



Ecosystem services as an integrative framework: What is the potential?

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ABSTRACT

Ecosystems approaches, and among them the ecosystem services (ES) framework, are held as promising vehicles for holistic thinking which is usually taken to mean integration of society and nature. The notion of ES is also seen to aid us in saying something about how and what people value in nature. It is hence surprising that among a huge number of scientific works couched in terms in ES, still relatively few explore the explicit engagement of such concepts with stakeholders with respect to empirical issues, including integration. Motivated by a need to empirically test rather than assume the integrative work of ES, we ask: what ways of using the framework as a stakeholder tool are invited, and does integration unfold in practice? Our evidence comes from a study of a group of stakeholders' perspectives on sustainable management of sheep grazing in low alpine landscapes in the south of Norway. According to the stakeholders, grazing intensity, type and spatiality cannot be understood and arrived at without accounting for how grazing pressure is the result of the co-production of nature and society. By way of four empirical examples, we demonstrate 1) the integrative agency ES can have, 2) how ES can work to integrate despite the framework, 3) how ES can work against integration, and 4) the implicit agency of ES for the co-production of sustainability and grazing pressures. The study demonstrates that there are particular weaknesses in the concept as an integrative device regarding the invisibility of human co-agency. Furthermore, the precise methodological framing of the research is found to be crucial for whether and how human co-agency is made visible through the framework, and thus how ES works as an integrative framework.

1. Introduction

Over the last 40 years or so, the notion of ecosystem services (ES) has established itself as one of the most prominent “intellectual weapons in the environmental area” (Head, 2008:373). Responding to the facts that “humans are inextricably embedded in all earth surface processes, and often dominate them” and that “the human role is finally being acknowledged in the political arena” (ibid.), ES is seen to hold increasing promise as a framework to integrate human-environment interactions and help us understand and handle “the scope, complexity and uncertainty of global environmental problems” (Raymond et al., 2010:1766. See also Ehrlich and Mooney, 1983; Cornell, 2011; Díaz et al., 2015; Fischer and Eastwood, 2016; Carmen et al., 2017). Even though “building an integrative approach has long been acknowledged as a major scientific challenge” (Stenseke and Larigauderie, 2017:2) within environmental management, “there remains a duality between individuals, culture and the environment in many human-nature relationship frameworks, which have the potential to undermine successful environmental management initiatives” (Raymond et al., 2017:2. See also Head, 2008; Setten et al., 2012; Fish et al., 2016).

Drawing on empirical evidence, we offer a much needed interrogation of how ES can work to integrate – or not – across society and nature by shedding light on what it takes for integration or co-production to happen and what works against it. This article hence goes beyond much social science critique of ES (e.g. Fish, 2011; Chan et al., 2012; Setten et al., 2012; Pascua et al., 2017). It does so by providing evidence from a study set within a complex debate about sustainable management of sheep grazing in low alpine landscapes in the south of Norway (Norwegian Agricultural Authority, 2013; Setten and Austrheim, 2017). Grazing studies in mountain environments have demonstrated various effects on biodiversity by different animal densities (e.g. Austrheim et al., 2016). There is, however, limited knowledge about individual and societal choices as a basis for animal densities, and, by implication, what is considered sustainable within the context of mountain grazing. Arriving at sustainable grazing pressures is a complex societal issue, not least because mountain landscapes have for some time stood “on the threshold of major change” due to accelerated “restructuring of the agricultural, social and economic fabric of mountain areas” (Soliva et al., 2008:56). Our evidence is produced through a series of workshops with stakeholders representing national

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level state agencies and NGO's with land management or recreational remit. This material conveys exactly how and why grazing intensity, type and spatiality cannot be understood and arrived at if nature and society are produced in separate boxes. Our material crucially also conveys that it matters how we methodologically engaged the stakeholders throughout the workshops for co-production of society and nature to happen – or not.

In this article, we ask the following question: What can ES potentially *do* as an integrative tool within the context of sustainable resource management? In addressing this question, we importantly also address whether making nature visible for society, in fact, makes the social invisible to integration. Before we respond to this question, we want to convey in more detail how we approach the ES framework, i.e. how we understand it as a potential tool for integration. This is followed by an outline of the production of the empirical materials. In the results section, we demonstrate the integrative agency ES can have, how ES can work to integrate despite the framework, and how ES can work against integration. We also demonstrate the implicit agency of ES for the co-production of sustainability and grazing pressures. Before concluding, we discuss four overarching findings relevant for the integrative potential of the framework.

2. The challenges of integration and co-production

When the ES framework was introduced in the early 1980s in order to raise the public's awareness of the many services that ecosystems provide to humans, it was in effect an argument for the protection of ecosystems (Setten et al., 2012). It was also in effect an argument for 'boxing off' nature – and culture. There are signs, however, of a 'new' and increasing consensus within parts of the 'ES community': humans are integral to, rather than users of nature (e.g. Díaz et al., 2015, 2018; Fischer and Eastwood, 2016; Pascual et al., 2017; Raymond et al., 2017; Stenseke and Larigauderie, 2017). What is surprising is the time taken to explicitly acknowledge that it is critically important to understand ES as a larger human and societal achievement, i.e. ES are not *delivered* to humans by nature, they are rather co-constitutive. This would logically mean not only making nature visible to society, but also making society visible in making and remaking nature in particular ways as society itself is continually remade. Hence, the time is ripe for investigating the co-production of humans and nature within an ES framework. As part of this, we need to explore much more systematically the explicit engagement of the ES framing with stakeholders with respect to empirical issues. Despite an, by now, immense body of literature concerned to explain and argue for how ES help us to say something about how and what people value in nature, still relatively few explore people's engagement of the concept with regard to ecosystems (yet see Fisher and Brown, 2014; Fischer and Eastwood, 2016; Carmen et al., 2017; Stålhammar and Pedersen et al., 2017), including the language with which we frame our engagements (Rydin, 1999; Head, 2008; Fish, 2011; Setten et al., 2012).

When setting out to investigate the purported strength of ES as a tool for integration and communication, we hence acknowledge "the pervasive influence of language" (Rydin, 1999:467) when analyzing environmental or any other policy-making. "To analyse policy is, therefore, to analyse communication and argument, language and discourse" (ibid.), i.e. the 'discursive environment' matters. There are two sets of literatures, which inform our analysis.

The first set of literature argues convincingly that it is valid and necessary to integrate the 'doing' or agency of concepts and language in decision-making (Rydin, 1999; Head, 2008, 2012; Fish, 2011). Concepts, such as ES, are not surface representations, let alone semantics, they rather help us to take a stand in the world through naming experiences, claiming truths and creating realities: "It is precisely because the language of ecosystem services is non-conventional that it allows new thoughts and connections to be made" (Fish, 2011:676). In short, language generates ideas and realities. The terminology by which we

frame human-nature relations are thus fundamental to what different framings can do, both conceptually and empirically. Consequently, we need to recognize that "sustainable development is socially and discursively constructed" (Rydin, 1999:467), yet must to be put into practice by actors in order to have any societal impact. The crux in recognizing the agency of language is to build on this insight and address and identify what "the critical and normative implications" (ibid.) are for ES as an integrative framework.

The second and related set of literature revolves around the aforementioned integration across nature and culture as a purported strength of ES (e.g. Sukhdev et al., 2014; Pascual et al., 2017; van Riper et al., 2017). Whether ES works to integrate is, however, subject to ongoing controversy. Numerous critiques have pointed to the fact that the framework consists of weakly linked building blocks or 'boxes', working to fragment and overlook rather than integrate (e.g. Setten et al., 2012; Fish et al., 2016; Fischer and Eastwood, 2016). Yet ES proponents continue to argue that to combat ecosystem degradation and loss of biodiversity, nature must be made visible in the (economic) choices we make (e.g. Robertson, 2006; NOU, 2013:10; Sukhdev et al., 2014).

The assumption that nature – and culture – can be boxed off, is evident in well-known metaphors such as 'human impact' (e.g. Head, 2008), and the 'transformation' or 'alteration' of the planet by humans (e.g. Vitousek et al., 1997). These are firmly based on "the assumption that the social and the natural are pre-existing categories prior to their interaction with one another" (Head, 2008:375). The more recent notion of 'social-ecological systems' (e.g. Ostrom, 2009), aims to integrate ecology and society by acknowledging that humans are pervasive to ecosystems, yet re-produces the assumption of separate systems (Head, 2008). And "In mainstream ecosystem services conceptualizations, humans tend to become overtly involved at the end of the chain" (Fischer and Eastwood, 2016:42), thus highlighting that the emphasis the Millennium Ecosystem Assessment puts on making *nature* visible to society (MEA, 2005) still largely dominates ES thinking. In essence, this means making *nature* visible to integration practices, which logically ought to make culture or peoples' engagement within ecosystems equally visible. This is, however, a more hard-won achievement.

We have only recently begun to observe attempts to think in terms of co-production and co-agency, i.e. making human agency explicitly visible alongside nonhuman agency. This is evidenced through recent appeals to the social and humanistic sciences to engage in assessing nature's contributions to people's quality of life (Stenseke and Larigauderie, 2017; Díaz et al., 2018). Attempts relevant for the integrative potential of ES mainly come from two rather different quarters. First, there are a set of closely allied conceptualisations of human-nature relationships to ES: e.g. Muhar et al. (2017) develop a model for integration of 'socio-cultural concepts of nature' into frameworks of interaction between social and cultural systems; van Riper et al. (2017:234) argue for the need to recognize "that complexity is imperative to understanding social-ecological change ..." in the valuation of ES; And the UN's Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is now framing its work through the notion of 'nature's contributions to people', i.e. "all the contributions, both positive and negative, of living nature (diversity of organisms, ecosystems, and their associated ecological and evolutionary processes) to people's quality of life" (Díaz et al., 2018:270). While all these, in different ways, make advances in framing human-nature relationships within the context of ES, they neither through their terminology nor their explanations, convincingly convey that society and nature are co-constitutive. Adding complexity and contextual contingency is not enough, as they still end up re-producing the assumption that there are pre-existing 'systems' and that they hence can be separated.

A second and different set of 'co-productive' literatures take exactly the concept of agency, "both human and otherwise" (Head, 2008:373), as its starting-point, and makes conceptual space for the co-agency and co-production of nature and culture. In many social sciences, there has been growing acknowledgment "that '[a]gency is a relational effect

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