

## VALUING NATURE EQUITABLY: BEYOND MONETARY VALUES

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### Abstract

Nature is essential to human well-being, providing material and non-material benefits. Interest in ecosystem valuation has increased steadily, initially focused on providing monetary valuation of nature and its services, raising debates regarding the appropriateness of these measures in different circumstances. However, monetary valuation alone cannot capture the full range of nature’s benefits, and relying only on monetary values can lead to underestimation as well as environmental and social injustice. As we face the Anthropocene, the planetary crisis calls for urgent changes in how we perceive and value nature.

This paper explores the idea that nature’s values are understood by people not only as instrumental values (people’s satisfaction) or intrinsic values (nature *per se*), but also as relational values arising from nontangible relationships. Further, I discuss the need to incorporate a plurality of valuation languages and knowledge sources to better understand ecological, socio-cultural and monetary values, considering specific conditions under which particular approaches may or not be appropriate. Otherwise, we might disregard important values, especially those which are less tangible and/or difficult to measure. This conversation is of utmost importance since all values are relevant to understand nature’s benefits for humans and should be considered in order to make wise, social, environmental and climate just decisions regarding urgent planetary challenges.

**Keywords:** environmental values, socio-ecological systems, ecosystem services, well-being, humans and nature

## Introduction

Nature is essential to human well-being, providing both material and non-material benefits<sup>1</sup>. These benefits, also called ecosystem services, arise from complex environmental processes and interactions, and include a variety of categories such as the provision of natural resources, climate regulation, aesthetic and cultural landscapes (Díaz et al. 2015). Many benefits arise from nontangible connections, including important effects on mental and physical health (Russel et al. 2013).

Interest in ecosystem valuation has increased steadily since the 1990s, especially following the launch of The Economics of Ecosystem Services and Biodiversity – TEEB<sup>2</sup> (Gómez-Baggethun and Martín-López 2015). Initially, most of the initiatives aimed to estimate monetary valuation of nature and its services. The first comprehensive conceptual framework on ecosystem functions and services provides a matrix to link these functions to particular ecological, socio-cultural and economic valuation methods, although with a focus on monetary techniques. (Groot et al. 2002). This preference for monetary valuation among researchers, professionals in the field and decision-makers led to debates regarding the appropriateness of such measures in different conditions (Gómez-Baggethun and Martín-López 2015).

The main concern is that monetary valuation alone cannot capture the whole variety of nature's benefits, or even nature's value in a broader, intrinsic sense. Indeed, in the 1960s Herman Daly, an early ecological economist, already recognized that exchange values (monetary) represent “an infinitesimal portion of total life value” (Daly 1968, p. 394). Moreover, the term ‘value’ itself can be used as a synonym of ‘importance, worth’ or as

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<sup>1</sup> I use a systemic definition of nature as the aggregate of all living and non-living components of ecosystems, their intrinsic relations and networks. This definition embraces various scales of nature, ranging from smaller ecosystems such as a garden to global systems. It also considers that ecosystems interact within and across scales, forming a complex network of networks. Different scales of nature might be more relevant to specific situations, but all are important to understand humans-nature relationships.

In this paper, I refer to ‘humans and nature’ recognizing that humans are indeed part of nature, not separate agents. It might be more appropriate to use ‘non-human nature’, but for simplicity I will refer to it only as ‘nature’.

<sup>2</sup> The Economics of Ecosystems and Biodiversity (TEEB) is a global initiative aiming to “mainstream the values of biodiversity and ecosystem services into decision-making at all levels” (TEEB website). It started after a G8+5 meeting in 2007, when environment ministers of participant countries proposed to start a process of analyzing “the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation” (TEEB website). A global study was initiated by the German Federal Ministry for the Environment and the European Commission, and TEEB launched its first report in 2008. The TEEB office is hosted by the United Nations Environment Program (UNEP) and is based in Geneva, Switzerland.

‘principle, moral duty’, and both are relevant to understand the relationships between humans and nature (Díaz et al. 2015).

Therefore, relying on monetary values alone can lead to underestimation and incomplete assessments, as well as environmental and social injustice. Drawing from a preliminary literature review for the first stage of my PhD Program, this paper explores critiques of monetary valuation and discussions about the importance of value pluralism<sup>3</sup> when considering how humans understand nature’s importance. I use the term ‘value’ in the broader sense of both importance and principle, as suggested by Díaz et al. (2015). The literature on this topic is extensive and includes various disciplines such as ecology, environmental sciences, ecological economics, political ecology, “eco-philosophy” and ethics, as well as insights related to “eco-psychology” and behavioural studies. Thus, my goal is to summarize part of this literature and provide a commentary on practical alternatives as well as reflections for future areas of inquiry, considering the importance of values in fostering positive humans-nature relationships as well as informing just and ethical decision-making processes.

### **Critiques and limitations of monetary valuation**

One sound critique of monetary valuation is presented by McAfee in her paper “Selling Nature to Save it?” (1999), which provides a critical analysis of what she calls ‘green developmentalism’. She argues that many supranational institutions, including the Convention on Biological Diversity and the World Bank, are sources of eco-development dollars and of a post-neoliberal environmental-economic paradigm, which constructs nature as a world currency and ecosystems as warehouses of genetic resources for biotechnology industries (McAfee 1999). Further, she discusses how ‘green developmentalism’ provides market-based solutions to environmental problems, abstracts nature from its spatial and social contexts, and reinforces the claims of global elites to the greatest share of Earth’s biomass, bringing in many environmental justice issues (McAfee 1999).

Likewise, Sullivan (2013) discusses the ‘financialisation of environmental conservation’. She discusses how environmental crisis and conservation are being used as new frontiers for capital investment, and how this phenomenon can be seen through aspects of nature finance, nature work, nature banking and nature derivatives (Sullivan 2013). She argues that this financialisation fits nature into an economic system that favours prices over other values, and profit-based exchanges over logics of distribution and sustainability (Sullivan 2013). This introduces social justice issues regarding who would benefit from such schemes, as well as about nature’s own safety in these unstable practices.

Another profound critique of monetary valuation is brought up by McCauley’s paper “Selling out on nature” (2006). He argues that proponents of market-based mechanisms

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<sup>3</sup> Value pluralism is the acknowledgment that multiple values exist and deserve recognition (Gómez-Baggethun and Martín-López 2015).

for conservation present them as win-win scenarios in which the conservation goal is achieved and the monetary balance is positive, a message with broad appeal for the public, philanthropists, foundations and politicians (McCauley 2006). However, relying on this belief is dangerous, since ecosystem services are limited as conservation tools in four fundamental ways: (i) nature is not always beneficial to humans, 'disservices' also exist; (ii) market forces are not perpetual and the monetary incentive to conserve can change and even come to an end; (iii) technological solutions can be more profitable than natural services; (iv) ecologically damaging events, such as invasive species, can be monetarily beneficial (McCauley 2006). Moreover, nature has an intrinsic value, revealed in its aesthetic beauty, cultural and evolutionary importance, which is infinite and cannot be incorporated in any monetary approach (McCauley 2006). McCauley calls for a primacy of ethics in conservation, and argues that policy-makers "are just as accustomed to making decisions based on morality as on finances" (McCauley 2006, p. 28). Thus, ecosystem services arguments can be helpful in efforts to conserve nature if used with caution, and it must be totally clear that the overall goal is to protect nature, not make profit (McCauley 2006).

A less critical approach is brought by Liverman (2004), who reflects upon possible contributions of geographers in current environmental issues. Although she writes for geographers, her message is relevant to socio-environmental professionals in general. She argues that environmental services markets are becoming the dominant approach to develop environmental policies worldwide and discusses how professionals may work within this system to aid the development of more equitable practices; or work to overturn this widespread commodification of nature (Liverman 2004). Hence, she seems to believe that monetary valuation and market-based approaches to environmental problems are not completely wrong and might be improved with the participation of interdisciplinary professionals.

Finally, many authors have explored cases when monetary valuation and market-based approaches lead to social justice and environmental issues, as well as rebound effects<sup>4</sup> that might result in outcomes diverging from the initially desired socio-environmental improvement. For example: monetary cost-benefits analysis is not enough to orientate decision making regarding disaster risk management (Rose-Ackerman 2016); monetary valuation of the social cost of CO<sub>2</sub> emissions usually underestimates the total costs (van den Bergh and Botzen 2015); and carbon trading, which usually relies only on monetary valuation, can actually further fossil fuels exploitation, dislodge people from traditional living grounds and threaten biodiversity (Lohmann 2006).

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<sup>4</sup> The rebound effect is the reduction of expected gains from new policies or technologies, due to behavioural or other systemic responses that offset the beneficial effects. For example, an improved technology that reduces the amount of natural resources necessary to produce a good may also decrease its costs, which can lead to increases in total consumption and result in similar total resource use.

## **Value pluralism**

People perceive nature through a variety of interactions, channels and sensations. Considering that 'value' can be either 'importance' or 'principle' (Díaz et al. 2015), it becomes clear that monetary valuation is only one of many possible ways to express value. More than that, some values, by definition, cannot be translated into monetary schemes at all.

One important issue in this debate is that of ecosystem services and cultural values. Chan and collaborators (2012) argue that many cultural values do not conform well to economic assumptions and are frequently elusive, which has led to their exclusion from economic valuation processes. For example, sense of belonging and identity values arise from intangible relations and experiences within natural places, being incommensurable for analytical schemes such as cost-benefit analysis. Consequently, the effectiveness of the ecosystem service framework in decision-making is thwarted by conflation of services, values and benefits, and failure to appropriately treat diverse kinds of values (Chan et al. 2012). These authors suggest eight dimensions of values: preferences vs. principles vs. virtues; market-mediated vs. non-market mediated; self-oriented vs. other-oriented; individual vs. holistic/group; experiential vs. metaphysical; instrumental vs. inherent; transformative vs. non-transformative; anthropocentric vs. biocentric (Chan et al. 2012). Thus, this variety of values should be considered to make possible decision-making processes that are ecologically appropriate and socially just.

Another paper by Chan and collaborators (2016) critically explores the debate about the reasons for protecting nature, which usually focuses on the dichotomy of instrumental values (for humans' sake) and intrinsic values (nature itself). The authors suggest a third class of values, with diverse roots and expressions: relational values, which are not present in things but arise from nontangible relationships between people and nature (Chan et al. 2016). The paper also explores policy applications of this framework, such as the suggestion that environmental management practices must reflect on and possibly rethink conservation in the context of local narratives and struggles for a fulfilling life, to foster both conservation and well-being (Chan et al. 2016).

Moreover, Spangenberg and Settele (2016) discuss the limits of the arguments about ecosystem services and their economic value in conservation contexts, since there are other values that are not adequately expressed by monetary approaches. Further, they assess what they call 'the three promises of economic valuation': raising awareness in the polity, saving biodiversity by internalizing external costs, and contributing to better decisions (Spangenberg and Settele 2016). These promises are questionable in many contexts, imposing restrictions on the conditions under which monetary valuation could be helpful, and when other approaches are preferable (Spangenberg and Settele 2016).

Discourse-based valuation has been suggested as an alternative to monetary approaches. According to Wilson and Howarth (2002), many ecosystem's benefits to humans have characteristics of public goods, and then their value cannot be fully expressed by individual-based approaches, which are usually used in monetary valuation. Discourse-

based methods comprise free and open group deliberation schemes that elucidate values through public debate, which better address social equity issues related to public ecological benefits (Wilson and Howarth 2002). They recognize that conventional (monetary) valuation methods are also useful, considering their limitations, and suggest that both methods are complementary and should be integrated to better inform decision-making (Wilson and Howarth 2002).

Considering the limitations of monetary values, which has been the main approach used so far in ecosystem services valuation, Gómez-Baggethun and Martín-López (2015) provide an approach for valuation aligned with the principles and vision of ecological economics. This approach suggests that different valuation languages can be consistently combined to elicit the importance humans attribute to ecosystem and biodiversity (Gómez-Baggethun and Martín-López 2015). They argue that we need value pluralism and that ecosystem services valuation involves dealing with multiple and often conflicting valuation languages, since some values may be poorly comparable or even incommensurable using a single measurement (Gómez-Baggethun and Martín-López 2015). They propose three essential value domains in ecosystem service assessments (ecological, socio-cultural, monetary), and discuss their association with major categories of ecosystem services and methods used so far to assess them (Gómez-Baggethun and Martín-López 2015). They further discuss an integrated valuation of ecosystem services, considering value, knowledge and methodological plurality, interdisciplinarity and values across various levels of society (Gómez-Baggethun and Martín-López 2015).

Overall, the authors cited so far in this section argue in favour of value pluralism, recognizing multiple meanings of 'value' and that this diversity should be acknowledged and incorporated in decision-making processes. They suggest different approaches and categorizations of values, which shows how complex this theme is and, consequently, how it cannot be reduced to only one way of expression such as monetary values. The next paragraphs present some examples from the literature about how nonmonetary values can be expressed. Rather than a comprehensive list, I selected these examples to illustrate a few theoretical points discussed previously, while recognizing that many other studies exist and that the effort to comprehend nonmonetary values and strengthen their acknowledgement has been increasing over the last years.

Gould and collaborators (2015) provide an interview protocol designed to enhance the understanding of cultural ecosystem services. These services are usually challenging to articulate and characterize, resulting in their limited uptake in management and policy, besides their critical influence on the success of conservation projects (Gould et al. 2014). This protocol was piloted in Hawaii and British Columbia, with individuals from diverse backgrounds, and the results indicate that it can provide efficient, contextual and place-based data on the importance of ecosystems attributes for human well-being, and may assist in incorporating values frequently overlooked in decision making processes (Gould et al. 2014).

In addition, Klain and collaborators (2014) used a map-based interview protocol to elucidate ecosystem benefits and values. This study aimed to empirically assess four implicit assumptions often present in ecosystem service research, such as that most services can be economically valued, either by market or non-market techniques (Klain et al. 2014). Results show that many values identified by participants are not adequately expressed by monetary valuation, especially less tangible values such as identity and transformative experiences (Klain et al. 2014). The authors suggest that monetary valuation could be useful in some circumstances, but it is essential that assessments of why nature is important to people facilitate the expression of social, cultural and ethical concerns, in a diversity of worldviews (Klain et al. 2014).

Kelemen and collaborators (2013) used a discourse-based approach to understand farmers' perceptions on biodiversity and its values. They conducted focus group, deliberative conversations with organic and conventional farmers in three European countries, and found that ethical and social values were important for all farmers, while economic values were more relevant in conventional farming groups (Kelemen et al. 2013). These results suggest that soft policies could also encourage biodiversity-friendly farming practices, in addition to monetary incentives that have received more attention so far (Kelemen et al. 2013). Moreover, they argue that deliberative methods are useful to understand values in a broad perspective, since it can reflect participants' heterogeneity and the context around them, as well as include multiple value aspects (Kelemen et al. 2013).

Another approach, mixing monetary and nonmonetary value expression, was used by Allen and Moore (2016). They performed stated choice experiments to assess public preferences for stream-related ecosystem services in the USA. Participants received a series of two-choice situations for stream health improvements and were asked to state their preference, and each option included the expected outcomes and yearly cost per household (Allen and Moore 2016). Depending on the choices, it is possible to assess the public willingness to pay (WTP), as expressed by yearly costs, but also other factors that influenced preferences. They found that WTP for ecosystem service provisioning varied widely among proposed programs, showing that nonmonetary factors also influenced participants' choices (Allen and Moore 2016).

Finally, Cuni-Sanchez and collaborators (2016) explore whether ethnicity could affect ecosystem services identification and valuation. The study was conducted in three similar forest islands in northern Kenya, inhabited by two pastoralists ethnic groups, and participants assessed the ecosystem services provided by forests and which plant species are most important for provisioning different services such as food, fodder, medicine and firewood (Cuni-Sanchez et al. 2016). Water was always identified as the most important ecosystem service, but the second most important differed; and a similar pattern was found regarding preferred plants (Cuni-Sanchez et al. 2016). The study shows that ethnicity and location affect ecosystem services' identification and relative importance, and provides an empirical example of how socio-cultural characteristics might influence the way people value nature and its benefits.

## Conclusion

Monetary valuation of nature and ecosystem services might help to bring attention to conservation issues and provide a common language to talk to politicians, economists and civic society. Nevertheless, there are many possible traps, and relying on monetary valuation can lead to a belief that nature has value only when conserving it is financially profitable. Moreover, values can be perceived and expressed in different ways, and by considering only the monetary language we might disregard important values, especially those that are less tangible and difficult to measure.

Therefore, it is probably much more helpful to put effort into strengthening value pluralism in public debates and decision-making. We need to incorporate a variety of valuation languages and knowledge sources to better understand ecological, socio-cultural and monetary values, considering specific conditions under which approaches may or not be appropriate. The effort to understand nonmonetary values has been increasing; however, their incorporation in practical decision-making still faces resistance since monetary approaches are usually quicker to assess and easier to understand. Thus, further research on value pluralism and nonmonetary valuation should investigate alternatives that allow a broad, inclusive and multi-criteria analysis aligned with the time-frame and momentum relevant for decision-making. This conversation is of utmost importance since all values are relevant to make wise and just decisions regarding socio-environmental challenges.

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