

## EDITORIAL

### Ecosystem services and fictitious commodities

**THEMATIC SECTION**  
Payments for Ecosystem  
Services in Conservation:  
Performance and  
Prospects

There is a great deal of discussion in conservation about the possibility of quantifying and paying for the services to societies that nature performs. Functions such as carbon sequestration and water provision can be valued and payments made for them. Advocates argue that payments for ecological/environmental services (PES) will generate substantial sums, render environmental values legible to politicians and make protecting nature common sense to rational people.

There is clearly excitement surrounding PES. Sir Stanley Fink, speaking to fellow financiers in London observed: 'Leaving aside the immeasurable value offered by our rainforests' diversity and water conservation functions, we are facing an almost unfathomably large business opportunity . . . With an estimated 610 billion tonnes of CO<sub>2</sub> sequestered by our tropical rainforests, a vast \$18 trillion business opportunity is before us . . . [I]t is increasingly clear that the solution to this problem lies . . . within a free market system. Many structures and mechanisms will need to be created, but it should be . . . our appetite for these markets that forces political support for them' (Fink 2008, cited in Brockington & Duffy 2010). The environmental campaigner Tony Juniper welcomed the announcement that Norway would pay up to US\$ 250 million to Guyana if it kept deforestation in check as a 'historic step . . . in the battle to hang on to the world's remaining tropical forests' (Juniper 2011, p. 1). Initiatives such as The Economics of Ecosystems and Biodiversity (TEEB) have been most effective in making PES prominent and influential (TEEB 2010).

There are also critics perturbed by the manner of PES' ascension. After observing a gathering of the Society for Conservation Biology replete with discussion about PES, Buscher (2008, p. 229) complained that 'conservationists oddly seem to throw overboard [two] scientific principles they have always held so dear: acknowledging and critically analyzing complex realities and grounding arguments with rigorous empirical research'. Redford and Adams (2009) raised a number of objections to PES. They argued that, as the latest in a series of conservation enthusiasms, PES need to be thought through carefully, but that, in their experience, scepticism to PES enthusiasm invites 'sharp rebuke' (Redford & Adams 2009, p. 787). A response from two enthusiasts of quantifying nature's value, Skroch and López-Hoffman, rather missed the point of Adams and Redford's (2009) argument and claimed that 'the intrinsic and existence value of land and biota are well-defined ecosystem services that . . . can be evaluated straightforwardly and quantified in cultural and social terms' (Skroch & López-Hoffman 2009, p. 325). The

claim invited an obvious riposte: 'despite Skroch and López-Hoffman's reassurance (indeed in part because of it), we remain uneasy' (Adams & Redford 2009, p. 328).

PES do not have to be organized by competitive markets. The Norwegian and Guyanese scheme, for example, is an arrangement between states. The common definition of PES stipulates that a minimum of one buyer and one seller is required (Wunder 2007), and so few participants could not constitute a competitive market. But PES can readily be subject to market forces, and much of the enthusiasm and suspicion surrounds the role of markets in PES. Social science can provide some useful conceptual frameworks for understanding both reactions to markets, for debates about the power and consequences of market governance have a long history.

PES is a form of commodification, of creating new things out of nature which can be sold (see Shapiro 2010). The commodities created thus are 'fictitious commodities' (Polanyi 2001 [1944]). Real commodities are discrete entities (coffee beans, timber or diamonds), that are produced to be sold. In contrast commodities like land, money and labour are fictitious, they are not produced specifically to be sold, and they do not physically change hands when sold. What are exchanged are title deeds (with respect to land) or agreements to access time (with respect to labour) in return for notes (bank or promissory) which promise to pay the bearer funds, or simply electronic numbers in bank accounts (with respect to money). Markets in such commodities require complicated social and political exercises to subdivide landscapes into titled parcels, create the banking and state apparatus that allows money to be trusted, and create labour pools and skills.

The enthusiasts for PES recognize the social engineering that fictitious commodities require determining how much carbon, or water, is created by particular land covers, who can own them and how they might be exchanged requires the construction of complex apparatuses for measuring, valuing and titling, as Fink indicated (Brockington & Duffy 2010). They require a demand for the new products to be created. With such commodities created, and with markets established for their exchange and circulation, considerable (trillion dollar) opportunities open up. Without the investments required socially and politically to free PES' fictitious commodities from their social and ecological contexts, huge potential markets are lost.

For PES' critics, other aspects of fictitious commodities' treatment by markets are more important. The creation of fictitious commodities of land and labour does not alter the fact that the places and people who provide them still have an entirely separate existence, beyond their commodity form.

This means that what markets do to land and labour can have profound social and ecological consequences. Markets may demand homes or nature reserves be surrendered for a mine but the result will be painful. Labour may be laid off in a recession, but the psychological consequences to individuals and families are immense. As Polanyi (2001, p. 76) observed, ‘to allow the market mechanism to be sole director of the fate of human beings and their natural environment . . . would result in the demolition of society’. So it may be with the carbon, water and other services promoted in PES. The commodities thus created and exchanged cannot be separated from their social and ecological contexts. Forests may only be valued for their carbon, but they cannot be reduced only to their carbon. Critics note that markets have a tendency to forget the social and ecological contexts of their commodities. The consequences of such commodity fetishism are potentially considerable for PES (Kosoy & Corbera 2010). How markets behave with respect to the commodities they peddle depends very much on the social structures in which they are embedded. This is why the performance of actually existing PES schemes matters so much.

A sceptical curiosity is warranted with these contrasting views on PES. PES schemes will likely occur ever more frequently, and the vigor of its advocates is unlikely to cease. This is a force with which environmentalists and conservationists will have to contend and engage. To facilitate the engagement I have tried to tackle in this themed issue two attributes that can characterize debates about PES. First, the enthusiasm and hostility for PES are each perplexing where not matched by a deep empirical body of evidence about how PES schemes work in practice. It is likely that some PES schemes will produce a distribution of fortune and misfortune that could be categorized as ‘win-win’ (beneficial to all parties involved), just as others may be categorized as ‘lose-lose’ (detrimental to all parties involved). However, knowing the difference between such outcomes requires understanding the distribution of these consequences. That concern has meant that I have tried to ensure that the balance of papers in this themed issue dwell on existing PES schemes. To reach this balance, I had to return a significant proportion of submitted papers without review, because they only concerned proposed valuation schemes. They were trying to quantify and value ecological services in order that, at some point in the future, they could be commodified, commercialized and markets for these services established. They assumed, often only implicitly, that this would be a good or wise thing to do.

The papers that survived peer review present a strong collection covering a good geographical diversity, from Europe, Africa, North and South America (best represented) to Asia and the Pacific. Some of the papers explore and evaluate in depth existing PES schemes, and, in doing so, demonstrate the range of environmental and conservation values which can be pursued using PES. Thus Scullion *et al.* (2011) examine PES performance on upland forests in Mexico, Ulber *et al.* (2011) present findings from an scheme in Germany targeting arable plant diversity, Naroch *et al.* (2011)

report on an experimental scheme to conserve land races of quinoa (*Chenopodium quinoa*) in the Andes, Farley *et al.* (2011) discuss payments for services in Ecuador, Schleyer and Plieninger (2011) examine the reasons for farmers’ reticence to participate in PES schemes in Germany, and Pawliczek and Sullivan (2011) the species offsetting industry in the USA. They do so using a healthy mix of quantitative and qualitative methods which enable them to consider not just what has changed, but whether the results are expected consequences of the schemes (and with some surprising results in Scullion *et al.*’s case).

Others explore more conceptual issues. Naidoo *et al.* (2011) apply the frameworks and rubric of PES to an existing conservation scheme in Namibia. Warren-Rhodes *et al.* (2011) and Arias *et al.* (2011) explore the potential of PES schemes to contribute to specific conservation problems in the Solomon Islands and Cambodia respectively, and consider the information required to facilitate their application. Zhang and Pagiola (2011) provide a framework to assess synergies between PES schemes in Costa Rica and Daw *et al.* (2011) examine the interactions between ecosystem services and human well-being. Finally Brouwer *et al.* (2011) provide a meta-analysis of 47 payments for watershed services schemes, noting that accurate data as to their performance are scarce.

The second aspect of PES debates that this themed issue tries to address is the fact that that it is hard to bring opposing views into conversation. The disjointed debates that result are frustrating. PES opponents can have a pleasant time talking among themselves about the violence of the market; its advocates can extol the virtues of the same in their gatherings. The problem is general to science, but my hope is that this themed issue will bring together, if only in juxtaposition, some of the opposing perspectives. I was of course dependent upon what authors submitted, but am content that there is a healthy range of views among the papers presented. I hope that they will help in some way to produce better connected debates in the future.

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### References

- Adams, W.M. & Redford, K.H. (2009) Ecosystem services and conservation: a reply to Skroch and López-Hoffman. *Conservation Biology* 24(1): 328–329.
- Arias, M.E., Cochrane, T.A., Lawrence, K., Killeen, T.J. & Farrell, T.A. (2011) Paying the forest for electricity: a modelling framework to market forest conservation as payment for ecosystem services benefiting hydropower generation. *Environmental Conservation* 38(4): 473–484.
- Brockington, D. & Duffy, R. (2010) Conservation and capitalism: an introduction. *Antipode* 42(3): 469–484.

- Brouwer, R., Tesfaye, A. & Pauw, P. (2011) Meta-analysis of institutional-economic factors explaining the environmental performance of payments for watershed services. *Environmental Conservation* 38(4): 380–392.
- Buscher, B.E. (2008) Conservation, neoliberalism, and social science: a critical reflection on the SCB 2007 annual meeting in South Africa. *Conservation Biology* 22(2): 229–231.
- Daw, T., Brown, K., Rosendo, S. & Pomeroy, R. (2011) Applying the ecosystem services concept to poverty alleviation: the need to disaggregate human well-being. *Environmental Conservation* 38(4): 370–379.
- Farley, K.A., Anderson, W.G., Bremer, L.L. & Harden, C.P. (2011) Compensation for ecosystem services: an evaluation of efforts to achieve conservation and development in Ecuadorian páramo grasslands. *Environmental Conservation* 38(4): 393–405.
- Juniper, T. (2011) A historic move in the battle to save tropical rainforests. *The Guardian* 1 April 2011 [www document]. URL <http://www.guardian.co.uk/environment/2011/apr/01/historic-move-rainforests>
- Kosoy, N. & Corbera, E. (2010) Payments for ecosystem services as commodity fetishism. *Ecological Economics* 69: 1228–1236.
- Naidoo, R., Weaver, L.C., De Longcamp, M. & Du Plessis, P. (2011) Namibia's community-based natural resource management programme: an unrecognized payments for ecosystem services scheme. *Environmental Conservation* 38(4): 445–453.
- Naroch, U., Pascual, U. & Drucker, A.G. (2011) Cost-effectiveness targeting under multiple conservation goals and equity considerations in the Andes. *Environmental Conservation* 38(4): 417–425.
- Pawliczek, J. & Sullivan, S. (2011) Conservation and concealment in SpeciesBanking.com, USA: an analysis of neoliberal performance in the species offsetting industry. *Environmental Conservation* 38(4): 435–444.
- Polanyi, K. (2001 [1944]) *The Great Transformation. The Political and Economic Origins of our Time*. Boston, CT, USA: Beacon Press Books.
- Redford, K.H. & Adams, W.M. (2009) Payment for ecosystem Services and the challenge of saving nature. *Conservation Biology* 23(4): 785–787.
- Schleyer, C. & Plieninger, T. (2011) Obstacles and options for the design and implementation of payment schemes for ecosystem services provided through farm trees in Saxony, Germany. *Environmental Conservation* 38(4): 454–463.
- Scullion, J., Thomas, C.W., Vogt, K.A., Pérez-Maqueo, O. & Logsdon, M.G. (2011) Evaluating the environmental impact of payments for ecosystem services in Coatepec (Mexico) using remote sensing and on-site interviews. *Environmental Conservation* 38(4): 426–434.
- Shapiro, E.N. (2010) To revalue the rural? Transformation of the Mexican federal payments for ecosystem services programs from neoliberal notion to development dogma. PhD thesis, Environmental Science, Policy and Management, University of California, Berkeley, CA, USA.
- Skroch, M. & López-Hoffman, L. (2009) Saving nature under the big tent of ecosystem services: a response to Adams and Redford. *Conservation Biology* 24(1): 325–327.
- TEEB (2010) The Economics of Ecosystems and Biodiversity: mainstreaming the economics of nature: a synthesis of the approach, conclusions and recommendations of TEEB [www document]. URL [http://www.teebweb.org/LinkClick.aspx?fileticket=bYhDohL\\_TuM%3d&tabid=1278&mid=2357](http://www.teebweb.org/LinkClick.aspx?fileticket=bYhDohL_TuM%3d&tabid=1278&mid=2357)
- Ulber, L., Klimek, S., Steinmann, H.-H., Isselstein, J. & Groth, M. (2011) Implementing and evaluating the effectiveness of a payment scheme for environmental services from agricultural land. *Environmental Conservation* 38(4): 464–472.
- Warren-Rhodes, K., Schwarz, A.-M., Boyle, L.N., Albert, J., Agalo, S.S., Warren, R., Bana, A., Paul, C., Kodosiku, R., Bosma, W., Yee, D., Rönnbäck, P., Crona, B. & Duke, N. (2011) Mangrove ecosystem services and the potential for carbon revenue programmes in Solomon Islands. *Environmental Conservation* 38(4): 485–496.
- Wunder, S. (2007) The efficiency of payments for environmental services in tropical conservation. *Conservation Biology* 21(1): 48–58.
- Zhang, W. & Pagiola, S. (2011) Assessing the potential for synergies in the implementation of payments for environmental services programmes: an empirical analysis of Costa Rica. *Environmental Conservation* 38(4): 406–416.

DAN BROCKINGTON