

An overview of cultural and spiritual values in ecosystem management and conservation strategies

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*I am related
In a universe
Bigger than
my mind...*

*I travel
Both earth and heaven
Trails*

*Lost in reference
To other lives*

*To other stars and songs
Of other constellations*

Tauhindali (Wintu Poet)³²

Introduction

Cultural and spiritual values are critical driving forces in nature conservation and ecosystem management but are often difficult to represent in decision-making processes. The cultural importance of natural ecosystems not only consists of tangible goods and services, but also includes many often intangible, non-material or information services. These non-material and spiritual values are part of local people's cosmovision and play a pivotal role in shaping their perception of nature.

The way people perceive nature depends on culturally defined value and belief systems that form an important, often intergenerational, source of information. Some of this valuable information, relating in particular to its spiritual dimensions, may not yet be considered in current ecosystem management. Part of the reason for this may be that such knowledge is inaccessible and difficult to be understood by outsiders such as western-trained conservationists and conventional ecosystem managers. Hence, accounting for the various worldviews and their corresponding cultural and spiritual values in the practice of ecosystem management forms a challenge for managers, policy-makers and local people alike.

³² 'Mythology helps keep the balance spirit and body, and gives direction to Wintu life. It paints a philosophical portrait for those beings – human, animal and spiritual – which inhabit the earth, providing an ongoing process and meaning to life. Mythology is intricately entwined with the environment. Features of nature are imbued with various powers and levels of sacred importance. Wintu people understand their own humanity in relation to the perception of this universe' (Theodoratus and LaPena, 1998).

This chapter investigates opportunities for the integration of cultural and spiritual values in conservation and ecosystem management. Special but limited attention is given to the role of perception-based indicators in monitoring and assessment strategies in the management of sacred natural sites (SNSs). In addition, this chapter is illustrated with examples from northern Australia where I had personal experience in understanding various dimensions, cultural values and sacred natural sites in the field.

Ultimately, this chapter aims to contribute to growing body of knowledge on the importance of different cultural perceptions of natural ecosystems and landscapes for the development and strengthening of more effective and holistic strategies for ecosystem management and coexistence of simultaneous realities.

Cultural values and ecosystem management

Ecosystems not only consist of physical attributes, they are subjected to and influenced by cultural perceptions as well. As Schama (1995) notes, 'Landscapes are culture before they are nature; constructs of the imagination projected onto wood water and rock'. In particular, in this cultural and spiritual importance of landscapes and ecosystems, as clarified throughout this chapter, *biodiversity synthesis* is often ignored in the decision-making process. The cultural and spiritual values of biodiversity relate to the importance of a culture's management and governance system, their languages, knowledge bases and expressions in arts and traits. This chapter looks at the cultural and spiritual values of local and indigenous people in relation to nature conservation and ecosystem management. Therefore, it examines those spiritual values that are shared or group values and, to a lesser extent, individual values. More precisely, it is concerned with those non-material values, including spiritual values, that are shared by cultural groups and may thus be regarded as culturally defined. The importance of such intangible values has been increasingly recognized by various sectors and institutions from local to global levels. The topic now gauges interest from scientists and policy-makers, who have subsequently lead relevant policies and scientific studies, namely, the establishment of the Ad Hoc Working Group on Article 8j of the CBD,³³ the entering into force of the 2003 UNESCO Convention on Intangible Heritage (2003), and the recognition of cultural services of ecosystems in the recently released Millennium Ecosystem Assessment (MA) (2003; 2005), as well as the prominent position of indigenous people at the UN through the Permanent Forum on Indigenous Issues.

From the viewpoint of cultural services, ecosystems provide critical, often intangible, non-material and information services (deGroot et al, 2002; MA, 2005). Information services are those non-material, often intangible benefits derived from

³³ Each contracting Party shall, as far as possible and as appropriate: Subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.

human interaction with ecosystems, such as inspiration for art, development of (ecological) knowledge and spiritual health. The UNESCO Convention on Intangible Heritage³⁴ has defined (Article 2, Para 1) such intangible heritage as;

the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.

To assess the cultural importance of natural ecosystems, advancements in valuation science are needed to account for the various cultural and belief systems that form the linkages between ecosystem performance and human well-being (Ghosh et al, 2005; Harmon, 2003; Posey, 1999; Schama, 1995; Vanclay, 2002). This chapter approaches these inextricable linkages as a complex interconnected whole, taking into account that cultural perceptions of natural ecosystems are rooted in dynamic cultural systems, such as language and traditional ecological knowledge (TEK), which have evolved over generations of interaction with natural ecosystems and landscapes (Berkes and Folke, 1998; Folke et al., 1998; Ghosh et al, 2005; Maffi, 1999; Stewart and Strathern, 2003; Verschuuren, 2006).

In many cultures³⁵ such as those of the Australian Aboriginal people used to illustrate this chapter, the spiritual significance of special features of an ecosystem such as rivers, mountains or an individual tree or animal species has led to their recognition as SNSs, places that are known for their high biodiversity values (Dudley et al, 2005; Putney, 2005; Schama, 1995; Stewart and Strathern, 2003). These places are traditionally managed based on ancestral principles and spiritual values that in many cases ensure cultural continuity and environmental management. The spiritual values of SNSs may be important enough to local people to conserve natural ecosystems, even though an economic cost–benefit analysis may advise conversion of the natural ecosystem through resource development such as mining or agriculture (see the example of Coronation Hill below).

In many protected areas (see also Dudley et al, 2005), the management of non-material, cultural and spiritual values forms a challenge for conservation managers, policy-makers and indigenous people alike. It requires a consolidated understanding of the full value, from ecological, socio-economic to the cultural importance of the natural environment. Comprehensive field-tested tools to integrate local and indigenous people's cultural and spiritual values in modern ecosystem management practices are currently under development. Within the nature conservation movement, these developments are shaped along lines of increasingly holistic 'people inclusive' management strategies. This is also reflected in the International Union for Conservation of Nature and Natural Resources (IUCN) definition of protected areas:

³⁴ The official text of the convention of intangible heritage is available from UNESCO's website, <http://unesdoc.unesco.org/images/0013/001325/132540e.pdf>

³⁵ Another 100 examples of sacred sites from various cultures in different protected areas have been documented by WWF, ARC and Equilibrium in the publication 'Beyond Belief' (see Dudley et al, 2005).

Area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.³⁶

This dynamic definition of protected areas is accompanied by the IUCN protected areas categories that are used worldwide as a framework for classifying protected areas and related governance and management tools.³⁷ In addition, it should be noted that views of what protected areas are and how to manage them have been shaped in various ways throughout history.

According to Hurd (2006):

This idea of protected areas without people is an American model, based on the romantic idea of wilderness as a place without people, but indigenous people can help maintain biodiversity. Where they have been removed, the biodiversity has declined.

Reflecting on this, Dowie (2005) states that:

It's no secret that millions of native peoples around the world have been pushed off their land to make room for big oil, big metal, big timber, and big agriculture. But few people realize that the same thing has happened for a much nobler cause: land and wildlife conservation.

These discussions show that new strategies in conservation management are required. Since the Vth Worlds Park Congress in Durban South Africa in September 2003, there has been an increasing emphasis on participatory management approaches, thinking out of the box and beyond park boundaries (Balasinorwala et al, 2004).

Similar out of the box thinking is needed for ecosystem management at large and, in particular, the management of what the MA typifies as 'cultural' ecosystem services. Following recent debate, critique on the MA's ecosystem services approach resonates a strong emphasis on the ethics and aesthetics of nature conservation and ecosystem management. However, based on previous presumptions, ecosystem services are seen as economic benefits and their respective quantification leads to market-oriented mechanisms to bring conservation in synchrony with market ideologies (Carpenter et al, 2006; McCauley, 2006). One very important notion gained from this discourse is that the need exists for valuation tools that are both, useful to decision-makers and socially and environmentally sustainable and equitable. In reality, over the last decades, there has been a multitude of environmental and ecological valuation studies and many have been based on valuing ecosystem services.

Of most goods and services that ecosystems provide to people, the cultural importance is often underestimated in decision-making processes and difficult to capture using traditional valuation methods (deGroot et al, 2002; MA, 2003; 2005). Advancements of primarily economic methodologies have resulted in improved understanding of the tangible and, to a lesser extent, the intangible benefits of natural

³⁶ WPC Recommendation V.19, IUCN Protected Area Management Categories are available from www.iucn.org/themes/wcpa/pubs/pdfs/wpcrec19.pdf

³⁷ The IUCN Guidelines for Protected Areas Management Categories are available from <http://app.iucn.org/dbtw-wpd/edocs/1994-007-En.pdf> (last accessed 2 July 2006). Additional information on defining protected areas in relation to indigenous people can be obtained from the CBD article 8, www.biodiv.org/programmes/cross-cutting/protected/default.asp

ecosystems (Balmford et al, 2002; Costanza et al, 1997; Funktowicz and Ravetz, 1994; Pagiola et al, 2004). However, the number of cultural valuation studies is significantly lower (Clark, 2006) and under all scenarios projected by the MA the cultural values indicate negative trends (Gosh et al, 2005; MA, 2005). This may be due to the extraordinary socio-cultural complexities involved with valuation techniques such as scale, boundaries, units, indicators and verifiers. Especially when these are to be defined based on peoples perceptions. Integration of the cultural and ecological aspects and building on community values therefore have been identified as key components for enhancement of conservation and ecosystem management strategies that should be facilitated by corresponding policies at all levels.

Social policy and good governance

Cultural knowledge regarding ecology and environment has thus been integrated in belief and religious systems, as well as systems of land use and use of natural resources. Building on local knowledge and belief systems therefore is of vital importance for the success of participatory ecosystem management and best practice in biodiversity conservation (McNeely, 2005; Shepherd, 2004). These biocultural linkages have been recognized internationally, often within human rights, conservation or development organizations programmes of work:

- Universal Declaration on Human Rights 1948,
- International Covenant on Economic, Social and Cultural Rights 1966,
- Rio Declaration, Agenda 21, Convention on Biodiversity and article 8j;
- World Conference on Science 1999, leading to Declaration on Science and the Use of Scientific Knowledge;
- UNESCO Universal Declaration on Cultural Diversity 2001;
- UNESCO Convention on Intangible Values 2003;
- Third World Water Forum in 2003 – Indigenous Peoples' Kyoto Water Declaration;
- IUCN – Vth World parks Congress Durban, participatory model of protected areas;
- Ramsar, Resolution VIII.19 on cultural values of wetlands 2002;
- WIPO – World intellectual Property Organisation, Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.

There are many more global governance tools and numerous declarations voicing the importance of cultural diversity and the interplay of our planet's ecosystems and human well-being. Within the discourse of protected areas, however, Pomroy et al (2004) assert that a protected area per definition is a governance tool. It limits, forbids or otherwise controls use patterns and human activity through a structure of rights and rules. Resource governance is the way in which users and their intentions are managed through a set of rights, rules, shared social norms and strategies (Pomroy et al, 2004). Resource governance can include:

- formal and informal forms of resource ownership,

- use rights and the laws that support those rights,
- rules rights and regulations that dictate how resources can and cannot be used.

Over the past two decades, ecosystems are increasingly valued in terms of goods and services that contribute to our human well-being. However, according to Howitt (2001):

resources are fundamentally a matter of relationships, not things. They do not exist outside of the complex relationships between society technology and culture, economics and environment in some pre-ordained form.

Howitt (2001) continues to elicit that resources are waiting to be discovered, they are created by these relationships, very much like Schama's constructs of imagination projected on wood, water and rock. Managing resources therefore is not simply about access or trade in pre-existing things called resources. It is about fundamental transactions of power, wealth and privileges; ideas about environment, population and resources are not neutral but are in essence political. In global policy such as that developed by the CBD and its signatories, this implies that legal issues of ownership often precede those of social equity and environmental sustainability. For example, the effectiveness in dealing with social, cultural and environmental aspects of indigenous people's issues (as addressed in CBD's article 8j) is continuously being hampered by the lack of assertion of ownership and rights-based approaches. These approaches under development by the Ad Hoc open-ended Working Group on Access and Benefits Sharing³⁸ are subjected to forces beyond its own control. Legally binding multilateral agreements depend upon the quality and enforcement of national legislation and political commitment of its signatories. The lack of political commitment to establish any legal basis or resolution, which entails the sharing and possible redistribution of benefits derived from nature, is in some cases induced through the influence of private stakeholders with vested power interests. CBD and WIPO are committed to apply mechanisms that have their roots in rights-based society rather than a responsibility-based society.

Also at national, regional and local policy levels, an increasing need exists for ecosystem managers and conservationists to become aware not only of the socio-political role of resources, but also the spiritual dimensions of the human-ecosystem relationship. This need is demonstrated most urgently in the troubled relation between indigenous people and resource managers. However, good practices and partnerships certainly exist. Too often, resource management practices tend to consider important human values irrelevant and invisible. Accounting for indigenous and local peoples values demands sensitizing and understanding of the possible epistemological and ontological implications of ecosystem management in an integrated way.

This chapter aims to stimulate conservationists, ecosystem managers and policy-makers to challenge conventional thinking in nature conservation and explore ways to increase attention and opportunities for the integration of cultural and spiritual values

³⁸ CBD Article 1 states: 'fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding'. Available from www.biodiv.org/programmes/socio-eco/benefit/ab-wg-01.asp (last accessed 20 August 2006).

in ecosystem management. It is hoped to identify new opportunities for the sensitization of managers and policy-makers to cultural and spiritual values in the management of SNSs and biocultural diversity.

The importance of SNSs

In the field at various places around the world, protected areas managers have encountered situations in which SNSs play a pivotal role in indigenous management systems. SNSs are defined by Soutter et al (2001) as: specific places recognised by traditional and indigenous people as having spiritual and religious significance or as sites established by institutionalised religions or faiths as places of worship and remembrance.

The revitalized interest for including cultural and spiritual values as a measure of bio-cultural diversity offers opportunities for renewing concepts such as SNSs and further develops strategies that match these dynamic conservation objectives. This is of particular relevance to the cultural and spiritual values asserted in recommendation 5.13 of IUCN's Vth Worlds Park Congress generated in the 'stream on building broader support for protected areas' (Balasinorwala et al, 2004). It states the importance of acknowledging indigenous peoples' internationally guaranteed rights to, among others, own and control their sacred places, their archaeological and cultural heritage, ceremonial objects and human remains contained in museums or collections within or adjacent to protected areas. These include the rights to:

- Define and name their sacred places and objects, ancestral remains and archaeological, cultural and intellectual heritage and to have such designations respected as authoritative;
- Where relevant, maintain secrecy about and enjoy privacy in relation to their heritage, objects, remains and places as described above;
- Restitution of sacred places, heritage, objects and remains taken without their free and informed consent;
- Freely exercise their ceremonies, religious and spiritual practices in the manner to which they are accustomed;
- Gather, collect or harvest flora, fauna and other natural resources used in ceremonies and practices that take place at sacred places or archaeological and cultural heritage places;
- Maintain their responsibilities to their ancestors and future generations.³⁹

It has become evident that the integration of cultural and spiritual values of sacred natural sites can play a pivotal role in sustainable and equitable conservation and ecosystem management. However, from an ecosystem management perspective, care needs to be taken to ensure that cultural and spiritual values do not jeopardize biodiversity values.

³⁹ Vth Worlds Park Congress in Durban South Africa, 8–17 September 2003, Recommendation 5.13 is available at www.iucn.org/themes/wcpa/wpc2003/pdfs/outputs/recommendations/approved/english/html/r13.htm (last accessed 17 October 2006).

The collective body of case studies presented at the 2003 Kunming workshop⁴⁰ and the 2005 Tokyo International Symposium⁴¹ has given rise to the development of the 2005 'UNESCO/IUCN Draft Guidelines for the Management of Sacred Natural Sites' (UNESCO/IUCN, 2005). These guidelines are a synthesis of synergies and opportunities for the management of SNSs and the intangible cultural and spiritual values of indigenous people related to them. The guidelines, currently under development, assist in putting in place specific management objectives in protected areas and cultural landscapes.⁴² At a global level, these developments have contributed to increased interest from international organizations such as the CBD, IUCN, UNESCO, FAO and WWF that are now increasingly addressing SNSs in their programmes of work and placing the potential sustainable development and conservation of SNSs on their respective agendas.

Because these areas frequently also hold high biodiversity values, these SNSs hold considerable potential to serve as a traditional blueprint for restoring and safeguarding ecosystem functions, while supporting conservation efforts and consequently developing 'people inclusive' management objectives. In addition, because of SNSs' unique intercultural and interdisciplinary character (see Figure 1), they can be a suitable means for environmental education, cross-cultural learning and intergenerational transmission of bio-cultural knowledge. These potential benefits call for safeguarding SNSs and their integration into conservation and ecosystem management strategies. Even though a precautionary approach and sensitization to cultural and spiritual values is a prerequisite, conservation management has the ability to play a largely facilitating role in this process.

Spiritual values are often linked to the importance of nature using natural symbols and natural elements with sacred and religious significance. They embody the qualities of nature that inspire humans to relate with reverence to the sacredness of nature. The same quality of nature stimulates transcendental experiences and makes us as humans think about our environment through a sense of connectiveness. In Latin, the word *spiritus* means breath, while in Greek it relates to anatropous and means look up or rise. Both meanings make obvious indications to what one can relate to as a transcendent dimension, being spiritual or religious. These qualities are also embodied by SNSs and the *locus sacer*, as sacred sites have been called in western post-animistic religious traditions.

The sacred and spiritual dimensions of nature are experienced individually but also collectively, as is the case with SNSs. The distinct cultural perspectives associated with SNSs are considered shared values among a group of people who have a clearly distinguished culture from others. Nonetheless, the spiritual and sacred dimensions of nature are transcendent at a level where SNSs form a shared source of inspiration that is appreciated and recognized by various social and cultural groups. A good example illustrating this point is the returning of rocks, delivered in person or by mail, which

⁴⁰ 'The Importance of Sacred Natural Sites for Biodiversity Conservation', international workshop held in Kunming and Xishuangbanna Biosphere reserve, Peoples Republic of China, 12–17 February 2003.

⁴¹ 'Conserving Cultural and Biological Diversity: The Role of Sacred Natural Sites and Cultural Landscapes, held in Tokyo, Japan 30 May – 3 June 2005.

⁴² The Guidelines for the Management of Sacred Natural Sites can be accessed at <http://topshare.wur.nl/naturevaluation/75082> (last accessed 14 November 2006).

tourists from all over the world had taken from Uluru (Ayers Rock at Kata Tjuta National Park, Central Australia) after the site was officially handed back to the traditional owners.⁴³ Ownership was based on their custodianship and simultaneously the profound spiritual and sacred dimensions of the site that had over time grown to a global appreciation and recognition formalized as a World Heritage Site by UNESCO.

From a conservation or ecosystem management perspective, these culturally significant places may be labelled world heritage sites based on 6 out of 10 criteria (the other four are natural criteria):

- I. 'to represent a masterpiece of human creative genius';
- II. 'to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design';
- III. 'to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared';
- IV. 'to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history';
- V. 'to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change';
- VI. 'to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria).

Another means that allows signalling of cultural significance at a local, regional and national scale is the recognition of SNSs. Recognition of spiritually significant places through the concept of SNSs in many cases is thought to contribute to their legitimacy and offers a vehicle for their inclusion in conservation activities, ecosystem management plans and corresponding policies.

⁴³ At Uluru visitor center, there are many letters from visitors to the rock over the last couple of decades who had taken parts of it home. They'd since learnt how sacred the site was and how stealing from it can bring bad luck, and had decided to return their rocks to their natural place. More information including a radio interview on this matter can be found at Australia's ABC radio at <http://abc.net.au/religion/features/sacredsites/uluru.htm> (last accessed 10 October 2006).

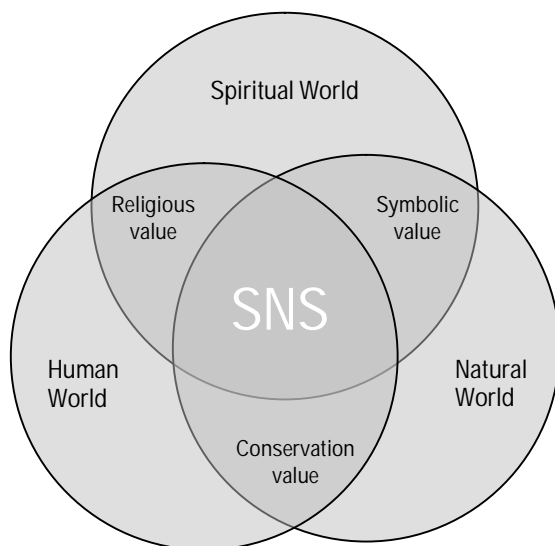


Figure 1 Main constituent values of sacred natural sites

Concurrently this would require the inclusion of cultural criteria in ecosystem management and adoption of the concept of bio-cultural diversity, which would inevitably lead to the broadening of management objectives and the enhancement of related and facilitating policies. Simultaneously the concept of SNSs gains recognition because it enables managers and policy-makers to conceptualize and communicate complex spiritual-ecosystem relationships through intercultural learning and local environmental education, while at the same time developing conservation objectives (see Figure 1). The declaration on the Role of Sacred Natural Sites and Cultural Landscapes in the Conservation of Biological and Cultural Diversity⁴⁴ (see also footnote 5) emphasizes the importance of SNSs:

1. Considering that SNSs and cultural landscapes are of vital importance for safeguarding cultural and biological diversity for present and future generations;
2. Recognizing that many SNSs have great significance for the spiritual well-being of indigenous peoples and local communities;
3. Noting the need to promote and safeguard cultural and biological diversity, particularly in the face of the homogenizing forces of globalization;
4. Bearing in mind that SNSs, cultural landscapes and traditional agricultural systems cannot be understood, conserved and managed without taking into account the cultures that have shaped them and continue to shape them today.

Embracing the concept of SNSs, it is evident that focal areas of spiritual values and cultural significance exist. However, it is of critical importance to recognize that in many cultures and traditional worldviews their importance generally extends to the wider landscape. Hence, the whole landscape can be permeated with spiritual

⁴⁴ Declaration on the Role of Sacred Natural Sites and Cultural Landscapes in the Conservation of Biological and Cultural Diversity, available at www.un.org/esa/socdev/unpfii/news/Tokyo_Final_Declaration.pdf (last accessed 29 September 2006).

significance, such as is the case in the example below of Australia's Northern Territory. Sacred landscape poses a particular set of problems for ecosystem management such as the secrecy of knowledge and the transboundary nature of cultural perceptions and patterns of land use. Evidence that such bio-cultural linkages exist is often embodied in nature and expressed through a cluster of socio-cultural values. Examples include (UNESCO, 2003):

1. Oral traditions and expressions, including language as a vehicle of the intangible;
2. Cultural heritage;
3. Performing arts;
4. Social practices, rituals and festive events;
5. Knowledge and practices concerning nature and the universe;
6. Traditional craftsmanship.

Figure 2 provides an example of some of these expressions of intangible heritage that are intimately linked to the natural environment.

Intangible landscape values in northern Australia

In northern Australia, spiritual values have materialized in the landscape through sacred sites and features that form the spatial function through which Aboriginal people connect by means of song and ritual to the dreamtime and ancestral creator beings. Figure 2 provides several examples of how such linkages become evident. These sacred elements are part of a living landscape connecting history to everyday life; hence Aboriginal culture is by no means static or merely a historic relic. The dreamtime is the creation story of the earth, man and everything on it. In the beginning totemic beings, also called ancestral beings walked the earth and created the landscape and all people in it. The landscape and the features the totemic beings created, relate to the ancestors and are recognized as places where their spirits reside. For many Aboriginal people, the landscape in which they live is a seamless fabric of physical, spiritual and cultural threads (Howitt, 2001). Places in the landscape where ancestral spirits reside may be earmarked as SNSs by conservation and ecosystem managers. Such a place may historically also be called a 'dreaming' and the stories and songs connected to it 'dreamtime stories'.

Australia is one of the forerunners in the legal protection of sacred sites. Based on their cultural affiliation, Aboriginal people can claim land rights (under the Aboriginal Land Rights Act of 1975), the right to use lands for traditional and cultural practices (under the Native Title Act of 1993) and legal protection for sacred sites (under the Sacred Sites Act of 1983). These pieces of legislation provide a basis for legal protection and self-determination for Aboriginal people. One of the notable bottlenecks with these legal systems is having to administer fixed boundaries to spaces of cultural significance, such as SNSs. Many culturally significant places are experienced from within a culture and fit into a worldview where fluid boundaries of sacredness or specific cultural practices exist. This means that a sacred hunting ground, for example, can geographically move across the map and that by fixing those boundaries at any certain point in time limits the distinguished cultural perception of the concept at hand. However, since these recent rights and legislation came about, much has been learned from participatory processes to support these policies.

Corresponding planning and management have been implemented and developments and experiences in this field are rapidly accumulating.



Preparing Magpie geese – Adjumarllarl Rangers, on the floodplains at Kunbarllaninja community, Arnhem land, Northern Territory Australia. Rituals of hunting are connected to the magpie as a food source.



Ceremonial dance – Beswick Community, Daly River. Magpie geese are mimicked in ceremonial dance depicting a creation story.



Magpie dreaming – Florence Falls, Litchfield National Park. This site, on the Mak Mak people's land was created by an ancestral being depicted as a Magpie Goose called Karramala (Rose et al, 2002).



Magpie rock paintings at Injalak Hill, Kunbarllaninja community. Aboriginal rock art is known as the world's oldest continuous painting tradition and is also a form of intergenerational transmission of knowledge.



Artwork – George Malibirr Gurramatthi (Magpie Goose) c. 1984, George Milpururru, Ganalbingu, Arnhem Land.⁴⁵ Aboriginal artwork is nowadays valued worldwide by people and art galleries.



Marketing of Magpie inspired art. T-shirt by Riptide Churinga Magpie Geese Dreaming.⁴⁶ Popular products are increasingly produced under license with aboriginal people.

Figure 2 Expressions of cultural and spiritual values related to nature (Magpie Geese)

Cultural services and value-based management

There currently exists no standard approach or methodology to assess and value the cultural importance of natural ecosystems. The Millennium Ecosystem Assessment has developed a framework for assessing ecosystem services but this framework is not specifically tailored to provide guidance and directions for assessing cultural services. In reality, numerous participatory processes and working methods exist to value

⁴⁵ More information on this artwork and the full size original photo of Australian indigenous art's relations to the land can be found at www.asiasociety.org/arts/nativeborn/timeline.html

⁴⁶ T-shirt design and photo by Riptide Churinga Company. A Churinga in traditional Aboriginal culture is a very sacred object that represents the ancestral and the individual spirit of its owner.

cultural importance of natural ecosystems. Two notable field methods are participatory rural appraisal (PRA) developed by Robert Chambers, and the pebble distribution method (PDM)⁴⁷ developed by CIFOR. Nonetheless, the development of methodologies for the assessment and analysis of the cultural benefits provided by natural ecosystems is considered to be of primary importance to nature conservation at scientific, management and policy levels for a number of reasons (Ghosh et al, 2005; Secaria and Molina, 2005). In addition, it is important to remember that sustainable policy and management are also based on cultural perceptions since they are constituents of social choice. According to the MA's biodiversity synthesis (2005), 'Science can help ensure that decisions are made with the best available information, but ultimately the future of biodiversity will be determined by society'. These social and cultural dimensions are also explained by Jepson and Canney (2003) to be 'sets of ideals and beliefs to which people individually and collectively aspire and to which they desire to uphold. They structure the traditions, institutions and laws that underpin society'.

Thus, in line with Jepson and Canney (2003), it becomes clear that we believe certain things, not because they are logically evident, but because we live in a group where these ideas are supported and confirmed (Stark, 1996). With the high emphasis on cultural values, this article makes use of the operational definition for 'cultural values' as adopted by the IUCN Task Force on Cultural and Spiritual Values of Protected Areas (CSVPA in McNeely, 2005):

Those qualities, both positive and negative, ascribed to protected areas by different social groups, traditions, beliefs, or value systems that fulfil humankind's need to understand, and connect in meaningful ways, to the environment of its origin and to nature.

Hence, it becomes clear that the need exists for social and cultural research to assist managers and policy-makers in providing a comprehensive and conceptual understanding about what ought to be valued about the resource according to the cultural perceptions at play. Ecological values, for example, are often based on information derived from species and ecosystem processes using biophysical methods. Over time, the use of traditional ecological knowledge has gained field in ecosystem management, especially when this knowledge was 'western science proof'. Cultural values, by contrast, are based on how people perceive ecosystems and in many cases there might not be sufficient or objective scientific proof causing management to work with additional sources of information such as photos, drawings/artwork or poems (see Figure 3).

When conservation management or resource development projects are not aware of cultural values, this may exacerbate existing conflicts and upset relationships between stakeholders. This may result in the loss of ecologically and culturally significant values (bio-cultural diversity) and ultimately frustrate continuation of sustainable environmental management and equitable governance at the expense of ecosystem functioning and biodiversity values (McNeely, 2005; Posey, 1999; Verschuur, 2006). Approaches to inform decision-making and management

⁴⁷ Learn more about PDM and CIFOR's Multidisciplinary Landscape Assessment at www.cifor.cgiar.org/mla/_ref/method/index.htm (last accessed 04-05-2006).

processes have better chances of succeeding when they are based on local cultural values and responses that are derived from local peoples needs. This bottom-up approach is an essential prerequisite for endogenous development. In many classic top-down valuation and assessment approaches, which currently are still being adopted, fundamental pressures and tensions can escalate or they can suffer a lack of support at a local level. Ultimately, this will frustrate and hamper ongoing management efforts and policy processes.



I can't pass a rock
Like you
Without being mystified
Or hypnotized

I have heard stories
Of rocks
And have known some rocks
personally

They represent the world by their
presence
Wisdom has no
relationship to size

One time, perhaps many times
A man became a rock
Thinking that a fine way
To gain immortality

Rock formation referred to as bag of bones. Photo: Frank LaPena

Conceptualization of the indwelling spirit attributed to bag of bones. Drawing: Frank LaPena

Tauhindali (1979) 'A rock a stone'.

Figure 3 From worldview to cosmivision

Most problems are perceived when people's values are being inadequately interpreted or defined. According to English and Lee (2003):
the fact of defining intangible values is not itself culturally neutral; it comes from the Western scientific tradition but if we do not define intangible in some way, it will be virtually impossible for them to influence management.

The power of the spiritual lays in the fact that it is intangible. It can only be valued adequately by those who perceive its importance, and therefore the quality of the valuation resides with their interpretations and ability to communicate them. Communicating cultural and spiritual values is not only difficult because of the lack of an adequate framework or the dynamics of culture, but also because these values become distorted or 'lost in translation', travelling from experience and perception to the assessment and valuation teams. In trying to assess and value the spiritual significance of nature, one finds the means to value it are complex and encompass issues like scale, indicators and in some cases require integration of scientific techniques and disciplines that may not be easily comprehensible. Therefore, the

discourse on valuing the spiritual has in some cases led to the conclusion that registering its importance undermines the very nature of its value. At worst, malfunctioning communication patterns and valuation practices could possibly be perceived as a threat rather than a means to equitably support and strengthen management and decision-making processes.

To managers and policy-makers in conservation, their understanding of value will be explicitly associated with nature and the biological world. This understanding may furthermore be shaped by a range of factors including scientific education, technical training and a lifestyle in technologically developed countries in which people live in man-made environments largely separated from nature and its subtle spirituality. However, a value can be abstract and disembodied or a quality of a physical thing and thus it can be concluded that value is everywhere, in mind as well as in matter. The debate over the source of values is ongoing and is being steered in different directions by different disciplines such as philosophy, ecology, social sciences and economics (Costanza et al, 1997; Jepson and Canney, 2003; Rolston III, 1986; Schama, 1995;). There seems to be no consensus on how to develop a single definition of value. Instead, it appears to be more constructive to recognize and understand the different (cultural) perceptions within society and how they relate to one another (Bingham et al, 1995). Hence, there exist many definitions of value; some of the definitions that are commonly used in literature are:

- General importance or desirability of something (Bingham et al, 1995);
- The value means that which has worth; something of merit, something estimable - whether or not such worth is assigned by people (Harmon, 2003);
- The contribution of an action or object to user-specified goals, objectives or conditions (MA, 2003).

The Oxford Dictionary provides three main types of uses of the term 'value', namely exchange value, utility and importance. These concepts may be linked to the three main scientific disciplines of ecosystem valuation namely, sociology, ecology and economics (in popular terms increasingly voiced as people, planet, profit). In accordance with the MA, it makes sense to look at the broader suite of values provided by ecosystems besides biodiversity values. Ecosystems also provide security, resiliency and play a key role in social relations and health issues through landscape functions. Moreover, the full suite of ecosystem functions relates to how these functions are being perceived or, what functions are being perceived and how they relate to freedom of choice and actions as proposed in the MA (2005).

Therefore, it makes sense to look more closely at how this value is perceived to evolve from a physical sphere to an anthropocentric sphere. This is important because if values are merely objective, they can be managed along with the biophysical environment and if they are merely subjective, management will consist of adjusting to public preference (Harmon, 2003). In fact, this argument illustrates the dilemma of differentiating and valuing use and non-use values, tangible and intangible values, extrinsic and intrinsic values, and biophysical and anthropocentric values.

Many societies place high value on the maintenance of either historically and/or culturally important landscapes or culturally significant species (Posey, 1999). Carter and Bramley (2002) define these values in terms of a resource's intrinsic (objectively measurable) and extrinsic (largely subjectively measurable) qualities. Both value types are significant but not integrated into the management process. This dilemma has

manifested itself as a continuous status quo for managers and decision makers although it is generally becoming more accepted both types of values need consideration (see Figure 3). It is my viewpoint that at the interplay of cultural and biological values, an overlap exists that is unique and of special importance to both cultural diversity and biodiversity, as shown in Figure 3. Cultural and biological values that are not necessarily covered by the overlap of biocultural values are, however, of significance to conservation and ecosystem management, as is shown in Figure 4.

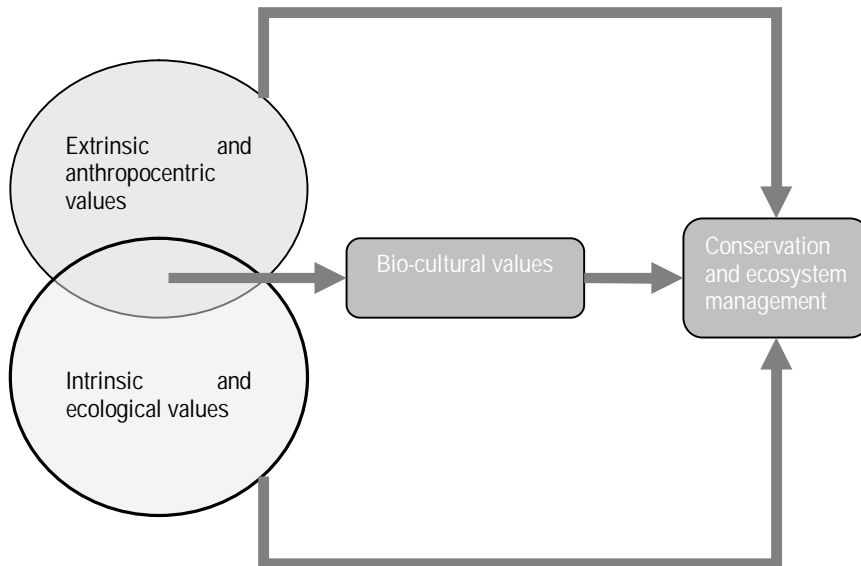


Figure 4 Extrinsic, intrinsic and bio-cultural values in management

Economic valuation of cultural importance

One way of approximating the value of expressions of intrinsic and extrinsic values may be the use of economic approaches. It is clear that economic valuation approaches, such as measuring 'willingness to pay' or the 'increased market price' for property in a natural setting, may function as a tool to put a price tag on the aesthetic functions of the landscape. Hence such methods may assist in addressing some of the human ecosystem relations, such as leisure or aesthetics, but do not work when reciprocity dominates value systems. Often the monetary value is merely a poor reflection or an approximation of the 'full value' of the human-ecosystem relationship that does not do justice to the cultural and spiritual values attached to the ecosystem as a whole. Moreover, these values are often based on perceptions that did not consider local and/or indigenous people to whom ecosystem values might include special cultural and spiritual dimensions. This poses the problem of having to make a stronger argument for cultural and spiritual values when values enter the equation of decision-makers. It also stresses the importance of involving local and indigenous people from the start into relevant conservation processes. In addition, cultural and

spiritual values have been found to relate to use as well as non-use values of ecosystem goods and services. Good examples are the cultural values of traditional agriculture and methods of food production, which are also a focus of FAO's Globally Important Agricultural Heritage Systems (GIAHS).⁴⁸

Where use values are concerned, the monetary value of goods and services in terms of market price might resemble or contest the value, as it is perceived from a cultural perspective. However, people's perceptions are known to have an impact on conservation and ecosystem management. Therefore, while the measurement of perception may be imprecise, their use can be of real value to the ecosystem managers and conservationists. When perceived importance is taken into account in the decision making process, this can result in situations where spiritual values are dominant over economic or ecological values, such as in the case of proposed mining at the holy Crough Patrick (St Patrick's Mountain) in western Ireland, where thousands of Irish and foreign people embark on a pilgrimage each year. A similar example was the proposed mining at Coronation Hill.

In northern Australia in Kakadu National Park (and World Heritage Site) as well as on its adjacent lands, a typical landscape is found, referred to by the local Aboriginal people as 'Sickness Country'. Part of this Sickness Country is registered on topographical maps as Coronation Hill. The story of proposed mining activities at Coronation Hill and the subsequent Aboriginal concerns regarding these developments has become a world famous example of cultural and spiritual values outweighing economic interests.

Although mining had previously taken place at Coronation Hill, the site came back under Aboriginal ownership and was then leased to the government for the establishment of Kakadu National Park. Kakadu is under comanagement as a result of the Aboriginal people leasing their ancestral land to the Australian Government (for conservation purposes) and a mining company (for uranium mining). The Jawoyn, traditional owners of Sickness Country, this time publicly voiced their concerns about mining development taking place. It was believed that any harm done to Sickness Country would upset the ancestral spirits and by allowing this to happen, taboos would be broken and ancestral spirits upset. Great sickness and terror of immeasurable dimensions was predicted to fall upon those who upset the country and consequently all of humanity.

The authenticity of Aboriginal cultural arguments, perceptions and values was officially established by anthropologists to clarify the degree to which information sources about these values may have been understood as credible or truthful and subsequently approved of in court. Although the economic benefits of mining Coronation Hill at that time were estimated to be approximately AU\$750 million, Aboriginal people stood their ground and protected their ancestral lands, their people and essentially their own evolving dynamic culture.

When claiming full economic power over resources and ecosystems, these will be subject to (intellectual) property rights that can consequently be acquired by those who most 'value' them (WIPO, undated). Rather than in the above example, this

⁴⁸ More information on Globally Important Agricultural Heritage Systems (GIAHS) can be found at www.fao.org/sd/giahs/

process takes place via the economic principles of exclusive and transferable rights. This is based on the idea that suitable assignment of property rights and private bargaining between individuals can correct externality problems and lead to efficient outcomes. This idea, the Coase theorem, is generally attributed to the Nobel prize-winning economist Ronald Coase (Perman et al, 2003). The monetary value has become a proxy for the goods and services valued by the individual, which often disregards societal, cultural and ethical considerations. Hence, this economic and political model of governing resources does not only lead to externality problems concerning the environment but also causes equity problems, social injustice and erosion of cultural diversity. Renowned conservationist George Schaller⁴⁹ underlined the intangible character of these values when commenting on the economic importance placed on nature by today's society:

It is tremendously worrisome that we don't talk about nature anymore. We talk about natural resources as if everything had a price tag. You cannot buy spiritual values at a shopping mall. The things that uplift the spirit are intangibles. Those are the values that people do look for and everyone needs.

When being sensitive to cultural and spiritual values, we want to be open-minded but this also raises questions that stem from our own worldview. How much can we do? At the same time, can we act and not yield comfortable or politically desirable power positions? Can we really, or to what point can we, change our own framework of conception to comprehend these values? Often we think that what is good for us is good for everyone and without realizing it, impose our reality upon others, which may in the end work counterproductively and contribute to the erosion of cultural and subsequently biological diversity.

Integrating local and global scales

According to recent research underpinning the importance the Millennium Ecosystem Assessment put on assessing the real value of ecosystem services, the research community needs to develop analytical tools for projecting future trends and evaluating the success of interventions, as well as indicators to monitor biological, physical and social changes (Carpenter et al, 2006).

The marrying of biophysical and social sciences also has implications for the development of bio-cultural indicators for conservation and ecosystem management. The changes in conservation ethics bring forth a shift towards including local and indigenous people in day-to-day conservation management. According to the United Nations Permanent Forum on Indigenous People, the issues of scale should be addressed when proposing indicators, including at the international, regional and national levels. It is increasingly realized that effective management is more dependant on multi-user, multi-functional models that interact constructively with local and indigenous populations. This also implies recognition and respect for the values these people deem to be of importance, specifically in relation to the natural environment.

⁴⁹ Interview with George Schaller in *National Geographic Magazine*, 'World parks' (October 2006).

Usually these values are tied to a culturally determined worldview with a very important role played by spiritual values attributed to nature.

As these cultural values are local values that typically vary from culture to culture, it is thought to be extremely difficult to devise indicators for assessment at a global level and at the same time stay as precise as possible. The excerpt from the Nara Document on Authenticity below is a key example of global policy guidance provided by ICOMOs (1992) (International Council on Monuments and Sites) that, together with UNESCO, provides advice on cultural aspects of world heritage sites. Similar policy guidance, however, does not exist specifically for the natural environment:

All judgements about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgements of values and authenticity within fixed criteria. On the contrary, the respect due to all cultures requires that heritage properties must be considered and judged within the cultural contexts to which they belong. Therefore, it is of the highest importance and urgency that, within each culture, recognition be accorded to the specific nature of its heritage values and the credibility and truthfulness of related information sources.

One of the main implications and challenges the conservation paradigm faces is the development and integration of local and global models. The integration of local and global values is known to be a difficult issue. The issue is manifest through the gap that exists between the way that policies are set and the way corresponding management objectives are being determined and met in the field. One contrast between 'global values', such as the existence of healthy ecosystems for future generations, and 'local values', such as direct use values through hunting wildlife for food security, characterizes this problem. In the face of conservation and ecosystem management, local assessment methodologies need to be scaled up to a regional and in some cases to a global level, and global policies need to be designed in such a way that they can incorporate such values (Verschuuren, 2006). To some extent, the opposite is also true and global indicators in some cases need to be based on local values to remain relevant. However, it should be kept in mind that the objectives the indicators are meant to inform upon, can be essentially different between local and global levels.

For example, at a global level to support its policy, the UN Permanent Forum on Indigenous Issues has identified two streams for indicator development that are both relevant to ecosystem management and conservation. The first stream focuses on identity and offers some practical ecological parameters that can be monitored at a global level and may be seen as state indicators, while others are merely process indicators. In the first stream 'Identity, Land and Ways of Living' under the theme, 'Health of ecosystems', the Forum mentions:

- a. Number of endangered flora and fauna linked to indigenous peoples' current and future subsistence needs, and dependence based upon ceremonial and cultural practices;
- b. Number of fish, animals and other life-forms that can be sustainable, hunted, fished and gathered on lands and territories;

- c. Documentation of climate change, contaminate levels, habitat destructions affecting viability of subsistence resources and protection of traditional habitat;
- d. Indigenous peoples' inclusion, participation and employment in ecosystem management. Other indicators in the same theme that are easier to assess because they can be obtained without indigenous engagement or specific ecosystem knowledge are:
 - Number of preventive programs, regulations, ordinances and measures (tribal and non-tribal) protecting ecosystems in indigenous lands from mineral extraction and non-sustainable activities,
 - Number of environmental protection violations and reports of conservation damage within and near indigenous lands and territories,
 - Rates of and number of reports of toxic contamination and industrial damage to the aquatic ecosystem that affects indigenous peoples' consumption of fish, shellfish, aquatic plants,
 - Rates of suppression effects whereby an ecosystem and the fish, wildlife or plant life it supports is contaminated or destroyed beyond the ability of indigenous peoples to consume or practice its cultural, subsistence and ceremonial use and
 - Existence of legal frameworks for indigenous veto over the use of indigenous lands.

With reference to protected areas and the role of conservation for the management of bio-cultural values a rights-based approach should be considered. In stream two, 'Indigenous Rights to, and Perspectives on, Development' under the theme 'Indigenous governance and management systems', the Forum mentions:

- a. Recognition of indigenous governance and laws by state governments;
- b. Support for indigenous capacity, leadership, policy and program development by state and indigenous governance, including number of programmes and persons participating in and completing trainings.

Bridging the gaps when integrating local and global scales has posed the need for innovative assessment and management approaches. Approaches based on locally derived indicators that can inform both day-to-day management and policy-making up to a regional level would greatly assist conservationists and ecosystem managers. Conventional policies that impose top-down chains of management may need to be sensitized to outcomes of local assessments, participatory processes and transparent working methods (Verschuuren, 2006). These bottom-up processes are particularly suited to communicate local values so that these can be taken into account in the decision-making process and the processes of endogenous development. A participatory stakeholder-based approach generally enables the identification of obstacles such as vested competing interests and inappropriate management and policy, which are concurrently put on the table and re-examined. Nonetheless, our ability to understand these values depends, in part, on the degree to which information sources about these values may be understood as credible or truthful (ICOMOS, 1994).

A good example of an indicator for bio-cultural diversity is linguistic diversity. The world according to Smeets (2006) 'is a mosaic of visions and each vision is encapsulated by a language. Every time a language is lost, one vision of the world disappears'. Linguistic diversity is known to be highest in equatorial regions where the

earth's highest biodiversity is also found (Harmon, 1996; Maffi, 1999). Although biological mechanisms are not necessarily linked to the occurrence of languages, which does seem to be the case with islands showing high endemism in flora and faunal composition and corresponding high levels of linguistic diversity, the causal relationships between biodiversity and linguistic diversity do not always show a scientifically proven correlation. Nonetheless, from an anthropological point of view, linguistic diversity is able to serve as a proxy indicator for bio-cultural diversity at a global level.

For example, the importance of language for biodiversity management is highly significant when looking at the vocabulary and lexicon of a language. Biodiversity is particularly expressed in language at a local level in the form of place names and the many expressions and words for various ecological traits (for example, Amazon Indians have over 20 words for green and Aboriginal people over 12 names for waves). The intimate relationship that people have with place and territory typically evolves over generations of oral traditions: naming and classification systems, resource use practices, ritual, spirituality and worldview. One notable example shows how language is linked to place in northern Australia.

In northern Australia, often habitats are named after the most common plant, for instance wunybuwunybu if there are many paperbark (*Melaleuca*) trees. Local Aboriginal people also express a strong feeling of sense of place related to the wunybuwunybu and its habitat (Jackson, 2004):

That was good river – him flat one. Pretty river – all the grass – thick one. All the way along the river. Old people used to sit down like that. I come from that. I got nothing now for sitting down like that... I want to bring that story out. My taxi was the dug-out canoe... Me, I come from the Paperbark, not from the tin house.

This clear differentiation of associated worldviews (that of the 'Paperbark people' and that of those from 'the tin house') within the same community might indicate a distinct relationship with land in terms of ecological knowledge and spiritual values.

Local values are based on how people perceive their environment. The perceptions of cultural and spiritual importance are more likely to differ among individuals and communities than, say, perceptions of the importance of food production. Moreover, assessment and valuation of cultural and spiritual values should result in clarifying trade-offs based on competing interests in the light of human well-being. Equitable decision-making itself is a social choice, but can only be reached when all stakeholders have been involved in the assessment process and when their values are respected. This includes empowering people and communities to shape and adequately participate in the relevant development processes.

When assessing the cultural and spiritual values of landscapes, ecosystems and respective biodiversity, one is confronted with knowledge-practice-belief complexities (Berkes, 1999). Of course, local and indigenous people identify and prioritize values differently from conservation and ecosystem managers. Respecting local values also implies respecting local belief systems embedded in different worldviews and cosmovisions. Local people do not necessarily think in causal relations that can be scientifically proven. Respect for local values in value assessment and day-to-day

management processes therefore needs to take all information and knowledge into the equation, whether its epistemology is scientifically validated or not.

Ecosystem and conservation management are subjected to and influenced by cultural perceptions, as well as political and economic interests. Ideas about which landscapes should be conserved are also influenced by such perceptions. This is illustrated by the growing importance of building ecosystem management on the concept of SNSs within the programme of work of the international conservation community, such as IUCN, WWF, UNEP and CBD. Including such places in conservation and ecosystem management plans also implies that the people involved in this achievement will have to learn to think in a new way about the landscape and ecosystems that they are managing. According to Schama (1995):

'there is an elaborate frame through which our adult eyes survey the landscape. Before it can ever be a response for the senses, landscape is the work of the mind. Its scenery is built up as much from strata of memory as from layers of rock.

Hence, cultural perceptions and shared history of landscapes can result in different and even contesting meanings of ecosystems and landscapes.

When embracing cultural diversity, its perceptions and consciousness, and applying it as guidance for selecting criteria for putting in place management objectives, one also needs to question the role of current biophysically founded management actions and accept culture as a dynamic and evolving cocreator of management and policies. Subsequently, including different cultural perceptions in conservation and ecosystem management activities demands an understanding of local and indigenous people's self-determination to be incorporated in the ecosystems governance model. The Permanent Forum on Indigenous Issues (2006) also addresses the issue of indicators in relation to human well-being, brought forward in the Millennium Ecosystem Assessment and through the framework of the Millennium Development Goals (MDGs). Experts agreed that:

indicators must place significant emphasis on indigenous peoples' inherent values, traditions, languages, and traditional orders/systems, including laws, governance, lands, economies etc. This must include recognition of the value of indigenous work (e.g. 'making a living' versus 'having a job'). Indicators development should reflect true indigenous perspectives such as portraying approaches grounded in wholism and unique values. (Permanent Forum on Indigenous Issues, 2006, article 17)

Subsequently, this led to a set of recommendations to adjust the MDGs and take into account the ways well-being is perceived by indigenous people (Permanent Forum on Indigenous Issues, 2006). Some of the issues such as scale, prior informed consent and self-determination are already dealt with elsewhere in this chapter, but there are several more that are relevant to conservation and ecosystem management, namely:

- Identity is an important aspect of indigenous peoples' well-being that is particularly difficult to measure;
- A broader view of ownership, access, use and permanent sovereignty over land, sea and water rights, environmental management and land quality, should be in place;
- Health for communities and health for ecosystems should be highlighted.

Recognizing the concept that culture is dynamic and that accordingly governing principles should be based on principles of 'self-determination' (as shown in the example of Coronation Hill), other issues arise that need careful consideration in conservation and ecosystem management, as illustrated with the following example.

More often than not, people and land managers, tend to incorporate 'exotic' species as part of their perception of a given landscape and as part of their ethnobotanical repertoire, particularly when economic, agricultural and aesthetic motivations are involved. In northern Australia's Kakadu National Park and World Heritage Site, this has led to a growing appreciation of the presence of wild horses in the park. In particular, the Aboriginal people who co-manage the park with the Parks and Wildlife Service insisted on this introduced (some would say pest) species, despite of the impact it causes on the parks ecology. In fact Aboriginal peoples place a cultural-historic value on horses that has simultaneously led to the species' growing spiritual significance. Because of this, Aboriginal people now recognize places in the landscape that are called 'horse dreaming', which like other dreaming sites are venerated and imbued with spiritual importance. Naturally, these places are an expression of human-ecosystem relationships and form focal points of cultural and spiritual values. They offer opportunities for specific management objectives that fit in the concept of SNSs. Hence, protecting biological diversity (ecosystem integrity) and cultural and spiritual diversity (SNSs, culturally significant landscape) poses a challenge to managers and policy-makers that requires them to search for appropriate solutions outside of their conventional references and beliefs.

Conclusion

At present in nature conservation and ecosystem management, increasing importance is placed on the full range of values related to landscapes and ecosystems. Besides the many functions that (protected) areas and ecosystems in general contribute to human well-being through what are popularly called ecosystem goods and services, there is growing recognition of the fact that these ecosystems and landscapes are perceived in very different ways by different people and stakeholders. Often perceptions of ecosystems are culturally induced and embedded into worldviews that are intricately connected to the environment. This has consequences for the way perception plays a role in selecting indicators, indicator criteria and their application in monitoring systems and management.

Cultural values have been recognized to be of importance by various international agreements, scientific studies and NGOs, such as the CBD's article 8j, UNESCO's World Heritage Commission and Convention on Intangible Heritage, the Millennium Ecosystem Assessment and the programmes of work of UNEP, WWF and IUCN, notable of which is the World Commission of Protected Areas Task Force on Cultural and Spiritual Values of Protected Areas. A working definition of cultural and spiritual values is provided by this commission that can be detailed and applied through assessment of: a) oral traditions and expressions, including language as a vehicle of the intangible; b) cultural heritage; c) performing arts; d) social practices, rituals and festive events; e) knowledge and practices concerning nature and the universe; and f) traditional craftsmanship in their relationship to nature, in particular,

relations to systems of landuse, traditional ecological knowledge and ecosystem management.

Of special significance are SNSs since they form an outstanding opportunity to include cultural and spiritual values in protected areas and ecosystem management. SNSs often hold high biodiversity values, and therefore can act as a traditional vehicle for protecting and enhancing ecosystem functions and bio-cultural diversity. They also contribute to conservation efforts and the development of 'people inclusive; management objectives, environmental education, cross-cultural learning and intergenerational transmission of bio-cultural knowledge.

Although SNSs are often focal points of cultural and spiritual values, they are simultaneously often part of unique worldviews of indigenous and local people. However, cultural and spiritual values related to nature, as captured by the concept of bio-cultural diversity, extend to any culture or society in some form.

Depending on the governance model of the protected area and the balance between empowerment of indigenous people and participation in management, indigenous people will need to be able to communicate the importance of their cultural and spiritual values where relevant to the management objectives. Following the categorization of ecological, socio-economical and cultural values, the criteria (and importance of criteria) for selecting suitable indicators can vary considerably. Most of all the criteria depend on how these values are perceived by local people. Local and indigenous people need to be involved in the process of developing, selecting and measuring those indicators. At best, locally based means of deciding what is important for management need to be respected and approved of.

To assess the cultural importance of natural ecosystems, advancements in valuation science are needed to account for the various cultural and belief systems that form the linkages between ecosystem performance and human well-being. Given the complex nature of worldviews and particularly their cultural and spiritual dimensions, innovative participatory management strategies are also required. In particular, when formulating management objectives based on cultural and spiritual values, it is of critical importance to understand these values in their socio-cultural context. When managing culturally significant ecosystems it is equally important to recognize the cultural and spiritual values and include them in assessment and monitoring strategies.

Developing suitable indicators to inform management on the state or condition of the values at hand can be a complicated task. Prior to selecting indicators, the criteria that form the basis for selecting indicators have to be clarified. It is argued that these criteria vary with the type of values the indicator is expected to reflect. When concurrently measuring biological diversity and spiritual significance at SNSs different criteria may apply to selecting suitable indicators (ICOMOS, 1992):

Judgements about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgements of values and authenticity within fixed criteria.

Finally, integrating sacred sites in conservation efforts can only be achieved when doing this across physical and institutional borders, in and outside protected areas! Therefore, including sacred sites in all protected area categories builds on their intercultural and cross-cutting values that, in turn, produces equitable synergies between cultural and natural diversity in support of conservation objectives.

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