Attention to four key principles will promote health and wellbeing outcomes from desert Aboriginal land management

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Abstract

We identify principles that will promote the prospects of health and wellbeing outcomes for desert Aboriginal people from livelihoods engaged with land management. International and Australian literature offers evidence that supports desert Aboriginal people’s view that their health and wellbeing depends on their relationship with their lands and culture. Engagement with land management can lead desert Aboriginal people to feel that their own actions fit with their sense of what is the right and proper way for them to behave towards land, family and community. This increased sense of control or mastery is a key determinant of health because it has a positive impact on sustained stress. Four principles that we have developed inductively from our research and other sources focus on underlying characteristics of Aboriginal land management that are important to promoting this outcome. They are that (1) Aboriginal land management governance recognises and respects Aboriginal custom and tradition and is adaptive; (2) learning is embraced as a life-long process; (3) relationships are recognised as very important; and (4) partnerships give priority to matters that all parties agree are important.

These principles aim to contribute to cooperative efforts by Aboriginal land managers, their representative organisations and other partners, to develop criteria and standards for good practice and also to promoting positive integrated outcomes from Aboriginal land management for sustainable livelihoods, natural resource condition, sustainability and adaptive capacity. As such they support Aboriginal land managers’ engagement with international efforts for environmental certification of goods and services that have
integrated benefits. This is important for access to new and diverse sources of investment to support ALM notably those from emerging carbon economies.

Additional keywords

Environmental certification; community-based conservation; Indigenous development
Introduction

We have aimed to better understand how Aboriginal engagement in livelihood activities that use and manage lands and waters (hereafter ‘Aboriginal land management’, ALM) can sustain or improve the health of desert Aboriginal people while at the same time engaging with biodiversity conservation and other natural resource management objectives that are important to broader Australian society. In this paper we propose a set of four principles for the design and practice of ALM systems. We consider that applying these principles will promote the prospects that ALM improves the health of Aboriginal people. We use the WHO definition of health meaning “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity” (WHO 1948). Primary research that has informed these principles is from arid and semi-arid regions of Australia. However the principles are grounded in broader theoretical frameworks for the interrelationship between human health and ecosystem health, resilience and sustainability, and are thus likely to have wider applicability.

There is evidence, outlined below, that investments in ALM can promote Aboriginal health. However ALM has a very broad scope. Factors such as the nature of ALM activities, whose initiative these reflect, and how they are governed and implemented are likely to impact on health outcomes. Hence some guidance is warranted about the characteristics of ALM that have best prospects of promoting health outcomes. The effectiveness, including cost-effectiveness, of efforts that are directed at closing the dramatic gap between Indigenous people and other Australians in health (Jeremy and
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Brown 2010) and in related factors such as child development can be expected to benefit from a critical understanding of such factors.

Opportunities for improved cost-effectiveness are presented by the scoping economies that are generated when both health and the environment are improved through ALM (Campbell et al. 2008). Scoping economies occur where the same set of inputs (in this case time, knowledge, skills, equipment and financial resources applied to ALM) produce more than one set of products (in this case better health and also maintenance or enhancement of the condition of the environment and the flow of ecosystem services) (Campbell et al. 2008). As an indication, the positive health impacts of ALM have been established as amounting to $270 000 annually (or a net present value of $4 million) in savings for one health centre in a northern Australian community of 1200 people, based on costs for primary treatment of hypertension, renal disease and diabetes that would be generated if residents were not engaged in ALM (Campbell et al. 2011). Health determinants engaged by ALM are likely to be multi-faceted. They may in part arise because people active in ALM get relatively more exercise and access to nutritious bush food than many other Aboriginal people. Significantly, some fundamental determinants appear to derive from psycho-social factors, notably the relationship between remote Aboriginal people’s worldview and their capacity to take action that is consistent with that worldview, as discussed below.

Psycho-social health determinants engaged through Aboriginal land management

Desert Aboriginal people’s strong motivation to engage in ALM, particularly through customary or cultural activities (Davies et al. 1999; Walsh and Mitchell 2002; Putnis et
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al. 2007; Smyth et al. 2007; Sithole et al. 2008; Davies et al. 2010a), suggests the importance of giving attention to ALM as a pathway to improved health. This motivation reflects aspirations to keep culture strong, transmit ecological knowledge inter-generationally, and to develop stronger livelihoods, including expanded income earning opportunities, in caring for customary estates and associated cultural, spiritual and ecological values. Aboriginal people have driven development of ALM over the past two decades to become a widespread, vibrant, growing and increasingly professional movement extensively networked with natural resource management sectors of government, the research community and NGOs. Resulting increases in social capital are considered particularly important for addressing mental health in which most problems “are socially caused and must be socially solved” (Berry et al. 2010 p.142). Aboriginal motivation, reinforced through ALM achievements, makes it more likely that health outcomes will be achieved through ALM than through other mechanisms, such as public health education campaigns or early screening for disease that, while important, have less cultural appeal.

The relationship between remote living and health is pertinent to understanding health determinants engaged through ALM. Given the concentration of Aboriginal lands in very remote regions of Australia, Aboriginal people of these regions are more likely to be engaged with land management than those from elsewhere. However, indigenous people from rangelands and other sparsely populated remote regions in developed countries have the worst cardiometabolic health (that is, heart disease and metabolic disorders such as diabetes) (Daniel et al. 2010). ABS data from Northern Territory (NT) as a whole supports this: compared to other states and territories, the NT has the highest proportions
of rangelands, Aboriginal land tenures, and Aboriginal people living in remote and very remote regions. Aboriginal health is also considered to be worst in the NT (Andreasyan and Hoy 2009). At face value, this situation offers no evidence that ALM might support relatively better health amongst Aboriginal people. However finer-grained analysis suggests the converse is true. Within the NT, Aboriginal mortality is actually relatively lower in very remote regions, where most Aboriginal land is located, and relatively higher in areas that may be categorised remote but that are within or readily accessible to the capital city of Darwin and the two largest towns, Katherine and Alice Springs (Andreasyan and Hoy 2009). One reason for lower mortality in very remote populations is that people in poor health tend to move out of very remote areas in order to access health care. However the relationship between Aboriginal people and land is another factor that appears to be important to explaining the relatively better health amongst Aboriginal residents of very remote areas.

In the world view of desert Aboriginal elders, land cannot be separated from customary law, ceremony and kinship – the traditional institutions of governance in desert Aboriginal society. Equally, these factors cannot be separated from the health of Aboriginal people and society. Thus elders say that ‘everything comes from the land’ (as depicted in Arrernte elder MK Turner’s (2005) painting of that name). An array of evidence in published research from Australia and other regions (as reviewed by (Burgess et al. 2005; Daniel et al. 2010; Davies et al. 2010a) supports this Aboriginal view that the health of people and land is inter-connected.
Several Australian studies (O'Dea 1984; O'Dea et al. 1988; McDermott et al. 1998; Rowley et al. 2008; Burgess et al. 2009) report correlations between engagement with land and health status, as assessed from bio-medical indicators: Aboriginal people who are more closely engaged with land are relatively healthier than others. Although most of this research has not been able to establish that Aboriginal people’s engagement with land causes relatively better health, the authors present arguments as to why causality should be inferred.

Psycho-social factors are important determinants of the health outcomes attributed to ALM (Daniel et al. 2010; Davies et al. 2010a). Such factors moderate or mediate the direct impacts on health from risk conditions present in people’s social and physical environment and risk factors associated with people’s behaviours and lifestyles (Daniel et al. 2010). One positive impact on psycho-social determinants of health that is apparent from literature is that ALM promotes coherence between Aboriginal people’s agency (how they act in the world) and their ontology, or customary world view that there is an integral relationship between human health and landscape health (Davies et al. 2010a). This strengthens Aboriginal people’s ‘sense of control’ (Ferrie 2004) over their own lives, ‘capacity to cope’ (Kristenson et al. 2004) or ‘mastery’ (Daniel et al. 2010) which is a key determinant of health, because of its impact on stress.

Sustained stress causes illness and disease. It occurs in situations where people learn from past experience that they have no control over a situation – that nothing they do can alter the outcome. Such people tend to develop a sense of ‘helplessness’ or ‘hopelessness’ and health problems that commonly proceed to serious conditions requiring medical intervention (Ursin and Eriksen 2010). Empowerment strategies are
critically important to effecting change in such situations (Kristenson et al. 2004). Such
strategies increase the probability that people will influence the outcome of the situations
they experience. They also build people’s self-image and beliefs about their capacity to
influence outcomes. In mainstream society people’s capacity to influence situations they
are involved with and their expectations about having such influence (i.e. their ‘sense of
control’ or of ‘coping’) generally come as a result of income and education. This helps to
explain that health is strongly correlated with income and education globally and within
most nations (Marmot 2007). However in remote Aboriginal societies, it seems that
empowerment through involvement in ALM can deliver an alternative pathway to an
increased ‘sense of control’ or ‘coping’.

Many decisions made about matters that affect desert Aboriginal communities will
inevitably remain outside the control of Aboriginal residents because they are made in
distant places through institutions that have broad accountabilities and no local control
(Stafford Smith 2008). This lack of local control contrasts to the situation in classical
(that is, pre-contact) Aboriginal societies where Aboriginal people had the expectation
that they exercised a high degree of control over outcomes. For example they minimised
uncertainties about water availability by mobility as well as by ceremonial and spiritual
practices of managing rainfall which, although not understandable in scientific terms,
were powerful elements in their own belief system (Rose 2006). Such belief systems
continue to be known and to influence desert Aboriginal people’s expectations for proper
human behaviour in relation to land and environment (e.g. Rose 1995; Vaarzon-Morel
2010; Wilson et al. 2010). By promoting a greater sense of coherence between these
Aboriginal ontologies and Aboriginal people’s actions or agency, ALM can deliver a
greater ‘sense of control’ or ‘coping’ amongst Aboriginal people. Associated empowerment outcomes noted in the literature (as reviewed by Davies et al. 2010a) are autonomy, self esteem, and self-determination, cultural continuity and identity. These factors also influence people’s ‘sense of control’ or ‘coping’ through people’s beliefs and expectations about their ability to influence outcomes. We have aimed to develop principles for ALM that might promote this empowerment and sense of control, and thereby reduce the negative impacts of stress. The wide scope of ALM activity provides the context for these principles, as outlined below.

The scope of Aboriginal land management

‘Land management’ is a term adopted by Aboriginal people from the non-Aboriginal lexicon. Bradley (2001) identifies a fundamental difference between Aboriginal and non-Aboriginal approaches to land management in pointing out that for non-Aboriginal people in Australia land management is “a one-way process where people do things to country, to look after it and make it productive” (Bradley 2001). While ‘productivity’ may well be related to conservation goals rather than exploitation of natural resources, the sense of management as a process that people do to land, habitats or wildlife is pervasive. However for Aboriginal people operating under traditional norms, land management involves a “two-way interaction between people and country” (Bradley 2001). Country teaches people and sustains people. People negotiate with country for these beneficial outcomes.

Notwithstanding such important distinctions, a very wide variety of motivations, practices, activities, knowledge sources and governance structures are applied in contemporary ALM. There are also a large number of different terms in use for ALM
such as ‘caring for country’, ‘natural resource management’ and ‘cultural natural resource management’ (Davies et al. 2010a). Here we define the scope of ALM as comprising any or all of a wide range of activities, set out in Table 1, that may be pursued by Aboriginal people as individuals, in family or extended family settings, or through structures such as committees, community-based ranger groups, or corporate organisations, whether for cultural, domestic, contractual or commercial purposes.

Across this broad scope, we have aimed to identify some principles that will promote prospects of health outcomes from ALM. It is notable that the ALM activities considered by the literature to be linked to health outcomes tend to be those that derive from customary cultural practices, rather than science knowledge or mainstream NRM priorities (Davies et al. 2010a). No empirical research has compared the differences in health outcomes from different kinds of ALM activities. However it seems likely that ALM activities that are driven by mainstream natural resource management priorities and processes, and thereby have less resonance with Aboriginal ontologies than customary activities, are likely to be less effective at enhancing desert Aboriginal people’s sense of control over situations they encounter. They are therefore also likely to be less effective at addressing psycho-social determinants of health.

**Methods**

The principles presented here were developed inductively. We synthesised them from findings of component studies of the Livelihoods in Land project of Desert Knowledge CRC. That research engaged with desert Aboriginal people and practitioners from
government, Aboriginal organisations and communities involved in customary land
management practices; land management employment as community rangers, research
workers and in the Alice Springs Desert Park; education; and Indigenous Protected Area
management (Brahim 2007; Anderson-Smith 2008; Pawu-Kurlpurlurnu et al. 2008; Rea
and Messner 2008; Rea et al. 2008; Davies et al. 2010a; LaFlamme 2010; LaFlamme
2011; Preuss in prep; Walsh and Davies in press; Walker submitted 2010). Each of these
research components involved procedures for community engagement, ethical review and
reporting to research participants on results, following protocols and guidelines of Desert
Knowledge CRC, the Human Research Ethics Committees of researchers’ own
universities or the Central Australian Human Research Ethics Committee, and
requirements of participating communities and Aboriginal representative bodies, notably
Central Land Council. Other experiences of co-authors, several of whom have worked for
many years in facilitating, coordinating and researching ALM in desert Australia and in
similar contexts internationally, contributed insight for the synthesis of findings and the
articulation of the principles we present here.

The synthesis of findings involved informal discussion groups of co-authors,
identification of themes, and comparing emerging findings to other empirical research
and to theory from common property resource management (Dietz et al. 2003; Ostrom
2005), sustainable livelihoods (Scoones 1998; De Haan 2000; Armitage 2007; Davies et
al. 2008), and adaptive capacity in social-ecological systems (Berkes et al. 2003; Walker
and Salt 2006; Armitage 2007). We draw out selected relationships to literature in
presenting the principles below and a more complete synthesis (Davies et al. 2010a) is
published separately. Our analysis against the sustainable livelihood framework shows
that human capital, social capital and institutions are the main elements where change can have substantial impact on health and wellbeing and other livelihood outcomes (Davies et al. 2010a). The principles we present here are focused in these domains as indicated in Figure 1. They are presented as hypotheses that would be best tested as part of adaptive management processes involving Aboriginal land owners and managers, their representative organizations and their partners.

**FIGURE 1 ABOUT HERE**

**Principles for promoting health and wellbeing outcomes from desert Aboriginal land management**

**PRINCIPLE 1: Governance recognises and respects Aboriginal custom and tradition and is adaptive**

Recognition and respect for Aboriginal custom and tradition in contemporary governance provides the foundation from which the actions that Aboriginal people exercise in ALM can have coherence with their world views and belief systems. Through this, governance can promote the ‘sense of control’, coping or capability that is fundamental to health outcomes. Aboriginal people involved in our research identified the importance for effective governance of the ‘right’ Aboriginal people being involved, and of engagements with government agencies strengthening, rather than working against, local Aboriginal leadership (LaFlamme 2011; Preuss in prep; Walsh and Davies in press). People said that decisions about ALM priorities and how they are implemented should not be taken by paid coordinators, community ranger groups or funders, but by those Aboriginal people who have customary authority. In some cases social tensions were highlighted between
the ALM efforts of particular family groups and expectations that ‘the whole community’
have a say in ALM decision-making and gain benefit from ALM.

Governance encompasses the institutions and processes whereby people make decisions,
assign responsibility for implementing decisions and manage the sharing of costs and
benefits from those decisions (Dodson and Smith 2003; Ostrom 2005; Lockwood 2010).

Recognition and respect for Aboriginal custom and tradition is important for ALM
governance to be recognised as legitimate by Aboriginal people and in terms of statutory
institutions for Aboriginal land ownership, since these commonly reflect customary
institutions. Governance needs to be based on Aboriginal people’s right to speak for
country rather than mainstream notions of delegation and representation or ‘top down’
control (Lane 1997; Howitt 2001; Walker submitted 2010). These assertions are
supported by experience from community development practice that people’s social and
community wellbeing will be more assured if their development is built from cultural
strengths and motivations and customary institutions, and that development processes
will be more efficient, with fewer perverse outcomes (Hunt 2005). Actions of outsiders –
governments or others – tend to lack local legitimacy if they introduce something new,
rather than building on existing institutions. Conservation outcomes, which are often
sought by ALM funders, have also been found to be more likely from community actions
if local institutions and culture shape governance and management (Waylen et al. 2010).

‘Traditional owners’ and ‘elders’ are commonly used as terms to signify those Aboriginal
people who are the ‘right’ people to make ALM decisions. However these terms
disguise much complexity in rights and responsibilities for Aboriginal land use and
management. For example, Aboriginal customary law of the Australian desert rights and
responsibilities for particular areas or resources, their allocation and maintenance,
commonly involve two or more inter-dependent groups of people with complementary
responsibilities for various dimensions of an issue (see for example Pawu-Kurlpurlurnu et
al. 2008). Customary responsibility for decision making may also have passed from
people who no longer live in an area to others who do (Young 1987; Sutton 1998).
Further, there are situations where people with the best developed knowledge for an area
are recognised by other Aboriginal people as having greater authority than others,
regardless of kinship affiliations. As a result of such factors, allocation of rights may be
fluid and subject to considerable negotiation amongst Aboriginal people (e.g. Myers
1991; Sutton 1998). Hence deliberative processes (Berkes 2007) through which
Aboriginal people with an interest in an area of land determine how ALM decisions will
be made, and how effort and benefit will be shared, are critical.

In a changing world, governance cannot be static. It needs to be adaptive if it is to operate
effectively in conditions of uncertainty generated by social and ecological change, to
contribute to actively transforming systems to a more desirable state as necessary, and to
avoid unintended and potentially less resilient transformations (Folke et al. 2003; Walker
and Salt 2006). Although an orientation towards the past is widely noted as characteristic
of Aboriginal cultures (Trigger 2005), some leaders are consciously looking to how
customary governance institutions can guide the future. For example Ngurra-kurlu, the
ontological framework communicated by Warlpiri educator Wanta Jampijinpa Pawu
Kurlpurnu (Steve Patrick), points to customary law, language, kinship and ceremony
and land relationships as providing clear direction for the future that will protect Warlpiri
people and their country for the benefit of all Australians (Pawu-Kurlpurlurnu et al. 2008).

Globally the governance systems of those groups of people who have managed, over time, to sustain the benefits from property that they own in common and to effectively self-govern that property have been found to share some key characteristics (Ostrom et al. 2002; Dietz et al. 2003; Ostrom 2005). These characteristics (Table 2) offer a guide to deliberations about how customary norms and governance structures might best adapt and evolve. Some of these characteristics are difficult to recognize in Aboriginal cultural institutions. For example, the apparently fluid and constantly re-negotiated systems of some Aboriginal groups for allocating and recognising the rights of individual Aboriginal people to use and benefit from land are in tension with the need for the boundaries for membership of a group (and hence for distributing the benefits of membership) to be clear (Characteristic 1, Table 2). Distribution of income received by Aboriginal landowners from commercial land uses such as mineral extraction to a very wide groups of traditional owners offers another example. This may run counter to the feature of long standing sustainable self-governing common property institutions that the benefit that comes to individual people from a resource that they own in common, such as land, should be proportional to the effort they put in to managing and maintaining that resource, such as through ALM (Characteristic 2, Table 2).

Consistent with the need to adapt ALM governance to a changing world, new structures are often warranted. Examples include management committees comprising senior
representatives of kinship groups with customary responsibilities (e.g. Walker submitted 2010). New structures can also help to make customary law authority more transparent to outsiders with an interest in ALM and its outcomes, such as funders. This is important to ensuring that the rights of a group to make decisions and hold accountabilities for ALM are recognised by others outside the group (Characteristic 7, Table 2). Transparency also contributes to promoting public respect and validation of the importance of Aboriginal custom and tradition, and thereby supports empowerment and associated health outcomes.

PRINCIPLE 2: Learning is embraced as a life-long process

Learning is central to adaptive management of wildlife and ecosystems (McLain and Lee 1996; Berkes et al. 2000) and to people’s capacity to cope with and adapt to change in their environments (Armitage et al. 2008; Berkes 2009). Where learning relates directly to people’s lives, it provides a key link to health outcomes through reducing the stress of uncertainty and mitigating the ennui of helplessness. Hence learning is not something that should be seen as only occurring in training courses or schools. Rather learning needs to be embraced as a life-long process that happens on country and for which all ALM projects and activities provide opportunities.

Aboriginal people involved in our research have emphasized the importance of learning as both a motivation and an outcome from ALM. They have said, for example, that sharing knowledge is the heart of Aboriginal identity (LaFlamme 2011); that the opportunity for inter-generational knowledge transfer is a fundamental reason why they engage in ALM and that engagement of elders as teachers and mentors is a critical success factor for ALM programs and projects since it is a key to creating a genuine two-
way approach to land management (Preuss in prep); that building knowledge amongst young people requires collaborative work involving young people, adults, elders, government agencies and community organizations (LaFlamme 2010); that the inclusion of Aboriginal language and culture in school-based education, with elders as teachers, is a key to building and maintaining strong community-school partnerships (Douglas in press), and that learning is important in explaining why Aboriginal people value NRM-based government employment (Walsh and Davies in press).

The link between inter-generational learning or transmission of Aboriginal traditional knowledge and ALM is very direct. Aboriginal traditional knowledge and ecological knowledge is situated in place. It is more than a set of facts or skills. Rather, it is enacted and comes alive by ‘doing’ (Lauer and Aswani 2009). Transmission of that knowledge is meaningless except through practice. For example, many desert Aboriginal people have extraordinary ability to ‘read the landscape’. The passing on of knowledge inter-generationally involves nurturing this ability in younger people, with recognition of the signs, symbols and other markers that give meaning to what is seen and not seen in landscape. ALM provides the contemporary setting for sharing practice amongst people, rediscovering traditional practice, applying it to new problems and thereby keeping it vibrant.

The important link between customary authority for land and learning also needs to be recognised in ALM. Thus ALM learning needs to start within the framework of the customary responsibilities that Aboriginal people have to keep country in good condition rather than only addressing skills and techniques such as for weed control or wildlife survey. Learning needs to address questions of who is responsible for an area, what
‘good condition’ means; how Aboriginal custom and traditions, goals, values and
behaviours relate to good land condition; what actions are required to achieve it; and who
else needs to be consulted or involved. Involving the ‘right’ people as educators/mentors
is critically important for learning processes to be effective.

Learning-by-doing proceeds most effectively when people directly observe the
consequences of their actions. Conscious monitoring of changes observed in the
environment or within social groups following ALM actions, and reflection and
deliberation on these changes, can contribute to people’s sense that their actions have
some impact, and thus to their sense of control over their lives.

ALM is enabled by knowledge and skills that frequently draw from both Aboriginal and
non-Aboriginal traditions. Aboriginal people commonly call for a better balance between
these two knowledge systems. ‘Two-way learning’ needs to be given attention including
by involving ALM partners and collaborators from outside the community and
Aboriginal land managers themselves being reflective and conscious of how their own
practice is changing as a result of what they are learning.

**PRINCIPLE 3: Relationships are recognised as very important**

Approaches to ALM that recognise the importance of relationships support health and
wellbeing outcomes by promoting flows of information and management resources
through pathways that are accessible and familiar to Aboriginal land managers. The
social order of desert Aboriginal people revolves around kin relationships, rather than the
contractual relationships that are more common in government or business transactions.
Kin relationships and the reciprocity and exchanges that they involve provide the basis for trust amongst Aboriginal groups (Peterson and Taylor 2003) generating social capital that is an important livelihood asset.

Relationships with non-Aboriginal people are also important in ALM. These provide critical bridging and linking social capital (Woolcock 2000), helping to span across scales as is important for influencing non-local institutions that impact on Aboriginal people’s lives and on sources of support for ALM. These relationships can also help to balance negative consequences of the very densely clustered kin-based social networks of Aboriginal people, which can include distrust and exclusion of outsiders, stifling of innovation, and restrictions on the freedom of individuals (Porter 1998; Hunter 2004; Davies et al. 2010b).

The development and growth of the ALM movement over the past three decades and the sharing of science and Aboriginal knowledge within this movement has been underpinned by relationships between Aboriginal landowners and non-Aboriginal people in broker roles (Burt 2005). These brokers frequently work for organizations such as land councils that bridge between local and higher institutional levels. Long term engagement of such professionals is a key factor that helps to account for the effectiveness of some ALM groups in developing organisational capacity (Davies et al. 1999). It was also a key factor in success of an initiative for Aboriginal employment in government NRM (Walsh and Davies in press).

Aboriginal people’s frequently seek that their relationships with people from outside their community are based on friendship or family ways of interacting (LaFlamme 2011). In
order to promote long term engagements, efforts to recruit non-Aboriginal people to support ALM need to seek out people who want to be part of this kind of community.

They need to have good skills of negotiation and conflict resolution to manage the inevitable tensions of family-style relationships and the risk of burn-out from operating in cross-cultural broker roles (Maru and Davies submitted).

Relationships are important for learning. People in broker roles, with relationships amongst and outside of ALM groups, are important catalysts for new ideas and innovation amongst those groups. The social learning that occurs when experiences and ideas are shared with others builds mutual understanding and cooperation which is important for people’s sense of control over their own lives, contributing to health outcomes through this key psycho-social health determinant.

**PRINCIPLE 4: Partnerships give priority to doing things that all parties agree are important**

Partnerships are important for efforts in community-based conservation, such as much ALM represents, to be effective (Berkes 2007). Through adaptive co-management (Olsson et al. 2004; Armitage et al. 2009), partnerships are a critical mechanism for local people to have impact on higher level institutions (eg policies, laws, funding mechanisms) that often determine the opportunities that local people have to achieve outcomes important to them. The contribution of partnerships to health outcomes derives from this impact on local people’s sense of control.

More than ten partnerships were involved in each project/management area in one sample of effective community-based conservation actions in equatorial regions of the globe.
They served various purposes such as empowerment and equity, business networking, knowledge transfer, fund-raising, training and research. ALM partnerships in Australia have not developed to this extent outside of a small number of examples in tropical northern Australia and partnership development is an important arena for the growth of ALM in desert Australia. From experiences with inter-sectoral collaboration (Wakerman and Mitchell 2005), which is required in ALM partnerships because of their cross-cultural dimensions and potential for integrated social and ecological outcomes, it is clear that partners need to share clear and agreed objectives that reflect the reason for their collaboration.

Widespread acknowledgement of the importance of participatory processes and of the value of Aboriginal knowledge, mean that partners in ALM projects and activities generally recognise the importance of Aboriginal engagement and of supporting achievement of Aboriginal land managers’ own goals. However power imbalances can readily subvert their intentions, such that Aboriginal land managers’ goals become a secondary consideration to program goals (Walker submitted 2010). This outcome leads to ALM reducing rather than promoting Aboriginal people’s sense of control or coping. The stress this generates can be expected to have adverse flow-on impacts on health and wellbeing. Hence an important principle for ALM is that partnerships need to give priority to doing things that all parties agree as important. Often these things will be the aspirations of Aboriginal people for sustainable livelihoods that fulfil cultural, heritage and spiritual responsibilities. In contrast the overt aim of ALM project and program funding is often enhanced biodiversity conservation or land condition.
Giving priority to doing things that all parties agree as important can be a useful strategy to ensure that management is being clear and specific about priorities. It can encourage attention to monitoring, since clear management priorities lead to questions such as ‘how do we know how well we are doing’ and ‘have we achieved what we set out to do’. Over time, as partners build relationships and awareness of achievements and barriers, other areas of emphasis in management are likely to emerge, addressing issues that were not an initial priority. Social network theory predicts such an outcome as the new social relationships that develop amongst people who are involved in partnerships foster sharing of information and perspectives, supporting innovation in management (Burt 2005).

Differences in the spatial and temporal scales at which the various values of Aboriginal lands are perceived by different parties need to be acknowledged so that parties can work to a congruent understanding. Deliberative processes are important, where parties communicate about and exchange information, observations and views about issues, negotiate and consider the likely consequence of actions and potential trade-offs (Berkes 2007). Such processes clarify understandings of the appropriate roles and responsibilities of various parties as well as providing a foundation for agreement about shared priorities.

‘Sitting down’ together is an ALM metaphor for such processes (Preuss in prep). The personal interactions involved in that process of cross-cultural dialogue are important to effective knowledge sharing and collaborations between Aboriginal people and others in ALM.

To be effective participants in deliberative processes, Aboriginal land managers need access to the time and resources to work out what they see needs to happen in ALM, such as through visits to country where there may not be a clear ALM purpose or agenda.
worked out in advance. Deliberative processes amongst Aboriginal people may be no less complex and demanding than those amongst potential ALM partners. Yet they are equally important if partnerships with clear agreed and shared objectives are to result.

**Discussion: Application in environmental certification**

We have presented four principles that we consider are important to apply in ALM systems to promote the prospects of health and wellbeing outcomes from ALM. Here we discuss application of the principles in environmental certification schemes.

There is growing interest in certification of products and services generated through ALM, particularly in ways that would allow cultural, social and ecological benefits from ALM to be integrated with development of carbon economies. Examples internationally of certification schemes that are designed to address complex mixes of social and ecological benefits such as those commonly derived from community-based land and natural resource management regimes include the REDD+ draft guidelines (Climate Community and Biodiversity Alliance & CARE International 2010) and Ethical Biotrade guidelines (United Nations Conference on Trade and Development 2007). Each is founded on a set of principles for good practice. The principles presented here offer a starting point for developing certification mechanisms for ALM or for integrating specific characteristics of ALM into international certification schemes.

Certification operates from the assumption that consumers will seek out goods and services that reflect values and goals that they share. Certification schemes and associated standards are quality assurance mechanisms to promote confidence in consumers that the
goods and services they are buying do actually advance these values and goals. The primary goods and services being produced from ALM are ecosystem services, that is tangible and intangible benefits for people from the environment including climate regulation, genetic resources and a range of cultural services. As well as encompassing the health and wellbeing outcomes that the principles presented above are directed at, cultural services include cultural heritage values and intergenerational transmission of traditional ecological knowledge (Millenium Ecosystem Assessment 2003). Production of these ecosystem services involves various people working together in environmental management: Aboriginal landowners and other Aboriginal people; Aboriginal organisations, their staff and consultants; and people from other agencies. The ‘customers’ for these products (‘integrated outcomes’) are those people who benefit from the products. They include Aboriginal landowners themselves. However members of the broader Australian (and global) society benefit directly or indirectly from the enhanced Aboriginal health and wellbeing generated through ALM (such as in cost savings for public health budgets) and from other ecosystem services (such as climate regulation and dust suppression through maintenance of health vegetation cover), even when they do not live on or visit Aboriginal lands (Luckert et al. 2007).

A certification scheme for ALM would aim to influence government, NGO and corporate investors, to assure them that the certified ALM projects and activities are effective in generating outcomes for ecosystem services including health and wellbeing of Aboriginal people. Development of carbon economies offers the prospect of enhanced corporate and other private sector investment into ALM reducing the dependence of Aboriginal
landowners on government to cover the costs of ALM. Issues of quality assurance that might be addressed through certification are becoming more pertinent as a result.

The principles presented above focus only on health and wellbeing outcomes from ALM rather than also considering carbon sequestration and mitigation or other outcome areas that appear to be generated in some circumstances as an integrated set (Whitehead et al. 2009). Such integrated outcomes also potentially encompass biodiversity, landscape conservation, economic development and social equity. Development of a full certification scheme for integrated outcomes from ALM in social, cultural, economic and ecological spheres will require selection of indicators and monitoring across these various areas. Founding such a scheme on a set of broad and flexible principles such as we present here for health and wellbeing outcomes can be expected to provide a robust and streamlined basis for accommodating the diversity of circumstances of Aboriginal landowners as well as minimising the financial cost of monitoring and the social burden it can impose on landowners. While clear and compelling benefits are needed to justify the costs that would be associated with developing a full certification scheme for ALM (Davies et al. 2010a), these may become rapidly apparent with the growth of carbon economies.

Conclusion

The principles we present here for promoting health and wellbeing outcomes from desert ALM have been developed inductively, drawing on our own and other research and experiences. They aim to be general principles rather than specific prescriptions or
standards for best practice. Clearly they do not address many important factors that impact on Aboriginal health such as diet, exercise, smoking, patterns of alcohol consumption and the availability of health information and services. However we consider that, all these other things being equal, ALM will have the best prospect of promoting health and wellbeing outcomes where the social and governance factors encapsulated in these principles are well addressed.

The principles are important in promoting Aboriginal land managers’ ‘sense of control’, coping or capability which is important in managing psycho-social determinants of health, particularly the impact of stress. It is through this pathway that these principles impact on health and wellbeing outcomes. The principles are congruent with the world view or ontology of desert Aboriginal people. They also provide a basis for adaptive approaches to governance and for development of adaptive co-management, which are important directions for ALM systems to operate effectively in conditions of social and ecological change. The principles may be considered an early stage in the development of a certification scheme for ALM. Independent of any such future development, we consider that overt recognition of these principles and attention to their application by people and organisations involved in ALM will contribute to more sustainable livelihoods for desert Aboriginal landowners.

References

of Environment and Society, Australian National University, Canberra. Bachelor of Arts (Development Studies) with Human Geography Honours thesis.


Principles for Aboriginal health from land management


Walsh, F. and Davies, J. (in press). *Our work is about learning, colleagues, culture and place. Aboriginal employment at the Alice Springs Desert Park: staff experiences and effective procedures*. Research Report series. (Desert Knowledge CRC: Alice Springs.)


The activities listed here focus on desert Australia but many are more widespread. Rather than being an exhaustive inventory or a rigid classification, this list is intended to indicate the nature of activities undertaken and one way of categorising them.

<table>
<thead>
<tr>
<th>Category of activity</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Customary or cultural resource management</td>
<td>hunting, gathering, burning, ceremony, protection/management of culturally significant places, transfer/documentation of traditional ecological knowledge, documentation/translation of language, Aboriginal knowledge/activities for youth education</td>
</tr>
<tr>
<td>Natural resource management (NRM)</td>
<td>weed control &amp;/or monitoring, feral control &amp;/or monitoring, fire management, threatened species/ecological communities, monitoring/management, natural water body conservation, soil erosion control and rehabilitation, native nursery/seed collection/planting, visitor/tourist management (track maintenance, signage)</td>
</tr>
<tr>
<td>Land management for improved conditions in settlements</td>
<td>dust mitigation, firewood collection, management of community water supplies (eg bore maintenance &amp; testing), management of rubbish &amp;/or sewage disposal, parks and gardens, infrastructure (building, road maintenance/construction), outstation infrastructure</td>
</tr>
<tr>
<td>Commercial economic activities</td>
<td>horticulture (vegetable garden, orchard), bushtucker horticulture, bush harvest of plant foods, medicines and seed for sale, pastoral &amp; related activities such as mustering and sale of feral animals, plantations (firewood, sandalwood), art and craft production, cultural eco-tourism, NRM contracting</td>
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</table>
Table 2: Features important for effective self-governing common property regimes, after design principles developed by Ostrom (1990; 2005)

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<tbody>
<tr>
<td>1.</td>
<td>The boundaries of the commons resource, and membership of the group that benefits from use and management of the resource, need to be clear.</td>
</tr>
<tr>
<td>2.</td>
<td>There needs to be a balance between the effort that various members of the group put into managing the resource and the benefit they each derive from the use of the resource. Overall, the benefits derived by the group need to be commensurate with sustainable yield from the resource they are managing.</td>
</tr>
<tr>
<td>3.</td>
<td>Members of the group need to have a say in making the rules that govern their use and management of the resource. They also need to have ways of changing rules that are not working effectively.</td>
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<tr>
<td>4.</td>
<td>Compliance of members with the rules that govern use and management of the resource needs to be monitored. The people doing the monitoring need to be accountable to the membership group.</td>
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<tr>
<td>5.</td>
<td>Members who break the rules need to be sanctioned, with the severity of sanctions matched to the seriousness of the infringement.</td>
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<tr>
<td>6.</td>
<td>Members of the group need to have access to low-cost mechanisms for conflict resolution.</td>
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<tr>
<td>7.</td>
<td>The rights of the group to use and manage the resource need to be recognised by outsiders.</td>
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<tr>
<td>8.</td>
<td>Governance at the local scale should nest into higher order governance systems that can manage issues and opportunities at regional and broader scales.</td>
</tr>
</tbody>
</table>
Figure 1: Relationship between principles for health and wellbeing outcomes from Aboriginal land management and components of the sustainable livelihoods framework.