Reconceptualising ecosystems services: Possibilities for cultivating and valuing the ethics and practices of care

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Abstract

This paper responds to a recent call for geographers to engage with the ecosystem services concept which is an increasingly dominant global model for environmental policy and management. We focus on its economic exchange mechanism, payment for environmental services (PES), and reject the conventional notion of it as either an economic or environmental strategy. Rather than treating a disaggregated nature as the 'fixed stock' of eco-system services, we value instead actual human and non-human interrelations and practices and focus on how we might reconfigure the socio-cultural *relations* between people and nature as the valued stock.

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I Introduction

The turn toward placing a monetary value on nature is now the subject of expansive geographical critique, although less attention has been given by geographers to the ascendant organizing framework in conservation policy and practice, ecosystem services and its economic exchange mechanism, payment for environmental services (Bakker, 2010; Dempsey and Robertson, 2012; McAffee and Shapiro, 2010; Robertson, 2004). While it is a turn which has been embraced from numerous vantage points and for various reasons, from within the discipline of geography registered concerns centre on processes and outcomes which may perpetuate the commodification of nature and attendant restructuring of social relationships under neoliberalism's commodity logic (Harvey, 1996; McCarthy and Prudham, 2004; Roth and Dressler, 2012; Smith, 2007).

In this paper we wish to step outside of this milieu of apprehension and begin by asking what possibilities there are for radically reshaping the ecosystems services concept. We are interested here in the potential for a conceptual and material shift from a 'biophysical basis for value' (Costanza, 1991: 334) to valuing (in the fullest sense) alternative socio-natures, making them legible in ways which may even upturn the cart of conventional nature-culture thinking and practice.

Our starting point for this theoretical exploration is the messy politics of the ecosystems services concept and the ways in which this politics at the micro scale is just as often entangled with other ontologies of non-human agency and care. We then link these entanglements empirically with the late twentieth century literature pertaining to Australian indigenous 'resource management'. This literature charts the efforts and strategies of Australian indigenous peoples to be recognized for their land and sea management knowledge and practices, either through employment in government agencies, such as protected area and natural resource management organisations, or by establishing their own community-based management agencies and 'ranger' groups. Reviewing this literature, we traverse several decades of indigenous environmental policy and program development to the contemporary moment in which some Australian indigenous groups are energetically embracing opportunities arising from payments for ecosystem service discourse and new forms of capitalist value.

From the insights drawn from the political trajectory of entangled ontologies and the indigenous environmental management experience in Australia, we then locate ourselves in the relevant geographical literature. We explore how valuing 'nature' may be reconfigured as a way of enabling the valuation of alternative or non-capitalocentric (Gibson-Graham, 2006) ways of being in, knowing and doing nature. In addressing this question, we are responding to the recent call from Dempsey and Robertson (2013) for geographers to engage with ecosystem services and, in doing so, 'further broaden understandings about the operation of the value form, the production of nature, and

neoliberalization more generally' (p. 760). The challenge we argue is to think through the ways in which these new value fields, which must by the very definition of value extend far beyond pricing (cf. Sullivan, 2009), can explicate the significance and worth of engendering communicative reciprocity within and across human-non human realms. We argue that extending our understanding of ecosystem services in this way, where the 'service' is the communicative potential, the quotidian practice and the ecological function foregrounds a relational ethic of care and responsibility. This reconceptualisation may contribute usefully to urgent and important efforts to preserve, extend, adapt and benefit alternative lifeways (cf. Strang, 2013). In this uniquely geographical approach, we revisit the cultural turn in socio-nature studies and weave its key ideas into the fabric of people's affective socio-ecological worlds. We are then able to reconceptualise and explore the pragmatic possibilities emerging from this increasingly dominant form of environmental governance.

If we take the question of 'what it means to be and become human today, in dynamic relationship with non-human worlds' (Sullivan, 2009: 24; Sullivan, 2010) as one of our most pressing problems (Bakker, 2010; Latour, 2009; Smith, 2007), then the task of making visible and legible alternative ways of being in and knowing the world is critical. In taking up this challenge, we reject the notion of payment for ecosystems services as either an economic or environmental strategy, at least not in the conventional understandings of analytical categories of economy and environment. Rather, we are interested in the human non-human inter relations and practices that can be valorized and empowered through the idea of ecosystems services. We seek here to pay attention to the

sub-strata of relatedeness, reciprocity and communication at the heart of alternative conceptualizations of both the 'economy' and the 'environment'. In our case study, our antipodean lens provides new insights into the possibility of the ecosystems services turn conjoining productively with other community controlled nature conservation strategies and with recent international shifts in conservation, environmental governance and social justice (Stevens, 2014; Roth and Dressler, 2012).

II Agency and the micro-politics of ecosystem service practices

Recent literature on post-humanism, affect and pluralist ontologies reminds us that all human and non-human encounters are shaped as a much by the agency of non-human beings and things as by that of humans (Braun and Whatmore, 2010; Bennett, 2010; Howitt and Suchet-Pearson, 2006; Tuana, 2008; Ingold, 2011; Rose, 2011). Indeed, some have argued that this is a world perpetually 'coming-into-being' (Ingold, 2006: 10) or 'co-becoming' (Bawaka Country *et al*., 2013). For indigenous cosmologies in particular, this is a world comprised and understood through an entanglement of socially constituted invisible and visible forces brought into being through both praxis and story. Such a world, according to theorists like Ingold, transcends language preoccupations with networks and classification. It enables a recognition and acceptance of the fact that relations between people, animals, physical objects, and indeed spiritual entities simply 'happen, they carry on, they *are* their stories…' (Ingold, 2011: 175). They and their

relations are in this way forever 'alive' and dynamic, continuously woven *together* into the fabric of the world.

At first glance, such a world is far removed from the neo-liberal concept of ecosystem services which has emerged within and alongside the aspirational rhetoric of apolitical, context free technologies of 'new public management' (Ernston and Sorlin, 2013). A world of continual co-becoming contrasts with one in which the stock of nature and value are comprehensively measured and the services that 'nature' provides to humans are commodified, appropriated and commercialised under the rubric of ecosystem services. Formally admitting within its domain only that which is codifiable, the shift to ecosystem services comprises a cosmology and modality ostensibly dependent on the development of a 'depoliticizing', 'de-historicising' even 'de-ecologising' global technology (Ernston and Sorlin, 2013: 274; Norgaard, 2010).

In this paper, we propose a situated re-reading of these developments and a review of these ecosystem service aspirations. We argue that recognizing both the messy micro-politics of its deployment and the agency of non-human nature within the human-nature encounters it seeks to value, reveals that the concept of ecosystem services is as well an inherently relational practice of 'value articulation'(Ernston and Sorlin, 2013: 274). As such, it is also open to processes of re-articulation. If we accept that matter is political (Braun and Whatmore, 2010) and that nothing exists outsides it relations with others (Rose, 2005; Ingold, 2011; Bawaka Country *et al*., 2013), then it is our contention that

127 excavating the relational practices and intersecting cosmologies which constitute
128 particular instances of the ecosystems service model is an essential element of its robust
129 critique. Indeed, as Ernston and Sorlin (2013: 274) reveal by tracing what they call the
130 social and political trajectories of local decision-making in the context of 'manufacturing
131 global expertise', the objectivist biophysical reality purported to underpin ecosystem
132 service thinking is a fallacy.

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134 As non-indigenous geographers with two decades of experience working in the area of
135 indigenous resource management, we reflect on our own academic and professional
136 experiences and, informed by this extensive and geographically diverse ethnographic
137 fieldwork, we provide our own analysis of ecosystem services developments and the
138 literature pertaining to it. Our inquiry is informed by a postcolonial political and legal
139 sensitivity to the unique, deeply affective and caring relations between indigenous people
140 and their land and resources (cf. Borrows, 2002: 146). At the same time we recognize that
141 these relations are dynamic, practical, creative and opportunistic (cf. Strang, 2013;
142 Author 2 *et al*., forthcoming). Both of us have witnessed the construction of discourses
143 relating to new forms of capitalist value in the regions in which we work, including the
144 efforts of local actors to engage with and shape these value forms.

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146 In one case, Sue Jackson was engaged in a nature valuation project which sought to
147 articulate, measure and quantifies the value of aquatic life to the subsistence or customary
148 economies of a number of indigenous Australian language groups in watersheds at risk

149 from water resource development. Applying economic methods to arrive at a
150 replacement value for the aquatic life consumed by local communities (Jackson *et al*.,
151 2011), these valuations were a strategic part of a research agenda that entailed
152 ethnographic and participatory investigations and elucidations of the micro-politics of
153 river life and the multivalent capitalist and non capitalocentric values of tropical river
154 systems to Aboriginal peoples (Jackson *et al*., 2012, 2014; Jackson, 2006). These
155 multiple and intersecting values were fleshed out through a mixed methods approach
156 which sought to make an impact at a micro and macro political level and on the
157 techniques of social assessment in the context of water resource development (Jackson *et*
158 *al*., 2011).

159

160 In another case, Lisa Palmer has carried out research in East Timor where new
161 nationhood has seen the Timorese government and international donors move to
162 formalize and 'pay' for communities to carry out a practice known as *tara bandu*, the
163 customary ritual regulation of natural resources. Emerging in its 'modern' form via a
164 messy historical trajectory of colonial and post-colonial politics (Shepherd, 2013), local
165 peoples have shown an extraordinary preparedness to risk engaging with processes not
166 dissimilar to those emanating from the now globalised ecosystem service model (Palmer,
167 forthcoming). In these political engagements across plural ontologies, differently
168 configured, if co-constitutive, socio-environmental domains have been brought into
169 being. While it is clear that '*tara bandu* represents an attempt by modern institutions to
170 appropriate, reformulate, rationalize, standardize and, ultimately, harness' the realm of
171 indigenous agency and religious belief for the purposes of environmental resource

management, it is also clear that for local Timorese communities this engagement 'suggests a praxis of opportunity', a space for co-becoming, 'one in which the risks must be continually assessed' (McWilliam *et al*., in-press; Palmer and Carvalho, 2008; Palmer, 2010).

While we acknowledge it is important to recognize the risks and chart the micro-politics which have guided the willingness or otherwise of indigenous and local actors to embark on these paths, in this paper, we also contend that an overly refined attention to matters of risk and co-option can be both obfuscatory and paralyzing. We argue instead for a more hopeful embrace of such fragile engagements along with a robust critique of the ongoing creation of dynamic and adaptive formal and informal resource management cultures. While below we expand on this discussion of agency and reflect on the need to recognise and cultivate an ethic of care, we first turn to our case study and illustrative examples of what Coombes *et al* (2013: 692) refer to elsewhere as 'progressive spaces of Indigenous mobilization'.

III Formal Support for Indigenous Natural Resource Management in Australia

Australia has now had over three decades of policy driven recognition of indigenous peoples' natural resource management practices. This process began in 1975 with the establishment of Kakadu National Park, Australia's first protected area to be jointly managed by the Federal Government and the region's Aboriginal traditional land owners

(Lawrence, 2000). Recognition of Aboriginal land management practices and a training program for indigenous rangers was the cornerstone of the early years of park management, or joint management, as it is known locally (Haynes, 2013). Through the decades, the early enthusiasm for this arrangement and embrace of indigenous focused land management ideologies and practices in Kakadu has been dulled by entrenched bureaucratic processes and the insidiousness of dominant non-indigenous ideas about and priorities for nature conservation (Haynes, 2013; Palmer, 2007).

Meanwhile, other transformative initiatives have emerged outside of the formal state-based conservation system as responses to demands for indigenous land justice and reconciliation, as well as the pressing need to craft regional development pathways to address indigenous disadvantage in ways that accord with local aspirations (Bauman *et al*., 2013). Beginning in 1987-88, the Contract Employment Program for Aboriginals in Natural and Cultural Resource Management (CEPANCRM)) provided environmental employment opportunities for indigenous people throughout Australia. The program was given further impetus, funding and support following the recommendations of the Royal Commission into Aboriginal Deaths in Custody in 1992-1993. It was widely recognized for the contribution it made to environmental management and the social, cultural and economic objectives (including education participation and outcomes) encompassed in many Government initiatives dealing with indigenous issues (Breckwoldt *et al*., 1997). In 1990, these initiatives were documented by Elspeth Young and others in the seminal collection *Caring For Country (1991)* which reviewed support for indigenous land management and described the challenges of moving from the era of claiming ancestral

lands (1970s-1990s) to the contemporary one of reoccupying and managing very substantial tracts of claimed land.

Post-colonial land claims had by this time seen close to half of the Northern Territory's land-base come under indigenous ownership and control, some of it degraded, and most other Australian states had instituted statutory land rights regimes. In remote and regional Australian, re-establishing connections with customary estates could be most effectively undertaken from small, remote settlements, or homelands, and for a relatively short time this social agenda was sanctioned and actively supported by the Australian state (Altman, 2012).

Young's collection was followed a decade later by another academic collection, edited by geographers, titled *Working on Country* (Baker *et al*., 2001) that again examined indigenous resource management issues and initiatives, but this time in the context of significant influences on the national legal and political landscape resulting from the Commonwealth Government's native title legislation (1993). Native title claims were then expected to further strengthen the legitimacy of indigenous people's stake in environmental and cultural resource management and a nascent community sector had emerged with practical responses to the dramatic shifts to the legal landscape brought about by the High Court when it overturned Australia's founding legal fiction of *terra nullius*. For instance, in the two decades to follow the High Court decision, most Australian states would introduce new legislation and/or amend existing conservation legislation to enable joint management over protected areas (Bauman *et al*., 2013).

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241 While by the mid-1990s funding for these early community centred environmental labour
242 programs had been discontinued, the legacy of this formal support for indigenous
243 organisations influenced the success and capacity-building capabilities of many of the
244 indigenous organizations that now participate formally in a range of national biodiversity
245 and natural resource management initiatives (Davies *et al*., 1999; Muller, 2008; Putnis *et*
246 *al*., 2007; Smyth, 2011). In north Australia, strong interest in indigenous land
247 management activities, or 'caring for country', saw the creation of numerous community-
248 based organisations facilitated by natural resource management units within Land
249 Councils. *Caring for Country* was the name given to the largest specialist environmental
250 and cultural resource management program run by the Northern Land Council which, in
251 1995, had proposed linking employment aspirations with an environmental management
252 program as a remote area livelihoods or community development strategy (Kerins, 2012;
253 Northern Land Council, 2006). The network of community groups soon grew into a
254 burgeoning 'social movement … attempting to reverse destructive social and cultural
255 change that had come about from people separated from and thus losing management
256 control of their ancestral country' (Kerins, 2012: 36).

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258 Indigenous contributions to protected area management were also transformed during the
259 early days of the caring for country movement with the commencement in 1996 of an
260 initiative referred to as the Indigenous Protected Area (IPA) Program (Bauman *et al*.,
261 2013; Muller, 2008). The program supports traditional owners of lands or seas who
262 voluntarily dedicate their lands as protected areas, in line with the reserve categories of the

International Union for Conservation of Nature (IUCN) which promotes biodiversity and cultural heritage management. Langton et al. (2005) argue that this unique Australian program of establishing community-oriented protected areas was critical to supporting the lifeways of indigenous peoples and local communities, assisting in the preservation and maintenance of their traditional biodiversity related knowledge, and enabling them to participate in both customary subsistence and market economies. They argued that in contradistinction to other global programs of community-oriented protected areas, IPAs were an example of community-*controlled* conservation. In the estimation of these authors, the focus on conservation enabled through guaranteed land security and the ability of indigenous and local peoples to exercise their own governance structures was central to the success of the IPA program (Langton *et al*., 2005). As a result of this highly successful program, indigenous landowners are the single largest contributor of land to Australia's protected area system (ANAO, 2011).

Alongside the IPA program, the Federal Government funds a suite of indigenous and non-indigenous community based natural resource management initiatives, many of them housed under a program titled 'Caring For Our Country', established in 2008. At the time of writing, the indigenous programs were fully subscribed and were not inviting new funding applications (Smyth, 2011). Current fiscal arrangements do not meet the cost of effective management of vast indigenous estates (Altman and Dillon, 2005) and, though independent from direct government control, indigenous land and sea management groups remain heavily reliant on government funding.

Some of these initiatives concerning indigenous peoples have been documented in a collection focused primarily on activities in the Northern Territory by Altman and Kerins titled *People on Country* (2012), which includes chapters by indigenous authors and organisations, and in the 2011 Australian State of the Environment Report (Smyth, 2011). The semiotics of the national flagship environmental grants program titled 'Caring for our Country' appear on the surface to indicate that there has been a shift within mainstream conservation discourse toward a conceptual embrace of practices and priorities emanating from the indigenous realm.

Yet as discussed below, if we understand the indigenous concept of 'caring for country' as being drawn from a different ontological order, this seemingly seamless shift in discourse lacks any profound challenge to the conceptual roots of mainstream natural resource management. A number of studies of Australia's system of natural resource governance and management confirm the asymmetry in power that stubbornly constrains indigenous participation, with the 'invisibility' of indigenous interests being a major theme of the literature in this field (Lane, 2002; see also Lane and Williams, 2008; Altman and Jackson, in press). Lane and Williams (2008) show that the primary agents of environmental management in Australia, decentralized, regionally organized boards or statutory committees, have been largely unable to accommodate the needs or values of indigenous communities. In specific policy sectors, such as water, Australian governments have failed to redress inequalities in water distribution and management powers (Jackson and Langton, 2012).

In forging the latest trend in recognizing indigenous natural resource management in Australia, some indigenous community groups and organisations, as well as academics and policy-makers, are seeking more secure pathways to indigenous self-management. In doing so they are experimenting with alternative models for economic and social life including ones that tap private willingness to pay for a wide range of services that provide public environmental benefits such as fire management oriented towards carbon abatement and exotic weed and animal control (Altman 2012; Gerrard, 2008; Heckbert *et al.*, 2012; Luckert *et al*., 2009; Russell-Smith *et al*., 2011; Winder *et al*., 2012; Zander, 2013).

Before we discuss the ontological underpinnings of the terms such as 'caring for country', we first map out the global turn to placing a monetary value on environments or ecosystems and their services and establishing contractual arrangements that specify payments conditional on environmental performance - also known as payment for ecosystem services.

IV A new generation of environmental programs: payments for ecosystems services

Given added impetus by global environmental governance policies designed to address biodiversity loss (Costanza *et al*., 1997; Ferraro, 2011), the turn to ecosystem services reflects a policy trend towards market-based instruments and economic valuation of ecosystems that has grown into a dominant global model for environmental policy and

management (McAfee and Shapiro, 2010; Norgaard, 2010). In the face of opposition to regulatory approaches to conservation and difficulties associated with enforcement, financial instruments have been vigorously promoted as incentives to stimulate and sustain voluntary endeavours and achieve environmental outcomes.

Ecosystem services (ES) are defined as ecosystem functions that are beneficial to humans (McAfee and Shapiro, 2010). ES include provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling (MEA, 2005: v).

In some parts of the world, financial incentives such as payment for ecosystem services (PES) have been investigated as a means of integrating conservation and development goals and addressing lack of investment in conservation management, particularly on privately and communally held land (Grieg-Gran *et al*., 2005; Wunder, 2005). PES is thought to be particularly well-suited to the conditions facing marginalised and impoverished communities strongly dependent on natural resources, such as indigenous peoples, with advocates conceiving PES as a 'triple win solution for nature, private investors, and the poor' (McAfee and Shapiro, 2010: 580; see also Corbera *et al*., 2007; McElwee, 2011). Although the market is the model that lends PES legitimacy by reflecting the promise of contracting between service suppliers and beneficiaries (Pattanayak *et al*., 2010), in practice, the 'dominant format of PES is not that of standard

355 market trades, but that of state or more generally public payments' with governments
356 acting on behalf of beneficiaries (Vatn, 2010: 1246).

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358 Ecosystem service programs more broadly construed have a much longer lineage in
359 particular parts of the globe and, according to Gómez-Baggethun and Ruiz-Pérez (2011),
360 rudimentary forms of PES have been in existence in the U.S and Europe for decades.
361 Payments to farmers were promoted to stimulate soil conservation practices and protect
362 farmers from urban encroachment. The widespread expansion of PES as integrated
363 development and conservation agenda, however, dates fundamentally from the last two
364 decades, during which time 'the commodity frontier' has expanded towards entirely new
365 types of ecosystem services (Gómez-Baggethun and Ruiz-Pérez, 2011: 619). Market-
366 based environmental policies and programs such as REDD (Reducing Emissions from
367 Deforestation and Forest Degradation) and other carbon and biodiversity offset initiatives
368 are now topics of keen academic interest (Bumpus, 2011; Goodman and Boyd, 2011;
369 Robertson, 2004; Roth and Dressler, 2012) and, with the exponential growth in valuation
370 studies across the globe, are of relevance to environmental policy makers and managers.
371 The burgeoning literature reveals a spectrum of positions on PES throughout the world,
372 from close adherence to market-oriented reasoning to outright rejection of private
373 ownership and utilitarian rationales for conservation that require monetary valuation of
374 nature (McAfee and Shapiro, 2010; Gómez-Baggethun and Ruiz-Pérez, 2011).

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376 Explicating the political ecology of these experiences is an important way of beginning to
377 assess the prospects and challenges ahead for emerging programs in Australia and

elsewhere as well as the implications for indigenous communities, who often occupy a marginal political and economic position in settler states and whose territories can be particularly attractive to REDD and other PES schemes (Birrell *et al*., 2012; Griffiths, 2008; van Dam, 2011). For example, in most countries of Latin America, where over the last thirty years there has been devolution to indigenous people of their traditional lands, particularly forests (van Dam, 2011), the long entrenched neo-liberal preference for placing an economic value on nature through the marketisation of ecosystem services has received significant critical attention from academics, broad based social movements and indigenous communities with an interest in this historically significant reform of agrarian structure (Corbera *et al*., 2007; Grieg-Gran *et al*., 2005; Kosoy and Corbera, 2010; Vatn, 2010).

While this attention has produced a far-ranging critique of its failings, some writers and activists, conscious of heterogeneity and ambivalence in the ecosystem service concept and it is application, have been keen to interrogate such processes for their social, economic and environmental possibilities (cf. Bakker, 2007; Dempsey and Robertson, 2013; Higgins *et al*., 2012; Lockwood and Davidson, 2010; Mansfield, 2007; McAfee and Shapiro, 2010; Coombes *et al*., 2013). Writing about Australian trends in neoliberal forms of environmental governance, Higgins et al. (2012: 377) note that ‘a number of scholars have argued that they may at the same time create spaces of resistance, open up progressive political possibilities, or incorporate alternative rationalities of governing’.

Here we offer our understanding of this turn toward ecosystem services in Australia before turning to an appraisal and critique of both its processes and its conceptual foundations. In this we wish to extend ourselves beyond the genre of anti-neoliberal critique focused only on explicating the dangers of extending the realm of commodification to nature (Katz, 1998; Liverman, 2004; Smith, 2007; Castree, 2008a, 2008b). Given our subject area and the history of colonial relations (see for example, Baldwin, 2009), adding to this critique might be tempting for, on the surface, the popular and persuasive idiom of 'caring for country' seems at odds with the logic of neoliberal environmentalism which is predicated on a preference utilitarian philosophy and privileges individualistic measures of benefit. Yet, framed by our concern to understand dynamic human non-human inter relations, our intention is to plumb the articulations between the possibilities opened up by these conceptualisations, their attendant valuation practices and to (re)define of the ontological grounds for such actions. Firstly, however, in the context of the Australian situation, we address ourselves to the powerfully twinned critique of nature as commodity and ecosystem services as neo-liberal agent of the market.

V Payment for Environmental Services provided by Indigenous Australians

In Australia, a number of researchers, policy makers, indigenous people and organisations are vigorously exploring ways to engage with PES discourse and create the means to derive income from environmentally beneficial management actions undertaken

423 on indigenous lands. In doing so, they seek to finance the retention and/or re-
424 establishment of traditional land management practices or connections to country
425 (Altman, 2012; Campbell *et al*., 2007; Luckert *et al*., 2008; Muller, 2008; Winer *et al*.,
426 2012). There are now several hundred community-based indigenous land management
427 groups around Australia undertaking a wide array of practices on their indigenous
428 tenures, including:

429 • low intensity patch burning;
430 • harvesting of bush or wild foods (plants and animals);
431 • control of feral pests and weeds;
432 • fencing off and cleaning out waterholes;
433 • rehabilitation of eroded areas;
434 • ritual practices and increase ceremonies; and
435 • maintenance of language and the ecological knowledge embedded in language
436 and art (Campbell *et al*., 2007).

437

438 Under PES schemes, indigenous groups who effectively manage landscapes are enabling
439 their activity through a number of financial mechanisms. They tender for contracts for
440 environmental services purchased by governments (e.g. weed control, biosecurity
441 monitoring (see Muller, 2008; Hill *et al*., 2013)); by industry or business (e.g. through
442 purchase of carbon credits or biodiversity offsets see Russell-Smith *et al*., 2011); and/or
443 they sell their services (e.g. feral animal control) to a fund underwritten by voluntary
444 donations from Australian citizens (Zander, 2013). Some corporations might be motivated
445 to purchase these services not as a direct offset but as part of a corporate social

446 responsibility strategy. To give an indication of the economic importance of PES to some
447 groups, consider that one of Australia's most well-established indigenous ranger groups,
448 the Djelk Rangers from Arnhem Land, were in 2011 obtaining 22% of their revenue from
449 fee-for-service earnings from public and private sector clients by providing maritime
450 surveillance and bio-security services for Customs, Australian Quarantine Inspection
451 Service, and NT Fisheries (Concu, 2011).
452
453 The Djelk Rangers use these finances to employ over 35 indigenous staff as well as to
454 cover the operational costs of a range of activities, including weed and feral animal
455 control, fire management and coastal patrols (Concu, 2011). Without this funding these
456 activities would not be carried out at this scale or intensity. Following the success of the
457 Djelk Rangers' coastal surveillance activities, Australia's customs agency expanded the
458 program to include other indigenous land and sea management groups.
459
460 Concu (2011) highlights an important aspect in the character of these indigenous PES
461 activities: government agencies are outsourcing a portion of their responsibility to protect
462 the environment by contracting local indigenous rangers to provide environmental
463 services but the compensation for this service is based on accounting rules for grant
464 funding and ranger group estimation of the cost of delivering service, not on any
465 estimates of the benefits that the ranger's activities generate for the Australian public.
466
467 In turn, these rangers are responding in innovative ways to demonstrate the cost
468 effectiveness and efficiency of these kinds of programs. Groups like the Djelk Rangers

have been 'instrumental in streamlining the data reporting and information that is delivered back to government through the use of CyberTracker™', a hand held monitoring device that records costs incurred (effort, travel, duration) and spatially explicit environmental data (e.g. weed infestations, turtle sightings). According to Concu (2011: 23), the Commonwealth Government can now more easily 'see' the 'benefits and accountability that this brings to the ranger groups', and, in turn, has invested funds to employ two dedicated CyberTracker™ support officers to work with indigenous ranger groups.

Savanna burning is a particular environmental service that is currently promoted as highly prospective by indigenous organisations such as the North Australian Indigenous Land and Sea Management Alliance (NAILSMA). With Australian wildfires producing 7% of accountable global greenhouse gas emissions (Russell-Smith *et al*., 2013), the benefits from savanna burning by indigenous land-owners are described in the following terms: 'it is 'good land management practice and **aligned** with traditional burning practices; the **quickest** way to reduce greenhouse emissions on Aboriginal lands held in north Australia; the **quickest** ways to generate credits for money; flexible - you can decide to stop the project' (Australian Government and NAILSMA, no date; emphasis in original). Motivated by the prospect of such benefits, over forty indigenous organisations have recently applied for funding under Australia's new carbon farming initiative that includes wildfire management as an abatement activity (http://www.environment.gov.au/cleanenergyfuture/icff/pubs/icff-category2-projects.pdf; see also Robinson *et al*., 2014).

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493 In 2012, in recognition of the potential benefit of carbon trading schemes to indigenous
494 land owners, Australia announced an indigenous carbon farming initiative, a program
495 whose success or failure is tied to the fate of the European carbon market (McDonald,
496 2013).The Australian government will provide A$22.3m over five years to enable
497 indigenous landowners and managers to earn carbon credits by undertaking projects to
498 reduce emissions or store carbon[1] which the then Environment Minister stated will 'not
499 only provide benefits for our environment but also provide employment opportunities in
500 indigenous communities' (Burke, 2013). Robinson et al. (2014) surveyed indigenous
501 organisations across Australia and found that 94% (of 62 respondent organisations)
502 indicated a high level of interest in pursuing carbon market opportunities and 74%
503 identified potential opportunities in local ecosystem service delivery projects. These
504 authors report on the positive endorsement by some indigenous leaders for participating
505 in carbon offset activities and their assessment that this market represents 'the largest
506 opportunity in history to drive sustainable poverty alleviation in Aboriginal communities
507 (Moliter and Tilmouth, 2011: 1). Rowan Foley, indigenous General Manager of the non-
508 profit organization, Aboriginal Carbon Fund, describes this field of entrepreneurial effort
509 as Australia's indigenous carbon 'industry' (2011: 7).

510

511 An agreement between the Northern Territory government, western Arnhem Land
512 indigenous traditional owners and the gas company, ConocoPhillips, exemplifies the type
513 of private sector investment in environmental service provision by indigenous
514 landowners advocated as desirable by organisations like NAILSMA and the Aboriginal

515 Carbon Fund. The Northern Territory Government required the developer to offset
516 greenhouse gas emissions from a liquified natural gas plant as a condition of operating.
517 The offset mechanism is the provision of funds (A$17m over 17 years) to indigenous
518 land owners to reduce emissions and sequester carbon (Whitehead *et al*., 2008). Multiple
519 land-owning groups spanning 24, 000 km^2 have achieved this by embracing non-
520 indigenous knowledge, for example of the behaviour of carbon and of techniques for
521 measuring rates of sequestration and abatement, and reinstating a fire regime based on
522 local traditions and agreed to by consensus (Russell-Smith *et al*., 2013). Under this
523 regime, indigenous landowners have been enabled to overcome remote area access
524 difficulties (Hill *et al*., 2013) and establish firebreaks that lead to a reduction in overall
525 fire frequency, particularly the frequency of late season fires. A reduction in fire
526 frequency allows relatively more of the fuel to be biologically decomposed, which
527 produces less greenhouse gas than combustion. Although the primary goal is to reduce
528 greenhouse gas emissions, the initiative needs to be seen in the broader context of
529 providing the economic means to reconnect traditional owners to their country, to retain
530 cultural practices and to adapt them to new circumstances. At the same time, it is
531 reducing the impact on biodiversity of decades of out-of-control fires (Cook *et al*., 2012).
532 Heckbert *et al*. (2008) estimated employment opportunities from carbon abatement in the
533 tropical savannas in the order of 490 full-time-equivalent positions, equating to
534 approximately 1400 seasonal positions.
535
536 Indigenous rangers operate in a ‘hybrid’ space where the customary, market and state
537 economic sectors intersect (Altman, 2005), a point that Altman (2012: 16) refers to as a

538 'bliss' (or optimal) point deploying welfare economics theory. Indigenous leader
539 Marandoo Yanner from the Gulf of Carpentaria describes the evolution from government
540 grants to contracts for environmental services:
541
542 > In the past five years, Carpentaria Land Council rangers have lit hundreds of
543 > thousands of hectares to protect country from late season wildfires, shot over
544 > 40,000 feral pigs in sensitive habitat and prevented the spread of serious weeds
545 > into the Northern Territory. Most important of all, we have 20 rangers that are
546 > now professional land and sea managers.
547
548 > Contracting indigenous people by government to manage country in remote
549 > Australia is just common sense. We have a cultural obligation to look after
550 > country. In the Gulf we rejected the early half-arsed CDEP[i] ranger programs
551 > where people were given uniforms and then asked to paint rocks white ("green
552 > welfare") http://www.canberratimes.com.au/comment/a-proving-ground-for-
553 > proud-carers-of-country-20130512-2jg1s.html#ixzz2TWVUS1HI.

554
555 In these engagements with market-based conservation programs, some indigenous
556 leaders, in combination with other actors, are seeking a niche in the market for
557 environmental services by influencing the policy-frameworks that define standards of
558 accreditation for trading schemes. These policy-making efforts are currently focused on
559 the notion of 'co-benefits'[ii] and seek to enlarge the scope of benefits, or services worthy

of remuneration, beyond those that generate environmental outcomes (Foley, 2011). A recent paper on the 'indigenous carbon economy' described co-benefits as

> … ancillary opportunities that carbon offset projects might offer indigenous people (and) include the delivery of ecosystem services in a way that may also provide cultural, health, social, conservation and amenity benefits to local Indigenous communities (in addition to generating carbon credits for commercial sale) (Robinson *et al*., 2014: 2).

The authors identified the standardization of co-benefits as a priority task for indigenous groups involved in range of mitigation schemes including savanna burning (Robinson *et al.*, 2014).

Market-based conservation schemes such as these are 'highly consistent with Australian governments' neoliberal and free-trade policy direction' (Higgins *et al*., 2012: 378), and like other high-income nations, the concept of PES is appealing 'largely because it complements ongoing efforts to redirect agricultural subsidies toward public goods through conservation payment schemes' (Ferraro, 2011: 1134). Significantly, in contrast to the international literature, there are few published critiques emanating from the Australian engagement with PES, in so far as it concerns indigenous community-based environmental management, and despite strong interest in the economic opportunities, little is known about Australian indigenous perspectives on the ecosystem service framework underpinning PES - its logics, categories of service and their functionality.

583 Much of the Australian commentary and policy advocacy tends to present PES in clear
584 cut terms of development opportunity and not in its propensity to reshape environmental
585 governance (for good or ill), nor bring about progressive or regressive changes as a result
586 of extending market relations into new domains. Zander (2013), for example, notes that a
587 number of authors have suggested that PES is 'the new paradigm for NRM on
588 indigenous-held land in northern Australia' (2013: 11).

589

590 Similar to the pro-market debate in conservation circles elsewhere noted by Roth and
591 Dressler (2012), Australian proponents appear not to be aware of the international
592 experience that shows (i) policies framed by market-efficiency criteria alone are likely to
593 by-pass small-scale indigenous groups (McAfee and Shapiro, 2010), particularly those
594 many groups with weak or fragile governance arrangements and/or unrecognized or non-
595 conforming property rights; (ii) that ecosystem services may 'crowd out' other
596 obligations and protectionist motivations (Vatn, 2010) or social development outcomes
597 (Corber *et al*., 2007); and iii) there is a limited empirical basis for attributing changes in
598 poverty to PES (Pattanayak *et al*.. 2010). Zander and Garnett (2011) for instance promote
599 PES as a poverty alleviation mechanism, albeit one they regard as constrained by social
600 tenures and by the very modes of production that have contributed to the high
601 conservation status of some indigenous estates:

602 > One of the main obstacles is that most Indigenous people have group rather than
603 > individual land ownership and hence cannot sell their services as private goods,
604 > such as in bidding auctions. Also cultivation of Indigenous land for commercial

> production is rare, so there is no reason to use conservation money to set land aside. Thus, in economic terms, opportunity costs for conserving land are very low (n.p).

Whereas in Altman and Kerins's edited collection (2012), *People on Country: Vital Landscapes Indigenous Futures*, fundamental questions of power are raised by many of the authors who are attuned to the normalizing and disciplinary effects of the new forms of accountability, conditionality and surveillance that are likely to be required by performance based environmental service schemes. The ways in which these schemes may undermine the ability of indigenous groups to determine local priorities, benefit from or resist the commodification of local indigenous ecological knowledge and freely identify as indigenous rangers or environmental managers on their own terms are recognized (Buchanan and May, 2012; Kerins, 2012; Altman 2012). Moreover, this work presents the social and ecological complexity of indigenous land management as a public good deserving of state support. Drawing on a narrative similar to the one advanced by PES advocates responding to the deepening rural crisis in Latin America (McAfee and Shapiro, 2010), Altman *et al*. (2012) present PES as a policy catalyst for revaluing remote indigenous landscapes and customary relationships in the context of a recent divisive national debate over the future of indigenous livelihoods in remote Australia. In such contexts, the agenda for pro-market policies 'does not spring from a simple narrative of marketization' (Dempsey and Roberston, 2013: 759), rather there are multiple trajectories at play, including importantly 'threats to their land and livelihoods posed by climate change' (NAILSMA, 2011: 2, cited in Robinson *et al*., 2014: 2). PES

strategies here, as in many other places, are being selectively employed to advance broader indigenous agendas in ways that reflect their histories and contemporary realities (Roth and Dressler, 2012).

VI Discussion

For some indigenous peoples it could be argued that to accept the neo-marxist critiques of the dangers of commodifying nature (see Castree, 2008a, 2008b) and turn away from receiving payments for ecosystems services is akin to throwing the baby out with the bath water. This is particularly so when the alternative to an emerging 'caring for country economy' (Smyth, 2011: 10) is little more than a reassertion of the historically dominant model of 'managerial' conservation and development approval without consent and with minimal benefit. Yet as the literature makes abundantly clear, in state or international civil society led 'managerial' arrangements, the rules of engagement are defined by those who dominate and are in control of the formal system (Chapin, 2004; Langton *et al*., 2005). In such situations, indigenous peoples and their land and sea management practices are relegated to 'noises' in the 'established order of things' (Dikeç 2005:173 cited in Palmer, 2007; cf Chapin, 2004; Howitt and Suchet-Pearson, 2006; Lane and Williams, 2008). In critiques of the neo-liberal commodification of nature, what is most often glossed over is the creative ways in which these programs may be harnessed by indigenous peoples seeking ways of preserving, extending, adapting and benefiting their own dynamic land and sea management practices and related socio-ecological lifeworlds, or to the task of redressing socio-economic inequalities (Castree, 2007; Mansfield, 2007).

651

652 It is in the spirit of addressing this potentiality that we turn now to some salvage
653 geography. We are interested in what can be salvaged out of the now well entrenched (if
654 often internationally criticized) turn to ecosystem services. We seek possibilities in this
655 turn for furthering indigenous livelihoods and resource management practices, ceding
656 them voice and recognising their agency in the pursuit of diverse platforms for action
657 rather than relegating their environmental relations to mere noise. We also seek to prise
658 open pathways for other alternative ways of being in and knowing the world.

659

660 In his critique of the underpinnings of ideas pertaining to ecosystems services, Norgaard
661 (2010: 1219) has powerfully argued that '[t]he metaphor of nature as a stock that
662 provides a flow of services is insufficient for the difficulties we are in or the task ahead'.
663 Indeed, at the 'local' scale, the complex processes of change, interdependence, and
664 exchange relevant to creating local livelihoods and socio-ecological modes of being need
665 to be understood before we can sustainably reconfigure the marketisation of ecosystem
666 services. Across the indigenous world, complex sets of relations exist between human
667 and non-humans, collapsing simple nature/culture distinctions (Viveiros de Castro, 1998).
668 Animated by spiritual essences, nature in its entirety is understood as circulating life
669 energy between the visible realm of bodies and things and the invisible spiritual or
670 'interior' realm. Hence, rather than treating nature as 'fixed stock', we might treat an
671 indigenous understanding of flows and the 'spirit of relatedness' as 'stock'. In this
672 reconfiguration of the 'stock' of ecosystems services, it is the interconnections and the
673 ways in which things happen as a result of these interconnections which matter. Rather

than promulgating a fixed stock metaphor, we are challenged to consider a relational ontology and the ever expanding and contracting stock of relatedness on which we must focus our attention and value.

Shifting focus briefly from the stereotypically remote indigenous heartland of 'ecosystem service thinking' to the city, the cosmopolitan heart of globalised lifeworlds from where our most 'powerful' ideas emerge, we now want to consider how this ethic of relatedness might transpire in mainstream thinking and practices. In his poignantly titled paper, 'The Good City', Ash Amin argues that to recover, repair and re-enchant the landscapes through which over half of global humanity will soon live, we need to cultivate an ethic of care (2006). Amin is not referring here to a 'love thy neighbor ethic of care, but one based on the rights of recognition' (2006: 1021). Similar to our aim of recovering positive possibilities in the turn to 'nature markets', rather than wishing away the 'seductions, distortions and divisions of market individualism' in the city (2006: 1013), Amin argues that we need to focus our urban attentions on principles of relatedness and on fostering a public culture of care. In a manner which draws our attention to the need for a shift to a relational ontology, this pathway, he cautions, is not to create 'a public culture of forced mixture with the stranger and strangeness, but one that demands acceptance of relatedness as central to urban existence' (2006: 1017).

It seems to us however that this meditation on ways to recover the 'good city' is as applicable to relations outside of this (arbitrary) urban boundary, extending to the suite of relations between what at least some of us might think of as nature and culture. If we

consider for example that we are not (beyond, that is, the instrumental) related to nature, then we can make it strange, we can alienate it, fetishize it and make subject to the marketeer's whims. Yet if, as in Australian indigenous ontologies, the environment is a space of care (cf. Popke, 2006), the subject of complex sets of relations and is considered sentient, then 'country' is treated as a moral agent which communicates with people and can be happy, sad, good, bad, or angry (Rose, 1988: 381; Povinelli, 1993). Caring for 'country' then becomes a complicated, uncertain and always under negotiation matter wherein affective relationships with so called 'nature' are held in the foreground of people's actions and decisions.

Objective nature as an idea in itself is commodity fetishism *par excellence*. It is to this that we need to address ourselves before worrying about how much further markets might take an idea that Western enlightenment philosophies of all persuasions first began. As Jacobs writes, '[p]art of the legacy of the cocktail of Enlightenment thinking and the transition to capitalism was the invention of "external", "primordial" Nature' (1996: 135; see also Smith, 1997). In creating such an objectivist category, together they encouraged the culturally naive acceptance of a reified world existing outside social relationships (Taussig, 1980). Today, in the most pressing realms of environmental governance, such as climate change research and associated public policy debates, such immutable categories of nature, while useful for some agendas some of the time, continue to reify the world. For example, the accepted global governance framework for understanding climate change is 'totalizing, all-embracing and inclusive', 'collapsing human life into a systems framework' in which dominant causation is attributed to the global biophysical

environment and its 'boundaries' (Neilson and Serjesen, 2013: 194). At its core, this is an ideology which alienates the relationships between humans and nature and obscures the ways through which the 'local' is always actively engaged in creating the 'global' (Neilson and Serjesen, 2013; see also Head and Gibson, 2012). Recovering climate change research from environmental determinism (and we might add the notion of fixed stock) , Neilson and Serjensen argue we need to understand 'scale as relational' and make 'it possible to view climate change as more than just global physical transformations of "smaller" scales'(Neilson and Serjesen, 2013: 195). They conclude that:

> [C]limate change is an ongoing process, a work of conceptualization and not reducible to a global physical phenomenon understood to penetrate local lives. How people perceive, live with and transform climate change should thus be questions pursued more vigorously by human geography. (2013: 199-200)

Similarly, substituting 'nature' for 'climate' in the quote above, understanding 'caring for country' as ontologically relational and affective has profound implications for the recognition and promulgation of ecosystems services programs and for understanding their effects on nature, human-nature relations and human subjectivities. If we extend the concept of relatedness from humanity to all existence and foster an ethic of care which recognizes the agency of all 'others', be it other people or other nature, and the specific cultivation of these relations by humans, we avert the broadening of a schism between nature and culture – the schism that in the ecosystem service framework construes nature as provider/producer and human as consumer. If we can instead think of particular socio-

743 ecological practices as a 'service' worthy of remuneration that cultivates and extends this
744 web of relatedness and communicative practices between people and 'nature', we can
745 both challenge the commodification of nature and mitigate its worse effects.
746
747 Existing formulations of the ecosystem service concept are not yet readily able to
748 advance this goal or fulfill this promise, for although the metaphor tries to grapple with
749 the nature – society dualism, the framework is hampered by a particular form of
750 materialist ontology that ignores how deeply intertwined are the social and natural. The
751 transformations resulting from its application instead serve to 'emphasise conceptual
752 difference rather than continuity between human and nonhuman worlds' (Sullivan, 2009:
753 23; see also McAfee and Shapiro, 2010). The metaphor of servitude reinforces the
754 conceptual difference between nature and culture in a Hegelian hierarchy: nature serves
755 culture (Sullivan, 2009: 23).
756
757 Nowhere is this more evident than in the classification and definition of *cultural*
758 *ecosystem services*, a term which 'encompasses any and all non-material benefits people
759 obtain from ecosystems: spiritual enrichment, cognitive development, reflection,
760 recreation, tourism, and aesthetic experiences' (Martin-Lopez, 2009; see also Chan *et al*.,
761 2012). According to Chan et al. (2012: 14), cultural services 'are perhaps best understood
762 as those that do not fit well in other sectors of ES research' and their failure to fit renders
763 them subordinate to other dominant categories because they are difficult to measure (or
764 perhaps vice versa):

765 > These values and benefits are so divergent from each other and so overlapping
766 > with the values associated with other 'master' categories of services
767 > (provisioning, regulating, supporting) … that we can imagine no clean way to
768 > group these services without also including services that have been considered
769 > elsewhere. (Chan, 2012: 14)

770

771 In ecosystem service discourse, human agency - the processes and practices by which
772 societies 'produce a sensuous world' (Marx and Engels in Smith, 1997: 27) - are not
773 thought of as cultural services, or any other kind of service. Yet cultural ecosystem
774 services and many of the other types of service are surely co-produced and are influenced
775 or altered by diverse socio-ecological practices and processes as human societies define,
776 delimit and physically reconstitute nature (Castree, 2001) under manifold governance and
777 management institutions – laws, beliefs, norms, rules.

778

779 In the ecosystem service framework, it is the ecological entities (the coral reef, ocean,
780 wetland or forest, for example) that provide an array of benefits. Thus, environmental
781 features serve as a stimulant to human experience or a source of inspiration to human
782 systems of value, religion and aesthetics. In this externalizing configuration, 'Nature
783 somehow is backdrop to, rather than co-creator of human activity' (Sullivan, 2009: 23).
784 There is then an inherent risk for indigenous land managers in the current conception of
785 ecosystem services. It is conceivable that willingness to pay for ecosystem services
786 provided by indigenous people will be confined to financial support for only those

activities or functions that measurably improve environmental condition and not the practices and relations that generate less tangible or non-observable ecosocial results.

For indigenous peoples, country (or nature) is a sentient participant in the co-creative processes that, in a Mexican case presented by McAfee and Shapiro (2010), generate 'ecosocial systems', valued for their part in the subsistence economy, to local identities and beliefs, and as environmental commodities for sale. Is there a place for this human action, thought, belief and practice in the ecosystem service framework and could these socio-natural relations be reconfigured as a 'service' that recognises human cognition, care and labour, as well as non-human agency, in shaping and 'producing' the social nature from which other benefits are derived? Ecosystem service valuations that have tried to measure the human gain from a nonsocial nature have confronted the internal conflicts arising from the abiding modernist dualism, revealing how the essentialised categories breakdown when they are applied to 'inhabited nature or living ecososocial systems' (McAfee and Shapiro, 2010 p. 581; see also Ernstson and Sorlin, 2013). In the landmark Millenium Assessment, for example, scientists found the world's landscapes to be so differentiated through socialization that they were confounded in their attempts to value and compare ecosystem services:

> What they had learned in one ecosystem did not easily translate to another ecosystem, even if it seemed to be a quite similar ecosystem. Rather, the literature across seemingly similar ecosystems indicated many more differences than expected, many of them apparently due to different histories of human influence.

> Other scholars … have noted the contextuality of ecosystem service projects, and how each must be, and to some extent are, designed on their own terms. (Norgaard, 2010: 1223)

Returning to the Australian context, Australian science confronted this very problem over thirty years ago when it discovered that indigenous people had intentionally and actively changed aspects of their environment over millenia of controlled burning (Langton, 1998; Head, 1994). These and other insights into indigenous 'pyro-management' (Jones, 1969) generated a cascade of implications, not least the view that, given the importance of indigenous landscape burning in the co-evolution of human and natural systems, land managers must select what kind of 'natural' landscape to manage for (Bowman *et al*., 2001). In such a context, how should one characterize the activities that generate carbon off-sets under indigenous fire management regimes - as merely regulating services? No one appears to have made a case for recognizing these socio-ecological practices as cultural services; an observation that we find surprising given the amount of policy attention devoted to indigenous carbon abatement strategies, their governance and accounting systems and the social significance of indigenous burning and smoking (see Russell-Smith *et al*., 2011).

A similarly powerful example of embedded socio-ecological 'cultural services', and one that relates to fire, is documented by Doohan (2008) in the context of the mediated co-existence of a sacred site and a large scale diamond mine. Doohan (2008) examines the ways in which this relationship was, despite a violent and repressive colonial and post-

colonial history, skillfully renegotiated by local peoples through the context of the *wirnan*—a concept they apply to symbolize the social relationships mapped across space and configured through 'economic, social, political and ritual arenas' (Doohan, 2008: 65). For example, Doohan describes how at a critical juncture of the newly negotiated relationship between the corporate mining company and the area's native title holders, the indigenous land owners of the Argyle Diamond Mine carried out a *manthe*, a local smoking and increase ceremony, at the entrance to a tunnel linked to the new underground mine (see also Doohan et al. 2012). As the women ceremonial leaders entered the tunnel they called out to the Barramundi spirit below ground and asked her not to be afraid of the miners, to let them tunnel and dig for they would not hurt her, they were only after her scales (diamonds) (Doohan, 2008: 138):

> They told her they were happy for mining to take place because the Miners were 'coming good' (making a new agreement). The presence and attention of the Barramundi were evident in the density and movement of the smoke from the fire in and around the mouth of the tunnel, which eventually filled the tunnel…This strong presence of smoke was seen as definitive evidence of the Barramundi engaging with the local people and her positive consent for the underground work to begin. (Doohan, 2008: 138)

In bureaucratic practices and management settings, negotiations over land use and management are 'severely tested when an Aboriginal person describes the intentionality of country, and attempts to create opportunities for the country to persuade planners and

decision makers' (Jackson, 1998: 280). Such encounters are further problematised when it is understood that knowledge of 'country' is owned, and that some knowledge will be private and are not automatically available for sharing or transmission within a broader community of 'stakeholders' (Rose, 1996: 32). It needs to be accepted that in these negotiations, like in any negotiation, the onus is on the proponent to accept an unfavorable outcome, whilst at the same time doing everything possible to try to avert that possibility.

Elsewhere in the world, aboriginal Canadian legal scholar, John Borrows (2002), argues that a useful starting point in the process of fostering a public culture of care and creating a notion of shared and multidimensional citizenship relating to environmental governance would be for non-indigenous peoples to recognise and incorporate the indigenous notion of 'landed citizenship'. He writes:

> Many Aboriginal groups have well developed notions about how to recognize the land as citizen. In the Ashinabek language, the land is animate and perceived as having rights and obligations in its relations with humankind…. Aboriginal values and traditions could help reframe the relationship within our polity. (Borrows, 2002: 146)

Indeed, in federations such as Canada, one finds that in the realm of 'daily, subconstitutional politics' (Tully, 1995: 28), it is often through environmental governance issues that indigenous peoples are starting to refashion their stake in the governing ideas

879 and institutions of the broader regional, provincial and national polity (see Palmer, 2006).
880 Here we draw on one example from northern Canada which further explicates Borrows'
881 ideas regarding 'landed citizenship' to illustrate how a reconfigured ecosystem service
882 concept might be institutionalized in contemporary inter-cultural natural resource
883 management. In 2002, a new agreement concerning hydro development and other
884 resource extraction activities on indigenous Cree territory was struck with the Quebec
885 government. Amongst other things, it significantly expanded the recognition given to the
886 Cree Tallymen, the primary hunting stewards who are responsible under Cree law for
887 overseeing environmental governance in each of the 300 Cree family-based hunting
888 territories, or traplines. These traplines, which continue to be worked across the whole of
889 Cree traditional territories, have been the subject of an innovative payment scheme to
890 Cree hunters and trappers since the 1970s (see Feit, 2004).
891
892 The 2002 agreement extends upon this scheme by providing an implicit recognition and
893 valorisation of the role of Cree hunters and hunting practices in the provision and
894 management of ecosystem services. Cree Tallymen now have an active decision-making
895 role in planning for land-use developments which has strengthened the autonomy of Cree
896 governance, at the same time that it inserted the Cree notion of landed citizenship into the
897 state-based environmental governance regimes. Although not conceived at the time as a
898 payment for an ecosystem service, the Cree Hunters and Trappers Payment program has
899 grown into something which we contend can potentially be read as reconfiguring
900 conventional ecosystem service model thinking: treating the socio-cultural relations
901 between people and nature as the valued stock.

VI Conclusion

Neil Smith (2007: 38) has powerfully argued that '[c]apital is no longer content simply to plunder an available nature but rather increasingly moves to produce an inherently social nature as the basis of new sectors or production and accumulation'. Our argument recognizes these processes as they pertain to ecosystem services but sees, like Borrows (2002), possibilities for tacking in a different direction. Recognising the dangers inherent in the shift toward a greater commodification of nature, we argue that this need not necessarily result in a push towards the greater privatization of property. Rather we see the possibility of understanding ecosystem services in ways which make legible and enhance the possibility of recognizing, building and expanding upon the reality of indigenous social tenures and reciprocal social relations which create contextualised boundaries and exchange processes through co-produced socio-natures. While recognizing the need to engage with social change and the instability of meanings, we also suggest that our preparedness to value these relations, which include care and reciprocity as well as obligation, depends in part on our willingness to find meaningful ways of recognizing them in a late capitalist world. While we have focussed on examples drawn mainly from indigenous Australia, our aim is much broader. We are interested in giving value to human agency and knowledge and the ways in which people cultivate their ongoing relations with co-produced socio-ecological worlds. To not countenance such a pathway is to relegate the centrality of human-nature relations to the marginal

place occupied by women's domestic care and labour until the feminist turn of the late twentieth century. The pressing need to value 'different ways of conceptualizing and enacting relationships with the non-human world' (Sullivan, 2009: 25) demands that our attention to these matters extends our analysis beyond those currently dominant expressions of anxious concern for enhanced environmental outcomes and/or poverty alleviation for marginalized peoples.

Across Australia, renewed interest in the history of Aboriginal burning practices and awareness of the pace and severity of exotic weed and feral animal spread through remote regions, has made it clear that an empty landscape, a wilderness, is in fact destructive. Equally our examples have indicated the valuable role of the customary economy in the midst of industrial diamond mining. Is it just possible that a revised conceptualisation of ecosystem services, one that recognizes that the 'the space between nature and society is itself social' (Viveiros de Castro, 1998: 473), can create an opportunity to valorize the role of human relationships of management and care along with the diverse and amorphous ways in which they are embedded in communicative reciprocity with non-human nature?

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[i] Acronym for the Community Development Employment Scheme which subsidised employment for many Indigenous Australians for over 30 years until it was dismantled in 2012.

[ii] This concept derives from marketing concepts developed by the international Climate, Community and Biodiversity Alliance (CCBA).