's cyclical model of iterative, self-directed learning (Ackermann, 2001).

3.1.2. Decolonising Methods and Empowered Collaboration

Kovach states "[e]pistemology and research methodology are a tightly bound, complex partnership" (2009, p. 55). De-colonising theory and associated methodologies remain relevant and central to a refutation of prevailing orthodoxies across our contemporary society and its governing institutions (Kovach, 2009; Thuiwai Smith, 2012). Agrawal describes science as being practice and culture (Agrawal, 2014). In my role as researcher, I have taken care not to fall into the trap of knowledge dichotomies (i.e.: of labelling or categorising knowledge as being either 'western scientific' or 'Indigenous traditional' knowledge]. Productive dialogue arises where it is clear what the intentions for "knowledge protection, systematizing and dissemination" are; and where it is recognised and acknowledged that resultant benefits may apply differently to different people (Agrawal, 2014, p. 5).

Imperialism takes multiple forms and has a wide range of impacts and implications, only some of which may be overtly perceivable to non-Indigenous researchers such as myself (Thuiwai Smith, 2012). Furthermore, decolonising methodologies are integral to discourses about ecological economics, ecological ethics, climate justice and climate governance (Brigg & Graham, 2020a; Nelson, 2011; Sapiains et al., 2021; Taplin, 2004; Washington & Maloney, 2020). Furthermore, distinctions can be drawn between decolonising methods and Indigenous methodologies; and academia may operate in entirely separate spaces as a consequence of its own inherent colonial origins (Chalmers, 2017). Knowledge coevolution and meaningful collaborations help address the multi-faceted legacies of dispossession, bringing people and country together in the now, for new shared learning (Fazey et al., 2020; Finegan, 2018).

Gieseke (2017) finds that the emergence, and attainment, of resilient social and institutional platforms require shifts in paradigms beyond "familiar processes" of continuous improvement (p. 238). I designed the interview schedule to explore a participant's understanding of EE and biocultural paradigms through structured and open-ended questioning, enabling a flowing conversation to emerge. In holding in-depth semi-structured interviews with participants at venues self-selected by them, the research, as an exploration of frequently highly unfamiliar paradigms, was conducted in intimate and safe settings (Kovach, 2009). I attended at times and venues as scheduled by each participant, or at mutually pre-agreed rescheduled interviews. Acknowledging the (busy and complex) professional role(s) of each participant, and the confidentiality of each contribution, respects the dualities of individual and collective investments in the sustainability of a complex (WT WHA and buffer governance) system. All of us, myself included, act as "complexity agents" in this embedded and engaged work, and in doing so we enact the attendant protocols of connectedness, diversity, interaction, and adaptation (Yunkaporta, 2019, p. 270-271). In consciously and unconsciously applying complexity agent protocols, we understand our connections to transcend the individual point in time paring arising at interview: we are all part of a wider network of networked agency. Further, we are actively interacting with the unfamiliar (i.e. with diversity); and "transferring knowledge, energy and resources" to give effect to transformation, and the generation of new feedback loops (Yunkaporta, 2019, p. 271-272). As "strange attractors", our contributions come together in creating new (vertical and horizontal) dialogue across local, regional and statutory governance levels (Carter, 2021, p. 496).

3.1.3. Positionality

Positionality is *where* I am placed in relation to the research, and is therefore defined by my attributes but also by my “values, perspectives and worldviews”, including “both [my] taken-for-granted standpoints and chosen research starting point” (Charmaz, 2020, p. 174). Positionality does not end once identified or recorded as part of a research approach, my positionality has remained a central component of the entire research process - a key ingredient in the formulation and delivery of effective, meaningful and justifiable research (Maclean et al., 2021a; Muhammad et al., 2015). As a critical aspect of the overall research process, my positionality relied on reflexivity ('a good enough' critical self-reflection); and my understanding and navigating identity and power relationships within the research context; between myself and the research participants (Berger, 2013; Muhammad et al., 2015; Russell-Mundine, 2012). I determined that, for the purposes of this study, the most useful and appropriate conceptualisation of reflexivity was that framed within a developmental approach to the research methodology: placing a dual emphasis on my stepping back to theorise about, and my stepping up in being an active part of the interplay between methodological development and

reflexivity (Attia & Edge, 2017). A developmental approach respects the underlying equity required across the research in developing new knowledge, awareness and understandings which can transcend the bounds of "pre-determined hegemonic models" through collaborative synthesis (Attia & Edge, 2017, p. 35). Adopting this approach moves reflexivity beyond simple analytical insight - or, worse yet narcissism - by enabling my iterative reflection on the study methods, their evolving knowledge co-productive potential, and the study's actually realised results and findings (Maton, 2016).

Reflexivity describes an ongoing process of "internal dialogue and critical self-evaluation" which I undertook as the researcher in order to explicitly understand, recognise, review and adjust my position in relation to the research participants (Berger, 2013, p. 220). Reflexivity required me to objectively and dispassionately self-reflect about my own particular situatedness throughout the research engagement, in addition to the situatedness of each of the research participants. Reflexivity in practice, and of necessity, "challenges the view of knowledge production as independent of the researcher producing it", and the objectiveness of the research findings (Berger, 2013, p. 220). As such reflexivity delves into the heart of the ethics of a collaborative research project, particularly where the participants have originated from significantly different ethnic backgrounds to my own. I was mindful also that our respective reflexivity was potentially compounded by divergent life experiences (emic) and social circumstance.

For this research, I was both an 'insider' from the perspective of some (Rainforest Aboriginal and non-Indigenous) participants and an 'outsider' for others (again, from the perspectives of both Rainforest Aboriginal and non-Indigenous participants) (Maclean et al., 2021a; Muhammad et al., 2015). Memmott and Long (2002) argue that "explor[ing] all areas of overlap between the emic and etic or Indigenous and European value systems" is instrumental in understanding place as a process of people-environment interactions (p. 53). I occupied the "edge, or margin, between multiple worlds and perspectives", and as an a non-Indigenous "edgewalker", navigated spaces which may have appeared hazardous to observers placed in the academy, or in the actual field of my research focus (Beals, Kidman & Funaki, 2020, p. 593). I acknowledged also that I was entering the (multiple) cultural settings of the research participants: Rainforest Aboriginal Peoples, statutory agencies, peak bodies, (Aboriginal) local government, and (non-Indigenous) IPA policy-making. In doing so, I bought my emic, or individual, focus and perspectives into the research collaboration space. However a solely etic approach, as a non-complex of subjectivity and objectivity, is not of this place - the Wet Tropics, nor of its many diverse original peoples, or even its newcomer communities. I am one of those newcomers, a first generation immigrant. My functioning as an "edgewalker", however, has arisen over decades of applied professional practice in this place; and in the myriad of cross-cultural relationships which I have

been gifted by Rainforest Aboriginal Peoples; that I have built with others living and working here; and that I hold as precious facets of my own learning from life-long sharing and multi-cultural experiences.

During the progression of the research, the perspectives of participants likely also changed in how they positioned me vis a vis their own situatedness (Russell-Mundine, 2012). The positionality of the researched, and of the research participants themselves must be considered but not presumed (Maclean et al., 2021a). Maintaining a reflective journal assisted me to track how I consciously self-reflected and responded to the fluidity of these diverse 'insider' and 'outsider' dynamics during the study (Berger, 2013). In developing and analysing my own critical thinking for this study, I build on my four decades of lived experiences in the region, including over two decades of learnings derived from direct professional engagement with the region's IPAs (Pitard, 2017). Recording identified weaknesses in my own understandings as the project progressed enhanced my independent problem-solving skills, facilitating my own deeper understating of both academic processes and the emerging research data. An ongoing process of critical self-reflection was of particular importance for this study given my long-standing personal relationships, community and professional associations with Rainforest Aboriginal People, and non-Indigenous participants, within the study area (Berger, 2013; Catungal, 2017). I was compelled to balance my passion for the research collaboration with the necessity of remaining objective, transparent and equitable in my engagement with all participants; regardless of past inter-actions, or the benefits I have obtained through past collaborations.

My Role as Researcher

I am interested in research beyond my own internalised meaning making, i.e.: beyond some definitions of constructivism (Andrews, 2012; Boden, 2010; Crotty, 1998). My approach in this study recognised the reality of the cross-cultural research context, and that meaning is produced and reproduced by people within their contexts, taking into account the diverse lived experiences, cultures and environments of participants (Kinsella, 2006). The research approach I adopted views meaning and perception as socially constructed in the research process, and does not seek a single source of truth (Kovach, 2009). My well developed understanding of Australia's more recent history and the international context of imperialism and colonialism provided a sound grounding in critical thinking (Chomsky & Waterstone, 2021; Reynolds, 1981, 1996). My understanding in this respect has been definitely enhanced and enriched by 25 years of professional collaboration with Aboriginal and Torres Strait Islander peoples in diverse regions of Australia, including in the Wet Tropics. I understand the specific histories of place within the land and sea countries of the traditional custodians, and their communities who have engaged me (Brigg & Graham, 2020c, 2020d; Joy, 2018; Review Steering Committee, 1998). I have worked in India for Sri Lankan Tamil repatriates, amongst Earth's most

marginalised and dispossessed humans. I routinely embed within my practice active processes of empowered, respectful knowledge sharing. The importance of being informed about, and adhering to, "protocols of respect and practices of repricocity" cannot be overstated (Thuiwai Smith, 2012, p. 137).

My Own Heritage and its Philosophical Traditions

My German background and intellectual heritage is influenced by diverse philosophical traditions of critical social and economic inquiry. As a person growing up in a culturally diverse household, I experienced first-hand on a daily basis the migrating 'in and out' of the new, of the Anglo-spheric 'other' (in some contrast to my own Teutonic heritage) and the Indigenous 'other' (in strong contrast to that heritage). I am interested in diverse seminal texts written by earlier theorists including Adorno (2004), Dilthey (1922), Kapp[13] (1950, 1961, 1972), and Rosa Luxemburg. My immigrant and broader life experiences are reflective of a personal philosophy of pragmatic realism. Adorno warns of humanity's blind domination of nature in our hyper-reliance on productive resources (Horkheimer & Adorno, 1969). An exclusively positivist approach to the human interpretation of the natural world is restrictive and limiting: in identifying Auguste Comte as the founder of positivism, Callinicos notes the attendant idea that "the modern sciences constitute the only valid form of human knowledge" (Callinicos, 1999, p. 64). Since my family's migration to north Queensland in the mid 1970s as a child, my life and professional experiences have been underscored by the challenge of moving beyond the strong positivity inherent in my personal cultural background.

Limitations to the exclusivity of positivist science are central to Wilhelm Dilthey's argumentation that the metaphysical underpins human worldviews, and brings real value to the human experience. Dilthey further proposes that only a multidisciplinary approach to human history can do society justice - individuals as the carriers of history, and also as the product(s) of history (1922). K. William Kapp's original concept of the 'bio-cultural' intrigues me: "The human capacity [for self-actualization] is the specifically human intelligence which develops in the course of the reciprocal interaction of a unique biological structure with a [human] cultural milieu" (1961, pp. 154-157). For me, Kapp's 'bio-cultural' evokes additional resonance in the consideration of the State's biopower over the Foucauldian *milieu*, as against my own individual biopower, let alone that of the 'other' (Rostan, 2018). I believe that a humanist perspective is essential to forging a genuine restorative approach, and that de-colonising ontologies do inform a socially just, and ecologically respectful, restorative agenda for the study area, and for global humanity.

[13] And further; Kapp, Berger and Steppacher (2011), and Kapp and Mukherji (2010).

3.2. Method

A research method within the context of the social sciences is described as "an organized [sic], logical way of learning and knowing about our social world" (Blackstone, 2018, p. 4). In bringing together both qualitative and quantitative social research techniques, my study engaged in method mixed-method data collection and mixed-mode data analysis (Bhattacherjee, 2012; Blackstone, 2018). This section provides particular details of the project design as a mesolevel interpretive study, and the systematic and transparent data collection and analysis methods applied to ensure research rigour (Bhattacherjee, 2012; Blackstone, 2018). The study seeks to engage participants who are experts in their professional field of (protected area) governance and/or management. Research design was informed and shaped by the experiences, insights and/or needs of participants, facilitating the generation of authentic, culturally assured qualitative data to inform emerging restorative practice. Mixed method data was generated through a literature review, discourse analysis, research participant (stakeholder) analysis, textural analysis including comparative analysis and triangulation, and statistical analysis of quantitively derived data attributes.

3.2.1. Literature Review

The overall approach I adopted in undertaking the Literature Review recognised the respective complexity of this study's themes, and particularly dynamic disciplinary debates. Furthermore, the core study themes are either highly theoretical (i.e.: philosophical theories of critical inquiry; EE; alternative economic theories), or complex systems in and of themselves (i.e.: biocultural concepts; restorative governance; the study area). A focus on peer-reviewed journal articles published over the past half decade allowed for the initial literature review, which I undertook in early 2021, to highlight leading research, critiques and relevant disciplinary debates (refer to Appendix 2). Systematic keyword; keyword phrased and/or combination searches were undertaken (at times purposively delimited to ensure manageability of returned result volumes), to identify:

- peer-reviewed journal articles published from 2016 to present;
- seminal works (by review topic) or other highly cited academic texts;
- seminal works or academic texts specific to decolonizing research methodologies; and
- English translations of selected German philosophy on theories of critical inquiry.

Seminal academic texts included edited academic or expert disciplinary publications (grey literature) to better understand the historical context of the various review topics. Review searches on both core thematic elements provided me with a rigorous, contextualised grounding for developing the review focal question and the overall research question. Consultations with the university's liaison

librarians enabled me to gain deeper insights into academic search methods, appropriate disciplinary referencing protocols (APA6) and approaches for the construction of review queries. Given the specific context of the study area as a listed World Heritage property, and the research project's proposed collaborative approach involving Rainforest Aboriginal People, I elected to include selected realist review elements through a qualitative review of selected hand-searched seminal texts and older philosophical literature; e.g.: seminal hand-searched grey literature by selected theme, date delineated to >1988 (the year of the WT WHA listing). I sourced the hand-selected grey literature I evaluated as being of relevance to the research question from my personal library, or from the university's Eddie Koiki Mabo Library.

The study's human ethics approval submission requirements (Ethics Approval H8369) required early searches to inform selection of an appropriate research approach, research paradigm(s), methodology, and methods. From these searches I gained insights into qualitative and quantitative research methods; purposive sampling definitions and techniques; decolonizing methodologies; hermeneutics and critical hermeneutics; Indigenous methods and methodologies. In addition, I undertook specific searches querying [decolonising research"]; ["social constructionism theory" AND criticism]. I sourced seminal disciplinary references on Indigenous methodologies from the Eddie Koiki Mabo Library, and conducted initial literature searches using diverse online databases. These databases included the Centre for Aboriginal Economic Policy Research (Australian National University), JCU One Search, Gale Academic OneFile, Google Scholar, Informit and Scopus. Initial searches returned large to very large result numbers, requiring objective finessing of search formulae for the generation of more relevant and useable results. I filtered searches returning > 50 results were filtered by frequency of peer-reviewed citation, with additional considerations given to open access publishing and relevance to the study area or the focal research question. Exclusion criteria applied to delimit thematic searches returning very large result numbers used particular keywords, e.g.: ecological footprint, feminis*, health, urban and tourism.

As the research progressed, the thematic meta-analysis I first instigated as a result of the initial literature review provided a solid foundation for my ability to iteratively access and consider current peer-reviewed literature. I added significant literature on a progressive, iterative basis; including literature of interest referenced by research participants. Searches I undertook for the first core theme EE (and EE benefits) continued to help grow my own understanding of, and my capacity to define, current debates characterising this still emergent discipline, and its theoretical foundations. Searches I conducted for the second core theme provided insights into the practical application of biocultural concepts in the dynamic context of international and Australian knowledge co-production in this field.

3.2.2. Research Participant Analysis

In developing the study's original methodology, I was interested in first obtaining, if possible, local IPA and/or other RAP insights into EE and biocultural concepts, before collecting comparative primary data through regional stakeholder interviews. I therefore undertook an analysis to identify the key organisations, individuals and Rainforest Aboriginal Peoples entities intersecting with the study's aims and objectives. To enhance the participant pool over time during the study, I adopted a second non-probability sampling strategy, being referral sampling. In determining these analysis approaches, I did consider quota sampling. However, whilst potentially useful in the ultimate transferability of research data, I considered quota sampling an inappropriate non-probability sampling method for this study. I made this decision on the basis of my understanding of, and respect for, the discrete cultural protocols (including the custodial cultural authorities and respective RAP governance systems) inherent in each of the three IPAs intersecting with the Wet Tropics bioregion.

Expert sampling is a non-random (and thus non-positivist) technique allowing for the selection of research participants on the basis of their demonstrable or known expertise about the research subject or phenomena (Bhattacherjee, 2012, p. 69). In initially designing the project methodology, I considered the potential of this sampling approach to enhance the overall research effort in accessing additional credible data, with the understanding that any findings arising from the use of the expert sampling method would not be not transferable to the broader regional population (Bhattacherjee, 2012). I elected not to apply expert sampling in the first instance. However, in seeking necessary additional research participants during the study, I chose to adopt expert sampling to collect non-local, i.e.: generalised) but policy-specific IPA-related data, as the method expressly allowed for invitations to be made to experts in their respective fields (as may be directly relevant to the study area; to the research question, and/or its thematic components). Expert sampling results are at Appendix 3 and.

Referral sampling (also referred to as snowball sampling or chain sampling) was used to augment the initially identified cohort of participant groups and individuals, so as to broaden the ultimate pool of research participants, also impacted by inability to conduct IPA FGs (Robinson, 2013). I preferenced the term 'referral sampling' as I believe it to be more relatable than the term 'snowball sampling' or 'chain sampling'. The referral sampling technique is known to be useful in identifying recruits from “hidden” populations (Wright & Stein, 2005). These are generally social or cultural populations that may be 'hidden' from my own perceptions or awareness, or who deliberately “hide” from research, e.g.: due to a lack of trust or confidence as to how their data might be collected and/or used (Kovach, 2009). These groups or individuals may show a reluctance to engage in research, or with research institutions in general, particularly in the absence of any prior relationship (Wright & Stein,

2005). This is particularly the case for marginalised or Indigenous populations, where research is very frequently dominated by a distinct lack of reciprocal benefits (as purely extractive research), or where there is no relational base grounding the research, and respect and repricocity may be perceived as rhetorical (Kovach, 2009; Thuiwai Smith, 2012).

The overall approach I adopted for referral sampling in the context of this project was grounded in my reflecting back to the individual participants in key leadership roles within the initially sampled participant groups; and in seeking their informed advice as to additional participant recruitment congruent with the parameter: current or past applied governance and/or management expertise in the study area, and/or IPA policy expertise. A number of referrals made by participants during the research collaboration have added to the participant pool.

3.2.3. Data Collection

I adopted Robinson's framework of four 'pan-paradigmatic' points in structuring my sampling approach to obtain research data: 1) setting a sample universe; 2) selecting a sample size; 3) devising a sample strategy; and 4) sample sourcing (Robinson, 2013, p. 25). In determining sample size, I relied on the study's aim of obtaining theoretical or hermeneutic insight through the research collaboration, and the realisation of an adequate sample range, given that final participant numbers were initially unclear. I monitored, and responded to, the project's practical realities as these emerged, and adjusted - or reconsidered - my sampling strategy, as the specific details of participant entities or individuals were able to be confirmed, or not (Robinson, 2013, p. 30). The contact details of the initial cohort of IPA organisational representatives (as a first point of contact) were publicly available through the official organisational websites of all initially invited participant groups. The initially sampled IPA participant groups (PG) either held:

1) direct responsibilities for IPA governance of the WT WHA and the buffer; and / or
2) direct responsibilities for statutory governance of the WT WHA and the buffer

and / or either:

3) direct responsibilities for IPA management of the WT WHA and the buffer; and / or
4) direct responsibilities for statutory management of the WT WHA and the buffer.

The selection of appropriate and relevant analysis techniques required me to consider the inclusive, culturally respectful and ethical identification of research participants (Fourmile, 1998, 2000; Kovach, 2009; Thuiwai Smith, 2012). As I described earlier, my selection was informed by the objective analysis of regional institutions and organisations directly concerned with governance, management,

and/or both governance and management, of the WT WHA and the WHA buffer using Robinson's approach to qualitative sampling (2013, p. 26). The subsequent data analysis I undertook was based on the study's systematic (and systematically reviewed) research methodology and design (Davis & Ruddle, 2010). My analysis took into account the realities of political dynamics within the study region, and the necessity of respecting Rainforest Aboriginal Peoples' self-agency and self-determination at their preferred level and scale (Foale, 2021). Participant selection was further guided by my in-depth understanding of the region; its population make-up and its diverse communities; and the governance systems, institutions, and management actors directly associated with the study area.

The term “stakeholder” is routinely rejected by traditional custodians, at both organisational and individual level (Marshall, 2020; Review Steering Committee, 1998; Taylor et al., 2019). This rejection is based in a clear understanding by traditional custodians that they are fundamentally rightsholders in any matter concerning their ancestral lands, waters and resources; and therefore are not to be genericised as simply another interest holder (McNamara, 2014; Reed, Brunet, & Natcher, 2020). Colonially-derived, institutionalised denial or trivialisation of custodial rights has routinely allowed for the categorisation of traditional custodians as a diminutive stakeholder interest in environmental governance terms (Reed et al., 2020). Assertion of Indigenous governance is clearly scoped in terms of sovereignty, grounded in Indigeneity and self-determined rights, knowledges and territorial presence - i.e. in Place (Graham, 2014; Reynolds, 1996). Rainforest Aboriginal Peoples have long asserted a rights-based interest across the study area, with more recent broader 'mainstream' recognition arising through native title determinations (Review Steering Committee, 1998; Talbot, 2017).

I adopted an internationally scoped differentiation between stakeholders and rightsholders, contextualised to protected areas. Rightsholders are “actors socially endowed with legal or customary rights with respect to land, water and natural resources” and stakeholders are those who “possess direct or indirect interests and concerns about [land, water and natural resources] but do not necessarily enjoy a legally or socially recognised entitlement to them” (Borrini-Feyerabend et al., 2013, p. 15). In recognising RAP as rightsholders - pursuant to Law/Lore and Custom, and under Australian common law, and for reasons of respect; I use the alternate generic term “research participant”. Use of the alternate term emphasises the participatory nature of the intended research collaboration. My results were informed by publicly searchable, official organisational websites accessed during 2021.

I undertook an initial search using the query search function through the Australian Government's National Indigenous Australians Agency (NIAA) website applying the State / Region parameter “Qld - Mainland northern region”, which returned a result of 7 Indigenous Protected Areas

(IPAs), of which 3 were within the study region: the Eastern Kuku Yalanji IPA (administered by Jabalbina Yalanji Aboriginal Corporation RNTBC[14]), the Girringun IPA (administered by Girringun Aboriginal Corporation) and the Mandingalbay Yidinji IPA (administered by Djunbunji Limited). Through subsequent searches of individual organisation websites I elicited public contact details for each entity. My intention was that research participant individuals were to be self-selected by the participant group (PG). Focus groups (FGs) were to be made up of participants nominated by their respective IPA entity. Interviews were to be conducted with entity-confirmed representatives, on the basis that each entity would identify the most appropriate or relevant interviewee/s. I provide a succinct overview of my decisions and selections in Table 4.

Table 4.

Qualitative Sampling Rationale (taken and adapted from Table 2 in Robinson, 2013, p. 26)

step no.	**methodological aspect**	**description**	**key decisional issues**	**sampling decision made** (PGs = participant groups)
1	define a sample universe	establish a sample universe using a defined set of inclusion and exclusion criteria	heterogenous, homogeneous? inclusion criteria exclusion criteria	Demographically (Rainforest Aboriginal Peoples and non-Indigenous people) and geographically (northern, central, southern parts of study area) heterogenous. Inclusion criteria: Men and women, Wet Tropics region or narrower focus criteria, established IPAs intersecting with the study area; Rainforest Aboriginal IPA governance and /or management organisations; statutory governance and/or management organisations.
2	decide on sample size	chose a sample size or range by taking into account what is ideal and what is practical	ideographic nomothetic	Ideographic in terms of included PGs (between 3 and 8 groups). Nomothetic in individual participant terms (potentially between 10 - 49 individuals).

[14] RNTBC = registered native title body corporate, being an incorporated entity in whom determined native title rights and interests, including native title returned lands, are vested by action of the Federal Court of Australia. RNTBCs hold such determined rights and interests on behalf of all concerned native title holders.

step no.	**methodological aspect**	**description**	**key decisional issues**	**sampling decision made** (PGs = participant groups)
3	devise a sample strategy	select a purposive sampling strategy aligned to specific categories	stratified, cell, quota, theoretical strategies	Purposive sampling: intensity sampling for information-rich data. quota strategy - a series of categories and a minimum number of cases for each one: i.e. minimum 2 of 3 IPA groups; minimum 5 regional stakeholder groups.
4	sourcing the sample	participant recruitment from target population	incentives vs no incentives, referral sampling varieties, advertising	Referral sampling to uncover "hidden" participant populations by using their members to identify additional research participants.

For data collection purposes, I invited eight organisations pre-identified through an objective analysis of applicable regional institutions and organisations: Djunbunji Ltd, the Girringun Aboriginal Corporation, the Jabalbina Aboriginal Corporation, the RAPTT, FNQROC, QPWS&P, Terrain NRM, and WTMA (Robinson, 2013). I emailed initial invitations to senior staff or key organisational contacts in public roles (simultaneously, on the same day), enclosing the applicable project information sheet for FGs or semi-structured interviews (Ethics approval H8369). Each project information sheet introduced the project's aim of exploring risks to the WTWHA periphery including e.g.: biosecurity; the nature of current governance arrangements (for the WT WHA and the WHA buffer); and what might be more facilitative of EE and biocultural indicators. I invited the first three organisations to participate in individual IPA FGs, each to comprise of two sessions. For various reasons no IPA FGs were able to be held (section 4.4.).

The other five organisations I invited to participate in semi-structured interviews. All five of the other initially invited organisations accepted my invitations to participate in semi-structured interviews, nominating a self-selected participant(s). After arranging each PG's interview date, time, and preferred format (i.e.: face-to-face, by telephone, or by videoconference), I conducted six semi-structured interviews (one group self-nominated two participants). Before the start of each interview, I provided each participant with the project informed consent form, and obtained their written informed consent, including their consent to any audio recording of the research interview (Ethics

approval H8369). I also provided every participant with the interview schedule (Appendix 3). Given the inability to conduct IPA focus groups, I used referral sampling to identify an additional seven invitees. I was able to recruit a further six participants from five PGs (four of these being novel PGs), and, applying the same invitation and interview methods, conducted an additional six semi-structured interviews. Overall, I was able to audio-record 12 individual, semi-structured interviews with 10 PGs, ranging from 117 minutes to 40 minutes in length, and generally averaging about 1 hour in duration.

3.2.4. Data Management

Research data was collected via a qualitative approach utilising a series of twelve (12) in-depth semi-structured interviews. Inductive and deductive approaches to data analysis enabled linkages with the project principles, aims and the outcomes. Inductive methods allowed for flexibility in moving from specific situational analysis to more generalised learnings. Deductive methods enabled me to use the more generalised knowledge obtained through the research to gain specific insights and theories. Utilising these approaches to data analysis enabled the emergence of concepts and learnings from the data. The key steps undertaken in data analysis include data reduction, data coding, thematic analysis and interpretation (Babbie, 2002). For the data analysis detailed in Chapter 4, I used a purpose-developed data analysis spreadsheet, augmented by selected NVIVO software coded data queries. Complementary analysis allowed for the exploration of raw or coded data items from multiple sources (Bazeley, 2018). I applied complementary analysis techniques to initially sort data by category, themes and issues (also known as a thematic analysis); to inform an inter-weaving or merging of data resulting from that thematic analysis; and this then enabled the description, confirmation, initiation, and elaboration of particular research findings.

I coded the primary data I obtained from the study's interviews by core themes and iteratively determined sub-themes. The sorting of core themes and sub-theme allowed for the compilation of a significant volume of complex and detailed primary data as defined thematically analysis data sets, categorised by core thematic element (Bazeley, 2018). Subsequently, I juxtaposed the data sets which enabled me to identify convergence or contradictions within the data using triangulation to inform the description, confirmation, initiation, and elaboration of research findings (Bazeley, 2018). I initiated a Research Data Management Plan (RDMP) in early 2021, which has been iteratively and progressively revised as required under university protocols. The RDMP reflects the granted Ethics approval H8369, and was refined as the project evolved and the study progressed. Primary data created by the research encompassed audio files; signed informed consent forms for interviews and associated audio recordings; project information sheets; and the granted Ethics approval. All materials were deposited for safe storage as required under university protocols.

Chapter 4: Data Analysis and Findings

This study centres on understanding the presence, absence and/or emergence of ecological economic (EE) features, and the use (or otherwise) of biocultural concepts, as relevant to Indigenous Protected Areas (IPAs), including IPAs intersecting with the WT WHA and its buffer (Figure 5). Here I present the research findings arising from my analysis of the study's primary data sets, being the transcriptions of 12 research interviews conducted with 10 participant groups (PGs) with governance and/or management roles directly relating to the WT WHA, the WHA buffer and/or related functions[15]. The chapter is structured to present:

- anonymised statistical data on the study's participants and participant groups; and
- an objective, descriptive thematic analysis of qualitative data arising from the study.

Primary data was collected on participant understandings (or lack thereof) of EE; biocultural concepts; leading practice governance for the WT WHA and the buffer; and positive opportunities for governance intersecting with the study's core themes. This was done in order to gain insights into potential EE and/or biocultural benefits associated with governance (if any) applicable or relevant - in a regionalised context, from the perspective of the participants. Potential opportunities for EE and biocultural benefits to make positive contributions to a restorative governance agenda for the WT WHA and its buffer were also explored iteratively. Information about participant perspectives on IPAs was also sought, albeit initially iteratively, due to the study's originally intended IPA FG methodology, and subsequently not all PGs are reflected in the IPA data sets or findings; and this is a clear limitation to the research (section 4.4.)

Data analysis processes undertaken for the study have included data reduction, data coding, thematic analysis and interpretation (Babbie, 2002). Transcription required adhering to ethical and confidentiality provisions applying to the study, and for this reason I transcribed all interviews myself, removing all identifying features (Waller, Farquharson, & Dempsey, 2016). I took particular care to fully anonymise any participant identifiers, and any directly referenced third party other than referrals made by a participant. I built a purpose-developed spreadsheet to capture detailed analytical synthesis of key primary data, which I elicited from anonymised interview transcripts. Subsequently I augmented that synthesis in using the results of a detailed suite of NVIVO generated thematic data queries applying inductive and deductive analysis techniques.

[15] Related functions: conservation, local government, natural resource management (NRM), Rainforest Aboriginal People (RAP), and Indigenous Protected Areas (IPAs).

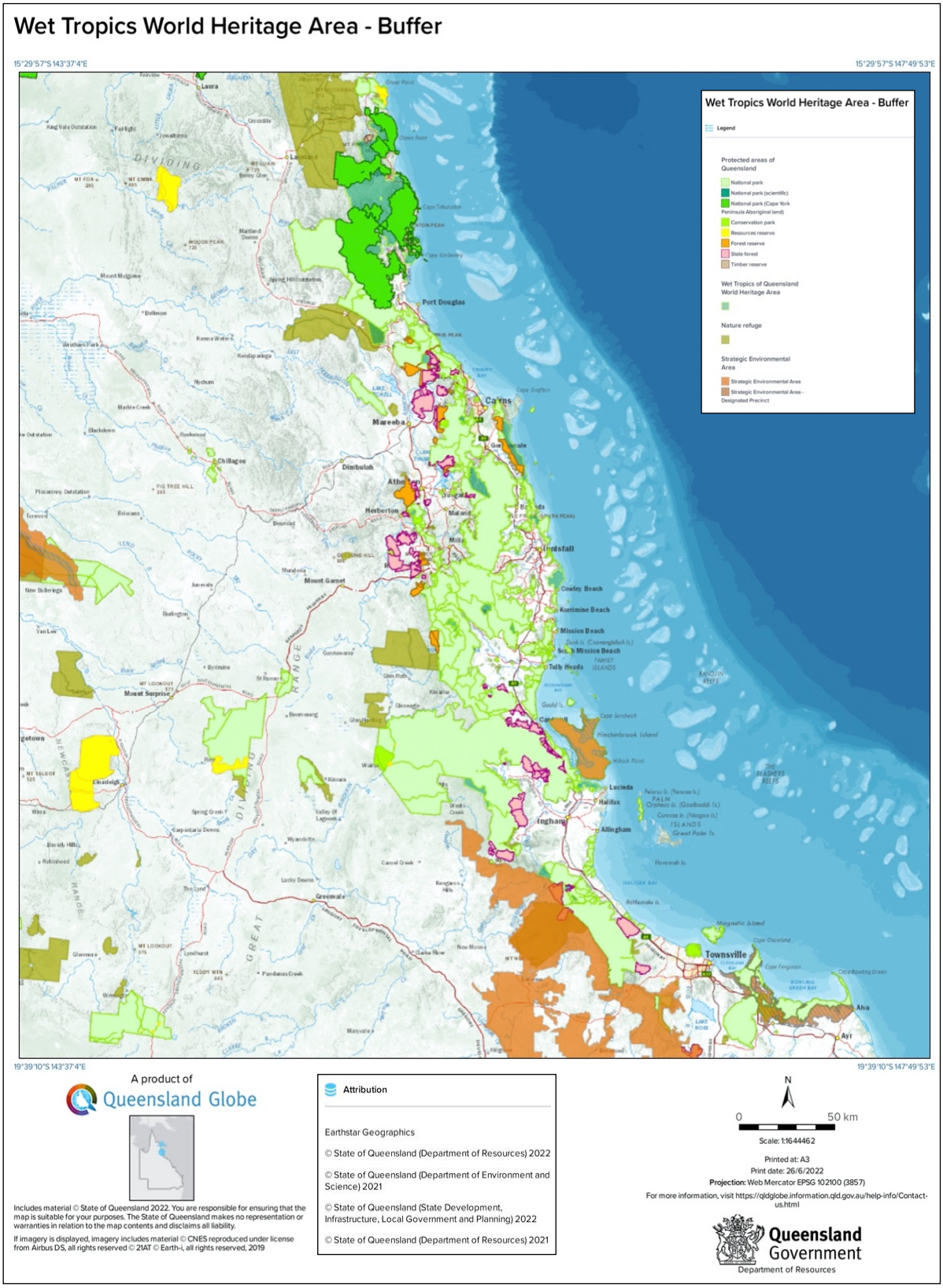


Figure 5. Wet Tropics World Heritage Area (WT WHA) buffer. The buffer comprises statutory regimes (including policies) regulating resource extraction, land uses and land management activities on diverse strategic environmental areas, conservation and other land tenures adjacent to the WT WHA.

4.1. Quantitative Analysis Results

The WT WHA Buffer

Formally describing the WT WHA buffer was necessary to aid qualitative and quantitative analysis. For this study, the WHA's buffer (the buffer) is taken to comprise existing statutory regimes and statutory policies regulating resource extraction, land uses and land management activities across the various strategic environmental areas, conservation and other land tenures adjacent to the WT WHA (Figure 5). Certain sections of the WHA buffer comprise the sea countries of RAP groups and families (Sea Country). Sea Country is inclusive of coastal, estuarine and associated foreshore areas, which in some places within the region are situated within the WT WHA's boundaries

Established IPAs Intersecting with Wet Tropics Bioregion

The recognised governance and operational footprints of all three existing IPAs in the Wet Tropics bioregion extend across a diversity of Indigenous and non-Indigenous held lands and Sea Country, and as such is inclusive of diverse tenures, both within the WT WHA and the buffer (Figure 1 earlier; also Appendix 1). Given this, all IPAs within the study area are considered multi-tenured IPAs, and all include areas collaboratively managed by RAP custodians and their statutory or non-statutory partners, the latter of whom may also include Aboriginal or non-Indigenous holders of private land tenures (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).

The Eastern Kuku Yalanji IPA, the Girringun IPA and the Mandingalbay Yidinji IPA all include areas of coastal Sea Country, which are collaboratively governed and managed under each IPA's respective governance arrangements (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016). Sea Country boundaries of the Eastern Kuku Yalanji IPA remain under negotiation at present, but Sea Country areas are collaboratively managed in partnership with statutory agencies including the Great Barrier Reef Marine Park Authority, and QPWS&P. Similar Sea Country partnerships are in place for the Girringun IPA, and the Mandingalbay Yidinji IPA (Djunbunji Ltd, 2022; Girringun, 2013). The sea countries of Bandjin, Djiru, Gulngay, Girramay, Nywaigi, and Warrgamay peoples are the Girringun IPA's marine component; regionally defined as the boundary of the Girringun Traditional Use of Marine Resources Agreement region, and accredited under Part 4 of the Great Barrier Reef Marine Park Regulations 2019 (Girringun, 2013; Smyth et al., 2016).

Research Participant Attributes

Limited quantitative data was collected during the study for additional descriptive depth. Statistical data collected describes aspects of the research interviews conducted for the study as anonymised research participant ("participant") attributes. Statistical data collected regarding a participant's indigeneity was as self-expressed by an individual at the time of interview. Limited quantitative data was collected during the study for additional descriptive depth. The assembled attributes included gender, self-expressed indigeneity, a participant's stated professional capacity (at the time of interview), and their affiliated participant group (PG) role, i.e.: PG function and PG sector. A primary role is defined as professional employment and/or honorary (in/formal) appointment. Respondent affiliations relate to their respective participant group's primary sector at the time of interview. The primary unit of analysis for this study is the participant group, not the respondent. Other statistical data (by participant or by PG) was collected via the textual analysis of interview transcripts, or was recorded by me following observation during a research interview. Selected anonymised attributes on PG operational focus were captured for added descriptive richness. Statistical data collected for this study included:

- Gender [female / male / other];
- Indigeneity (by self-expressed articulation) [= Indigenous / non-Indigenous];
- Participant's primary role [= senior staff / executive / RAP / IPA];
- Number of interviews held per unit of analysis [i.e. participant group (PG)];
- Primary sector of each unit of analysis [= conservation / IPA / local government / statutory protected areas and partnerships / NRM / RAP];
- Primary function of each unit of analysis [= IPA / non-government organisation / government agency or entity]
- Area of interest / scope of each unit of analysis [= study area / Wet Tropics region / beyond[16] / IPAs];
- Age of establishment / period of operation per unit of analysis [= years per PG];
- Date, time, location and method of interview as conducted; and
- Number of interviews held in total for the study.

The participation of Rainforest Aboriginal People (RAP) at self-determined regional scale was able to be realised, and is therefore reflected to an extent in the research data and the study's findings. Having regard to RAP cultural protocols and ethical integrity, there are, however, definite limitations

[16] Here 'beyond' refers to a PG's area of interest as being external to the Wet Tropics region.

applying to that data and related findings, and these are considered in more detail in Chapter 5. As indicated earlier, certain limitations also arose in relation to the proposed conduct of Wet Tropics IPA focus groups (FGs), and FG related limitations to the research are further elaborated on in Chapter 5. Participant roles, and the sectors their affiliated PGs were vested in, varied significantly across the participant pool contributing to the research. However, a majority of participants held primary roles (in a professional capacity) relating to the governance and management of protected areas, including for the WT WHA specifically and for IPAs more generally. A majority of participants held policy expertise intersecting with the WT WHA, IPAs and Indigenous land and sea management (ILSM), including federal and state resourced Indigenous ranger programs. Statistical information[17] collected for the study affirms that:

- All participants (100%) held substantive policy and/or delivery expertise (Figure 8);
- 25% (3 of 12) self-identified as Indigenous, all of whom held substantive policy roles intersecting with the WT WHA and/or the WHA buffer;
- 75% (9 of 12) of participants held primary roles relating to the governance of protected areas (inclusive of the WT WHA, and for IPAs generally);
- 75% (9 of 12) of participants held primary roles relating to protected area management, partnerships or planning (inclusive of the WT WHA, and for IPAs generally); with
- 42% (5 of 12) participants holding primary roles in protected area governance and protected area management in the Wet Tropics region, two (2) of whom self-identified as Rainforest Aboriginal People.

Significant statistics extrapolated from quantitative data capture demonstrate that there is considerable PG diversity in terms of indigeneity, role (function and/or sector) and policy expertise. As the study aims to inform public policy with respect to IPAs, and the WT WHA and the WHA buffer, an understanding participant policy expertise by field is useful (Figure 8). Expanding on the relevance of these key statistical findings to the research objectives forms part of the discussion in Chapter 5.

[17] All percentages cited in this thesis are rounded up to the nearest whole number.

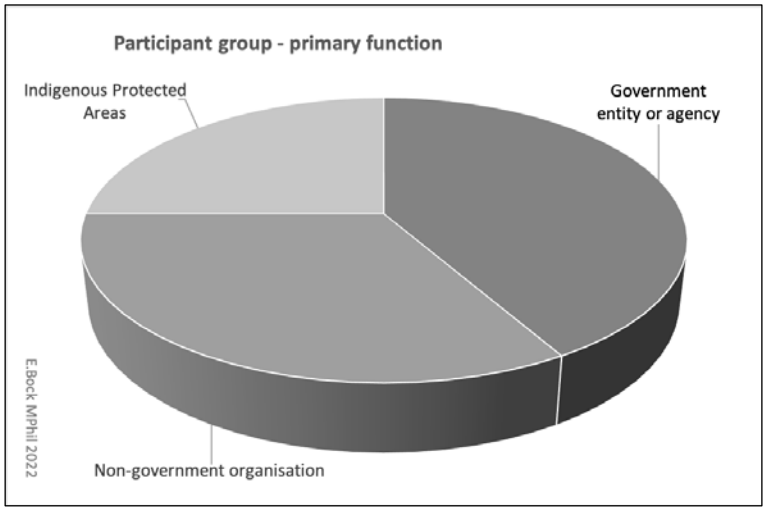


Figure 6. Participant group primary function

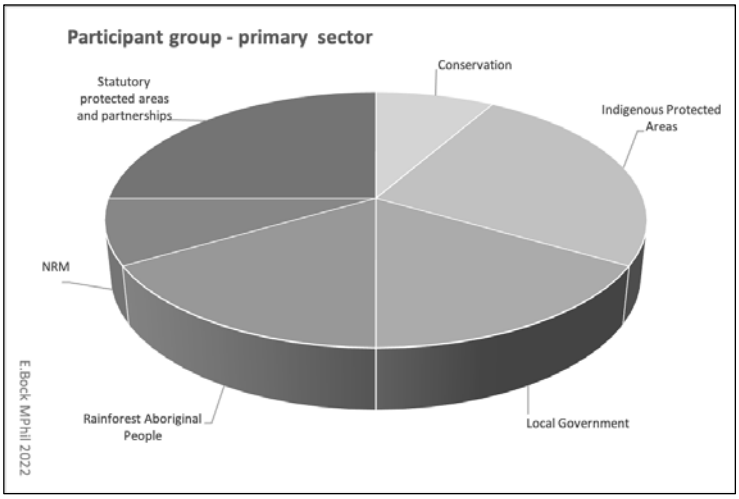


Figure 7. Participant group primary sector

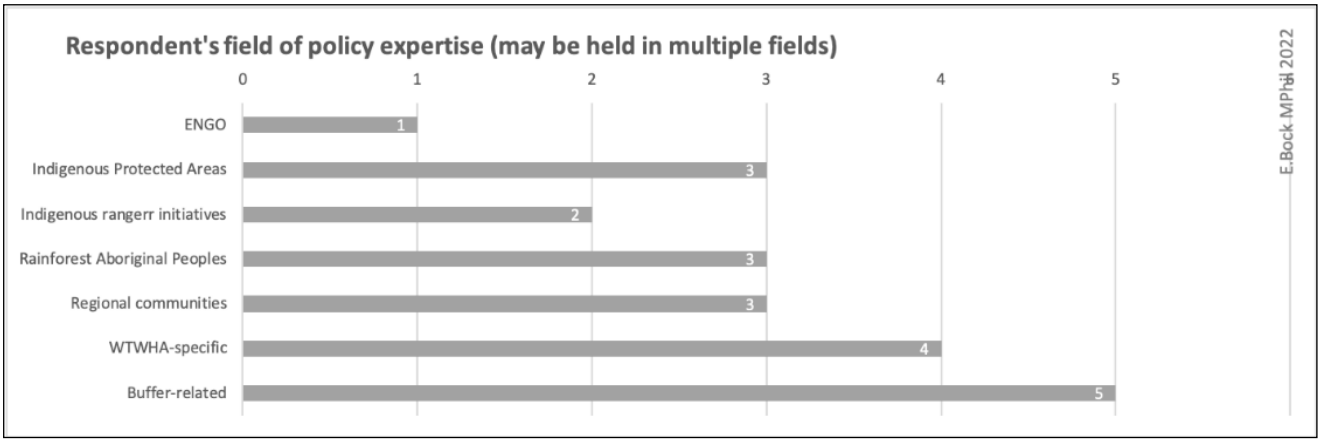


Figure 8. Policy expertise of participants[18]

[18] In Figure 8, and elsewhere in this thesis, the acronym 'ENGO' stands for environmental non-government organisation.

Summary of Key Quantitative Results

Anonymised quantitative data I collected and summarised during the study about participants, and participant groups (PG) as the unit of analysis, is compiled at Appendix 4. Understanding PG primary sector and participant professional capacity helped me in systematically coding all thematic elements for comparative analysis, and enabled richer insight into the diverse expertise held across PG sectors. I considered an understanding PG area(s) of interest (i.e.: the scope of PG operations) relevant to the deeper analysis of the study's spread of participation across the bioregion. Capturing details of the duration (length / age) of PG operations aided me in analysing the longevity of PG sector activity in relation to the study area, particularly in the context of governance and management dynamics over the past 34 years since the listing of the WT WHA for its natural OUVs in 1988. The study's quantitative data informed the thematic analyses I conducted, and the discussion in the thesis' next chapter.

4.2. Thematic Analysis Results

This section presents the key findings of a thematic analysis I completed using codified primary data obtained from all conducted research interviews (Appendix 5). During my thematic analysis, I inductively derived a suite of 35 significant sub-themes arising from the study's core themes, which I subsequently cross-referenced with theory-derived thematic descriptors. Appendix 5 details the major findings of my thematic and sub-thematic analysis. In the thesis body I have elected to arrange the research findings by section, as relevant to and aligned with the study's central research themes. Therefore, not every interview questions I posed to participants (Appendix 3) has been included in the tabulated results. Presentation of the selected results in a tabulated format assisted me to group the discrete analysis findings (from very detailed, complex primary data sets) as orderly, summarised and paraphrased listings against each of the research objectives. I chose to include result keywords in the third column of each table for overview purposes. A brief introduction outlines the links between each central theme, the key analytical findings and the respective research interview question(s) (Appendix 3). The selected results included in Tables 5a to 5f therefore centre on:

- EE and biocultural concepts as core research themes (Tables 5a and 5b);
- leading practice governance (Table 5c);
- how EE and biocultural concepts may support governance in the study area (Table 5d);
- IPAs within the study area, and IPAs in general (Table 5e);
- participant referred restoration agendas in the study area (Table 5f).

All qualitative analytical data I derived during the study informs the discussion in Chapter 5.

4.2.1. Ecological Economics

The data insights I gained through the research described EE parameters in diverse ways; as e.g.: non-monetary; boundaries; value diversity; quantifying nature; humanity; natural capital; a business case for preservation; intergenerational economic benefits; intergenerational economic opportunities; an Indigenous economic accounting framework; financial benefits derived from natural (ecological) systems; ecological services (clean air, clean water, shade, aesthetics); social and cultural connections; and as ecological systems values. Participants also described EE as "a conservation economy"; as "ecological sciences meets economic sciences"; as prosperity; as socially and culturally sustainable development; as sustainability; and as wellness (Appendix 5). The data clearly demonstrates that EE, in diverse interpretations and configurations, is a highly dynamic topic across multiple sectors engaged in the governance and management of the WT WHA and the WHA buffer who participated in the study (Table 5a). Findings compiled in Table 5a summarise key paraphrased samples of participant responses to interview Question 1 (Q.1.) (Appendix 3). The primary data I obtained from participant responses to Q.1. generated extra insight into: EE related co-benefits; market based or other EE instruments; ideas around 'natural assets'; and participant perceptions of the current Wet Tropics context with reference to EE. All EE specific findings included in Table 5a, and at Appendix 5, inform discussions in Chapter 5.

Table 5a.

Major Findings: Ecological economics

Research objectives	**Results paraphrased from sampled primary data**	**Keywords**
Describing presence / absence / emergence of ecological economics (EE) in the study area	Region is pioneering beginning of an EE: individual (but not yet collective) EE elements emergent. What Elders with intimate knowledge of country embody, what they talk about, it's in the doing: look after - embrace the past, apply it for today and then insure it for tomorrow. People who are very traditionally 'business as usual' are starting to shift their economic systems to mitigate compromised (monetary) outcomes. People now starting to think differently economically are not well set up to effect cultural change. Shifts are more at local levels (permaculture, local food networks, regenerative agriculture), also pandemic driven (supply chain issues, localising supply chains). A conservation economy, with embedded caring for country and culture, generating economic benefits. Regional systems are all segregated into silos. No language or business cases for EE in the region currently that's accessible to decision-makers.	A business case caring for country conservation economy cultural change economic shift local levels / networks natural capital partially emergent pioneering region supply chains systems

Research objectives	Results paraphrased from sampled primary data	Keywords
	Lack of understanding of EE or economic systems shift required, and what might be involved.	
	Lack of data on specific aspects of natural capital, lack of data on natural capital inter-relationships.	
Understanding ecological values in the context of EE	People living in the Wet Tropics value nature (ecology) and their proximity to nature.	climate change
	High value of the region's environment (ecology) must be more than the values that are paid for.	cultural norms
	Local perception that economic impacts of climate change now equal to ecological impacts of climate change, so economic systems shift is also required.	ecological boundaries
	Effecting a shift to EE means breaking down many of the cultural norms of the region.	food
	Before modern economics, the environment was where humans got food, foraged and collected tools, and where humans could migrate in response to seasonal resources.	material goods
	An economic system within the functions and bounds of our ecological boundaries.	nature
		survival
		systems shift
Understanding EE benefits / benefits of EE	Measuring things beyond GDP and others around wellness prosperity and viability of communities.	bigger picture
	Assessing ecology (the environment's natural and cultural aspects) and economics for sustainability within an area.	community capacity
	Financial benefits community derive from a natural, ecological system.	diverse economies
	A landscape approach: landscape function, condition, spatial structure, and history.	ecosystem services
	Understanding ecology's contribution to the economy.	financial
	Not just a western economic point of view.	landscape approach
	Bringing (diverse) ecological knowledges and economic science together.	intergenerational
	A business case for preserving natural capital, for creating present and intergenerational economic benefits and opportunities for communities.	natural capital
	Valuing of socially and culturally sustainable development, bigger picture items and ideas.	non-monetary
	Factoring ecosystem services into the economy.	social services
	Valuing ecological resources and inputs as first steps towards more sustainable economies.	sustainability
	Putting a realistic or monetary value on natural and cultural assets, and a value on social capital and community capacity.	values all life
		values ecology

Research objectives	Results paraphrased from sampled primary data	Keywords
	Understanding how nature can be quantified in terms of its value to humans as a living species on the planet.	
Understanding current economics in the context of EE	Economics as a discipline has lots of problems, just doesn't make sense and has real fundamental flaws. Humans live on a finite planet and [economics] behaves as if that isn't the case. So many things resulting from human activities aren't picked up, aren't costed, aren't valued. Comes from such a limited social perspective - no other cultural views of what economics should be. Today its transactional, young people just see things coming over the counter and it's an exchange of another sort... the value no longer is the cultural sustainability.	culturally limited devalues flawed ignorant socially limited

4.2.2. Biocultural Concepts

Biocultural concepts were described to me by all participants and in various ways, however with a definite focus on the themes intersection with notions of 'indicators', 'values' and 'culture'. Participant descriptions of biocultural concepts or principles shared with me were e.g.: "the rights of nature"; "traditional [Aboriginal] governance systems"; "traditional ecological knowledge"; "spatial representation of biocultural responsibilities"; "transboundary issues"; "telling the real story of the dynamics"; "the RAP cultural fabric"; "Earth law"; "First law"; "seeing ecosystems as a mosaic of elements"; or "understanding different cultural structures within a group" (Appendix 5). For example, participants understood biocultural indicators as e.g.: complex; "measures [for] assessing and monitoring landscape health and country health"; "[a] natural extension to biological indicators"; "the quadruple bottom line"; "human welling"; "connection to nature"; or "[reflective of] individual or community aspiration"). Given the study's biocultural datasets in total, and as illustrated in the samples here, I was able to elicit substantive examples of biocultural concepts with relevance of to the bioregional context (Table 5b), which I further consider in the discussion. Table 5b summarises key paraphrased samples of participant responses to Q.2. (Appendix 3) specific to biocultural concepts. Other primary data I recorded and analysed for Q.2. generated detailed insight into biocultural values and biocultural indicators; while my sub-thematic analysis generated additional insights into Indigenous-related perspectives about biocultural concepts and culture[19], and intergenerationally sustainable economic development.

[19] Indigenous-related perspectives collated at Appendix 5 originate from RAP participant responses and non-Indigenous participant responses.

Table 5b.

Major Findings: Biocultural concepts

Research objectives	Results paraphrased from sampled primary data	Keywords
Describing localised biocultural concepts	Rights of nature and more general biocultural principles. How we as a society, as individuals within the community, interact with the environment. Things important to community, obtained as sustained benefits from natural assets and the environment. Connection or relationship between area-specific biodiversity values and area-specific cultural values. Telling the Indigenous picture of biocultural diversity of biodiversity and ecological systems, how those systems impact the culture of the people who live in a bioregion. Relationship between people and the environment, how people interact to look after nature in a symbiotic way. Different, diverse perspectives arising when culture and biology come together: environment can't be divorced from culture, culture can't be divorced from language. The biophysical aspects of land and sea country, and of culture as a holistic system. Attempting to further verify the concept of ecology, given insufficient cultural recognition or cultural components. How biodiversity or the biosystems in an area influence us from a human perspective.	biodiversity bioregion biosystems culture diversity holistic system Indigenous language relational sustain symbiotic
Understanding biocultural concepts to inform WT WHA and/or buffer governance	Human understanding of the environment is socially constructed, as a particular construction around how things are seen, valued or measured, and different cultures and societies have different approaches. Understanding different cultural structures within a [RAP] group. Seeing ecosystems as a mosaic of elements, trying to understand related dynamics. Partnering with custodians who care for a holistic (biocultural) system and the values of that system. Recognising Indigenous epistemologies. Biocultural monitoring and evaluation of the management of cultural values.	cultural structures dynamics evaluation holistic system management measure monitoring mosaic of elements perspective social construction understanding value(s)

Research objectives	Results paraphrased from sampled primary data	Keywords
Understanding Indigenous-related perspectives on biocultural concepts [contributions of both Indigenous and non-Indigenous participants]	Traditional governance systems Traditional ecological knowledge. Evident and highly represented in Indigenous individuals who are well connected to the landscape. Spatial representation of biocultural responsibilities: integrating an area spatially, including where extent of that responsibility is potentially outside of that area. Transboundary issues: telling the real story of the dynamics, research maybe correct, but it's not this very connected dynamic space sitting in front, which is the cultural fabric. Who RAP are in a contemporary world and environment, understanding that (living, enduring) relationship. Caring for country as the underlying core value: caring for that bioregional system and understanding its dynamics. Adding cultural development as a quadruple bottom line. Key aspects of IPA planning, implementation, monitoring. Understanding differences between (RAP) family groups. Indigenous worldviews incorporate ecological economies, so biocultural concepts are affected into decision-making: the health of country, the long-term outcome outlook for community, a long-term outlook for country, for ecology. Seasonal movement up and down, from the top down to coastal areas, indicators signal resources are coming into season and people move to secure access to them.	bioregional system caring for country connected connection contemporary cultural fabric dynamic governance IPAs longer-term nuanced responsibilities seasonality transboundary

4.2.3. Leading Practice Governance

Findings compiled in Table 5c summarise key paraphrased samples of participant responses to the aspect of Q.4. specifically relating to governance of the WT WHA and the buffer (Appendix 3). The results reflect participant ideas around what constitutes leading practice governance for the study area, and participant perceptions of current governance systems within the study area. Primary data obtained from participant responses to Q.4. again generated added insights, in this instance into ideas around 'good governance', and other more specific governance aspects of the WT WHA and the buffer (Appendix 5). Discussion in Chapter 5 is informed by the above detailed governance data sets (summarised here in Table 5c as both major findings and keywords; and by the cross-thematic analytical findings for positive governance opportunities (offered by EE and biocultural concepts) as presented in Table 5d in the following results section.

Table 5c.

Major Findings: Leading practice governance (for the WT WHA and WHA buffer)

Research objectives	Results paraphrased from sampled primary data	Keywords
Describing leading practice governance for the WT WHA and the buffer	Science and connection to country. WHA should not be managed within its boundary as the WHA influences surrounding landscape and vice versa, as a whole of landscape transaction. State and Commonwealth statutes: the WTWH Act, EPBC Act, NC Act, QF Act] and Wet Tropics Plan. World Heritage Convention, the Operational Guidelines, being a function in the life of the community. Master planning a cultural landscape in a very dynamic context as multi-layered network governance. Trust systems, trusted systems. Spatial planning as a precursor to good (holistic) planning. A bioregional approach to WHA and buffer governance. Science as the cornerstone, actively informing decisions. Something that is fundamentally slower than government likes it to be - like empower on the IAP2 scale. Frameworks that allows management to be successful. Secured buy-in from land owners around the WT WHA. Locally vested governance arrangements at the appropriate community scale. Strong indigenous rights, including improved rights for Indigenous landholders in the buffer, through a strong Indigenous voice enshrined in Commonwealth legislation, protected and supported by a statutory body. Incorporating indigenous perspectives and worldviews means incorporating ecological economies. Transparency: ensuring that the right people are making the right decisions culturally, and understanding cultural authority as being separate to organisational authority and appropriately melding both. How the mob did it before first settlement, i.e.: " leaving it alone" but not just that: a symbiotic relationship where Mother Nature's on top.	appropriately scaled bioregional approach buy-in connection to country EE empowering Indigenous worldviews landscape transaction legislation [statute] locally vested multi-layered network planned (spatial, holistic) rights-based [RAP] science (informed) slower symbiotic transboundary transparency trust systems Wet Tropics Plan World Heritage Convention and Operational Guidelines

Research objectives	Results paraphrased from sampled primary data	Keywords
Understanding current WT WHA governance	An artificial construct, no separate ecological boundaries (other than at bioregional scale), WHA cannot be (solely or unilaterally) managed within its boundary. Aligned to international conventions represented and presented through Wet Tropics Plan, associated policy, and Indigenous rights and interests. No regulatory function or power outside of WT WHA, but partnerships allow provision of trusted advice to support conditioning of activities in buffer as MNES via DAWE. Current governance engagement respects biocultural landscape including RAP sea country, RAP don't see WHA boundaries (RAP interests straddle WT WHA and buffer). Evolved across Wet Tropics over last decade: community is maturing and evolving, reef bleaching influential in changing thinking around advice, science and outcomes.	artificial construct buffer includes MNES constrained [biophysically, jurisdictionally, statute] evolving globally aligned maturing partnerships RAP rights, interests
Understanding current governance of the WHA buffer	State legislation governing State Forests [QFA] key aspect of buffer governance. Improving partnerships, e.g.: local government invasive species management and rehabilitation of land with partners e.g.: land holders motivated to collaborate or keen to consider better land management practices, but don't have good structures in place to engage with them. Buffer zones are landholders that our government doesn't have the ability to manage. Buffer zone managers and WHA governance structure need to talk to each other at some level. Important for people with interests in the buffer zone to understand [value of WHA OUVs], or get business support, in ways that do not impact negatively on the core WHA. Land now a key commodity in peoples' aspirations (black and white) and in how their income influences behaviour. Some decision-makers express ambivalent policy attitudes i.e.: “we don't really care” about the buffer or impacts. Cultural validation processes can create a (place specific) buffer.	buffer includes forestry incentivised space partners private landholders unmanaged [ecotones / OUV buffer / zone] unstructured

4.2.4. Positive Opportunities for Governance

For added data richness, I developed two questions specific to the potential (or otherwise) for: i) EE; and ii) biocultural concepts; to support positive opportunities for governance. Again, I list The findings arising here in Table 5d as key paraphrased samples of participant responses to Q.5. and Q.6.

(Appendix 3), and associated result keywords. Samples of participant responses I obtained about the potential for EE to support governance opportunities included: e.g.; staying true to EE principles but articulating what's in it for individuals, community and the created benefits; and ensuring things that aren't valued have a place, and are considered in the mix of human economic activities. Further, a new model or approaches to help underpin EE would be useful, as the Wet Tropics "should be world class in EE given its location and features". Another participant stated that they considered "l-a-w, l-o-r-e, and economics as intertwined".

Several participants stated to me that the realisation of positive opportunities for governance would require seeing the WHA and the WHA buffer as a whole system; as in their considered view; ecology and economics are absolutely intertwined (Appendix 5). Another participant stated that was required was an integrated development approach: embedding EE, biocultural values, and biocultural indicators; and further, biocultural values and indicators were seen as "matters for the people concerned"; e.g.: as self-determined by traditional custodians (Appendix 5). The primary data I was able to gather from these more open-ended questions also generated extra insights into (participant perceived) critical change drivers for the realization of positive governance opportunities arising from EE, and biocultural values and/or indicators; e.g.: learning from past landscape restoration programs and incentives; and ensuring there is sufficient time and proper resources to hand for holistic and inclusive planning before determining new governance structures or institutions. I present the detailed core and sub-thematic analysis results at Appendix 5. Together with the analytical findings for current and leading practice governance listed in Table 5c above, all findings described here and at Appendix 5 inform the discussion in Chapter 5.

Table 5d.

Major Findings: Positive opportunities for governance (EE and biocultural values, indicators)

Research objectives	Results paraphrased from sampled primary data	Keywords
Describing the potential for EE to support positive opportunities for governance in the study area	Initially as market-based instruments in clumsy / awkward 'familiar' territory, i.e. as monetary or fiscal value(s) placed on non-extractive services nature provides. Subsequently at landscape scale as provisioning values. Significant elements embedded in current policy already applied: *Gurra Gurra Framework 2020-2026*, Values Based Management (although maybe not in extant statute). Sustainability: promoting health and well-being through management of landscapes, considering environment i.e.: cultural and natural resources, building and supporting community and Traditional Owner (RAP) economies.	capacity consequences cultural authority earth laws governance focus holistic system integrated approach investment landscape scale local economies

Research objectives	Results paraphrased from sampled primary data	Keywords
	Sophisticated narratives: required to demonstrate EE. Present argument "environment versus the economy" doesn't make sense any more particularly in Wet Tropics. Sophistication in investing: in protection, rehabilitation for long-term economic sustainability, RAP economic outcomes and involvement in scaled rehabilitation effort. RAP governed, driven, owned ethno-biopharmaceuticals, green chemistry, mapping/tracking heat tolerance, resilience: whatever is coming in front of the region now with climate change, other sciences: all the world of new green futures. Being aware of consequences: ensuring EE is not just a slightly tweaked version of economic growth at all costs. Changing the focus of governance: who gets a voice at the table, who's included. EE values and integrates Indigenous perspectives, increasing inclusive governance. Then EE is included in governance as Indigenous people are involved in higher level decision-making at a greater percentage. Indigenous governance capacity: RAP entities and internal decision-making processes: cultural authority, culturally appropriate ways of sharing social and economic benefits. Elders' cultural guidance and intimate knowledge of country: accessible, sustained, EE is what they talk about, it's in the doing.	market-based narratives new green futures policy provisioning rehabilitation resilience shared benefit sophistication statute sustainability traditional law transition valuing the unvalued
Describing the potential for biocultural values and/or indicators to support positive opportunities for governance in the study area	A matter for the people concerned, especially RAP as this must be based in equity given colonial past and ongoing propensity of mainstream society to just keep taking. Tell the biocultural story while noting existing biocultural values. Turn conversation around increase understanding, appreciation of values, uniqueness and significance. Potentially small scale [local, place-based] but needs a process to build up culturally assured knowledge base. RAP cultural norms across the RAP cultural landscape, informed by the appropriate RAP governance scale. Understand and respect nuance of understandings about why Old People were knowledge holders of a landscape. Potential for (and evidence of) respectful, culturally appropriate co-evolution of RAP and mainstream (also scientific) concepts. As support mechanisms to each of the biological and cultural values of the WT WHA e.g. trend analysis (positive or negative).	caring for country co-evolution cultural assurance cultural landscape cultural norms culturally appropriate decolonising discretionary equity governance scale interactions knowledge base / holders linkages monetarisation [risk] monitoring: impacts? outcomes? outputs?

Research objectives	Results paraphrased from sampled primary data	Keywords
	If biocultural values and indicators are monetarised in the current economic system fail will result, if they are used to inform governance foundations, humans may succeed. Potential to measure governance, non-economic values. A whole systems approach: look at bigger picture, understand linkages, interactions between ecology and economic activities. Scale: indicators at various levels, all levels to be covered. Work should be done on a place-by-place or site-by-site basis to achieve a solid collection of indicators understandable and of meaning to RAP, reflecting RAP aspirations in caring for country. Consider indicator focus: as outputs (success in implementing actions, strategies, plans), as outcomes (are identified values improving over time?) or as impacts (hardest thing to measure: are about long-term change, costly to measure appropriately). Indicators around governance, governance effectiveness.	non-economic value place-based respect support mechanism / tool systems approach trend analysis uniqueness VBM

4.2.5. Indigenous Protected Areas (IPAs)

Specific to the research question are IPAs, and their interactions (or otherwise) with EE and biocultural concepts, with a particular focus on governance interaction(s) (Appendix 5; also Table 5e). All IPAs in the study area are multi-tenured, and all involve aspects of adjacent (and interlined) sea country management. The particular context for each IPA varies; however, all three IPA arrangements involve, and are further situated within, a patchwork matrix of contemporary tenures (Figure 5). The results of a spatial analysis, which I present at Appendix A, identified the diverse tenures presently impacting each IPA in relation to the WT WHA and the WHA buffer.

A number of participants offered insights into study area IPAs. Constraints impacting my research meant less study area IPA-specific data capture occurred than I had originally intended (see section 4.4). Nevertheless, IPA-specific data of a highly expert nature was able to be obtained in considerable detail (Appendix 5). With respect to IPAs and their intersection with EE and with biocultural concepts, I was also able to derive a considerable level of detail from the thematic and sub-thematic data analysis. The findings compiled in Table 5e list significant paraphrased samples of participant responses directly referencing IPA intersects with EE; biocultural concepts; and IPA and other governance systems; across all interview questions (Appendix 3); together with selected result keywords. All significant IPA findings from the analysis of primary data sets inform the discussion in Chapter 5.

Table 5e.

Major Findings: Indigenous Protected Areas

Research objectives	Results paraphrased from sampled primary data	Keywords
Describing EE aspects of IPAs	A dialogue, beyond exclusive government decision-making, which seeks common space across cultural perspectives on human activities and interactions with the environment. Absolute examples of ecological economics - lots of money goes into them to manage biodiversity. Diversity in positions, fee-for-service contracts, increasing a community's socioeconomic wellbeing and growing a bigger, broader economic base through that IPA. A classic example of a (public policy) program that should theoretically develop local economy sustainably over time. Carbon farming on IPAs generate a myriad of community development benefits and spinoffs, jobs and community outcomes (e.g.: better age care), and provide significant untied income for direction into peoples' local priorities. Really important and broad-based business venture: providing a (place-vested) framework and springboard for Indigenous communities to build local economies. Investment in a solid (ongoing, fairly stable, indexed, annual) foundation, offering degrees of certainty around resources for planning ongoing activity, leveraging other income, and other socioeconomic wellbeing benefits. Enable custodians to engage with mainstream Australia at their own rate, as it suits them, in their own appropriate ways: pushing people to jump outside their culture, but giving them opportunities to do so in a comfortable way. Vehicle for shifting people into mainstream jobs, training people up to grow capacity to manage national parks, but in nuanced ways: so that people can set up systems to do that their own way, which means providing opportunities. Obvious ways in which the Australian government, state and territory governments do (and would) value ecological assets, biodiversity, conservation and joint management. Empowering socioeconomically: people talk about wanting or being engaged in an IPA, they want it to be mainstream, they don't want IPAs to be welfare, they want to feel they've got a real job, they don't mind being paid to be Rangers or being rewarded for healthy country outcomes if there's minimal interference.	a dialogue biodiversity management business venture capacity building capitalises on pre-existing skills and knowledge comforting common space community wellbeing cross-cultural diversity [of economy, benefits, spin-offs] engaging empowering system(s) leveraged extra income local economies local priorities [tied to MNES and MSES] nuanced workplace(s) place-vested solid foundation
Describing IPA use of biocultural concepts	Language speakers, quality and quantity of language, children learning language, on country access, transfer of knowledge, capturing these metrics by (IPA) organisations.	access, use zoning biocultural conservation

Research objectives	Results paraphrased from sampled primary data	Keywords
	Enterprises and activities that produce jobs on country which rely on pre-existing skills, customary and traditional knowledge, allowing peoples' culture to evolve. People get on with being out on country, talking language, using their skills and knowledge to produce conservation outcomes. Biocultural values, indicators used in IPAs as caring for country Governments reluctant to fully embrace a totally different set of indigenous or biocultural indicators: look for more standard economic, ecological, environmental indicators. May appear easy to integrate Indigenous and non-Indigenous value systems or belief systems, but in practice seems difficult. Forcing governments' hand in some respects; its obvious that a purely scientific approach is inappropriate, but there's an accountability process where government is wanting to ensure that its getting its bang for its buck as well. Indigenous worldviews and MERI (monitoring, evaluation, review, improvement) complex as IPA indicators, given dominant policy paradigms, tensions between science and cultural perspectives. Used to define no take (green) zones, and considered necessary to include identified cultural sites in zoning.	capitalises on pre-existing skills and knowledge challenging [practice] cross-paradigmatic language transfer language use cultural evolution mainstream constraints
Describing IPA governance for EE /biocultural benefits	EE and cultural concepts informed the original design and IPA program establishment as part of the NLP. Custodians of IPAs have a unique - in the universe - knowledge about place: one can't get that anywhere else. Provides for conservation, protection of bioregions (and sub-regions, major vegetation groups, etc.) on Aboriginal lands where there are no alternative way of securing that. Must be resourced in ways sensitive to custodians' own needs and time. Identity, [RAP] own cultural objectives better known and agreed. Indigenous people work through issues, have discussions, make their own progress, and are happy with their own progress: key tenants of successful IPA governance. IPA planning can support establishing good governance structures for country, strengthen community buy-in, the setting of clear objectives, identification and engagement with any necessary partners, training and/or resources. IPA management plans are not just plans of management for protected areas, they're community development plans that	affirming biocultural focus custodian-driven EE centred planned self-paced specialist conservation specialist protection unique knowledges unique worldviews worthy investment valued investment

Research objectives	Results paraphrased from sampled primary data	Keywords
	acknowledge, celebrate and encourage broader socio-economic co-benefits emerging out of land and sea management programs. If public aspirations for the continuation of biodiversity result in custodians having healthy country, that supports biocultural benefits and secondary benefits for custodians. Marries public prerogatives (e.g.: maintaining biodiversity, a comprehensive, adequate, representative NRS) with the healthy country aspirations that people and their communities want; much more difficult to marry, even with IPA funding, the cultural outcomes that people seek: being left alone do their own thing. What Aboriginal people value about their country aligns quite closely with what mainstream Australia values: maintenance of biodiversity, areas of country retaining their ecological, cultural heritage values; valued, identified with strongly by mainstream. Australia's identify is based on a few areas of Australia where Indigenous culture and pre-European Australia persists: willing as a nation to pay for the remnants. Landscape change is a really slow process: Indigenous knowledge base that's been around for thousands of years has to be of advantage in understanding current landscape processes.	
Understanding IPAs in the specific context of the WT WHA and buffer	Very positive. RAP derive reasonable benefit: economic resources, resources to get on country, look after country in culturally consistent ways. Provides another layer of management over country. Completely consistent with protecting OUVs. All Wet Tropics IPAs are engaged in WT WHA partnerships. IPA governance is very much a place based process. IPA program has a significant co-management aspect: the Indigenous party is funded to articulate their perspectives and to get involved in co-management, leading to joint or other forms of management, or to shared governance. IPAs exist and co-management exists in general because IPAs are co-management, that's the situational reality. Multi-tenured IPA approach brings jurisdictional protected areas into those IPAs, guaranteeing ongoing / joint management roles. IPAs and joint management: obvious ways in which the Australian, state and territory governments value ecological assets and biodiversity, and their conservation.	added capacity beneficial co-/joint/shared/ management linked ranger programs partnerships place-based positive protect OUVs shared governance M&E complexities M&E demands reporting burdens

Research objectives	Results paraphrased from sampled primary data	Keywords
	Professionalism of IPA (and other) Ranger groups is exceptional, staggering improvement over past decade; actual implementation, the doing, is very impressive: reputation for being dedicated and skilled, with partners looking for, wanting innovative engagement opportunities.	
	Monitoring and evaluation is important; internationally it's seen as an indicator of best practice and effective management but M&E needn't be complex and it needn't be seen as coming from a dominant cultural worldview – M&E should very much be an Indigenous worldview.	

4.2.6. Restoration in the Wet Tropics Context

Participants raised current and past regional restoration (or similar) efforts in their responses. Capturing these is important in helping to conceptualise a restorative governance for the study area. Participants directly referenced the 2020 Green & Blue economic stimulus package; the 2018-2021 Wet Tropics Major Integrated Project (WTMIP); the Cairns Regional Council's Saltwater Creek Smart Catchments project; and an emergent sub-regional restoration alliance. Results compiled in Table 5f detail key paraphrased samples of participant responses referencing restoration across all interview questions (Appendix 3), and related keywords. These findings also inform the discussion in Chapter 5.

Table 5f.

Major Findings: Restoration in the Wet Tropics context

Research objectives	Results paraphrased from sampled primary data	Keywords
Describing current restorative agendas in the study area	Landscape restoration should be place-specific, place-embedded, directly negotiated, not directed, not dictated.	ambitiously scaled embryonic resilience focused
	Need to listen to every idea, and take every avenue for response or adaptation.	
	Must study earlier initiatives, their limitations/constraints to not repeat legacy of earlier policy/regulatory failure.	
	Local governments bring a certain level of pragmatism to partnerships, as councils are chartered to be both restorer and protector of landscapes, and to be land developers.	
	Response of the landscape to natural disasters very much connected to people's psyche; health of people and health of country fundamental in being able to deal with rapid change.	
	People: resilient because they have to, not because they want to.	

Research objectives	Results paraphrased from sampled primary data	Keywords
	Blue Green Stimulus package focused on how the region could recover financially from the pandemic in a way that doesn't reinforce neoliberal capitalism, with a focus on jobs for nature, paying people to be outdoors working on the land, looking after the places here: important for anyone but even more so for RAP.	

4.3. Comparative Analyses

To recap, as outlined in earlier section 4.2., I undertook an initial thematic analysis to identify diverse sub-themes for each of the study's two core themes. As a result I was able to identify 35 new sub-themes, which I then cross-referenced to theory-derived descriptors I had initially identified in my literature review (Table 1 and Table 2, Chapter 2). The resulting thematic and sub-thematic analyses comprise the substantive matter of the research findings (Appendix 5). These comparative analysis findings also provided me with a deeper understanding of participant prior knowledge (if any), sentiment and response focus to open-ended interview questions (Q.5. and Q.6., Appendix 3), and a summary of participant referred information relevant to the research. Additionally, I sampled the word frequency of (participant only) transcript text by applying NVIVO techniques to complete word frequency queries for each of the 12 anonymised interview transcripts, and of all 12 interviews as a single compilation (the 'query set'). For all individual transcript text queries, and for the query set, I set the word frequency query parameters as: the 30 most frequently used words; eight letters or over in length. I chose the word length after evaluating results using longer and shorter word parameters. I then used the 10 most frequently cited words from the overall query set result as the control variable. By contrasting the resulting data sets I was able to group findings by PG sector and PG indigeneity (for the latter also as a percentage of the query set gaining comparative insights into PG emphasis relating to the core themes. Summary results of the word frequency analysis are also at Appendix 4.

Prior Knowledge of Core Themes

Some participants were familiar with the study's core themes at interview, however most of the interviews conducted for this study featured the introduction of highly theoretical ideas where participants had no (nil/zero) or only limited prior knowledge of the core theoretical theme(s) under exploration, i.e.: EE or biocultural concepts (Figure 9; Appendix 4). Nevertheless, every participant stating that they had no prior knowledge hazarded an 'educated guess' as to the meaning(s) behind a core theme. In this thesis, an educated guess is defined as a “justified belief” (Pappas, 2017). This interpretation relies on an internalist conception of epistemic justification, being: “in the first instance

a thesis about the basis of knowledge or justified belief"; that a person "is or can be aware of that basis"; or alternatively be of a mental state by which to justifiably hold a belief (Pappas, 2017, p. 1). To be clear, I am not entertaining here any analysis of deontological justification(s) entailed in a participant's contribution, i.e.: to draw any inference or conclusions as how an individual participant might stand as to their own intellectual duties, responsibilities and/or personal beliefs (Pappas, 2017, p. 19). Although a participant may not have been at all knowledgeable of, or assert only have some limited degree of familiarity with, the particular theme concerned, they were still able to make sense of it. That is, a respondent could justify their belief, on the basis of their experience, and of the fit "between the experiential content and the proposition believed", thereby facilitating recognition as "grow[ing] out of" [their] experience (Pappas, 2017, p. 35). Reflective, contextualised sense-making is vital for meaningful and constructive critical discourse analysis (Vaandering & Reimer, 2021).

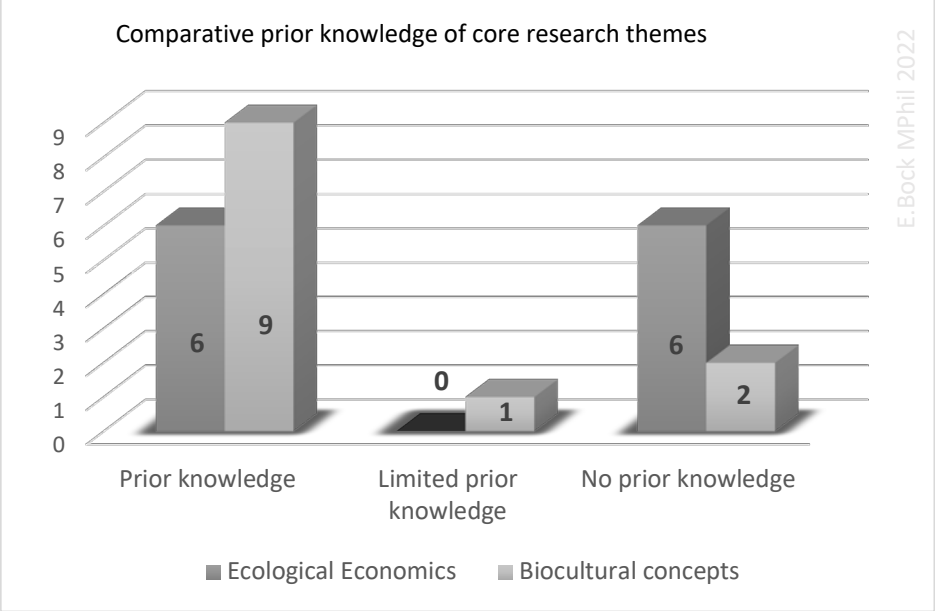


Figure 9. Comparative prior knowledge of core research themes (by individual participant)

Biocultural concepts were the most familiar of the core themes, with 75% of all participants indicating they had prior knowledge of this core theme. These included ENGO, IPA, NRM and RAP participant groups, and one individual from the SPA&P participant group[20]. Another participant from the SPA&P group indicated they held a limited familiarity with this theme, whilst two participants (one each from the LG and SPA&P participant groups) stated they held no prior knowledge of biocultural concepts. Interestingly, 50% of all participants indicated prior knowledge of EE, evidencing some interest in, and a prior exposure of the participant to, this core theme. Of the six participant groupings involved in the study, only SPA&P indicated nil prior knowledge of EE across all participants. Two of

[20] SPA&A refers to the PG attribute "Statutory protected areas and partnerships" (see also Figure 7).

three IPA participants stated they had no prior knowledge of EE. One participant from the RAP participant group stated that they had had no exposure to EE until their involvement in this research.

With reference to Figure 9, in my objective interpretation in arriving at these results; I applied the term 'prior knowledge' where a participant stated that they held pre-existing knowledge of a core theme as a result of their professional field or formal studies; or other self-nominated context. I applied 'limited prior knowledge' where a participant stated that they had heard of the core theme, but that they only apply part of that core theme in a work, or other, self-nominated context. I only attributed 'no prior knowledge' on the basis of a participant's self-determined stated zero or nil knowledge about a core theme, as expressed by them at the time of interview. Gaining a deeper understanding of quantifiable differences in textual emphasis; the degree of participant prior knowledge; sentiment and referral materials by PG sector, and by PG indigeneity, helped me in the further development of significant aspects of the discussion, having particular regard to:

- narratives to support better understanding of what a biocultural EE might be;
- narratives to present the pros and cons of biocultural indicators as measures;
- the consideration of biopower in a bioregional governance context; and
- the conceptualisation of a decolonising governance for the study area.

Analysing Discourse and Identifying Emerging Narratives

The primary substantive role held by a participant at the time of interview, and the discourse prevalent within a participant group and/or its associated sector, may influence a participant's approach and the content of their response(s) at interview (Bryman, 2016). As the research endeavour was fundamentally exploratory in nature, I found that a lack of uniformity in recorded response(s), and thus in discourse-framed perspective(s), was not a detriment to the rigour or integrity of the themes underpinning the findings I present here. Rather, as themes occurring across cultures - as *metathemes* - my use in this research supports the generation of "systematic comparisons to identify significant patterns in cross-cultural datasets, for describing those patterns in rich, contextually-specific ways' (Wutich et al. 2021, p. 1). Both the degree of participant interest in the metathemes under inquiry, and the plurality of worldview/s and interpretation/s points participants expressed to me during the study, pointed to the vibrancy of emergent discourse within the Wet Tropics around the study's core themes. I consider this to be in effect a real time co-evolution of highly theoretical concepts into dynamic, real world action. The study's statistical diversity, and its general discourse diversity potential, is illustrated by Figures 7, 8, and 9; and in the supplementary information at Appendices 4 and 5.

Multiple participants (both RAP and non-Indigenous) emphasised to me during the study the importance of developing a "story" in relation to the research focus of inquiry and findings, to support further research to inform evolving local and regional dialogues on Wet Tropics ecological and cultural economies. Participants identified that a cohesive new narrative could lend positive emphasise to an improved understanding of the potential for ecological economics and biocultural concepts to inform both leading practice governance and leading practice management of the WT WHA and the WHA buffer. This key outcome of the research forms part of my recommendations in Chapter 6. As interviewer and researcher, I too carry responsibility for the "stories" the study's textual narratives give rise to (Bryman, 2016). Furthermore, I am ultimately responsible for the process engendering them: from the design of the research study, to the collection and transcription of the raw data, through to a rigorous analysis of that data, and any ensuing narrative's truthful reporting as my research findings.

4.4. Limitations to the Research and Findings

The original intention of my research to conduct focus groups with invited IPA groups (IPA FGs) was not able to be realised. In analysing why this way the case I perceived this to be largely due to regional and local Covid response requirements, including pandemic mitigation measures, impacting all IPA invitees. In addition to these impacts, I readily acknowledge and understand the operational and capacity demands placed on the bioregion's IPA host entities more generally, including other RAP-specific priorities and matters of concern. In particular, my original research methodology designed around IPA FGs proved increasingly difficult to realise from a safe COVID operational perspective during the study period. Initially, invited research participants affiliated with the three invited IPAs were identified through purposive sampling for a series of FGs intended to generate illustrative data (Auerbach & Silverstein, 2003). Each FG was originally designed to involve 6-8 adult participant, and to comprise of two workshop sessions with each participating IPA group. One IPA group did not respond. I commenced initial discussions with the two other IPA groups in late 2021 to arrange a pre-meeting, or the scheduling of intended IPA FGs. One of these groups advised me of a change of staff, after which no further arrangements were able to be made. The third IPA group indicated continuing interest, however COVID-related mitigation and safety requirements heavily impacted and repeatedly delayed the scheduling of FGs or an alternate PG interview(s). In conclusion, I believe that a number of significant factors may have influenced this outcome:

- IPA group organisational focus on core communities, and day-to-day operational business; in particular, in response to multiple waves of COVID prevalence within a group's operating environment, and in the region's Indigenous communities.

- Capacity constraints impacting corporations governing and/or managing IPAs: related contractual obligations for service delivery are extensive, frequently (externally) time/deadline driven, and can be onerous, impacting capacity.
- Competing obligations of Rainforest Aboriginal personnel employed by an IPA group.

The inability to conduct IPA FGs as initially envisaged required me to arrange for the conduct of an additional set of six in-depth semi-structured interviews. I identified this second PG cohort primarily via referral sampling, or my own professional knowledge of IPA initiatives over 20 years. All additionally recruited PGs either held primary roles in the governance and/or management of the WT WHA and/or the buffer, or held expert professional knowledge of IPAs, IPA operations and/or the Commonwealth IPA program. In augmenting my own professional understandings and familiarity with IPAs over 20 years, in this study I considered recently published peer-reviewed journal articles specific to the assessment of IPA benefits and IPA co-benefits (Farr et al., 2016; Hill et al, 2016; Maclean et al., 2021b; Wensing & Callinan, 2020). Recent scholarly publications investigating new ideas around non-market valuation, Indigenous insights into ecosystem services and the potential in Indigenous land and sea management to support regional development also informed my analysis of potential IPA benefits (Grainger & Stoeckl, 2019; Jarvis et al., 2018; Stoeckl et al., 2021).

Participation of Rainforest Aboriginal People

The RAP participant group I subsequently invited to consider contributing to the study is an unincorporated, pan-regional affiliation of Rainforest Aboriginal People, providing strategic advisory capacity to the 24 plus RAP self-identifying groupings who express living custodial connections to the Wet Tropics bioregion. Two respondents from the RAP PG participated in my research interviews, one female and one male. For reasons of transparency, ethics and decency, I must clearly state here that the PG's responses were made by the individual participants as RAP individuals; and expressly not as a collective voice, nor in any a representative capacity for, or on behalf of, Rainforest Aboriginal People. For those express reasons, the data I was able to obtain from these two interviews - whilst providing definitive insights into the core themes and sub-themes of the study - can only be taken as the views of each of the individual participants. Cultural protocols prohibit my extrapolating this participation, and the research data arising, as any form of country-specific or pan-regional interpretations. Nor can I draw any express conclusions from that data in regards to specific benefits or otherwise delivered by IPAs in the Wet Tropics region. However, consideration of what IPA groups in the Wet Tropics region are realising for their peoples and communities does inform my research. I am also aware of the active assertion of RAP rights and interests (in the context of established IPAs, and more broadly) in the Wet Tropics bioregion through their self-driven initiatives, including (amongst many others):

- cultural protocols and cultural initiatives such as the *Madja Code of Practice* applying to Eastern Kuku Yalanji *bubu* (Jabalbina Aboriginal Corporation, 2022; WTMA, 2020);
- Eastern Kuku Yalanji clan group-based IPA planning review processes;
- Girringun Region IPA plan review facilitation by Girringun Aboriginal Corporation;
- *Process Unite*, as a 'culturally led way forward' of the Bandjin, Djiru, Girramay, Gugu Badhun, Gulngay, Jirrbal Nywaigi, Warrgamay and Warrungnu members of Girringun (https://www.processunite.com);
- invasive species control collaborations at Mungalla (Grice et al., 2012);
- the Gugu Badhun peoples' establishment of their Djiman Research Centre (Cadet-James et al., 2017; https://www.gugubadhun.com/about-djiman-research-centre);
- the Mandingalbay Yidinji IPA's augmenting of their biophysical restoration of Mandingalbay Yidinji lands in the lower Trinity Inlet, and other on-site cultural enterprise initiatives (Djunbunji Ltd, 2022; https://www.mandingalbay.com.au);
- Mandingalbay Yidinji Strategic Plan review;
- Indigenous [Rainforest Aboriginal] Cultural Values Management Plan: RAPTT on behalf of Rainforest Aboriginal People (Australian Heritage Grants Round 2, via Girringun Aboriginal Corporation);
- Wet Tropics Cultural Landscapes Hub: WTMA, Tourism and Events Queensland, Dawul Wuru Aboriginal Corporation, Djabugay Native Title Aboriginal Corporation RNTBC (Australian Heritage Grants Round 4); and
- emergent peer-to-peer capacity support initiatives under the Sustainable Aboriginal and Torres Strait Islander Enterprise program, facilitated by the Tropical North Queensland Drought Resilience Adaptation and Innovation Hub (TNQ Hub).

To be clear and unambiguous, I am only able to extrapolate from RAP contributed research data to a extent within the research data, and subsequently in this study's findings. My findings concerning IPAs in the Wet Tropics are also therefore restricted to only a general consideration of documented IPA operations within the study area. As a consequence of this ethical necessity, my study has resulted in a greater focus on IPA-related published peer-reviewed research, in the broader regional or northern Australia context. In having regard to appropriate cultural protocols about speaking with the right people who speak for the land (i.e.: for country within an existing IPA in the bioregion), and in terms of transparency in the ethical integrity of my research, I freely acknowledge that definite limitations therefore do apply to the study and the research findings I am able to present in this thesis.

4.5. Summary of Results

In summary, the research data analysis and findings I have presented in this chapter include a mix of quantitively and qualitatively sampled data. The statistical (quantitative) data I collected during the study describes anonymised participants and participant groups. I applied an objective, descriptive thematic analysis of the qualitative data arising from the research to identify a substantial diversity and breadth of findings, which allowed me to evaluate and clarify the thesis' overall research question, and the linked research objectives. The additional spatial data and land tenure statistics I gleaned during the data analysis period were sourced from on-line geographic mapping and querying tools, i.e.: Queensland Globe and GeoRes Globe web-based interfaces maintained by the Queensland Government and its agencies (listed in the Reference section). That analytical data relates to the spatial nature and extent of the study area (Figure 5), and associated contemporary tenure features. In the following chapter, I consider the spatial datasets I obtained as part of a comprehensive discussion of the major research findings compiled at Appendix 5.

Chapter 5: Discussion

> *Settlers may choose, within the liberal biopolitical order and following longstanding Aboriginal invitation, to engage and regulate their selves in relation to Aboriginal political ontology. This manner of asserting other ways of being resists dominant biopolitics and recognises Aboriginal political ontology and values. It also promises a wider exchange between Settler and Indigenous political ontologies and rationalities [ ]. Such an exchange promises to begin to address biopolitical dominance and break the pattern of recurrent crises in Indigenous affairs.*
>
> (Brigg, 2007, p. 415)

The research inquiry process I described in Chapter 3 was initiated to gain new insights into the study's central thematic elements. Subsequent analysis and evaluation provided me with a degree of evidence to attempt to answer the original research question: *Do Indigenous Protected Areas deliver ecological economic and biocultural benefits for restorative governance of the WT WHA and its peripheral buffer zone?* In Chapter 4, I presented the major results of my thematic and sub-thematic analyses, and the selected comparative analyses, with supplementary materials at Appendix 5. In this chapter's discussion, I draw on all of my compiled research findings, and discuss these in the context of the study's dual aims of making theoretical, and practical, contributions to research about locally informed EE parameters, and biocultural concepts (Figure 10). I structured the discussion accordingly:

1) Can or do Wet Tropics IPAs deliver EE benefits?
    - Evaluating presence / absence / emergence of ecological economies in the study area, including with reference to established IPAs.
    - Defining EE benefits if these do exist.

2) Do Wet Tropics IPAs apply biocultural concepts in their decision-making and caring for country?
    - Defining localised biocultural concepts.
    - Better understanding how local biocultural concepts can inform WT WHA and buffer zone governance.

3) What WT WHA governance models or improvement interventions might best support biocultural ecological economies?
    - Critically reviewing existing regional economic and governance arrangements to inform a restorative governance.
    - Scoping associated policy and capacity development interventions.

Given the complexities inherent in a study exploring multiple core thematic elements with multiple participant groups, and being mindful of the limitations to the research (section 4.4.), I include here Figure 10, to provide an overview of the research elements available to inform the discussion.

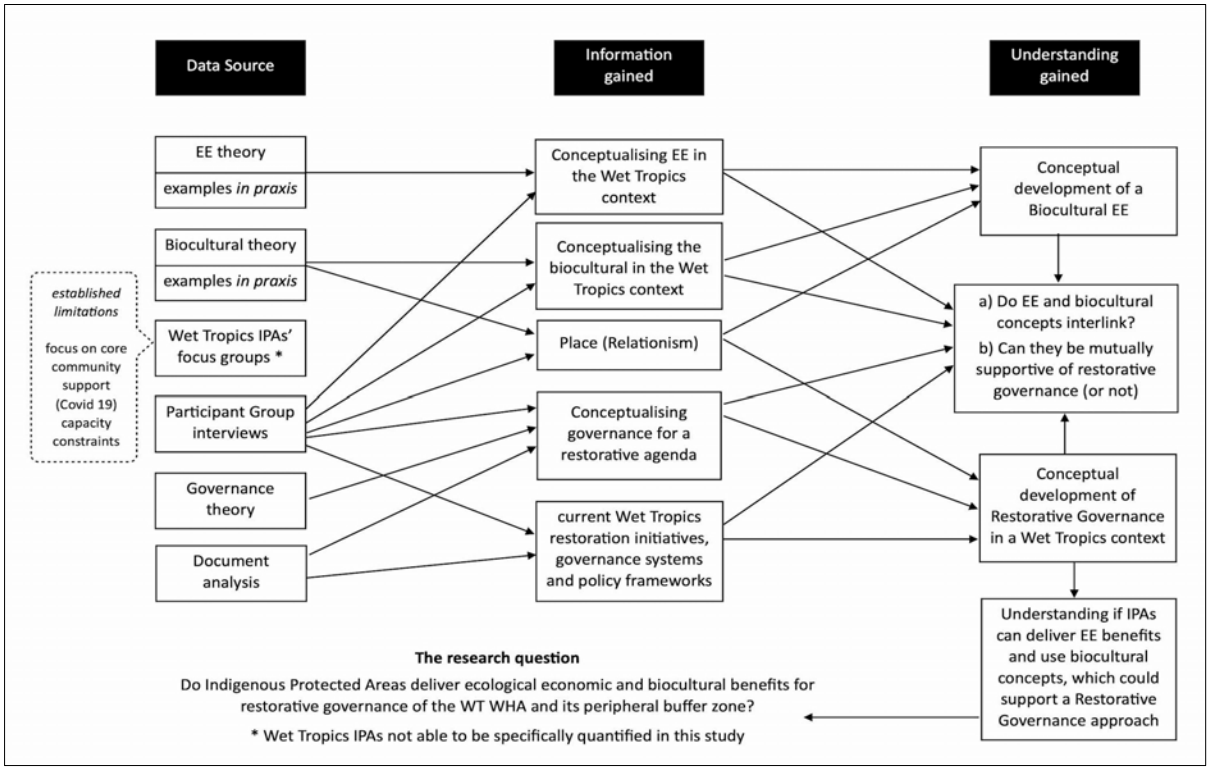


Figure 10. Overview of research elements informing thesis discussion.

5.1. Ecological Economics in the Wet Tropics

Locally Derived EE Parameters and EE Benefits

Before a discussion of findings around the first research objective, I present here the insights the primary data generated for the interpretation of locally derived EE parameters. The data sets arising from my analysis are the potential theoretical contributions this study set out to make. In representing some of these contributions here as an initial extra level of detail, I am mindful of the fact that every participant universally offered their own ideas about EE parameters, irrespective of any degree of self-stated prior knowledge or not (Appendix 4).

Dynamic, diverse, and to my mind significant, conceptualisations of localised EE parameters were evidenced in the following sampled statements; e.g.: that EE was "...an economic system that is not monetary but that is based in our relationships with each other and nature, that allows us to have an economic system within the functions and bounds of our ecological boundaries", and that EE could be considered "a conservation economy where we know through caring for country and culture there's

economic benefits, there's a real link between the land and sea, the people, the culture and economics". Another participant described EE as:

> "...understanding… not just the economic value or the singular economic value of natural assets and what they provide to us - but also the co-benefits or other just inherent values of [natural assets] as well... [measuring] things beyond GDP and around wellness... prosperity and viability of communities."

A participant responded that EE held the potential to offer "...an Indigenous environmental economic accounting framework...from a landscape approach – what's [the landscape's] function, therefore what [should] its condition be, and then what's its spatial structure, and what's its history? ... go[ing] right back to creation beings".

Another participant saw EE as "...how nature can be quantified, in a sense, in terms of its value to [humans] as a living species on the planet". Other participants linked EE more explicitly with ideas around natural capital or ecosystem services, however these participants also emphasised the need to better communicate other values, and the importance of measuring other, non-economic values as part of their understanding of EE:

> "...it's around natural capital... the biggest challenge is turning [EE] into a language that decision makers can understand and then are able to get it transcribed... then translating it into language and business cases that actually drive changes.....a business case for preserving natural capital [to] create present and intergenerational economic benefits, and opportunities for communities"; and

> "...looking at the WT WHA as a case example... there are a number of financial benefits that the community derives from the ecological [the natural] system. Some of those [are] `ecological services': clean air, clean water, provision of shade, aesthetic values that lead to tourism, agriculture, development. But then there's also other aspects [ ] of economics that are a bit more difficult to measure... the social and cultural connection to ecological systems, and the value that they impart".

My analysis of EE-related data sets confirmed the interpretation of EE as having strong associations with thinking around 'natural assets' (Appendix 5). Interestingly, market-based EE mechanisms were considered by one participant to be transitional within the bioregion, albeit as financially driven or incentivised economic approaches away from 'business as usual'. Participants considered the Wet Tropics to be "pioneering" in terms of transitioning to EE systems, and that many regional stakeholders had been progressively learning from their experiences in diverse EE-influenced

incentives and also from the failures of regulatory policy implementations. Ostensibly, there appeared some traction across all PG sectors toward more ecological, and potentially bioregionally vested, Wet Tropics economies. One participant stated that they were of the view that such transitions may already be in progress under existing incentives or policies - but probably not under existing legislation (Appendix 5). EE-associated mechanisms identified in the data include: 'environmental services' (ES); 'payments for ecosystem services' (PES); biodiversity and cultural credits (as monetary or financial stewardship incentives); local supply chains, food networks and permaculture; “multiple benefit initiatives”; and ranger fee-for-service arrangements (Appendix 5).

All Wet Tropics IPAs have well-established Ranger groups, in part resourced by Australian and Queensland government ILSM programs (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016; WTMA, 2021). Nevertheless, my research has also identified that regional systems “are all segregated into silos”; and that there is no current EE language, or 'business case', which is “accessible” to decision-makers (Appendix 5). I heard from the same participant that the present situation was further compounded by a “lack of understanding of EE or [the] economic systems shift required, and what might be involved”; and that in parallel there was also a considered “lack of data on specific aspects of natural capital, [and a] lack of data on natural capital inter-relationships”. (Appendix 5). Compellingly, the data I collected shows there is concern about a potential susceptibility of market-based EE mechanisms to “greenwashing”, and the settler state's prevailing “systems of oppression”, facilitating an ongoing entrenchment of monetarised economic systems (Appendix 5). One participant stated:

> “You can steal words and change them, it's the concepts that are important. ...something that is not well understood between environmental economics and ecological economics is that environmental economics is fitting the environment into [the] capitalist neoliberal system... ecological economics is revolutionising [the] economic system so that it isn't capitalism and that it is based in the foundation of nature and ecological function.”

The above statements go to the heart of the dilemma of EE, and its ability to influence systems change; including governance systems transformations and related policy change (Gills, 2020; Spash, 2020a). In offering a critical discussion of EE in the contemporary context of the Wet Tropics and its extant IPAs, I oriented my reasoning toward Melgar-Melgar and Hall's (2019) pretext that EE research be true to “[EE's] roots” in attaining an understanding of the biophysical (i.e. of the bioregion), and the constraints implicit in its existing socio-economic systems, as presently underpinned by conventional economics (p. 1). I added to my reasoning my abiding respect for the perspectives of RAP as the original

custodians of the bioregion, which I defined as relationist aspects inherent in the bioregion (Graham, 2014). Relationist aspects manifest as RAP self-tasking (caring for country, as subsidiarity) and RAP caring for country networks or relationships (RAP governance and RAP doing, as polycentricity) (Graham, 2009, 2014). In this sense, place-embedded relationist dynamic underpin and give agency to both IPA governance and IPA-provided looking after country, and to the custodial care of World Heritage listed cultural landscapes (Smith et al., 2019; Smyth, 2015). However, in considering IPAs as EEs within a co-management system, and possibly more so in the context of their facilitated custodial care for World Heritage listed property; the settler state's systems ultimately prevails, in the form of an 'environmental governance' system (Carter, 2012). Relationism takes a back seat to 'hectarianism' and to an ongoing prevalence of normative measures of public fund accountability.

Here, 'hectarianism' refers to exclusively quantitative NRM effort/output formulas (Appendix 5). Environmental governance systems, including those established under the Convention for listed World Heritage areas, generally rely on 'western' science to track progress and changing ecosystem health trends, and quantify these using applying mainstream economic measures (Driml, 1997; Kish & Farley, 2021; Pannell, 2006). In this respect, the findings on perceptions around science at its intersections with the study area's governance and management are illuminating. Science was raised by Indigenous and non-Indigenous participants as important to the governance and management of both the WTWHA and the buffer; e.g.: in understanding or monitoring changes in ecosystem health, species distributions, and the bioregional landscape over time; and in the context of climate change adaptation (Appendix 5) (Gratani et al., 2014). Science was clearly considered an important foundation for ecosystem health evaluation under the study area's prevailing normative systems. However both Indigenous and non-Indigenous participants also raised the benefits, and importance, of referencing Rainforest Aboriginal traditional and custodial knowledges (subject to culturally assured governance and FPIC processes) (Appendix 5). Participants raised the potential for EE benefits to be measured using shared biocultural indicators; by bridging and linking diverse knowledges in the creation of new knowledges, and empowering the bioregion's people to tell their stories from their perspectives, in the face of increasingly unpredictable and rapid change. Rigorous (place-vested and shared) biocultural indicators need culturally assured governance systems, FPIC, and some integration with normative monitoring embedded in Matters of State Environmental Significance (MSES) and Matters of National Environmental Significance (MNES) (i.e.: also OUVs).

Do Wet Tropics IPAs Deliver EE Benefits?

Following this thread, what then are the benefits of EEs identified by the study's participants? Based on the evidence provided for by the primary data I collected, EE benefits were given diverse

descriptors by participants (Appendix 5; also Table 5a). In the course of my thematic analysis, I found these EE benefit descriptions to have clear partial alignment with diverse elements of EE theory I had earlier sourced from the literature (Table 1). Of particular interest are the insights I obtained from a subsequent sub-thematic analysis, which determined that diverse participants described EE benefits as co-benefits (Appendix 5). Identified EE co-benefits relevant to IPAs in the Wet Tropics are:

- Linked to the bioregion's natural assets, including to the WT WHA and the WHA buffer.
- Non-environmental benefits, as direct and tangible benefits accruing to Indigenous communities that result from caring for country, working on country, and IPAs.
- Productivity benefits.
- RAP supported to obtain economic benefits from natural and cultural landscapes.
- RAP Traditional Owner benefits.
- Community benefits, including community development benefits.
- Shared socio-economic benefits.
- Facilitation of a conservation economy.
- The development of real links between land, sea people, culture and economy.
- The factoring in of environmental costs in development appraisals, not just environmental, but both natural and cultural impacts and costs.

All Wet Tropics IPAs are engaged in WT WHA partnerships, reflective of the multi-tenured IPA approach bringing jurisdictional protected areas into those IPAs, but also of the "situational reality" that "IPAs exist, and co-management exists in general because IPAs are co-management" (Table 5e). IPAs are considered "a good thing in principle" with their practical application warranting more exploration [within the bioregion]" (Appendix 5). A participant considered IPAs in the bioregion to be:

> "Very positive.. RAP derive reasonable benefit out of IPAs [as they provide] economic resources [for RAP] to be able to get on country and look after country in ways that is consistent with their cultural practices... [and] provides another layer of management over country... to protect World Heritage values.. [the bioregion's] IPAs as completely consistent with [protecting OUVs] and beneficial to [OUVs] as well."

Intriguingly, during the research I was informed that EE ideas were instrumental in the mid 1990s as the Australian government's IPA program was being developed and established (see also Smyth and Sutherland, 1995). Further, a participant stated that the IPA program could be considered a classic public policy program designed with the theoretical intention of developing local economies

sustainably over time. Participants stated that “non-environmental benefits [accrue as] direct and tangible benefits” to Indigenous individuals and their communities as a result of “working on country”, including in the context of IPA delivery. Participants also considered that direct and tangible benefits clearly accrue to Indigenous individuals and communities from working on country (Appendix 5). As such IPAs are also a dialogue “beyond exclusive government decision-making”, seeking “common space across cultural perspectives on human activities and interactions with the environment” (Appendix 5). In this sense, IPAs are considered “an absolute example of EE... lots of money goes into them to manage biodiversity”, and as a “really important and broad-based business venture” providing a (Place-vested) framework and springboard for Indigenous communities to build local economies (Appendix 5). Referencing the IPA program nationally, one participant stated:

> “In terms of bang for your buck half of Australia's National Reserve System (NRS) is now IPAs... worth $17 million a year... and for that [very small] amount of money you're actually managing half the nation's [NRS] [albeit inclusive of additional Ranger funding]... if you compare that to jurisdictional agencies protected area management the costs are minuscule in comparison...”

The research confirms that IPAs are considered able to leverage significant co-benefits and community development “spin-offs”, with the potential to generate additional income and revenue streams to invest directly back into custodial and local communities (Appendix 5). Farr and others (2016) find that the benefits of IPAs are “diverse, complex” containing “many inter-related values”, and that benefits are scoped in a diverse number of ways depending on who is assessing the perceived benefit (p. 15). Benefits identified in the literature include: diverse co-benefits (defined as social, cultural and economic benefits); individual incomes; cross-community cultural maintenance; biodiversity conservation; biosecurity risk management; and socio-economic outcomes (e.g.: 'closing the gap') (Farr et al., 2016; Hill et al., 2016).

As well as positive social benefits arising from community-based natural resource management (CBNRM), Addison and others (2019) cite other research which indicates CBNRM and community protected areas frequently result in mixed or even problematic benefits (p. 92). Differences arise in terms of individual and collective freedoms (e.g.: as “structural and relational mechanisms”, and social relationships, i.e.: proprietarian rights and interests), and clarifying what actually constitutes a benefit, a concept routinely linked to notions of 'development' which in Australia has tended to diverge from “broader international thinking” (Addison et al., 2019, p. 92). The value of CBNRM and ILSM, such as IPAs, is non-linier, as these economies function at diverse levels simultaneously, and present as a hybrid governance in the context of hysteresis, where a change or effect (e.g.: in social

norms and values, but also ecological change) cannot easily be reversed (Addison et al., 2019). As a RAP participant stated: "[t]here's a whole human rights issue about what are Indigenous peoples' rights to participate in the wider economy" (Appendix 5).

Recent research conducted in northern Australia points to relationism's central significance in improving ES conceptualisation, assessment, and planning beyond strictly normative ES valuing or accounting of land- or resource-related stewardship activities (Stoeckl et al., 2021). While the originating IPA policy dynamic was definitively conservation-oriented (and thus also an "essentially" Eurocentric concept), IPAs were explicitly proposed as a relationist mechanism for custodianship of biodiversity protection under internationally recognised criteria (Smyth & Sutherland, 1995, p. 157). The intrinsic and tangible cultural values of country as storied Place, as spiritscape and inheritances, (often dismissively categorised as Aboriginal and Torres Strait Islander peoples' cultural "heritage") may find living relationist resonance in contemporary IPAs (Bock et al, 2021).

However, this resonance can only remain subdued within the constraints of a bureaucratically burdened (Eurocentric) conservation paradigm (Fache, 2014). A part-commercialisation (by way of formal legal incorporation) of culturally authoritative looking after country, only able to be offered by the traditional custodians, presents significant risks (Kerins, 2012). Clear risks arise to the living integrity of Aboriginal cultural landscapes and spiritscapes under present Australian environmental governance systems (Goolmeer et al., 2022). But risks also encompass the current and future viability of IPA organisations (Appendix 5). General IPA-related data I collected for this study confirms both the transformative benefits arising from IPAs, and the risks potentially limiting their benefit maximisation, also evidenced in the following statements made by two participants with expertise in IPA policy, planning and implementation:

> "There's not an alternative: we can't turn around and go to someone else we want to talk to you about this country. They [custodians] have got a monopoly. And the other thing is that they've got this unique - in the universe - knowledge about that place. They're the custodians. You just can't get that anywhere else. So yes [Australia] need[s] to resource [IPAs] in some ways that are sensitive to [the custodians'] needs and time... fundamentally underpinning [an IPA to] and get some strength [into] relationship[s] and the decision-making...".

> "Biggest risk is that the government will expand the IPA program without expanding the bureaucracy that supports it which is what has tended to happen in the past. [The] IPA program has grown exponentially over the last 10 years, and yet the

> labour force within government has diminished, this impacts on compliance follow up, an emerging issue with some organisations... mainly due to a lack of organisational capacity."

Participants frame IPAs as a complex co-evolving cross-cultural dynamic in terms of culturally vested benefit valuing, and conservation [benefits] as development' oriented policy framing. This is not only evidenced in the difficulties arising for any somewhat adequate understanding of what an IPA 'benefit' (as a tangible meaningful gain) might entail: i.e.: are we socially constructing that benefit as a custodial gain (individual or communal), or as a broader socio-economic gain? Is a custodial gain to be defined as a private gain, for custodians as private landholders voluntarily dedicating country as an IPA (or a component of an IPA) within the NRS? Or, is the gain defined as public, because custodians looking after country is in Australia's national interest, or in the interest of all of humanity in the context of a listed World Heritage Area? There are diverse examples of IPA benefits (or similar) in the research literature, ranging from 'social return on investment' analysis through to major national research programs, or as examples of 'ecosystem services' or 'payments for [Indigenous] environmental services'. As Addison and others (2019) point out, a critique of, and therefore a limitation attached to, these analyses are that they rarely "go behind the scenes", to consider (bio)power relations as dynamics imposing conditions on collaborative management, and on IPAs as co-management or joint-management arrangements.

Evaluating Presence, Absence or Emergence of EE(s) in the Wet Tropics

This study found that EE is conceptualised within the Wet Tropics both as those transactional human values derived from economic uses of the bioregion's ecological systems (essentially what I would argue is an environmental (resource) economics perspective); and as the more radical, socially transformational interpretation of EE grounded in Earth jurisprudence (Pirgmaier & Steinberger, 2019; Van den Bergh, 2000; Washington & Maloney, 2020). This makes it complex and challenging for me to definitively evaluate the study's first research objective as a totality, or with any sense of finality. However, I am comfortable with that; but not in the sense, as Pirgmaier & Steinberger (2019) find, that EE might comfort, not challenge, the political economic or governance systems of the day. My reflection is that transformational change is inevitable. Analytical findings I have been able to derive from the research show that diverse human networks and localised, place-based activities across the Wet Tropics, are arguably already engaged in various forms of what might be considered EEs, and at various scales (Martini & Spataro; Studley; 2019). By definition, all three IPAs can be considered EEs; and given that all three IPAs have firmly established themselves over the past decade, and remain

operational as IPAs, they are clearly benefiting the WT WHA in their care and protection of the Area's listed OUVs as EEs (Appendix 5).

My research also demonstrated that there are indications of a potentially more ecologically aware socio-economics arising within the bioregion, include emergent Smart Green capital initiatives; biodiversity and cultural credit systems; restoration alliance formation; and the many highly localised activities seeking, for example, to secure more ecologically sound supply chains (i.e.: food networks, permaculture, or non-monetary exchanges of goods and services) (Appendix 5). However, participants raised concerns that the mainstream push to engage Indigenous communities and RAP custodians in economic activity may not necessarily be considerate of ecological systems; or have real understanding of, or respect for, cultural authority. As for other Aboriginal or Torres Strait Islander people and their communities across Australia; RAP need to be in control of their [Indigenous] cultural and intellectual property rights (ICIPR), and must be able to assert those rights across the bioregional political economy and its governance systems (Janke, 2019). Cultural assurance, and cultural integrity, are key. Discussion of possible Wet Tropics' EE features as organic polycentricity and subsidiarity approaches (including subsidiarity as a criterion of economic governance) follows below. The selected locally defined EE parameters and EE benefits I have described here offer insight into the multitude of values held, and views available, for informing the development of a Wet Tropics bioregional EE narrative. That narrative; to my mind, and moreover, in the view of several participants; has potential to stimulate further consent-based, relationist knowledge-sharing around a restorative (re)investment of intergenerationally viable EE co-benefits at bioregion scale (Appendix 5).

5.2. Localised Biocultural Concepts

In my exploration of biocultural concepts with the research participants, I purposefully left the key question broad, to allow for participants to scope a definition of the biocultural on their own terms (Waller et al., 2016). As the findings I derived show, a significant and detailed dataset was able to be gained through the research; encompassing biocultural concepts, principles, indicators, values, and related Indigenous-related perspectives (Appendix 5; also Table 5b). Participants described these to me as “the connection or relationship between area-specific biodiversity values and area-specific cultural values”, or as the 'relationship between people and the environment, how people interact to look after nature in a symbiotic way”. Other participants considered biocultural concepts to be” telling the Indigenous picture of biocultural diversity of biodiversity and ecological systems, how those systems impact the culture of the people who live in a bioregion”, or “understanding different cultural structures within a [RAP] group”. Participants conceptualised the biocultural as “recognising Indigenous epistemologies”, or “biocultural monitoring and evaluation of the management of cultural

values". Biocultural concepts are thought of by another participant as the "different, diverse perspectives arising when culture and biology come together [as] environment can't be divorced from culture, culture can't be divorced from language". Further participants described the biocultural as "partnering with custodians who care for a holistic (biocultural) system and the values of that system", or as "the biophysical aspects of land and sea country, and of culture as a holistic system". Another participant defined this core theme as:

> " ... look[ing] at an ecosystem, if you think about it, as its mosaic of elements. And to think about it in that space, but [also] about how you calculate the value of those ecosystem elements.. [and comprehending at spatial scale] the cultural fabric, and just how valuable that is to the nation."

In considering the above, the participants responses I obtained to this more open-ended query varied significantly; ranging from the perception of biocultural concepts as indicative possibilities for informing governance, through to the description of biocultural concepts as emphatically supported opportunities for redefining governance. This highlights the challenges in the construction of bi(o)cultural indicators for culturally and ecologically significance areas, amid the prevailing normative mechanisms currently in place to assess the 'health' (or otherwise of country). Where protected area governance systems remain ambivalent of, or dislike, disregard, or exhibit ongoing enmity toward traditional custodians, the avoidable potential for Place and Spirit (and people) to be actually harmed remains, as "not yet mitigated", "echo[ing] the epistemic violence and ambivalence of coloniality" (Kearney, 2021). Coloniality flourishes where cross-cultural relations between settler state environmental governance systems and traditional custodians fail to move into transparent spaces of dialogue and action (Kearney, 2021). Trust and respect emerges from a well defined, embedded reciprocity (Graham, 2014). As Watson (2017) states;

> "The beginning of a true process of justice and 'recognition' will be the restoration of that which was stolen, our land and our lives. A commitment to the healing of our natural world will follow. Without beginning a conversation from this space and a commitment to those actions, we will only ensure the continuity of the colonial project. Without such an action-commitment all things will stay the same; nothing will change. For the state to commit to the possibility of Aboriginal futures, futures which are more than lives to become assimilated, we need more than words" (p. 17).

The cultural health of country as assessed by its custodians remains marginalised (Carter, 2012). Austin and others (2018) state that (public, private, and philanthropic) investors tend to be interested in environmental benefits, in contrast to Indigenous aspirations in caring for country (e.g.: spiritual and cultural identity; maintaining and reinforcing social links; maintaining Indigenous knowledge systems; health (of people and country); escape from social pressures; employment and business development) (p. 158). "Systematic evaluations" of ILSM benefits and co-benefits require ICIPR negotiations and agreement; however success in intercultural conservation partnerships is also attributed to the integration of "diverse ways of knowing, being, and doing" (Austin et al. 2018, pp. 376-377). Recent north Australian research has scoped place-located collaborative approaches to bicultural / cross-cultural learning (Stoeckl et al., 2019; 2021). International research describes biocultural valuing using adapted quantitative measures, or culturally grounded indicators (Sterling et al., 2017a; 2017b).

Despite the readily acknowledged challenges of designing potential biocultural indicators for use within the study area, or more broadly for the Wet Tropics bioregion, all participants offered support (albeit to varying degrees, and in part conditional), for the potential application of biocultural concepts in Wet Tropics governance. A participant stated that they were of the view biocultural concepts were already being applied in Wet Tropics IPA 'caring for country' (and more broadly by RAP across the bioregion); and another participant specifically referenced their current application as traditional governance systems, and RAP systems of traditional ecological knowledge. One participant conceptualised the biocultural as being "evident and highly represented in Indigenous individuals who are well connected to the landscape". Participants defined the biocultural as "caring for country as the underlying core value: caring for that bioregional system and understanding its dynamics"; and as "adding cultural development as a quadruple bottom line". Another participant described the biocultural as the "spatial representation of biocultural responsibilities: integrating an area spatially, including where extent of that responsibility is potentially outside of that area", explicitly defined the biocultural as "transboundary issues: telling the real story of the dynamics, research maybe correct, but it's not this very connected dynamic space sitting in front, which is the cultural fabric".

Participants referenced the need to understand "differences between [RAP] family groups" and the "seasonal movement [of RAP] up and down, from the top down to coastal areas, [as biocultural] indicators signal resources are coming into season. and people move to secure access to them". Other participants stated that biocultural concepts were "key aspects of IPA planning, implementation, monitoring"; and, further, that; "Indigenous worldviews incorporate ecological economies, so biocultural concepts are affected into decision-making: the health of country, the long-

term outcome outlook for community, a long-term outlook for country, for ecology". Comparing and contrasting analytical results specific to biocultural concepts, and Indigenous-related perspectives, with relevant theory (Table 2) confirms governance systems analysis and polycentricity remain highly relevant to a stronger positioning of biocultural concepts across the Wet Tropics, both in the context of the WT WHA and the buffer, as well as for the bioregion (Albareda & Sison, 2020; Dale et al., 2013). A nuanced understanding of Place and Spirit, expressed as the rights of nature and referencing Earth jurisprudence and cultural authority (First Law), points to the valuing of place-based and place-vested values and indicators in the context of relational dynamics (Graham, 2014; Joy, 2018; Memmott & Long, 2002). A long-standing complication here is the normative system's persistent differentiation between "intangible" and "tangible" cultural heritage "values" - at the heart of the (Pannell, 2006).

The *Convention on the Safeguarding of the Intangible Cultural Heritage* (the ICH Convention) was initiated in 2003 through United Nations mechanisms in response to limitations inherent within the (World Heritage) Convention (Lambrinidis, 2021; United Nations Educations, Scientific and Cultural Organization [UNSECO], 2003). Australia is not a signatory or other formalised State Party to the ICH Convention (Lazaro Ortiz & Jiménez de Madariaga, 2022). The ICH Convention defines intangible cultural heritage as "the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage" (UNESCO, 2003; Article 2, para. 1). Intangible cultural heritage is taken to manifest *inter alia* as the domains of: oral traditions and expressions, including language as a vehicle of the intangible cultural heritage; performing arts; social practices, rituals and festive events; knowledge and practices concerning nature and the universe; [and] traditional craftsmanship" (UNESCO, 2003; Article 2, para 2). Whilst considered commendable, the Convention's *Representative List of the Intangible Cultural Heritage of Humanity* is criticised as remaining grounded in Eurocentric worldviews (Lazaro Ortiz & Jiménez de Madariaga, 2022). In particular, the ICH Convention is explicitly subject to State Party biopower; in that "nothing in [the] Convention may be interpreted as affecting the rights and obligations of States Parties deriving from any international instrument relating to intellectual property rights or to the use of biological and ecological resources to which they are parties" (UNESCO, 2003; Article 1, para.2).

Watson (2018b) clearly articulates these differences: Aboriginal worldviews are "based more upon an obligation and relational way of being and less upon an individual rights-based approach. For example, I belong to country because of my relationship and not because I have a stamped title of ownership" (p. 15). In the Aboriginal worldview, heritage "is in fact perceived as a collaborative project relying on relationships with other species such as plants, animals, or extra-ordinary beings".

(Lambrinidis, 2021, p. 72). Pannell (2006) reminds us that "[b]luntly stated, with the World Heritage listing of the Wet Tropics, nature and society were both reshaped in the long shadow cast by the forest of protectionism that followed," precisely because "the emergence of rainforests as an object of scientific scrutiny, political opportunism and global environmental concern resulted in new forms of governmentality, social regulation and, for some people, a continuation of their historical marginalisation" (p. 10). To build national spatial practices allowing for, and enable, the creation of a common future, our key task is to purposefully and deliberately deconstruct (and do away with) both historically fabricated conflict, and fixed cultural imagery (Babacan and Gopalkrishnan, 2017).

5.3. Positive Opportunities for Wet Tropics Governance

In this research, I have found some evidence to show that (from a general RAP perspective), the relationship between contemporary RAP self-governance of the cultural fabric - as that cultural fabric arises from RAP country-kin-culture (inter)connections) across the biocultural landscape; and the settler state's siloed governance systems - might also be considered a 'wicked problem':

> ...here's these different governance styles [e.g.: institutional, economic, Indigenous etc.] and what comes into play here [for RAP] is the issues about wicked problems. And we're never able to solve these wicked problems, all we can do is we can smooth the edges off them, because they are so complex. Every time we try to find an answer to something, it picks up something somewhere else. It's not a simple problem... governance is a very dynamic space, and... even though all those styles are different, what you are trying to look for is a networked governance structure."

Place-based custodianships (effected also as the stewardship of common pool resources) conserve biodiversity and cultural diversity, within a hybridity of governance systems characterised by polycentricity and subsidiarity. From the perspective of participants, a restorative approach to governance for the Wet Tropics bioregion would involve:

> "...[seeing the bioregion] as a whole system [and taking] a whole systems approach: looking at the bigger picture and understanding linkages and interactions... Good governance is needed to support ecosystem services and related opportunities, ecology and economics [are] absolutely intertwined"

> "...changing the focus of governance, who gets a voice at the table, who's included in governance. Ecological economies value Indigenous perspectives and would integrate them in a way and therefore increase inclusion in governance going forward..

in turn [EE] would be included in decision-making [as] Indigenous people [are then] involved in decision-making at higher levels and at a greater percentage".

"...[the] capacity of Indigenous governance entities and their internal decision-making processes which must take into account cultural authority and culturally appropriate ways of sharing social and economic benefits... Work should be done on a place-by-place basis [ ] to achieve [diverse] indicators that are meaningful and understood by [RAP] and reflect their aspirations in caring for country... all levels should be covered... some indicators should be around [effective] governance".

"...[using the EE perspectives and cultural governance] of Elders who are available, who have that intimate knowledge ...that's what they embody, that's what they talk about, and it's in the doing... the cultural sustainability: look after - embrace the past, apply it for today and then insure it for tomorrow".

At the time the Australian Government's IPA program was first developed as public policy, during the mid 1990s, the voices of Aboriginal and Torres Strait Islander people were pro-actively sought, through a series of face to face engagements on country, and at diverse levels of representation and governance (Smyth & Sutherland, 1995). The IPA program policy development process took into account that IPA would be further supported through:

- the social justice recommendations of the then Council for Aboriginal Reconciliation, to develop national model legislation on ownership and management rights for indigenous Australians over existing protected areas of high indigenous cultural following negotiations with the States and Territories (Smyth & Sutherland, 1995, p. 32); and [that]
- if enacted, "that Commonwealth project funding be made available to the relevant indigenous communities to support their involvement in such arrangements".

Additional recommendations concerned regional agreements and commercial use of native flora and fauna (Smyth & Sutherland, 1995, p. 33). The 1994 Environment Policy of the then Aboriginal and Torres Strait Islander Commission (ATSIC) policy centred on policy strategies framed around "self-determination and regionality; sustainability and conservation and precaution" (Smyth & Sutherland, 1995, p. 33). Specific strategies of the ATSIC Environment Policy highlighted by Smyth & Sutherland (1995, p. 33) were:

- the involvement of [I]ndigenous peoples in natural resource management processes, guided by cultural insights and values and traditional techniques, with proper informed consent and benefit sharing arrangements were traditional knowledge is used.
- engagement by our peoples, with all levels of Government, in decision-making over land and resource management, on and off community lands.
- a recognition of the need to engage [I]ndigenous women in decision-making processes".

Further, at the time, the then National Strategy for the Conservation of Australia's Biological Diversity included principles around:

- a preference for in situ conservation;
- widespread cooperation among community interests in the conservation of biodiversity;
- efficient, equitable, and transparent decision-making processes; and
- the establishment of a protected area system integrated with the sympathetic [to biodiversity] management of other lands (including agricultural and other resource production systems) (Smyth & Sutherland, 1995, p. 34).

The multiple tangible and intangible benefits obtained by Indigenous custodians and their communities through their IPAs are "beyond doubt"; and extend to the custodians' ability to "protect the values of their country for future generations", in the demonstrated achievement of significant "health, education, economic, social and cultural benefits" (Wensing & Callinan, 2020, p. 108). More generally, recent research identified that Indigenous Land and Sea Management programs (ILSMPs) are playing an increasingly important in northern Australia's economic development; illustrated in an estimated far north Queensland region-specific ILSMP multiplier of 2.5 (Stoeckl et al., 2019, pp. 33-35). The same research found, that across northern Australia, ILSMP multipliers were 13–60% higher than estimated agricultural multipliers (depending on type of agriculture and study region), and 20–29% higher than mining multipliers (depending on study region). Further, ILSMPs provide biodiversity conservation and ecological services of national (and international) significance.

However, ILSMP delivery is heavily aligned to national policy settings focused on employment outcomes, and the leveraging of additional social program delivery (other than environmental services delivery). For example, there is significant "pressure to deliver multipurpose outcomes through existing financial resources or through other funding sources, such as juvenile justice programs", and

this “creates a situation whereby existing resources are stretched to the limit and the core conservation purpose of IPAs risks being undermined” (Wensing & Callinan, 2020, p. 121). Also, Indigenous Peoples have a wide range of legitimate political, cultural and economic aspirations for their lands and, as a result, conservation priorities and regulations often differ or even clash with Indigenous management (Garnett et al, 2018, p. 370). This highly complex array of internal and external expectations places real and significant pressures on IPA custodians, and on their IPA organisations and other representative entities. These pressures may be underappreciated, or at times not perceived, by external partners (Hill et al., 2014a). They may be exacerbated by lateral violence at every level within the Indigenous families, groups, communities or workforces involved (Whyman et al., 2021).

Additionally, the degree to which the (tenured and other) rights and interests of traditional custodians are formally recognised by the settler state's systems is critical to the capacity of traditional custodians to maintain their respective IPA and other ILSM related obligations (Jarvis et al., 2018). Holding contemporary legal tenure or having determined common law rights (e.g.: native title) cannot and does not automatically facilitate wholly self-determined localised economic outcomes intersecting with Place (and thus by definition with ecology). Native title has been described as a “gravy train for the recognition of rights to land” (Watson 2017, p. 471). In “sitting at odds with [UNDRIP] and entrenching institutionalised racism” native title legislation and processes are seen “inherently unfair” (Jordan et al., 2020, p. 19). Native title results in “no glitch or pause [in the colonial project]; the only change was the assimilation of some ‘successful native title’ applicants into the Australian law of property. [Aboriginal peoples'] capacity to care for country remains a struggle” (Watson, 2017, p. 472). The result of native title being that it does not “concede sovereignty or provide freehold title”, but only delimited non-commercial rights or interests (Jordan et al., 2020, p. 19). In this way; native title does not impede settler state systems in their further accumulation of proprietorial title; “Indigenous people's property rights are reduced to a co-existing and deferential title” (Moreton Robinson, 2015, p. 91). The setter state maintains its exclusive proprietarian interests in:

- country as land: with private or public interests afforded under various title systems, including native title as it is conferred as a delimited bundle of rights and interests;
- country as biophysical resources: permitted use only of air, animals, fossil fuels, freshwater, marine, minerals, plants/vegetation etc. via regulatory regimes; and
- its own biopower: manifesting as governance systems, statute law, regulatory mechanisms and public policy interventions.

As first raised in Chapter 2, in the northern Australian context, Dale (2018) identifies three central policy narratives compete at landscape governance scale:

- resource 'development' (destructive of ecological, cultural and economic foundations: i.e.: intergenerationally unsustainable; thus intrinsically unviable in the longer-term);
- environmental 'protection' (via regulatory creep, in the absence of social justice); and
- land 'reform' (in the ongoing absence of integrated Indigenous community support).

Tied into the persistent proprietarian ideology perpetuated by the settler state, the delimited rights of the 'other' have clear implications for IPAs as protected areas at the intersect of 'conservation as development' in the northern Australian context, including in Queensland. Resource 'development' maintains a focus on planet compromising fossil fuel extraction, the impacts of which are exacerbated by the ongoing clearing of intact native habitats (Maron et al., 2016). The clearing of native vegetation in Queensland is of national and international concern (Reside et al., 2017). Recent research that specifically focused on Queensland protected areas, found that "in the face of declining management budgets, visitor-related management activities were being prioritised at the expense of activities directed at the persistence of biodiversity" (Craigie & Pressey, 2022, p. 11).

Land 'reform', as a direct expression of the State's biopower and proprietarian ideology, aims to open up more country, including for economic development on Indigenous lands. The multi-jurisdictional historical and contemporary complexities of settler state imposed tenure systems have direct and significant implications for traditional custodians; requiring nuanced, constructive (not unilaterally imposed), and (mutual, cross-culturally) informed decision-making (Dale, Taylor & Lane, 2021). The myriad pressures exerted by normative 'mainstream' systems dynamics have direct implications for traditional custodian agency; and such pressures extend to the prescriptiveness of IPA and/or ILSM program scope, funding outcomes and bureaucratised reporting mechanisms (e.g.: to "monitoring and evaluation" (also "M&E") or "monitoring, evaluation, review and improvement" (also "MERI")) (Fache, 2014; Addison et al., 2019). One participant in this study stated:

> "... [another person was saying to me] this whole MERI thing is really quite daunting for a lot of Indigenous groups and in some cases it prevents [the traditional custodians] from taking on the responsibility of developing management plans because they think: we could possibly do a management plan with our in-house expertise, but we can't do the MERI stuff because it's seen as something really complex. Which is a great

> shame because it should be something really simple that just enables [the traditional custodians] to assess [and] measure their own success, and improve in whatever way that might be. [And] it's a challenge [to try and] to get that message across, that monitoring and evaluation is important and internationally it's seen as an indicator of best practice and effective management but that it needn't be complex and it needn't be seen as coming from a dominant cultural worldview – it's something which should very much be an Indigenous worldview."

This highlights the settler state's own deeply contested public policy space and its internal differentiations: what constitutes a public or a private benefit? As one example of the public benefit and value IPAs can provide, Stoeckl and others (2021) consider an Indigenous ranger in an IPA setting to be "an IPA manager", as "an important part of the [IPA] system" and that IPAs, given their employment outcomes "as part of the solution to passive welfare [as] an embodiment of Indigenous meaningful work" (p. 7). As detailed earlier, this study's participants stated that IPAs provide considerable public benefits, and are valued as providing public benefit. However, participants also pointed out that IPAs provide a myriad of cultural benefits to their custodians, which clearly intersect with their obligations to look after country, and also biodiversity and ecological systems on country. In the light of the prevalent proprietarian ideology; an ambivalence toward - or the inability to accept - a hybridity of worldviews; will have significant ongoing implications any Australian governance system (Curchin, 2021; Jordan et al., 2020).

Adding complexity to this contested federal 'policyscape' is the persistent re-framing of what were initially self-driven community-based country planning initiatives (i.e.: the original 'caring for country') as deeply institutionalised 'working on country' employment participation program (Fache, 2014; Kerins, 2012). The IPA program, albeit a 'ground-breaking' policy initiative, is resourced under the National Landcare Program (Appendix 5). As such, the IPA program is fully enmeshed within the normative governance system, whilst facilitating capacity for the IPA's custodians to meet their own responsibilities and obligations to country-kin-culture (Smyth, 2015). The research findings I have been able to derive from the detailed analysis of the primary data (Appendix 5) demonstrate that custodial agency, leadership and strategy are critical drivers of an IPAs longevity.

Problem-solving for 'Wicked Problems'

Discourse in scientific and policy disciplines is frequently dominated by what are termed 'wicked problems'; overwhelmingly complex or irretractable problems that appear to threaten to

vanquish us in their absolute insolubility (Rittel & Webber, 1973; Termeer, Dewulf, & Biesbroek, 2019). Noordegraaf and others (2019) find that the key characteristics of wickedness theory centre on:

- the diverse value disagreements, cognitive uncertainty and institutional complexity playing out between diverse actors enmeshed in the problem;
- a requirement to respond to wickedness through a focusing on networks, trust, and learning; and
- the connection of scholarly debates to practical challenges. (Noordegraaf et al., 2019, p. 280).

Originating as a technocratic and theoretical response to top-down governmentalism, 'wicked problems' are taken to operate at levels, scales, and scope beyond the everyday (Head, 2018; Rittel & Webber, 1973). Theoretical intangibility only adds to the mystique of 'wicked problems', and the challenge of identifying meaningful or valid principles to adequately define them (Noordegraaf et al., 2019; Peters & Tarpey, 2019). In addition, ideology perverts attempts to creatively imagine and initiate innovative solutions to the complex, systemic problems facing our communities and ecological environments; extending to the present failure to achieve the embedding of more socially just governance and policy systems internationally and within nations (Brigg & Graham, 2020a; Piketty, 2020). Wicked problems are deemed to be wicked precisely because they are contested: their chief characteristic can be described as “show[ing] conflict on the normative dimension next to complexity on the factual dimension” (Bannink & Trommel, 2019, p. 200). The rhetoric around 'wicked problems', in and of itself, demonstrates significant shortcomings; some scholars entirely reject the term in favour of alternate concepts, highlighting that policy and other societal problems are actually actively created by, and exist within, constellations of actors holding differentiated levels of political power or agency (Peters & Tarpey, 2019). The priority at every level, from the global to the local, is to go beyond knowledge production to the generation of relatable wisdom in collaboration, openness, diversity and egalitarianism; with the capacity and capability to work innovatively and positively with values and systemic issues (Fazey et al., 2020).

The agentic perspective propels social cognitive theory: agency is powered by a “triadic codetermination process of causation”; comprising “forethought [planning], self-reactiveness [self-regulation] and self-reflectiveness [self-examination]” (Bandura, 2018, p. 130). An agency perspective of the Wet Tropics not only respects, accepts and values ongoing Rainforest Aboriginal custodianships, but offers the basis for an inclusive recognition of their self-determined agency and self-governance (Bama Wabu, 1996; Talbot, 2017). Agency is explicit in Indigenous custodial looking after country: embedded in each of the IPAs currently established in the bioregion; and agency also drives shared

management partnerships across the Wet Tropics' community of practice: in the stewardship of the WT WHA and of the buffer (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; WTMA, 2019; Yalanjiwarra People & Jabalbina, 2016). Reconciling this brings us back to the initial starting critiques identified and articulated by RAP in the mid 1990s.

In countering coloniality's denial of the subaltern voice and presence, hybridity “reverses the effects of the colonialist disavowal so that other “denied” knowledges enter upon the dominant discourse and estrange the basis of its authority, its rules of recognition” (Wolf, 2000, p. 134). Hybridity of identity and a multiplicity of cultural borders characterise the contemporary Wet Tropics bioregion, necessitating strong states of knowledge and states of consciousness in our facing up to the future we know lies ahead, and which raises so many existential questions for us (Wolf, 2000). Difference was raised by participants in this research as a distinguishing feature of the bioregional identity, but also as a characteristic of what was required in terms of establishing a contrast with, and to, the normative socio-political status quo (Appendix 5). In considering the construction of future narratives; we are compelled to listen to the unsaid in our own, and in others,' discourses; as our chance to be continuously aware of the power relations governing the limits and possibilities of translating between asymmetrical cultures (Wolfe, 2000).

5.4. Summarising the Major Research Findings

5.4.1. Ecological Economics and Wet Tropics IPAs

The first research objective sought to affirm if established IPAs in the Wet Tropics bioregion deliver localised EE benefits. I have attempted to answer this aspect of the research question by seeking to understand if IPAs in the Wet Tropics demonstrate EE features, and EE benefits. Despite limitations applying to the research, I have found that IPAs intersecting with the WT WHA and the buffer can be considered to demonstrate EE features and EE benefits. The identified EE features and benefits of IPAs include:

- IPAs can be considered as an important step towards the emergence of a wider bioregional ecological economy (or bioregional EE networks).
- IPAs deliver definable co-benefits, and may flexibly use market-based or similar EE instruments.
- All IPAs intersecting with the Wet Tropics bioregion manage what are commonly termed 'natural assets'.

- All IPAs intersecting with the Wet Tropics bioregion are taken to be active contributors to an emergent, partially enacted regional restorative agenda.
- All IPAs intersecting with the Wet Tropics bioregion demonstrate subsidiarity approaches: manifesting as cultural authority (incorporated, unincorporated), Place-centric (decentralised) caring for country, highly networked forward oriented partnerships, state contracted ecological and cultural (biocultural) service delivery by directly affected parties (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).
- IPAs intersecting with the Wet Tropics bioregion demonstrate subsidiarity as a criterion of economic governance; i.e.: "groups of self organised individuals starting from a system centred around shared resources and proximity, showing themselves capable of identifying efficient [local level] governance solutions on the basis of principles and relations based on trust, reputation and repricocity, promp[ting] cooperative behaviour" (Martini & Spartaro, 2016, p. 114).
- IPAs intersecting with the Wet Tropics bioregion exhibit a recognition of the importance of polycentricity and subsidiarity, as the collective action of "nested layers of interconnected communities" (Albareda & Sison, 2020, pp. 733 & 735).
- The evolution of IPAs in the Wet Tropics also demonstrates polycentricity, in that the serial dedication and/or declaration of IPAs across the bioregion was self-initiated as a large scale [albeit localised] commons movement (Table 3; Ostrom, 2010; Alves 2021). Governance of RAP homelands, as world heritage commons, is guided by mutually adjusted, autonomous initiatives: each IPA's custodians can only speak for their respective country, each IPA is driven by its own group(s) of custodians (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).
- IPAs intersecting with the Wet Tropics bioregion give meaning to the systems view of life; in creating solutions by creating and nurturing communities "designed in accordance with living nature", and "adapt[ing] economy to the principles found in nature" (Capra & Jakobsen, 2017, p. 833).
- IPAs intersecting with the Wet Tropics bioregion embody an evolutionary world view, situating Place and change as a broad evolutionary narrative, a new

"sacred story", grounded in a respect for life and its celebration, adopting First Law (as Earth law / Earth jurisprudence) to re-align human systems to the rights of nature, and to move beyond nature's commodification; i.e.: ES, PES or natural capital, as "asset classes in an [anthro-pocentric] ecosystems market" (Lemieux et al., 2022; Washington & Maloney, 2020, pp. 4 & 5; Youdelis et al., 2021, preprint).

5.4.2. Biocultural Concepts and Wet Tropics IPAs

The second research objective sought to affirm if established IPAs intersecting with the Wet Tropics bioregion apply biocultural concepts. Notwithstanding research limitations, I have found that IPAs in the bioregion can be considered to demonstrate the use of biocultural concepts. Research identified biocultural features for IPAs intersecting with the Wet Tropics bioregion, and IPAs more generally, include:

- IPAs reflect relational approaches connecting country - kin - culture in a dynamic bioregional landscape comprising a mosaic of biophysical (spatial, metaphysical) elements, and a cultural fabric vested in the cultural authority of RAP custodians at diverse scales. In this sense, IPAs fundamentally embody Place and Spirit (Table 2; Graham's (2014) Aboriginal Terms of Reference Underpinning Place).
- IPAs are Place-based and Place-vested: "Ethics "are properly always situated"; [they] are "situated in bodies and in time and in place" (Joy, 2018 p. 18), and these ethics are evidenced and demonstrated by culturally authoritative governance (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).
- IPAs are cared for by their custodians as "cultural landscapes as [a means of emphasising explorations of] the dialectic of individuality and collectivity (including social structures) in the creation and maintenance of place" (Memmott & Long, 2002, p. 45). Cultural landscapes within each IPA are self-determined by the agency and custodial inheritances of their respective custodians (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).
- IPAs consider "cross-cultural concepts of the cultural landscape and change in Aboriginal cultural landscapes within the context of the history of Aboriginal relations with others" (Memmott & Long, 2002, p. 45). Each IPA reflects their

peoples' unique historical experiences in their IPA planning for country (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).

- IPAs embody living and inherited language diversity: “Although the movements of people in the past are hard to confirm, the complex linguistic situation suggests that the rainforest zone, like other areas of Aboriginal Australia, has a complex history.” (Buhrich et al., 2016, p. 29). Each IPA reflects their custodians' respective language(s), knowledges, and oral traditions, as also evident in their IPA planning for country (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).
- IPAs demonstrate co-evolved biological and human diversity: “adding new economic and social values to the cultural foundations in ways that do not undermine them but promote a productive inclusion in the wider Australian community” (Thompson, 2016, p. 379). Co-evolutionary aspects of each IPA are reflected in their respective IPA planning for country (Djunbunji Ltd, 2022; Girringun, 2013; Jalunji-Warra People & Shee, 2012; Kuku Nyungkal *Bama* et al., 2012; Yalanjiwarra People & Jabalbina, 2016).

5.4.3. Restorative Governance of the Wet Tropics and IPAs

The final research objective attempted to gain an understanding of the potential for established IPAs in the bioregion to inform a restorative governance approach for the Wet Tropics, including for the WT WHA and the WHA buffer. Given the limitations applying to the research, I have not been able to draw any conclusions specifically speaking to this aspect of my original research question. Further, this is a matter for each IPA, and each of that IPA's individual, family, tribal or language groups (as self-defined and self-determined) to establish in their own time and place.

The research has allowed for some insight into the IPA program more generally, and these should be considered in conjunction with the findings of the research relating to the EE and biocultural features, and the EE benefits summarised above.

- As a publicly funded program the IPA program is required to demonstrate public benefits, but beyond that traditional custodians should be “left to their own volition” in establishing IPAs.

- The requirement to produce quantitative listings for accountability and transparency requirements is defensible as IPAs are resourced to a significant extent from public money.
- Production of tangible public benefits should be transparently accounted for, however these should be limited to the goals of the NRS or the NLP as the current source of IPA public funds. Ideally, place-by-place biocultural values and indicators would apply, with these developed by an IPA's custodians, while also referencing NRS or NLP goals relevant to that IPA.
- Policy arguments could be made to the effect that some cultural benefits (from IAPs on Aboriginal land) are (contemporary) private benefits, as benefits accruing to the (statutory) landholders. However, the originating policy context (i.e.: NRS etc.) is not grounded in Indigenous worldviews, and Indigenous worldviews are fundamental and integral to IPAs as Place. A different context also applies to collaborative IPAs.
- The IPA program is considered to be on firm ground currently within the present normative system when it provides for the conservation (i.e.: the protection) of bioregions and sub-regions, and major vegetation groups etc. on Aboriginal-held lands, or to collaborative IPAs. However, the IPA program remains vulnerable to NPM regimes (Coffey, 2019). IPAs should continue to be voluntary arrangements.
- Intergenerationally sustainable economic development should be a key goal for the IPA program.
- An IPA's Indigenous economic (and other) agency is Place relational, and governed via cultural authority. IPAs can be considered EEs, expressing biocultural features.

Chapter 6: Conclusion

...as partners, talking to politicians and saying, `the environment is the economy', it's not `the environment vs the economy', which is the way of thinking in most cases: you've either put money, invested money in the environment, or you invest it in the economy. And we just see that [ ] that argument doesn't make sense anymore, particularly in far north Queensland; [in] north Queensland, we see the environment as the economy.

(A participant in the research, 2021)

The present dynamism in regional thinking at the intersect of the Wet Tropics' biocultural ecological richness (i.e. the environment) and present normative governance systems offers the opportunity to create an emergent Responsible Anthropocene *sensu lato* (Zalasiewicz et al. 2021). Subsidiarity approaches, and subsidiarity as a criterion of economic governance, are of high relevance across the bioregion (Aßländer, 2021; Martini & Spataro, 2016; Young, 2003). Considering EE as a systems view of life; as an evolutionary worldview, and as a relationist approach to place and change; assists in bringing high theory to earth in a dynamic bioregion seeking new narratives for transitioning beyond the settler state's "economy not the environment" coloniality (Capra & Jakobsen, 2017; Graham, 2007; Zurba et al. 2019).

Research results demonstrated that IPAs are clearly able to be considered a form of ecological economy (EE), with EE features that deliver EE benefits. Data obtained about EEs was to some extent sector aligned, with non-statutory participant groups articulating a more radical or social EE, where system reform is necessary to effect meaningful social justice (including redistributive economic justice), and real alternatives to monetised valuing of nature and culture (Pirgmaier & Steinberger, 2019; Spash 2011). For some participants this was seen as requiring a considerable nation-wide, even global, cultural shift way from capitalism; a new EE ethics centred on ecological law (Earth laws or Earth jurisprudence, legal personhood of nature, First Law); and governance grounded in that new ethics (Washington & Maloney, 2020). An emergent Wet Tropics EE appears to comprise of embedded and interactive polycentric (local, sub-regional and regional) networks, operating in part on principles of subsidiarity. In their Place-centric (decentralised) looking after country, the Aboriginal custodians of the Eastern Kuku Yalanji IPA, the Girringun Region IPA, and the Mandingalbay Yidinji IPA drive and lead an increasingly ecological economic agenda for their peoples and for the wider bioregional community. The study found that IPAs do demonstrate EE features and EE benefits, but as only one aspect to the emergence of a broader, and desired, bioregional ecological economy.

The Wet Tropics, as a dynamic bioregional landscape, comprises a multifaceted Aboriginal mosaic of biophysical (spatial, metaphysical) elements, and its cultural fabric is vested in the cultural authority of RAP custodians at diverse scales. The Eastern Kuku Yalanji IPA, the Girringun Region IPA, and the Mandingalbay Yidinji IPA reflect relational approaches connecting country, kin and culture. Their relationism is Place-based and Place-vested: as the culturally authoritative governance of each IPA in the bioregion: an IPA's Aboriginal custodians can only speak for their respective own country, and each IPA is driven by a group or groups of custodians whose cultural authority arises from country-kin-culture connections. The bioregional diversity of languages, and the diverse historical experiences of Aboriginal people since European arrival, define the biocultural diversity of Rainforest Aboriginal People and of the Wet Tropics bioregion as a whole. The spiritscapes and cultural landscapes of the Eastern Kuku Yalanji IPA, the Girringun Region IPA, and the Mandingalbay Yidinji IPA are (re)asserted, in their establishment as biocultural governance interventions for looking after the WT WHA's OUVs.

As autonomous, mutually adjusting Place-vested systems of shared resources and proximity, IPAs are capable of identifying efficient local (economic and other) governance solutions based on trust, reputation, repricocity and cooperation; and by doing so they enact and embed subsidiarity. The Eastern Kuku Yalanji IPA, the Girringun Region IPA, and the Mandingalbay Yidinji IPA are examples of emergent biocultural EE networks because they are explicitly of Place and Spirit; as holistically place-vested, and expressly conceived self-determined agency. All of these remarkable and unique IPAs express collaborative governance *in praxis*. By looking after country; Aboriginal custodians and IPAs, protect, conserve and transmit the WT WHA's OUVs and the biocultural ecologies of the buffer, as integral partners within a Wet Tropics community of practice. Their voice is increasingly recognised and valued: despite the prevailing coloniality of the settler state's systems, IPAs have pushed the boundaries of the normative conservation regime by (re)establishing their Aboriginal custodians' active and empowered presence on country, 'protected' or otherwise.

As contemporary biocultural areas, IPAs routinely have complex histories of negotiation, multi-tenure arrangements, as well as dual internal (custodially-driven) and external (partner-driven) governance mechanisms. Therefore, the IPA program should continue to be supported nationally with public funds; with increased investment in IPA governance, planning, and operational resources and capacity; in order to meet both increasing Indigenous community interest, and a rapidly growing demand for partnership collaborations. Within the bioregion, a further IPA consultation and planning process is underway for areas of Mamu land and sea country; and RAP collaborations for areas of their respective countries within the WT WHA, and the buffer, are increasing in number, diversity and purpose.

Gaining agency in the on-ground 'management' of country within the WT WHA and the WHA buffer enables more formal transboundary collaborations between the Aboriginal custodians of these IPAs and multi-jurisdictional statutory governance and management authorities. Although internal as well as external power dynamics may have implications for governance stability, IPAs do facilitate longer-term, and larger scale, collaborative outcomes for the Aboriginal custodians concerned. IPAs are recognised as effective and efficient enabling mechanisms for both their affiliated Indigenous communities and their collaborative partners. As such IPAs can positively add to their communities' cultural foundations, and to that of the broader Australian community, as co-evolutionary processes adding new (ecological) economic and (biocultural and bicultural) social values.

Internationally, the UNDRIP sets the parameters for FPIC. Yet the Word Heritage Convention is not subject to UNDRIP, and the State Party does not routinely apply FPIC in declaring protected areas, including for protected estate additions (Carter, 2009). Australia's prevailing heterodox socio-cultural imperatives (its' mainstream, 'whitestream' norms), promulgated as proprietarian governance, demand “bang for buck” benefits in terms of an IPA's environmental (conservation) outcomes (Moreton-Robinson, 2015). The settler state receives that pay-off in the form of an addition of Aboriginal land to the NRS and as “bureaucratised participation” (Fache, 2014). Thus a fundamental conundrum is that, while IPAs are an effective voluntary mechanism for custodial intent within international norms, the subsequently created 'protected area' and its 'management' become integrated into the settler state's NRS. Nevertheless, the settler state's delimitation of contemporary Aboriginal self-determination as native title facilitated 'business as usual' must move beyond the dangers inherent in normative economic and governance systems (Woolfe, 2000; Deem, 2021). Ultimately, however, how Aboriginal custodians chose to engage (or not) in regional, sub-regional, state, or national treaty and truth-telling (or similar) processes, is a matter solely for them.

Despite the present constraints, my research has found that IPAs in the Wet Tropics can be characterised as biocultural ecological economies. All established IPAs in the Wet Tropics bioregion deliver biocultural ecological economic benefits. IPAs by design embed retained subsidiarity, as nested communities facilitating (incorporated and unincorporated) cultural authority for the rigour (and the benefit) of the shared governance of Aboriginal custodial lands. Consideration of the IPA concept as a mechanism for the (re)creation of a (re)storied Aboriginal presence on country included within the WT WHA should be made available to all Rainforest Aboriginal custodians who are interested. To effect transformational change, new national policy settings need to (in)vest at subsidiary (local or regional) scale (Hill et al, 2020). Heritage related systems and processes must move beyond the nature-culture schism the settler state elects to perpetuate unreconciled (Baird, 2012).

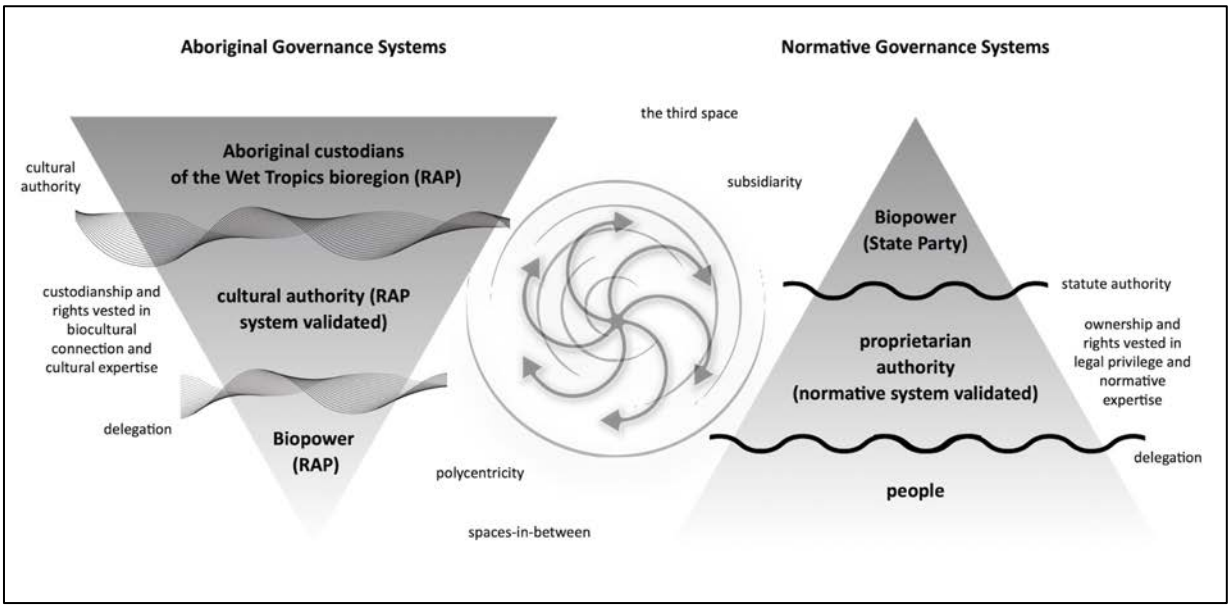


Figure 11. A restorative intervention for Wet Tropics governance systems and policy change. Left side triangle is adapted from Schmider (2016) *Figure 5. RAP leading management of culture and Country.* In Dale et al., 2016, p. 19. The 'third space' concept is adapted from Bhabha (1998) and Meredith, (1998); and the “spaces-in-between“ concept is adapted from Wolf (2000).

In the context of this study, I have developed a working restorative governance approach / conceptual model for further testing (Figure 11). Bhabha (1998) call for a third dimension: the bringing of language into a new space of community and conversation beyond simplistic 'black' and 'white' dualities. Inclusionary processes and systems require hybridity and the 'third space' in moving beyond antagonistic exclusions to create “multifaceted patterns [ ] of cultural exchange and maturation“ (Meredith, 1998, p. 5). Wolf (2000) finds that cultural difference, while "no longer seen as the source of conflict“, retains discriminatory practice; “the production of cultural differentiation becomes a sign of authority“, changing the “value of difference“ and related “rules of recognition“ (p. 134). It is in the “spaces-in-between“ where new ground can be found in the initiation of new ideas of identity (Wolf, 2000, p. 140). Difference was raised by several research participants as a distinguishing feature of identity, but also as a characteristic of what was required in terms of a contrast with the status quo.

My study highlights the need for new systems thinking in moving towards, or realising, a more ecological economy for the Wet Tropics bioregion. Economic and governance systems shift, and cultural change, will be necessary to support, and consolidate, partially emergent Wet Tropics EEs to counteract the increasing vulnerability of the bioregion’s diverse ecologies and human residents. For example, Earth, wood, water and fire (among other “mosaic elements”), are described as “the first cultural norms on the landscape” (Appendix 5). Relinquishing modernity's relentless Superorganism requires of us to act as "torchbearers"; and to (re)engage in (re)grounded, (re)localised ecologically

and bioculturally (re)generative socially communities, for "viable [ ] futures in which we can decolonise to both survive and thrive" (Hagens, 2020, p. 14; Paradies, 2020, p. 447). Changing cultural thinking, to shift the prevailing economic system by breaking down settler state cultural norms is necessary for an integrated approach to development underpinned by human rights and equity in effective benefit sharing (Capra & Jakobsen, 2017; Ife, 2016).

In stimulating diverse conceptualisations of localised EE parameters and biocultural concepts, the research has contributed to the evolution of participant worldviews, myself in the role of the researcher, and the regional governance policy conversation beyond the transactional. Given the dynamism of IPAs and other emergent EEs across the bioregion, the Wet Tropics' socio-economic systems could move beyond simplified, fiscally driven paradigms to mitigate or deter the adverse human impacts on ecological systems created by no longer sustainable economic systems, toward a deep restoration (Gills, 2020; Spash, 2020a). As part of a longer-term adaptive governance dialogue, the WT WHA and the WHA buffer could be reconceptualization as transboundary shared governance networks, vested in the diverse carers of the bioregional landscape; where each ecosystem can be better understood by its own mosaic of elements, and as the living, cultural fabric of RAP custodians. In undertaking this study, my ultimate drive arises in making an active contribution to evolving, shared narratives around restorative governance interventions for the direct and lasting benefit of current and future generations of Rainforest Aboriginal Peoples, and for the benefit of humanity more broadly.

Transformation requires agency and agency arises from Place, as a biocultural foundation to an ecological economics; and the transformational change necessary relies on polycentric governance shifts of power grounded in functional and sustained subsidiarity. Long-term financial investments, and culturally respectful timeframes, need to be grounded in transparent pre-negotiated, and pre-consented, ethical parameters (Graham, 2014). A holistic landscape approach frames and locates Place-centric EE parameters bioculturally, and at bioregional, national and international scale (Sayer et al., 2015; Verschuuren & Brown, 2019). An integrated development approach places 'benefits' firmly within community (Ife, 2016). In closing, the Eastern Kuku Yalanji IPA, the Girringun Region IPA, and the Mandingalbay Yidinji IPA Wet Tropics embody an evolutionary world view, situating Place and change as a broad co-evolutionary and transboundary narrative. By their doing, these IPAs are telling a new “sacred story”, grounded in a respect for life and its celebration. In engaging with the settler state system in their praxis of cultural authorities as shared governance, each IPA's Aboriginal custodians are (re)aligning the artificial *milieu’s* human systems toward more ecological economies, (in)vested in Place and Spirit, as steady steps towards a restorative governance of these unique biocultural landscapes.

6.1. Recommendations

1) Place-by-place biocultural values and indicators are most appropriately developed by the Aboriginal custodians concerned, at the appropriate self-determined scale of cultural authority.

2) For biocultural values and indicators integrated into IPA planning, governance and delivery, referencing NRS or NL goals relevant to that IPA should also be considered.

3) Indigenous worldviews are fundamental and integral to IPAs as Place, and this applies also for collaborative IPAs as multi-tenured shared governance partnerships.

4) The IPA program remains vulnerable to new public management legislative and policy regimes. IPAs should continue to be voluntary arrangements.

5) Intergenerationally sustainable economic development, as self-determined by the Aboriginal custodians of an IPA, should be a key goal for the IPA program.

6) An IPA's Indigenous economic (and other) agency is Place relational, and governed via cultural authority. IPAs can be considered EEs, expressing biocultural features.

6.2. Further Research

This study has identify that further research is needed on:

1) a coherent narrative for further building EE in the bioregional context; and
2) an indicative set of shared EE and biocultural principles to underpin place-based indicators and values.

Further studies should take into account:

1) Applying bioculturally informed landscape approaches at culturally authoritative scale.
2) How RAP and their partners, including IPAs, might collaboratively implement a restorative governance system(s) across these scales.

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Appendixes: *Prescient Custodians: Wet Tropics Restorative Governance* (access to Appendixes 2, 3, 4 and 5 is restricted)

Appendix 1: Established Indigenous Protected Areas within the Study Area

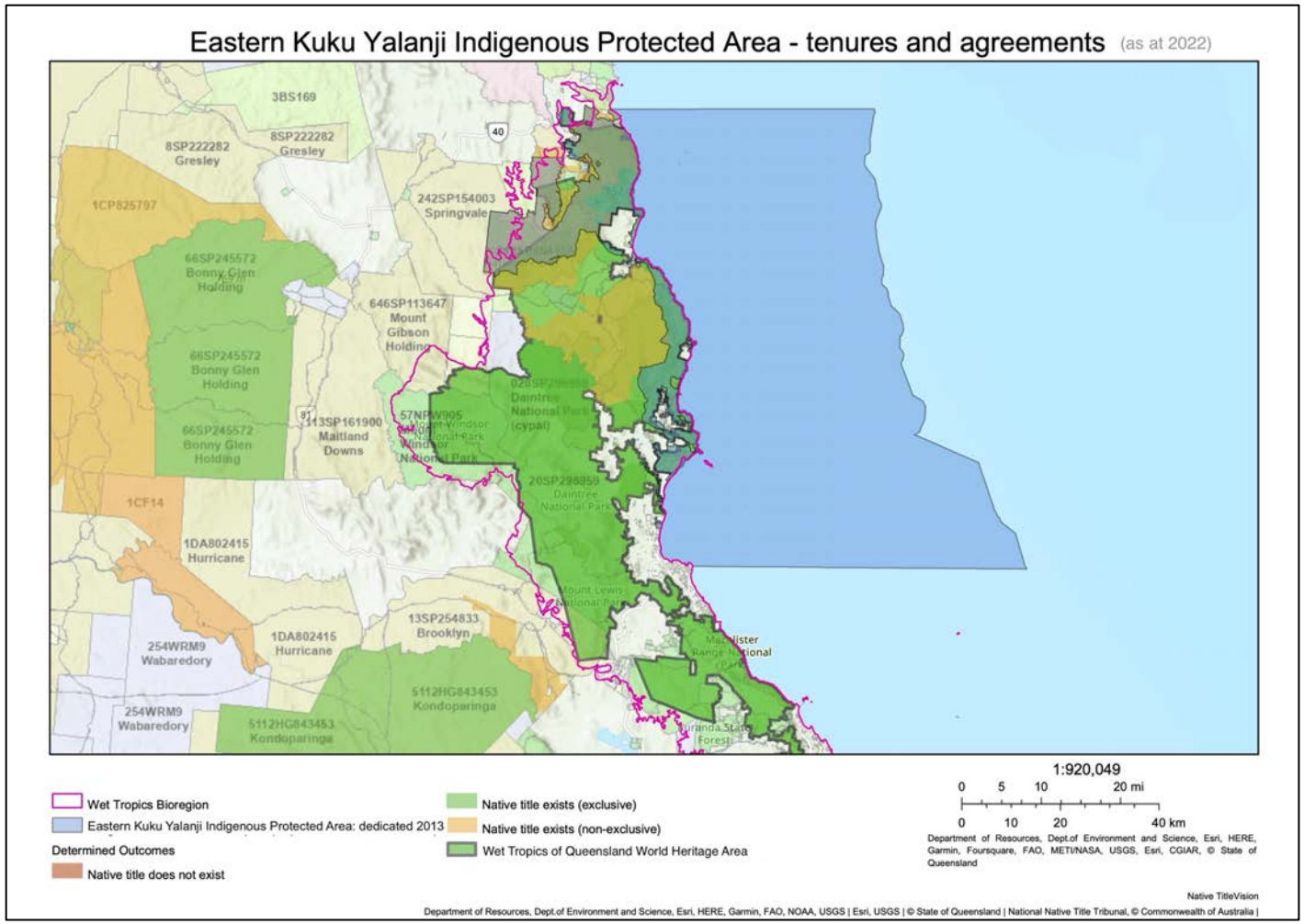

Figure 12. Eastern Kuku Yalanji Indigenous Protected Area. Source: Native Title Vision, National Native Title Tribunal, accessed July 2022.

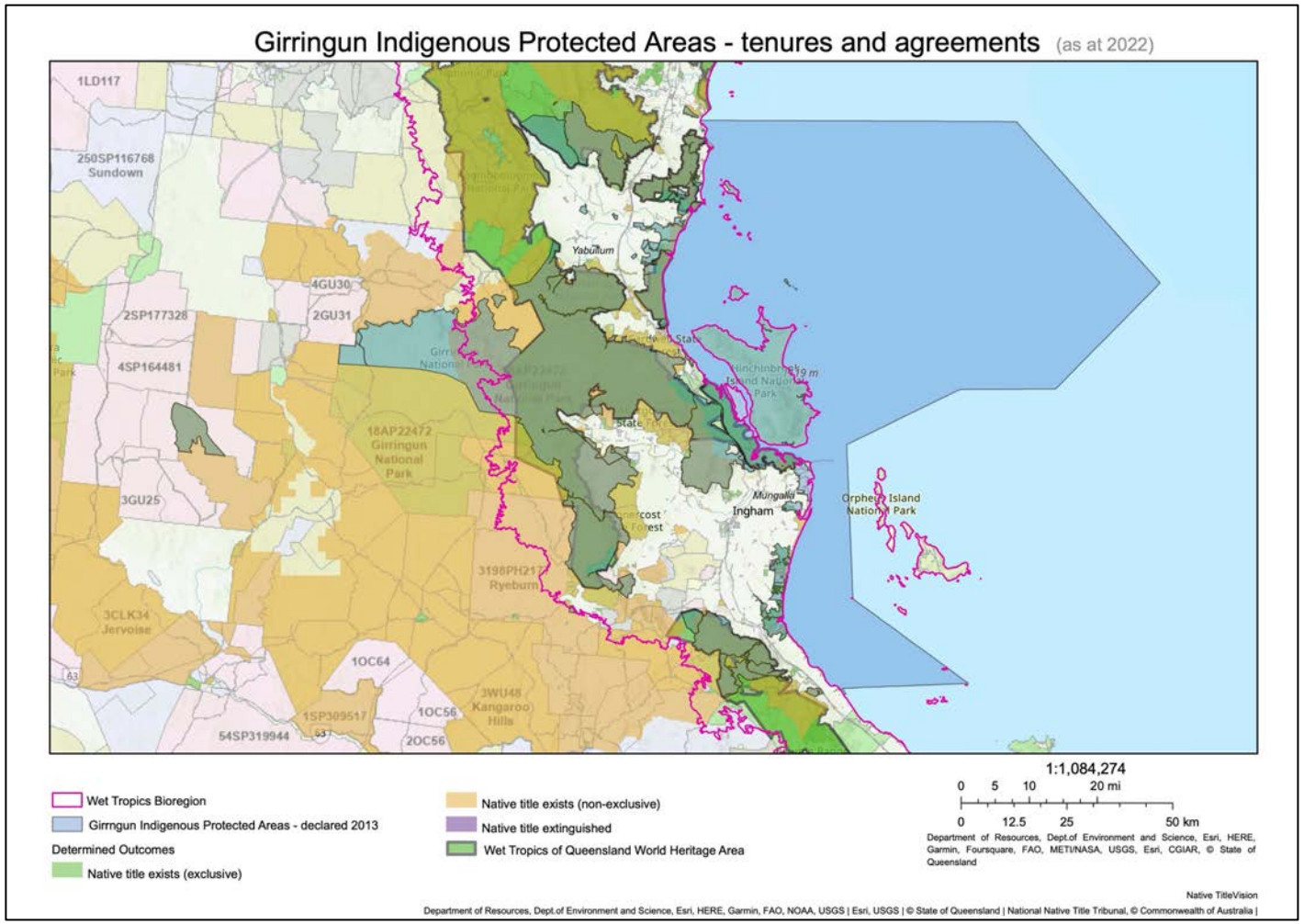

Figure 13. Girringun Region Indigenous Protected Areas. Source: Native Title Vision, National Native Title Tribunal, accessed July 2022.

Appendixes: *Prescient Custodians: Wet Tropics Restorative Governance* (access to Appendixes 2, 3, 4 and 5 is restricted)

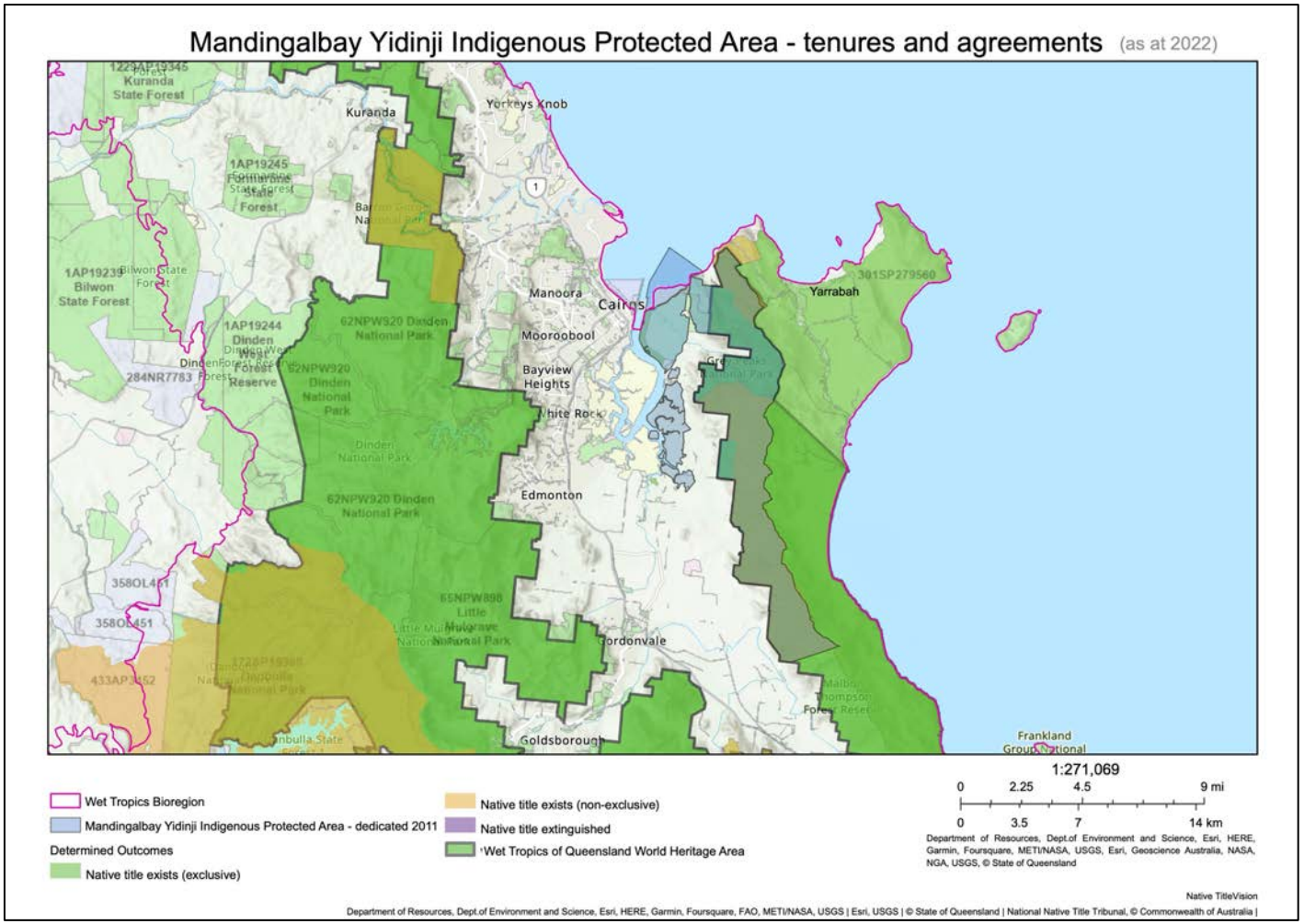

Figure 14. Mandingalbay Yidinji Indigenous Protected Area. Source: Native Title Vision, National Native Title Tribunal, accessed July 2022.