



3.6 Certification, concessions and biodiversity in the Brazilian Amazon

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Can a market-based approach be wed to a large-scale government initiative?

In 2006 Brazil committed to a new strategy of forest conservation and rural economic development in the Brazilian Amazon by enacting a public forests law. The legislation seeks to bring order to Amazonian forests through land zoning and titling across large areas, including the creation of forest management concessions for industrial timber production. Government regulation is intended to guarantee minimum standards of forest management on concessions through implementation of reduced-impact logging (RIL) and compliance with contract terms. Financial incentives will encourage adoption of forest certification in order to further improve management practices. As 11–13 million hectares (ha) are expected to be granted during the first ten years of the initiative, certification could play a key role in achieving sustainability objectives on public lands. Implementation has proceeded more slowly than expected: four concessions totaling 145,000 ha have been allocated as of June 2010, but harvests have yet to begin due to the complex administrative procedures required.



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Setting out to transform the Amazonian timber industry is a bold gamble that legal timber supplies can overwhelm and eliminate illegal logging. The stakes are high for the certification movement and for certification's potential contributions to biodiversity conservation across the Amazon Basin. The total forest management area certified in Brazilian Amazonia has stagnated in recent years (Figure 1a), despite the fact that Forest Stewardship Council (FSC)-certified production forests globally expanded from 74 to 133 million ha from 2006 to 2010 (FSC 2010). This stagnation also applies to certification;

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despite expansive standards and indicators that establish biodiversity conservation as the primary goal of certified logging operations, certification has thus far focused almost exclusively on adoption and minimal implementation of RIL and improving working conditions and respect for local communities.

We argue that the Brazilian government's heightened regulatory role in forest concessions makes it imperative that certification evolve and adapt to new conditions on the ground, especially in the case of the large-scale logging operations that are likely to take place in future concessions. Only by so doing can certification actively contribute to improved forest management practices and conservation at the scale of the Amazon Basin.

Figure 1a and b. Certified area and number of operations, Brazilian Amazon, 1997–2008

Figure 1a. Certified area (hectares)

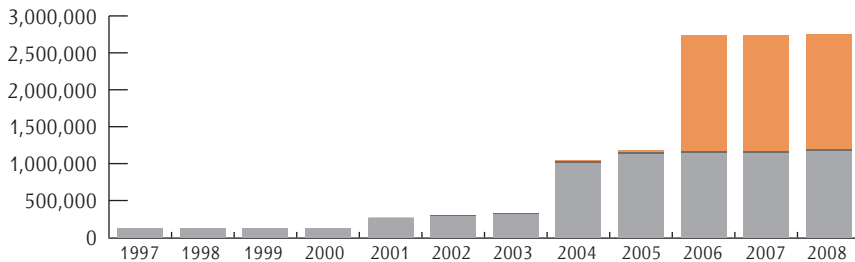
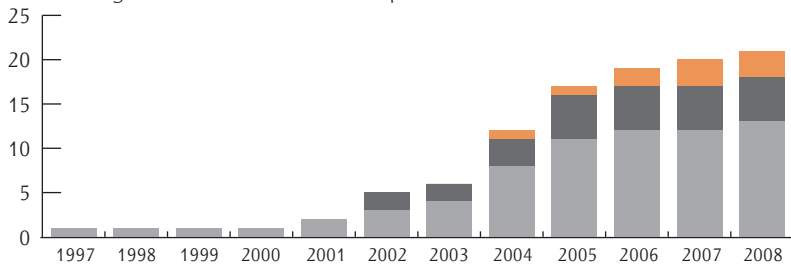


Figure 1b. Number of certified operations



■ FM for NTFPs (communities) ■ FM for timber (communities) ■ FM for NTFPs (companies)

This article identifies key issues that must be addressed for certification within the context of public forest concessions to remain relevant in Brazil. This discussion does not address certification in community forests, as community forestry issues lie beyond our direct expertise. We advocate the development and implementation of relatively simple, clearly defined indicators that rely on easily measurable verifiers, which in turn focus on logging practices that will lead to the most significant biodiversity impacts.

The Brazilian Amazon

As of June 2010, 22 companies and communities were certified by the FSC in the Brazilian Amazon (Figure 1b). Many economic and institutional factors contribute to the relatively low growth of certification in recent years, and it is important to see these numbers in the context of logging trends. The most recent data indicate current timber production from the Brazilian Amazon to be around 14 m³ annually, the lowest level since the late 1980s (IMAZON 2010). Although the global economic downturn of recent years has certainly eased the demand for timber, the increased effectiveness of government enforcement has also significantly reduced illegal timber supplies. This reduction has not been counterbalanced by an equivalent increase in legal timber production, primarily because of the lack of legally titled land. (The complicated and chaotic land-tenure situation in much of the Brazilian Amazon is beyond the scope of this article, but see Barreto et al. (2008) for review and analysis.)

FSC Principles and Criteria (P&C) adapted to forest management in natural Amazonian forests have not been updated since 2002 in spite of the fact that they are supposed to be reviewed and revised every five years. Of particular concern are those P&C that address ecological issues such as regeneration challenges associated with many high-value timber species, and the inevitable post-harvest stand-level changes that reduce the capacity of forests to support biodiversity. A clear consensus on trade-offs between sustained timber production and biodiversity conservation has yet to be reached among the many interests that influence the certification movement.

In collaboration with the Brazilian Forest Service (BFS), the Brazilian National Institute of Metrology, Standardization, and Industrial Quality (INMETRO) is developing standards for auditing compliance with federal and state forest management regulations and with contract terms in public forest concessions. INMETRO is also coordinating the development of a national certification scheme called Cerflor, which is affiliated with the Programme for Endorsement of Forest Certification Schemes (PEFC). Under the initiative, certified companies on concessions will likely receive better access to credit and face fewer challenges in obtaining certification on private lands. Company-community conflicts, which have been a source of difficulty in obtaining certification in the basin, should be reduced, if not eliminated, within public forests. From the perspective of biodiversity conservation, however, it is desirable that FSC certification remain an attractive option for forest management on concessions, since FSC will probably be the only framework with P&C that specifically addresses the issue.

Conclusions and recommendations

Benefits of good logging practices

Although biodiversity conservation should factor into management decisions, it is important to acknowledge that forest management for economic production requires accepting trade-offs between natural conditions and the increasing “domestication” (favouring marketable species over others) that timber production inevitably yields (de Graaf 2000). Thus far, RIL — broadly defined to include improved infrastructure design

and implementation, harvest planning and production, and protection of riparian buffers and high conservation value areas — has been the certification movement's operational response to this dilemma. The use of RIL is an attempt to mitigate the worst impacts of conventional logging. The short-term benefits of RIL are dramatic compared to conventional or predatory logging, which economically depletes stands in the best case but often results in complete forest loss. Collateral damages are mitigated under RIL operations, leaving forest stands with better prospects for future production and increasing the likelihood that they will survive.

Even the best RIL operations entail measurable impacts on biodiversity relative to a forest's "natural" state (i.e., in comparison to strict forest reserves). These impacts will vary according to the intensity of logging, the taxa and the temporal scale of observation (see Putz et al. 2000). But public forests that represent future certification opportunities in Brazilian Amazonia are not likely to supplant actual or potential forest reserves. Rather, they will be part of a regional mosaic that includes a relatively high percentage (as compared to the United States, for example) of parks and other protected areas.

Given the multiple and sometimes conflicting objectives of certification, at what point does the impact on biodiversity from forest management aimed at sustaining economic productivity reach an unacceptable level? Trade-offs include weighing the immediate stand-level impact of a silviculture treatment against the likelihood that it will improve sustainability and forest persistence over time. Many silvicultural interventions promote sustained yield, including liberation thinning, well-planned creation of large canopy openings for high-value, late-successional species and enrichment planting of nursery-grown seedlings into logging gaps. Yet all interventions have negative local impacts on biodiversity, although these will vary with the intensity and extent of the treatment. For example, liberation thinning has been shown to increase the growth of residual crop trees, potentially reducing the length of the cutting cycle for a given harvest volume (Peña-Claros et al. 2008; Wadsworth and Zweede 2006). Thinning also explicitly selects against the component of tree diversity that lacks economic value.

Sound management should not deplete populations of high-value timber species, as has occurred with big-leaf mahogany and is occurring with ipê (Grogan et al. 2008; Schulze et al. 2008), and relatively low-impact silviculture treatments (e.g., gap enrichment planting) to maintain these species should be required of any industrial operation that harvests them. This approach is consistent with the intent of Brazilian standards (Principle 6, Criterion 3, Indicator 2; FSC 2002) and would represent a major improvement in current practice. Moreover, high-value emergent species are themselves important components of biodiversity; they influence structure and dynamics and provide food and habitat for other species. We do not advocate indiscriminate use of more intensive treatments such as liberation thinning, although in some cases the benefits of improved sustainability —for forest persisting as forest — might clearly outweigh localized impacts on biodiversity. There are many examples of an overemphasis on sustained yield leading to forest conversion to single-species plantations, and yet the rationale for using forest management as a conservation tool hinges on maintaining economic value over long periods in order for the forest

to continue to provide a broad range of ecosystem goods and services even as timber benefits are sustained (Pearce, Putz and Vanclay 2003).

Auditing

Auditor training and turnover are major constraints to forest management in the Brazilian Amazon. Although the forest engineers who typically serve as auditors in Brazil generally have ecology and agroforestry backgrounds, they are often unable to evaluate the quality and environmental impacts of logging operations as they relate to FSC Principle 6. Audits are expensive in remote environments, and auditors typically have only two days to a week in the field to collect data. The size of a given production site affects audit quality; a single auditor may be responsible for a small operation and teams of three to four auditors may review larger operations. Some auditors have no training in biodiversity conservation; others may selectively ignore biodiversity indicators (see Table 1 in Schulze, Grogan and Vidal 2008).

Almost as problematic, some auditors spend too much of their limited time evaluating indicators that are laborious to measure and associated only with minor forest impacts, stealing time from indicators related to more severe forest degradation. For example, we often observe auditors who are overly concerned about relatively minor issues such as tree stump height, width of forest roads or size of log loading patios, rather than more fundamental environmental management issues that have a far greater impact.

In our experience, certifiers and certification systems over-emphasize all-encompassing generalities about every conceivable impact of forest management and under-emphasize concrete auditing practices that ensure a consistent minimum standard of quality. Is biodiversity conservation better served if a company is requested to have a pollinator monitoring program (see review by Schulze, Grogan and Vidal 2008) or if directional felling is applied consistently across its management units? We strongly suggest the latter because the outcome is active and observable rather than implied.



We must acknowledge the real world trade-offs between evaluating management practices thoroughly versus glancing at a multitude of potential secondary indicators of impacts. Auditors cannot answer all questions about logging impacts on biodiversity in a few days, but with focused guidelines they can gather enough field data to consistently evaluate the quality of harvest operations across a given management area and assess whether management practices will achieve sustainability goals. For some indicator wildlife species, rapid assessment techniques might be useful in audits to detect population changes over time. However, in the context of large-scale industrial logging in public forest concessions, biodiversity conservation must largely be evaluated through inference by asking: are logging practices planned, professionally executed and adaptive? If so, then a framework for the best that can be done for biodiversity conservation may already be in place; it may be the auditing that needs to improve.

Monitoring

Biological monitoring, ranging from permanent growth and yield plots to more elaborate biodiversity programmes, is typically required for certification (see Schulze, Grogan and Vidal 2008 for a detailed discussion of the wide variation in specific auditor requests for monitoring). The fact remains, however, that logging companies operating in good faith generally do not know how to implement monitoring or how to incorporate the lessons learned from it in planning and production processes. Most monitoring efforts are poorly designed and generate problematic data. Expertise to guide the design, collection and analysis of growth and yield monitoring exists, but financial resources for training and rigorous auditing do not. For more exotic monitoring programs, it is not clear that we even know how to directly relate data to auditing conclusions. Unless certifiers can find an efficient and effective way to audit and improve the monitoring process, this information is not cost-effective in the context of certification. The current state of monitoring creates a veneer of rigour where none exists.

Next steps

In the Brazilian Amazon, the most realistic and effective biodiversity conservation measures may be those that create incentives for certified companies to implement harvest and post-harvest silviculture according to current best practices. Simpler, more easily observed and enforceable metrics would be cheaper for a company to abide by and an auditor to evaluate, thereby providing a powerful tool for improving environmental performance.

It is also crucial to reinforce the technical capacity of independent auditors and certifiers. We will not adequately meet the challenges discussed in this article without significant investment in training of auditors and related forestry professionals. A portion of the existing funds for promoting adoption of sound forest management practices in Amazonia should be allocated to increasing technical capacity in the forest certification sector.

Although many organizations promote certified timber within Brazil, the bulk of certified timber is exported. Meanwhile, the majority of Amazonian timber is delivered to construction markets in major Brazilian cities. Given the shortage of certified timber, there is little supply for these organizations to promote domestically. If public forest concessions and certification can be successfully wed, the supply of certified timber in the domestic market could be gradually increased. This increase could also lead to stronger market pressures on producers to manage forests sustainably, leading to the virtuous cycle envisioned by certification supporters.

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