

**Innovative institutional design for
sustainable wildlife management
in the Indigenous-owned savanna**

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Acronyms and abbreviations

AGPS	Australian Government Publishing Service
AIAS	Australian Institute of Aboriginal (and Torres Strait Islander) Studies
ALRA	<i>Aboriginal Land Rights (Northern Territory) Act 1976</i> (Cwlth)
ATSIC	Aboriginal and Torres Strait Islander Commission
ANU	The Australian National University
BAC	Bawinanga Aboriginal Corporation
CAEPR	Centre for Aboriginal Economic Policy Research
CDEP	Community Development Employment Projects
CFCU	Caring for Country Unit
IPA	Indigenous Protected Area
ISP	Income Security Program (Canadian Cree)
KCTWM	Key Centre for Tropical Wildlife Management
NAILSMA	North Australian Indigenous Land and Sea Managers Alliance
NHT	Natural Heritage Trust
NLC	Northern Land Council
NTA	<i>Native Title Act 1993</i> (Cwlth)
NTU	Northern Territory University
SPRC	Social Policy Research Centre
UNSW	University of New South Wales

Abstract

This paper examines a particular form of cooperative wildlife management on Aboriginal land in the tropical savanna of the Northern Territory, in the context of broader questions about governance. It asks how governance at the state, regional and local level can be designed to ensure sustainable development and real economic benefit for the region's long term Indigenous residents.

The economy in this region is hybrid, in the sense that it has customary, market and state components. The market sector is very small, and the state welfare sector correspondingly large. The customary sector, which has hitherto been generally ignored in policy discussions, is significant and offers the potential for growth through commoditisation of regional resources. The state's governance of economic resources, though regulatory property regimes, generally favours commercially powerful non-Indigenous interests and excludes both contemporary and future Indigenous interests. But simultaneously, and in marked contrast, local management of resources is based primarily on customary land ownership and Indigenously defined property rights.

Sustainable development will thus require hybrid institutions that accommodate and value the principles and practices of Indigenous resource management, while also recognising the benefits of broader regional governance. The paper identifies emerging best practice in wildlife harvesting that is founded on careful scientific assessments of sustainability, and argues for an approach to northern development based on sustainability and locally-controlled commercialisation. Future challenges include convincing governments and state agencies of the national benefits of this approach. Reform of governance to facilitate its rapid implementation is desirable, in the context of the relative poverty currently experienced by many Indigenous people.

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Introduction

This paper examines a particular form of cooperative wildlife management on Aboriginal land in the tropical savanna. It argues that sustainable economic development for many Indigenous people is interrelated with wildlife harvesting and management, and that sustainable harvesting will require a high level of cooperation between the Indigenous harvesters of wildlife (the holders of Indigenous ecological knowledge), biological scientists and social scientists. While institutions facilitating such harvesting and collaboration already exist, there is need for further institutional innovation and purpose-built design. 'Hybridity' (in the sense of heterogeneity) is a concept central to our argument, which is couched in terms of understanding the hybrid economy, hybrid approaches to sustainability, and hybrid institutions.

The empirical evidence presented here comes from a case study of institutional hybridity in the Northern Territory savanna. We provide information on a particular region, central Arnhem Land, and show how the Bawinanga Aboriginal Corporation (BAC) has been at the forefront of a newly emerging form of bottom-up, or community based, collaborative wildlife management. In conclusion, it is argued that the institutional framework for wildlife management proposed here poses challenges for a diversity of interests—state wildlife management authorities, the scientific community and the Indigenous affairs policy community.

Setting the scene

In 1976, with the passing of the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cwlth) (ALRA), much of the tropical savanna that was already scheduled Aboriginal reserve land was transferred back to statutory Indigenous ownership. Since that time, land claims and land purchases have returned more land to Indigenous ownership and control. More recently, in the aftermath of the *Mabo* High Court judgment and the passage of the *Native Title Act 1993* (Cwlth) (NTA), more land has been claimed by Indigenous Australians. It is now estimated that up to 18 per cent of Australia is Indigenous-owned. Much of this land is in the sparsely-populated tropical savanna (Pollack 2001).

In the Northern Territory, even before land rights, many people continued to live on their traditional lands and engage in customary economic activities that were predicated on wildlife management and harvesting. In the early 1970s a form of extensive reoccupation of land, often referred to as 'the outstations movement', occurred. This movement has been associated with an increase in wildlife harvesting (Altman 1987; Coombs, Dexter & Hiatt 1980; Meehan 1982); the repopulation has seen the return of natural resource managers to the land.

Indigenous customary rights in wildlife received no recognition in Australian common or statute law until the passage of the NTA, with its highly significant s. 211 that guaranteed access to more species for non-commercial purposes

(Altman, Bek & Roach 1996; Young 1998). Prior to that, Indigenous customary wildlife harvesting went largely unregulated by wildlife authorities and was generally assumed to be economically insignificant—indeed, until recently, customary use of native wildlife was barely acknowledged in mainstream resource management discourse (Bomford & Caughley 1996; Commonwealth of Australia 1998). More recently, a convergence of two broad trends has seen a heightened interest in Indigenous wildlife harvesting and management. The first was instigated by the *Yanner v Eaton* High Court judgment of 1999 that tested the legal significance of s. 211 of the NTA. It found that the vesting in the Crown of property rights in wildlife did not extinguish native title (Brennan 1999), and that Indigenous customary rights in wildlife may prevail. The second trend has been a growing recognition by Indigenous people that land rights alone will not deliver economic development through market engagement—there is also a need for property rights in commercially valuable resources.

The hybrid economy revisited

In a recently published paper (Altman 2001) it was argued that a particular form of hybrid economy, with customary, market and state components, has evolved on the Indigenous estate. In this paper, we focus specifically on those customary and commercial elements of the hybrid economy that entail the management and harvesting of wildlife. Conceptually, there is a clear overlap between the customary and the commercial—production for customary use may also be production for the market, and vice versa (Altman 1987).

On the ground this overlap is less evident and its extent varies enormously depending on the species concerned. Somewhat paradoxically, as noted above, customary use of wildlife has historically been largely unregulated and unmonitored, while for most species commercial use is highly regulated—arguably over-regulated—by the state. This paradox exists because of the partial alienation of property rights in (control over) wildlife resources that has been a costly legacy of the colonial encounter for Indigenous Australians. Needless to say, the distinction between customary and commercial use makes little sense to Indigenous landowners and resource users whose customary laws, values and belief systems dictate that they are also resource owners. The alienation of commercial rights in species is not entirely consistent across the board. For example, harvesting of carving wood and the bark of trees for production of Aboriginal art for sale is effectively unregulated, but the harvesting of wild animals for commercial sale is heavily and more vigorously regulated. For many terrestrial species, the state maintains commercial property rights in species, but has not yet divested them through sale or lease.

In the late 1990s there was a degree of convergence in the aspirations of Indigenous land owners in the tropical savanna to commercialise elements of the customary economy, and the Australian government's Indigenous policy rhetoric of reducing Indigenous welfare dependence and economic marginality. But there is often a mismatch between the policy rhetoric and the signals given to

contemporary Indigenous wildlife harvesters (Altman 2002). From the Indigenous perspective, commercialising aspects of the customary sector makes good sense. It is a means of maintaining highly valued ecological knowledge, enhancing engagement with the market, and reducing overall welfare dependence. Commercial use has the potential to increase economic and political control not just over the land, but also over its wildlife (and other natural resource) endowments. Political mobilisation to convert wildlife stocks to commercial use will, however, be largely dependent on equitable access to commercial rights currently held by the Crown. From an Indigenous perspective, commercialisation of the customary sector is not new and has successful precedents and parallels in the sustainable Aboriginal arts industry that has developed over the past 30 years (see Wright & Morphy 2000).

From the government perspective, Indigenous policy is only one element of a wider policy spectrum. Environmental policy issues loom large in the tropical savanna, partly because this region is relatively undeveloped commercially (owing to late colonisation) and includes bioregions with high priority for biodiversity conservation (Environment Australia 2000). The broader political argument to allow a greater vesting of commercial rights in wildlife to Indigenous landowners must be based on the premise that wildlife harvesting is a form of wildlife management that enhances the conservation of biodiversity. There is a strong correlation between Indigenous aspirations for sustainable wildlife harvesting and the state's goal of biodiversity conservation.

A hybrid approach to sustainability

Sustainable wildlife use and management will require a hybrid approach that combines Indigenous ecological knowledge with Western biological science and social science.¹ Conceptually (and to simplify considerably) such a hybrid approach is compatible with the emerging sustainability paradigm that looks to integrate ecological, economic and sociocultural perspectives into one overarching framework (Belsky 2002; Venning & Higgins 2001). Of course, such a framework is highly contestable—for example, Western science might regard customary wildlife management as non-regulation, while from an Indigenous perspective Western science might be regarded as ineffective in influencing the state to ensure that commercial agribusiness is ecologically sustainable. As for economics, it is currently dominated by a neo-liberal ideology of development that does not see beyond the market, and thus fails to recognise the hybrid economy and the links between customary and commercial use.

Rather than focus on contestation and divergence, we attempt here to find intellectual common ground between three groups and their perspectives—scientists with their tool kit for quantifying sustainable wildlife harvesting levels (the ecological perspective); social scientists with their techniques for understanding cultural difference and for assessing commercial viability (the socioeconomic perspective); and holders of Indigenous ecological knowledge, who are the wildlife resource users, with their distinct governance regimes based on

customary land ownership and culturally-defined individual and group property rights (the sociocultural perspective). The emphasis is on cooperative and community-based wildlife resource management and how this might deliver sustainable and cost-effective development benefit, not just for Indigenous land owners and wildlife users but also for biodiversity conservation and the national interest.

Indigenous aspirations to use the land and its wildlife resources in ecologically sustainable ways are very rational, given the importance of land to Aboriginal society. Moreover, that land is primarily held under inalienable title, and because the land (and its resources) cannot be sold in the short term, the long-term cultural integrity of the landscape and the needs of future generations gain additional significance. Ecologically sustainable wildlife use is in tune with Indigenous ideology, and also with customary practices that remain highly valued. There is a growing recognition that Indigenous knowledge makes a difference in practice (Sherry & Myers 2002). Simultaneously, there is an acceptance that such knowledge alone is not sufficient for effective contemporary wildlife management, nor for addressing the political challenge—modifying the state’s formal and highly institutionalised rights in commercial utilisation to ensure divestment to Indigenous interests. Assistance from biological and social scientists will be needed to alter long-established power relations in the matter of wildlife regulation.

Indigenous people are beginning to recognise that wildlife management based on sustainable customary harvesting does not occur independently from more general natural resource management. There is range of new circumstances and ecological challenges that Indigenous ecological knowledge is not well equipped to address, including the introduction of feral species, introduced weeds, and modified fire regimes. Wildlife management is only one part of the broader issue of biodiversity conservation. Similarly, there is a growing recognition that expanding wildlife harvesting from the customary to the commercial and the use of new technology require assessments of ecological sustainability and economic viability that need to be added to the Indigenous tool kit in the longer term. In the short term, existing hybrid institutions, staffed by both intercultural mediators (who are often non-Indigenous) and holders of Indigenous knowledge, will need to form alliances with scientists and social scientists to ensure a match between Indigenous development and sustainability goals, and between the policy goals of the state and the interests of Indigenous wildlife users.

Hybrid institutions

The term ‘institution’ has many meanings in the social sciences literature. Using the approach of the new institutional economics, Leach, Mearns and Scoones (1999) distinguish institutions as ‘the rules of the game in society’, from organisations as ‘the players’ or ‘groups of individuals bound together by some common purpose to achieve objectives’. We adopt this distinction. The

institutional framework for wildlife management in the tropical savanna is enormously complex. Institutions operate at three distinguishable tiers. State agencies characterised by formal institutions are at the least local level, and the formal and informal institutions of Indigenous social groups and community-based Indigenous organisations are at the most local level. Intermediate between these are regional institutions such as the Caring for Country Unit (CFCU) of the Northern Land Council (NLC) and the network that has resulted in the North Australian Indigenous Land and Sea Managers Alliance (NAILSMA). The distinction between formal and informal institutions is important in this particular case. The former include statutory property rights and trade in such rights, which are dominant in the commercial sector; the latter include customary rights legitimised by social norms and codes of behaviour.²

In the particular case examined here, there is clearly a tension between the institutional types that characterise these layers, most particularly between state management regimes and Indigenous community-based interests represented by Indigenous organisations at intermediate and regional levels. In the past the state has unilaterally alienated Indigenous harvesters from commercial access rights to wildlife—rights that Indigenous people are now trying to reclaim. State agencies today do allocate wildlife access rights through approved management plans and permits that vary from State to State, but these are fundamentally different from the group property rights of customary law. There is also a clear and somewhat inexplicable bifurcation between regulations that concern commercial and customary use. There are other tensions between state and community-based management that are evident with respect to natural resource management generally: the former are centralised and removed from wildlife use stakeholders, the latter decentralised and incorporating user groups. It is very clear that the monitoring of wildlife use in the sparsely populated Australian tropical savannas, which is so integral to sustainable management, has to occur at the decentralised regional level with the assistance of the Indigenous inhabitants who make use of wildlife resources. Effective wildlife management will require collaboration between the regulators and the users not just in approach but at the institutional level.

It would be wrong to suggest that this institutional tension is unidirectional: Indigenous interest groups are keen to convert wildlife endowments on their lands to mixed commercial and customary entitlements. A mix of formal legal institutional mechanisms and those grounded in customary law and social conventions will be required to achieve this combination of rights. Converting endowments into commercial entitlements requires political action to alter power relations that have historically diluted the property rights of Indigenous people. Commercial rights are presently owned (and hence may be potentially traded or bestowed) by state agencies. But there is also an emerging realisation among Indigenous people that formal legal institutional mechanisms will be needed to protect Indigenous commercial rights, when or if they come to exist, from both non-Indigenous and other Indigenous interests.

A case study of hybridity: the Bawinanga Aboriginal Corporation

To exemplify this institutional complexity, we turn now to an empirical case study of a hybrid organisation. BAC is an outstation resource agency that is increasingly involved in community-based sustainable wildlife management. The geographic focus of BAC's activities is a region of 10,000 square kilometres of tropical savanna colloquially termed 'the Maningrida region', in central Arnhem Land. This region is roughly bounded to the west by the catchments of the Mann and Liverpool Rivers, to the east by the catchments of the Blyth and Cadell Rivers, to the south by the Arnhem Land escarpment, and to the north by the Arafura Sea. The region is an artificial administrative construct, created by the establishment of the government settlement of Maningrida in 1957, but it does have some bioregional integrity.

We begin with a short history of the organisation and a description of key features of its particular form of institutional hybridity.³ BAC was first established in 1979, as an outstation resource organisation incorporated under Commonwealth law. Over the past 24 years it has developed into a relatively large and complex organisation that continues to operate as an outstation resource agency assisting Aboriginal land owners residing on small communities in the region. It is also one of Australia's largest Community Development Employment Projects (CDEP) scheme organisations, a service provider, a commercial entity, the parent organisation for Maningrida Arts and Culture and, increasingly since the mid 1990s, a regional economic development corporation (see Altman & Johnson 2000; BAC 2000, 2001).

The broad mission of the organisation is to promote economic development options for outstation communities within the context of the maintenance of land, language and culture (BAC 2001: 2). In its capacity as a development corporation, and in accordance with the central tenet of this mission, BAC focuses on wildlife utilisation as one potential avenue for greater regional engagement with the market. The Djelk Community Rangers, a key element within BAC, evolved from a feral pig eradication program in 1995. They are supported by the CDEP scheme and project funding from the Natural Heritage Trust (NHT).

BAC is at the forefront of Indigenous commercial wildlife harvesting enterprises and trials. The range of trial programs include the harvesting of carving wood (*Bombax ceiba*), buffalo safaris, catch and release sport fishing, the harvesting of Kakadu plums, trepang, mangrove clams, agile wallabies, magpie geese, mangrove monitors, cycads, long-necked turtles and crocodile eggs, and the farming of crocodile hatchlings and Morinda (stinky cheese fruit). BAC is also keen to see changes in the regulations governing Northern Territory Coastal Licences to allow commercial harvesting of licenced barramundi, mud crabs and trepang, and local sale of magpie geese and fish other than the species currently allowed for under existing regulations (BAC 2000, 2001; Whitehead et al. 2002).

The diverse roles of BAC and the Djelk community rangers can be summarised as follows:

- **Representation**—BAC's membership is made up of Aboriginal people from about 100 clans. It is committed to representing the customary land ownership and resource use aspirations of these groups, in all their diversity, but defers in the first instance to local traditional owners. BAC operates as the inter-cultural mediator between its Aboriginal members and external commercial interests.
- **Integration**—BAC plays a crucial role in integrating the diverse aspirations of land owner groups into a coherent organisational position. This role requires a high level of mediation and negotiation across the region.
- **Advocacy for rights in wildlife**—BAC is an advocate for the articulated aspirations of most regional land owner groups for full rights in resources, with commercial rights in fisheries and protection of intellectual property currently paramount. It represents these views to politicians and state agencies.
- **Development support**—BAC is responsive to the diverse development aspirations of its members, ranging from a high level of participation in customary activity to a high level of engagement with the market, for example through the sale of Aboriginal art.
- **Partnership building**—Recognising its lack of expertise in science and social science, BAC has actively forged partnerships with a number of institutions including the CFCU, the Northern Territory University's (NTU's) Australian Research Council linkage project with the Key Centre for Tropical Wildlife Management (KCTWM), the Australian National University's Centre for Aboriginal Economic Policy Research (CAEPR, ANU) and the University of Canberra's Applied Ecology Research Group.
- **Innovation and risk taking**—BAC is proactive in investing its operational surpluses in trial commercial wildlife harvesting projects. One example is BAC Safaris, a trophy-hunting joint venture. It is also proactive in seeking project funding for pilot wildlife harvesting and aquaculture ventures. These activities are not commercially risk-free.
- **Inter-sectoral economic activity**—BAC's activities straddle the customary and market sectors of the hybrid economy.
- **Inter-cultural approach**—BAC's overarching approach to resource management is inter-cultural, incorporating Indigenous ecological knowledge and Western science. This is reflected in its alliance-building activities with a regional network of community ranger institutions (mediated by the CFCU), as well as with wildlife specialists.
- **Professionalism**—BAC has a critical mass of highly skilled and committed staff, many of whom are non-Indigenous. This has facilitated organisational robustness.

- **Wildlife management**—BAC is committed to monitoring and evaluating the sustainability of wildlife harvesting in the commercial sector. It has collaborated in a number of research projects with the KCTWM that aim to assess sustainable harvesting levels for particular species.

A significant element of this best practice model is its alliance-building and partnerships. Of particular importance is the alliance that BAC has formed with the CFCU, an institution that aims to integrate conservation and development and to broker delivery of appropriate advice, education and training and resourcing to Aboriginal land managers, who are the NLC's constituents and clients (NLC 2001: 28; Storrs & Cooke 2001). The CFCU plays a crucial role in mediating between Indigenous organisations and seeking collaboration in natural resource management and economies of scale in the provision of advisory services at a regional level. The CFCU thus undertakes an integrating function across the NLC's region (and beyond). Although its level of resourcing is sometimes lower than that of regional hybrid institutions like BAC, its parent organisation the NLC, as a statutory authority, has the political power to influence state regulatory and management regimes and to strategically promote the cost-effectiveness of community-based wildlife management.

The important new partnership with the KCTWM established in 1999 is symbiotic in nature. Both parties recognise the need to integrate Western science with Indigenous ecological knowledge because of new and emerging ecological issues that affect wildlife management (KCTWM 2002). The partnership is founded on the assumption that both parties are willing to adapt their particular perspectives, but also acknowledges uncertainty and the fundamental need for direct stakeholder participation at the community level. This partnership is enhancing understanding of the biology, stocks and sustainable harvest rates for a number of species, current levels of utilisation, and the capacity for commercialisation on a carefully researched case-by-case basis (Whitehead et al. 2002).

Institutional redesign

Despite the emergence of myriad institutions for regulating wildlife harvesting at the state, regional and local levels, none are well suited—on their own—to facilitating Indigenous community-based wildlife management for sustainable economic development. The observations made in this paper are limited to an area of 10,000 square kilometres—a significant area, but only a small fraction of the tropical savanna. Nevertheless, the BAC case shows how a robust organisation geared to facilitate residence at small outstation communities has succeeded in getting resource managers back onto their traditional lands, with associated benefits.

BAC's explicit focus on regional land and resource management and commercial harvesting of wildlife is a recent development. This change in focus might provide an opportunity for innovative institutional redesign. The approach advocated by Walters (1986) for the adaptive management of renewable resources could provide

a suitable framework for redesign. The Walters approach is predicated on management as an ongoing, adaptive process that accepts uncertainty, but seeks to establish sustainable harvesting levels through ongoing collection and analysis of information on stocks and utilisation levels. This approach requires a high level of cooperation between centralised wildlife authorities and decentralised wildlife harvesters, in this case the land-owning outstation residents. The approach has intuitive appeal because wildlife management on land with low population densities is expensive. If resource users who regard rights in wildlife to be group property rights can be recruited to monitor and manage use, the over-exploitation of resources becomes less likely with the advent of commercialisation (Ostrom et al. 1999).

Some very preliminary analysis by Whitehead (2002) assesses the relative cost effectiveness of a number of Australian models for land and wildlife (natural resource) management in the tropical savanna. Whitehead roughly calculates management cost per square kilometre in jointly-managed national parks financed by the Commonwealth and the Northern Territory governments, in the Commonwealth-funded Indigenous Protected Area (IPA) managed by Dhimurru in north-east Arnhem Land, and in the BAC hinterland. Even though this analysis is preliminary it is clear that, both with and without CDEP scheme funding, the BAC region represents the most cost-effective regime. Whether it is the most effective, for example in terms of biodiversity conservation, is a question that cannot currently be answered. Extrapolating a little, if community-based natural resource management is cost-effective in the Maningrida region, it is likely that the same could be said for wildlife management in the region, and possibly for other parts of the Indigenous tropical savanna.

Institutional redesign to enable devolution to community-based organisations like BAC, and the adoption of an adaptive wildlife management regime, perhaps initially in negotiated harvest zones, will also require the state to devolve commercial rights in wildlife. Since these rights have not been sold or alienated from Indigenous interests, this might prove easier than in the commercial fisheries sector where an expensive buy-back of non-Indigenous commercial interests would be required. The currently unrealised potential (let alone assessment) of commercial wildlife harvesting explains, to some extent, Indigenous sensitivities about intellectual property in new options—there is a fear, based on historical precedent, that the economically powerful non-Indigenous sector could quickly dominate any emerging and viable wildlife-based industries.

Institutional redesign to convert BAC into an organisation with effective wildlife management at the core of its activities would also require attitudinal and policy change to ensure appropriate resourcing. State wildlife authorities would need to recognise that biodiversity conservation, the national interest and international obligations all benefit from Aboriginal wildlife harvesting. This recognition might be dependent in turn on Western scientific support for the notion that Indigenous ecological knowledge and wildlife harvesting are beneficial to the nation as a whole. Equitable funding of different, but interdependent, wildlife management

regimes across the tropical savanna—be they in jointly managed national parks, IPAs or the Maningrida region—might also be required.

There is also a need to innovatively adapt the income support framework, in order to remove it from excessive reliance on CDEP—which is a citizenship entitlement. Indigenous efforts to use CDEP to maintain biodiversity over large tracts of land, largely in the absence of environmental and wildlife agency program support, is an unacceptable form of cost shifting that diminishes the importance of the project and undervalues Indigenous knowledge. Short-term and limited project funding from programs like the NHT is inadequate and inappropriate—there is a need for long-term support for wildlife management. Australia has so far failed to adapt its income support schemes to the outstations movement and to the Indigenous hybrid economy. International best practice is decades ahead of Australia in this regard. In the 1970s, for example, the Canadian Cree Income Security Program (ISP) was introduced to provide income to underwrite wildlife harvesting and adaptive management (see Altman & Taylor 1989). The benefits of such a scheme are threefold. First, its focus on harvest monitoring ensures that participants are paid even if particular species harvesting levels at a given time are unsustainable. Second, if appropriately depicted as Indigenous Wildlife Management or Indigenous Biodiversity Maintenance such a scheme would not only be politically palatable to the wider public, but would also more appropriately reflect its national, as well as local, benefits. Finally, the ISP has residential qualifications, providing the appropriate incentive to get resource managers back onto traditional lands. There are clear parallels here with the outstations movement.

To summarise, institutional redesign will require capacity building and better resourcing of Aboriginal organisations such as BAC that initially assisted Aboriginal people to return to their lands and have now established community-based wildlife management institutions like the Djelk Community Rangers. Specific issues concerning the internal organisational strengthening of BAC will not be raised here (see Altman & Johnson 2000), but clearly robust governance for wildlife management, including the addressing of regional political divisions, is clearly of crucial importance. An organisation like BAC should not be a by-product of the CDEP scheme. Its potential as an adaptive management institution that is serving both local and national interests should be recognised. The redesign of hybrid organisations like BAC could further facilitate sustainable development futures for Indigenous people living on their lands. It would need to extend its ambit to encompass changed resource governance arrangements and a re-allocation of wildlife management support based on transparent performance evaluation.

Sustainable wildlife harvesting and aquaculture are compatible with the maintenance of biodiversity. While the focus here is specifically on wildlife harvesting, there is no doubt that harvesting has positive spin-offs for natural resource management more generally, especially when it is associated with maintenance of customary fire regimes, reduction in numbers of feral animals like pigs and buffalo that cause environmental damage, and travel over and residence

in sparsely-populated country that affords opportunities for early strategic spotting and elimination of introduced weeds, diseases and pests. There are also important possibilities for innovation, such as in linking activities like fire management directly to emerging industries such as greenhouse gas abatement and carbon trading (Altman 2001).

Challenges for policy, science and Indigenous hybrid institutions

For a range of reasons, large tracts of land, much of it in Australia's tropical savanna, have been restored to Indigenous ownership. The Indigenous estate now includes bioregions that are acknowledged as high priority areas for conservation. In our view, in the native title era, property rights in wildlife will also expand in much the same way as did land rights, but from a lower base and more rapidly. The legal seeds for such expansion have been sown with the NTA and the *Yanner v Eaton* decision. The emerging political economy of wildlife management in the tropical savanna poses challenges for policy makers, scientists and Indigenous people alike.

On the policy front there are the questions of institutional redesign that have been outlined in this paper. The critical issue is that policy rhetoric about sustainable development futures for remote Indigenous communities will need to be matched by a commitment from the state to decentralised cooperative management regimes and a commitment to explore means to divest commercial rights in wildlife to Indigenous land owners or wider Indigenous interests. This could be arranged, for example, through multi-decade leases, as currently occurs with property rights in minerals. Security of tenure will be important if Indigenous interests are to attract joint venture partners or venture capital. There is also need for a clearer policy recognition that the management of Indigenous resources on land and in the sea by Indigenous people is both ecologically sustainable and cost effective, and that there are sound public policy incentives for innovation.

Biological and social scientists could be at the forefront of the evidence-based research that will be needed to persuade dominant state agencies of the potential value and commercial viability of Indigenous wildlife management, and of the emerging political economy of wildlife management in the tropical savanna. But the lens of science must be complemented by the lens of Indigenous knowledge. This knowledge is closely integrated with Indigenous belief systems, as a component of an Indigenous worldview that has been well represented in the writings of social scientists (see e.g. Povinelli 1993; Rose 1996). Explaining Western concepts of resource management in this cultural context is not straightforward, and new problems of interpretation will arise as customary use extends into the commercial sector. A challenge for Western science in this new political economy will be to operate outside its comfort zone—to use bifocal lenses. Biological scientists can play a critical role in the political process of

developing credible and transparent mechanisms to establish safe limits on harvesting and evidence of sustainable utilisation levels, and in fostering a wider public acceptance of the value to both the region and the nation of Indigenous ecological knowledge and community-based adaptive wildlife management.

From the Indigenous perspective, there will be a need to engage politically to negotiate for the adaptation of property rights regimes so that both the customary and commercial sectors of wildlife harvesting economies can expand to limits set by ecological sustainability. It is here that scientists and Indigenous wildlife users will need to collaborate on community-based management as an adaptive process. The case study of BAC, whose wildlife management is based on active collaborations between Western scientists and local Indigenous interests, indicates that such hybrid institutions might be well positioned to adopt an innovative approach to sustainable wildlife harvesting that will contribute to northern development. There are strong incentives for Indigenous landowners to make this process work—having Indigenous people on country is good for wildlife management, and sustainable wildlife use is good for Indigenous development futures.

Notes

1. The term 'Indigenous' is preferred to the term 'traditional' because the latter carries connotations of archaic and static, whereas Indigenous customary practice today is contemporary and dynamic—all cultures are subject to change.
2. For a very thorough discussion of institutions in community-based natural resource management, see Leach, Mearns and Scoones (1999).
3. See BAC (2001) and Altman and Johnson (2000) for a more detailed history.

References

- Altman, J.C. 1987. *Hunter-Gatherers Today: An Aboriginal Economy in North Australia*, AIAS, Canberra.
- 2001. 'Exploring sustainable development options on Aboriginal land: The hybrid economy in the twenty-first century', *CAEPR Discussion Paper No. 226*, CAEPR, ANU, Canberra.
- 2002. 'Indigenous hunter-gatherers in the 21st century: Beyond the limits of universalism in Australian social policy?' in T. Eardley and B. Bradbury (eds), *Refereed Proceedings of the National Social Policy Conference 2001*, SPRC Report 1/02, SPRC, UNSW, Sydney.
- , Bek, H.J. and Roach, L.M. 1996. 'Use of wildlife by Indigenous Australians: Economic and policy perspectives', in M. Bomford and J. Caughley (eds), *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra.
- and Johnson, V. 2000. 'CDEP in town and country Arnhem Land: Bawinanga Aboriginal Corporation', *CAEPR Discussion Paper No. 209*, CAEPR, ANU, Canberra.

- Altman, J.C. and Taylor, L. 1989. *The Economic Viability of Aboriginal Outstations and Homelands*, Report to the Australian Council for Employment and Training, AGPS, Canberra.
- Bawinanga Aboriginal Corporation (BAC) 2000. *Annual Report 1999–2000*, BAC, Maningrida, NT.
- 2001. *Annual Report 2000–2001*, BAC, Maningrida, NT.
- Belsky, J. 2002. 'Beyond the natural resource and environmental sociology divide: Insights from a transdisciplinary perspective', *Society and Natural Resources*, 15: 269–80.
- Bomford, M. and Caughley, J. (eds) 1996. *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, Bureau of Resource Sciences, Canberra.
- Brennan, S. 1999. 'High Court upholds bush tucker rights', *Research Note 11, 1999–2000*, Department of the Parliamentary Library, Canberra [available on the www at <http://www.aph.gov.au/library/pubs>].
- Commonwealth of Australia 1998. *Commercial Utilisation of Australian Native Wildlife*, Senate Rural and Regional Affairs and Transport Committee, Parliament House, Canberra.
- Coombs, H.C., Dexter, B.G. and Hiatt, L.R. 1980. 'The outstations movement in Aboriginal Australia', *Australian Institute of Aboriginal Studies Newsletter* (ns), 14: 16–23.
- Environment Australia 2000. Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.0: Summary Report, Environment Australia, Canberra.
- Key Centre for Tropical Wildlife Management (KCTWM) 2002. *Annual Report 2001*, KCTWM, NTU, Darwin.
- Leach, M., Mearns, R. and Scoones, I. 1999. 'Environmental entitlements: Dynamics and institutions in community-based natural resource management', *World Development*, 27 (2): 225–47.
- Meehan, B. 1982. *Shell Bed to Shell Midden*, AIAS, Canberra.
- Northern Land Council (NLC) 2001. *Annual Report 2000–2001*, NLC, Darwin.
- Ostrom, E., Burger, J., Field, C.B., Norgaard, R.B. and Policansky, D. 1999. 'Revisiting the Commons: Local lessons, global challenges', *Science*, 284 (April): 278–82.
- Pollack, D.P. 2001. 'Indigenous land in Australia: A quantitative assessment of Indigenous landholdings in Australia', *CAEPR Discussion Paper No. 221*, CAEPR, ANU, Canberra.
- Povinelli, E.A. 1993. *Labor's Lot: The Power, History and Culture of Aboriginal Action*, University of Chicago Press, Chicago.
- Rose, D. (1996). *Nourishing Terrains: Australian Aboriginal Views of Landscape and Wilderness*, Australian Heritage Commission, Canberra.
- Sherry, E. and Myers, H. 2002. 'Traditional environmental knowledge in practice', *Society and Natural Resources*, 15: 345–58.
- Storrs, M.J. and Cooke P.M. 2001. 'Caring for country: The development of a formalised structure for land management of Aboriginal lands within the Northern Land Council region of the Northern Territory', *Ngoonjook*, 20: 73–9.

- Trosper, R.L. 2002. 'Northwest Coast indigenous institutions that supported resilience and sustainability', *Ecological Economics*, 41 (2): 329–44.
- Venning, J. and Higgins, J. (eds) 2001. *Towards Sustainability: Emerging Systems for Informing Sustainable Development*, UNSW Press, Sydney.
- Walters, C. 1986. *Adaptive Management of Renewable Resources*, Macmillan, New York.
- Whitehead, P. 2002. 'Land management: The next frontier', Presentation to the Northern and Central Land Councils workshop 'Preparing for the Australian National Audit Office's performance audit of Northern Territory land councils and the Aboriginal Benefit Account', 12–13 February, University House, Canberra.
- , Gorman, J., Griffiths, A.D., Wightman, G., Massarella, H. and Altman, J.C. 2002. Small-Scale Commercial Plant Harvests by Indigenous Communities, Report for the RIRDC/Land & Water Australia/ FWPRDC, Joint Venture Agroforestry Programme.
- Wright, F. and Morphy, F. (eds) 2000. *The Art and Craft Centre Story*, Vol. 2, *Summary and Recommendations*, ATSIC, Canberra.
- Young, E.A. 1998. 'Reconciling property concepts for effective Indigenous resource management: Some alternative approaches', Paper presented at *Crossing Boundaries*, the Seventh Annual Conference of the International Association for the Study of Common Property, Vancouver, Canada [available on the www at <http://dlc@dlb.indiana.edu/documents/dir0/00/00/01/92/index.html>].

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