RMAP WORKING PAPERS

Resource Management in Asia-Pacific

Working Paper No. :46

T(r)opical Translations: Reterritorialising the Space of Biodiversity Conservation

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[1] An earlier version of this paper was presented to the Institute of Australian Geographers Conference at ANU in July 2002. My thanks to comments from the audience and to Brigid Hains for insightful feedback and discussion. Thanks also to Colin Filer for inspiring the topic, providing background materials and for always lively conversation.

The correct citation for this publication is:

Author: Lesley Instone
Year of Publication: 2003
Title: T(r)opical Translations: Reterritorialising the Space of Biodiversity Conservation
Series: Resource Management in Asia-Pacific Working Paper No. 46
Publisher: Resource Management in Asia-Pacific Program
Research School of Pacific and Asian Studies
The Australian National University
Place of Publication: Canberra
ISSN – 1444-187X

Resource Management in Asia-Pacific

Working Papers

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T(r)opical Translations: Reterritorialising the Space of Biodiversity Conservation

Introduction

This working paper explores the local expression of global environmental narratives. How do universal ideas shape new spaces, subjects and institutions? How do local natures and peoples, in turn, influence and reshape the global narratives themselves? My particular focus is the deployment of discourses of biodiversity in tropical non-Western settings, especially their application in integrated conservation and development projects. The paper questions the dominant global understanding and practice of biodiversity by placing it within a social and cultural context, and through the consideration of local cases aims to tease out various 'cultures' of biodiversity conservation. I highlight the interaction between culture and the science and practice of biodiversity in order to stretch biodiversity so as to accommodate other voices, meanings and articulations. Finally, I try to rethink biodiversity as a dynamic and transformative 'meshwork' and imagine a diversity of biodiversities.

The Emergence of Tropical Biodiversity

The terms 'tropical' and 'biodiversity' are usually deployed as timeless and self-explanatory categories. Rarely is the historical contingency of their emergence and usage considered in discussions of tropical biodiversity conservation. Below, I briefly sketch the invention of 'the tropics', and the colonial process by which a diverse array of lands and people were translated into a single category that was placed in opposition to Western identity and nature. My intention is to destabilise the 'naturalness' of the tropics and the assumption of a clear divide between temperate and tropical lands. Likewise, biodiversity is a contested term. It is not nature per se but a historically situated discourse on the natural world. In its current global manifestations it promotes a particular geopolitical perspective and consolidates diverse areas of the tropics under a generalised rhetoric. Both the trope of tropicality and the discourse of biodiversity have created new spaces of nature in colonial and contemporary settings profoundly affecting local natures, peoples and identities.

The Trope of Tropicality

The invention of tropicality in the fifteenth century delineated a new territorialisation of nature that was to have far reaching social and environmental consequences. Not only were the tropics imagined as the exotic, and often 'primitive', Other of European landscapes and peoples, but they were also 'a site of physical transformation under European tutelage' (Arnold 1996: 162). The construction of a tropical Other was the foil against which Westerners would define the ideal of civilisation, and the 'discovery' of 'tropical' species played an important role in the sytematisation of scientific knowledge. Grove (1995) argues that early conservation and natural resource management practices developed in reaction to the devastating degradation of tropical islands under colonial rule (6). Tropical nature was brought under scientific and bureaucratic control as natural resources, especially forests, were transferred from local community management to colonial (and much later state) ownership. Tropical forests, fields, peoples and cultures were construed as resources for colonial wealth, power and knowledge, and the tropics became a site of manipulation and control. As such, 'they became complementary economies and ecologies, designed to serve needs and desires that the temperate lands could not satisfy' (Arnold 1996: 162). According to Arnold the complex of 'tropicality' represents environmentalism in one of its most influential and enduring forms (1996: 142).

Tropicality arranged humid non-European lands within the paradoxical lexicon and spatial differentiation of paradise and hell – the perfection of the tropical island on the one hand, and the steamy, insect-ridden nightmare of the interior jungle on the other. In either case, in both its

negative and idealised manifestations, topical nature was constructed within an imaginary of secrets, abundance, treasures, exoticism, and as the locus of excess. Thus the tropics were as much a cultural, racial and political designation as a biophysical delineation.

The dynamics of tropicality continue to be manifested in contemporary discourses. Depictions of excess, secrets and exotica find their modern expression in notions of population explosion, hidden genes and medicines, and the exceptional imagery used to identify biodiversity 'treasures', 'flagship species' and the like. Neo-Malthusian and environmental discourses position the South as the Other against which Northern ideas of nature and sustainability are defined and measured. The temperate/tropical divide is also perpetuated in the new language of North-South global differentiation, which reterritorialises the globe around discourses of poverty, deforestation, biodiversity loss and population excess. These key elements of the 'global environmental crisis' are positioned in the South, both as the main causes of global environmental degradation and the site of their potential remediation. Tropicality thus remains a potent material and discursive trope for definitional struggles over nature.

The coincidence of rich biodiversity reserves and the 'South' bring discourses of nature and development into new relationship. However, the location of abundant biodiversity in the tropics is not accidental, but also an outcome of the success of colonial agricultural and settlement practices in temperate lands, and their disappointing implementation in the tropics. The object of colonial conservation was to control the stocks and flows of biomass – timber, sugar, and other resources (De Landa 1997: 162). De Landa argues that these aspects of colonisation involved multilayered processes of homogenisation – plants, animals and humans were subjected to genetic reduction both at home and in the temperate colonies. The creation of 'neo-Europes' in North America and Australia, for example, involved the decimation of local species and widespread introduction (intentional and inadvertent) of European plants and animals resulting in landscapes dominated by relatively few species. These processes were less widespread and successful in the tropics, resulting in the 'gene poor' industrialised nations viewing with envy the genetic resources of their 'gene rich' underdeveloped neighbours (De Landa 1997: 168).

The Emergence of Biodiversity

The concept of biodiversity emerged in the 1980s with the growing importance of biotechnology, concern about the failures of conservation programs, and a new appreciation of the global scale of environmental issues. It was launched onto the world stage by the 1986 conference 'The National Forum on BioDiversity'. By the 1990s biodiversity had gone from being a little known idea to a popular and politically significant concept (Takacs 1996, Hannigan 1995). The discourse of endangerment and extinction at the heart of biodiversity gained scientific grounding from the new field of conservation biology that developed in the late 1970s (Hannigan 1995: 148). The creation of this new academic discipline advanced research on biodiversity and provided 'advocates of biological diversity as an environmental problem' with an institutional base from which to spread their message (Hannigan 1995: 148-9). Well-known biologists such as Paul Erlich, Edward Wilson and Michael Soulé promoted the concept and played a significant role in elevating tropical rainforests to iconic status, and popularising them as 'the cradle of the future' (Hannigan 1995: 154).[2] Indeed, the tropical rainforest has emerged as the key image around which the fight to save global nature is mobilised. Reverence for the 'legendary hyperdiversity' of the rainforest reversed the image of the tropical forest in the popular imagination from dangerous primeval jungle to 'magical forest' (Myerson and Rydin 1996: 140-146).

Biodiversity as economic and conservation resource linked rainforests, population and development in a potent mix, and led to the UNCED Convention on Biological Diversity in 1992 where an attempt was made to sort out important legal and institutional questions. The goals of the Convention – conservation, sustainable use, and fair and equitable sharing of biodiversity (Flitner 1998: 149) – conceived of genetic resources as a global commons, a stance hotly contested by the

[2] Hannigan playfully refers to these biologists as the 'rainforest mafia' (154).

South. Biodiversity entered into development dialogue in a variety of ways. Reconceived as global common heritage, biodiversity became the business of development, poverty and biodiversity were aligned, and conservation was reoriented around the promise of boosting national and local economies (von Weizsacker 1993: 121). The sustainable utilisation of biodiversity, for example, as a strategy of biodiversity conservation (Adger et al 2001: 694) introduces new economic relations, new institutions and a new vision of nature as 'biological capital'. In this way conservation, natural resource management, industry policy and development implode.

The 'ecological phase of capital', as Escobar (1995) characterises this new alignment, requires new modes of land ownership and control, and new valuations of traditional knowledge (Escobar 1995: 204). Escobar argues that the recognition of 'ethnic and peasant communities in the tropical rain-forest areas of the world' is dependent on them reconceiving themselves 'as reservoirs of capital'. As the new 'stewards of social and natural "capitals"' (Escobar: 203) indigenous people are interpolated into the role of global conservers of biodiversity, and their fate is tied to the preservation of gene-rich landscapes. Paradoxically, the holistic vision of indigenous people at one with tropical nature, sits side by side with the notion that local people and livelihoods are a major cause of biodiversity loss (Flitner 1998: 147).

According to Flitner (1998) the outcome of the UNCED Convention was a contradictory discourse of biodiversity conservation in the South that viewed population growth as the main cause of biodiversity loss, saw market value as the key to saving it, and advocated global resource managers as the key actors who could most effectively protect it (Flitner 1998:146-148). The insertion of global resource managers into environment and development debates led to the emergence of new partnerships between conservation organisations, the market and development agencies, blending rainforests, economics, indigeneity and population in a compelling fusion. The Convention did not resolve contested notions of biodiversity, but it did institutionalise the global managerialist perspective as the dominant discourse (Adger et al 2001). The global consensus overshadowed deep divisions and tensions within the scientific, political and development communities.

As a new way of thinking about nature biodiversity holds promise as well as problems. By collapsing the boundaries between conservation and preservation, environment and development, the discourse of biodiversity is not only implicated in a new phase of ecological exploitation, it also holds the possibility for new collaborations and alignments. Biodiversity opens new possibilities for cultural and environmental change and a new politics of nature. The tension between the dominant global vision of biodiversity and other possible interpretations is at the core of this paper. The practice of biodiversity conservation is therefore a crucial site for examining and reimagining the relations between North and South, nature and culture, local and global, and for rearticulating and realigning both environment and development.

Rethinking biodiversity

The coupling of 'environment' as a global discourse with development rhetoric, is transforming understandings of both the 'nature' of nature and the 'nature' of development. These changes can be understood not as the inevitable outcome of human impacts, nor as enhanced understandings of 'the real situation', but as discursive formations. Thus, the dominant global concerns of climate change, biodiversity, and sustainable development can be understood as 'translations' (Tsing 1997: 253)[3] that craft the categories of 'nature' and 'development' through practices of articulation: that is, they speak about nature in new ways and link heterogeneous elements together in new patterns and assemblages (Tsing 1999: 12-14). Through contingent, historical and situated practices these

[3] Tsing's notion of translation 'refers to a necessarily faithless appropriation, a rewriting of a text in which new meanings are always forged by the interaction of languages. … In this sense of the term *translation*, there are no originals, but only a heterogeneous continuum of translations, a continual process of rewriting in which meaning – as well as claims of originality and purity – are made' (1997: 253).

narratives revision nature and development within new frames of meaning and new relations of power and authority.

In this sense, translation is a dynamic and two-way process 'within which conceptual boundaries are expanded' (Papastergiadis 2000: 130). Not only do global discourses shape local nature, situated experience has the potential to transform and decentre the power of universalist formulations. Influential though they may be, the narratives of global environmentalism are actually the particular understandings of specific Western groups projected universally (Gibson-Graham 2001: 6). The dominant, globally sanctioned discourses of sustainable development, biodiversity and climate change rub up against counter narratives that articulate different understandings of nature, and human-nonhuman interrelations. Local people resist, challenge, adopt and incorporate the new images and valuations of nature encompassed in biodiversity, translating the concerns of Western science in ways that can transform and reinterpret both local and global understandings. These non-Western articulations remind us that many voices speak of and for nature, and that meanings are always contested. My sense of translation is thus one of historically contingent intersecting processes through which nature and development are articulated and re-articulated at specific times and places.

The notion of translation as a dynamic and transformative process works against universalist assumptions of translation as either equivalence or dissonance. That is, translation is considered to be 'possible' – the belief in fidelity and equivalence – or 'impossible' – the belief in incommensurability (Papastergiadis 2000: 129-130). In the first case, biodiversity is presented as speaking the truth about nature; its conceptual apparatus represented as equivalent to the structure and function of the natural world. Alternatively, from the perspective of dissonance, biodiversity is considered to be wholly socially constructed and to have no essential basis in the material world. Practices of equivalence – or the homogenising power of translation as fidelity – tend to dominate environmental narratives that assume a global common interest. Thus it is useful to distinguish between those acts and practices of translation that are homogenising – that is, practices of equivalence that draw non-Western natures and peoples into the language and purposes of the West – and those that promote diversification – translation as a two-way process through which new meanings can emerge. From the perspective of translation as a transformative process, as interaction and communication, biodiversity is neither the 'right' and 'best' way to understand nature nor is it a 'useless' or 'bad' concept. Rather biodiversity is a process of dynamic interaction between people and nature; a 'meshwork'[4] in which not just knowledge, but nature and people, are transformed. The issue then becomes, not whether biodiversity is good or bad, but how best to harness discourses of biodiversity so that the homogenising tendencies of biodiversity as a global narrative are weakened and diversifying practices encouraged.

The Practice of Biodiversity Conservation

Global environmental perspectives have highlighted the environmental implications of many development strategies and, at the same time, facilitated the entry of environmental non-government organisations (ENGOs) as major players in the development field. One of the important innovations arising from these changes is the concept and practice of integrated conservation and development (ICAD). ICAD promises to deliver economic development in partnership with environmental sustainability, heralding a new relationship between environment, business, government and community agencies, and between these organisations and local communities. However, the complexities of integrating conservation and development are enormous. What sort of integration is required, and at what scales? Who decides the how and where of ICAD projects and who directs the process? How does the goal of biodiversity conservation fit with the development desires of communities? Are the goals of conservation and development really equivalent? And which practices of biodiversity conservation foster global power and which empower local communities? In order to help tease out these questions, the next

[4] I have borrowed the term 'meshwork' from Manuel De Landa (1997). I am using it here to evoke a dynamic, historically situated, non-hierarchical, interweaving of diverse elements.

section explores the micropolitics of integrating conservation and development in two PNG projects.

The Biodiversity Conservation Network

The Biodiversity Conservation Network (BCN) was an ENGO founded with the aim of saving biodiversity through integrated conservation and development projects (see BCN website). It was a USAID funded organisation, and part of the Biodiversity Support Program which is a consortium of the World Wildlife Fund (WWF), The Nature Conservancy and World Resources Institute. Set up in the early 1990s and based in USA, BCN funded 20 projects chosen from over 400 proposals through a competitive grant application process vetted by a panel of experts. The projects covered seven non-Western countries, and ranged from essential oils production in Nepal, to butterfly ranching in Indonesia, and biodiversity prospecting in Fiji. As the projects proceeded, with varying levels of success, BCN came to see itself as testing an enterprise-based approach to ICAD by working with local communities to set up businesses that directly depended on biodiversity. It systematically reviewed its work by articulating a hypothesis against which to test project outcomes. This hypothesis stated: 'if local people directly benefit from a business that depends on the biodiversity at a given site, then they should have the incentive to act to protect it against both internal and external threats to its destruction' (Salafsky et al 1999: 2). BCN folded in 1999 publishing a systematic analysis of its work (BCN Website). For the purposes of this paper I propose to 'reread' BCN's experience and analysis within a larger frame of reference that places the 'hypothesis' in a social and cultural context. Specifically, I draw on two BCN projects in PNG – Lakekamu and Crater Mountain[5] – as sites at which to identify the practices and cultures of biodiversity conservation and to trace their effects.

Crater Mountain

Crater Mountain is a sparsely populated mountainous area in central PNG, and is described as an area of national significance. In biological terms the region is considered one of the richest in the world. It first came to Western environmental attention when a wildlife photographer noted a decline in the population of birds of paradise in the area: 'I discovered that [the villagers] were shooting my subjects' (Intelligentagent website). The World Conservation Society (WCS) became involved in setting up 'research as an enterprise' activities with the local people, establishing a research station, and successfully working to have the area gazetted as a Wildlife Management Area (WMA) in 1993. In 1995 the Biodiversity Conservation Network (BCN) selected the area as one among three sites in PNG – Crater Mountain, Lakekamu Basin and East New Britain – chosen for Integrated Conservation and Development Projects that linked the conservation of biodiversity with socio-economic development in 'adjacent communities'.

Biodiversity conservation is constituted within a discourse of threats, loss and impacts. Given that there were no immediate threats to Crater Mountain from logging or mining, local livelihoods were assumed to be behind the apparent faunal decline. Two local threats were identified: the unsustainable removal of species for subsistence, market sale and cultural exchange; and shifting cultivation. These constituted an assumed cause-effect relationship as no studies of the extent and effect of hunting or clearing in the WMA were carried out prior to project implementation.

To counter these threats the BCN team applied its 'conceptual model' to 'test' the effect of linking local enterprises to biodiversity conservation. This involved monetary incentives (cash compensation) to stem the sale of birds, new sources of income through ecotourism ventures, the

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[5] Material about Crater Mountain and Lakekamu is drawn from BCN publications available through their website (www.bcnet.org). Two main sources were used: Salafsky, N., et al (1999) *Evaluating LINKAGES Between BUSINESS, the ENVIRONMENT and Local COMMUNITIES: Final Analytical results from the Biodiversity Conservation Network*; and *Lessons from the Field (LFTF)*, Issue No. BCN 1, 'If I only Knew Then What I Know Now: An honest conversation about a difficult conservation and development project'.

establishment of local rules to enforce wildlife utilisation, new management structures (in this case the establishment of a management committee), and an education and awareness campaign to instill a sense of 'pride' in local biodiversity. At Crater Mountain a range of locally owned and operated eco-enterprises were established. These included research facilities for biologists and anthropologists, ecotourism opportunities in a number of villages, and handicraft stores in four communities.

The Crater Mountain area comprises a mix of local peoples, land ownership practices, livelihood strategies and cultural practices. The BCN approach relied on discerning a core area of biodiverse habitat and working with 'adjacent communities' (four villages in the Crater Mountain area) to protect and manage the biological integrity of the zone (Salafsky et al 1999: 10). Crater Mountain was discursively created as a unified zone and reconstituted as a Wildlife Management Area (WMA) with wildlife as its defining feature. It was later reterritorialised through the work of BCN as an object of scientific enquiry, and made available as a space of scientific tourism and ecotourism. As a protected zone, the Crater Mountain WMA cut across previously existing fuzzy boundaries between local groups and their fluid practices of allocating land uses and users. As well, the notion of 'adjacent communities' discursively separated local people from biodiversity, assuming a spatial segregation between people and nature. A new politics of space was overlaid on existing relationships along with economic and cultural interventions that resignified nature within the terms of biology as commodity.

Lakekamu

The Lakekamu Basin project was funded by BCN in 1994. Biological researchers had visited the area in the late 1970s and later established a research camp in the Basin in the early 1990s. The BCN project at Lakekamu Basin adopted a research and tourism strategy similar to the Crater Mountain objectives. They proposed a permanent ecological research station catering for scientific visitors (which was completed in 1996) and planned an adventure tourism business (which did not eventuate).[6] This project received the highest ranking in the BCN selection process. Locals were intended to receive money for services to the visitors such as food, lodging, guiding and portering.

Initially, the project site was defined by biology and geography: Lakekamu was identified as the largest expanse of unbroken humid forest in the southern watershed of peninsular PNG (BCN, Lessons From The Field: 3). This site incorporated four language groups, each of whom was intended to be involved in a different aspect of the project. The first research station was built on land that turned out to be claimed by a number of different landowner groups. It was eventually abandoned and a new one built on land thought to be owned by just one group (BCN, LFTF: 3). Diverse cultural groups and local areas were incorporated into a single region and differences between and among groups became 'problems' for project implementation. At the site nature-as-biodiversity competed with preexisting human-nature imbrications with a range of effects.

Lakekamu was a failure from both a BCN and local perspective, and described as 'a truly difficult project' (BCN, LFTF: 1). While the romance of 'saving remote biodiversity' seems to have driven the concept, it was poorly planned and organised with field workers being dispatched with little or no preparation, local knowledge, or adequate skills. Notably they entered the project with unrealistic expectations that they were wanted, that their work would be appreciated by the locals, that the project would proceed smoothly, and that rapid progress could be expected. These assumptions could have been dispelled if local consultations had taken place prior to the commencement of the project. 'We initiated the project and pushed it on the community and then found it hard to pull out owing to the investment we had made' (BCN, LFTF: 2).

At Lakekamu, the priority of biodiversity conservation drowned out the many other voices involved in this project and led to disillusionment on all sides. The workers were angry at not being

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[6] One family did establish a guesthouse in 1996. They had grossed $353 from visitor fees by mid 1998 (BCN, LFTF: 3).

welcomed and appreciated, and locals were dissatisfied with the failure of promised business ventures and visitors to materialise. Workers were frustrated that the locals did not understand the value and goals of the project, and that the work of conservation was held back.

Biodiversity has been characterised as a top-down discourse (Lohmann 1991: 98; Flitner 1998: 145) that forces local institutions and practices into a 'new disabling framework' (Flitner 1998: 145), and in both the Crater Mountain and Lakekamu Basin cases a range of homogenising processes can be identified. At both Crater Mountain and Lakekamu the BCN team brought to their work a suite of pre-established tools for biodiversity threat remediation: delineation of both project sites and protected areas, new institutions of environmental management, new understandings of nature, education and awareness campaigns, and new economic relations. These tended to reduce diverse, interlinked and overlapping areas to a single spatial category of biodiversity conservation territory; subject varied cultural groups to a single model of conservation and development; prioritise Western scientific meanings of nature over local understandings; and draw local communities and nature into dominant capitalist economic relations.

Biodiversity as a top-down strategy

Many elements of the Crater Mountain and Lakekamu Basin, and BCN projects in general, illustrate the top-down tendencies of global biodiversity discourses. The BCN organisational structure was based in the US and projects such as Lakekamu Basin were managed from Washington in their early stages. Given that there appeared to be little preliminary analysis of the on-the-ground situation, or consultation with locals prior to commencement, this management structure meant that field workers were unprepared for the complexity of the situations they would encounter. As well, the distance of the main office from the field, made monitoring and feedback ineffective and cumbersome, and it often took too long for local 'realities' to be taken into account before problems became entrenched. The top-down project structure was also exacerbated by unrealistic expectations of workers one of whom commented that he 'dreamed about trying to change the lives of local people without considering how I would work with them' (BCN, LFTF: 8).

Guided by Western visions of biodiversity the projects were driven by untested assumptions that 'were wrong in several instances' (BCN, LFTF: 5), and written to please the preconceptions of the Western donor (BCN, LFTF: 9). There was something enticing to the donor's imagination about using research-as-a-business to 'develop' the locals and 'save' biodiversity. But this was a problematic strategy. Like ecotourism it relies on 'opening up' 'out of the way' places to touristic experience and Western bodies, but it also extends this to facilitate access to genetic resources for scientific capture. While local people can manage ecotourist lodges effectively, the research stations rely on outside expertise and translate local people from experts in their own place to helpers (porters, cooks, guides) in the production of Western scientific knowledge. Both people and nature were translated into objects of scientific and anthropological inquiry. The assumption that an outside agency knew how to 'save' the area left locals at Lakekamu complaining that 'this is our land – who are you to run it' (BCN, LFTF: 6).

One-size-fits-all development

BCN was clear that conservation was its business: 'A conservation group has to be careful not to stray too far from its core mission' (Salafsky et al 1999: 36). This, however, led to a rather lopsided ICAD program. Indeed one of the workers encapsulated these tensions when he complained that while the workers were there to save biodiversity, the locals thought they were there to help them. 'When you go in as a field officer, people assume that you are only there to help them. They don't realise that you may have your own agenda. We ended up raising their expectations way too high' (BCN, LFTF: 2). The emphasis on conservation was also demonstrated by the appointment of biologists as field staff, implying that integrating biodiversity and development is a scientific not social activity.

BCN's vision of development was also narrowly conceived and lacked the sophistication and detail given to the conservation side of its operations. In fact, it might be more accurate to say that the

projects were based on harnessing development to achieve conservation goals. The impetus for intervention and local development was to save biodiversity. This reflects the tension in biodiversity discourse between a vision of indigenous people at one with nature and the identification of local livelihoods as the cause of biodiversity loss. It also highlights the problems with a strategy of supporting local livelihoods through global science and tourism exchange.

Nature as biological capital

Escobar (1995) describes the new commercialisation of nature as a 'qualitative change in capital' in which the project of modernity is extended from social and cultural life to include nature as well' (203). The 'rising discourse of biodiversity,' he says, positions nature as a source of value in itself – not so much as resources, but as 'reservoirs of value that research and knowledge can release for capital and communities' (1995: 203). The uneven balance of conservation and development was exacerbated by the BCN 'hypothesis' of linking biodiversity to capital. The goal of the projects was to protect biodiversity by teaching locals that nature-as-biodiversity had monetary value by establishing enterprises that generated cash incomes from biodiverse nature. BCN introduced a vision of nature-as-capital by assuming a direct relationship between cash and enhanced conservation. Interestingly their analysis showed that cash benefits did not correlate with conservation success at many sites (Salafsky et al 1999: 27-8). Ironically, BCN was encouraging the very integration of nature into the capitalist economy at the local level that many biodiversity campaigners fight against at the global scale.

Identity and institutions

Along with the introduction of new economic relations, the creation of biodiversity conservation territories interacted with identity in multivalent ways. Not only does biodiversity imply a preferred state of nature, but also preferred practices of interaction with it. For instance, the delineation of hotspots, management areas, protected areas and so on, underplays the differences between the cultural groups who inhabit these lands. Their identities are reoriented around nature conservation and their status defined as either guardians or destroyers of biodiversity (Adger et al 2001: 704).

Flitner suggests that biodiversity subjects local institutions to a 'disabling framework' that supports the restructuring and homogenisation of the social relations of human-nature interface, on a global scale in the name of the 'global good' (1998: 145, 161). For example, the new institutions of conservation management, such as the management committee established to oversee Crater Mountain WMA, introduced structures that cut across existing relations, assumed people can and want to work together around a common goal of conservation, assumed a Western style of decision-making, and defined who could have an interest in the project. Local groups, with varying relations to place, were translated into stakeholders to take their place alongside external actors in the management of their lands. Issues of power, gender, status and ethnicity were lost in the assumptions that Western institutions such as 'wildlife area', 'management committee', and the like, are adequately democratic institutions suited to all cultural circumstances and easily transferable to any situation. Power and decision-making operate through informal networks as intensely as through formal structures. Not only did the management committee at Crater Mountain dissect and disrupt existing power and kinship relations and obligations, it operated under the assumption that such a formal structure would deliver 'rational' land management.

(Re)educating local people

The goals of the projects were often at odds with local perceptions, prompting calls for education and awareness campaigns to 'teach' the locals to value biodiversity. The education and awareness campaigns, which are often a major component of biodiversity conservation projects, also have profound cultural implications. They aim to translate nature from local understandings into the universal language of Western global environmentalism, and ask local people to align themselves with global conservation goals. Importantly, an equivalence is assumed between the interests of global environmental groups and local indigenous peoples.

Education and awareness campaigns assume that locals lack the knowledge to guide 'right behaviour' and to appreciate and steward nature in the 'proper' way. However, for locals to revision nature as biodiversity they have to be taught to disassemble local culture-nature imbrications and to reorganise these within new frames of meaning and value. In a local context, the introduction of a Western scientific understanding of nature can be a profound cultural encounter. Workers at both sites noted the puzzlement of locals as to the goals of the projects. Locals were described as not 'ready for conservation and development' (BCN, LFTF: 2), and local differences and rivalries were seen as 'problems' and 'impediments' to project implementation. At the heart of BCN's problems, however, was the failure to treat locals as equals. Projects were designed by outsiders without adequate local participation, without a thorough analysis of the local situation, and were based on activities that were not controlled and directed by local people. As one of the Lakekamu Basin field workers stated: The 'people were not involved in the project. They still don't understand what the project is or what it is supposed to do' (BCN, LFTF: 2). Indeed, the Lakekamu Basin workers were both angry and perplexed at local threats to burn down the research station. What could be understood as resistance and anger at lack of control, the BCN workers interpreted as lack of appreciation of their hard work by 'over-demanding' and sometimes 'devious' locals (BCN, LFTF: 7-8). The omission of local people's voices from the project design (and analysis), and the consequent failure to build respect and understanding (BCN, LFTF: 6), highlights the central questions of *who* is biodiversity conservation for and *who* should decide what happens in local contexts.

The extent to which 'education and awareness' campaigns are part of conservation and development projects demonstrates the significant translations necessary to remake people and nature within the discourse of global environmentalism. Indeed, education and awareness is a process of equivalence introducing a singular vision that equates the view of nature at the global level with nature in the local context. The BCN workers introduced a new vision of nature – biodiversity – to landscapes and people unaccustomed to categories such as wilderness, wildlife, ecosystems, genes, and other categories of Western environmental discourse. In creating 'wild nature', 'genetic heritage', 'protected areas', and the like, and promoting a managerialist stance, conservation biologists can be understood to be doing cultural work – they are bringing specific Western definitions, practices and valuations of nature, powerfully articulated at a global level, to bear on the daily lives of other peoples. Instead of devising projects that built on local understandings, the BCN ICADs relied on instituting a universal view of nature across all its sites and projects.

Hypothesis testing

The tensions arising from deploying Western science in tropical situations were also evident in BCN's program design and evaluation. As mentioned earlier BCN summarised its work in the hypothesis: 'if local people directly benefit from a business that depends on the biodiversity at a given site, then they should have the incentive to act to protect it against both internal and external threats to its destruction' (Salafsky et al 1999: 2). In framing their work as 'hypothesis testing', biodiversity as knowledge and commodification was thus brought to bear on local communities through the pervasiveness and power of scientific discourse and practices of quantification. The supposedly neutral activity of hypothesis testing concealed the level of cultural, social and political intervention that 'conservation as development' entails, and implied a dispassionate and objective analysis of a 'real' situation. However, the hypothesis had little to do with science: rather, the BCN model was an economic and cultural intervention in local communities whose daily activities had been redefined as a 'biodiversity threat' even before any detailed investigation of these claims had been carried out. Within this positivist frame 'development' became an instrument of conservation introducing a reductionist logic of economic determinism – i.e. if local people get money they will value, and therefore, conserve biodiversity.

Not only did BCN's practices of biodiversity conservation create new subjects, knowledges, and institutions, but new spatial relations were also created. Space, as well as nature, was translated into new geographies and associations by the discourse of biodiversity.

The Space of Biodiversity

Crater Mountain and Lakekamu Basin were chosen according to BCN's primary goal of conservation, placing biodiversity habitat at the centre – both spatially and conceptually – of project sites. Initially, fairly large areas were identified, but as the projects progressed BCN staff found that, due to the complexity of understanding and managing such sites, they had to be broken down into smaller components (Salafsky et al 1999: 10). The space of biodiversity conservation shrank, and the previously imaged clear delineation of project sites became grey areas of complex of overlapping activity.

At the global level, the new territories of biodiversity conservation cut across state boundaries and existing conservation regimes. ENGOs argue that transboundary environmental and capital flows make a mockery of state-based political boundaries and suggest new territorialisations of the globe based on ecological principles. The World Wildlife Fund (WWF), for example, has carved the globe into ecoregions – defined as 'large areas of relatively uniform climate that harbour a characteristic set of species and ecological communities' (WWF Website). WWF argues that the ecoregion is 'the appropriate unit for setting conservation goals' (WWF website). Further, they suggest that the ecoregional scale 'provides a meaningful and manageable scale for determining how both economic development and biodiversity conservation can, and should, proceed with mutually beneficial results' (WWF website). Not only are these new regionalisations environmental zones, but also economic and managerial delineations that place economic development within ecological rather than political boundaries. They imply non-state management of economic and ecological affairs without fully articulating the relationship between these new actors, local communities and the nation-state. As well, they leave a question mark over exactly *who* has the power to determine action, and what the role of a denatured nation-state might be.

These larger units respond to the limits of state-based conservation strategies and recognise the fluid nature of environmental matters. There are benefits and drawbacks from this approach. In theory, the alignment of biodiversity and indigenous people reverses the colonial practice of removing first people in the creation of conservation spaces, such as national parks. However, although ecoregions address the problems of state-based boundaries and institutions they fail to analyze the effects of incorporating local communities within ever-larger territorial associations which link local environments to global management imperatives. These reshapings of the globe are criticised for integrating 'much larger parts of nature and its relations with societies in the project of global development' (Flitner 1998: 164). Such 'mapping based spatial management' (Zimmerer 2000: 361) as WWF's ecoregion project (and Conservation International's 'hotspots'[7]), imply a certain level of homogeneity and regularity across spatial and cultural zones. The reterritorialisation of nature as biodiversity thus involves processes of inclusion and exclusion, ordering and articulation through which nature is given new meaning and integrated in new ways in networks of global power and authority.

At the same time as these new ecoregional perspectives are reconfiguring the globe, on-the-ground conservation strategy often continues to rely on the delineation and protection of local-scale conservation territories such as wildlife zones, wilderness areas, biosphere reserves and the like. Indeed, the mapping of 'areas worth saving' is a central feature of many ICAD projects designed to protect biodiversity. Such spaces have been criticised as a 'new enclosure movement' (Katz 1998: 47), and ENGOs, conservation biologists and others, who call for the protection of nature from both corporations and unsustainable customary livelihood practices, are accused of recolonising the

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[7] Conservation International adopts a different strategy. It maps the globe in terms of 'hot spots', which are determined by the level of endemism and degree of threat to biodiversity. They prioritise 'the 25 richest and most threatened reservoirs of plant and animal life on Earth' (CI Website: www.wwfpacific.org.fj/pacific_ecoregions_web.htm) for special attention. The hotspot approach is a targeted strategy for managing the 'extinction crisis'; it reterritorialises the globe around sites that can draw Western public support and repoliticises tropical space within an ecopolitical and genetic frame of reference.

tropics. The fixed (in time and space) boundaries of such conservation territories also contradict the environmental flows that feature in global discourses, and perpetuate human-nature separation. Non-equilibrium ecologists and others concerned to articulate more fluid and contingent visions of nature (for example, Zimmerer 2000), criticise the ahistorical, static and dualistic character of conventional conservation territories. However, there is a tendency for major ENGOs to conflate biodiversity and wilderness and to continue to think in terms of the preservationist spatial practices of reserves and national parks. Such alignment of biodiversity with the spaces such as wilderness, reserves and parks constrains its potential to map across the nature/culture and pristine/agricultural boundaries.

Mapping, however, is never a neutral process. Keuhls reminds us that drawing lines on the map does more than delineate a territory (Keuhls 1996: 69). He emphasises the dynamic quality of delineation and how the making of territories is simultaneously the (re)making of peoples and institutions. Mapping out space is never simply a physical demarcation, nor does it reflect an essential pre-existing order of nature. Rather bounding is an active process of making peoples and natures as well as bringing a certain territory into formal existence. Thus, ecological boundaries have social, political and cultural ramifications in much the same way (albeit to different effect) that conventional political boundaries work to mould the peoples and natures within their limits. Conservation space is thus a complex amalgam or meshwork of physical, geographical, social, discursive, and cultural elements.

Deleuze and Guattari's notion of territorialisation – as a particular form of spatial and conceptual translation – may be helpful for rethinking conservation space. For Deleuze and Guattari (1988), territorialisation is about connection, ordering and organisation across all scales, from the genetic to the global, and across all forms of life – human and nonhuman (Colebrook 2002: 141). Paradoxically, while creating differentiation territorialisation simultaneously reduces difference by organising previously heterogeneous elements into identifiable groups. Territorialisation, by organising territory from some point outside or above the territory, thus creates the ability to contrast one thing to another (Colebrook 2002: 124): disjunctions are created and the logic of 'or' is put into practice. The multilayered and multiscale attributes of territorialisation make it a useful concept for the consideration of biodiversity conservation as it combines an analysis of the spatial organisation of conservation with the conceptual organisation of nature. The dynamics of deterritorialisation and reterritorialisation allow reflection on the simultaneous (re)shaping of nature as biodiversity, and the (re)shaping of space into biodiversity conservation territory.

Territorialisation moves the debate away from the politics of either/or – boundary or no boundary; in or out; inclusion or exclusion – to encompass a more fluid and dynamic vision of the space of biodiversity. For Deleuze and Guattari territory does not pre-exist its expression (1988: 315). The territory and what happens, and can happen, within it are produced by the qualities that are used to distinguish it. They suggest that the refrain – as in the refrain of a bird whose song creates its territory – expresses qualities and rhythms that bring a territory into being, give it a centre, make it home, and constitute it against an outside. Being marked out by a movement, by expression not function, it is possible to imagine territory as a contingent heterogeneous assemblage. In the case of biodiversity, discourses of global environmental management link certain things together – such as poverty with unsustainability, indigeneity with biodiversity conservation, tropics with population excess, and so on. It is not so much a matter of 'staking out' a territory as creatively *consolidating* an assemblage that distinguishes an interior from an exterior. Conservation territories are thus brought into being through the practices and performances of multiple and shifting partners (Tsing 1999: 6). Territories, subjects, economies and knowledges can be understood to be thoroughly enmeshed. They are mutually constituted and mutually constituting.

Biodiversity is not necessarily tied to bounded conservation zones and rigidly delineated space; it offers the possibility of a less rigid spatiality. Biodiversity can, therefore, be compatible with a more fluid spatiality than the fixed territory of Cartesian linearity, or the territory discernible through the universalised optics of top-down planning and global managerialism. The territory and territoriality of biodiversity can be reconceptualised as places shaped by 'flows of people, things and discourses'

(Liffman 1998: 1). Biodiversity territory emerges through uses and practices that may be productive, political, ritual, cultural, and so on. 'That is, territoriality is formed in people's understanding of material practices and institutional frameworks in space and time instead of being automatically given by them' (Liffman 1998: 3). Freed from (but not in opposition to) preservationist territories, biodiversity could suggest a new environmental spatiality, one that moves from a politics of pure nature and fixed space to encompass a multiplicity of hybrid arrangements.

From this perspective, the conservation territories of biodiversity perform not only an ecological ordering but also a cultural, political and economic realignment. The qualities/attributes that biodiversity deploys in the ordering of nature (for example, levels of species diversity and functionality), make the new conservation territories not vice versa. Eco-regions, hotspots, world wildlife zones, biosphere reserves, sanctuaries, and other conservation territories therefore represent spaces of contestation in definitional struggles over what can count as nature in the age of global environmentalism. Territorialisations matter, for they articulate wider assemblages that tie particular places to cultures and identities.

If the refrain makes the territory, as Deleuze and Guattari would contend, then we can understand Crater Mountain and Lakekamu Basin as each being constituted as an entity – a biodiversity treasure, WMA, homeland, commons, ancestral domain, research site and so on – by a variety of voices. Biodiversity conservation introduced new actors – global ENGOs, local NGOs, PNG government officials and bureaucracy, academics, anthropologists, conservation biologists, and tourists – each of whom sought to rearticulate the area within their own sphere of interest. Crater Mountain and Lakekamu Basin thus came into existence as conservation territories through a range of competing discursive, institutional and managerial interventions. In the case of Crater Mountain the conservation territory centred around the WMA, while for Lakekamu the whole basin and four language groups formed a more diffuse biodiversity setting. A multiplicity of local, regional, national and global voices contested the nature and meaning of Crater Mountain and Lakekamu Basin, but from the global perspective, one refrain, 'save biodiversity', enacted by the BCN conservation biologists, dominated all others.

The BCN staff, on all levels, were no doubt genuine in their aims and dedicated to improving social and environmental conditions. To 'blame' the project staff is to miss the point of what the project design failed to grasp: that biodiversity conservation is simultaneously social, economic, and cultural as well as environmental work. BCN adopted a strategy of adding development to conservation goals (a conservation *as* development model), rather than creating a thoroughly integrated program from the start. This resulted in the superficial treatment of local differences, the relationship between biodiverse nature and the local communities, and development itself. The assumptions behind the BCN projects led to a host of inadvertent homogenising effects that drew local regions into Western economic, institutional and spatial dynamics.

Biodiversity as Meshwork

My analysis is not intended to demonise biodiversity, rather to place it within a cultural context that highlights the 'culture' of biodiversity conservation. Biodiversity is one possible interpretation, among many others, of nature and the current predicament. BCN's universalist perspective failed to grasp the particularity of its own view, misunderstanding culture, territory and ecopolitics as education, preservation and management. My goal has been to demonstrate the ways in which biodiversity conservation is social, cultural and economic work carried out by environmental institutions and tied to a global politics of nature. In doing this, my intention is to stretch and diversify biodiversity beyond an ecocentric and dualistic practice. To achieve such an unfolding and expansion, I propose to reconceive biodiversity – as concept and practice – as 'meshwork'. That is, in a conceptual sense, biology is understood as thoroughly enmeshed with culture, history and society, so that biodiversity is understood to arise from the mutual constitution of nature and culture. From this perspective the enhancement of diversity is not just limited to the biological domain but also equally stretched across social, institutional and cultural spheres. Secondly, reframing biodiversity conservation practice as meshwork means moving towards creative collaborations between nature, local communities and project partners that are based on a

transformative two-way interaction. Biodiversity as meshwork facilitates a differently integrated ICAD that works across a web of interconnected, interrelated components, refusing the separation of nature from its cultural and historical contexts. Thus, the work of biodiversity conservation becomes a task of interweaving: a process and performance rather than product or end point.

(Re)translating biodiversity

Wresting biodiversity from the dominant global, nature-focused, universalised and dualistic vision may not be as difficult as it first appears. Thought of as a contingent articulation, biodiversity is not fixed but always open to new translations. As mentioned earlier, biodiversity is a contested domain, and within the field itself, several alternatives vie with the dominant global interpretation.

Many conservation biologists endorse the understanding that their field as 'more than science' arguing that conservation biology is a cross-disciplinary endeavour that bridges philosophy, economics and sociology (Robertson and Hull 2001: 970). Robertson and Hull, for instance, suggest a more 'public ecology', one which, in an effort to bridge the gulf between science and policy, is explicitly evaluative, contextual, multiscalar, integrative, adaptive and accessible (2001: 974). Recognising that science is never value free, Trudgill (2001) likewise calls for the democratisation of the debate about preferred ecosystem states and their relationship to human well-being (679). Others recognise that 'science is … a diverse process that generates a diversity of useable knowledge not a single process toward a particular truth' (Song and M'Gonigle 2001: 987). These perspectives open the possibility for less prescriptive practices of biodiversity conservation and suggest a multiplicity of biodiversities that are situated, partial and democratic.

If 'environmental conservation [is] a process of envisioning in which political, economic, cultural and discursive forces are mutually constituted' (Bryant 2000: 677), then different understandings of ecology and human-nature imbrications can conjure new understandings of biodiversity. By reconceiving ecosystems as a 'contingent state of conjunctions … showing dependency but not necessity' (Trudgill 2001: 684), it is possible to move away from the mystique of balance, stability, integrity, climax states and so on, and the even more mystical ideal of the 'hyperdiversity' and prolific endemism exemplified in the Western romance of the tropical rainforest. A recognition of the role of politics and culture in the construction of biodiversity works to dispel narrow scientistic interventions. And by encouraging 'communities to diversify scientific practice' (Song and M'Gonigle 2001: 986) situated knowledges and institutions may be able to emerge. Thus, it may be possible to imagine a more adualistic biodiversity that focuses on processes rather than entities (Haila 1999: 170), and that understands people, territories and natures as a mutually constituted meshwork.

Biodiversity as meshwork reconceptualises Crater Mountain and Lakekamu Basin, not as sites of globalisation but as interactive contact zones where a particular Western culture of biodiversity comes into contact with pre-existing indigenous cultural practices of thinking about and interacting with the diversity of the nonhuman world. Indeed, the very biodiversity that groups such as BCN seek to save has a social and cultural history. Gene-rich landscapes are 'made' in part by the practices of local residents, including shifting cultivation, hunting and the historical processes of colonisation. Biodiversity conservation territories are not timeless natural spaces in need of protection from the people who have nurtured them, but dynamic cultures-natures which enact local meanings of nature, self and society.

Articulated within globally sanctioned narratives and large corporations, biodiversity carries with it the power to translate nature, territory and identity into consumable commodities. If articulation is about speaking and linking, then new discourses of nature and new assemblages will need to be forged through new alliances and collaborations that recognise the many voices and the many natures that overdetermine a diversity of biodiversity that is unamenable to a generalised global 'management'. This will involve disarticulating both 'environmental crisis' and 'development' from the 'South', thereby challenging and revisioning the linkages that global narratives naturalise. Instead, by focusing on the narrative contests through which cultural differences are identified

(Tsing 1997: 259), it may be possible to imagine a diversity of biodiversity that is brought into being through a variety of deterritorialised refrains.

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