



## Biodiversity conservation in certified forests: an overview

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### Understanding the impacts of forest certification

The loss and degradation of tropical forest have become issues of popular concern and political debate across the world. Logging was once seen as the root of the problem but over the last three decades that view has altered somewhat. Although the subject of logging remains contentious, and environmental NGOs are divided, there is some acceptance that even though timber production remains a threat to the long-term viability of tropical forest biodiversity, it may also make a positive contribution. The promotion of socially and ecologically sound forest management — through forest certification<sup>1</sup> — has changed the narrative. Certification is now widely advocated as a strategy to conserve the world's forests and the biodiversity they contain. Some consumers will pay a premium for products that promise “biodiversity friendly” forest management and some markets are closing to non-certified forest products.

Approximately 8% of global forest area has been certified under a variety of schemes (FAO 2009). One recent estimate suggests that approximately one quarter of global industrial roundwood now comes from certified forests (FAO 2009). Most of these advances have occurred outside the tropics: less than 2% of forest area in African, Asian and tropical American forests are certified. Most certified forests (82%) are large and managed by the private sector (ITTO 2008). Increasing the extent of certification in the tropics remains a goal for many organizations – including some international conservation NGOs. So far, so good, but many details remain uncertain.

Only a fraction of the rich practical experience with forest certification and its impacts on the conservation of biodiversity is documented publicly.<sup>2</sup> Even less has been published in academic journals. Among practitioners, forest managers, forestry NGOs, auditors, and certifiers there is a great deal of information and wisdom that increase our understanding of certification impacts. This ETFRN News provides a forum for some of those involved in certification, from academia and from the practice, to air their views on the role of

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certification in the conservation of tropical biodiversity. We publicized this newsletter by inviting manuscripts through an open call distributed through ETFRN, various list servers and professional networks. Authors were specifically challenged to address three key issues:

- Is forest certification a good conservation strategy in tropical forest?
- Are certified concessions better off in terms of biodiversity than those that are conventionally managed?
- Do we have the information required to provide a reliable answers to questions about the impacts of certification?

We asked authors to be as concrete and specific as possible in identifying challenges and solutions and to write for a general audience. In subsequent revisions we often challenged them to clarify or justify their statements, and suggested ways that arguments might be strengthened or focused, but we never vetoed any views that addressed the theme of the newsletter – thus the views embodied by these articles are those of the various authors, not the editors. Providing an outlet for this diversity of views was one of our goals.

The focus of this newsletter is the conservation of biodiversity associated with natural forests in the tropics. We primarily discuss the biodiversity impacts of improved management within certified forests. We did not limit contributors to experiences related to a single certification scheme or even forest management certification. We recognize the importance of other aspects of certification, including those related to working conditions, communities, indigenous people, and markets, but we address biodiversity as one of the principal rationales for certification.

We also developed an on-line survey to supplement the information brought together in the articles and to collect views about the topic. We publicized the survey through ETFRN, International Union for the Conservation of Nature, Food and Agriculture Organization, International Union of Forest Research Organizations and via colleagues and invited a wide range of professionals to respond. Some summary details are provided in Box 1 and Appendix 1.

### **Contributed articles**

More than 15 years have passed since the first forest certificate was issued in tropical high forests; it should now be possible to evaluate the impacts of certification on biodiversity. Regulators and representatives of philanthropic groups, NGOs, and development agencies – which have contributed so much to improve forest management – also want to know whether certification is working for biodiversity. They are supported by more than three-quarters of the respondents (88%), who thought that greater emphasis on documenting the biodiversity benefits of certification was important or very important. The topic is the rationale of this issue of ETFRN News. It brings together 33 articles that discuss this topic from various perspectives.

### Box 1. Response to the on-line survey

A total of 127 individuals contributed to the on-line survey (Appendix 1). Researchers constituted the largest group of respondents (40%); the other main groups were representatives of environmental organizations (18%), government employees (8%), forest managers, auditors/accreditors and consultants (4% each). More than a third of the respondents (39%) had direct experience with certification, either with large-scale operations (31%) or community forestry (20%; 12% with both). Strikingly, more than half of the respondents stated that they supported certification and another third were open-minded about it. Only 9% considered themselves sceptics.

All respondents recognized that forests managed for timber are not equivalent to undisturbed forest in terms of biodiversity, but there was some disagreement on the nature of the difference. While a majority (60%) thought that the biodiversity losses in certified forests were insignificant or acceptable, 40% thought them too high (17% considered these losses unavoidable while 23% judged them avoidable). Responses also varied concerning what certification should achieve in terms of biodiversity conservation. Nearly a third (30%) judged that certification should aim at conserving virtually all species at pre-harvesting levels of abundance, suggesting that logging should change nothing in the forest.<sup>3</sup> A significant number of respondents thought that forest management should focus on certain key species, instead of all species (also 30%) or ecological processes and functions (16%).

### *Certification standards*

In evaluating the effects of management activities on biodiversity, it is important to first clarify how biodiversity is defined in practice and who decides what the focus should be. Karmann et al. (1.1) start by outlining how the Forest Stewardship Council (FSC) is structured, how standards for good management are developed and revised, and how the system is designed to facilitate improvement at local, national and global levels. They also review some of the biodiversity benefits of certification. As the FSC principles and the high conservation value (HCV) approach are central to a number of the contributions they are provided in appendices 2 and 3.

Lammerts van Bueren (1.2) argues that, despite a number of failings, the prevailing forest certification systems contribute to biodiversity conservation in various relatively obvious ways. He is concerned about the proliferation of certification schemes and associated standards that have sprung up for carbon storage and other services and emphasizes the need for clarity and consistency to ensure that biodiversity conservation requirements are not diluted.

The point of whose biodiversity concerns are addressed is the topic of Wiersum and Shrestha (1.3), who discuss how local values should be reflected in biodiversity criteria and indicators under forest certification schemes. Using examples from Nepal, they underline

the links between biodiversity and cultural diversity and emphasize the need to recognize both. The extent to which local preferences and values should be reflected in certification criteria and indicators remains contentious (see also Ball 3.4). Bleaney (3.3) and Armstrong (2.4) warn that unrealistically formulated and ambitious standards undermine auditing and, eventually, even interest in certification.

### *Monitoring: challenges and options*

Respondents to our survey highlighted many practical problems with monitoring biodiversity in forests; contributions to section 2 consider some of these challenges. Gardner (2.1) describes the development of monitoring processes, starting with the why and what of effective monitoring. He stresses that monitoring should be viewed as the continually updated source of the information needed for effective management and sketches a few of the principles that can guide such a process. Mekembom (2.2) provides examples of the need for and uses of monitoring information in certified concessions in Cameroon and in concessions in the process of certification. Fry (2.3) compares monitoring by local and external experts on the basis of accuracy, costs, sustainability and cultural relevance. He cites numerous advantages of locally based or participatory monitoring, especially if procedures are developed in a participatory way and are culturally appropriate. De longh and Persoon (2.5) also advocate the various benefits of local monitoring; they believe that these approaches need to be more widely promoted and should eventually replace conventional methods. Armstrong's (2.4) contribution addresses how the certification system itself is subject to monitoring via audit; he seeks to demystify the process and identifies where the weaknesses lie. While he accepts the value of local involvement he strongly advocates the need to include those with auditing experience to ensure that systems remain sound and workable. Vantomme (2.6) suggests using certification of non-timber forest products (NTFPs) as a proxy for biodiversity monitoring. Interestingly, certification of NTFPs usually requires that populations of the species providing the product be sustained (e.g., Newton 2008), whereas current timber certification is focused on the more general goal of sustaining forest structures and functions (for more on NTFP certification, see Shanley et al. 2002).

### *Practical experiences and lessons from the field*

The third section highlights practical certification experiences on industrial concessions and community forests, with examples from the Congo Basin, Borneo, Tanzania and the Peruvian Amazon. All of the examples report qualified successes, including controls on hunting in the Republic of Congo (Poulsen and Clark 3.1; also addressed by Christophersen, Belair and Nasi. 6.2), and processes to improve forest management in Cameroon (Wanders 3.2). Bleaney (3.3) identifies commitment among forest managers, institutionalization of good practices within forest management processes, and the involvement of local communities as key criteria for making certification work for conservation. Ball (3.4) and Rodríguez and Cubas (3.5) debate the extent to which local and traditional communities in Tanzania and Peru manage their forests responsibly. In both cases, community certification was clearly a long and drawn-out process – not because of concerns about management and impacts on biodiversity, but due to the requirements imposed on communities by the certification process itself.

The next three articles highlight challenges in two countries with disproportionate shares of forest-based biodiversity: Brazil and Indonesia. Schulze et al. (3.6) point out, based on their experiences in Amazonian Brazil, how a lack of auditor training (a concern also raised by Bleaney 3.3) and rapid turnover in auditors result in incomplete and inconsistent application of biodiversity indicators. They call for a simple standard that creates incentives for implementing best practices (such as reduced-impact logging, or RIL) known to have relatively large biodiversity and forest management benefits instead of complex standards that cover every conceivable impact of forest management. They also emphasize the need to sustainably manage individual timber species, a topic that seems to have been overlooked as the concept of sustainable forest management has been revised and politicized. Van Assen (3.7) questions the impact of certification on biodiversity conservation in Indonesia. He contrasts the two leading forest certification initiatives, the SmartWood Programme of the Rainforest Alliance (which audits principally for FSC) and the Sustainable Natural Production Forest Management (SNPFM) scheme of the Indonesian Ecolabel Institute (LEI). He sees a lack of information and transparency, as well as institutional entanglements within the certification movement, as major contributors to the lack of success of certification in Indonesia. Setyawati (3.8), also writing about Indonesia, is somewhat pessimistic about what certification can do in the absence of effective biodiversity conservation policies outside strictly protected areas. She also notes the growing pressure on forests whose customary ownership is not officially recognized.

#### *Biodiversity benefits of certification*

Articles in section 4 consider the benefits of certification for biodiversity conservation, the available evidence and the need for evaluation and documentation. Cashore and Vandenberg (4.6) announce a new initiative to respond to the increasing pressure for rigorous independent testing of the assumptions and impacts of certification. Ahead of this initiative, the articles in this section generally demonstrate research-supported evidence of certification's conservation benefits.

In an indirect approach to measuring forest management unit (FMU) performance in the area of biodiversity conservation, Peña-Claros and Bongers (4.5) followed corrective action requests (CARs). They were able to demonstrate that the number of issues related to biodiversity decreased from the first to the second main evaluation, suggesting that FMUs were able to address the initial problems identified in their management of biodiversity.

Price (4.1) describes the experiences of The Nature Conservancy (TNC) in natural forest management in Bolivia and plantation management in Brazil's Atlantic Forest Region. The latter case showed one clear biodiversity benefit: certified plantation operations conserved substantially more fragments of natural forest than is typical in the region. In a certified forest concession in Amazonian Peru, Brotto et al. (4.2) report that quantitative faunal surveys that commenced prior to certification revealed substantial benefits and served to build in-house monitoring capacity.

One challenge in assessing the biodiversity impacts of certified forest management in a rigorous comparative manner is selecting the appropriate baseline (van Kuijk, Putz and Zagt 2009). In an overview of the effects of certified forest management on populations of great apes, van Kreveld and Roerhorst (4.3) chose logged but uncertified forests for comparison and reported substantial benefits from certified forests. In regions where “to log or not to log” is not the question (i.e., establishment of strictly protected areas is not a viable option), their vision of biodiversity conservation through landscape mosaics of certified logging areas and strict protected areas is eminently practical.

### *High Conservation Value Forests and plantations*

Section 5 includes two articles on High Conservation Value Forests (HCVFs) and two on plantations; three of the four articles address spatial aspects of biodiversity conservation. HCVFs have emerged as a way to define and delineate areas requiring special management attention due to their high conservation values (Appendix 3), while responsible plantation management requires the definition and management of areas of remnant natural forest. In his paper on HCVFs, Stewart (5.1) concentrates on the continuing evolution and clarification of the concept in the context of certified production forests and on its adoption by proponents of responsible palm oil, soy and sugarcane production. Mostacedo and Quevedo (5.2) provide evidence from Bolivia of the effectiveness of HCVFs in maintaining biodiversity, but stress the continuing need for collaboration between researchers and managers so that the benefits can be maximized. Many articles elsewhere in this volume (e.g., Bleaney 3.3) echo these sentiments; the HCVF concept is useful and even important for biodiversity conservation, but it is hard to implement by forest managers and occasionally leads to formulaic but ill-conceived application (van Assen 3.7).

Menne (5.3) is concerned about the negative consequences of certified plantations. He argues that their history of replacing native vegetation precludes them from being the source of products from “responsibly managed forests.” He cites a litany of environmental and social problems associated with plantations, with a focus on southern Africa (for more about the controversies surrounding plantations, see Paquette and Messier 2010). In a contrasting example, Lamb (5.4) discusses a case in Malaysia in which a company was refused certification because it had converted 38% of a badly degraded natural forest into an exotic timber plantation, leaving the remainder, mostly in riparian areas and on steep slopes, to recover naturally. He argues that the conservation benefits of this project were sufficient to warrant certification despite the recent replacement of some forest by plantation.

### *Beyond current concepts*

The final section of the issue takes certification into new territory, sometimes beyond the forest boundary. Entenmann (6.1) compares the ways in which biodiversity priorities are accommodated in certified Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) pilot projects. Christophersen, Belair and Nasi (6.2) focus on how forestry operations can exacerbate the bushmeat crisis and how certification can help alleviate this critical biodiversity threat, a topic also discussed by Poulsen and Clark (3.1). Slik (6.3) discusses the biodiversity drawbacks of salvage logging

of burned forests in Borneo (for more on salvage logging see also Lindenmayer, Burton and Franklin 2008). Sayer et al. (6.4) describe the links between the ITTO-IUCN Guidelines for Biodiversity Conservation in Tropical Production Forests and forest certification. Their principal message is that governments and other stakeholders, not just concession owners, can and should make a contribution to improving the conservation value of forest managed for timber production. Pirard (6.5) provides a critical evaluation of the main costs and obstacles related to implementing these guidelines, based on rapid assessments in a number of locations across the tropics. Clearly, good management tends to cost more than poor management, but the actual numbers are frustratingly hard to determine. Taking a much broader perspective, Ghazoul (6.6) recommends extending certification to landscape-level mosaics of forests and lands under other uses and to the various products they provide.

### Reflections on the effects of certification on biodiversity in tropical forests

A range of conclusions and cross-cutting issues emerge from the various articles and the responses to the on-line survey.

#### *Does certification conserve biodiversity?*

The analyses and judgments reported in this issue of ETFRN News (see also van Kuijk, Putz and Zagt 2009; Peña-Claros, Blommerde and Bongers 2009; Newsom 2009) suggest that certification has helped reduce biodiversity loss in the tropics. Although more than half (58%) of our survey respondents agreed or strongly agreed that certification had helped reduce biodiversity loss in the tropics, they also suggest that this conclusion is qualified.

For the almost 20% who disagreed or disagreed strongly, the most common reason was the limited area of certified natural forest in the tropics, which remains too small to make a meaningful contribution to conservation. Few respondents dispute that it contributed to direct species conservation in those natural forest operations that have been certified (62% agreed), and to improved forest management practices (82%), but many also noted that certification does not equal conservation (cf. Bleaney 3.3) and had not helped to reduce deforestation rates.<sup>4</sup> Many of the survey respondents felt that the positive direct effects on biodiversity of some practices required by certification were obvious (better by “orders of magnitude than uncertified logged forests,” according to one of the respondents). They considered the protection of streamside buffer zones and other set-asides, as well as HCVF management and the use of RIL techniques, as most effective.<sup>5</sup> Overall, certification remains a conservation strategy valued and advocated by several conservation NGOs (see, e.g., Price 4.1; White 4.4 and van Kreveld and Roerhorst 4.3).

When asked whether forest certification was generally a critical instrument for biodiversity conservation in tropical forests, however, less than half (46%) of respondents agreed; others thought it was generally ineffective or inefficient due to its high transaction costs. In the words of Ghazoul (6.6), we may be “fiddling while Rome is burning.” Respondents frequently mentioned the threat of illegal logging and other activities, but saw these as lesser risks, perhaps because the FMUs in question have

relatively secure boundaries. Many respondents noted a range of threats to tropical forests and their biodiversity which certification in its current form can do little if anything to address: conversion to agro-industrial plantations, climate change, even the global financial system — as well as several other direct and indirect factors beyond the boundaries of the FMU. Several authors, including Schulze (3.6, alluding to the vast areas of concessions that will be granted in Brazil in the near future) and van Assen (3.7) doubt the ability of forest certification to catalyse high-quality forest management at the scale required to make a significant contribution to biodiversity conservation.

### *Towards credible assessment of certification impacts*

Most survey respondents considered it important to prove the effects of certification on biodiversity. The lack of verified conclusions about certification's biodiversity benefits is due to the dearth of rigorous, systematic and independently collected information. This is noted in several of the articles in this issue, by some of the survey respondents and in the literature. The paucity of quantitative studies on the effects of certification or effective forest management practices such as RIL, compared to conventionally logged forests, has been lamented in the literature; only 25 such studies were cited by van Kuijk, Putz and Zagt (2009). This problem is not unique to forestry, but affects the evaluation of the effectiveness of sustainable certification schemes in general (Blackman and Rivera 2010). This ETFRN issue has yielded some additional cases.<sup>6</sup> Still, many authors refer to the same few experiences, such as the great apes study (van Kreveld and Roerhorst 4.3; White 4.4) and Wildlife Conservation Society's (WCS's) experiences in the Republic of Congo (Poulsen and Clark 3.1; White 4.4; Christophersen, Belair and Nasi 6.2), suggesting that the quantitative basis for demonstrating certification effects is not broad.

When asked for ideas on how to clarify the impact of forest certification on biodiversity, many survey respondents suggested conducting studies comparing certified and non-certified forest operations. This effort clearly goes beyond the usual forest management responsibilities of certified operations if it requires the assessment of pre-certification biodiversity and biodiversity trends in another, conventionally managed, forest. Where certification systems claim that, "Implementing sustainable forest management ... ensures that forests remain the most biodiverse terrestrial ecosystems on the planet..." (PEFC 2010), it is no more than logical that, "Measuring the impacts of certification on sustainable forest management has now become a priority..." (FSC 2010). Certification systems and their certifying bodies should take an active interest in and commit themselves to such studies. International organizations, funding agencies and professional foresters and researchers organizations concerned about biodiversity can also help formulate a comprehensive research approach to assessing the effectiveness of certification. Cashore and Vandenbergh (4.6) observe that to maintain the credibility of forest certification and justify the levels of effort and financial support by businesses, NGOs and government agencies, it is necessary to know to what extent these systems are achieving sustainability objectives and how to improve their performance. Karmann et al. (1.1) on behalf of FSC extend a clear invitation to researchers to study impacts.



Given the challenges and cost of credible large-scale studies, they will likely remain scarce. What are the priorities? Carefully constructed comparative studies across continents, management regimes and forest types — focusing on selected, clear and interpretable biodiversity indicators — will help detect the broad impacts of certification, but will not provide all the practical answers required by forest managers or conservationists. Additional studies will be needed to better understand the relationships between specific certification-required management practices and selected biodiversity parameters. There needs to be some agreement on the key questions: which management practices, what biodiversity indicators. Entenmann (6.1) suggests combining straightforward indicators with more elaborate indicators that are expensive but potentially able to describe more complex ecological processes. Simpler, more operational standards that are clear on biodiversity objectives and targets and the scale at which these must be measured would help (and would also assist with auditing of standard compliance; cf. Armstrong 2.4).

Ultimately, the important issue is what a “sustainably managed” forest looks like in terms of biodiversity and whether additional improvements can be made. The long-term effects of logging are still poorly known, certainly in certified operations (van Kuijk, Putz and Zagt 2009), and many tropical forestry operations take place in relatively intact forests. Current management prescriptions remain guesses — educated guesses perhaps, but guesses nonetheless. It is unknown to what extent production forests can maintain high levels of forest biodiversity in the long run, which species they will contain and under what conditions.

### *Monitoring of management impacts is a challenge*

Monitoring flora and fauna is one way to measure certification impacts, at least within certified forests. However, the opinions on the usefulness of current monitoring programmes required by certifiers are divided. CARs related to monitoring were common among FMUs (Peña-Claros and Bongers 4.5) and the majority (81%) of respondents agreed that the quality of monitoring programmes should be improved. Only 45% of the respondents considered the data generated from monitoring programmes to be very useful, while the 48% thought they were somewhat useful. When asked about the main problems associated with monitoring, respondents indicated that monitoring efforts suffered from inadequate baseline information, insufficient investment of resources and poor implementation.<sup>7</sup> The adequacy of statistical designs and the involvement of experts were among the least important concerns identified by respondents.<sup>8</sup>

Several strategies were suggested to improve monitoring quality. Survey respondents called for more research, specifically, that directly involving forest managers and forest owners. Peña-Claros and Bongers (4.5) call for partnerships for long-term biodiversity monitoring programmes between forest operators and universities and specialized institutions; some of the contributions in this issue demonstrate the usefulness of this approach (e.g., Poulsen and Clark 3.1). Respondents suggested simplifying and standardizing monitoring protocols and involving local communities. In some cases, cost-cutting seems to dominate the reasoning, but many contend that the quality of local monitoring is equal or superior to monitoring by qualified experts (Fry 2.3). The

importance of developing good relations with the communities in and around concession areas is an important lesson (Bleaney 3.3), but requires time and new skills on the part of many forest managers (Wanders 3.2). In community forests, monitoring requirements test the capacities of local people, as related by Ball (3.4), and Rodríguez and Cubas (3.5). Improving biodiversity monitoring without excessive costs remains a challenge (see below).

#### *Accommodating local and global biodiversity values in High Conservation Value Forests*

The importance of local people is evident in applying the concept of HCVFs (Principle 9 of FSC; see appendices 2 and 3). Many authors in this volume identify HCVFs as a key mechanism to protect biodiversity (e.g., Stewart 5.1; Mostacedo 5.2 and Bleaney 3.3). The application of this principle leaves scope for local elaboration, negotiation and agreement and for a major contribution through the participation of various stakeholders, including local people. Principle 9 appears well suited to the on-line survey respondents who favour flexible certification standards to suit local needs (45%), or some limited flexibility in interpreting global biodiversity standards (37%), and also those who see local people and local NGOs (along with experts)<sup>9</sup> as the most important stakeholders in setting biodiversity objectives in certified forests.

Local negotiation of biodiversity objectives allows scope for accommodating different perceptions regarding which biodiversity to value. The extent to which the preferences of distant consumers should trump those of local stakeholders remains unresolved, however. Wiersum and Shrestha (1.3) advocate that local standards, by local people, mirror local perceptions of biodiversity, with an emphasis on the need to conserve functional diversity (such as provisioning, regulating and cultural ecosystem services). This emphasis differs from that of many biologists or conservationists, who emphasize species and their intrinsic or even charismatic values. Diversity in perceptions could potentially be reconciled by negotiating local standards, and by negotiating HCVs at the local level.

#### *Are partnerships critical for achieving biodiversity objectives?*

Many of the articles illustrate the importance of partnerships between forest managers (whether concessionaires or communities), researchers and conservation NGOs in overcoming the challenges related to achieving biodiversity objectives within certified forests. This may reflect the prevalence of researchers and conservationists among our authors, but also suggests the extent of the challenges associated with effectively addressing biodiversity concerns in forest management. Lasting partnerships between forest managers and conservation NGOs (Poulsen and Clark 3.1; Bleaney 3.3), peer groups such as WWF's Global Forest & Trade Network (GFTN; White 4.4 and Rodríguez and Cubas 3.5), consultants (Wanders 3.2), or community development NGOs (Ball 3.4) may be critical conditions for preparing FMUs for certification and ensuring that biodiversity conservation is an integral component of forest management. As mentioned above, partnerships with universities and NGOs may be required to implement high-quality monitoring programmes. If this is the case, it raises the question of the extent to which the financial and human capacity of NGOs limits the rate of certification in the tropics.

*Can REDD abate the cost of improving biodiversity management practices?*

Improving monitoring and implementing biodiversity-friendly measures — including respecting zones that will not be logged — come at a significant cost to forest managers: 47% of respondents who had an opinion about it disagreed or disagreed strongly that compliance with such measures was easy and 62% found it costly. The financial cost of certification is rarely discussed in the articles in this issue (but see Pirard 6.5, who identifies a number of challenges in clarifying these costs), but authors stress the differences between indirect and direct costs (Durst et al. 2006). Although direct costs (which include forest management, chain-of-custody and annual monitoring audits) can be substantial, the indirect costs of improving forest management practices often far exceed them, particularly in developing countries. Partly because direct and indirect costs are often not differentiated, the per-unit area costs of certification vary hugely (US\$0.10–24.70/ha for initial certification, according to Chen, Innes and Tikina 2010). Much, perhaps most, certification of small and community-owned forests in the tropics has been heavily subsidised. Support has been given through training and planning, development of monitoring programmes and documentation of forest management activities and through various other processes such as the clarification of land titles.

Most of the survey respondents who mentioned REDD+ and other payment for ecosystem services (PES) schemes saw these as opportunities for forest managers to obtain the resources needed to pay for improvements in management practices and subsidize certification. Others argued that forest managers would be better off focusing on timber and traditional forest management. Lammerts van Bueren (1.2), for example, warns against the dilution of biodiversity requirements in what he terms use-oriented standards, whereby biodiversity conservation is not a primary objective of certification. Such a process could lead to increasing areas certified under REDD+ or similar schemes, but with lower standards for biodiversity conservation. Entenmann (6.1) reviews the ways in which several use-oriented standards (namely, on forest carbon storage in REDD+ pilot projects) assess and monitor biodiversity in the project area, noting a wide variety in the provisions for biodiversity targets. Yet it is clear that many of the requirements for sustainable forest management and REDD+ are compatible. The case presented by Brotto et al. (4.2) demonstrates how forest certification could be a stepping stone to carbon certification. They show that the certification process can improve skills and capacity; the certified concession that they write about was the first in Peru to capture REDD+ payments, with its initial 40,000 tons of CO<sub>2</sub>-e priced at \$7 per ton. Given the region's accelerating deforestation, PES such as carbon sequestration — in addition to market access and fair prices for certified timber — may be needed to keep forests standing and to invest in biodiversity conservation in managed forests.

*Is there a future for certification in conserving tropical forest biodiversity?*

Most authors and respondents agree that certification helps to conserve forest biodiversity within certified forests. In order to realize its potential across the vast tropical forest biome, certification must do several things:

- Certification must increase its suitability for tropical forests and their managers. In spite of encouraging recent developments, e.g., in the Congo Basin, few tropical

forests are certified. Weak governance, including lack of enforcement of national forest policies and disputed land tenure, remain major obstacles (Wanders 3.2; Setyawati 3.8). Most tropical countries lack the trained workforce needed to develop and implement good forest management plans, or to monitor them once in force. Forest-based communities in the tropics generally require significant support to achieve certification.

- Certification must deal with the new realities of tropical forest landscapes. Increasingly, large areas of forest are devolved to the control of local communities (Sunderlin, Hatcher and Liddle 2008), and more forests have become part of intensely managed landscape mosaics that still hold substantial biodiversity. It is vital to understand how to make certification worthwhile for community and smallholder producers in landscape mosaics. Ghazoul (6.6) offers a vision of a scheme of various small-scale actors working together in landscapes producing certified timber along with other certified products. If certification targets only large industrial forestry operations, it will miss the chance to alleviate poverty and conserve biodiversity in those forests that sustain most of the world's remaining biodiversity.
- Certification must seize the opportunities offered by REDD+ and climate funds. Proponents of forest certification should clarify the significance and preparedness of certified operations and well-managed forests for carbon storage. Certification schemes should take an active part in the quickly evolving field of standards for carbon and other forest services, and biodiversity concerns should be an integral part of these developments.

More than 15 years after the first tropical high forest was certified, we are convinced that the process is beneficial. This is despite the wide range of opinions on the biodiversity conservation gains. Most authors and survey respondents share this conviction. Forest certification has certainly done more to improve tropical forestry than any other intervention with similar intentions (e.g., the Tropical Forestry Action Plan, the Montreal Process and the ITTO's many outstanding efforts). At the same time, we are unable to quantify the full extent of these benefits. There is a general consensus on the need to gather more evidence, and several initiatives are already underway. While threats to tropical forest and their biodiversity persist, there is a diversified and strengthening response. The area of tropical forests protected in national parks or managed by indigenous people is increasing; there is an increasing willingness and effectiveness to apply trade instruments against illegal logging and species; and concern about climate change has seen efforts to place standing forests at the heart of international environmental policy. In this complex landscape of instruments and actors, forest certification stands out as a well-known, flexible, market-based, multi-stakeholder approach. It is not without faults and problems, but once its benefits can be better quantified, and the mechanisms by which these are achieved are better understood, forest certification looks set to remain an important driver of good forest management for the next 15 years.

## Endnotes

1. In this introduction, we use the word “certification” to describe the implementation of forest management practices that are consistent with and certified against one of the recognized forest management standards. It is acknowledged that forest certification is a procedure to provide assurance of conformance to a certain quality, and can also be seen as a marketing instrument.
2. FSC (2009); van Kuijk, Putz and Zagt (2009); Newsom (2009); and Peña-Claros, Blommerde and Bongers (2009) discuss forest certification impacts from a variety of perspectives. There are several books on forest certification (e.g., Viana et al. 1996; Vogt et al. 2000; Nussbaum and Simula 2005); in addition, Auld, Gulbrandsen and McDermott (2008) provide a thorough overview of the development and impacts of forest certification schemes.
3. Understandably, respondents who held this opinion were much more critical about impacts than others; 36% thought that losses tended to be too high and avoidable (compared to 14% of the remaining respondents), and relatively few (39%) found that losses were insignificant or acceptable, versus 62% of other respondents.
4. In the survey, 36% disagreed or disagreed strongly that certification had an effect on deforestation rates, and only 31% agreed. See Auld, Gulbrandsen and McDermott (2008) for a discussion.
5. They scored 3.91–4.11 on a scale of 1 to 5 of increasing effectiveness for biodiversity conservation.
6. This includes the cases of great apes and other wildlife in Republic of Congo (Poulsen and Clark 3.1; van Kreveld and Roerhorst 4.3); orangutans in Borneo (Bleaney 3.3 and van Kreveld and Roerhorst 4.3); birds and herpetofauna in Bolivia and forest remnants in Brazil (Price 4.1).
7. These scored 4.07 (inadequate baseline information, ranked 1); 4.04 (inadequate resources invested, ranked 2); and 3.91 (poor implementation quality, ranked 3) on a scale from 1 to 5.
8. These scored 3.38 and 3.45, respectively, on the same scale (ranked 13 and 15 out of 15 potential problems).
9. Ideally, according to respondents, experts should be most important in setting biodiversity conservation objectives (score 4.34 on a scale of importance of 1 to 5), followed by local people (4.19) and local NGOs (3.88). In practice, the order is local people (4.24) and experts (4.23) followed by local NGOs (3.96). Both in practice and in theory, timber consumers rank lowest by far in determining biodiversity objectives (2.97–3.37) among 10 identified stakeholder groups.

## References

- Auld, G., L.H. Gulbrandsen and C.L. McDermott. 2008. “Certification schemes and the impacts on forests and forestry.” *Annual Review of Environment and Resources* 33: 187–211.
- Blackman, A. and J. Rivera. 2010. *The evidence base for environmental and socioeconomic impacts of “sustainable” certification*. RF Discussion Paper 10-17 Washington: Resources for the Future. [www.rff.org/documents/RFF-DP-10-17.pdf](http://www.rff.org/documents/RFF-DP-10-17.pdf).
- Chen, J., J.L. Innes and A. Tikina. 2010. “Private cost-benefits of voluntary forest product certification.” *International Forestry Review* 12: 1–12.
- Durst, P.B., P.J. McKenzie, C.L. Brown and S. Appanah. 2006. “Challenges facing certification and eco-labelling of forest products in developing countries.” *International Forestry Review* 8: 193–200.
- FAO (Food and Agriculture Organization of the United Nations). 2009. *State of the World's Forests 2009*. Rome: FAO.
- FSC (Forest Stewardship Council). 2010. *FSC monitoring and evaluation program*. [www.fsc.org/meprogram.html](http://www.fsc.org/meprogram.html), accessed July 18, 2010.

- FSC (Forest Stewardship Council). 2009. *FSC reflected in scientific and professional literature. Literature study on the outcomes and impacts of FSC certification*. FSC Policy Series No. 2009 - P001. Bonn: FSC International Center, 245 pp. [www.fsc.org/fileadmin/web-data/public/document\\_center/publications/FSC\\_Policy\\_Series/Impacts\\_report\\_-\\_Karmann\\_2009.pdf](http://www.fsc.org/fileadmin/web-data/public/document_center/publications/FSC_Policy_Series/Impacts_report_-_Karmann_2009.pdf).
- ITTO (International Tropical Timber Organization). 2008. *Developing forest certification: towards increasing comparability and acceptance of forest certification systems worldwide*. ITTO Technical Series No. 29. Yokohama: International Tropical Timber Organization.
- Lindenmayer, D.B., P.J. Burton and J.F. Franklin. 2008. *Salvage Logging and its Ecological Consequences*. Washington, D.C: Island Press, 227 pp.
- Newsom, D. 2009. *Rainforest Alliance Global Indicators: First Results from the Forestry Program. Final Report, Evaluation and Research Program*. [www.rainforest-alliance.org/resources/documents/forestry\\_global\\_indicators.pdf](http://www.rainforest-alliance.org/resources/documents/forestry_global_indicators.pdf).
- Newton, A.C. 2008. "Conservation of tree species through sustainable use: how can it be achieved in practice?" *Oryx* 42: 195–205.
- Nussbaum, R. and M. Simula. 2005. *The Forest Certification Handbook*. London: Earthscan.
- Paquette, A. and C. Messier. 2010. "The role of plantations in managing the world's forests in the Anthropocene." *Frontiers in Ecology and the Environment* 8: 27–34.
- PEFC (Programme for the Endorsement of Forest Certification schemes). 2010. *Biodiversity*. [www.pefc.org/forest-issues/sustainability/biodiversity](http://www.pefc.org/forest-issues/sustainability/biodiversity), accessed July 18, 2010.
- Peña-Claros, M., S. Blommerde and F. Bongers. 2009. *Assessing the progress made: an evaluation of forest management certification in the tropics*. Tropical Resource Management Papers 95. Wageningen: Wageningen University, 72 pp. [www.fem.wur.nl/UK/Publications/books/book\\_pena/](http://www.fem.wur.nl/UK/Publications/books/book_pena/).
- Shanley, P., A.R. Pierce, S.A. Laird and A. Guillen (eds.). 2002. *Tapping the green market: certification and management of non-timber forest products*. London: Earthscan, 480 pp.
- Sunderlin, W.S., J. Hatcher and M. Liddle. 2008. *From Exclusion to Ownership? Challenges and Opportunities in Advancing Forest Tenure Reform*. Washington D.C: Rights and Resources Initiative. [www.rightsandresources.org/publication\\_details.php?publicationID=736](http://www.rightsandresources.org/publication_details.php?publicationID=736).
- van Kuijk, M., F.E. Putz and R.J. Zagt. 2009. *Effects of forest certification on biodiversity*. Wageningen: Tropenbos International, 94 pp. [www.tropenbos.org/images/Tropenbos/publications\\_TBI/forest\\_certification/forest\\_certification\\_and\\_biodiversity.pdf](http://www.tropenbos.org/images/Tropenbos/publications_TBI/forest_certification/forest_certification_and_biodiversity.pdf).
- Viana, V.M., J. Ervin, R.Z. Donovan, C. Elliot and H. Gholz. 1996. *Certification of Forest Products: Issues and Perspectives*. Washington, D.C: Island Press, 261 pp.
- Vogt, K.A., B.C. Larson, J.C. Gordon, D.J. Vogt and A. Fanzeres. 2000. *Forest Certification: Roots, Issues, Challenges and Benefits*. Boca Raton: CRC Press, 374 pp.

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