



## Nature's Worth: Using Human Markets to Value Ecosystems' Contributions

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**Reviewed:** Mattijs van Maasakkers, *The Creation of Markets for Ecosystem Services in the United States*, New York, Anthem Press, 2016.

*Mattijs van Maasakkers' The Creation of Markets for Ecosystem Services in the United States: The Challenge of Trading Places pulls readers into the complex relationship between environment and economy. In this multi-sited ethnography, Van Maasakkers hones in on three large-scale US conservation and restoration projects, exposing gaps in market-based approaches and the ultimate failure of the financialization of nature.*

How is the value of an ecological site measured? By the numbers? The 1.35 million acres of rocky plains in Southeast Utah, or the 3,000-year-old human artifacts, or the 100,000 protected archaeological sites, or the five inhabiting Native American tribes? These numbers exemplify the discipline of environmental economics, using a set of valuation methods increasingly accepted by policymakers, can affix value to land, artifacts, individuals and animals, and measure their relative worth. This challenge of quantification is perhaps the root of the polarizing controversy over the recent 85% land-mass reduction of the Bears Ears National Monument by the Trump administration in December. Determining the ethical and moral dilemmas behind the commodification of sentiment, symbolic meaning, cultural identity, and quality of life is often debated and/or unclear.

Political theorist Wendy Brown suggests that measuring, valuing, and incentivizing nearly every realm of practice, as well as *human beings themselves*, is a totalizing logic of the market-driven global North. In an interview with *Dissent* magazine (Shenk 2015), she states that “[...] everything is ‘economized’ and in a very specific way: human beings become market actors and nothing but, every field of activity is seen as marketable, and every entity (public or private; person, business, or state) is governed as a firm.” An example of this neoliberal praxis is the economization of Bears Ears National Monument. However, a counter-monetization resistance effort has emerged among the Bears Ears Inter-Tribal Coalition. In order to resist the selling-off of public lands, it is strategic to understand financialization—not only Trump’s privatization efforts—in order to strengthen advocacy for the conservation of less-tangible benefits of ecological actors, such as oxygenation, aesthetics, and recreation.

### A tour of ecosystem service markets

Mattijs van Maasakkers’ *The Creation of Markets for Ecosystem Services in the United States: The Challenge of Trading Places* tackles how we measure the value of ecosystem services and assess the use and exchange values of the environment. Five chapters meticulously detail the history of large-scale national attempts at market-based valuations of ecological services. Van Maasakkers

describes conservation and restoration projects on three major US river systems—the Ohio River Basin, the Chesapeake Bay Watershed, and the Willamette River Basin—outlining how these projects are organized, measured and incentivized by various governmental agencies, NGOs, and corporate powers. His study attempts to unravel the dense web of the buying and selling of ecosystem service credits, issued for purposes of expediency and for monitoring landowners' adherence to environmental policies.

**Figure 1. Can a landscape and its resources be quantified?**



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Van Maasakkers blends his experiential regional-planning knowledge with accumulated knowledge from people entrenched in the “highly connected network” of ecosystem service markets (ESMs). Ecosystem services are defined as “the conditions and processes through which ecosystems and the species that make them up sustain and fulfill human life” (p. 3). In order to be marketable, a resource or product must provide a function, purpose, or service for the human investor or consumer—an age-old economic principle that clearly reverberates through the development of ESMs. Geographer Morgan Robertson (2006) explains: “ecosystem service metrics and the ecological functions they make visible exist at the nexus between science, state and market” (p. 67). Whether it’s “science”, “state” or “market” that holds the most power in ESM development is up for debate. One thing is for certain regarding the systems of human power at play in the creation of ESMs: it is easy to get lost in their highly bureaucratic intricacies, and nonhuman systems are left out of the “situation room” of ESM development teams.

After Bruno Latour, Van Maasakkers chooses a method of “following the actors” to compile a more comprehensive guide including both the history of ESM creation and the trends in the systemic shortcomings of ESM creation. *Following the actors* in this case is an indirect reference to

ANT, or Actor Network Theory. STS (science, technology and society studies) scholar David Banks states that ANT “describes human and nonhuman ‘actants’ (the preferred term of ANT writers, since ‘actor’ is mostly used to talk about the roles of humans) with the same language, and grants them equal amounts of agency within ‘webs’ or ‘actor-networks’” (Banks 2011). Van Maasakkers follows three categories of actors here: *landowners* (the sellers and builders of ESM credits); *nonhuman elements, including the revenue-generating “service” providers* (such as trees “capturing carbon dioxide and reducing erosion by fixing soils”); and *governmental bodies, NGOs, and environmental advocacy groups* (the usual “buyers” of space and services) (pp. 3–4). He interprets interview data, as well as archival and public records, and this triangulation produces an informed, participatory sense of the current generation of ESMs. His flair for description is key to understanding these actors and the functions they provide. Simultaneously, a Bourdieusian model of practice analysis is employed to examine and evaluate the policy component of ESM creation, helping us tangibly track the actors’ movements through the agreements and negotiations they make. While nonhuman actors are paid little and less attention in most recounts of ESM history at the three sites, this appears to not be a reflection of Van Maasakkers’ methods so much as a reflection of the broader prioritization of human profit under the pretense of environmental “restoration”, “preservation”, or “conservation”.

**Figure 2. Trees as revenue-generating “service” providers: “capturing carbon dioxide and reducing erosion by fixing soils”**



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## Unsustainable practices: the shortcomings of ESM creation

In his research findings, Van Maasakkers identifies three hallmark obstacles in the successful development of ESMs: *displacement*, *equivalence*, and *participation*.

By displacement, Van Maasakkers means the geographical relocation of physical matter that often disrupts the conceptual and emotional connections between communities and spaces. Matter is placed or relocated for the purpose of sustaining or creating ecosystem services. For example, in the Chesapeake Bay Watershed, nearby poultry farms create runoff and toxic nitrogen levels in the watershed. Manure was thus moved out of the watershed to “areas of lower concentration of manure” as a result of an ESM (p. 66). This policy became a point of contention regarding space, causing friction over where excess manure should be placed. Though transporting manure to lower-concentration areas seemed like a no-brainer for the agencies involved, enacting the plan proved much more complex, as space is a limited resource. Many of the surrounding Pennsylvania developers supported the moving-*out* of manure, for the benefit of the bay. The surrounding states however, concerned about the nitrogen levels in their own soil, opposed receiving said “exported” manure. The motive for transporting the manure in the first place was ecological, and arguably economical. This unfortunately ended up excluding the *sociospatial* element to land, or connections people have to it. Van Maasakkers’ suggests that the dismissiveness surrounding space and placement has been a thematic issue in ESM creation because the topic tends to be excluded from deeper examination and conversation in the planning process. Consideration of specific consequences or fundamental issues of moving manure from one site to the other seems to have escaped the bureaucratic script of reactionary, arbitrated troubleshooting. *Affect*, or the emotional and interpretive meanings that drive human action and institutions, is left out in most cases. How to measure and value affect could seem counterintuitive, but the extent to which we are entrenched in financialization makes it necessary, perhaps an even vital, task. Clearly, chicken shit makes people angry.

Chapter 3 addresses the second problem of ESM development: equivalence, the rather arbitrary method of calculating how many credits, or exchangeable permits for environmental practices, can be exchanged by landowners using various measurement systems. Van Maasakkers’ illustrates the issues of equivalence with the “Shade-a-Lator”, a tool used to measure solar energy penetrating tree shade over bodies of water, used in 2011 in the Willamette River Basin. The Shade-a-Lator is helpful for determining the effectiveness of tree shade to cool water, an index that can be translated into “shade credits” for environmental restoration projects (p. 23). The revenue for these investments comes from the agencies that benefit from such eco-sustaining projects, such as the Department of Agriculture or the Environmental Protection Agency (EPA); they can also be real-estate developers or large-scale city planners (pp. 3–4). The problem with using a fixed method of solar-energy calculation for project planning is that many elements of natural landscapes are unfixed. For example, Van Maasakkers describes how, during Shade-a-Lator training held by the Willamette Partnership, environmentalists debated a hypothetical presence of beavers at a tree-planting site, a possibility that remains unpredictable by the Shade-a-Lator and could drastically affect the site. The act of abstraction within a market context allows for the commodification of information and a set of decision-making parameters that are utterly absent or partial at best.

**Figure 3. The benefits of shade for humans in an urban context**



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Not only does this example convey the potential loopholes of the Shade-a-Lator, it also highlights the greater issue of using static measures of elements out of our control (the sun's rays). Like the issue of displacement, what looks good on paper doesn't necessarily translate well in the field. "In a context where rationality, science, and precision are highly valued," Van Maasakkers writes, "there is serious discomfort about relying on a market framework—supply and demand of supposedly fungible credits—to determine location and acceptability of wetland restoration" (p. 84). Nature is unpredictable. Wendy Brown's conceptualization of the financialization of everything echoes through the ESM rhetoric: functionality aside, there is a nationwide acceptance that natural landscapes and sociospatial relations can be measured, quantified, and equalized.

The final drawback of the current culture of ESM creation involves actors and their participation (or lack thereof). Commodifying information through equivalence poses another issue, namely legitimizing and delegitimizing the jurisdiction and say of the actors. Motivating all parties involved in ESM creation is tricky and even nearly impossible with so many players from "different epistemological relations," according to Van Maasakkers. Referencing the public vs. private actors involved in ESM decisions (i.e. private forestry managers vs. the EPA), Van Maasakkers writes "While market proponents in these [...] cases paid careful attention to the design and implementation of their public engagement strategies, all of them faced opposition and charges of

exclusion and steamrolling at some point along the way” (p. 92). The book describes the sensitive and sophisticated modules created in all three major ESM projects to “ensure” equalized participation in the projects, but the author ultimately concludes that “in all of these cases, market enthusiasts made up most of the participants” (p. 117).

### **A future for ESM creation?**

In our view, while the reiteration of histories of ESM creation is undeniably necessary, the density of the information in this book has the potential to distract. A large portion of Van Maasakkers’ critique of the bureaucratic intricacies of ESMs points out a need for inclusivity, a fairer incorporation of voices and powers “outside the system”. With this in mind, keeping up with the multi-acronymed laws, policies, organizations, agencies, and corporations referenced throughout the book is laborious. Readers outside the realms of academia might flail when sorting through the names, places, and events surrounding ESMs—not unlike the “nonexpert participants” discussed in the penultimate chapter. The writing is most crisp and engaged when discussing real-life examples of people grappling with the creation of ESMs. At the same time, more explication of the use of Actor Network Theory would have been welcome, as the concept of *actors* was implied throughout the book but not necessarily expounded upon.

Overall, the book paints a comprehensive portrait of market economics with rich illustration of the processes and practices of establishing ESMs. Van Maasakkers paves a path to understanding ESMs that can be applied at larger scales, nationally and globally. His analysis merges sociological theory with economics, acquainting readers with multidisciplinary concepts such as Sarah Dooling’s *ecological gentrification*—defined by Dooling as the “implementation of an environmental planning agenda related to public green spaces that leads to the displacement or exclusion of the [...] economically vulnerable [...] while espousing an environmental ethic” (Dooling 2009). Terminology like this could prove useful in tackling issues of exclusion and participation that Van Maasakkers calls into question because of the way it addresses and problematizes unequal distribution of wealth and resources socioeconomically.

In the end, we must seriously consider the level of anthropocentric rhetoric involved in ESM creation—specifically, the initial definition of ecosystem service markets as the “conditions and processes through which ecosystems and the species that make them up sustain and fulfill human life” (p. 3). There is an element in ESM creation that echoes the classic human vs. nature binary. Applying numerical valuing/measuring systems to watersheds within such large-scale, credit-stacking networks is almost oxymoronic, as water is in a constant state of ebb and flow, and thriving ecosystems are composed of small networks that function symbiotically. Going back to Brown’s financialization of everything, we as sociologists learn to turn financialization in on itself, or at the very least utilize the language of the market in combating exploitation and injustice—the theory being that the language of powerful systems must be learned to effectively communicate and interact with them. Why not, then, consider ecosystems themselves as part of a greater, powerful network that actively produces its own language? The assumed ability to manipulate and micromanage the natural world seems counterintuitive when we still face major interhuman discrepancies in communication, the Bears Ears conflict being a leading current example. This book calls for serious efforts to develop the language of nonhuman nature rather than trying to colonize it with the language of the human market, a practice that has already repeatedly failed throughout human history.

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