

Rio+20, biodiversity marginalized

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Abstract

At the Rio+20 Conference (June 2012), the biodiversity conservation agenda was subsumed into broader environmental issues like sustainable development, “green economy,” and climate change. This shoehorning of biodiversity issues is concomitant with a trend toward market-based instruments and toward standardized biodiversity assessment and monitoring. This article raises concern that these trends can marginalize important and specific aspects of biodiversity governance, including other policy tools and region-specific socio-ecological environments. Among other trends, this contributes to the marginalization of agroecosystems as habitat and matrix for biodiversity. Such agroecosystems, however, can have a major impact on conservation outcomes as they comprise a major part of terrestrial lands. If the biodiversity crisis is to be curbed, special attention must be drawn to societies, institutional approaches, and environments that are currently marginalized in conservation policies.

Introduction

Despite decades of conservation action, the biodiversity crisis is continuing and cumulative (Butchart *et al.* 2010; CBD 2010). However, it did not receive much attention at the recent Rio+20 Conference, despite having been a central plank of Rio 1992. Policy and scientific choices over the past 20 years have led biodiversity conservation to be displaced by and subsumed under broader fields such as climate change and green economy. This mainstreaming of biodiversity into these currently “hot” fields tends to marginalize the specificity of biodiversity conservation issues, making them subsidiary to other concerns and of lower visibility and priority as it was during Rio+20. Furthermore, the focus on global-scale issues (like climate change) and particular policy approaches (like green economy) contributes to an on-going marginalization within biodiversity conservation of local and regional specificities, of approaches

other than market-based policy instruments, and of non-“wild” ecosystems such as agroecosystems. We believe that biodiversity conservation policies should re-focus attention on local and regional practices and institutions, on diverse ecological habitats, and on their interactions. These down-to-earth, region-specific components of socioecological systems are vital to the sustainability of conservation.

Today’s global conservation policies lead us to overlook critically important domains, particularly with respect to the diversity of ecological and social settings, of institutional contexts, and of economic or methodological approaches. Mainstream global solutions to the biodiversity crisis, as promoted by global-scale organizations like the Convention on Biological Diversity (CBD), international conservation organizations, and the newly established Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), generally focus on homogenizing knowledge and conservation instruments (Brooks

et al. 2006; Salafsky *et al.* 2008), coordinating policies (Bode *et al.* 2011; Mace *et al.* 2000), reinforcing policies and increasing funding (Rands *et al.* 2010). Indeed, the fact that socio-ecological systems have become global in scope demands a form of global governance for the Earth (Biermann *et al.* 2012). However, these efforts should not impede our capacity to perceive and work with diversity, whether this diversity is ecological, social, institutional, economic, or methodological (Sutherland *et al.* 2009). A focus on diversity can bring to the fore fields of research, methods, disciplines, and action that are marginalized today.

The article presents how biodiversity governance is currently eroding our ability to tackle diversity and to identify emerging issues in biodiversity conservation. This is because of the strong focus of biodiversity governance on market-based instruments and on standardization of biodiversity assessment, monitoring and conservation tools. Second, the article illustrates how, *inter alia*, this standardization leads to the marginalization of agroecosystems as habitat and matrix for biodiversity conservation. This can have a major impact on conservation results as agroecosystems comprise 30% of Earth's surface (Altieri 1991).

Marginalization of non-market-based measures

Conservation approaches have undergone several shifts in the last half-century (Adams 2004), responding to political and social contexts and evolving scientific knowledge. In the past decade, after a period where community-based approaches flourished, there has been a move to multi-level biodiversity policies (Ferraro and Kiss 2002). Furthermore, conservation has adopted a number of market-based instruments (MBI), notably payments for ecosystem services (PES) (Jack *et al.* 2008), and has been marked by a trend toward standardization in biodiversity policies (Salzman and Ruhl 2000).

The current preference for MBIs seems to be the result of an idealized model of biodiversity conservation based on the economic valuation of biodiversity and ecosystem services (Brockington 2011). This focus on MBI risks marginalizing other tools, and tends to remove complexity from public policy reflections (Kosoy and Corbera 2010). For instance, a recent article on payments for ecosystem services in Madagascar—in which rural farmer's livelihoods and social issues are reduced to opportunity costs drawn from a coarse global model, and which summarily excludes non-forest areas from consideration—relegates to the final paragraph several crucial variables such as government capacity, policy environment, and land tenure (Wendland *et al.* 2010).

MBIs advocates tend to recognize, at least on paper, that such tools need to be implemented not in isolation, but in combination with other policy instruments. For example, the Green Economy report issued by UNEP for Rio+20 asserted that "Although PES will not be the only strategy used by governments to achieve forest-based emission reductions, it is likely to be important" (UNEP 2011). Likewise PES experts Engel, Pagiola, and Wunder (2008) state that PES approaches should be made in conjunction with existing policies and institutions. However, these caveats are often forgotten or overlooked in the rhetoric surrounding MBIs, even though market instruments are rarely developed separately from other approaches. For instance, Costa Rica's PES program is held up as a model for market approaches, yet it was developed within a legal framework (thus, a regulatory approach) and over half of its funding comes from petroleum royalties (which is a fiscal approach) (Blackman and Woodward 2010).

Furthermore, these instruments are not applied within an institutional vacuum (Vatn 2010). They are developed and implemented within specific local, regional, and (inter-)national realities that are shaped by power relations between actors and pre-existing formal and informal institutions. Because the MBIs aim to change attitudes toward the environment, their efficiency largely depends on the adhesion of stakeholders like the above mentioned actors and institutions. Thus, the extent to which these instruments are coherent with the practices and strategies of the stakeholders is critical for conservation (Muradian *et al.* 2010). One cannot just analyze MBIs in terms of their economic or ecological logic, but must also investigate the full social dimensions of their implementation.

Ultimately, MBIs should become part of the existing institutional diversity rather than being devised as a model in isolation from other tools and policies (Muradian *et al.* 2010). In this respect, advances in our understanding of complex, multi-level, institutional, and ecological synergies (Hirsch *et al.* 2011; Oldekop *et al.* 2010; Ostrom *et al.* 1999; Persha *et al.* 2011) should also encompass financialization mechanisms of global conservation. Rather than taking a pro or con position on market instruments, one should analyze their actual role, their interactions with other instruments, and the reconfigurations of public actions induced by them.

Marginalizing diversity

The current trend toward standardization of biodiversity assessment and monitoring aims at improving policy effectiveness (Kapos *et al.* 2008; Salafsky *et al.* 2008). While in the domain of climate change the development of a

general equivalent among greenhouse gases allows emissions to be compared, the standardization or reduction of the elements constituting biodiversity into homogeneous categories is more problematic.

Standardization is applied to habitats and species through the establishment of indices, typologies (like ecoregions) and prioritizations (Hotspots, Red List, Global 200, etc.) (Brooks *et al.* 2006; Vačkář *et al.* 2012). This creates numerous artificial homogeneous categories or models that can be weighed against each other. But those categories can tend to the marginalization of some elements of biodiversity (Martín-López *et al.* 2011; Orme *et al.* 2005) and of species that are not directly useful for human (McCauley 2006). For instance, biodiversity hotspots focus on species levels (Myers *et al.* 2000), which may under-represent rare, threatened and genetically distinct species and over-represent widespread species (Moritz 2002). With these analytical categories, there is still a need for a set of indices that can capture the changing state of nature and its implications for human well-being (Vačkář *et al.* 2012). The focus on pristine environments also marginalizes “ordinary,” less remarkable, and less unique bits of nature such as agroecosystems (see below) (Perfecto and Vandermeer 2008). It also takes attention away from other conservation approaches or tools of ecological engineering, such as ecosystem restoration, which is rather critical given the degradation of many areas (Aronson *et al.* 2006). The pressure to standardize comes from its perceived utility in helping policymakers and activists at broad national or global scales prioritize actions, budgets, and campaigns. It thus facilitates the application of MBIs, creating commodifiable units that can be “sold” on the market, thereby marginalizing other possible biodiversity governance approaches (Robertson 2006). Standardization models tend to overlook the practical economic and political context in which those models are supposed to be used (Holmes *et al.* 2012), not to mention problems of coordination between NGOs (Balmford *et al.* 2009; Kareiva and Marvier 2007; Mace *et al.* 2000).

Conservation practices are also experiencing standardization. They are re-assessed and gauged in reference to benchmarks or “good practices” that determine eligibility criteria for funding and policy priorities. The private sector commitment to biodiversity conservation, for instance, is assessed by the Ecosystem Services Benchmark (Grigg *et al.* 2009). Some cases and practices are set up as examples and turned into templates, which might obscure the diversity of both ecosystems and local institutions. For instance, community-based natural resource management programs have occasionally been reduced to a collection of well-trodden examples of pilot projects and success stories (the archetype being Zimbabwe’s

Campfire, see Hulme and Murhpre 2001) whose legitimacy is applied far out of the local contexts that shaped their success. Similarly, PES are today promoted without clear evidence of their actual achievements beyond repeated references to a few assumed success stories (Ferraro 2011).

Agroecosystems marginalized

The current focus on standardized assessments of biodiversity and practices, as outlined in the previous section, means that less attention goes to other resources and practices that are, in consequence, marginalized. Agroecosystems are one example of such a “margin” that could be of vital importance for the future of global biodiversity (Scherr and McNeely 2008; Wright *et al.* 2012). They are marginalized because standardized assessments—by their very design—find more value in “wild” areas, with, for example, larger numbers of endemic species.

Although agriculture, pastoral lands and novel ecosystems cover the major portion of the Earth (Ellis *et al.* 2010; Lindenmayer *et al.* 2008), they receive little attention or funding from conservation programs (Altieri 2002). Advocates of “land sparing” argue that it is better to concentrate agricultural land use in smaller, intensively used areas, and thereby leave more “wild” lands untouched (see the debate on land sparing: Fischer *et al.* 2011). Yet in many areas, agroecosystems still have heterogeneous ecological habitats and are favorable to high and potentially sustainable levels of biodiversity (Martin *et al.* 2012; Perfecto and Vandermeer 2008). In these spaces, diversity—whether of cultivated species, non-domesticated species, or auxiliary species for farmers—ensures a good ecosystem adaptability and resilience (Perfecto and Vandermeer 2010) particularly in a context of climate change (Lin 2011). The diversity of practices and of biophysical conditions contributes to a huge diversity of agroecosystems around the world. With most natural habitats already fragmented it is important to ensure that organisms living within those fragments can migrate through a biodiversity-friendly matrix.

Certain agroecosystems effectively bring a twofold benefit: they are rich in native and introduced species due to the spatial heterogeneity maintained by the diversity of production and risk management practices (Perfecto and Vandermeer 2010), and they provide ecosystem services, notably food and cultural services, that can be very important for a large number of farmers (Jackson *et al.* 2007). Examples might include the domestic forests of southeast Asia (Michon *et al.* 2007), or the cocoa agrosystems in Latin America, Africa, and Asia (Schroth and Harvey 2007). As sustainable food production was one of the major themes of the Rio+20 Conference, it should

not be forgotten that biodiversity (both agrobiodiversity and associated wild biodiversity) is essential for the productivity, sustainability and resilience of sustainable food systems (Frison *et al.* 2011; Jackson *et al.* 2007).

The maintenance of ecologically friendly agroecosystems calls not only for an extension of protected areas as they are defined today, but also for innovative forms of governance at the interface of production and conservation (Scherr and McNeely 2008) and policies that strengthens the connections of MBIs with other tools and policies (Engel *et al.* 2008). While the importance of those new forms of governance has already been acknowledged in the literature, the policy implications are still in their infancy. Effectively implemented, such innovative governance would open an immense field that could provide protection for a biodiversity that to date has been protected as little as its importance is great.

Conclusion

Biodiversity governance has undergone considerable change over the past few years. The number of protected areas has grown; PES has formalized a link between ecology, economics and politics; and the standardization of monitoring and assessment tools has allowed our knowledge of biodiversity to be deepened. However, the fact that biodiversity is still threatened and disappearing should lead us to question our concepts and methods. First, while standardized metrics have a role to play, they should not be used to shy away from transparent debates between actors over conservation priorities. As Bottrill *et al.* (2012) argue, social interactions and networking are just as valuable as the hard data. They represent the political coalface of biodiversity management. Instead of just forming priorities from top-down assessments, there should remain room for bottom-up initiatives and concerns that reflect local and regional social, political and ecological contexts. Second, MBIs can be useful tools, yet they should never be implemented without connection to other policy instruments and to broader governance frameworks in particular places. Third, conservation practitioners should not forget the value of anthropogenic landscapes like agroecosystems and traditional agroforests.

In effect, we are arguing for the importance of a science that is able both to engage in global issues and to deal with local, distinctive situations. Such articulation between global standards, instruments and categories on the one hand, and local, specific, “not-fitting-in” contexts on the other hand is a challenge for science not only in its theoretical internal practice but also when it engages with practitioners and policy-makers (Jenkins *et al.* 2012; Rudd 2011). Rather than concentrating our efforts in a

single, standardized direction, as justified as it may be, we believe that special attention must urgently be given to societies and environments that are currently marginalized. Their incorporation into conservation efforts is crucial, and indeed indispensable, if the biodiversity crisis is to be soon brought under control.

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