Letter

Ecologists Need to be Cautious about Economic Metaphors: A Reply

Jonathan Silvertown[1,*]

I thank the authors of the three responses to my article, 'Have Ecosystem Services Been Oversold?' [1], for providing a range of opinions that, to varying degrees, take the debate forward. In the most critical of the three letters, Potschin *et al*. [2] describe my paper as a caricature of the field, but then go on to caricature the paper itself. I did not claim that the ecosystem services (ES) perspective 'inescapably leads to monetization', but only that it provided the conceptual basis for this to happen. Far from proposing that any stage in the conceptual development of ES determined the next, I in fact tabulated alternatives at each stage. I do not even oppose monetary valuation if it is used pragmatically.

All three letters [2–4] argue that ES valuation is wider than monetary valuation alone. That is a point I acknowledged in my paper, but I want to make clear that the influence of neoliberalism is not confined to the monetisation of ecosystem services. Monetisation is not a litmus test for neoliberalism, but only its most obvious expression. Castree [5] considers in more detail than I have space for here how neoliberalism pervades environmental policy and concludes that 'Socially it involves a (re)negotiation of the boundaries between the market, the state, and civil society so that more areas of people's lives are governed by an economic logic.' Thus, the point made by Potschin *et al*. [2] that 'carbon trading...requires a collectively agreed and legally enforced carbon emission cap, to function as a climate change mitigating instrument' does not prove that it has no neoliberal basis. Indeed to the contrary, carbon trading is a paradigm example of a neoliberal approach to environmental regulation [6]. All markets have rules.

The success of the ES paradigm has seduced ecologists into the uncritical use of economic terminology. Now, even scientists who may eschew market valuation of nature refer to nature as 'natural capital'. It is naive to think that adopting such economic terminology is merely a tactic with no practical consequences, as some appear to believe [7]. After all, if there are no consequences, why do it? If nothing else, redefining nature as natural capital implicitly places all environmental policymaking into the sphere of economics and it is thus neoliberalising [8]. Since economics seems incapable of managing economies, why should ecologists believe that ecology would benefit by becoming a subdiscipline of the dismal science?

Schröter and van Oudenhoven [4] argue that an ES approach has brought many benefits to ecology as a discipline and I do not argue with the fact that it has changed the research agenda. However, can we be so sure that this is in fact having a beneficial effect for biodiversity itself? For example, the rise of the ES paradigm has been accompanied by the eclipse of biodiversity and conservation *per se* from European Commission funding programs in Horizon 2020 [9]. It is claimed that ES helps the public appreciate the value of biodiversity, but there is a case to be made that it is having the reverse effect on policymakers who no longer hear ecologists talking about biodiversity and nature conservation, but instead about 'natural capital' [10].

Potschin *et al*. [2] accuse me of a partial reading of the literature on ecosystem services. To illustrate their point, Potschin *et al*. cite two papers [11,12] in support of their contention that I have ignored that 'benefits are widely documented in the recent literature'. In actuality, neither cited paper contains any empirical evidence of benefit whatsoever. Both describe simulations of alternative scenarios of how Payment for Ecosystem Services (PES) regimes could work. The citation by Potschin *et al*. of these two papers in evidence of benefit when they provide none supports my original point that PES is currently based on wishful thinking.

In their comment, Wilson and Law [3] accept that evidence is lacking, but point out that the problem is not particular to PES, but is 'pervasive in natural resource management'. This is a fair point, although it does not reduce the force of my argument that it has yet to be shown that PES really works as intended. Wilson and Law [3] go on to present a six-step plan to minimise perverse outcomes caused by a focus on ES in conservation. I endorse their suggestion and see it as a constructive response to the concerns that I raised in my original article [1].

[1]Institute of Evolutionary Biology, University of Edinburgh, Ashworth Laboratories, Charlotte Auerbach Rd, Edinburgh, EH9 3FL, UK

*Correspondence: Jonathan.Silvertown@ed.ac.uk (J. Silvertown).

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