4. 'Two Ways': Bringing Indigenous and Non-Indigenous Knowledges Together

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For millennia, Indigenous knowledge practices have been fundamental to sustaining Indigenous livelihoods and remain important in many parts of the world. Increasingly, non-Indigenous scientists are engaging with Indigenous peoples to consider collaborative approaches to natural resource management. Often there are challenges of what Christie (2007) terms legibility, in which some elements of Indigenous knowledge are easily understood, documented and objectified by non-Indigenous scientists with other, less tangible aspects being ignored and marginalised. Berkes (1999: 12) agrees that non-Indigenous scientists 'end to dismiss understandings that do not fit their own; this includes understandings of other [Indigenous] scientists using different paradigms'. State-funded and bureaucratically organised knowledge practices make codified, generalised, quantifiable and transferable knowledges legible, but limit recognition for those components of Indigenous knowledge that are 'singular, non-transferable, tacit and unable to be expressed in words' (Christie, 2007: 86). Much research has focused on the contents of Indigenous knowledge systems, the practical and empirical, and how it can be broken down into 'bite-sized chunks of information that can be slotted into Western paradigms' (Ellen and Harris, 2000: 15), at the expense of a deeper understanding of the epistemology of Indigenous knowledges (Briggs, 2005). Verran (2002) refers to non-Indigenous scientists as 'information hunters' seeking to collect the 'facts' on the respectful assumption that Aboriginal communities are where they can find a reservoir of locally specific knowledge. She cites the Northern Territory Parks and Wildlife Commission (Australia) mission statement that includes 'collecting of Aboriginal knowledge' as evidence of the determination to seek 'facts'. Furthermore, there is often then an assumption that these 'factual' knowledges must somehow be scientifically testable to be accepted (Briggs, 2005). However, Indigenous knowledge is not simply a collection of facts, but a way of life.

Christie (2007: 87) refers to Indigenous knowledges as what makes possible the 'routine practices of everyday life'. He identifies the characteristics of Indigenous knowledge as performative, something you do rather than have; context specific, differing from place to place; owned, protected and accountable as it is governed by laws; collective; responsive; active and constantly renewed and reconfigured. Language is also integral to these practices and gives meaning to all things. Christie (2007) also explains that knowledge is not limited to human agency, with the land and other species revealing and keeping knowledge alive.

Therefore, in contrast to the collection of 'facts' which so often characterises non-Indigenous engagement with Indigenous knowledge, in many contexts explanations are no more important than actions. 'They can teach it, they can tell stories about it, they can sing and dance it but they may have no impulse to explain it' (Christie, 2007: 88). Indigenous knowledge tends to be driven by the pragmatic, utilitarian and everyday demands of life and elements of knowledge, including non-Indigenous sciences, can be incorporated into a hybrid, mediated and continually reworked form (Briggs, 2005). Therefore the notion of a 'pristine' knowledge that is 'untouched' is unrealistic and romantic. There are fundamental differences in the ways that Indigenous and non-Indigenous knowledges are socially constructed (Christie, 1990; Sarewitz, 2004; Briggs, 2005).

An influential tradition in western knowledge is a focus on *separation* as the basis for understanding environments. For instance, the separation of humans from nature, and the separation of nature from culture (Weir, 2008). For many Indigenous systems, knowledge is constructed through understanding connections of species to each other, to people, ancestors, stories, dances, art, science, politics, economics, power, society and the cosmos. It is the *connection* that is used to develop context specific information (Christie, 1990; Briggs, 2005; Christie, 2007). Fundamental differences in constructing knowledge, such as through connection or separation, have significant implications with respect to the construction of power relationships, and the marginalisation of Indigenous knowledges for decision-making in natural resource management. Agrawal (1995) states that the link between power and knowledge needs to be explicit for genuine recognition of the contribution of Indigenous knowledges.

Often, the politics of natural resource management can privilege non-Indigenous science as 'objective' and therefore an instrument of power in the hands of 'experts' (Swift, 1996; Novellino, 2003; Briggs, 2005). Natcher and others (2005) argue that power in research and decision-making for resource management is often controlled through the provider of financial, institutional, and political resources. In their research into co-management institutions in Canada, they found power more often involves the 'determination of whose knowledge is of most value to the management process and how such knowledge is or is not used in decision-making' (Natcher *et al.*, 2005: 246). In their research non-First Nation managers tended to define expectations and norms for management and thus produced a discourse of 'truth' that subjugated First Nation knowledges. Similarly, Palmer (2004) documents the marginalisation of traditional owner knowledge and values in Kakadu National Park, Australia. The Park operates on a co-management basis and traditional owners were seeking alternative fisheries management in the park. Their views were misconstrued and portrayed as 'irrational' by government and fishing lobby groups. Palmer argues that 'this unequal power relationship created through an alliance between science and the State leaves the situated knowledge of [Aboriginal people] with a limited field

of authority in the non-Aboriginal domain' (Palmer 2004: 61). These examples demonstrate the inadequacies in which Indigenous knowledges are recognised in broader political contexts.

Increasingly, Indigenous and non-Indigenous scientists are working together to create meaningful and more equitable collaborations between knowledge systems. Studies such as those with the Mutijulu Community in central Australia (Baker and Mutitjulu Community, 1992; Reid *et al.*, 1992; Nesbitt *et al.*, 2001) document the benefits of integrating traditional knowledge with non-Indigenous science for ecological research. Terms such as 'two toolboxes' are used by mainstream institutions in Australia in reference to bringing together non-Indigenous and Indigenous sciences (Jackson *et al.*, 1995). Indeed it is a term evoked by many Indigenous resource managers to invite closer collaboration from scientists and their institutions. The promise of 'two toolbox' approaches has often been assumed to work, with little interrogation of the term in a natural resource management context. This paper focuses on the term 'two ways management', a framework developed by Yolngu people in north-east Arnhem Land, Australia. The concept of two ways management seeks to redress the dominance of non-Indigenous science in natural resource management. This paper considers the ontological challenges of integrating Indigenous and non-Indigenous knowledges and considers the practical and resource allocation implications of this divide. It then considers how institutions need to transform in order to honour both knowledge systems.

'Two ways': tracing the concept

Yolngu people are traditional owners of northeast Arnhem Land, Aboriginal owned land in the Northern Territory, Australia. Yolngu have long established metaphors that provide insight and meaning to life. The *Ganma* metaphor identifies how to mix knowledges equitably, how to achieve meaningful two way collaborations. *Ganma* has many meanings, one of which is a place where fresh and salt water meet and mix. The fresh water and the salt water refer to parallel systems of knowledge:

Strictly speaking, it relates to the separateness of fresh water and salt water knowledge even at the point where they meet and mix. It is like what some [non-Indigenous people] call a "dialectical" relationship, in which two opposed patterns of ideas complement, interact and relate to one another, but never lose their distinctiveness as separate and opposed parts of one whole. (Yunupingu and Watson, 1986: 6–7)

The meeting of the two waters and currents creates a foam on the surface of the water representing the interaction of knowledges (YCEC, 1995). The theory

maintains that the combined forces of the streams strengthen each other and lead to a deeper understanding and truth, balancing between complementary opposites, calling for respect and understanding of each others' ways of knowing and doing (Hughes, 2000). *Ganma* has been used as a mechanism to ensure that Yolngu have an equal and active part in the thinking, planning and management of their community institutions. It is not just to have Yolngu people 'involved' in projects, but that the 'the project cannot proceed without the active participation of Yolngu ... in setting directions' (Yunupingu and Watson, 1986: 7). It aims to develop equal dialogue between Yolngu and non-Yolngu through progression along two *raki* (lines of conceptual development).

The Yirrkala Community Education Centre, worked to develop a *Ganma* Curriculum in the mid 1980s to deliver 'two ways' learning for their Yolngu students. Devlin (2004: 26) identifies the key concepts underpinning the two way learning philosophy as sharing power and acknowledging 'competing knowledge systems. ... The main imperative driving [the two way learning] approach is the concept of equality and mutual respect'. The Yolngu concept 'two ways' contests historical institutional power relationships and attempts to build on commonalities and mutual respect rather than difference (YCEC, 1995). Two way learning has been used synonymously in the Northern Territory (NT) to describe bilingual education since the 1970s. Yolngu support for two way learning philosophies extends beyond bilingual education to many community development management initiatives. It has formed the philosophical foundation for Yolngu land and sea management programs such as Dhimurru Aboriginal Corporation (Dhimurru), a Yolngu institution working to develop two-way natural and cultural resource management with non-Yolngu partners. The challenge for this paper is how to translate the institutional recognition and transformations achieved in bilingual education into an environmental governance context.

Dhimurru as a two way institution

Dhimurru is a community-based natural and cultural resource management agency established by Yolngu traditional owners in 1992. Dhimurru is a Yolngu word for the east wind that brings rain and life to the plants bringing new energy and growth (Dhimurru, 2007a). Dhimurru was created in response to traditional owners' concerns of the environmental impacts of a large non-Yolngu mining population in areas around the mining town of Nhulunbuy. The elders sought to protect their lands and developed a permit system to regulate and manage visitor access. Dhimurru has been successful in developing recognition and respect for Yolngu land and sea management. Dhimurru has jurisdiction over approximately 8,500 square kilometres of land and has formalised its

management through declaration of an Indigenous Protected Area (Figure 4.1). Dhimurru manages according to its vision statement by Yolngu elders who state that 'the only people who make decisions about the land are those who own the law, the people who own the creation stories, the people whose lives are governed by Yolngu law and belief' (Dhimurru, 2007b). Dhimurru has expanded its management capacity and programs to include a range of land and sea activities, including development of strong partnerships with government and other organisations (Bauman and Smyth, 2007; Langton *et al.*, 2005; Muller, 2008a, 2008b). These developments have at all times sought to align with Dhimurru's vision statement.

Figure 4.1: Location map of Dhimurru Indigenous Protected Area.

Source: From Muller (2008a).

Figure 4.2: Two ways of looking at Cape Arnhem. The picture on the top is a Yolgnu bark painting of Cape Arnhem, showing the connections held between ancestors, plants, animals and people. Below is a cartographic map of Cape Arnhem, which has classified the vegetation into twenty-one different types.

The two ways concept has been fundamental in Dhimurru's development of partnerships and programs. At a variety of national and international forums, Dhimurru's Director has used the diagrams in Figure 4.2 to explain different ways of seeing and understanding the same area. Both of the images in Figure 4.2 represent Cape Arnhem, the image on the top is a Yolngu perception of the area:

When Yolngu look at it, they do not see a painting of animals, they see a map of Cape Arnhem. This is one way of looking at country and how country came to be from a Yolngu side. It shows what wangarr (ancestors) were there and their associations, how people are connected through the land and through animals too. The Western way of looking at Cape Arnhem is different. (Yunupingu and Muller, 2009)

The non-Yolngu perspective draws on western science and categorises Cape Arnhem into management areas as demonstrated in the vegetation categories on the right hand image. Both these perspectives are important in developing appropriate and sustainable management for the area. Dhimurru manages the interface of these knowledges in its development and implementation of coastal management. Bauman and Smyth (2007) document the advantages of the 'two ways' partnership between Dhimurru and the Parks and Wildlife Service (PWS) of the Northern Territory through a formal agreement.¹ The terminology of 'two ways' has been used in a range of other programs and projects that work with Dhimurru and a variety of Indigenous ranger groups (Smith, 2007). Yet despite 'two ways' being projected as an obvious management approach, and its documented successes, there are ontological, logistical, cultural and fiscal challenges which need to be identified and addressed.

Crazy ants as a two way program

The Yellow Crazy Ant Eradication Program hosted by Dhimurru provides an interesting case study to view the application of 'two ways' in resource management. As is the case with the majority of Dhimurru's programs, this project brings together multiple partners under the auspices of 'two ways'. The yellow crazy ant is ranked amongst the world's worst invasive species, having serious environmental, social and economic impacts (Lowe *et al.*, 2000). This ant is known to have inhabited the Gove Peninsula for over 30 years (Majer, 1975) and concern about its presence, coupled with developments in management techniques and products, prompted a project aiming to manage its

¹ The agreement entails the placement of a Parks and Wildlife Service officer on site at Dhimurru to work in collaboration with Dhimurru rangers. The 21 year agreement provides for a range of technical and managerial support to Dhimurru under the umbrella of Dhimurru's traditional owners governance structure. It was negotiated under section 73 of the *Territory Parks and Wildlife Conservation Act 2000*.

presence in the region. Crazy ants had been identified by external scientists as a significant threat to Yolngu land. Yolngu traditional owners, through Dhimurru as an institution, asserted their involvement as an expression of their authority and obligations under their law to protect and manage their lands. Dhimurru collaborated with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to co-author an application for funding to manage the ants, with funding and oversight from Alcan mining company, Northern Territory government, Northern Land Council, Indigenous Land Corporation and the federal government through the Department of Environment and Heritage. Structurally, coordination and expertise are provided by CSIRO staff, and most on-ground work is provided by Dhimurru staff. The Crazy Ant eradication program is designed to:

1. establish a community group, the North East Arnhem Land Crazy Ant Management Group (NEALCAMG) to coordinate and implement the crazy ant control program. The NEALCAMG is developing a community based management approach, and sees the capacity building of local land owners as the basis for future pest ant management;
2. increase community awareness about crazy ants and the threat they pose to biological biodiversity, primary industries and society including human health;
3. engage Traditional Owners in north-eastern Arnhem Land to manage and eradicate crazy ant infestations;
4. effectively eradicate crazy ant infestations throughout Arnhem Land, thus eradicating this species from the Australian mainland;
5. protect the significant environmental and cultural values associated with land and country in north-eastern Arnhem Land; and
6. provide national ecological benefits by preventing the escape and spread of this highly invasive species beyond north-eastern Arnhem Land.

Two people are fundamental to the two-way management of this project, the CSIRO non-Yolngu project coordinator, and the Dhimurru Yolngu senior ranger. The project coordinator, Ben Hoffmann, was chosen for his role due to his invasive ant ecology and management expertise, coupled with experience in engaging with Indigenous communities. The senior Yolngu staff member, Balupalu Yunupingu was chosen for his role as he was recognised as a senior cultural authority in the region, coupled with his enthusiasm for the project. This case study aims to document the differences in understandings about the two way nature of this collaborative project between these two key project personnel.

By his own admission, Ben Hoffmann, Crazy Ant Project Coordinator, has struggled conceptually with the implementation of two ways management in the Crazy Ant Project. Ben is focused on the ant itself. As a species new to the region, the ant does not have an associated customary knowledge. Coupled with the apparent minimal role that ants in general seem to have in Yolngu ceremony Ben states that:

I can't see how Yolngu knowledge is contributing to what is effectively a science-based project ... I've struggled to identify how Yolngu knowledge can provide input into the project ... I can't find much ant knowledge, and what there is doesn't relate to controlling an invasive species. Because of that, the only 'two-way' thing I can think of, is that the *Ngapak* [non-Yolngu] are telling Yolngu what to do. (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005)

The Crazy Ant Project, therefore, does not seem to Ben to provide any opportunity for the inclusion of any traditional knowledge. Like Verran's (2002) 'information hunters' Ben cannot find any 'facts' to include in the scientific management of the project. The invasive species has no place in Yolngu accounts of local environmental relations because it was previously not known in the area. Yolngu participation is essential for ensuring appropriate access and for liaison with the communities which are affected by the project, but 'the project runs according to western science-based and administrative protocols, going out searching for the ant, the way in which we map it and the methodologies for treating it' (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005). Ben does apply himself to learn about Yolngu language, culture and perspectives, however he states that 'immersing myself in the local culture is independent of developing and refining project protocols'. Ben recognises that such cultural awareness and involvement makes it much easier to have the project accepted by the community because he is demonstrating his appreciation of culture, but fails to recognise the Yolngu perspective that this 'cultural education' is an integral part of two-ways management.

For Senior Yolngu Ranger Balupalu Yunupingu, crazy ant work is something new.

We never done such things like *galkal* [ant] work in our life, you know. This *galkal* is a strange one. We never seen one like this *galkal* before. (B Yunupingu, fieldwork interview, Nhulunbuy, NT, 25 November 2005)

Despite the ant being a new species, Balupalu does not believe that Yolngu knowledge is 'unrelated' to the project. On the contrary, Balupalu feels like he contributes significant knowledge to the project, making it a two way exchange.

The other way, well I teach him new words from when we doing the survey and all that, I teach him like *wanga* [land] places and all those trees and the *yaku* [names] of the trees. (B Yunupingu, fieldwork interview, Nhulunbuy, NT, 25 November 2005)

For Balupalu, the knowledge of the project is contextualised, encompassing much more than just the ant and the project protocols. The project is also about their personal relationship and so the information they share in the field is important in making it 'two ways'. For example, Balupalu educates Ben in Yolngu language, telling him the names of all the trees and what they are for 'how all the trees are special'. Balupalu even adopted Ben and gave him a Yolngu name to provide Ben a 'place of relatedness' in the Yolngu kinship system. In exchange, Balupalu anticipates being taught Ben's knowledge of western systems as they relate to the project.

Balupalu feels like he has been teaching Ben about the Yolngu system but does not feel that the scale of knowledge-sharing about the systems and structures of the two worlds has been reciprocated.

No I don't learn about the institutions, that's being keeped [sic] away, from me, you know, and I want to see the whole thing and taught it ... I mean I must be recognised as a senior person. I am a senior person in my Yolngu way. I play my part but I like to play that *Ngapaki* [non-Yolngu] way too. (B Yunupingu, fieldwork interview, Nhulunbuy, NT, 25 November 2005)

Ben feels as though he has tried to incorporate Balupalu in the 'higher level' planning and management (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005). Ben referred to a planning meeting he had requested Balupalu to attend at the mine site, 'not only to make him feel involved but also to make sure he really understands how everything's going' (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005). However, just prior to the meeting, Balupalu said he did not want to attend stating 'Ben, what am I going to contribute?' Upon discussion, both agreed that Balupalu's presence at the meeting would predominantly be 'for the sake of being there' and he would feel 'out of place, particularly with all of the mining management' (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005). Balupalu's reluctance to participate in these meetings comes from a feeling that he is not equipped to manage these meetings.

I'd be just sitting there and asking questions, you know. But in the future, I'd like to be training, so I can get to know and understand language, you know *Ngapaki* [English] language. (B Yunupingu, fieldwork interview, Nhulunbuy, NT, 25 November 2005)

Balupalu's comments reflect the often discussed issue of 'secret English'² (Christie and Perrett, 1996) where Yolngu presume that English languages of power are kept from them. Methodologies employed in the project do not explicitly include learning Yolngu names and culture and language. Neither do they include learning western structures and management frameworks as an explicit goal. However, for Balupalu, the sharing of the big picture worlds is an integral component of the project and 'two ways' management.

The holistic perspective that Balupalu brings to the concept of 'two ways' highlights the expectation that he will learn about non-Yolngu systems and institutions through the project, not just about one species of ant. To Ben, the project is the ant, and its eradication, and therefore he cannot see how Yolngu knowledge can contribute. He believes it is his role to talk to the funding bodies about how they are

strategically doing it from a scientific point of view. They're not going to listen to a cultural aspect of some project they're investing a million bucks into. (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005)

To Ben, Yolngu language and culture is peripheral to the project. However, Balupalu does not think in terms of a specific ant, but considers the project to also be about the merging of two worlds in which he should have some introduction to the broader institutions of the CSIRO. This analysis highlights the differences in understanding about projects and how they can be perceived to be operating on different scales. The western scientific perspective has decontextualised this project to be all about the ant. However, Balupalu's analysis contextualises and situates the project, sharing all knowledges while they are in the field and recognising that the ant exists on Yolngu land and within a Yolngu context. There are a number of facets limiting cross-cultural, two ways, engagement identified in the crazy ant case study. Underlying these issues is a significant ontological divide between Yolngu and non-Yolngu perspectives. In the following sections I will focus on two issues stemming from that ontological divide that I consider fundamental to limiting effective collaboration. Firstly I will identify the link between non-Indigenous ontological domination and limitation to resourcing Indigenous institutions. Secondly, drawing on bilingual education institutions, I consider the institutional transformation necessary to create ontological equality.

2 'Secret English' refers to the claim of many Yolngu that there are secret English languages of power that are being withheld from them. When Yolngu elders make decisions, they employ a range of names and words through their powers of ancestral knowledge and make certain levels of knowledge 'secret' in their production of meaning. Yolngu elders often accuse non-Yolngu people of hiding the 'secret English' of power behind closed doors.

Ontological divides and institutional resourcing

In his discussion of feral animal management in Central Australia, Rose (1995) articulates that:

Aboriginal people tend to see feral animals as belonging to the country, even though they are recent arrivals. Killing some animals to look after others involves value judgements which are not necessarily part of the Aboriginal world view. (Rose, 1995: 123)

This example highlights the challenges that arise in bringing together alternative ontological perspectives in resource management. There is an assumption that the generation of non-Indigenous scientific research will provide the information needed to respond to ecological and other management issues in 'rational' ways. In the western scientific paradigm it is assumed that everything can be made sense of and systems of categorisation can encompass everything. Therefore western science does not feel it needs to come to terms with Indigenous science as it is considered subsumable within scientific systems. But Indigenous science cannot be reducible to an equivalent in western science; it cannot be translated for it stems from an entirely different ontology (see Weir and Muller, forthcoming). Despite the inadequacy of the non-Indigenous scientific paradigm to address Indigenous concerns, frequently it is presented as the logical and only appropriate response in natural resource management.

Where agencies are looking to, or being asked to assist in addressing land management issues on Aboriginal land, then they need to be taking some responsibility for addressing those issues in a holistic way. There needs to be understanding that there is more to programs than just the simple objectives of controlling mission grass or controlling crazy ants.

... you need resources, and you need more than just poison [for spraying weeds] and the fuel that might be required in an ordinary context, because you have to ensure that cultural requirements are being met.

... Often we [Dhimurru] are the party that needs to pull in the other resources that are needed to address that capacity building, to address the landowner negotiation, address the identification and those issues when we are faced with something like, say, crazy ant eradication

... I think we would be assisted if there was a greater onus, by Government for example, to address these programs so that we would not face all the responsibility for trying to form those partnerships that are needed to enable that holistic approach to present issues. In other

words the onus shouldn't just be on Indigenous people to try and make this work. (S Roeger, Dhimurru Executive Officer, fieldwork interview, Nhulunbuy, NT, 28 July 2005)

Dhimurru is operating in the interface of 'two worlds' – Yolngu and non-Yolngu. It does so by juggling 30 different contracts, employing 20 Yolngu and six non-Yolngu staff, managing relationships with a range of government and other agencies and ensuring that the Yolngu committee makes all final decisions of importance. One of the challenges Dhimurru faces is securing resources to cover all the costs of its operations. As Steve Roeger, Dhimurru's Executive Officer states, 'if it were just about buying the poison [for spraying weeds] and employing someone to do the job, it would not be as resource intensive as it is' (S Roeger, Dhimurru Executive Officer, fieldwork interview, Nhulunbuy, NT, 28 July 2005). In the case of the crazy ant project, Natural Heritage Trust funds cover the physical costs of the operation. Dhimurru is left to apply to organisations like the Indigenous Land Corporation (ILC) for additional funding to cover effective Yolngu engagement. There is a link here between ontological perspectives and resource allocation. Ben's scientific perspective considers the project to be about the eradication of the ant only and subsequently the funding provided covers that specific focus. However, Balupalu understands the project as being context specific and about the merging of institutions. To him, it is not just a case of managing an invasive ant species, but about learning about Yolngu and mainstream institutions, sharing the context of knowledge production. The Yolngu ontological components are not covered in the grant application, nor are they acknowledged in the other 29 contracts Dhimurru manages.

Non-Indigenous scientific practices that are clearly recognisable as natural resource management are funded by the mainstream resource management agencies, yet what is core business for Dhimurru, managing and valuing the intangible components of Indigenous knowledge, is erased in the funding process. Facilitating effective engagement of Yolngu requires additional resources for ensuring involvement of the right people, consultation with those affected by decisions and capacity building as necessary. It necessitates institutional recognition and resourcing of Yolngu ontologies as fundamental to the success of land and sea management. Dhimurru is managing the operation between two worlds without adequate resources for this specific function.

It was very easy to identify Dhimurru as the organisation who should play the lead role in the project as it was a well established organisation, it had a great reputation for being capable to conduct such work, it had responsibility throughout a lot of the area, and there was agreement by all stakeholders that Dhimurru was most appropriate. (B Hoffmann, fieldwork interview, Nhulunbuy, NT, 21 October 2005)

This quote from Ben demonstrates the value of Dhimurru as a liaison body, a cross-cultural institution and its negotiating role. Implicitly it acknowledges how, as an institution, Dhimurru manages the challenges of operating on Aboriginal land and ensuring effective engagement, employment and consultation with the right people. However, this implicit recognition of the costs involved is not remunerated within the funding agreement. There is no line in the budget for this essential and challenging role. The same is so for the other 29 contracts that Dhimurru has applied for, acquires, manages and continually negotiates ongoing partnerships for (Muller, 2008a). As a result, Dhimurru is under-resourced, and understaffed to manage the elaborate and challenging cross-cultural environment that it works within. The domination of non-Indigenous scientific thinking, protected through non-Indigenous grants administration, marginalises Indigenous knowledges from the process. It requires an institutional transformation to respect and honour both ontologies equally.

Transforming institutions – towards ontological equality

Drawing on the *Ganma* metaphor as the basis of ‘two way’ learning we learn that the salt water and fresh water are constructed as a separate and different. Yet when the salt and fresh waters meet, they create brackish water with what many Yolngu refer to as a ‘different taste’. Importantly, both the salt and fresh waters are necessary for this interaction to occur where neither salt nor fresh is more important, overpowering or dominant in their mixing. Yet, when we reflect on this metaphor in the context of environmental governance institutions in Australia the politics of mainstream environmental institutions overpower Yolngu institutions. Drawing on the example of bilingual education, this section considers how to develop context specific resolutions for reconfiguring power in environmental governance.

Bilingual education opens the opportunity for participants, both teachers and students, to participate in two languages and therefore two ontologies and as such engage in individual and institutional transformations. Bilingual institutions have the capacity (despite significant controversy as to whether the capacity is sufficient or adequately resourced) to deliver outcomes that allow participants to participate equitably in two languages and cultures. From a Yolngu vantage point, the transformation in bilingual education is not complete as meetings with government partners are not conducted in *Yolngu Matha* and remain transacted in English – the language of power. However, due to the specificity of context, it would be unreasonable for *Yolngu Matha* speakers

to expect government agents to conduct meetings with central Australian communities in *Yolngu Matha* as communities there speak different languages. Therefore, in the context of whole-of-system discussions, English becomes a *lingua franca* – a shared language. The challenge is for this common tongue to be managed not as a language of power, not as a language of dispossession and colonisation, but as a language of partnership, collaboration, mutual respect and engagement. In monolingual education, English is a language of domination, where *Yolngu Matha* is neither visible nor respected. In bilingual education English is used as a *lingua franca*, where education institutions respect and recognise alternative languages commensurate with necessary resources. Even though English is used as a language of commons, *Yolngu Matha* and English are institutionally recognised and therefore resourced. The challenge identified in this paper is how to translate such a transformation into an environmental governance context.

In environmental governance, we find an incapacity for mainstream environmental governance institutions to respond to, respect or resource the contribution of Yolngu knowledges and practices. For example, Indigenous rangers are systemically inadequately resourced for their provision of environmental services (Luckert *et al.*, 2007, Muller, 2008b). Some institutions and government programs in Australia are seeking to engage with these issues, such as the Indigenous Protected Areas Programme (Smyth and Sutherland, 1996; Muller, 2003; Langton *et al.*, 2005; Bauman and Smyth, 2007), but so far these opportunities are rare and limited. Instead of transforming government institutions, it is Indigenous organisations that have to manage, translate, transform and broker the relationships between their communities and mainstream agencies, without the resources or respect that this role requires. In current environmental management governance non-Indigenous science is the language of dominance. At this point in time there is no *lingua franca* in terms of process and relationship that will allow for respect for difference by government institutions, there is no language to begin to frame this discussion as the bilingual education does. Consequently, as Natcher and others state 'because ethnicity and power are related directly to the visibility of knowledge and its holder, the application of indigenous [sic] knowledges to the management process is most often subjugated against the western ontologies' (Natcher *et al.*, 2005: 247).

One of the difficulties of this situation is that scientists like Ben do not see western science as a language of domination. He adheres to the view that conservation science can be made value free and when done rigorously can transcend any particular cultural context. Interviews with him demonstrate that he is keen to embrace and work with Yolngu knowledge and actively seeks to learn *Yolngu Matha* language and cultural protocols, but cannot see how the project is operating in a two way framework. Ben is seeking 'factual' Yolngu

knowledge that can be directly applied within the eradication framework, not the connections, relations and vales of Yolngu knowledge. His understanding does not embrace Yolngu knowledge as characterised by Christie (2007) as, performative, context specific, active and constantly renewed and revitalised. For Balupalu, when work is conducted on Yolngu land it is intimately connected to the Yolngu world. To Yolngu this is obvious; this is what Balupalu takes for granted. He does not see just an ant causing a problem, and if he thinks that is all others see then he sees a lack of respect. Ben has been trying to learn language as a means of respecting culture, but does not see that his insistence on the dominance of non-Indigenous science from which 'factual' knowledge is privileged in the project is what is limiting his engagement and what is necessary for true institutional transformation. The issue of invisibility of power to cultures of power is just as urgent as the invisibility of the rights of marginalised groups. Indeed invisibility of power is what leads to 'deep colonisation' (see, Rose, 1999) whereby, because of the invisibility of Yolngu perspectives, unintentional colonisation of programs and processes occurs. The failure of policies, agencies and bureaucrats to offer acknowledgement of alternative ontologies in the way they construct and fund projects, regardless of their rhetoric, is the ontological arrogance that reveals the real exercise of power. What this paper seeks to challenge is that broader environmental governance institutions need to transform to a point where Indigenous and western science are ontologically recognised and therefore institutionally resourced as equals.

The fact that the Crazy Ant application was co-authored with Dhimurru indicates that there is something missing from all parties understanding about how to achieve meaningful collaboration. Presumably, Dhimurru has the opportunity to insert additional costs for engaging in Yolngu business and management as a budget line. But simply providing the resources will not satisfy Balupalu's desire to learn about western institutions, such as the CSIRO. He seeks to understand what the 'secret English' is that limits meaningful collaboration, to demystify non-Indigenous institutions. This paper argues for more than simply additional financial resources. There is a risk that organisations like Dhimurru may succeed in gaining additional funding without the requisite respect for ontological difference. Non-Indigenous science, as a language of domination, sets the terms of engagement and is used for legitimacy with government funding bodies. Consequently, Balupalu remains dissatisfied. It is not simply additional funds that will meet this satisfaction, but ontological valuation of Yolngu knowledge, process and performance.

Perhaps there is no mechanism to incorporate the unquantifiable or intangible elements of Yolngu knowledge and management approaches within rigid objectives and contractual obligations. Indeed, the common use of the term 'objectives' not only denies the subjectivity of western cultural knowledge, but

also limits the valuing and incorporation of other 'subjective' knowledge and practices. In this way, the instrumentality of the grant process is a significant limitation to recognising Yolngu knowledge. 'A different focus on the processes of Indigenous knowledge might therefore generate a deeper and more dynamic understanding of change' (Briggs, 2005: 108). Indigenous knowledge is not a static database of facts, but fluid and constantly changing, open to renegotiation and incorporation of new information (Sillitoe, 1998; Briggs, 2005; Christie, 2007). Balupalu's insights demonstrate that the project has value far beyond the specific species of ant it aims to manage. His knowledge is embedded in the everyday practices of life and he learns knowledge from the country and species in it. His knowledge is performative and constantly able to be renegotiated. Effective engagement of Yolngu knowledge requires a focus beyond the 'facts' or 'outcomes' or 'objectives' of the project towards a valuing of relationships and process and the subjective values. 'The negotiations towards shared understandings and strategies among divergent knowledge systems must be a continuous process within an adaptive framework, rather than a question of specifying a fixed set of indicators' (Christie, 2007: 88). There is a need to develop a *lingua franca* such that non-Indigenous science is not dominant, but complementary to Indigenous perspectives.

Conclusions

Despite its heralded benefits, there remain significant ontological limitations to truly embracing 'two ways' in Indigenous land and sea management. Mainstream natural resource management departments and funding bodies interpret the environment in such a way to preclude funding for Indigenous authority and practice. The domination of non-Indigenous ontological perspectives marginalise Indigenous ontologies and thus limit the resourcing of Indigenous land and sea management. Even when collaboration is developed jointly with good intentions from all partners, there is still dissatisfaction with the collaboration because of the ontological breach. In the Crazy Ant example, funds are provided for the 'objectives' defined by non-Indigenous ontological perspectives, thus resulting in domination of non-Indigenous values and objectives. As a language of domination, non-Indigenous science does not value Yolngu ontologies beyond what 'facts' they can find and therefore there are no mechanisms to incorporate them in funding applications as 'objectives'. Consequently, it is the Indigenous institution, in this case Dhimurru, that is left to manage the holistic context in which these project exist, to facilitate Yolngu engagement, training, employment and the subjectivities of Yolngu knowledge and to meet the costs of this process.

This paper highlights the issues of invisibility of power of dominant cultures and the implications of those power relationships in resource and environmental management. It challenges the dominance of non-Indigenous science in natural resource management seeking to inspire a transformation of institutions in resource management relationships based on recognition and respect of difference. In the hunt for 'facts', the performative and essential characteristics of Indigenous knowledges are not seen, and are therefore marginalised by cultures of power. Following on from this, there is a close relationship between ontological recognition and subsequent resource contribution. This paper encourages all participants to reconsider and rethink approaches to meaningful collaboration in which the non-transferable, tacit and unquantified knowledges are recognised and adequately resourced to create a language of equals between Indigenous and non-Indigenous sciences.

Unless we do engage with those intangible dimensions or the wider social aspect of Indigenous knowledge – which includes ceremony, kinship, ritual, hunting, harvest, all of those things – and until we engage with them, Indigenous knowledge will continue to be subsumed into mainstream agendas. (Jackson *et al.*, 1995)

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