

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

3

4           Sue Jackson<sup>1</sup> and Lisa R Palmer<sup>2</sup>

5

6           **Abstract**

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

15

---

<sup>1</sup> Australian Rivers, Institute Griffith,  
University Australia and Department of  
Resource Management and Geography,  
University of Melbourne, Australia

<sup>2</sup> Department of Geography, University of  
Melbourne, Australia

Corresponding Author: Lisa R Palmer  
Department of Geography, University of  
Melbourne Australia, Parkville, Victoria,  
Australia.  
Email: lrpalmer@unimelb.edu.au

16           **Keywords**

17           Cultural ecosystem services, indigenous peoples, nature-society relations, cultural  
18           geography, payment for ecosystem services, market environmentalism, ethics of care

19

20           **I Introduction**

21           The turn toward placing a monetary value on nature is now the subject of expansive  
22           geographical critique, although less attention has been given by geographers to the  
23           ascendant organizing framework in conservation policy and practice, ecosystem services  
24           and its economic exchange mechanism, payment for environmental services (Bakker,  
25           2010; Dempsey and Robertson, 2012; McAfee and Shapiro, 2010; Robertson, 2004).

26           While it is a turn which has been embraced from numerous vantage points and for  
27           various reasons, from within the discipline of geography registered concerns centre on  
28           processes and outcomes which may perpetuate the commodification of nature and  
29           attendant restructuring of social relationships under neoliberalism's commodity logic  
30           (Harvey, 1996; McCarthy and Prudham, 2004; Roth and Dressler, 2012; Smith, 2007).

31

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

38

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

52

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

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

74  
75 If we take the question of 'what it means to be and become human today, in dynamic  
76 relationship with non-human worlds' (Sullivan, 2009: 24; Sullivan, 2010) as one of our  
77 most pressing problems (Bakker, 2010; Latour, 2009; Smith, 2007), then the task of  
78 making visible and legible alternative ways of being in and knowing the world is critical.  
79 In taking up this challenge, we reject the notion of payment for ecosystems services as  
80 either an economic or environmental strategy, at least not in the conventional  
81 understandings of analytical categories of economy and environment. Rather, we are  
82 interested in the human non-human inter relations and practices that can be valorized and  
83 empowered through the idea of ecosystems services. We seek here to pay attention to the

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

90

## 91 **II Agency and the micro-politics of ecosystem service practices**

92

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

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

107

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

118

119 In this paper, we propose a situated re-reading of these developments and a review of  
120 these ecosystem service aspirations. We argue that recognizing both the messy micro-  
121 politics of its deployment and the agency of non-human nature within the human-nature  
122 encounters it seeks to value, reveals that the concept of ecosystem services is as well an  
123 inherently relational practice of ‘value articulation’ (Ernstson and Sorlin, 2013: 274). As  
124 such, it is also open to processes of re-articulation. If we accept that matter is political  
125 (Braun and Whatmore, 2010) and that nothing exists outside its relations with others  
126 (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.

133

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.

145

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



172 management, it is also clear that for local Timorese communities this engagement  
173 ‘suggests a praxis of opportunity’, a space for co-becoming, ‘one in which the risks must  
174 be continually assessed’ (McWilliam *et al.*, in-press; Palmer and Carvalho, 2008; Palmer,  
175 2010).

176  
177 While we acknowledge it is important to recognize the risks and chart the micro-politics  
178 which have guided the willingness or otherwise of indigenous and local actors to embark  
179 on these paths, in this paper, we also contend that an overly refined attention to matters of  
180 risk and co-option can be both obfuscatory and paralyzing. We argue instead for a more  
181 hopeful embrace of such fragile engagements along with a robust critique of the ongoing  
182 creation of dynamic and adaptive formal and informal resource management cultures.

183 While below we expand on this discussion of agency and reflect on the need to recognise  
184 and cultivate an ethic of care, we first turn to our case study and illustrative examples of  
185 what Coombes *et al* (2013: 692) refer to elsewhere as ‘progressive spaces of Indigenous  
186 mobilization’.

187

### 188 **III Formal Support for Indigenous Natural Resource Management in Australia**

189

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

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

201  
202 Meanwhile, other transformative initiatives have emerged outside of the formal state-  
203 based conservation system as responses to demands for indigenous land justice and  
204 reconciliation, as well as the pressing need to craft regional development pathways to  
205 address indigenous disadvantage in ways that accord with local aspirations (Bauman *et*  
206 *al.*, 2013). Beginning in 1987-88, the Contract Employment Program for Aboriginals in  
207 Natural and Cultural Resource Management (CEPANCRM)) provided environmental  
208 employment opportunities for indigenous people throughout Australia. The program was  
209 given further impetus, funding and support following the recommendations of the Royal  
210 Commission into Aboriginal Deaths in Custody in 1992-1993. It was widely recognized  
211 for the contribution it made to environmental management and the social, cultural and  
212 economic objectives (including education participation and outcomes) encompassed in  
213 many Government initiatives dealing with indigenous issues (Breckwoldt *et al.*, 1997). In  
214 1990, these initiatives were documented by Elspeth Young and others in the seminal  
215 collection *Caring For Country (1991)* which reviewed support for indigenous land  
216 management and described the challenges of moving from the era of claiming ancestral

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

219  
220 Post-colonial land claims had by this time seen close to half of the Northern Territory's  
221 land-base come under indigenous ownership and control, some of it degraded, and most  
222 other Australian states had instituted statutory land rights regimes. In remote and regional  
223 Australian, re-establishing connections with customary estates could be most effectively  
224 undertaken from small, remote settlements, or homelands, and for a relatively short time  
225 this social agenda was sanctioned and actively supported by the Australian state (Altman,  
226 2012).

227  
228 Young's collection was followed a decade later by another academic collection, edited by  
229 geographers, titled *Working on Country* (Baker *et al.*, 2001) that again examined  
230 indigenous resource management issues and initiatives, but this time in the context of  
231 significant influences on the national legal and political landscape resulting from the  
232 Commonwealth Government's native title legislation (1993). Native title claims were  
233 then expected to further strengthen the legitimacy of indigenous people's stake in  
234 environmental and cultural resource management and a nascent community sector had  
235 emerged with practical responses to the dramatic shifts to the legal landscape brought  
236 about by the High Court when it overturned Australia's founding legal fiction of *terra*  
237 *nullius*. For instance, in the two decades to follow the High Court decision, most  
238 Australian states would introduce new legislation and/or amend existing conservation  
239 legislation to enable joint management over protected areas (Bauman *et al.*, 2013).

240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257

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

258  
259  
260  
261  
262

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

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

276  
277 Alongside the IPA program, the Federal Government funds a suite of indigenous and  
278 non-indigenous community based natural resource management initiatives, many of them  
279 housed under a program titled 'Caring For Our Country', established in 2008. At the time  
280 of writing, the indigenous programs were fully subscribed and were not inviting new  
281 funding applications (Smyth, 2011). Current fiscal arrangements do not meet the cost of  
282 effective management of vast indigenous estates (Altman and Dillon, 2005) and, though  
283 independent from direct government control, indigenous land and sea management  
284 groups remain heavily reliant on government funding.

285

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

294  
295 Yet as discussed below, if we understand the indigenous concept of ‘caring for country’  
296 as being drawn from a different ontological order, this seemingly seamless shift in  
297 discourse lacks any profound challenge to the conceptual roots of mainstream natural  
298 resource management. A number of studies of Australia’s system of natural resource  
299 governance and management confirm the asymmetry in power that stubbornly constrains  
300 indigenous participation, with the ‘invisibility’ of indigenous interests being a major  
301 theme of the literature in this field (Lane, 2002; see also Lane and Williams, 2008;  
302 Altman and Jackson, in press). Lane and Williams (2008) show that the primary agents of  
303 environmental management in Australia, decentralized, regionally organized boards or  
304 statutory committees, have been largely unable to accommodate the needs or values of  
305 indigenous communities. In specific policy sectors, such as water, Australian  
306 governments have failed to redress inequalities in water distribution and management  
307 powers (Jackson and Langton, 2012).

308

309 In forging the latest trend in recognizing indigenous natural resource management in  
310 Australia, some indigenous community groups and organisations, as well as academics  
311 and policy-makers, are seeking more secure pathways to indigenous self-management. In  
312 doing so they are experimenting with alternative models for economic and social life  
313 including ones that tap private willingness to pay for a wide range of services that  
314 provide public environmental benefits such as fire management oriented towards carbon  
315 abatement and exotic weed and animal control (Altman 2012; Gerrard, 2008; Heckbert *et*  
316 *al.*, 2012; Luckert *et al.*, 2009; Russell-Smith *et al.*, 2011; Winder *et al.*, 2012; Zander,  
317 2013).

318

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

324

325

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

327

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

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

336

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

343

344 In some parts of the world, financial incentives such as payment for ecosystem services  
345 (PES) have been investigated as a means of integrating conservation and development  
346 goals and addressing lack of investment in conservation management, particularly on  
347 privately and communally held land (Grieg-Gran *et al.*, 2005; Wunder, 2005). PES is  
348 thought to be particularly well-suited to the conditions facing marginalised and  
349 impoverished communities strongly dependent on natural resources, such as indigenous  
350 peoples, with advocates conceiving PES as a ‘triple win solution for nature, private  
351 investors, and the poor’ (McAfee and Shapiro, 2010: 580; see also Corbera *et al.*, 2007;  
352 McElwee, 2011). Although the market is the model that lends PES legitimacy by  
353 reflecting the promise of contracting between service suppliers and beneficiaries  
354 (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).

357

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).

375

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

378 elsewhere as well as the implications for indigenous communities, who often occupy a  
379 marginal political and economic position in settler states and whose territories can be  
380 particularly attractive to REDD and other PES schemes (Birrell *et al.*, 2012; Griffiths,  
381 2008; van Dam, 2011). For example, in most countries of Latin America, where over the  
382 last thirty years there has been devolution to indigenous people of their traditional lands,  
383 particularly forests (van Dam, 2011), the long entrenched neo-liberal preference for  
384 placing an economic value on nature through the marketisation of ecosystem services has  
385 received significant critical attention from academics, broad based social movements and  
386 indigenous communities with an interest in this historically significant reform of agrarian  
387 structure (Corbera *et al.*, 2007; Grieg-Gran *et al.*, 2005; Kosoy and Corbera, 2010; Vatn,  
388 2010).

389  
390 While this attention has produced a far-ranging critique of its failings, some writers and  
391 activists, conscious of heterogeneity and ambivalence in the ecosystem service concept  
392 and its application, have been keen to interrogate such processes for their social,  
393 economic and environmental possibilities (cf. Bakker, 2007; Dempsey and Robertson,  
394 2013; Higgins *et al.*, 2012; Lockwood and Davidson, 2010; Mansfield, 2007; McAfee  
395 and Shapiro, 2010; Coombes *et al.*, 2013). Writing about Australian trends in neoliberal  
396 forms of environmental governance, Higgins *et al.* (2012: 377) note that ‘a number of  
397 scholars have argued that they may at the same time create spaces of resistance, open up  
398 progressive political possibilities, or incorporate alternative rationalities of governing’.

399

400 Here we offer our understanding of this turn toward ecosystem services in Australia  
401 before turning to an appraisal and critique of both its processes and its conceptual  
402 foundations. In this we wish to extend ourselves beyond the genre of anti-neoliberal  
403 critique focused only on explicating the dangers of extending the realm of  
404 commodification to nature (Katz, 1998; Liverman, 2004; Smith, 2007; Castree, 2008a,  
405 2008b). Given our subject area and the history of colonial relations (see for example,  
406 Baldwin, 2009), adding to this critique might be tempting for, on the surface, the popular  
407 and persuasive idiom of ‘caring for country’ seems at odds with the logic of neoliberal  
408 environmentalism which is predicated on a preference utilitarian philosophy and  
409 privileges individualistic measures of benefit. Yet, framed by our concern to understand  
410 dynamic human non-human inter relations, our intention is to plumb the articulations  
411 between the possibilities opened up by these conceptualisations, their attendant valuation  
412 practices and to (re)define of the ontological grounds for such actions. Firstly, however,  
413 in the context of the Australian situation, we address ourselves to the powerfully twinned  
414 critique of nature as commodity and ecosystem services as neo-liberal agent of the  
415 market.

416

417

#### 418 **V Payment for Environmental Services provided by Indigenous Australians**

419

420 In Australia, a number of researchers, policy makers, indigenous people and  
421 organisations are vigorously exploring ways to engage with PES discourse and create the  
422 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

469 have been ‘instrumental in streamlining the data reporting and information that is  
470 delivered back to government through the use of CyberTracker™’, a hand held  
471 monitoring device that records costs incurred (effort, travel, duration) and spatially  
472 explicit environmental data (e.g. weed infestations, turtle sightings). According to Concu  
473 (2011: 23), the Commonwealth Government can now more easily ‘see’ the ‘benefits and  
474 accountability that this brings to the ranger groups’, and, in turn, has invested funds to  
475 employ two dedicated CyberTracker™ support officers to work with indigenous ranger  
476 groups.

477  
478 Savanna burning is a particular environmental service that is currently promoted as  
479 highly prospective by indigenous organisations such as the North Australian Indigenous  
480 Land and Sea Management Alliance (NAILSMA). With Australian wildfires producing  
481 7% of accountable global greenhouse gas emissions (Russell-Smith *et al.*, 2013), the  
482 benefits from savanna burning by indigenous land-owners are described in the following  
483 terms: ‘it is ‘good land management practice and **aligned** with traditional burning  
484 practices; the **quickest** way to reduce greenhouse emissions on Aboriginal lands held in  
485 north Australia; the **quickest** ways to generate credits for money; flexible - you can  
486 decide to stop the project’ (Australian Government and NAILSMA, no date; emphasis in  
487 original). Motivated by the prospect of such benefits, over forty indigenous organisations  
488 have recently applied for funding under Australia’s new carbon farming initiative that  
489 includes wildfire management as an abatement activity  
490 (<http://www.environment.gov.au/cleanenergyfuture/icff/pubs/icff-category2-projects.pdf>;  
491 see also Robinson *et al.*, 2014).

492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510

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

511  
512  
513  
514

An agreement between the Northern Territory government, western Arnhem Land indigenous traditional owners and the gas company, ConocoPhillips, exemplifies the type of private sector investment in environmental service provision by indigenous 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<sup>2</sup> 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<sup>i</sup> 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#ixzz2TQVUS1HI](http://www.canberratimes.com.au/comment/a-proving-ground-for-proud-carers-of-country-20130512-2jg1s.html#ixzz2TQVUS1HI).

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'<sup>ii</sup> and seek to enlarge the scope of benefits, or services worthy

560 of remuneration, beyond those that generate environmental outcomes (Foley, 2011). A  
561 recent paper on the ‘indigenous carbon economy’ described co-benefits as  
562 ... ancillary opportunities that carbon offset projects might offer indigenous  
563 people (and) include the delivery of ecosystem services in a way that may also  
564 provide cultural, health, social, conservation and amenity benefits to local  
565 Indigenous communities (in addition to generating carbon credits for commercial  
566 sale) (Robinson *et al.*, 2014: 2).

567  
568 The authors identified the standardization of co-benefits as a priority task for indigenous  
569 groups involved in range of mitigation schemes including savanna burning (Robinson *et*  
570 *al.*, 2014).

571  
572 Market-based conservation schemes such as these are ‘highly consistent with Australian  
573 governments’ neoliberal and free-trade policy direction’ (Higgins *et al.*, 2012: 378), and  
574 like other high-income nations, the concept of PES is appealing ‘largely because it  
575 complements ongoing efforts to redirect agricultural subsidies toward public goods  
576 through conservation payment schemes’ (Ferraro, 2011: 1134). Significantly, in contrast  
577 to the international literature, there are few published critiques emanating from the  
578 Australian engagement with PES, in so far as it concerns indigenous community-based  
579 environmental management, and despite strong interest in the economic opportunities,  
580 little is known about Australian indigenous perspectives on the ecosystem service  
581 framework underpinning PES - its logics, categories of service and their functionality.

582

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

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

608

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

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

631

## 632 **VI Discussion**

633

634 For some indigenous peoples it could be argued that to accept the neo-marxist critiques of  
635 the dangers of commodifying nature (see Castree, 2008a, 2008b) and turn away from  
636 receiving payments for ecosystems services is akin to throwing the baby out with the bath  
637 water. This is particularly so when the alternative to an emerging ‘caring for country  
638 economy’ (Smyth, 2011: 10) is little more than a reassertion of the historically dominant  
639 model of ‘managerial’ conservation and development approval without consent and with  
640 minimal benefit. Yet as the literature makes abundantly clear, in state or international  
641 civil society led ‘managerial’ arrangements, the rules of engagement are defined by those  
642 who dominate and are in control of the formal system (Chapin, 2004; Langton *et al.*,  
643 2005). In such situations, indigenous peoples and their land and sea management  
644 practices are relegated to ‘noises’ in the ‘established order of things’ (Dikeç 2005:173  
645 cited in Palmer, 2007; cf Chapin, 2004; Howitt and Suchet-Pearson, 2006; Lane and  
646 Williams, 2008). In critiques of the neo-liberal commodification of nature, what is most  
647 often glossed over is the creative ways in which these programs may be harnessed by  
648 indigenous peoples seeking ways of preserving, extending, adapting and benefiting their  
649 own dynamic land and sea management practices and related socio-ecological lifeworlds,  
650 or to the task of redressing socio-economic inequalities (Castree, 2007; Mansfield, 2007).

651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673

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

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

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

677  
678 Shifting focus briefly from the stereotypically remote indigenous heartland of ‘ecosystem  
679 service thinking’ to the city, the cosmopolitan heart of globalised lifeworlds from where  
680 our most ‘powerful’ ideas emerge, we now want to consider how this ethic of relatedness  
681 might transpire in mainstream thinking and practices. In his poignantly titled paper, ‘The  
682 Good City’, Ash Amin argues that to recover, repair and re-enchant the landscapes  
683 through which over half of global humanity will soon live, we need to cultivate an ethic  
684 of care (2006). Amin is not referring here to a ‘love thy neighbor ethic of care, but one  
685 based on the rights of recognition’ (2006: 1021). Similar to our aim of recovering  
686 positive possibilities in the turn to ‘nature markets’, rather than wishing away the  
687 ‘seductions, distortions and divisions of market individualism’ in the city (2006: 1013),  
688 Amin argues that we need to focus our urban attentions on principles of relatedness and  
689 on fostering a public culture of care. In a manner which draws our attention to the need  
690 for a shift to a relational ontology, this pathway, he cautions, is not to create ‘a public  
691 culture of forced mixture with the stranger and strangeness, but one that demands  
692 acceptance of relatedness as central to urban existence’ (2006: 1017).

693  
694 It seems to us however that this meditation on ways to recover the ‘good city’ is as  
695 applicable to relations outside of this (arbitrary) urban boundary, extending to the suite of  
696 relations between what at least some of us might think of as nature and culture. If we

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

706

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



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

728  
729 [C]limate change is an ongoing process, a work of conceptualization and not  
730 reducible to a global physical phenomenon understood to penetrate local lives.  
731 How people perceive, live with and transform climate change should thus be  
732 questions pursued more vigorously by human geography. (2013: 199-200)

733  
734 Similarly, substituting ‘nature’ for ‘climate’ in the quote above, understanding ‘caring for  
735 country’ as ontologically relational and affective has profound implications for the  
736 recognition and promulgation of ecosystems services programs and for understanding  
737 their effects on nature, human-nature relations and human subjectivities. If we extend the  
738 concept of relatedness from humanity to all existence and foster an ethic of care which  
739 recognizes the agency of all ‘others’, be it other people or other nature, and the specific  
740 cultivation of these relations by humans, we avert the broadening of a schism between  
741 nature and culture – the schism that in the ecosystem service framework construes nature  
742 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

787 activities or functions that measurably improve environmental condition and not the  
788 practices and relations that generate less tangible or non-observable ecosocial results.  
789  
790 For indigenous peoples, country (or nature) is a sentient participant in the co-creative  
791 processes that, in a Mexican case presented by McAfee and Shapiro (2010), generate  
792 ‘ecosocial systems’, valued for their part in the subsistence economy, to local identities  
793 and beliefs, and as environmental commodities for sale. Is there a place for this human  
794 action, thought, belief and practice in the ecosystem service framework and could these  
795 socio-natural relations be reconfigured as a ‘service’ that recognises human cognition,  
796 care and labour, as well as non-human agency, in shaping and ‘producing’ the social  
797 nature from which other benefits are derived? Ecosystem service valuations that have  
798 tried to measure the human gain from a nonsocial nature have confronted the internal  
799 conflicts arising from the abiding modernist dualism, revealing how the essentialised  
800 categories breakdown when they are applied to ‘inhabited nature or living ecosocial  
801 systems’ (McAfee and Shapiro, 2010 p. 581; see also Ernstson and Sorlin, 2013). In the  
802 landmark Millenium Assessment, for example, scientists found the world’s landscapes to  
803 be so differentiated through socialization that they were confounded in their attempts to  
804 value and compare ecosystem services:

805  
806 What they had learned in one ecosystem did not easily translate to another  
807 ecosystem, even if it seemed to be a quite similar ecosystem. Rather, the literature  
808 across seemingly similar ecosystems indicated many more differences than  
809 expected, many of them apparently due to different histories of human influence.

810 Other scholars ... have noted the contextuality of ecosystem service projects, and  
811 how each must be, and to some extent are, designed on their own terms.

812 (Norgaard, 2010: 1223)

813

814 Returning to the Australian context, Australian science confronted this very problem over  
815 thirty years ago when it discovered that indigenous people had intentionally and actively  
816 changed aspects of their environment over millenia of controlled burning (Langton, 1998;  
817 Head, 1994). These and other insights into indigenous 'pyro-management' (Jones, 1969)  
818 generated a cascade of implications, not least the view that, given the importance of  
819 indigenous landscape burning in the co-evolution of human and natural systems, land  
820 managers must select what kind of 'natural' landscape to manage for (Bowman *et al.*,  
821 2001). In such a context, how should one characterize the activities that generate carbon  
822 off-sets under indigenous fire management regimes - as merely regulating services? No  
823 one appears to have made a case for recognizing these socio-ecological practices as  
824 cultural services; an observation that we find surprising given the amount of policy  
825 attention devoted to indigenous carbon abatement strategies, their governance and  
826 accounting systems and the social significance of indigenous burning and smoking (see  
827 Russell-Smith *et al.*, 2011).

828

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

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

844  
845 They told her they were happy for mining to take place because the Miners were  
846 ‘coming good’ (making a new agreement). The presence and attention of the  
847 Barramundi were evident in the density and movement of the smoke from the fire  
848 in and around the mouth of the tunnel, which eventually filled the tunnel... This  
849 strong presence of smoke was seen as definitive evidence of the Barramundi  
850 engaging with the local people and her positive consent for the underground work  
851 to begin. (Doohan, 2008: 138)

852  
853 In bureaucratic practices and management settings, negotiations over land use and  
854 management are ‘severely tested when an Aboriginal person describes the intentionality  
855 of country, and attempts to create opportunities for the country to persuade planners and

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

863  
864 Elsewhere in the world, aboriginal Canadian legal scholar, John Borrows (2002), argues  
865 that a useful starting point in the process of fostering a public culture of care and creating  
866 a notion of shared and multidimensional citizenship relating to environmental governance  
867 would be for non-indigenous peoples to recognise and incorporate the indigenous notion  
868 of 'landed citizenship'. He writes:

869  
870 Many Aboriginal groups have well developed notions about how to recognize the  
871 land as citizen. In the Ashinabek language, the land is animate and perceived as  
872 having rights and obligations in its relations with humankind.... Aboriginal values  
873 and traditions could help reframe the relationship within our polity. (Borrows,  
874 2002: 146)

875  
876 Indeed, in federations such as Canada, one finds that in the realm of 'daily,  
877 subconstitutional politics' (Tully, 1995: 28), it is often through environmental governance  
878 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.



902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924

**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 of 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

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

931

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

942

### 943 **Acknowledgements**

944 We thank Jon Altman, Marcus Barber, Sean Kerins and Jon Barnett for their helpful  
945 comments on an early draft of this paper and the anonymous reviewers for their  
946 thoughtful commentary.

947            We also acknowledge the intellectual influence of Marcia Langton with whom we have  
948            both collaborated over many years.

949

950

951

952

953 **References**

954 Altman J and Dillon M (2005) Commercial development and natural resource  
955 management on the Indigenous estate: A profit-related investment proposal.  
956 *Economic Papers* 24: 249–262.

957 Altman J (2005) Development options on Aboriginal land: sustainable hybrid economies  
958 in the twenty-first century. In: Taylor L, Ward G, Henderson G, Davis R, and  
959 Wallis L (eds) *The Power of Knowledge: The Resonance of Tradition*. Canberra:  
960 Aboriginal Studies Press, 34–48.

961 Altman J and Kerins S (eds) (2012) *People on Country: Vital Landscapes Indigenous  
962 Futures*. Sydney: The Federation Press.

963 Altman J (2012) People on country as alternate development. In: Altman J and Kerins S  
964 (eds) *People on Country: Vital Landscapes Indigenous Futures*. Sydney: The  
965 Federation Press, 1–22.

966

967 Altman J and Jackson S (in press) Indigenous land and sea management: Recognition,  
968 redistribution, representation. In: Lindenmayer D, Dovers S, and Morton S (eds.)  
969 *Ten Commitments Revisited*. Melbourne: CSIRO Publishing.

970

971 Amin A (2006) The good city. *Urban Studies* 45(5/6): 1009–1023.

972

973 Australian National Audit Office (2011) Indigenous Protected Areas, The Auditor-  
974 General Audit Report No.14 2011–12 Performance Audit. Canberra:  
975 Commonwealth of Australia.

976

977 Baker R, Davies J, and Young E (eds) (2001) *Working on Country: Contemporary  
978 Indigenous Management of Australia's Lands and Coastal Regions*. Melbourne:  
979 Oxford University Press.

980

981 Bakker K (2007) The 'commons' versus the 'commodity': alter-globalization,  
982 antiprivatization, and the human right to water in the global South. *Antipode* 39  
983 (3): 430–455.

984

985 Bakker K (2010) Neoliberalizing nature? Market environmentalism in water supply in  
986 England and Wales. *Annals of the Association of American Geographers* 95: 542–  
987 65.

988

989 Baldwin A (2009) Carbon nullius and racial rule: Race, nature and the cultural politics of  
990 forest carbon in Canada. *Antipode* 41(2): 231–255.

991

- 992 Bauman T, Haynes C, and Lauder G (2013) *Pathways to the co-management of protected*  
993 *areas and native title in Australia*. Research Discussion Paper No 32. Canberra:  
994 Australian Institute of Aboriginal and Torres Strait Islander Studies.  
995
- 996 Bawaka Country including S Suchet-Pearson, S Wright, K Lloyd and Burarrwanga L  
997 (2013) *Caring as Country: Towards an ontology of co-becoming in natural*  
998 *resource management*. *Asia-Pacific Viewpoint* 54: 185–197.  
999
- 1000 Bennett J (2010) *Vibrant matter: A political ecology of things*. Durham and London:  
1001 Duke University Press.  
1002
- 1003 Birrell K, Godden L, and Tehan M (2012) Climate change and REDD+: property as a  
1004 prism for conceiving Indigenous peoples' engagement. *Journal of Human Rights*  
1005 *and the Environment* 3: 196-216.
- 1006 Borrows J (2002) *Recovering Canada: The Resurgence of Indigenous Law*. Toronto: The  
1007 University of Toronto Press.
- 1008 Bowman D, Garde M, and Saulwick A (2001) *Histories of Old Ages: Essays in Honour*  
1009 *of Rhys Jones*. Canberra: Pandanas Books.
- 1010 Braun B and Whatmore S (eds) (2010) *Political Matter: Technoscience, Democracy and*  
1011 *Public Life*. Minnesota: University of Minnesota Press.
- 1012 Breckwoldt R, Boden R, and Williams R (1997) *Contract Employment Program for*  
1013 *Aboriginals in Natural and Cultural Resource Management (CEPANCRM):*  
1014 *Evaluation for Biodiversity Group Environment Australia*. Canberra:  
1015 Environment Australia.
- 1016 Buchanan G and May K (2012) Indigenous rangers and the customary economy. In:  
1017 Altman J, and Kerins S (eds) *People on Country: Vital Landscapes Indigenous*  
1018 *Futures*. Sydney: The Federation Press, 65-81.
- 1019 Bumpus A (2011) The matter of carbon: Understanding the materiality of tCO<sub>2</sub>e in  
1020 carbon offsets. *Antipode* 43(3): 612-638.
- 1021 Burke T (2013) Successful Indigenous Carbon Farming Fund Projects Announced, Media  
1022 Release, 24 April 2013,  
1023 <http://www.environment.gov.au/minister/burke/2013/mr20130424.html>  
1024
- 1025 Campbell D, Davies J, and Wakerman J (2007) *Realising Economies in the Joint Supply*  
1026 *of Health and Environmental Services in Aboriginal Central Australia*. Desert  
1027 Knowledge CRC Working Paper, No. 11. September, Alice Springs.  
1028
- 1029 Castree N (2001) Socializing Nature: Theory, Practice, and Politics. In Castree N. and  
1030 Braun B (eds.) *Social Nature: Theory, Practice & Politics*. Massachusetts:  
1031 Blackwell, 1-21.  
1032

- 1033 Castree N (2007) *Neoliberal Environments: A Framework for Analysis*. Manchester:  
1034 Papers in Political Economy, Working Paper No. 04/07.  
1035
- 1036 Castree N. (2008a) Neoliberalising nature: the logics of deregulation and reregulation.  
1037 *Environment and Planning A* 40: 131–152.  
1038
- 1039 Castree N (2008b) Neoliberalising nature: process, effects and evaluations. *Environment*  
1040 *and Planning A* 40: 153–173.  
1041
- 1042 Chan K, Satterfield T, and Goldstein J (2012) Rethinking ecosystem services to better  
1043 address and navigate cultural values. *Ecological Economics* 74: 8-18.  
1044
- 1045 Chapin M (2004) A challenge to conservationists. *Worldwatch Magazine* 17 (6): 17-31.  
1046
- 1047 Concu N (2011) *Developing an Effective Conservation and Sustainable Use Economy:*  
1048 *Two Arnhem Land Case Studies*. Darwin: Charles Darwin University.  
1049 [http://www.nailsma.org.au/hub/resources/publication/developing-effective-](http://www.nailsma.org.au/hub/resources/publication/developing-effective-conservation-and-sustainable-use-economy-two-arnhem)  
1050 [conservation-and-sustainable-use-economy-two-arnhem](http://www.nailsma.org.au/hub/resources/publication/developing-effective-conservation-and-sustainable-use-economy-two-arnhem)  
1051
- 1052 Corbera E, Brown K, and Adger N (2007) The equity and legitimacy of markets for  
1053 ecosystem services. *Development and Change* 38(4): 587–613.  
1054
- 1055 Cook G, Jackson S, and Williams R (2012) A revolution in northern Australian fire  
1056 management: recognition of Indigenous knowledge, practice and management. In:  
1057 Bradstock R, Gill A, and Williams R (eds) *Flammable Australia: Fire Regimes,*  
1058 *Biodiversity and Ecosystems in a Changing World*. Melbourne: CSIRO  
1059 Publishing, 293-306.  
1060
- 1061 Coombes B, Johnson JT, and Howitt, R. (2013) Indigenous geographies II: The  
1062 aspirational spaces in postcolonial politics – reconciliation, belonging and social  
1063 provision. *Prog Hum Geogr* 37: 691-700.  
1064
- 1065 Costanza R (1991) Assuring sustainability of ecological economic systems. In Costanza,  
1066 R (ed.) *Ecological Economics: The Science and Management of Sustainability*.  
1067 New York: Columbia University Press, 331–42.  
1068
- 1069 Costanza R, d'Arge R, de Groot R, Farber S, Grasso M, Hannon B, Limburg K, Naeem S,  
1070 O'Neill R, Paruelo J, Raskin R, Sutton P, and van den Belt M (1997) The value of  
1071 the world's ecosystem services and natural capital. *Nature* 387: 253–260.  
1072
- 1073 Davies J, Higginbottom K, Noack D, Ross H and Young E (1999) *Sustaining Eden:*  
1074 *Indigenous community based wildlife management in Australia, Evaluating Eden*  
1075 Series No. 1, London: International Institute for Environment and Development.  
1076
- 1077 Dikeç M (2005) Space, politics and the political. *Environment and Planning D: Society*  
1078 *and Space* 23:171-188  
1079

- 1080 Dempsey J and Robertson M (2013) Ecosystem services: Tensions, impurities, and points  
1081 of engagement within neoliberalism. *Prog. Hum Geogr* 36(6): 758–779.  
1082
- 1083 Doohan K (2008) *Making Things Come Good: Relations Between Aborigines and Miners*  
1084 *at Argyle*. Broome: Backroom Press.
- 1085 Doohan K, Langton M, and Mazel O (2012) From Paternalism to Partnership: The Good  
1086 Neighbour Agreement and the Argyle Diamond Mine Indigenous Land Use  
1087 Agreement in Western Australia. In Langton, M & Longbottom, J (eds)  
1088 *Community Futures, Legal Architecture: Foundations for Indigenous Peoples in*  
1089 *the Global Mining Boom* London: Routledge, 211-250.
- 1090 Ernstson H, and Sorlin S (2013) Ecosystem services as technology of globalization: On  
1091 articulating values in urban nature. *Ecological Economics* 86: 274-284.
- 1092 Feit H (2004) James Bay Cree's Life Projects and Politics: Histories of Place, Animal  
1093 Partners and Enduring Relationships. In M. Blaser, H. Feit & G. McRae, *In the*  
1094 *Way of Development: Indigenous Peoples, Life Projects and Globalization*, Zed  
1095 Books, London, 92-110.
- 1096 Ferraro P (2011) The future of payments for environmental services. *Conservation*  
1097 *Biology* 25 (6): 1134–1138.  
1098
- 1099 Foley R (2011): Indigenous carbon markets and standards. Paper presented at the  
1100 AIATSIS Native Title Conference, June, Brisbane.  
1101 [http://www.aiatsis.gov.au/ntru/documents/Foley\\_Rowan.pdf](http://www.aiatsis.gov.au/ntru/documents/Foley_Rowan.pdf).  
1102
- 1103 Gerrard E (2008) Impacts and opportunities of climate change: Indigenous  
1104 participation in environmental markets. Canberra: AIATSIS Issues  
1105 Paper No 13.  
1106
- 1107 Gibson-Graham J-K (2006) *A Postcapitalist Politics*. Minneapolis: University of  
1108 Minnesota Press.  
1109
- 1110 Gómez-Baggethun E and M Ruiz-Pérez (2011) Economic valuation and the  
1111 commodification of ecosystem services. *Progress in Physical Geography* 35: 613-  
1112 628.  
1113
- 1114 Goodman M and Boyd E (2011) A social life for carbon? Commodification, markets and  
1115 care. *The Geographical Journal* 177(2): 102-109.  
1116
- 1117 Grieg-Gran M, Porras I, Wunder S (2005) How can market mechanisms for forest  
1118 environmental services help the poor? Preliminary lessons from Latin America.  
1119 *World Dev* 33: 1511–1527.  
1120
- 1121 Griffiths T (2008) *Seeing 'REDD'? Forests, climate change mitigation and the rights of*  
1122 *indigenous peoples*. Forests People Program.

- 1123 [http://www.forestpeoples.org/sites/fpp/files/publication/2010/01/avoideddeforestationredjun07eng\\_0.pdf](http://www.forestpeoples.org/sites/fpp/files/publication/2010/01/avoideddeforestationredjun07eng_0.pdf)  
1124  
1125
- 1126 Harvey D (1996) *Justice, nature and the geography of difference*. Cambridge, MA:  
1127 Blackwell.  
1128
- 1129 Haynes C (2013) Seeking control: Disentangling the difficult sociality of Kakadu  
1130 National Park's joint management. *Journal of Sociology* 49: 194-209.  
1131
- 1132 Head L (1994) Landscapes socialized by fire: Post-contact changes in Aboriginal fire use  
1133 in Northern Australia, and implications for prehistory. *Archaeology in Oceania*  
1134 29(3): 172-181.  
1135
- 1136 Head L and Gibson C (2012) Becoming differently modern: Geographic contributions to  
1137 a generative climate politics. *Progress in Human Geography* 36: 699-714.  
1138
- 1139 Heckbert S, Russell-Smith J, Reeson A, Davies J, James G, and Meyer C (2012) Spatially  
1140 explicit benefit–cost analysis of fire management for greenhouse gas abatement.  
1141 *Austral Ecology* 37: 724-732.  
1142
- 1143 Higgins V, Dibden J, and Cocklin C (2012) Market instruments and the neoliberalisation  
1144 of land management in rural Australia. *Geoforum* 43: 377- 386.  
1145
- 1146 Hill R, Pert P, Davies J, Robinson C, Walsh F, and Falco-Mammone F (2013) Indigenous  
1147 land management in Australia: Extent, scope, diversity, barriers and success  
1148 factors. Cairns: CSIRO Ecosystem Sciences.  
1149
- 1150 Howitt R and Suchet-Pearson S (2006) Rethinking the building blocks: ontological  
1151 pluralism and the idea of 'management'. *Geografiska Annaler. Series B, Human*  
1152 *Geography* 88: 323–335.  
1153
- 1154 Ingold T (2006) Rethinking the animate, re-animating thought. *Ethnos* 71 (1): 9-20.  
1155
- 1156 Ingold T (2011) *Being alive: Essays on movement, knowledge and description*. London  
1157 and New York: Routledge.  
1158
- 1159 Jackson S (1998) Geographies of co-existence: Native title, cultural difference and the  
1160 decolonisation of planning in North Australia. Ph.D thesis, Sydney: Macquarie  
1161 University.  
1162
- 1163 Jackson S (2006) Compartmentalising culture: the articulation and consideration of  
1164 Indigenous values in water resource management. *Australian Geographer* 37: 19-  
1165 32.
- 1166 Jackson S, Finn M, Woodward E, and Featherston P (2011). *Indigenous socio-economic*  
1167 *values and river flows*. Darwin: CSIRO Ecosystem Sciences.



- 1168
- 1169 Jackson S, Finn M, and Featherston P (2012) Aquatic resource use by Indigenous  
1170 Australians in two tropical river catchments: The Fitzroy River and Daly River.  
1171 *Human Ecology* 40: 893-908.  
1172
- 1173 Jackson S and Langton M (2012) Trends in the recognition of indigenous water needs in  
1174 Australian water reform: the limitations of ‘cultural’ entitlements in achieving  
1175 water equity. *Journal of Water Law* 22:109-123.
- 1176 Jackson S, Finn M, and Scheepers K (2014) The use of replacement cost method to assess  
1177 and manage the impacts of water resource development on Australian indigenous  
1178 customary economies. *Journal of Environmental Management* 135: 100-09.
- 1179 Jacobs J (1996) *Edge of Empire: Postcolonialism and the City*. London: Routledge.
- 1180 Jones R (1969) Fire stick farming. *Australian Natural History* 16: 224–231.
- 1181 Katz C (1998) Whose nature, whose culture? Private productions of space and the  
1182 preservation of nature. In: Braun B and Castree N (eds) *Remaking Reality: Nature*  
1183 *at the Millenium*. New York and London: Routledge, 46-63.
- 1184 Kerins S (2012) Caring for country to working on country. In: Altman J and Kerins S  
1185 (eds) *People on Country: Vital Landscapes Indigenous Futures*. Sydney: The  
1186 Federation Press, 26-44.
- 1187 Kosoy N and Corbera E (2010) Payments for ecosystem services as commodity  
1188 fetishism. *Ecological Economics* 69: 1228–1236.
- 1189 Lane M (2002) Buying back and caring for country: Institutional arrangements and  
1190 possibilities for indigenous lands management in Australia. *Society & Natural*  
1191 *Resources* 15: 827- 846.  
1192
- 1193 Lane M and Williams L (2008) Color Blind: Indigenous peoples and regional  
1194 environmental management. *Journal of Planning Education and Research* 28: 38-  
1195 49.
- 1196 Langton M (1998) *Burning Questions: Emerging Environmental Issues for Indigenous*  
1197 *Peoples in Northern Australia*, Darwin: Centre for Indigenous Natural and  
1198 Cultural Resource Management, Northern Territory University.
- 1199 Langton M, MaRhea Z and Palmer L (2005) Community oriented protected areas for  
1200 indigenous peoples and local communities. *Journal of Political Ecology* 12: 23-  
1201 50.
- 1202 Latour B (2009) Perspectivism: ‘Type’ or ‘bomb’. *Anthropology Today* 25 (2): 1-2.

- 1203 Lawrence D (2000) *Kakadu: The Making of a National Park*, Carlton: The Miegunyah  
1204 Press, Melbourne University Press.
- 1205 Liverman D (2004) Who governs, at what scale and at what price? Geography,  
1206 environmental governance, and the commodification of nature. *Annals of the*  
1207 *Association of American Geographers* 94 (4): 734–738.
- 1208 Lockwood M and Davidson J (2010) Environmental governance and the hybrid regime of  
1209 Australian natural resource management. *Geoforum* 41: 388–398.
- 1210
- 1211 Luckert M, Campbell B, Gorman J, and Garnett S (eds) (2009) *Investing in Indigenous*  
1212 *Natural Resources Management*. Darwin: CDU Press.
- 1213 Mansfield B (2007) Introduction: Privatization: property and the remaking of nature–  
1214 society relations. *Antipode* 39(3): 393–405.
- 1215 Martin-Lopez B, Gomez-Baggethun E, Lomas P, and Montes C (2009) Effects of spatial  
1216 and temporal scales on cultural services valuation. *Journal of Environmental*  
1217 *Management* 90: 1050–1059.
- 1218
- 1219 McAfee K and Shapiro E (2010) Payments for ecosystem services in Mexico: Nature,  
1220 neoliberalism, social movements, and the state. *Annals of the Association of*  
1221 *American Geographers* 100(3): 579–599.
- 1222
- 1223 McCarthy J and Prudham S (2004) Neoliberal nature and the nature of neoliberalism.  
1224 *Geoforum* 35: 275–83.
- 1225
- 1226 McDonald F (2013) ‘The Carbon Farming Initiative (CFI) and Indigenous community-  
1227 based natural and cultural resource management: A case study of the Fish River  
1228 Savannah Burning Methodology Project’, Unpublished Minor Masters Thesis,  
1229 The University of Melbourne.
- 1230
- 1231 McElwee P (2011) Payments for environmental services as neoliberal market-based  
1232 forest conservation in Vietnam: Panacea or problem? *Geoforum* 43(3): 412–426.
- 1233
- 1234 McWilliam A, Palmer L and Shepherd C (in-press) *Lulik Encounters and Cultural*  
1235 *Frictions in East Timor: past and present. The Australian Journal of*  
1236 *Anthropology*.
- 1237
- 1238 Millennium Ecosystem Assessment (2005) *Ecosystems and Human Well-being:*  
1239 *Synthesis*. Washington, DC: Island Press.
- 1240
- 1241 Molitor M and Tilmouth T (2011) *Design of the Carbon Farming Initiative consultation*  
1242 *paper*. Submission to the Department of Climate Change and Energy Efficiency  
1243 on behalf of CarbonShift Advisory Pty Ltd. and the Aboriginal Carbon Fund, 12  
1244 January 2011. Sydney: CarbonShift Advisory.
- 1245

- 1246 Muller S (2008) Indigenous Payment for Environmental Service (PES) Opportunities in  
1247 the Northern Territory: negotiating with customs. *Australian Geographer* 39(2):  
1248 149-170.  
1249
- 1250 Nielsen J and Sejersen F (2013) Earth System Science, the IPCC and the problem of  
1251 downward causation in human geographies of Global Climate Change.  
1252 *Geografisk Tidsskrift-Danish Journal of Geography* 112(2): 194-202.
- 1253 Norgaard R (2010) Ecosystem services: From eye-opening metaphor to complexity  
1254 blinder. *Ecological Economics*. 69: 1219-1227.  
1255
- 1256 Northern Land Council (2006) *Celebrating Ten Years of Caring for Country: A Northern*  
1257 *Land Council Initiative*, Darwin: Northern Land Council.  
1258
- 1259 Palmer L (2006) Nature, place and indigenous polities. *Australian Geographer* 37(1): 33-  
1260 43.  
1261
- 1262 Palmer L (2007) Interpreting nature: The politics of engaging with Kakadu as an  
1263 Aboriginal place. *Cultural Geographies* 14: 1-19.  
1264
- 1265 Palmer L (2010) Enlightening Development: Water management in the post conflict  
1266 Baucau City, Timor-Leste. *Singapore Journal of Tropical Geography* 31: 357-  
1267 370.  
1268
- 1269 Palmer, L (forthcoming) The 'environment' in Timor Leste. In Hirsch P (ed), Routledge  
1270 Handbook of the Environment in Southeast Asia. London and New York:  
1271 Routledge.  
1272
- 1273 Palmer, L. and Carvalho, D.A. (2008) Nation building and resource management: The  
1274 politics of 'nature' in Timor Leste. *Geoforum* 39: 1321-1332.  
1275
- 1276 Pattanayak S, Wunder S, and Ferraro P (2010) Show me the money: Do payments supply  
1277 ecosystem services in developing countries? *Review of Environmental Economics*  
1278 *and Policy* 4: 254-274.  
1279
- 1280 Popke J (2006) Geography and Ethics: Everyday Mediations Through Care and  
1281 Consumption. *Progress in Human Geography* 30: 504-512.  
1282
- 1283 Povinelli E (1993) *Labor's Lot: The Power, History, and Culture of Aboriginal Action*,  
1284 Chicago: The University of Chicago Press.

- 1285 Putnis A, Josif P, and Woodward E (2007) Healthy country, healthy people: supporting  
1286 Indigenous engagement in the sustainable management of Northern Territory land  
1287 and seas: a strategic framework. Darwin: CSIRO.  
1288
- 1289 Robertson M (2004) The neoliberalization of ecosystem services: Wetland mitigation  
1290 banking and problems in environmental governance. *Geoforum* 35: 361–373.  
1291
- 1292 Robinson C, Gerrard E, May T, and Maclean K (2014) Australia’s Indigenous Carbon  
1293 Economy: A National Snapshot. *Geographical Research* 52(2): 123-132.
- 1294 Rose D (1988) Exploring an Aboriginal Land Ethic. *Meanjin* 47 (3): 378–386.
- 1295 Rose D (1996) *Nourishing Terrains: Australian Aboriginal Views of Landscape and*  
1296 *Wilderness*. Canberra: Australian Heritage Commission.
- 1297 Rose D (2005) An indigenous philosophical ecology: Situating the human. *The*  
1298 *Australian Journal of Anthropology* 16(3): 294-305.  
1299
- 1300 Rose D (2011) *Wild dog dreaming: Love and extinction*. Charlottesville, Virginia:  
1301 University of Virginia Press.  
1302
- 1303 Roth R and Dressler W (2012) Market-oriented conservation governance: The  
1304 particularities of place. *Geoforum* 43: 363-366.  
1305
- 1306 Russell-Smith J, Whitehead P and Cooke P (eds) (2009) *Culture, Ecology and Economy*  
1307 *of Fire Management in North Australian Savannas: Rekindling the Wurrk*  
1308 *Tradition*. Melbourne: CSIRO Publishing.  
1309
- 1310 Russell-Smith J, Cook G, Cooke P, Edwards A, Lendrum M, Meyer C, and Whitehead, P  
1311 (2013) Managing fire regimes in north Australian savannas: Applying Aboriginal  
1312 approaches to contemporary global problems. *Front Ecol Environ* 2013: 11  
1313 (Online Issue 1): e55–e63.  
1314
- 1315 Shepherd C (2013) *Development and Environmental Politics Unmasked: Authority,*  
1316 *Participation and Equity in East Timor*. London and New York: Routledge.  
1317
- 1318 Smith N (2007) Nature as accumulation strategy. *Socialist Register* 43: 19-41.  
1319
- 1320 Smyth D (2011) Indigenous land and sea management – a case study. Report prepared for  
1321 the Australian Government Department of Sustainability, Environment, Water,  
1322 Population and Communities on behalf of the State of the Environment 2011  
1323 Committee. Canberra: DSEWPac.  
1324
- 1325 Stevens S (ed.) (2014) *Indigenous Peoples, National Parks and Protected Areas,*  
1326 University of Arizona Press, Arizona.  
1327

- 1328 Strang V (2013) Conceptual Relations: Water, Ideologies, and Theoretical Subversions.  
1329 In Chen C, Macleod J, and Neimanis A (eds) *Thinking with Water*. Montreal:  
1330 McGill-Queen's University Press, 185-211.  
1331
- 1332 Sullivan S (2009) Green capitalism, and the cultural poverty of constructing nature as  
1333 service provider. *Radical Anthropology* 3: 18-27.  
1334
- 1335 Sullivan S (2010) 'Ecosystems Service Commodities'-New Imperial Ecology?  
1336 Implications for animist immanent ecologies, with Deleuze and Guattari. *New*  
1337 *Formations* 69 (6): 111-128.  
1338
- 1339 Taussig M (1980) *The Devil and Commodity Fetishism in South America*. Chapel Hill:  
1340 University of North Carolina Press.
- 1341 Tuana N (2008) Viscous porosity: Witnessing Katrina. In Alaimo, S, and Hekman, S  
1342 (eds) *Material Feminisms*. Bloomington, Indiana: Indiana University Press, 188-  
1343 213.  
1344
- 1345 Tully J (1995) *Strange Multiplicities: Constitutionalism in the Age of Diversity*.  
1346 Cambridge: Cambridge University Press.  
1347
- 1348 Van Dam C (2011) Indigenous territories and REDD in Latin America: Opportunity or  
1349 threat? *Forests* 2: 394-414  
1350
- 1351 Vatn A (2010) An institutional analysis of payments for environmental services.  
1352 *Ecological Economics* 69: 1245-1252.  
1353
- 1354 Viveiros de Castro E (1998) Cosmological deixis and Amerindian perspectivism. *Journal*  
1355 *of the Royal Anthropological Institute* 4: 469-488.  
1356
- 1357 Whitehead P, Purdon P, Russell-Smith J, Cooke P, and Sutton S (2008) The management  
1358 of climate change through prescribed savanna burning: emerging contributions of  
1359 Indigenous people in north Australia. *Public Administration and Development*,  
1360 28: 374-85.  
1361
- 1362 Winer M, Murphy H, and Ludwick H (2012) *Payment for Ecosystem Services Markets on*  
1363 *Aboriginal Land in Cape York Peninsula Potential and Constraints*. Geneva,  
1364 Switzerland: United Nations Research Institute for Social Development  
1365 (UNRISD) Occasional Paper 6.  
1366
- 1367 Woodward E, Jackson S, Finn M and Marfurra McTaggart P (2012) Utilising Indigenous  
1368 seasonal knowledge to understand aquatic resource use and inform water resource  
1369 management in northern Australia. *Ecological Management and Restoration*  
1370 13(1): 58-64.  
1371
- 1372 Wunder S (2005) *Payments for Environmental Services: Some Nuts and Bolts*. Bogor:  
1373 Center for International Forestry Research Occasional Paper No. 42.

- 1374  
1375 Yanner M (2013) A proving ground for proud carers of country, *Canberra Times*, May  
1376 13, 2013: [http://www.canberratimes.com.au/comment/a-proving-ground-for-](http://www.canberratimes.com.au/comment/a-proving-ground-for-proud-carers-of-country-20130512-2jg1s.html#ixzz2TWWGXwV8)  
1377 [proud-carers-of-country-20130512-2jg1s.html#ixzz2TWWGXwV8](http://www.canberratimes.com.au/comment/a-proving-ground-for-proud-carers-of-country-20130512-2jg1s.html#ixzz2TWWGXwV8)  
1378  
1379 Young E, Ross H, Johnson R and Kesteven J (1991) *Caring for Country: Aborigines and*  
1380 *Land Management*. Canberra: Australian National Parks and Wildlife Service.  
1381  
1382 Zander K and Garnett S (2011) The economic value of ecosystem services on  
1383 indigenous-held lands in Australia. *PLoS ONE* 6(8) (e23154): 1–6.  
1384  
1385 Zander K (2013) Understanding public support for indigenous natural resource  
1386 management in northern Australia. *Ecology and Society* 18(1): 11.  
1387  
1388

---

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

<sup>ii</sup> This concept derives from marketing concepts developed by the international Climate, Community and Biodiversity Alliance (CCBA).



Minerva Access is the Institutional Repository of The University of Melbourne

**Author/s:**

Jackson, S; Palmer, LR

**Title:**

Reconceptualizing ecosystem services: Possibilities for cultivating and valuing the ethics and practices of care

**Date:**

2015-04-01

**Citation:**

Jackson, S; Palmer, LR, Reconceptualizing ecosystem services: Possibilities for cultivating and valuing the ethics and practices of care, PROGRESS IN HUMAN GEOGRAPHY, 2015, 39 (2), pp. 122 - 145

**Persistent Link:**

<http://hdl.handle.net/11343/45235>