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# 'Looking after country two-ways': Insights into Indigenous community-based conservation from the Southern Tanami

By Karissa Preuss and Madeline Dixon

*This paper offers insights and practical lessons for a 'two-way' approach to combining Indigenous and non-Indigenous ecological knowledge in environmental planning and management. It is based on the experience of developing an Indigenous Protected Area to conserve 10 million hectares of biologically and culturally significant land in the Southern Tanami region of Central Australia*

**Key words:** *Indigenous ecological knowledge (IEK), environmental planning, Indigenous Protected Areas, natural and cultural resource management (NCRM), Aboriginal land management, Warlpiri.*

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**Figure 1.** Warlpiri landowners of the Southern Tanami IPA planning with Central Land Council staff as part of an 'on-county action planning trip'. (Photo: Karissa Preuss. Copyright CLC).

## Introduction

*In the past our people looked after country...Now there are new problems coming in...Today we want to work both ways [combining Aboriginal and non-Aboriginal environmental knowledge] to look after country...We say 'Ngurra walalja warra warra kanajaku jarnku mirni mirni', which means 'Looking after our homelands both-ways'*

Excerpt from 'Statement from traditional owners' of the proposed Southern Tanami Indigenous Protected Area (Young & Preuss 2011:8)

Approximately 20% of Australia's landmass is Indigenous owned, and much of this land is of very high biodiversity significance (Gilligan 2006; Altman *et al.* 2007). The benefit of Indigenous cultural and ecological knowledge for biodiversity conservation is increasingly being recognised (Berkes 1999; Baker *et al.* 2001; Borrini-Feyerabend *et al.* 2004). Indigenous land management is also a cost-effective form of natural and cultural resource management (Altman 2003; Gilligan 2006) that has potential to improve Indigenous disadvantage in terms of health and well-being (Putnis

*et al.* 2007; Garnett *et al.* 2009) and economic development (Altman *et al.* 2007). Driven by these factors, the Australian Federal Government has increasingly funded community-based conservation on Indigenous land over the last two decades, with a rapid growth since 2007. Government investment in Indigenous community conservation has been through two main strategies, (i) the Indigenous Protected Area (IPA) Program, which supports Indigenous landowners to develop, declare and manage their country as part of the National Reserve System, Australia's system of protected areas, and (ii) the Working on Country (WoC) Program, which supports the employment of Indigenous Rangers in environmental management. Both of these programmes explicitly aim to integrate Indigenous ecological and cultural knowledge in the conservation of Australia's natural and cultural assets (SEWPac 2011).

The integration of Indigenous and non-Indigenous knowledge and skills in conservation has largely become known as the 'two way', 'both-ways' or 'two-toolbox' approach in Aboriginal land management discourse (Davies *et al.* 2010, Hill 2006). As indicated in the quote that began this paper, the 'two-way' approach is based on the notion that both Indigenous and non-Indigenous people have different, yet often complimentary knowledge and skills, and that combining these two knowledge systems can assist natural and cultural resource management. Despite widespread adoption of the two-way approach, it remains under-examined (Davies *et al.* 2010; Muller in press).

More published information regarding strategies and principles for the two-way approach is required to guide the (usually non-Indigenous staff) employed to combine Indigenous and non-Indigenous ecological knowledge (Davies *et al.* 2011). This is particularly important given the scale of investment in Indigenous community conservation and many poor results from international and Australian attempts

to integrate Indigenous environmental knowledge and interests in conservation (see Borrini-Feyerabend *et al.* 2004; Dressler *et al.* 2010).

Here, we explore the two-way approach through a discussion of the Southern Tanami IPA Development Project (STIPADP). The STIPADP refers to a 4-year project, supported by the Federal IPA Program, in which Indigenous landowners (predominantly Warlpiri people) worked with Central Land Council (CLC) staff to plan for and develop an IPA over a vast area of land in Central Australia (see Fig. 2). This paper is written by a Warlpiri woman and a *kardiya* [non-Indigenous] woman who were at the centre of the STIPADP. We highlight the different sets of conservation values and priorities in the Southern Tanami region and show that the processes of 'on-country action planning' and 'participatory planning workshops' were important in our two-way approach (Fig. 1). The STIPADP created a new institution for two-way land management in the region, which involved developing governance structures, three Warlpiri Ranger teams and a Plan of Management (PoM) to guide future conservation in the region. The STIPADP also achieved on-ground outcomes related to biodiversity conservation,

cultural maintenance, education and local employment.

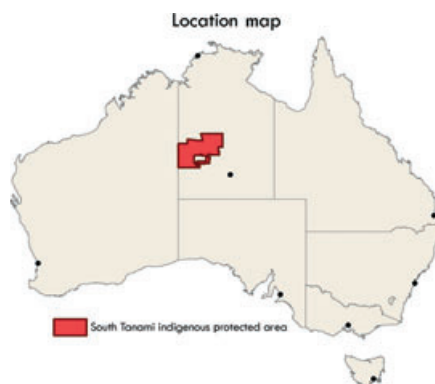
Based on our work, and informed by broader community-based conservation literature, this case study demonstrates five pivotal principles for looking after country two-ways. These principles include start with local priorities, allow time and space for deliberative processes, partnerships, cross-scale governance and use of interdisciplinary and cross-cultural methodologies. It is still early days for the (not yet declared) Southern Tanami IPA, and the STIPADP was not perfect, however, we hope our story may assist others embarking on the challenging yet satisfying task of integrating Indigenous and non-Indigenous ecological knowledge in environmental planning and management.

## The Two-Way Approach

*'We don't want kardiya [non-Indigenous people] to come in with their own picture already painted about how it will happen....we need to sit down... and paint that picture together, yapa [Warlpiri people] and kardiya together...we need to work together, sharing knowledge equally...two-ways together...Ngurra Warlajja warra warra kanjaku jarnku mirni mirni yapa manu kardiya jintangka juku [Looking after country both ways Indigenous and non-Indigenous people together as one]'*

Nungarrayi, Senior Woman from Yundumu

Throughout the STIPADP, Warlpiri landowners of the Southern Tanami region were clear that they want to maintain their country using a 'both-ways' or 'two-way' approach, known in Warlpiri as *jarnku mirni mirni*. The two-way approach, initially established in bilingual education, refers to Indigenous and non-Indigenous people equally and actively sharing their different, yet often complimentary, knowledge systems and skill sets towards a joint goal (Hill 2006, Davies



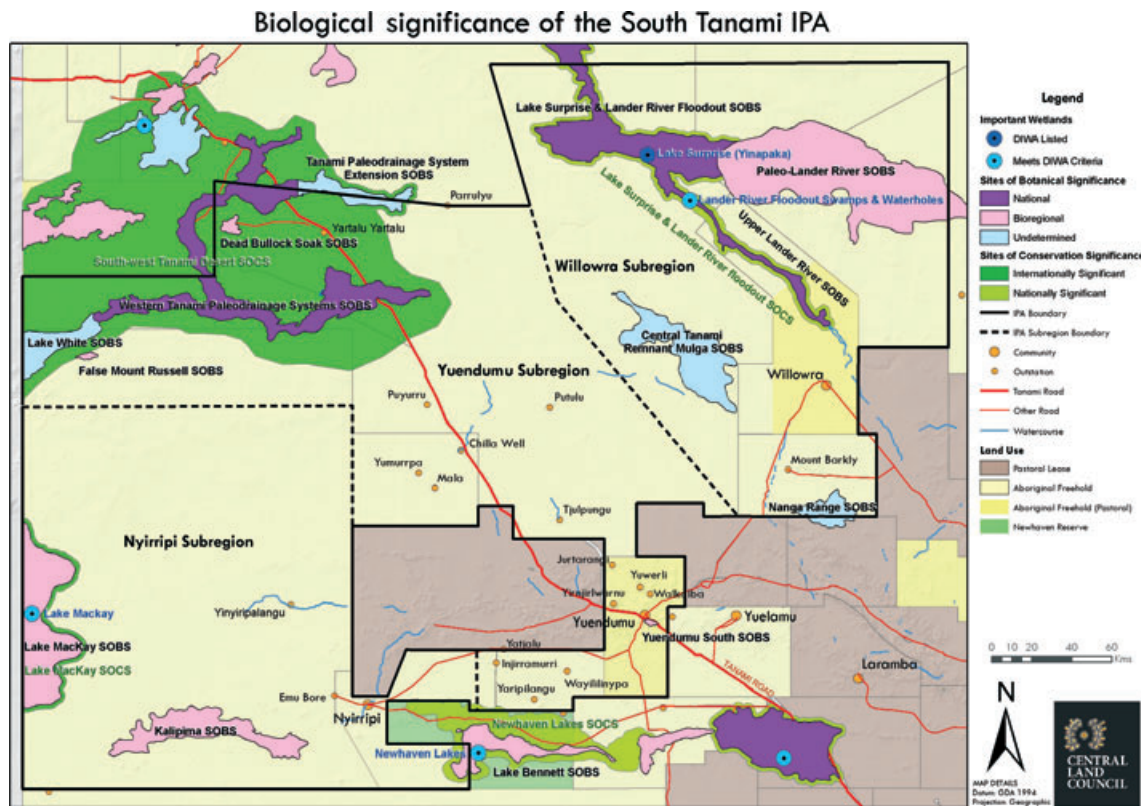
**Figure 2.** When declared, the Southern Tanami IPA, located in the Northern Territory, will be Australia's largest terrestrial protected area. (Map source: Young & Preuss 2011).

*et al.* 2010). The two-way approach has been adopted as the management framework for the proposed STIPA and numerous other IPAs and has become a dominant aspect of Indigenous land management discourse in Australia (Baumann & Smyth 2007; Davies *et al.* 2010). Muller (in press: 53) notes that ‘the concept of two ways management seeks to redress the dominance of non-Indigenous science in natural resource management’. The term is popular among Warlpiri people to describe the degree of knowledge and power sharing they want to have with non-Indigenous partners in looking after their country. Implicit in Warlpiri use of the term ‘two-ways’ is recognition that neither *yapa* or *kardiya* are homogenous groups, rather there is significant diversity within these two broad categories. Yet, differences between Indigenous and non-Indigenous environmental philosophies and management approaches are paramount (see Rose

1996; Baker *et al.* 2001; Davies *et al.* 2010). Hence, attention on the mismatch and synergies between these two different worldviews involved in most Indigenous community-based conservation is useful (Yunupingu & Muller 2009).

At the core of the two-way approach is a focus on recognising, valuing and utilising both Indigenous and non-Indigenous ecological knowledge systems in environmental planning and management. International and national research is increasingly showing that unless the difference between Indigenous people’s priorities and that of ecologists and government agencies is acknowledged and dealt with, it is likely that the dominant scientific approach will be inadvertently privileged (Borrini-Feyerabend *et al.* 2004; Nursey-Bray 2006; Walker 2010). Based on research with First Nations communities in Canada for example, Nadasy (2005) demonstrates how attempts to

combine Indigenous and scientific knowledge can actually disempower Indigenous people and simply extend scientific environmental management into Indigenous communities. Closer to home, a recent study of the Northern Tanami IPA (located on the northern boundary of the proposed STIPA) shows that ‘breakdowns in communication, planning and programme implementation because of underdeveloped partnerships’ meant that the significant differences between Indigenous and non-Indigenous perspectives and priorities were not recognised or reconciled, and hence IPA management outcomes were constrained (Walker 2010: 309). Even within Dhimurru, often cited as one of the most successful IPAs (see Hoffmann *et al.* this issue), environmental management has been negatively affected by a mismatch in management approaches and ‘issues of invisibility of power of dominant cultures’ (Muller in press: 64).



**Figure 3.** The proposed Southern Tanami IPA is an area of nationally and internationally recognised biodiversity conservation significance. (Map source: Young & Preuss 2011. Copyright CLC).

Over the last 30 years, widespread attempts to combine Indigenous and non-Indigenous environmental knowledge in conservation projects around the world have had mixed results at best, with many projects falling well short of both local and investors' expectations (Dressler *et al.* 2010). Clearly, integrating Indigenous people and their interests into conservation is a challenging and difficult task.

By advocating for a two-way approach, Warlpiri people are aiming to create more equitable cross-cultural partnerships, based on collaboration, negotiation and knowledge sharing, to address some of the inherent challenges in community-based conservation. While IPAs are designed as community-controlled environmental management, they involve numerous actors. The STIPADP for example involves Indigenous landowners, the Federal IPA Program and the CLC, as well as other partner organisations. The two-way approach thus can be seen as a metaphor for adaptive co-management, which involves local people working collaboratively with actors from different scales to develop and implement flexible environmental management for a specific context (see Armitage *et al.* 2009; Berkes 2009; Hill *et al.* 2010).

As Yunupingu and Muller (2009, p. 165) caution 'power in research and decision-making for resource management is often controlled through the provider of financial, institutional and political resources.' Power imbalances can occur despite Indigenous landowners in the Northern Territory having legal authority for managing their country under the *Aboriginal Land Rights Act 1976*, a right recognised by the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*, the Convention on Biological Diversity, and supported by the Federal IPA Program. Moss (2001, p. 19) argues that (the generally non-Indigenous) project facilitators 'own the research tools, choose the topics, record the information, and abstract and summarise according to the

project criteria of relevance' often privileging external concerns over local realities. The two-way approach attempts to redress power imbalances and equalise the contributions of Indigenous and non-Indigenous ecological knowledge in environmental planning and management (Muller *in press*).

A pivotal component of the two-way/approach are the individuals and organisations who mediate and broker between the different knowledge systems (Baumann & Smyth 2007; Berkes 2009). The CLC, the statutory body representing Aboriginal people from the Central Australian region, assumed this bridging role for the STIPADP. Worldwide experience shows that bridging organisations, and the practitioners who work within them, play a critical role in sharing information, building trust, resolving conflicts, securing resources, networking, building a common vision and the coordination of other tasks that enable cooperation in CBC projects (Putnis *et al.* 2007; Berkes 2009). According to Berkes (2009: p. 1696), bridging organisations and individual brokers are key factors in the success or otherwise of community-based conservation 'especially if local knowledge is based on a different epistemology and worldview to government science'. This paper has been written primarily for bridging organisations and their staff who assume much of the responsibility in attempts towards 'looking after country two-ways'.

### Introduction to the Proposed Southern Tanami (STIPA)

The proposed STIPA encompasses 101 580 km<sup>2</sup> of inalienable Aboriginal Freehold land in the Central Australian region of the Northern Territory (see Fig. 2). Located north-west of Alice Springs, it measures approximately 400 km north to south and 350 km east to west. It is 30% larger than the state of Tasmania and, once declared, will be Australia's largest terrestrial protected area and account for 41% of

land reserved for conservation in the Northern Territory (Young & Preuss 2011). The STIPADP was the planning and development process for the not yet declared STIPA. Declaration of the STIPA is contingent upon adequate resources to manage this vast area. The CLC is currently seeking the required funds with a goal for declaration in 2012.

Traditional landowners of the region are predominantly Warlpiri people. However, the proposed IPA also contains land belonging to other Aboriginal language groups including: Anmatyerre, Warlmanpa/Warramungu, Kukatja and Pintubi/Luritja in the east, north-west, south and south-west, respectively. In this paper, we use the Warlpiri term '*yapa*' to refer to Aboriginal people of the area. There are approximately 1600 residents in the area who mostly reside in three townships, Nyirripi, Willowra and



**Figure 4.** Clarke Martin, landowner and member of the Willowra regional STIPA Management Committee, holds a Warlpatjirri (Bilby, *Marotis lagotis*). The proposed Southern Tanami IPA provides critical habitat for this vulnerable species which is culturally important to Warlpiri people and of high national biodiversity conservation significance. (Photo: Karissa Preuss. Copyright CLC).

Yuendumu, and intermittently stay on surrounding outstations (see Fig. 3). They retain strong language and culture as well as close personal and spiritual connections with their ancestral country. The main land uses in this semi-arid region are customary management and harvest (of food, medicine and artefact products in more accessible areas of the region), two Aboriginal run pastoral companies (5.1% of the area) and mining (<1% of region).

The proposed STIPA shares borders with a variety of land tenures. These include Aboriginal Land Trusts, the declared Northern Tanami IPA, Newhaven Sanctuary (managed by Australian Wildlife Conservancy) and numerous pastoral leases in the south and east. A notable inholding from the proposed IPA is Mt Doreen Station, a privately held pastoral lease.

The proposed STIPA has been developed as a category VI protected area, under the internationally recognised IUCN guidelines. It aims to achieve the goals of conserving ecosystems and their associated cultural values, based on the following definition;

*Category VI protected areas conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area (IUCN 2011).*

### Conservation Significance of the IPA

The Southern Tanami is an area of high biodiversity and cultural significance. Outlined below are both the natural values of the Southern Tanami region, which are of international and national biodiversity conservation interest, and the cultural values, which

are *yapa* priorities for land management. The overlaps and mismatches between the two values of country and conservation priorities are also described below.

### Biodiversity values

Key areas of biodiversity significance in the Southern Tanami region are shown in Figure 3. The primary biodiversity assets of the region are listed as follows.

- Two areas recognised sites of international conservation significance and a further three sites of national significance (Harrison *et al.* 2009).
- Significant populations of mammal, reptile and bird species are listed as endangered or vulnerable under the *EPBC Act 1999*. These include the Endangered *Pujapujarrpa* (Marsupial Mole, *Notoryctes tyblops*) and the Vulnerable *Warlpatjirri/Ninu* (Bilby, *Macrotis lagotis*) (Fig. 4), *Jajina* (Mulgara, *Dasyercussuc blythi*), *Warrana* (Great desert skink, *Egernia kintorei*) and *Wakulyarri* (Black-footed rock wallaby, *Petrogale lateralis*).
- Significant wetlands and waterbird breeding sites, including sites that have been included in the Directory of Important Wetlands in Australia



**Figure 5.** Participatory planning workshops: Margaret Small, Member of the Willowra STIPA Management Committee, defining land values with James Young during a mapping exercise. (Photo: Karissa Preuss. Copyright CLC).

and one site that meets criteria for RAMSAR listing (Duguid *et al.* 2005).

- Thirteen sites recognised as having botanical significance in the Northern Territory, which contain rare, restricted and threatened plants.
- Two bioregions currently underrepresented in the National Reserve System; (Great Sandy Desert and Burt Plains - declaration will meet the land area conservation target of the former).
- The proposed Southern Tanami IPA provides strategic landscape-scale connectivity between an adjacent declared and developing IPAs and a private conservation reserve. As such it is a critical component of the Northern Territory Government's proposed Eco-link Initiative.

Priorities for protecting the natural values of the area are to undertake specific management actions to mitigate threatening processes and address data deficiencies.

Threats include:

- large-scale high-intensity wildfires,
- weeds - including three weeds of national significance under the National *EPBC Act 1999* and eight weeds defined by the *Northern Territory Weeds Management Act 2001*,
- feral animals - including camels *Camelus dromedaries*, foxes *Vulpes vulpes* and cats *Felis catus* and
- soil erosion.

**Cultural values and conservation priorities**

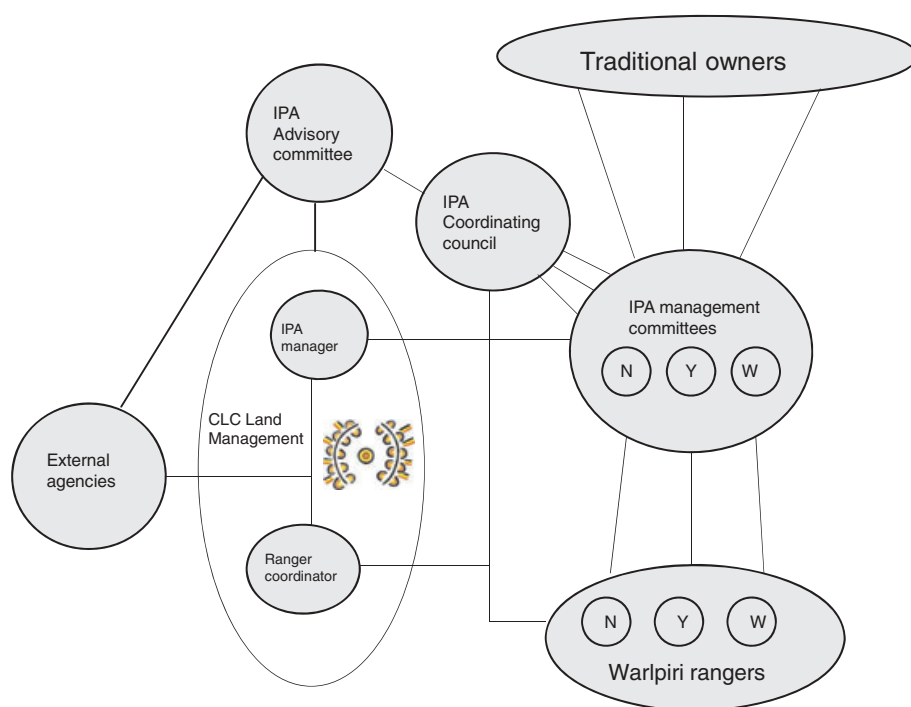
The cultural significance of land in the proposed IPA is primarily related to the mutually sustaining relationship *yapa* have with their country. For *yapa* of all ages, country consists of ecological components including soil, plants and animals and also encompasses spirits of ancestors. Above all, people are considered an intrinsic part of the country. *Yapa* values of land are about far more than just sites of significance, or

particular totemic or food species. Rather, country is seen as 'home' or 'homelands', a place inseparable from human relationships and a sense of belonging, security and sustenance. This is consistent with Rose's (1996:7) seminal work which explains that Aboriginal people around Australia see country as a 'nourishing terrain...a place that gives and receives life' (see also Baker *et al.* 2001). *Yapa*, like other Indigenous people in Australia, value land for its spiritual significance and the role that interaction with it can have for strengthening identity, improving health and well-being and maintaining customary laws/social order (Sithole *et al.* 2008). *Yapa* values of country in the proposed IPA are highlighted in the quote below.

*Our land was created by Jukurrpa [Dreaming] when our spirit ancestors made everything in the country...Every part of our land is important for us because Jukurrpa is still there today. It was there before us and we were born into it. The country makes us who we are and*

*shows us where we come from. The country gives us our laws and shows us how we are related to each other. The country makes us strong inside, spiritually. When we are out in country we know where we belong...and we feel strong and healthy* (Excerpt from the 'Statement from traditional owners' of the STIPA (Young & Preuss 2011, p. 8))

*Yapa* conservation priorities are related to maintaining a relationship between people and their land and the associated improvements in livelihoods and environmental conditions. *Yapa* use the phrase '*warra warra kanjaku*', which means 'looking after' or 'caring for', to describe their approach to land management (see also Rose 1995; Baker *et al.* 2001). Rather than a linear one-way relationship where people take deliberate management actions to improve the condition of the environment, looking after country is seen as a 'two-way interaction between people and country' (Bradley 2001, p. 297). This relationship was described by a middle-aged Warlpiri man as 'you



**Figure 6.** Management Structure for the proposed Southern Tanami IPA: cross-scale governance established through the STIPADP. (Source: Young & Preuss 2011. Copyright CLC).

look after the country and country looks after you'. *Yapa* priorities for conservation are largely about focusing on social-ecological interactions, similar to leading thinkers in community conservation (see Berkes *et al.* 2003). Rather than being 'spin-offs', the key motivations and objectives for Indigenous land management are related to improvements in human/social well-being, the conservation of cultural knowledge and tradition, employment and maintaining traditional responsibility for country (Putnis *et al.* 2007; Sithole *et al.* 2008; Davies 2010).

Threats to achieving *yapa* conservation priorities are related to the death of senior knowledge holders prior to knowledge transfer, competing obligations and demands (including jobs), lack of understanding and undervaluation of Indigenous ecological knowledge (IEK) by non-Indigenous Australians and the complexities involved in cultural and ecological knowledge transfer.

### Overlap and mismatch in conservation values and priorities

There are a number of commonalities between these two sets of values but also considerable difference. The sites and species of high biodiversity significance listed above are also culturally important to *yapa*; indeed, some sites of high biological significance are also considered sacred to Warlpiri people and have long been managed as protected areas (see Brown & Haworth 1997). However, at the beginning of the STIPADP, some of the sites and all of the species listed above were not particularly valued above others in the landscape. Threats to ecological processes were not well recognised by the majority of *yapa* prior to the STIPADP, and hence, mitigating them was not a Warlpiri priority for land management in the region (see also Rose 1995). Similarly, within mainstream Australian conservation discourse, Indigenous people's priorities and motivations regarding land

management are not well recognised, largely a result of the different world-views regarding the relationship between people and the environment.

Some overlap exists between biodiversity conservation priorities and *yapa* land management goals; however, it is not a neat and automatic fit. The STIPADP identified these different environmental values and conservation priorities in the region and, using a two-way approach, aimed to integrate both in environmental planning and management.

### The Southern Tanami IPA Development Project (STIPADP)

The STIPADP refers to the (now completed) planning and development phase of the proposed STIPA. It involved over 4 years of intensive cross-cultural participatory planning. The CLC lodged an initial IPA feasibility proposal, on behalf of traditional owners, with the Federal Department of Environment in 2005. Funding was granted in the following year and

the project commenced in mid-2007 when an IPA Development Officer was appointed. The STIPADP has since involved a range of CLC staff, traditional owners and residents of the region, members of Warlpiri Ranger Groups, and representatives from regional mining, pastoral and conservation interests. The STIPADP built upon previous conservation efforts pioneered in the region by the Conservation Commission of the Northern Territory throughout the 1980s and 1990s and initial CLC Warlpiri Ranger activity in the early 2000s.

The STIPADP was undertaken in three overlapping, but distinct phases:

- Phase one (2007–2008) – information sharing and consultation.
- Phase two (2008–2009) – definition of management regions, establishment of regional governance arrangements, development of Warlpiri Ranger capacity and pilot natural and cultural resource management.
- Phase three (2009–2011) – development of a draft IPA Plan of



**Figure 7.** Willowra Warlpiri Rangers conducting tracking surveys as part of biodiversity monitoring and predator baiting trials near the *Yinapaka* (Lake Surprise) biodiversity hotspot. (Photo: Steve Eldridge. Copyright CLC).



Management (PoM), establishment of cross-scale governance, stakeholder discussions and ongoing planning and management.

Two key processes of the STIPADP stand out as pivotal: on-country action planning and participatory planning workshops, which were conducted throughout phases 1–3 and are described below.

### On-country action planning

On-country action planning was at the core of the STIPADP, particularly in the early phases. It enabled traditional owners to reconnect with long unvisited country and provided a practical and empowering setting for cross-cultural discussions about land management issues and priorities (see Walsh & Mitchell 2002). On-country planning assisted *yapa* and *kardiya* to gain greater understanding of each other's perspectives regarding key values and threats to country and also assisted in establishing a sense of common purpose and achieving outcomes related to respective values and priorities of land.

Seventeen on-country planning trips were conducted over the 4 years of STIPADP (excluding the numerous trips undertaken as part of on-ground natural and cultural resource management during the development process). These trips, which ranged from 4 to 10 days, involved over 190 traditional owners, or approximately 20% of the adult population of the Southern Tanami region.

Land management works, based on both *yapa* and western scientific traditions, were undertaken as an essential part of on-country action planning to enable *yapa* and *kardiya* to understand the practical detail involved in each other's environmental practices. Activities involved included:

- Discussions and planning regarding land management priorities *in situ*
- Indigenous ecological knowledge documentation and intergenerational transfer
- fire management (ground and aerial)

- sacred site protection
- rock hole cleaning
- cultural mapping
- ceremonial activity
- education and training regarding western land management
- threatened species and other fauna surveys
- vegetation monitoring and habitat mapping
- feral animal monitoring and management
- weed mapping and control

### Participatory planning workshops

Annual multi-day planning workshops were instituted within each management region from 2008 as an essential part of the STIPADP (Fig. 5). Planning workshops were usually held over 2–3 days, just outside of the respective communities. They enabled interested *yapa* residents and land owners to 'sit down' with CLC staff to engage in discussions and deliberations around priority issues for managing country. Indigenous and non-Indigenous facilitators used various cross-cultural

participatory planning techniques and activities including:

- meetings and small group discussions
- ground-mapping exercises
- mapping sessions using very large (2 m × 3 m) topographic maps with satellite overlays as active discussion tools and to document known values and threats
- presentations involving specialists with relevant expertise (such as fire management, feral animal control, pastoral issues)
- development of annual work plans
- ranger feedback sessions
- photo cards and picture books as discussion and planning tools
- group workshops based on gender and age were held as required to ensure equity of participation

In total, 76 *yapa* participated in the planning workshops, many of these people taking part every year the workshops were held. Apart from facilitators, no participants were paid for their attendance, reflecting the Warlpiri commitment to the IPA Development Project.



**Figure 8.** Documenting and passing on Indigenous ecological knowledge: Alice Henwood, landowner and Member of the Nyirripi STIPA Management Committee, teaching trainee rangers about *Warlpatjirri* (Bilby, *Macrotis lagotis*). (Photo: Karissa Preuss. Copyright CLC).

## Outcomes of the STIPADP

### Establishment of a new institution for two-way land management

The primary outcome of the STIPADP is the establishment of a new institution, the (proposed) STIPA, which enables adaptive comanagement of natural and cultural values in the region. Key components of this institution established through the STIPADP include governance structures, Warlpiri Ranger teams and a PoM, which provides a strategic framework to guide future land management in the region.

#### *Development of governance structures*

The STIPADP established cross-scale governance arrangements to provide planning and management direction across the proposed IPA, shown in Figure 5. Three regional Management Committees were formed, based on customary environmental governance arrangements, to provide local governance in each management region. A Coordinating Council, comprised of male and female delegates from each of these regional Management Committees, was also established to provide planning direction, decision-making and information sharing across the entire IPA. In addition, an Advisory Committee, which includes members of the Coordinating Council along with government agency representatives and expert consultants, was created as a form of multi-scale governance for improved planning and management. Each of these newly created institutions is tasked with different and clearly defined decision-making roles, outlined in the PoM.

#### *Development of Warlpiri Ranger capacity*

The STIPADP staff developed and trained Warlpiri Ranger teams based in each of the three communities in the proposed IPA. These rangers now provide environmental services across the region, with a central resource, and

coordination hub at Yuendumu, see more in 'employment' below.

#### *Development of a draft plan of management*

The STIPADP led to the creation of the draft IPA PoM entitled 'Ngurra

*Warlalja warra warra Kanjaku* - Looking after our Homelands'. This plan outlines the management framework developed during the STIPADP. The PoM captures the breadth of aspirations of managing country in the region in four management themes: (i) keeping culture strong, (ii) natural



**Figure 9.** Willowra-based Warlpiri Ranger, Jessie Presley, takes a break from her work at *Yinapaka* (Lake Surprise), her shirt encapsulating an important Indigenous environmental philosophy – 'The land is always alive': Indigenous and non-Indigenous environmental knowledge, values and philosophies were combined in the STIPADP. (Photo: Karissa Preuss. Copyright CLC).

resource management, (iii) teaching the right way and (iv) jobs on country. Each management theme has a number of associated management objectives and strategies, which combined provide a framework to inform and prioritise specific management actions and guide ongoing land management in the region (Fig. 6). The plan is locally owned and represents the broad range of interests in the proposed IPA, as described by Coordinating Council member Eddie Jampijimpa Robertson;

This plan is really good. We've all put in input...It's a strong plan for looking after our land

### On-ground outcomes

The STIPADP has had notable outcomes in relation to each of the key four management themes identified through the planning process, as described below. Challenges remain, however, particularly in areas of employment and conservation of cultural values.

#### *'Keeping culture strong': conservation of cultural values*

As part of planning for and developing the proposed Southern Tanami IPA, the STIPADP has assisted in maintaining cultural values of country, related to the mutually sustaining relationship that people have with their land. Approximately 20-week-long trips focussed on ecological and cultural knowledge transfer and customary practices were conducted.

*Yapa* participants on these IEK trips reported health and well-being outcomes associated with them, as articulated by a middle-aged Warlpiri woman; 'Working on country is a good life for *yapa* [Warlpiri people]. It makes us strong, happy healthy and strong'. A full assessment of outcomes related to the conservation of cultural values is difficult to quantify as reporting on was considered beyond the scope of the STIPADP monitoring and evaluation framework.

While the STIPADP has assisted in cultural maintenance, many *yapa* would like the STIPADP to have more of a focus in this area. Dissatisfaction with the level of cultural conservation is notable in the Yuendumu region where land management efforts have had more of a focus on biodiversity conservation, associated with the permanent ranger workforce.

#### *'Natural resource management': conservation of biodiversity values*

On-ground works for biodiversity conservation have been undertaken as part of planning for land management in the region. The STIPADP has made significant steps towards mitigating wildfire risk and enhancing the productivity of core biodiversity hotspots in the region through aerial and on-ground fire management. Warlpiri people's extensive knowledge of fire ecology, fuel loads and seasonal conditions was combined with new tools such as satellite photographs, aerial incendiaries and drip torches, in fire planning and management (Broun & Allen 2011).

Fauna and flora surveys, building on *yapa* knowledge of species, preferred habitats and tracking skills, have contributed to the scientific record of species distributions and assisted management of key threatened species in the region (Eldridge & Paltridge 2009). *Yapa* ecological knowledge and tracking skills were also essential in fox baiting trials in two biodiversity hotspots, which has generated valuable data regarding predator-prey relationships (S. Eldridge pers. comm., 2010) (Fig. 7).

An integrated camel management strategy in line with the Australian Camel Management Project was developed in the Nyirripi region based on extensive social learning and deliberative processes (CLC 2010; see also Ninti One 2011; Vaarzon-Morel & Edwards 2012). This is described further in the section 'start with local priorities' below.

Weed control, feral animal control and threatened species management

have also been conducted through the STIPADP, using a combination of scientific and *yapa* knowledge (CLC 2010).

#### *'Teaching the right way': two-way environmental education*

Two-way environmental education has been delivered in the region through collaboration with local and regional education providers and youth programmes. Key outcomes include provision of professional development for rangers, creating land-based employment pathways such as 'junior ranger' and 'trainee ranger' programmes, environmental education sessions in schools and community settings and the development of cross-cultural and Warlpiri language educational resources for use by Warlpiri Rangers and schools in the region (CLC 2010).

#### *'Jobs on country': employment and economic development*

The STIPADP has generated substantial local employment opportunities, which are generally limited in the region. Over the last 4 years, the STIPADP has employed 30 casual rangers in on-ground biodiversity and cultural conservation works. In addition, over 100 landowners and key knowledge holders have been employed as teachers/cultural advisors, workshop facilitators/interpreters, coordinators for specific projects and STIPADP representatives at regional and national land management forums. Rangers have undertaken environmental contracts with Newmont mine, Australian Wildlife Conservancy and community organisations on a fee-for-service basis, and ongoing environmental contracts have now been secured. Tourism and carbon trading have been identified by the STIPADP as opportunities for further land-based employment in the region.

Working on country is seen as a meaningful employment option among *yapa*, shown by the statement from a young male ranger: 'yapa like to...do a

job they like. Ranger is a good job'. There is now funding, primarily by the Federal Government's WoC Program, for five permanent rangers in Yuendumu and a combined casual pool of 13 rangers from Willowra and Nyirripi. There are now a number of skilled rangers who have been employed since the beginning of STIPADP, primarily on a casual basis.

Retention of rangers in the more permanent WoC funded positions in Yuendumu remains an issue in the region. This is largely a result of recent social unrest in the community, and a *yapa* ethic that prioritises family obligations, relationships and cultural responsibility over neoliberal economic participation (see Musharbash 2001; Lawrence 2005).

## Key Principles

Based on our experience in the STIPADP, and informed by broader community-based conservation literature, we identify five key principles of the two-way approach to environmental planning and management.

### Start with local priorities in two-way learning

Our experience highlights that starting with local aspirations in action planning is an important principle in the two-way approach. Learning-by-doing was an essential part of the STIPADP, just as social learning, or learning-by-doing, is recognised as an essential factor in successful adaptive co-management (Armitage *et al.* 2009; Berkes 2009a; Davies *et al.* 2011). Starting with landowner's aspirations to reconnect with country and uphold customary responsibilities, through on-country action planning processes, assisted in generating a sense of local ownership of the project, building trust and rapport between *yapa* and *kardiya* and generating a shared vision for the project, which are widely recognised factors in effective cross-cultural conservation (Sithole *et al.* 2008). The numerous on-ground outcomes of the STIPADP, particularly

those related to fire management and threatened species monitoring and recovery, were conducted within a two-way action learning framework that began with local aspirations.

Starting with local priorities also assisted in the development of an integrated camel management strategy, in line with national biodiversity conservation objectives (see also Ninti One 2011; Vaarzon-Morel & Edwards 2012). In the Nyirripi region, the STIPADP began by supporting landowner's aspirations to maintain rock holes and to pass on associated cultural knowledge. *Kardiya* staff, who had an understanding of national biodiversity conservation concerns regarding feral camels, shared their knowledge with *yapa*, while cleaning camel bones out of rock holes together, visiting trampled soakages that previously provided drinking water or noticing camel impacts on bush foods and other vegetation.

Two years into the STIPADP, numerous Warlpiri Rangers and landowners involved in these trips were personally identifying camels as a threat to the natural and cultural resources in the region. These respected community members assisted in brokering negotiations and discrepancies between more traditional approaches to leave camels as they belonged to country (see also Rose 1995) and national conservation goals to address the environmental threats that camels were posing. By late 2009, traditional owners in the Nyirripi region reached consensus regarding the need for camel culling after their preferred options for live removal and meat utilisation were found to be economically unfeasible. Warlpiri Rangers are now conducting monitoring to generate baseline camel density data and have stated undertaking ground-based camel culling in the region. Aerial culling is planned to occur over identified source areas in remote portions of the region, in line with the recent Australian Camel Management Program (see Ninti One 2011). Traditional owners in the

Nyirripi region continue to be assisted to maintain cultural values through the STIPADP (Fig. 8).

### 'Sit down together': time and deliberative processes

Warlpiri people use the phrase 'sit down together' to refer to deliberative processes in which various stakeholders exchange information and views about issues and negotiate plans for action through consideration of likely consequences and trade-offs (see also Davies *et al.* 2010). Deliberative processes have been widely recognised as an essential strategy to reconcile tensions between the interests and priorities of local people and national conservation agencies (Hortsman & Wightman 2001; Davies *et al.* 2011). The (usually week long) on-country action planning trips and multi-day participatory planning workshops created a practical setting for respectful cross-cultural deliberation and decision-making through which action plans, such as the camel management strategy, could be born.

Inadequate time frames often limit effective cross-cultural communication and hence the integration of Indigenous knowledge and interests into community-based conservation (Borrini-Feyerabend *et al.* 2004; Putnis *et al.* 2007; Sithole *et al.* 2008). The lengthy period of the STIPADP, enabled by the Federal IPA Program funding for consultation projects prior to declaration and ongoing management, assisted in allowing the time and space necessary for deliberative processes and two-way learning. The continuity of both *yapa* and *kardiya* facilitators throughout the STIPADP was also vital in generating a sense of trust and mutual respect for the two knowledge systems, which supported cross-cultural communication and joint problem-solving (see also Sithole *et al.* 2008).

While much has been achieved through deliberative processes, we do not want to give the impression that all differences between Indigenous and non-Indigenous knowledge

systems were resolved. One of the most notable remaining tensions is related to the differing perceptions and expectations of local people and the funding agency regarding 'work' and what 'working on country' entails (see also Baker *et al.* 2001; Barbour & Schlesinger this issue). Ongoing planning and management will need to continue to enable time and space for deliberative processes to resolve these and other issues as they arise.

### **Cross-scale governance institutions**

The establishment of governance structures at a variety of scales was an essential aspect of the two-way approach in the STIPADP, just as multi-scaled governance is a key characteristic of effective adaptive co-management (Armitage *et al.* 2009; Hill *et al.* 2010). At the local level, founding the regional Management Committee on customary environmental governance and land tenure arrangements assisted the planning process and enabled local legitimacy (see also Sithole *et al.* 2008; Robinson & Jackson 2009; Davies *et al.* 2010). The Coordinating Council and the Advisory Committee enabled actors from different scales to collaborate in planning and decision-making.

These governance institutions assisted the STIPADP staff in negotiating and mediating between the very different perspectives held by broader traditional owners and external agencies, which can be gleaned from Figure 5. Governance in the STIPADP was based on the principle of subsidiarity, which means authority and responsibility being held at the lowest effective level possible, in our case the regional management committees. Decision-making within all committees followed and will continue to abide by *yapa* decision-making structures of deliberation and consensus, to better enable adaptive management.

Despite major advances made during the STIPADP, the proposed Southern Tanami IPA governance structure requires significant strengthening. Warlpiri community organisations have weak governance, as found in other Australian Indigenous community organisations (see Hunt *et al.* 2008; Sithole *et al.* 2008). The power, control and authority *yapa* can exert through STIPA Management Committees and the regional Coordinating Council remains largely at the discretion of non-Indigenous staff who control access to resources and the information flow to funding agencies. More formalised structures of

downward accountability that clearly outline the relationship between CLC staff and IPA governance arrangements are required (see also Putnis *et al.* 2007; Sithole *et al.* 2008). Also necessary is an increased focus on the role of the Advisory Committee, the only forum where various actors from all scales are at the same table. In numerous Indigenous CBC projects around the world, local governance structures fulfil the role of bridging organisations (Berkes 2009). Extensive governance training and capacity building are required for the proposed STIPA Management Committees and Coordinating Council to further assume this role.

### **Partnerships**

Partnerships are a well-recognised aspect of effective community-based conservation (Armitage *et al.* 2009; Davies *et al.* 2011), and our experience shows partnerships to be important in the two-way approach. Traditional owners of the Southern Tanami maintain that 'our IPA is a really big area of land and we want to work together with other people, partners, to look after it' (Young & Preuss 2011). STIPADP has developed over a dozen working relationships at local to national levels. Partners for the proposed STIPA now include local

### **Implications for Managers**

The STIPADP demonstrates practical strategies for designing and implementing a two-way approach to conservation on Indigenous land. Australian Indigenous landholders have the legal authority for managing their land, a right supported by the Federal IPA Program. In the Southern Tanami, like many parts of Australia, Indigenous people have chosen to look after country using a two-way approach, which refers to recognising, valuing and utilising both Indigenous and non-Indigenous ecological knowledge equally in environmental actions. Responsibility for mediating and reconciling the often very different perspectives and interests involved in a two-way approach is largely carried by bridging organisations and individuals working at the cultural interface.

This case study demonstrates five essential principles for a two-way approach to environmental planning and management. These principles include: (i) start with local priorities in creating opportunities for two-way learning, (ii) allow time and space for Indigenous and non-Indigenous people to 'sit down', deliberate and jointly develop action plans, (iii) develop inter-sectoral partnerships, (iv) establish cross-scale governance institutions and, (v) engage cross-cultural and inter-disciplinary approaches in the planning and management processes. Two particularly useful processes in the practical implementation of these principles are 'on-country action planning' and 'participatory planning workshops'.

Overall, a two-way approach to 'looking after country' is about strong cross-cultural working relationships that are based on an equal sharing of Indigenous and non-Indigenous ecological knowledge. It requires those working at the cultural interface to be respectful of cultural difference, cautious of their inherent assumptions and to question *what* and *whose* environmental philosophies, values and priorities are being privileged at all stages.

schools, youth and community agencies, expert ecologists, the neighbouring Australian Wildlife Conservancy staff, mining and pastoral companies in the area, and government support and funding agencies, such as Northern Territory (NT) Parks and Wildlife Service, Bushfires NT, Territory Natural Resource Management and the Federal WoC Program. Importantly, these partnerships were formed after the core themes of the STIPADP were established, to ensure collaborations assisted rather than diverted the primary goals of the STIPADP (see Davies, 2010). Experience in the Southern Tanami is consistent with Berkes (2007) findings that more than 10 partnerships are usually involved in effective community-based conservation projects.

Intersectoral partnerships were important in meeting local priorities in the STIPADP and have been shown to have the same impacts in community-based conservation projects nationally and internationally (see Armitage *et al.* 2009; Davies *et al.* 2010). In the STIPADP, there was a particular focus on intersectoral partnerships with schools and youth and community programmes at the local and regional scale to support project objectives less related to biodiversity conservation. Increased investment from sources both within and outside the environment sector would help reduce funding tensions and the potential for Indigenous knowledge and conservation values to be subverted as a secondary consideration to biodiversity conservation (Gilligan 2006; Putnis *et al.* 2007; Garnett *et al.* 2009).

### **Cross-cultural and interdisciplinary approaches**

Two-way land management, like adaptive comanagement, requires interdisciplinary approaches that seek multiple viewpoints (Pimbert 2003; Armitage *et al.* 2009; Berkes 2009). Working at the cultural interface of two very different worldviews, value systems and approaches to managing country, requires a mind-bogglingly broad skill set and carries immense

pressures and expectations (Sithole *et al.* 2008; Armitage *et al.* 2009; Maru & Davies 2011). We were fortunate to have a team comprised of both genders and with varied and complementary skills. Our experience shows that two-way land management can be greatly assisted by a team comprised of respected local people (with skills in bridging two worlds) and non-Indigenous staff (with an understanding of ecological science/natural resource management, anthropology/participatory planning and social-ecological interactions). When tasks were beyond the capacity of our team, we were often able to seek expertise from within the CLC.

While the interdisciplinary teams and local intersectoral partnerships can go a long way towards reconciling non-Indigenous and Indigenous interests in environmental planning and management, broader structural changes would assist this. Greater cross-agency support for the IPA Program, with recognition that Indigenous priorities in managing country transcend historically distinct policy areas such as health, environment and education, is necessary to further support the integration of Indigenous knowledge and values into IPA planning and management (Gilligan 2006; Garnett *et al.* 2009).

### **Conclusion**

The STIPADP has combined Indigenous and non-Indigenous knowledge in the environmental planning and management of 10 million hectares of biologically and culturally significant land in Central Australia (Fig. 9). The STIPADP, a partnership between local Aboriginal people, CLC, the Federal Government's IPA Program, and others, has had notable outcomes. The primary outcome of the Southern Tanami IPA has been the development of a new institution for ongoing two-way land management in the region – the (proposed) Southern Tanami IPA. Key components of this institution include cross-scale governance arrangements,

three Warlpiri Ranger teams with capacity to provide environmental services and a PoM that provides a strategic framework for future environmental action in the region. The STIPADP has also made considerable steps towards biodiversity conservation, cultural maintenance, environmental education and local employment in the region. While the STIPADP was not without challenges that are seemingly inherent in attempts to integrate two very different worldviews it may offer insights for others involved in environmental planning and management in Indigenous Australia.

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### **References**

- Altman J. (2003) People on country, healthy landscapes and sustainable Indigenous economic futures: The Arnhem case. *The Drawing Board: An Australian review of public affairs* **4**, 65–82.
- Altman J. C., Buchanan G. J. and Larson L. (2007) The environmental significance of the indigenous estate: natural resource management as economic development in remote Australia. Centre for Aboriginal Economic Policy

- Research (CAEPR), Australian National University, CAEPR Discussion Paper 286.
- Armitage D., Plummer R., Berkes F. et al. (2009) Adaptive co-management for social-ecological complexity. *Frontiers in Ecology and the Environment* **7**, 95–102.
- Baker R., Davies J. and Young E. (2001) *Working on Country: Contemporary Indigenous Management of Australia's Lands and Coastal Regions*. Oxford University Press, Melbourne.
- Barbour W. and Schlesinger C. (2012) Who's the boss? Post-colonialism, ecological research and conservation management on Australian Indigenous lands. *Ecological Management & Restoration* **13**, 36–41.
- Baumann T. and Smyth D. (2007) *Indigenous Partnership in Protected Area Management in Australia: Three Case Studies*. The Australian Institute of Aboriginal and Torres Strait Islander Studies and the Australian Collaboration, Canberra, ACT.
- Berkes F. (ed.) (1999) *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Taylor and Francis, Philadelphia.
- Berkes F. (2007). Community based conservation in a globalised world. *Proceedings of the National Academy of Science of the USA (PNAS)* **104**, 15188–15193.
- Berkes F. (2009) Evolution of co-management: role of knowledge generation, bridging organisations and social learning. *Journal of Environmental Management* **90**, 1692–1702.
- Berkes F., Colding J. and Folke C. (2003) *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change*. Cambridge University Press, Cambridge.
- Borrini-Feyerabend G., Pimbert M., Farwar M. T., Kothari A. and Renard Y. (2004) *Sharing Power: Learning by Doing in Co-management of Natural Resources Throughout the World*. IIED and IUCN/CMWG, Cenesta, Tehran.
- Bradley J. (2001) Landscapes of the Mind, Landscapes of the Spirit: Negotiating a Sentient Landscape. In: *Working on Country: Contemporary Indigenous Management of Australia's Lands and Coastal Regions* (eds R. Baker, J. Davies and E. Young), pp. 295–308, Oxford University Press, Melbourne.
- Broun G. and Allen G. (2011) "Case study: Community-based Fire Management in the Tanami Desert Region of Central Australia" in "A Review and Analysis of Community-based Fire Management: Case Studies; Training and the Last 10 Years – Where Next?" Food and Agriculture Organisation of the United Nations, Rome.
- Brown M. and Haworth R. (1997) Culturally-embedded sustainability practices among the Warlpiri: conservation and commerce in the Tanami Desert. *Rural Society Journal* **7**, 3–15.
- CLC (2010) *Central Land Council Annual Report 2009–2010*. Central Land Council, Alice Springs, NT.
- Davies J., Campbell D., Campell M. et al. (2010). Livelihoods in Land: promoting health and wellbeing outcomes from desert Aboriginal land management. Desert Knowledge CRC Core Project 1 synthesis report. Desert Knowledge CRC, Alice Springs, NT.
- Davies J., Campbell D., Campbell M. et al. (2011) Attention to four key principles can promote health outcomes from desert Aboriginal land management. *Rangeland Journal* **33**, 417–431.
- Dressler W., Buscher B., Schoon M. et al. (2010) From hope to crisis and back again? A critical history of the global CBNRM narrative. *Environmental conservation* **1**, 5–15.
- Duguid A., Barnetson J., Clifford B. et al. (2005) Wetlands in arid Northern Territory. A Report to Environment Australia on the inventory and significance of wetlands in the arid NT. Parks and Wildlife Commission of the Northern Territory.
- Eldridge S. and Paltridge R. (2009) *Implementing Recovery Actions for Bilbies and Key Threatened Species*. Report prepared for the Central Land Council and National Heritage Trust. Desert Wildlife Services, Alice Springs, NT.
- Garnett S. T., Sithole B. and Whitehead P. J. (2009) Healthy country, healthy people: policy implications of links between indigenous human health and environmental conditions in Tropical Australia. *The Journal of Public Administration* **68**, 53–66.
- Gilligan B. (2006) The National Reserve System Programme 2006 Evaluation. Department of the Environment and Heritage, Canberra.
- Harrison L., McGuire L., Ward S. et al. (2009) *An Inventory of Sites of International and National Significance for Biodiversity Values in the Northern Territory*. Department of Natural Resources, Environment, the Arts and Sport, Darwin, NT.
- Hill R. (2006) The effectiveness of agreements and protocols to bridge between Indigenous and non-Indigenous toolboxes for Protected Area management: A case study from the Wet Tropics of Queensland. *Society and Natural Resources* **19**, 577–590.
- Hill R., Williams K., Pert P. et al. (2010) Adaptive community-based biodiversity conservation in Australia's tropical rainforests. *Environmental Conservation* **37**, 73–82.
- Hortsman M. and Wightman G. (2001) Karpanti ecology: recognition of aboriginal ecological knowledge and its application to management in North-western Australia. *Ecological Management & Restoration* **2**, 99–109.
- Hunt J., Smith D., Garling S. and Sanders W. (2008) *Contested Governance: Culture, power and institutions in Indigenous Australia*. Australian National University, Canberra, ACT.
- IUCN (2011) Category VI – Protected area with sustainable use of natural resources. Global Protected Areas Programme. International Union for Conservation of Nature.
- Lawrence R. (2005) Governing Warlpiri subjects: indigenous employment and training programs in the Central Australian mining industry. *Geographical Research* **43**, 40–48.
- Maru Y. and Davies J. (2011) Supporting cross-cultural brokers is essential for employment among Aboriginal people in remote Australia. *The Rangeland Journal* **33**, 327–338.
- Moss D. (2001) "People's knowledge," participation and patronage: operations and representations in rural development. In: *Participation: The New Tyranny?* (eds B. Cook and U. Kothari), pp. 16–35, Zed Books, New York.
- Muller S. (in press). Crazy ants: finding 'two-ways' to bring indigenous and non-indigenous knowledge together. In: *Country, Native Title and Ecology*. (ed. J. Weir) ANU EPress, Canberra.
- Musharbash Y. (2001). Yuendumu CDEP: the Warlpiri work ethic and kardiya staff turnover. In: *The Indigenous Welfare Economy and the CDEP Scheme*. (ed. W. Sanders) Centre for Economic Policy Research, Australian National University, Canberra.
- Nadasdy P. (2005) The anti-politics of TEK: the institutionalisation of co-management discourse and practice. *Anthropologica* **47**, 215–232.
- Ninti One (2011) Australian Feral Camel Management Project. Available from URL <http://www.feralcamels.com.au>.
- Nurse-Bray M. (2006) *Conflict to Co-Management: Eating our Words: Towards Socially Just Conservation of Green Turtles and Dugongs in the Great Barrier Reef, Australia*. *Topical Environmental Science and Geography*. James Cook University, Cairns.
- Pimbert M. P. (2003) Reclaiming diversity and sustainability in community-based conservation. *Policy Matters* **12**, 76–86.
- Putnis A., Josif P. and Woodward E. (2007) *Healthy Country, Healthy People: Supporting Indigenous Engagement in the Sustainable Management of Northern Territory Land and Seas*. CSIRO, Darwin, NT.
- Robinson C. and Jackson S. (2009) 16 – Indigenous Customary Governance in CSIRO, editor. Northern Australia Land and Water Science Review full report. Department of Infrastructure, Transport, Regional Development and Local Government.
- Rose B. (1995) *Land Management Issues in Central Australia: Attitudes and Perceptions Amongst Aboriginal People of Central Australia*. Central Land Council, Alice Springs, NT.
- Rose D. B. (1996) *Nourishing Terrains: Australian Aboriginal Views of Landscape and Wilderness*. Australian Heritage Commission, Canberra.
- SEWPaC (2011) *Indigenous Australians Caring for Country*. Department of Sustainability, Water, Population and Community. Available from URL <http://www.environment.gov.au/indigenous/index.html>
- Sithole B., Hunter-Xenie H., Williams L. et al. (2008) *Aboriginal Land and Sea Management in the Top End: A Community Driven Evaluation*. CSIRO, Darwin, NT.
- Vaarzon-Morel P. and Edwards G. P. (2012) Incorporating Aboriginal people's perceptions of introduced animals in resource management: insights from the feral camel project. *Ecological Management & Restoration* **13**, 65–71.
- Walker J. (2010) *Processes for Effective Management: Learning from Agencies and Warlpiri People Involved in Managing the Northern Tanami Indigenous Protected Area*. North Australia Institute of Advanced Studies, Charles Darwin University, Alice Springs, NT.
- Walsh F. and Mitchell P. (eds) (2002) *Planning for Country: Cross Cultural Approaches to Decision-Making on Aboriginal Lands*. IAD Press, Alice Springs, NT.
- Young J. and Preuss K. (2011) *Ngurra Warlaja warra warra Kanjaku "Looking after our homelands": Southern Tanami Indigenous Protected Area Plan of Management*. Central Land Council, Alice Springs, NT.
- Yunupingu D. and Muller S. (2009) Cross-cultural challenges for indigenous sea country management in Australia. *Australasian Journal of Environmental Management* **16**, 158–167.