



Central Australian native plant business literature and research synthesis

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Executive summary

This working paper provides a focused review and discussion of literature, research and industry conversations pertaining to the use of native plants of inland central Australia, particularly those procured by Aboriginal people in remote drylands. It integrates key factors from bush foods plant business research with reference to complex systems theories used to (re)frame what we understand about the interrelationships of plants, knowledge and society in this arid region. The customary economic intersections stem from a small research project about the incorporation of customary practice and knowledge that is in everyday community use into social enterprise or other markets, value chains and systems of production. The paper seeks to integrate what we know through such research partnerships with Aboriginal custodians, harvesters and entrepreneurs with theories and policies relevant to the human geographic context of remote inland central Australia, and with a wider industry-focused literature related to horticultural development of agribusinesses. In addition, conversations with industry stakeholders reflect on the current policy discourse and its lack of reflection of remote inland central Australian networks, values and priorities in Australian Government northern development agendas.

Formative findings from a research conference paper delivered at the *Taiwan Austronesia 2016 conference: Community Economy, Market System and Transnational Trade Agreement* (Lovell, 2016) reflect some questions and findings about current Aboriginal native plant use at an intersection with the health of people and the ecology of central Australia. Excerpts are included here, with further analysis towards incorporating central Australian native plants use, and their protection and value as assets of Aboriginal people and lands, into development scenarios based on ecological health and wellbeing outcomes. The public policy context and agenda are discussed in light of how they intersect and reflect the networks, agency and activity. This necessitates reframing the problem of a marginal remote inland that is associated with northern Australian development policy to include a functional remote and networked domain, albeit far away from the coastline-dominated discourse of Australian governments' northern development agenda.

Overview and intersection

In remote inland central Australian Aboriginal communities, traditional knowledge of native plant use contributes to social and cultural wellbeing and natural resource management. Some plant materials are harvested to supply the value chain providing stocks of bush foods and bush medicine plant materials to a variety of markets¹. The bulk of the research to date for central Australia has been concerned with the mechanisms of these supply chains, the return of benefits from the value of the raw product, and the legal and socio-cultural parameters required to sustain and develop native plant agribusinesses.

More recently, bush medicines which incorporate both plant materials and knowledge of plants used traditionally for wellbeing and healing have found a niche in the cosmetics market, retaining Aboriginal agency in the market through social enterprise mechanisms that include direct production and financial return. Bush foods, on the other hand, tend to be traded as a raw material and wholesaled into the supply chain for development and eventual sale elsewhere – a process which is relevant to those who seek to reconcile the outcome of wild harvest wholesale with products on a supermarket shelf (Vincent, 2009; Cleary, 2010). Wholesale supply into the bush foods supply chain via wild harvest is unlikely to return direct benefit to individuals or families beyond the initial point of sale, generally to a wholesale dealer (Lee and Courtenay, 2016). This topic was informed by the Merne Altyerre-ipenhe Reference Group with their development of ethical protocols for doing business with native plants, custodians and plant harvesters. This group identified the importance of preserving the relationship connecting wild harvesters to their produce, a customary process which has deep cultural associations and represents important agency, particularly for women (Merne Altyerre-ipenhe Reference Group et al., 2011). Indigenous corporate partnerships now explore other methods too, such as enrichment planting, when plants are encouraged to proliferate through a degree of tending, such as weeding, in their natural habitat (Ninti One, 2015). In another example, horticultural planting is outsourced to the Arid Zone Research Institute in Alice Springs, where medicine plants are grown on behalf of the Akeyulerre Healing Centre (Akeyulerre Inc., 2016), and bush tomato horticultural test sites are grown on behalf of the Cooperative Research Centre for Remote Economic Participation Plant Business project (Lee and Courtenay, 2016). These examples contribute greater local engagement in Alice Springs in supply chain activity, by value adding through processes of production. As a result, they may bolster employment activity, increase the reach of Aboriginal involvement and the return of benefits, and provide secondary income streams through increased processing and production (Central Land Council, 2016; Akeyulerre Inc., 2016).

The scales of bush foods and bush medicine activities differ vastly, and the relevant academic literature reflects this. There have been two Cooperative Research Centre programs for bush foods that ran consecutively, and which have contributed significant numbers of reports and articles (see, for example, Merne Altyerre-ipenhe Reference Group et al., 2011; Waycott, 2010; Cleary et al., 2009; Yates, 2009). A far smaller number of specialist books contribute significantly to what we know of bush medicines in this region, and which were produced in the 1980s (see for example, Barr et al., 1988; Isaacs, 1987), coinciding with the policy era of Aboriginal self-determination during which Aboriginal art centres and Aboriginal health organisations came into being in the remote inland.

¹ 'Bush medicine' is a term in common use in central Australia now. It denotes the plant materials in everyday use in many central Australian Aboriginal societies that are incorporated in wellbeing and traditional healing practices. The term is open to being challenged on the basis that 'medicine' infers a status in western thinking that must be scientifically and legally justified through evidence of a health efficacy. The term bush medicine is used throughout this review in keeping with the social and contextual use of Aboriginal English terms. Native plants and their customary uses in healing are not a classification of a medicine in western medical terms but they are examples of how Aboriginal healing traditions continue and are put to contemporary use. Many plant substances can be harmful if not used with the care and knowledge conveyed in traditional practice (Barr, et al., 1988, pp.15–17).

Cooperative Research Centre programs for Plant Business in central Australia

Much of the literature referenced here shares a common feature in that it emanates from public research supported by the Australian Government's Cooperative Research Centre program. The theme of native plants in relation to remote or desert environments, Aboriginal societies, value chains and economic benefits have featured in two Cooperative Research Centre (CRC) projects: a livelihoods inquiry called 'Plants for People' (Desert Knowledge CRC 2003–2010) (DKCRC), and an enterprise inquiry called 'Plant Business' (CRC for Remote Economic Participation, 2010–2017) (CRC-REP).²

These programs undertook research and produced literature regarding native plants, society and economy in the arid landscape of desert and remote Australia over 14 years – long enough to develop a genealogy of changing political agendas, land use agreements and policy priorities. The research findings of the two CRCs are explicit. To understand the breadth of factors that intersect with local and customary practices, beliefs and value systems, the tension between local, regional and wider systems requires an understanding of:

- synthesised literature from research programs
- population and property rights impacting the remote inland
- the scale and scope of desert systems
- current issues such as equivalence, infrastructure and commerce
- sustainable ecological health
- wellbeing and enterprise
- public policy and political agendas
- production and development narratives
- complexity, systems and frameworks
- the need for reframing and how to reframe the problem at the margins.

The literature from the CRC research programs has contributed to understanding supply and value chains in the bush foods industry and deepened what we know of them. There is concern regarding the protection of customary knowledge and the contemporary derivation of products that include native plant material or customary knowledge. The flow of benefits back to custodians or land owners through native plant industry activities are not realised or protected through the current systems of laws, protocols, rights and treaties in Australia, or internationally. There is also concern with the methods and rates of return through economic and social benefits from wild harvest, enrichment planting and horticulture, and with the emphasis placed on development models, corporate structures and increasingly scaled-up production. The lens of human geography frames the narratives about relationships – between land and people, laws and protocols, temporality and sustainability, networks and social ecology. Concepts of relationality and temporality frame the networked nature of the inland, while Indigenous wellbeing, enterprise, development and ecological services intersect across domains of policy, science, life and research in ways that effect how an 'agribusiness niche' can be sustained among the tension and complexity of competing social and changing natural–ecological demands.

² See the database for Remote Australia Online as a source for many of the publications and their links to the research projects referred in the DKCRC and CRC-REP.

Synthesis of plant research literature

In research undertaken with *akatyerr* (bush tomato in Anmatyerr language) the social and economic demand-supply chains from central Australia were analysed (Holcombe et al., 2011; Lee and Courtenay, 2016; Lee, 2012) and strong protocols and ethical recommendations developed (Merne Altyerre-ipenhe Reference Group et al., 2011). More recently Lingard (2015, p. 10) contrasted and assessed laws, protocols and legislation available to protect customary rights and intellectual property rights over biological and genetic plant material. Reflecting on international inquiries undertaken by the World Intellectual Property Organisation (Adjei and Stoianoff, 2013) Lingard (2015) confirms that protection of Aboriginal knowledge associated with plants might be improved by adapting existing laws, rather than constructing new laws and undertaking the unwieldy and slow processes required. She concludes that benefit sharing on an industry scale, such as through a percentage of farm-gate value being returned to Aboriginal custodians, could occur in lieu of previous recognition of knowledge and ownership underlying the development of the native plant industry in Australia.

Lee (2012) puts forward concerns about sustainable development, enterprise and economic development frameworks which do not appear to have been designed to include the return of real or anticipated benefit to remote Aboriginal communities, citing evidence from discreet research projects undertaken through the CRC's two plant business-related programs. The problem in part has been the sublimation of customary relationships with the assumption that development produces a scalable economic impetus for development, despite its foundation in a system without commensurate relational or cultural derivations. This theme is identified by Lee (2012), Walsh and Douglas (2011), and Yates (2009) in the discourse that promotes horticultural-scale development for commercialisation, on the grounds this will benefit remote Aboriginal residents and custodians, but fails to provide evidence or equally rigorous assessment of other possibilities or indicators. Examples of this narrative include the social and ecological impacts that Holcombe and Janke (2012) cite as they describe the genealogy of events surrounding the commercialisation value chain of plant material from the Kakadu plum, and the vulnerability surrounding the protection of custodial rights in the face of multiple, and at times unaligned, laws through which Aboriginal custodial provenance is poorly addressed (Hunt, 2013, p. 17; Lingard, 2015, p. 7).

As Lingard (2015) has identified, there is a gap in understanding which can only be addressed through scrutiny, because – while the rhetoric about valuing and respecting Aboriginal culture is now well-honed policy – there is little improvement in the agency, health and status of residents in remote Aboriginal communities (Gardiner-Garde, 2013). Within literature specifically about native bush food there is limited evidence that commercial crop-farming in the inland is sustainable, viable or attractive to remote Aboriginal communities (Lee and Courtenay, 2016). Although there is evidence that horticultural scale is not a socio-cultural 'fit' with customary systems of two-way benefit between land and people, nonetheless success is assumed on the part of policy makers to include horticultural-scale practice. The evidence from bush-food horticultural trials suggests that many native plant species require further development of methods, and these methods may include potential hybridisation (Beavan, 2017; Lee, 2012). For example, in its natural state, the bush tomato has thorns; the bush may have flowers, ripe and unripe fruit simultaneously, and that requires multiple harvests. Such characteristics of the plant, and something of its role in the totemic landscape of Eastern Arnernte, are captured in paintings and stories that Kathleen Wallace has contributed as a body of knowledge from her homelands. This is evident in the extent of her story telling (see Figure 1). Lee (2016) reports that, in the year surveyed, the total farm-gate value of bush tomato was little more than \$A0.5 million, while the use of the plant material (fruit) in commercial products such as chutneys and sauces is no more than 10 per cent of the ingredients.



Figure 1: Wallace, 2003. *Aweleawe* (138-03) Acrylic painting on linen, 30 x 46 cm.

There used to be plenty of aweleawe, bush tomato, growing around Uyetye and they were a good source of food for us. In the old days, a really greedy woman had lived at Uyetye. She lived there with other people, in a family group, much as we all did. But this woman, she was always the first one to check the aweleawe plants to see how the fruit was growing. The others living there knew she checked the plants early in the morning, and they knew she was greedy too, but they always let her go first. Later in the day, they would go and look themselves to see if the tomatoes were ready to pick. The woman would pick all the ripe fruits in the morning before others went out looking, and she ate them all straight away, without sharing anything with the others. ... Aweleawe plants have long sharp spikes on the branches. The ngangkere sang the plant with ripe fruit, so that when the woman took the fruit from it in the morning it sprang back at her and hit her in the face. Two of those sharp spikes pierced her eye balls and she was left completely blind. The woman could no longer go out and collect food; she couldn't see at all and had to sit in the cave all the time unless some other person guided her about. The other people still shared all the food but the woman had to take what she was given... (Wallace and Lovell, 2009, pp. 58–61)

Lee and Courtenay (2016) note that the history of failure of horticultural endeavours in remote Aboriginal communities also includes utilitarian perceptions, as well as environmental and botanical challenges, with informants describing the bush foods produced by enrichment methods as lacking desirable qualities – taste, colour, and texture – that had diminished through the process of being planted and transplanted. Yates (2009) describes the impact of scaled-up horticultural production on local wild harvesters. This includes the failure of horticultural projects to return financial and intergenerational benefits that sustain connections to country back to communities, in turn putting pressure on the knowledge maintenance that is associated with women's knowledge of foods and medicines, which are predominantly taught and maintained through wild harvest and kinship ties to land and other Aboriginal people and society. Commercial-scale production of other non-native crops in central Australia is also subject to uncertainty with availability and cost of labour, unpredictable weather conditions, access to water, and bureaucracy sited as challenges which affect the viability of these industries (Beavan, 2017).

The impact of pastoral land use has reduced the biodiversity of much of the inland (Traill et al., 2014). With or without intellectual property rights, and in the face of landscape remodelled by cattle production and resource extraction industries, the ecological agency of Aboriginal women has been diminished significantly in the last three generations (Wallace and Lovell, 2009), and opportunities for intergenerational transmission of knowledge have contracted (Merne Altyerre-ipenhe Reference Group et al., 2011). Further disruption to cultural and ecological activity associated with wild harvest can deplete vital kinship networks essential to the transmission of the knowledge upon which sustainability depends in many remote desert communities (Walsh and Douglas, 2011; Lee, 2012), and diminish access to

significant wellbeing associated with being on country to harvest. Both of these factors have unforeseen negative impacts on already stressed biodiversity (Stafford Smith and Huigen, 2009). Wallace is an Eastern Arrernte artist who grew up living with her grandparents on their homelands; her paintings and stories provide a further glimpse of how landscape-scale change has impacted on plant biodiversity and the agency women extend through understanding themselves as part of their land. Wallace (Wallace and Lovell, 2009, pp. 86–87) reminds us that, within the changing experience of landscape, ramifications are felt cosmologically as well as in the opportunities that are presented in everyday life. Lovell (2014, p. 182) discusses these ramifications:

The story told with *Hunting for Seeds* [Figure 2] describes the extreme change that weeds and cattle brought, and which spread across and beyond the homelands. The impact on seeds alone had a significant impact on the wellbeing and agency available to Wallace, her grandparents and others on the homelands. The devastation of seed plants affected the balance of another available natural resource and prized asset of Eastern Arrernte: the agency of women, whose capacity and motivation for harvesting on their homelands and providing in this way for their families ceased with the takeover of weeds. Many plants are no longer seen above ground across the current landscape but seeds remain dormant, residing in the earth. ‘Hunting for Seeds’ depicts what is held in the earth and preserved in stories, songs and memories that ensuing generations cannot readily see in their landscape.

The integration of cosmological, practical, domestic and formal knowledge is a theme of the research of Wallace’s work, and her vision of the relationship of people, resources and land is central to the way her paintings are constructed with reference to cosmological events, the spirit world, and domestic issues of everyday survival in the homelands,

[f]or example, between those [figures] concerned with spirit interface and those concerned with resource gathering (*Hunting for Seeds*) or between domestic and cosmological ‘spaces’ layered in the same landscape (*Man and Boy Story*; Ngurre, *Tapping Sticks Fly into the Sky*; *Ancestor Figures*) (Lovell, 2014, p. 236).

Where such temporal and cosmological characteristics frame events, resources and relationships, adapting a complex systems framework, such as the desert system Stafford Smith and Huigen (2009) propose, to include these phenomena is vital; they are after all extant in the landscape, before the advent of British colonial law and property rights which overwhelmed existing Aboriginal custodial and kinship systems. Analysis of the values and considerations essential to Aboriginal wellbeing include the importance of the activity of undertaking wild harvest. When wild harvest is undertaken the required mobility, hard work and collective responsibility maintains important cultural and social networks, especially those between individual and family groups and the land on which they harvest (Merne Altyerre-ipenhe Reference Group et al., 2011).

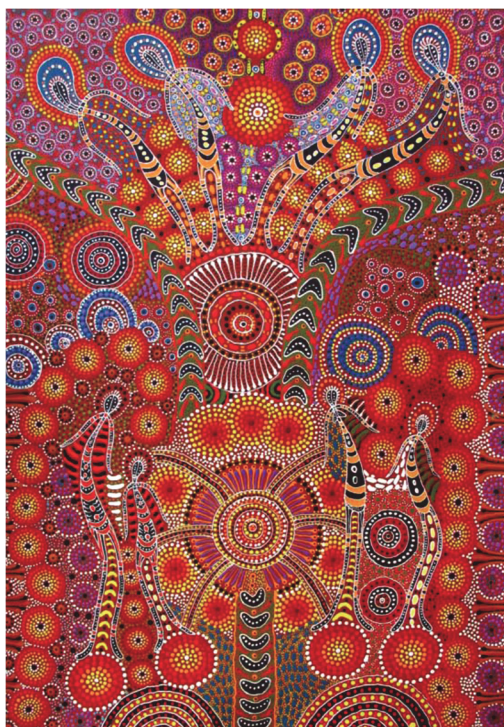


Figure 2: *Hunting for Seeds*, acrylic on linen, 64 x 46 cm. Kathleen Wallace, 2006.

'This painting is about hunting around for seeds. Looking! We are still always looking, especially looking for seeds. That's the waterhole and that is the spring – both springs. Those are the tracks where the people go. Sometimes there is no track, but people still know where to get the water. They know the country. The figures at the top and at the bottom are family, looking and looking (Kathleen Kemarre Wallace, pers. com. August 2006; Wallace and Lovell, 2009, p. 87).

Without including cultural drivers, and deepening how their relationship to ecology and economy is understood, the experience and knowledge of the landscape as it is expressed in policy gives no consideration for how the related problems of cultural inequity and mismatched value systems are perceived at the margins, and therefore, of what solutions are to hand (Bacchi, 2009). Lingard (2015) points out that under existing Australian law the threat of appropriation of traditional intellectual property is increased when native plant specimens are located *ex situ*, that is, are taken off site (p. 7). This is a complex and serious form of commercial appropriation of traditional Aboriginal knowledge, and a situation in which remote Aboriginal residents lack the access to implement (register and enforce) their intellectual property rights. Other avenues for protection of intellectual property rights include an international register of interests from Indigenous knowledge holders. Under consideration by international bodies such as the World Intellectual Property Organisation (WIPO), the register could inform intellectual property examiners of Aboriginal interests and thus influence the rejection of inventions or creations that derived from, but do not acknowledge, the related Aboriginal knowledge (p. 6).

Concern with appropriation of Indigenous knowledge and resources resonates, as Stoianoff et al. (2014) describe in introducing draft legislation in New South Wales:

It is a major concern of Indigenous people that their cultural knowledge of plants, animals and the environment is being used by scientists, medical researchers, nutritionists and pharmaceutical companies for commercial gain, often without their informed consent and without any benefits flowing back to them (2014, p. 1).

Walsh and Douglas (2011, p. 411) identified in conversations with harvesters that intergenerational transmission was of most concern as it is this that ensures the sustainability of future wild harvests, and the value chains they support. The opportunity to be away from the pressures of settlement life to monitor and harvest also adds benefit to the experience of many harvesters. There are financial and commercial constraints affecting the scale of the industry and its producers downstream, who are largely not remote Aboriginal residents or custodians. Upon closer scrutiny, it appears that the benefits of commercialisation through horticultural-scale production would not flow to the Aboriginal women who are the drivers of the current systems of wild harvest (Yates, 2009). In fact, it has been argued that commercialisation through horticulture will diminish the cultural agency (Holcombe et al., 2011) and the intergenerational knowledge transmission among the women affected (Walsh and Douglas, 2011). In keeping with the nature of remoteness in the central Australian context, Stafford Smith and Huigen (2009) suggest that, in terms of the drivers of a functional desert system, questions of scale are secondary to questions of scope. If the consequence of horticultural production and a push for plant breeders rights (Lee, 2012) is the resultant loss of agency for remote Aboriginal custodians, and especially for the women who predominately carry out wild harvesting, then consideration must be given to these impacts against the desert system drivers: scarce resources, limited livelihoods, scarce capital, sparse population, remoteness, local knowledge, cultural differences and social uncertainty (Stafford Smith and Huigen, 2009).

Ecology can be described as the overarching system within which others interact, and native plant use provides clear examples of the relationships of knowledge, people, country and culture in the everyday lives of remote inland central Australians. Regarding wild harvest and plant use, these relationships are an important asset of local Aboriginal people, and an agency of women in particular (Holcombe et al., 2011; Walsh and Douglas, 2011; Lee, 2012; Yates, 2009). The interactions of people and plants are safeguarded through an intergenerational transmission of cultural and ecological knowledge which is garnered, managed and learnt over centuries and generations; this is identified as the most important factor for sustainability among traditional harvesters (Merne Altyerre-ipenhe Reference Group et al., 2011). Traditional knowledge of human, natural and cosmological properties and the maintenance of desert ecosystems has existed with the management and custody of customary estates and the intergenerational transmission of responsibility for them (Merne Altyerre-ipenhe Reference Group et al., 2011; Douglas and Walsh, 2008). Using a temporal lens, the concept of ‘deep’ knowledge – as is inferred by Eastern Arrernte concepts such as *arrurle*, ‘long time ago’ and *alertenye akwetene*, ‘still now, today’ (Henderson and Dobson, 1994), reinforcing temporality as a principal of sustainability – is required, as the lens of ancient temporality is enmeshed with language and land into the depths of culture, identity, knowledge and endurance (Wallace and Lovell, 2009; Lovell, 2014). It is also a lens through which current challenges to biosecurity and biodiversity may be viewed with increased insight of change and the mediation of change to land and people over time; attributes which are characteristics of resilient social ecological systems (Bronfenbrenner, 1994; Ungar, 2012).

Many plants have ceremonial purposes, and feature in the songs and stories that describe ancestral events throughout and beyond central Australia (Dobson and Henderson, 2013; Dobson et al., 2009; Dobson, 2007). Plants, people, other animals, land and spirits remain inextricably linked in the human and more than human (Wright et al., 2012) ecologies and economies of remote Australia (Stafford Smith and Huigen, 2009; Walsh et al., 2013; Lovell, 2014). Hence, there are differences and equivalences in kinship use of native plants than those derived without kinship benefits from production in wider markets – such as in the example of the Kakadu plum (Holcombe and Janke, 2012). In the often-innovative intersections between customary and market uses and the demands of health and wellbeing, benefit flow, value chains and the protection of knowledge, the methods of obtaining plant materials through wild harvest,

enrichment planting or horticultural agribusiness are not considered for payment of ecosystem services (Robinson et al., 2016).

‘Cultural differences’ are noted in the ‘desert systems’ framework (Stafford Smith and Huigen, 2009, p. 6) but these do not encompass the Aboriginal cosmological or ecological, including the connection between country and wellbeing, contemporary life, deep temporal patterns of sustainability and the maintenance of significant bodies of knowledge pertaining to all these and more. In terms of a wider jurisprudence (Holcombe and Janke, 2012; Lingard, 2015) practical and political challenges to customary estate management occur in the everyday protection or loss of collective and intellectual property rights (Altman, 2014; Wright et al., 2012; Wallace and Lovell, 2009). These are rights embedded in cultural and customary knowledge systems held in country and over generations, but not eruditely protected under Australian law, nor even within international treaties (Adjei and Stoianoff, 2013; Drahos and Frankel, 2012; Graber and Lai, 2012; Taylor, 2010; World Intellectual Property Organisation, 2010).

Using a phenomenological lens, landscape is a mode of engagement, rather than something seen as separate from the see-er (Rose and Wylie, 2011). That is a useful tenet to remember when considering the social and cultural power differentials, policy decision-making impetuses, market access, and customary value systems that are facets of the human geography of peripheral landscapes and remote Aboriginal communities (Bacchi, 2009; Cleary and Hogan, 2016). A phenomenological approach to landscape is one which is ‘involved, practical and engaged’ (Rose and Wylie, 2011, p. 222). To better understand the impacts and interactions of the inland as an experience of landscape, the relational, the transactional and the ecological provide markers for the varied components of contemporary native plant uses – such as law and jurisprudence, cosmology and resilience. The complex of social ecologies and communication networks, including between diverse sub-populations and markets, is part of the human geography of everyday life and often occurs outside the structure of and despite the hierarchy of governmentality, service and regional development and public research agendas (Bacchi, 2009; Cleary and Hogan, 2016).

Land, landscape and environment, as well as institutions, individuals, societies and their structures of laws and governance intersect and shape context and environment. Complex interactive factors and attitudes are essential to policy and development agendas, yet those agendas tend to be hierarchic, and do not attend to the relational integration and dynamism that is characteristic of smaller peripheral populations (Stafford Smith and Huigen, 2009; Chaney and Walker, 2013; Dockery and Lovell, 2016; Tremblay, 2010; Stoeckl et al., 2014). It is increasingly evident in the research literature that an integrated understanding of the inland as a networked and functional landscape encapsulates the sustainability and resilience characteristic of its human geography (Rose and Wylie, 2011), and is a more honest if less hierarchical representation of the value and agency of the people and land. The extant systems of Aboriginal social and landscape organisation and the kinship networks between people and land are a form of functional remoteness that is not evident in hierarchical agendas and structures as these are prone to omit non-hierarchic links and relationships that make up the networked inland (Humphries et al., 2017; Australian Government, 2015b).

In keeping with characteristics of remote drylands in central Australia, Stafford Smith and Huigen (2009, p. 4) suggest that questions of scale are secondary to questions of scope with regard to the drivers of a functional desert system. The loss of scope through diminished Aboriginal knowledge occurs as a result of constricting the access of custodians to the maintenance and benefits of their knowledge and their produce. As a result of these and other findings, Lee (2012, p. 369) and Lingard (2015, p. 3) have concentrated research efforts on Australian and international laws, treaties and protocols that can protect Indigenous intellectual property, and facilitate future benefit sharing from the proceeds of the native bush foods

industry, including wild harvest, enrichment, biological or genetic development, and horticultural production.

Even if benefit sharing is achieved, the scale of horticultural development may need thorough consideration to prevent negative impact on already stressed desert systems (Stafford Smith and Huigen, 2009, p. 2). Contraction of the scope of native plant uses and associated Aboriginal knowledge or the sequestering of valuable resources such as water for monoculture industry are significant threats to sustaining deep ecological knowledge. With or without intellectual property rights, the diminished ecological agency of Aboriginal women has occurred through issues of access and conflict between customary land management that promotes biodiversity and the reduced biodiversity of industrialised pastoral and extractive resource landscape management. These have shaped aspects of customary practice with plants in the last two to three generations (Wallace and Lovell, 2009, pp. 35–40), and as a result intergenerational transmission has contracted and become reliant on other forms of transmission such as technology and media, story and artistry (Merne Altyerre-ipenhe Reference Group et al., 2011, p. 4; Walsh and Douglas, 2011, p. 405).

Efforts might be better placed in addressing benefit sharing from the bush foods industry through recognition of the value of the Aboriginal knowledge of native plants, not just as a recompense for their weight per kilogram when harvested (Lingard, 2015, p. 10), but also for the impact of such knowledge on wellbeing, health and social ecology (Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, 2016). The commoditisation of knowledge as a valuable form of capital, whose asset value is traded rather than its value as an asset to be applied *in situ*, among ad hoc or informal networks should be a topic of concern in development agendas such as Developing the North (Australian Government, 2015). For example, the use of protective niches which foster transitional sustainability is already being adapted in pastoral industry sectors, and in remote Aboriginal art centres in the remote inland (Lovell, 2015). In both examples, the application of local knowledges has produced innovations that have increased a return of benefits, one through socio-technological innovation and the other through socio-cultural innovation; one within the time span of colonial pastoral activity in the region, the other within the temporality of Aboriginal occupation. The related characteristics and drivers of transitional protective niches is explored in Figure 3, and describes the ways that remoteness can be understood as multiple links and functions that contribute to the connectivity of functional remote inland networks.

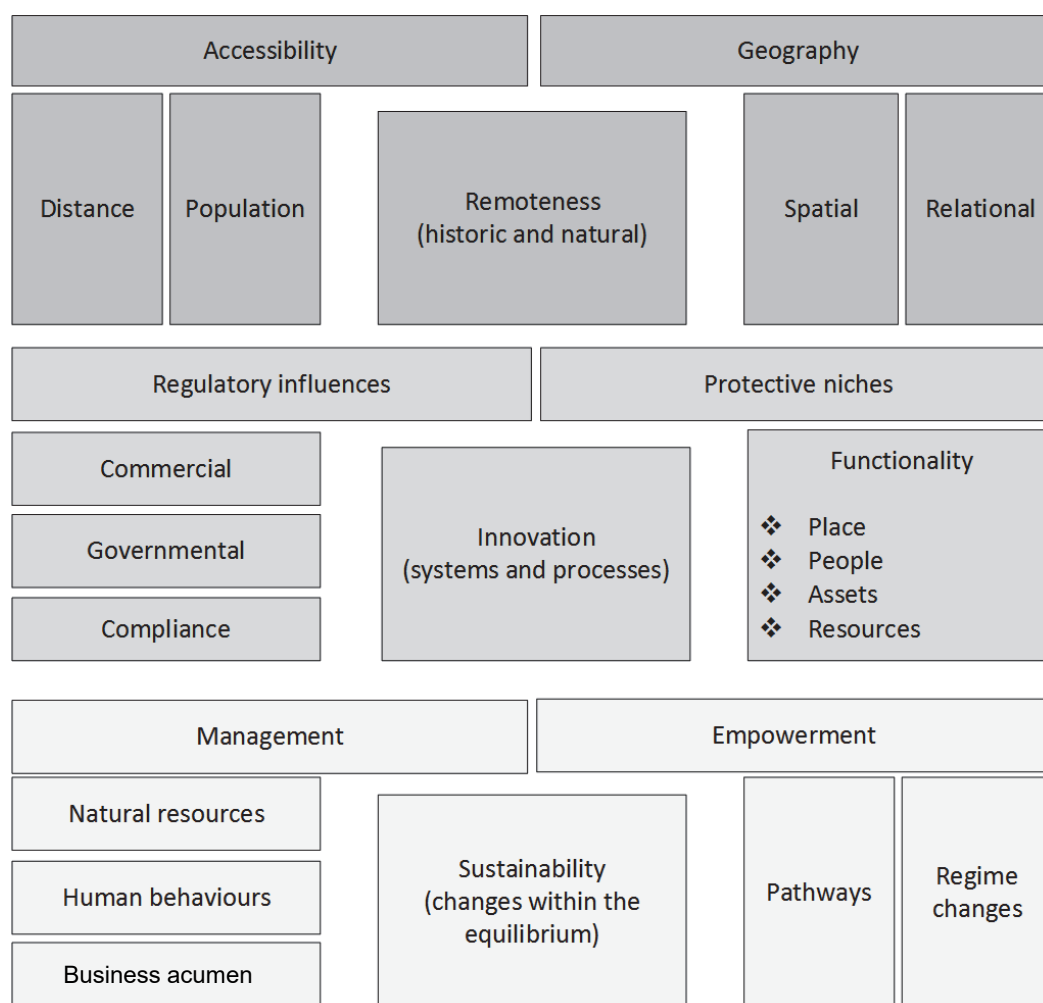


Figure 3: Functional remoteness in the inland (Lovell, 2015)

This theory builds on theories of transitional sustainability, remoteness and the roll of protective niches (Markard et al., 2012; Smith and Raven, 2012; Witkamp et al., 2011). These theories provide scope for a formative definition of the inland as remote, networked and functional (Lovell, 2015).

Although there is no simple definition of transitional sustainability, the theory has developed globally, and literature on the subject has differentiated policy and governance from social or technical and financial management systems that might be required for innovation to develop to the point of market uptake and return of benefits (Smith and Raven, 2012). Transitional sustainability literature argues for the use of protective niches – literal or conceptual spaces in which innovation and social entrepreneurship is nurtured (Witkamp et al., 2011). Unsurprisingly, desert communities of inland Australia provide powerful social and cultural niches, giving rise to and sustaining social innovation from Aboriginal art centres, which continue to provide the base for an entire cosmopolitan arts industry (Lovell, 2015), to remote Aboriginal health services, with preventable disease outcomes far in advance of centralised health services (Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, 2016; Birch, 2014). Martin (2016, p. 150) gives us two approaches to engaging with this discourse: ‘focusing on the role of narratives and framing processes’. Transitional sustainability theories are particularly useful regarding socio-technological uptake where place-based development has fostered a resilient social license, exerting pressure on regime dynamics to adapt or renew regulatory, policy or business frameworks that benefit wider uptake (Smith and Raven, 2012).

Hansen and Coenen (2015) accept the importance of place specificity but suggest that alternative theories are needed to frame the dynamics between that and the geography of inter-organisational relations that

sway regime dynamics. Concentration on theories of place specificity have focused on niche development rather than on regime dynamics (p. 92) and so human geographic theory supports an interpretation of remoteness as spatial and relational. This dynamic network recognises that regime influence can travel in both directions, between land-specific and multi-organisational regimes (p. 100). It is this functional, social and technological experience in the landscape that most closely provides theory to put around Aboriginal native plant use from the standpoint of a non-Indigenous researcher. However, the dynamics of the regime are subject to complex and wide-ranging development narratives and, in the inland, spatial and relational distances include the often silent and unspoken dynamic of far-distant urban-based power and the locally response-driven mediation of external power-drivers such as policy interventions and implementations.

Whereas a ‘knowledge economy’ has an epitomised understanding of knowledge as a commodity, Pritchard et al. (2016, p. 623) argue that *in situ*, other knowledges – such as knowledge of land, culture and plant use – are traded off, in the sense that they are applied and contextualised, extant, tacit, and cultural forms of knowledge located in people, land and practice, rather than as commodified transportable artefacts of governmentality, nationality or of market. This aligns to evidence of inland Aboriginal societies as predisposed to sustainable ecological practices throughout deep time and before monetary economy (Wallace and Lovell, 2009; Traill et al., 2014; Sangha et al., 2015; Jacobsen, 2016b), through intergenerational knowledge transmission and adaptation to socio-cultural and environmental priorities for health and wellbeing (Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, 2016; Central Land Council, 2015b; Akeyulerre Inc., 2016).

Local collective enterprise structures provide a degree of protective niche and enough collective resources and governance to support individual entrepreneurs, families and kinship groups to gain access to and engage with national or international markets. Markets that can value cultural products and understand them as products of social, natural and cultural capital are agile and adept at bridging the spatial and relational remoteness to do business with remote community entrepreneurs (Acker and Woodhead, 2015; Davies et al., 2017; Lovell et al., 2015). The success of protective niches for innovation in remote contexts is not unique to Aboriginal geographies; the pastoral industry has also produced socio-technological innovative products that bring in international market returns (Leigo and Driver, 2014) and in which pastoral businesses invest directly.

There are few organisations and committees regulated under Australian legal governance structures that have been able to negotiate economic benefits to flow back to their communities through access to selling products, services and knowledge to wider markets (Zoellner and Lovell, 2017). Aboriginal art centres are one example, and Western Desert Nganampa Walytja Palyantjaku Tjutaku (WDNWPT) health service is another. WDNWPT is clear about protection, transmission and use of intellectual and cultural property in its social enterprise business plan for bush balms (WDNWPT, 2016, p. 4.)

WDNWPT recognises that Customary Law for intellectual and cultural property has existed for thousands of years and is equal and parallel to current Commonwealth Law, which may differ in the interpretation of culture, and intellectual property rights between non-indigenous and Indigenous peoples.

By contrast, regional development policy assumes that hierarchic structures devolve adequately and representatively enough into diverse peripheral communities to be inclusive, despite vastly different understandings of social, cultural, financial and environmental assets and histories. Wolford (2011, p. 584) points out that, on a global scale, development now faces parameters other than hierarchy and policy – that is: the relationships and interconnections between like-thinking people around the globe, which are networked and non-hierarchical. *Who* is or is not represented in shaping development agendas is a more

important question now, rather than how many and how often people are consulted. In the context of kinship, with links and networks throughout the Aboriginal communities of inland Australia, many of the same individuals are required for multiple governance roles, or there is a requirement they are the ones to be consulted as a process of the multiple interfaces of contemporary development (Loomes et al., 2012).

Cleary and Hogan (2016) questioned 2000 regional residents in northern Victoria, NSW, ACT and southern Queensland; 45 per cent of people felt able to influence decision making, and even to cause change throughout a region, whereas the other 55 per cent felt vulnerable, with little or no control or influence (p. 35). To observe the fundamental cultural contrast between structures of power and influence in regional and remote landscapes, consider the research of Loomes et al. (2012) with residents at Ntaria in the Northern Territory. With a population of approximately 600 people, and in common with most remote inland Aboriginal communities, almost all of Ntaria's available services are provided one way or another through government funds. In 2011, during a phase of the Australian Government's Indigenous policy in which Ntaria was a prescribed remote operational centre, Loomes et al. found 15 active local committees who contributed to the interface in Ntaria between community governance and government policy. Served by a total of 69 members, approximately 11.6 per cent of the population were actively involved in committees. Of those 69 people, 23 per cent sat on three and up to six committees (p. 11); therefore, roughly speaking, 3 per cent of the community served on three to six committees. Nine per cent served on up to 2 committees. In terms of governance and influence, those with the social capital to influence change through such structures in the regional example given by Cleary and Hogan (2016) is roughly double the percentage similarly empowered in Ntaria, a remote Aboriginal community.

Population, property and rights

To appreciate the rich and complex human geography encountered through native plant use it is important to understand something of the nation's population and the property rights determining access and land use. In summary, the Australian drylands are predominantly arid, with seasonal unpredictability, and contain dispersed and marginal communities that vary in the Northern Territory from under 100 to around 600 inhabitants. Much of the land is held under a tapestry of property rights laws, policies and leaseholds within which Aboriginal ownership is one contender (see Figure 4) (Traill et al., 2014; Altman, 2014). Aboriginal entitlement to their land under Australian laws is invested either through the Aboriginal Land Rights Act of the Northern Territory (Australian Government, 1976) or through the Indigenous Native Title Act (Australian Government, 1993). The Aboriginal land trusts of the inland are determined under the former, and represent areas that are considered to epitomise the customary estates (homelands) of traditional owners, who work alongside the traditional land managers as determined through skin and kinship systems of social organisation. Currently, areas under these acts make up 43 per cent of the Australian continent (Jon Altman, pers. com. 23 October 2016), and a considerable proportion of remote inland central Australia. Approximately 3 per cent of the national population is Aboriginal or Torres Strait Islander, but only one-third lives in major cities, as opposed to 70 per cent of all Australians. Across the continent 82 per cent of the national population lives within 50 kilometres of a coastline (Hugo, 2013, p. 1). The population of Aboriginal and Torres Strait Islanders living in areas classified as 'very remote' (Australian Bureau of Statistics, 2012) was 41 per cent, based on census 2011 data (Australian Bureau of Statistics, 2014).

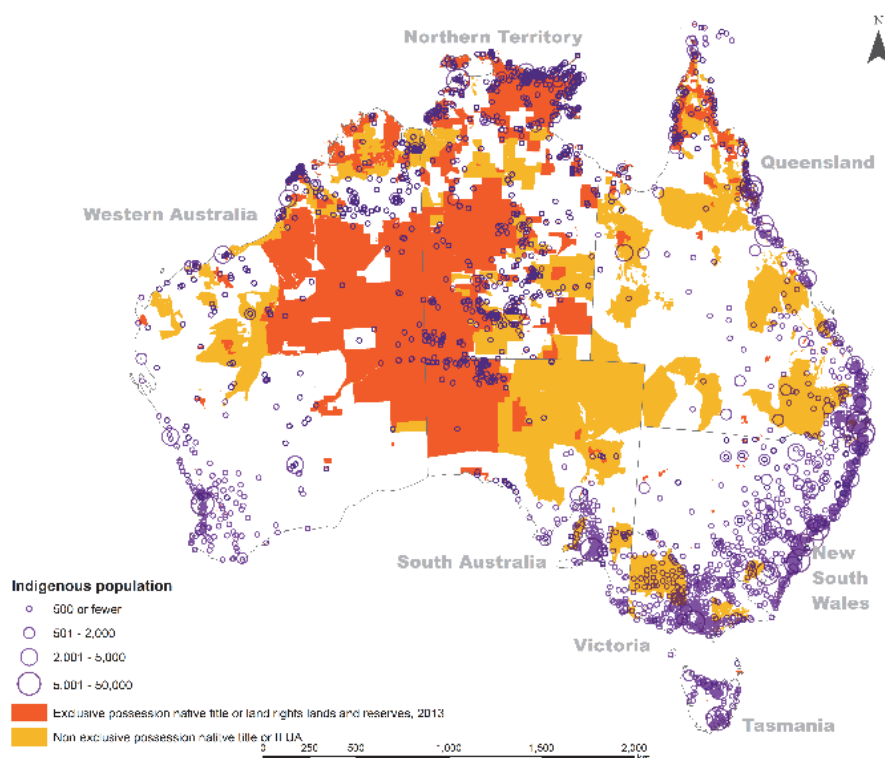


Figure 4: Distribution of Indigenous population in Australia, and exclusive native title and land rights, or non-exclusive native title or Indigenous Land Use Agreements, 2013 (map courtesy Jon Altman and Francis Markham, 2014).

Scale and scope in desert systems

Where horticultural replacement of wild food harvest in one region may be a mismatch of ‘scale over scope’ (Stafford Smith and Huigen, 2009, p.4), in another region enrichment planting appears to have generated a scale of production not previously met, as wild harvesting is no longer practiced (Slade S. Lee, pers. com. 9 September, 2016). Enrichment planting has increased *akatyerr* plant numbers with proximity to the settlement in question. In doing so, enrichment methods have created scope for everyday monitoring, family and community use and management of the plants as a resource in ways that have rekindled intergenerational knowledge transmission. Plant materials have also been collected and experimentation is underway to ascertain whether a commercial plant can be taken to market, with a benefit share agreement in place. To remain viable, enrichment planting must value the process of wild harvesting as wild harvesting ensures diversity in the stock as enrichment planting continues (Lee and Courtenay, 2016, p. 65). Plant breeding and genetic reproduction or horticultural production reduces plant diversity within the species in a bid to establish stock to suit large-scale production, or open an opportunity in the mainstream domestic garden/native plant market niche. There is potential for financial benefits to flow from horticultural production back to custodians via the geographical provenance of the original plant stock and a royalty return on sale of produce (Lee, 2012, p. 369; Lingard, 2015, p. 6). The potential for equivalence would be highest if the horticultural development did not impinge on the fragile wild harvest supply chains, or replace wild harvest or enrichment production.

Current research

In the final two years of the CRC-REP program, the Research Synthesis and Integration project (2015–2017) has produced several papers which inform this review and integration, locating it within the domains of a human geography that include:

- functional remoteness, protective niches, and transitional innovation
- remote health ecology, social enterprise and service delivery
- the tension between a coastally driven northern development policy, and the actuality of a networked remote inland.

Research continues to explore the links and bounds between ‘customary use, community economies and market systems’ that take account of ecological, relational and transactional motives associated with bush medicine at an intersection with remote health ecology (Lovell, 2016).

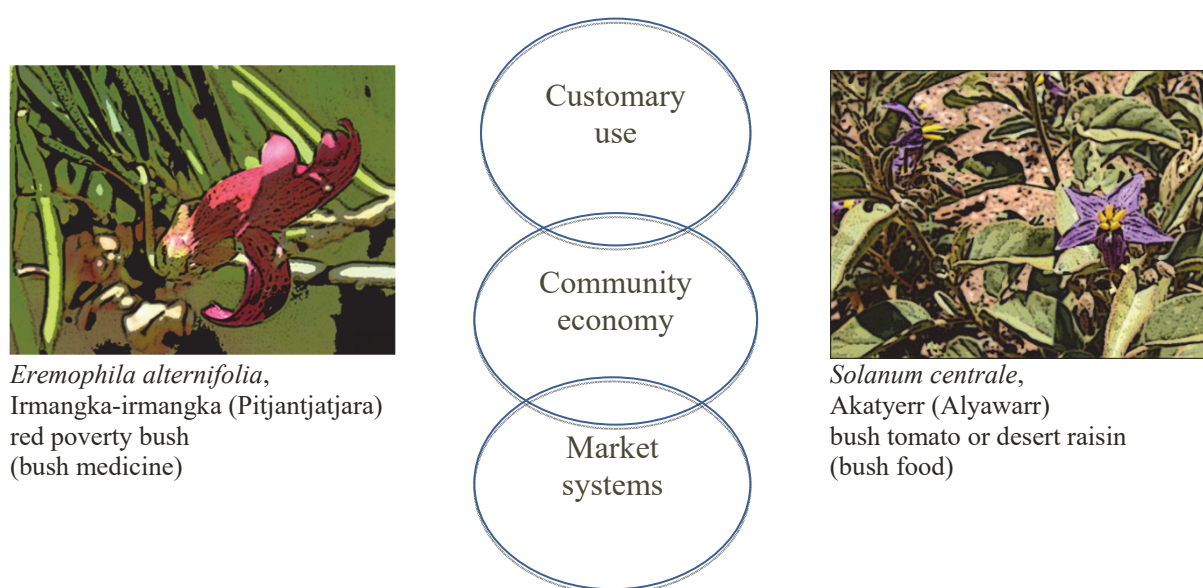


Figure 5: From Lovell (2016) presentation to *Austronesia2016 Conference*, Taiwan.

Two of the most frequently traded and highly valued native plants from the central Australian inland: bush medicine plant *irmangka-irmangka* and bush food *akatyerr*. Each plant is recorded in Peter Latz's compendium *Bushfires and Bushtucker* (1995). *Irmangka-irmangka* has only one local Pitjantjatjara name, and is described as 'a rare plant, [that] only grows in the south-west of the area where it is mostly found on gravelly rises' (p. 171). *Akatyerr*, the stalwart of the bush foods value chain in central Australia, is named in the seven most common Aboriginal languages, and 'occurs throughout the area...restricted to spinifex sandplains and dune fields, and adjacent mulga areas...this plant is highly dependent on fire (or other severe disturbance) to obtain its maximum potential' (p. 269).

Equivalence, infrastructure and commerce – local custom, traditional knowledge and collective commerce

There is less in the public domain to describe the exchanges occurring where the plant in use is subject to equivalences determined among the community, family members or within kinship structures. What exists primarily relates to natural resource harvesting and the rights or concessions afforded by Traditional Knowledge (TK); or Traditional Ecological Knowledge (TEK) (Central Land Council, 2015a; Dobson, 2009). In the inland central Australian region, this domain is dominated by the Central Land Council through land-use and land-management policies and programs that took place in the 2000s, which fostered the uptake of Indigenous ranger groups in association with Australian Government programs such as Caring for Country (Robinson and Spencer, 2010; Walton and Pringle, 2010; Dobson, 2009).

Caring for Country as applied on land trusts has fostered governance that applies collective processes of custodians, rangers and residents of remote communities. The aim of consultations has been to determine the strategies and priorities used in management plans, each of which pertains to a discreet land trust area and custodian group. The tension here lies in the priorities of residents and custodians as opposed to or in conjunction with practicalities such as human and other resource availability, and the onus for Indigenous ranger groups to support their work through provision of an ecosystem or other service, such as through joint management of parks, feral animal and weed control, biodiversity surveys, carbon abatement and fire risk management, etc. While these things are important, they are not the only priorities of the land owners, nor are they always practicable on every land trust. Whereas payment for ecosystem services carbon sequestering work has brought income to estates in Arnhem Land, it not yet been undertaken in the arid interior (A. Edwards, pers. com. 6 July 2017).

Typically, social, kinship and intergenerational processes for cultural sustainability and expression of relationship with country are the highest priorities of Aboriginal estate owners and managers in the remote inland (J. Pritchard, pers. com. 19 February 2017). In common with many central Australian Aboriginal groups, Eastern Arrernte traditional healers, called *ngangkere*, practice traditional healing in forms that may involve the use of specific plants (M. Mulladad, pers. com. May 2007). For bush medicines, some varieties of *Eremophila* are highly valued, especially when they come from particular locations. As with wild harvest for bush food, everyday harvest and preparation of plants for traditional healing has primarily been a woman's domain in Aboriginal society in central Australia, while men have made use of plant properties for hunting tools and for the effects on game. It is not uncommon for a plant variety to be useful in many applications – nutritional, environmental or topical – and in varied circumstances including ceremony, healing, celebration, hunting and for overall wellbeing (Barr et al., 1988, pp. 14–25). There is a great diversity in the properties and effects of native plants, and local knowledge is essential to differentiate between plants, or to read the signs left to prevent use. For example, stripy mint bush (*Prostanthera striatiflora*) acts as a sedative when released as a powder into a drinking water supply, the aim being to slow game down or cause them to fall asleep and become easier quarry (K. Wallace, pers. com. 19 August 2007). However, once treated, traditionally a water source would be marked to ensure that other people do not drink from it, as ingesting this plant is poisonous – for medicine, practitioners use it topically (Barr et al., 1988, p. 180).

More recently, research about the equivalent systems of valuing plants and knowledge is mapping the agencies and infrastructures that are locally available, and identifying which roles in customary and market activities are sought by whom, and in which locations (see Figure 6.) This map of customary activity and collective commerce is designed by women at Ltyentye Apurte, with the Ltyentye Apurte Women's Centre representing an opportunity structure that supports customary activity, as the elders engage with younger people through making bush medicines, and where the women at the Keringke Arts Aboriginal Corporation manage the market access through a collective business model that engages widely with cosmopolitan, public markets. The same mapping activity is proposed for other communities, and is expected to find more local variations that map the structures and mechanisms that support customary and market activity, and through which equivalence might be determined.

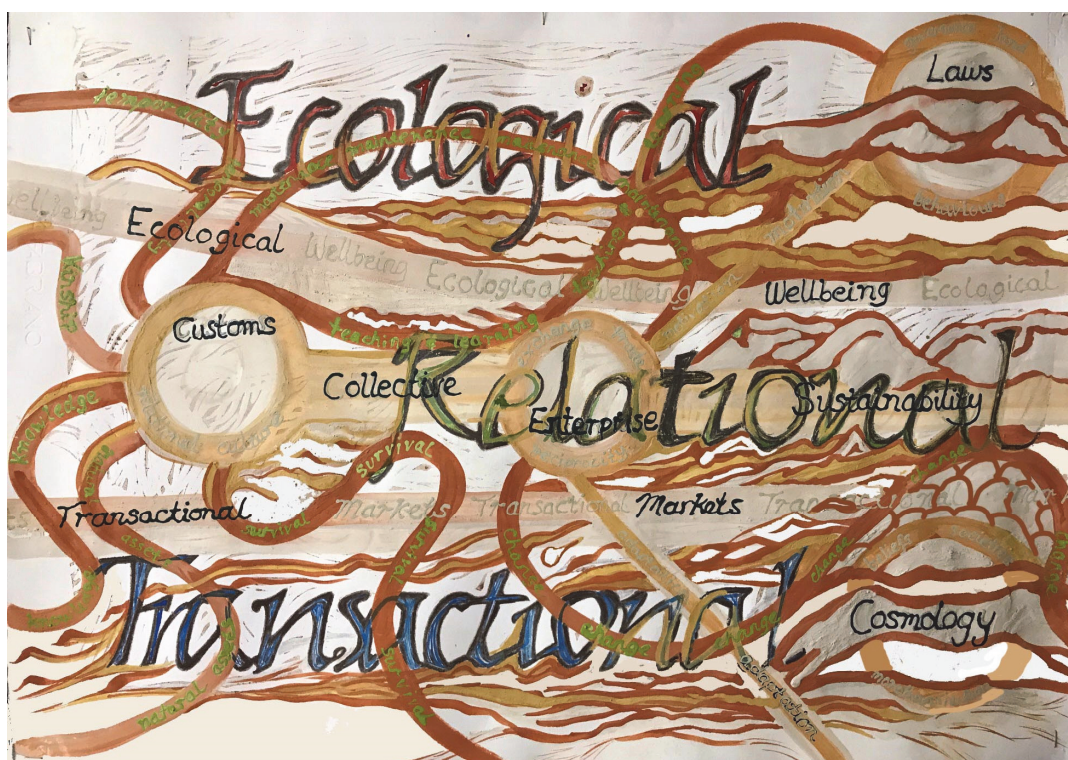


Figure 6: Map of customary equivalence and collective structure in the community of Ltyentye Apurte (Research team design with Bessie Oliver, Kathleen Wallace, Saline Ronson, MaryAnn Ryder, Annette Williams, and Judith Lovell, 2017)

Sustainable ecological health – global to local equivalences

The question of equivalence also emerges in the wellbeing literature. It is framed by Sangha et al. (2015, p. 202) who propose ‘an integrated model of Indigenous economy, social world and ecosystems’. Sangha et al. (2015) contextualise these factors using the transactional model of ecosystem services. The metaphor of ‘nature as a fixed stock of capital that can sustain a limited flow of ecosystem services’ was derived to challenge the status quo of rationalist economics, to highlight the ‘delusion of economic growth’ unchecked by the complex reality of the ecological world (Norgaard, 2010, p. 1219). Thus ‘ecosystem services’ has transitioned from rich metaphor, initially useful to defamiliarise and thus disrupt assumptions of rationalist economics, which held no regard or value for the ecological complexity of finite natural resources, in a world of increasing consumerism. In Norgaard’s (2010, p. 1220) estimation, the danger is that ‘ecosystems services’ has become a cliché that oversimplifies the complexities of the ecological, as ecologists understand and apply them, and instead limits the concepts of ecology required to think through global challenges. Thus, from metaphor, ‘ecosystem services’ has transitioned into a framework used to assess ecosystem changes, such as reported in the Millennium Ecosystems Assessment (Leemans and de Groot, 2003). Norgaard (2010) determines that the project-by-project negotiation of payment for ecosystem services has reduced the critical status of economically driven global sustainability issues, while global environmental governance is urgently required if there is to be a significant reduction of human pressure on the ecosystems that sustain us. Problems of sustainability are global, and framing ecological systems within a partial equilibrium framework that suggests ‘other things are equal’ (*ceteris paribus*) is insufficient. Clearly, other things are not equal since natural resources underpin the survival of living systems in the world.

Nonetheless, provision of ecosystem services has become an established source of natural and financial capital in northern Australian tropical savanna landscapes, where the returns and benefits of carbon abatement programs, and especially the use of fire in landscape-scale management of greenhouse emissions and carbon resources on Aboriginal lands, have been modelled and calculated over a decade (Robinson et al., 2016; Murphy et al., 2015b; Murphy et al., 2015a). As a result, the benefit of carbon sequestering in the northern savannas includes a proven financial return from providing an ecosystem service, and related fire abatement programs have repatriated traditional land management mechanisms while accounting for contemporary population patterns (Russell-Smith et al., 2009). Carbon sequestering is a landscape-scale tool reliant on tropical savanna that has been used successfully in joint management³ and Aboriginal land management scenarios. The most obvious difference between the tropical savanna and the arid inland is density of flora, but equally different is the nature of Aboriginal land use and management and the patterns of colonial settlement (Stoeckl et al., 2013). In the remote inland of central Australia, relatively small population hubs are sometimes located among impressive pockets of natural resources. Such dispersed landscape features create significant experiences, but the scale so clearly demonstrated for carbon sequestering in the north is lacking in the central inland. This adds to the sense of fragility in the face of economies of scale for development and investment that are consistently identified as characteristic of other industries, such as tourism. Tourism products and value chains are also more established, profitable and active in accessible landscapes, where greater quantities of tourist traffic produce higher rates of financial return to commercial Indigenous tourism businesses (Jacobsen, 2016a, 2016b). The coordination of payment for ecosystem services is yet to be exhaustively understood and studied in relation to the functional remoteness of the inland.

Within the literature pertaining to this study area in the central Australian region, the social and economic demand-supply chains related to the bush foods native plants industry and to horticultural development have been analysed (Holcombe et al., 2011, p. 255; Lee, 2012, p. 360). These things relate to the custodial and the commercial practices which overlay the uses of native plants in the inland region in Australia; it would only be through global mapping of Indigenous knowledge of local ecosystems, plant uses, and ecological management that local knowledge will affect global-scale issues for the sustainable ecological health of our world. Local inland systems of Aboriginal knowledge and maintenance associated with wild harvest (Walsh and Douglas, 2011, p. 405) and further commercial production (Vincent, 2010, p. 1) have been mapped and described with Aboriginal community and industry participation. The laws and ethical processes available for creating strong protocols and ethical recommendations around the protection of associated Aboriginal knowledge and provenance have been synthesised, and protocols recommended by Aboriginal and non-Aboriginal partners exist (Merne Altyerre-ipenhe Reference Group et al., 2011, p. 27). Economic value and supply chains have been used to model the *akatyerr*, bush tomato, journey from wild harvesters to restaurant or supermarket shelves (Merne Altyerre-ipenhe Reference Group et al., 2011; Cleary, 2010, p. 59).

Wellbeing and social enterprise – plants, health, commerce and relationship

One way to frame the local to global inquiry is to ask: Considering the supply options for mainstream bush foods markets, what equivalences and differences are in play when the plant in question is used in products that are given back to benefit those who are also from the country the plant comes from? The use and transaction of bush medicines in a community setting can provide an example of a plant harvest,

³Approximately one third of Northern Territory parks and reserves are subject to a formal joint management between Aboriginal traditional owners and the Northern Territory Government's Parks and Wildlife Commission.

production and use that returns benefits directly to the residents. However, the model of cultural equivalence, customary value and commerce is not easily meshed with governmental program development or intra-territorial trade. Negotiating those partnerships requires more than contract management, and, as is expressed by signatories of the Joint Statement on Subsidiarity⁴ (Caritas Australia et al., 2016), Aboriginal people, systems, priorities and solutions are required.

Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation (Purple House) is a signatory to the Joint Statement of Subsidiarity (Caritas Australia et al., 2016, p. 2) and describes one outcome of its self-determined health service through the relationship and importance of its bush balms – as a social enterprise profit maker, and as a wellbeing service for patients who are managing renal disease:

Western Desert Dialysis is an Aboriginal community controlled health organisation, governed by an all Indigenous Board, elected by its members. It is run by Aboriginal people for Aboriginal people and works to provide culturally appropriate dialysis services in remote communities...In 2012, in partnership with Caritas Australia, Western Desert Dialysis established a social enterprise that raises money for wellbeing activities for patients at the Purple House in Alice Springs through the production and sale of bush balms and soaps. The community development approach of Western Desert Dialysis has been such a success that it is now receiving a substantial investment from the Australian Government to provide remote dialysis services (Caritas Australia et al., 2016, p. 2.)

In this example, Purple House Wellbeing Project continually adapts its relationships with partners and funding agencies to address its priority – remote Aboriginal renal patient health and dialysis service provision – within which the tension of producing a commercial product that provides revenue, and delivering an equivalent wellbeing outcome through the provision of bush balms to patients and their families, requires agility and strategy. The concept of subsidiarity underscores these characteristics, and makes explicit the priority for Aboriginal control and decision making to confront and manage one of the most endemic and epidemic diseases effecting custodians of the inland (Caritas Australia et al., 2016, p. 2), and to recognise the mechanism required for generational change, therefore ensuring human rights and equity are afforded to Aboriginal people. This social enterprise is a hub-and-spoke model, linking remote sites to the town base, in Alice Springs and, via that, to one another.

Another example of bush balm, wellbeing and social enterprise in the inland comes from the Akeyulerre Healing Centre. The centre describes the model and aims of its social enterprise as emergent from the work of young women and the teaching of their elders, with the mutual intention that sharing healing balms and practices underpin the enterprise. A significant partner, the Northern Territory Government's Department of Primary Industries and Fisheries Arid Zone Research Institute (AZRI) has provided a six-year funding agreement to support the social enterprise activity through laboratory facilities, plant propagation and preservation areas, and a facility for the preparation and storage of products (Akeyulerre Inc., 2016). This is a town-based model, producing and delivering to families in Alice Springs, while maintaining a focus on commercial production.

Sangha et al. (2015) propose indicators of Indigenous wellbeing grounded in the theories of capability, ecological services, and natural capital. By modelling the relationship between Capability Measures (CM)

⁴ Subsidiarity is defined as a 'principle that a central authority should have a subsidiary function, performing only those tasks which cannot be performed at a more local level' in the Oxford English Dictionary. <https://en.oxforddictionaries.com/definition/subsidiarity>. It is a term concordant with social justice principals, and initiated in the doctrine of the Catholic Church.

and those of the Millennium Ecosystems Assessment (MA), Sangha et al. (2015) capture a transactional two-way relationship between humans and country and country and humans that is evident in Indigenous views of wellbeing (p. 203). The dynamic quality of the CM–MA model encompasses human geography of inland remote Australia in ways that improve and extend factors of the earlier Desert Systems modelling undertaken by Stafford Smith and Huigen (2009). CM–MA also extends concepts of sustainable wellbeing drawn from a national study of subjective assessments of Indigenous wellbeing, which confirms that causal links are evident in the data showing the relationship between cultural practice, language use and access to country, and a person’s subjective sense of wellbeing (Biddle and Swee, 2012).

Within kinship systems in central Australia plants, knowledge and transmission are a collective asset which contribute to integrated family and community health and wellbeing. The sustainability of bush foods and bush medicine practices are affected by matters of access and supply of plant material, customary and market demands, and the governance of those things – the plants, customary estates of land owners, property rights or land use agreements of other parties, etc. (Altman, 2014). As Sangha et al. (2015) describe it, ecosystem services emerge from Aboriginal ecosystems that link the capabilities, knowledge and values of Aboriginal societies and their economies with wellbeing – and native plant use is a significant service. The flow of benefits from plant use, the pace of market or customary demand, innovative combinations of materials and therefore new forms of product, and negotiated equivalences between customary and monetary value systems are factors that the literature suggests are not yet well understood at intersections of customary, governance, policy and market practices (Lingard, 2015; Lee, 2012).

Public policy and political agendas

In Australia, native bush foods supply is estimated to have a monetary value of \$215 million at the farm gate (Lingard, 2015, p. 7). Despite a rich documentation of native bush foods supply chains, little analysis of equivalence between market value chains and customary transactions exists to describe the ways that the community of its origin values plant material, and how those values integrate into or fail to be recognised further up the value chain of wider markets (Lovell et al., 2016; Lovell, 2016). Lingard (2015, p. 7) argues that a return of financial benefit based on percentage of the dollar value of this industry would be a step toward recognising the relationship between native plants, Aboriginal land, societies, and peoples. National and global laws, treaties and protocols exist to protect the rights of Indigenous peoples to recognition, protection, ownership of and benefit from their cultural heritage (Adjei and Stoianoff, 2013; UN Convention on Biological Diversity, 2008; World Trade Organisation, 2006), including recognition of the contribution of Indigenous knowledges to biodiversity, biosecurity and conservation in Australia (Lingard, 2015, p. 8). However, these values, and associated Indigenous ecological knowledge and practice do not align with other Australian laws, such as plant breeders’ rights, and rights to reuse plant materials without acknowledging the original source (i.e. third-party use), or the uses of plant materials which are *ex situ* (Lee, 2012; Holcombe and Janke, 2012). Lingard (2015) and Adjei and Stoianoff (2013) have suggested that a register of interests would at least describe the relationship of peoples and landscapes to knowledge of Indigenous resources, beliefs, products and processes. This could assist in the protection of extant rights in situations where those holding the rights are unlikely and possibly unable to contest their appropriation, such as through the legal system of patents. In addition, a register of interests might also cause policy makers to consider if the corporatisation of Indigenous knowledge, even by Indigenous corporations and companies, is appropriate on a case-by-case basis. There is evidence that in some cases customary practice and knowledge, which are diverse between Aboriginal people and lands, would prefer assistance with market access rather than further layers of bureaucracy – whether from an Indigenous

corporate or non-Indigenous public sector (Raelene Brown, pers. comm. 14 August 2017). This view is echoed in the observation of Stafford-Smith and Huigen (2009), that in remote arid systems the question of scope is as important, if not more important, than that of scale; in other words, the value of micro-enterprise in a small community might have greater financial flow of benefits if the money circulates locally, through local businesses, than if large scale negotiations take the flow elsewhere, and the benefits are then administered through corporate processes. There is of course the need for both public and market driven economic activities to operate in remote communities, and for scale and scope to be represented (Lovell et al., 2016).

Recent public policy debate has focused on the drive for financially viable remote Aboriginal communities (Prout Quicke et al., 2017; Dockery and Lovell, 2016). Bipartisan measures and outcomes implemented through employment and training, health, safety and wellbeing policies under the 2015 national Indigenous Advancement Strategy, and the continuing Closing the Gap on Indigenous Disadvantage agenda (Australian Government, 2014, 2016) have not produced evidence of resounding success in bettering the prospects for remote inland Aboriginal constituents. Debate about the future of remote Aboriginal homelands and communities has included arguments for and against their closure (Dockery and Lovell, 2016), an hierarchic reconceptualisation of existing governance and service provision agreements (Chaney and Walker, 2013), policy based on corporate Indigenous partnerships such as for Empowered Communities (Wunan Foundation, 2015) and the Indigenous Land Corporation, and tourism and agriculture enterprise development delivering ‘guaranteed jobs’ (Australian Government, 2015a).

Underpinning national policies are economic trends founded on remote communities as a source of human capital for the demands of national and global markets (Forrest and Commonwealth of Australia, 2014; McRae-Williams et al., 2016) and a regional development agenda for northern Australia (Australian Government, 2015b) that all but preclude the agency of remote inland Aboriginal constituents, whose local economies include customary activity and values. National policies do not include provision to consider equivalent costs and benefits contributed through ecological knowledge and use of native plants by Aboriginal people subject to the projection of those policies. There is little discussion of the equivalence of values allocated for the merits of locally adaptive systems (Jacobsen and Tiyce, 2014; Dockery and Lovell, 2016; Osborne, 2016), and national Indigenous business innovation funds are unlikely to provide support to remote entrepreneurs under the scope and scale of current enterprise development and support (Indigenous Business Australia, 2016, p. 13).

A Northern Territory Government website currently states that one of the 160 economic development agenda items for Agribusiness development is: ‘explore the commercial potential for bush foods and medicine as a niche regional growth sector’, which – the website states – has had the ‘concept and business case developed’ by ‘NTG, industry and land councils’ (Northern Territory Government, 2017). No evidence of consultation in central Australia is apparent, based on phone enquiries made to the Central Land Council and to local Indigenous bush foods industry leader, Raelene Brown (see Merne Altyerre-ipenhe Reference Group et al., 2011). There is, however, a level of concern expressed by those involved in direct field work that another raft of policy that tries to corporatise how people in the bush access and do business in the bush foods market will lead to further loss of agency, especially among the women whose roles with native plants are deeply customary. Put bluntly, there is concern that ‘a bunch of men will end up in control of what is, essentially, women’s business and agency out bush’ (Indigenous Elder, pers. com. 14 August 2017). The principal of a successful Indigenous business enterprise based in Alice Springs also suggests that corporatisation of the native plant ‘space’ through overly prescriptive employment and enterprise policy will further interfere with the fragile tensile networks that enable the current level of subsistence and commerce, and suggests leaving it free from corporatisation. The view of a professional

economist with many years' experience is that any proof of scale-able enterprise will see private businesses take control, ending the current but fragile networks of supply from remote communities along the chain to urban producers and markets.

These comments and opinions were solicited in five separate phone conversations, and would seem to substantiate the findings from the CRCs, that agribusiness-scaled development is not best placed to create opportunity for remote Aboriginal people. There are immediate assumptions on the part of policy makers that native plant bush harvesters want greater access to wider markets for their produce, and this occurs in priority over the relationship between people and land that is enabled through the expression of cultural protocols and impetuses. The fact that there is little detail or evidence available to support the economic corporate-enterprise model surrounding policy development approaches and – based on past experience – without subsidiary agency, development agendas are seen as a threat to the highly individualised motives of Aboriginal custodians and further deplete their expressions of agency in this region (Caritas Australia et al., 2016; Traill et al., 2014; Central Land Council, 2016; Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, 2016).

Where public agendas tend to limit the significance of ecological cultural practices and beliefs, remote inland native plant knowledge and use demonstrates the propensity of individuals and groups to sustain the capabilities (knowledge, assets, skills) required to manage human and natural resources in an arid and marginal natural environment, and to derive benefit through providing ecological services as a contemporary intersection with customary knowledges. There is much to learn about the global-related scale of indigenous native plant uses and products.

Production and development narratives – national to local

The types of exchange occurring within households and between individuals and other households in Aboriginal communities infer that the value ascribed to bush medicines and to bush foods can be expressed through trade, exchange, kinship or monetary reward, yet these are all framed by deep family–homeland relationships and cultural values. Local cultural values do not appear to have equivalences in mainstream markets, and are not expressed in the monetary system of classic value chains (Cleary, 2010, pp. 72–75). The problem of how transactions can recognise different perceptions of value from individuals or communities to external brokers and into the supply chains of wider markets might be described as a problem of perceptions of cultural equivalences (J. Lovell, field note, 27 October 2016). Value- and supply-chain literature has tended to foreground horticultural development for agribusiness agendas and as technical and practical solutions to northern Australian development. Aboriginal community economic sustainability is an 'add-on' at best in these agendas, and the terms expressed by the concept of subsidiary are completely omitted or given only lip-service, although they are primary to the achievement of public policy outcomes (Lee, 2012, p. 365). Even within locally reflective models such as Stafford Smith and Huigen (2009) provide, there are challenges in how Aboriginal community and mainstream bush plant market drivers are perceived. They have been assumed to be interactivities influenced by the desert drivers in the region, but their emergence is through cultural, social and ecological systems of equivalence that are more specifically located within Aboriginal customary plant uses and practices (Stafford Smith and Huigen, 2009; Dockery and Lovell, 2016; Altman and Kerins, 2012).

Problems also lie with the perceptual differences between the systems of transaction among communities and in industries, and those that place value on Aboriginal plant knowledge and materials. The first has been described as a trend towards horticultural frameworks as the solution for bush foods industry development and poverty alleviation in remote Aboriginal communities. Lee (2012, p. 396), Yates (2009,

p. 50) and Walsh and Douglas (2011, p. 410) all found that a development discourse promoted horticultural commercialisation of bush foods. The arguments for horticultural development included the grounds that the benefit sharing agreement with remote Aboriginal residents and custodians would return better capital than existing supply and demand systems produce. It may be that the capital returns were conceptualised as financial capital but Walsh and Douglas (2011) found that proposed horticulture development was regarded in Alyawarr locations as a disruption to cultural and ecological activity. As proposed, these forms of development diminished social and cultural capital upon which depend the vital kinship systems and essential knowledge transmission underpinning sustainable food sources and harvests for the future. This was corroborated in their assessment of wider bush foods literature, in which problems for future sustainability of the industry are perceived as ‘access to productive lands, narrow economic margins between costs and returns, and the skills of younger people’ (2011, p. 412).

Lee and Courtenay (2016, p. 64) note that horticultural endeavours in many remote Aboriginal communities cease to return benefits sought in remote community societies, and the qualities people expect from the bush foods are perceived to have diminished in the process of planting and transplanting them. There is no equivalent benefit from horticultural produce when diminished food quality is compared to fruit from wild harvest. Scale is not of benefit other than through financial returns, and local employment in horticultural endeavours was not sought or taken up by nearby community residents on the scale that was required or envisaged from the industry perspective. In terms of benefit sharing, several sources suggested that commercialisation through horticultural-scale production was especially problematic for Aboriginal women who are the drivers of the current systems of wild harvest in central Australia (Yates, 2009, p. 49; Cleary et al., 2009, p. 70; Merne Altierre-ipenhe Reference Group et al., 2011, p. 40; Walsh and Douglas, 2011, p. 411). Walsh and Douglas (2011) and Yates (2009) state that horticultural commercialisation as it has been modelled does not perceive the benefit of the knowledge transmission of Aboriginal women whose participation is implicit in the wild harvests. In fact, in the region of their study, commercialisation through horticulture was understood to disrupt intergenerational knowledge transmission among the women affected.

Complexity, systems and frameworks

Combining traditional knowledge with contemporary resources and the behaviours associated with market economies is essential to produce goods for sale in the wider market, but it exposes custodians, plants and fragile ecologies to new levels of risk in seeking effective methods for their production and dispersal beyond the customary (Isaacs, 1987, p. 11; Barr et al., 1988, p. 18). Protecting women’s traditions and knowledge ensures sustainable harvest and intergenerational practices of sustainability (Walsh and Douglas, 2011). Local and kinship issues affect land management planning profoundly: ‘introducing money into the scheme of things has really hit hard in some areas. People know how to harvest to ensure sustainability, but that isn’t always how it’s being done, when a financial incentive exists’ (Jude Prichard, pers. com. 6 February 2017). Two of the greatest tensions arising from the introduction of financial worth are the threat to sustainable harvest driven by monetary incentive, and the challenge to customary knowledge transition and the value of those knowledges in the face of financial incentives to use and produce from native plants and Aboriginal knowledge, without ensuring the customs underpinning sustainable and equitable two-way relationships continue between land and people. This now appears to be the intersection at which local livelihoods, conservation and land management converges with industry and policy, along trajectories that have been developed at national or sub-national scales (Bacchi, 2009, Lee, 2012). Within that intersection, the protection of customary systems of knowledge and the sustainability of practice are of paramount importance to avoid further occurrence of Kakadu plum scenario, in which

access to the plum and its production became so widespread as to threaten the viability of wild harvest, yet the development of corporate profit streams that do not return benefit to the custodians or country from which the plums originated was a process that complied with Australian law (Holcombe and Janke, 2012).

Stafford Smith and Huigen (2009) proposed an environmentally modelled system, initially called a ‘desert syndrome’ (p. 3), in response to the vexed issues that seemed compounded by extenuating factors. They reconfigured their syndrome, proposing a system of interactions, causalities and environmental factors constituted in the global definition of drylands (p. 6). Local characteristics and feedback loops particularise each global dryland from another, while common global characteristics include peripheral and dispersed settlements, and generally arid ecosystems. Factors of locality interact at settlement and regional levels between the feedback loops and the ‘desert system drivers’ (p. 6), which include: unpredictable climate, scarce resources, limited livelihoods, sparse population, remoteness, social uncertainty, local knowledge, cultural differences and scarce capital.

General systems theory is a transdisciplinary and abstract study of phenomena using principles common to all complex entities and developing a model that describes them. In locating the features of their model as common to global dryland zones, Stafford Smith and Huigen (2009, p. 6) suggest that it is the associated driver and feedback loops in interaction with local characteristics which provide the distinctions between drylands zones and the locations within them. The ‘desert system’ consists of four things that make up all systems theories: objects or parts, attributes or qualities, internal relationships among the objects, and an environment in which the system exists. The ‘desert system’ includes interventions in the feedback loops to disrupt or change other objects so that there are adaptations because of the relationships or interactions between the objects within the system. The authors suggest: ‘It is likely that some attention needs to be paid to these intervention points at once, as investment in one area at a time means that failings elsewhere in the diagram are likely to render that investment void’ (2009, p. 6). However, Stafford Smith and Huigen (2009) do not address the fundamental Aboriginal ‘drivers’ of ecology and culture so prevalent in remote inland central Australia. The connection of people to country is indivisible, and the spiritual and cosmological significance of entities other than human is integral to the two-way relationship of people and country (Walsh and Douglas, 2011; Wright et al., 2012; Sangha et al., 2015).

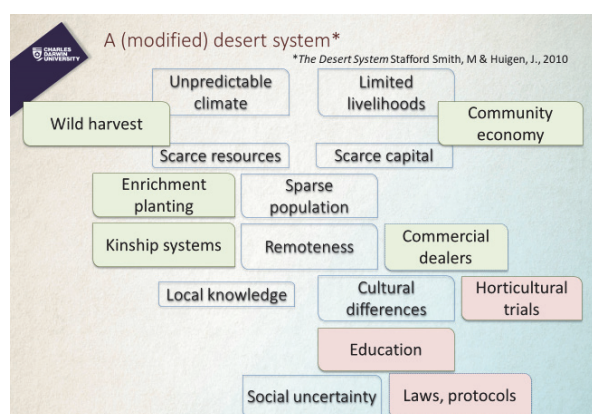


Figure 7: Contextualising Stafford Smith's Desert System using what we know of bush foods value chains (Lovell, 2016).

To a limited extent the agribusiness market system interacts with bush foods, despite sparse populations and remoteness – largely via commercial dealers, who collect from harvesters and wholesale in bulk further up the supply chain.

There is value adding along the value chain – harvester,

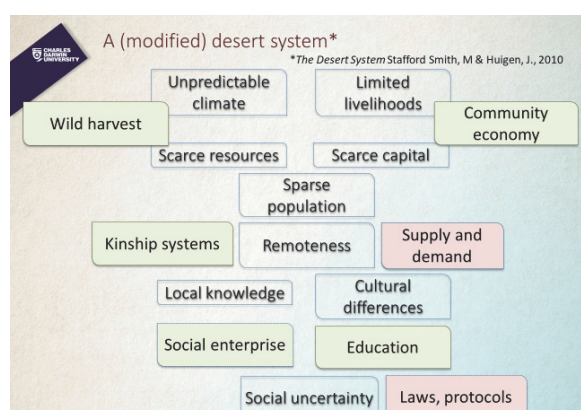


Figure 8: Contextualising Stafford Smith's Desert System using what we know of bush medicine drivers (Lovell, 2016).

The social enterprise that makes balms and gives them away to patients also makes a commercial line of the products, which is gaining popularity in increasingly wide markets: the scale of demand does not match the scope of local production – nor is it the priority.

dealer, producer, wholesaler, etc. with little return to the custodian or harvester after the initial sale of seed or fruit.

The industry sees increased scale and density as good for commercialisation through horticultural development; scale over scope impacts negatively on wild harvesters, traditional education and sustainability, and the maintenance of wild plant stock.

Aboriginal people are vulnerable to loss of benefit in the horticultural model – laws to protect their customary rights and to gain benefit share from the wider market are complex, hard to access. Local protocols are developed in central Australia.

Harvesters are vulnerable to very marginal and seasonal gains; producers further up the chain are also affected, although wild harvest is not the problem: seasonal variations are.

Aboriginal plant use and knowledge should touch on transnational agreements for the protection of Indigenous intellectual and cultural property rights, but the national discourse around agribusiness developments in northern Australia currently is more focused on land ownership and leasehold than on local participation in production.

The financial gains could be used to support the health service – this is a tension.

Market can take more product; patients use 500 tubs per month. What are the priorities of the enterprise, of the board of the service, of the community suppliers, of other communities, the patients? Protocols are needed now to give the board clear governance lines, and for the social enterprise to succeed in meeting the organisation's priority of wellbeing.

How will field work findings vary between communities? Yet known – they do not all have or make bush medicines, and plant uses vary.

How do the motivations for the production of bush medicine in the context of wellbeing meet the requirements for intergenerational education (cultural maintenance)? Are there broader implications for health prevention education?

What can be learnt that could revitalise bush medicine plants?

What can boost the capacity to meet patient needs and increase revenue for the provision of health services?

The social and economic demand-supply chains in the central Australian region have been analysed (Holcombe et al., 2011; Lee and Courtenay, 2016; Lee, 2012) and the available laws and ethical processes synthesised to create strong protocols and ethical recommendations (Merne Altyerre-ipenhe Reference Group et al., 2011). A comparative framework (Lingard, 2015) contrasts and assesses current laws, protocols and legislation available to protect custodial rights and intellectual property rights over biological and genetic plant material. The work confirms that protection of Aboriginal knowledge associated with plants might be improved by adapting existing laws, rather than constructing new laws, and undertaking the unwieldy and slow processes required to do that.

The lens of human geography – landscape as experience

Central Australia is often problematised for its environmental and social conditions, geographic distance from anywhere else on the continent, and status as impoverished, peripheral, marginal and iconic (Traill et al., 2014). It is a region with a diverse and strong Aboriginal cultural base, a seasonal influx of working tourists, (Golebiowska et al., 2016) and a magnificent uncertainty regarding markets and industry, rainfall, heat and cold, fire and flood. The evidence from pastoral and art industries and from native plant use research suggests an inland valued by many residents and of great value to external investors – not always for the same reasons (Dollery et al., 2015; Blackwell and Robertson, 2016). As an experience, the inland is many things including a landscape of sustainable, functional networks that connect spatially dispersed homelands, communities and towns with relatively small populations and marginal economies (Lovell et al., 2016; Pople and McLeod, 2010; Taylor and Wilson, 2016).

Along the trajectory of native plant use are intersecting systems of value and law, practice and priority, market and value chain (Lingard, 2015, p. 4) which impact on, but do not necessarily represent, the human geography of central Australia, for example, the development framework for agribusiness associated with national government policy to develop the north (Australian Government, 2015b), the work of the Indigenous Land Corporation to implement a corporate agriculture and tourism structure for Indigenous business development and employment based on land use (Australian Government, 2015a), and the Northern Territory Government agenda for Indigenous economic development using bush foods and bush medicine enterprise (Northern Territory Government, 2017). These propose the participation of custodians of the land, and yet the mandate of concern for subsidiarity is not evident. There is no evidence that

Northern Australian development policies are cognisant of the unique opportunities in the remote inland of central Australia.

If this is the context, finding shared value, meaning and language for the complexity of the ecological, relational and transactional challenges of equivalence and subsidiary is unlikely between external interest groups, such as businesses at the top of the bush foods value chain (Lee, 2012), and wild harvester who are primarily women living in remote arid communities and homelands. Corporatising the role of business mechanisms and entities is not recommended, and associated risks include loss of native plant custody and diversion of benefits into corporate structure and away from individuals and families. The mechanisms that do work will continue; these operate within existing cultural systems and are subject to everyday priorities, weather and the experience of landscape. Examples where subsidiary interests and equivalences are operating include the health service Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation (2016) which produces bush medicine using the benefits of their social enterprise, and provides bush medicines for remote renal patients as part of the health ecology of their service. A bush foods example of successful integration of wild harvest and customary agency underpins the business and value chain brokerage that occurs through Raelene Brown's stewardship at Kungas Can Cook. Kungas has active business relationships all the way up the value chain, and has sustained a twenty-year career of restaurant service and strategic industry networking (Alyawarr speakers from Ampilatwatja et al., 2009). These examples provide snapshots of the rich human geography of remote inland central Australia and summarise the factors that shape the networks and drivers of native plants uses. Wider market demands for produce or product based on native plants do not always coexist comfortably with customary uses, seasonal variations and values ascribed by custodians (Adjei and Stoianoff, 2013; Walsh and Douglas, 2011; Cleary, 2010), as confirmed in recent conversation with seasoned Aboriginal bush foods industry entrepreneur Raelene Brown, (Pers. com. 14 August 2017).

Observed lessons about structures and models of community governance and government interfaces should be heeded (Loomes et al., 2012; Cleary and Hogan, 2016), as current processes to devolve Indigenous enterprise development into regions also promote corporatised concepts of work and economy with accompanying layers of bureaucracy, and lack evidence of success regarding plant business in central Australia. An alternative to the corporatised model can be found in the invigorated networks active throughout the inland (Lovell and Zeng, in press), which are also evident in the relationship of brokers and bridging organisations that actively support and provide basic resources for remote entrepreneurs to access markets. These are informal, diverse structures, with capability to service niche activities (Davies et al., 2017; Lovell, 2015).

Reframing the problem at the margins

National provisions for health ecosystems do not generally inspire involvement with the deep socio-cultural ecosystems evolved in marginal regions, away from centralised services and policy makers. The depth of customary use of native plants, while part of everyday life in many remote central Aboriginal communities, is largely beyond the scope of national markets and health ecosystems. There is a disjunction between the value that native plant knowledge, plant parts and related activities represent in the locations they grow and among the custodians who use them there, and the monetary equivalences derived through the sale of plant materials for native foods or bush balm products.

Throughout this paper, the tensions between the scales and scope, priorities and provisions for the protection and benefit flows from customary knowledge of native plants – especially in regard to bush

foods and bush medicine – are explored. This is considered as a problem of equivalence, and is summarised in the following key points:

- Aboriginal plant use and knowledge is represented in relation to customary ecological management of natural and human resources through wild harvest, and contributes to community economies through health and ecological services wellbeing as well as to education and in producing meagre financial gains.
- To some extent the agribusiness market systems interact with native plants, predominantly in bush foods supply chains.
- Aboriginal plant use and knowledge face a challenge to scale above community and kinship use, and transnational agreements would rely on better national protection of Indigenous intellectual and cultural property rights, as well as equivalence between financial and socio-cultural expressions of value.
- At present, the national discourse around agribusiness developments in northern Australia lacks the inclusion of health and wellbeing implications, or a measure of the benefits and impact from the provision of ecological services within a desert system.
- There are wider implications in gaining an understanding of equivalence between the customary uses and values, and the mostly monetary equivalences ascribed by market systems, through supply and value chains.
- By asking how a problem is framed and represented by various agents in native plant interactions, it has become clear that legal protections and treaties – such as those that the World Intellectual Property Office produces – can support local drivers, customary equivalences and monetary market systems, even when equivalences between cultural and monetary systems of valuing are not at first apparent.
- For the problem of equivalence between custom and market systems, and with some adaptation, the desert framework provides a logical place to start evaluation of problems that are represented between customary use, community economies and market systems. As yet, it falls short of framing the interventions useful to transnational treaties, beyond the legal structures required.

Bacchi (2009, p. 34) has stated that problems are shaped (or constituted) in policy; that is, problems are identified in ways that fit the solutions required for governmentality (Foucault, 1995, p. 25). However, problems at the margins, in the desert system, are also constituted differently through the lenses of different interactions. A public market for bush medicine products has emerged in Alice Springs through the work of individual small business or sole traders – often family groups – and through social enterprise related to Aboriginal health and wellbeing services. The bush plant salves and lotions have increased in reach beyond community and kinship exchange and into wider mainstream markets through the mechanism of social enterprise that makes them available to the public (see social enterprise websites for Akeyulerre Inc., 2016, and Western Desert Nganampa Walytja Palyantjaku Tjutaku Aboriginal Corporation, 2016). The systems of valuing bush medicines that are at work in the community are not equivalent to those assumed in the wider market.

Bacchi's (2009) method 'What is the Problem?' highlights the genealogy of different types of problems as 'nested' around – in this case – the use of native plants in the central Australian region. Bacchi (2009) suggests that having identified the problem and its type – as one of a regulatory, policy, market, or another nature – it is important to identify what or who frames it as such. Typically, power relations ensure that one representation of a problem emerges and gains status over all the others, and it is this version which 'sticks'. Too often the many other equally relevant framings are dismissed, so solutions are assumed to be

adequate if they fit the ‘popular’ version. Given that this method is designed to interrogate the instruments of governmentality, Bacchi (2009) describes the representation of a problem as leading through a genealogy of events. Understanding that genealogy makes it possible to re-problematise how it is represented, to get behind the obvious discourse and disrupt the tendency to fall for the assumed solutions. In this way, Bacchi argues for understanding the problem as it is perceived at the margins, rather than as it is construed by a more powerful agent at the centre (pp. 10–34).

In considering that a mesh of links makes up the social fabric of this sparsely populated and arid zone, the term ‘regional’ falls short of encapsulating the degree to which communities across the terrain network. Minimally represented and neither a ‘region’ nor a contender for ‘regional development’ (Traill et al., 2014), the remote inland is subject to changing contexts of boundedness that overlay Aboriginal landscape and identity. Perceptions of power, often historically constituted, exist whether formally acknowledged or not. Amid the drylands and held close in the psyche of Australians, the Red Centre is an entirely unofficial region (Gerritsen et al., 2010). Its lack of a formal status can be detrimental in the instance that multiple jurisdictions and borders require complex governmentality, communication and public administration that is duplicated in lieu of a regional recognition. The omission of some public services and patchy provision of others across existing state and territory borders (McGregor and James, 2011; Dockery and Hampton, 2015; Fisher et al., 2011) belie extant relational and linguistic Aboriginal estates, despite the negotiated property rights that land rights, native title and land use agreements acknowledge. The inland is an open system, with fluid networks that ‘modify, reconstitute and at times remove [regions]... Regional boundaries do *not* need to be exclusive or permanent’ (Paasi, 2011, p. 171). This presents a problematic interface between human geography as an experience of landscape, and the inland landscape as peripheral and remote.

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