

22 June 2011

Discussion Paper on FSC Criteria 6.9, 6.10

*Building on the FSC Plantations Review Recommendations -
A Joint Restoration and Biodiversity Offsets Approach*

Prepared for: Forest Stewardship Council





**A new plantation in a mosaic with natural forest in Sabah, Malaysia -
under existing criteria this area is not FSC-certifiable**

Contact

Darius Sarshar
Director,
New Forests Asia Sdn Bhd
L-70-7, KK Times Square
Kota Kinabalu 88100
Sabah, Malaysia
+60 (0)88 486 244
dsarshar@newforests.com.au
www.newforests.com.au

CONTENTS

Executive Summary	4
About New Forests	5
Introduction	5
FSC Conversion Policy - A Brief History	6
Existing FSC Criteria on Conversion.....	7
The Forest Industry in Asia	8
Barriers to FSC Certification in Asia - the Case of Sabah.....	10
A Combined Restoration and Biodiversity Offsets Approach to Conversion	12
Biodiversity Offset Design Process.....	18
Proposed Revisions to Criteria 6.9 and 6.10.....	20
Conclusion	21

APPENDICES

Appendix 1 - Business and Biodiversity Offset Program.....	22
Appendix 2 - The Malua Wildlife Habitat Conservation Bank.....	23

Executive Summary

In the forest-rich countries of tropical Asia, the forest industry is undergoing a transition away from logging of natural forests to a plantation resource base as natural forest log production declines rapidly, and there is a growing timber supply deficit in the region. Sabah, Malaysia, where the FSC General Assembly will be held this month, provides an illustrative example of this transition. Existing FSC certification requirements prohibit the conversion of significant areas of natural forest to timber or fibre plantations unless there is a change of ownership. The result is that FSC is struggling to retain its relevance in tropical Asia and its ability to influence this conversion process and subsequent plantation management. In Sabah, despite a government mandate to long-term forest concession license holders to achieve FSC certification by 2014, almost all of the 2.5 million hectares of forest that these license holders manage will be ineligible for FSC certification.

In response to stakeholder concerns, FSC has recognised the need to revisit the conversion requirements. A Plantations Review was undertaken in two phases starting in 2004 and ending in 2009. The recommendation of the technical working group reviewing the conversion requirements was that reform was needed and that plantation owners and managers should be required to restore areas converted from natural forest in order to qualify for certification. This recommendation had a number of pros and cons but was ultimately not endorsed by the FSC Board of Directors. In 2011 FSC is undertaking a revision of the Principles and Criteria (P&C), which offers an excellent opportunity for consideration of the conversion criteria.

In this paper we propose that a new approach is explored. Restoration of plantation areas back to natural forest would in many cases result in plantation owners and managers incurring prohibitively high direct and opportunity costs of restoration, and experience suggests that such restoration is likely to take decades and restored areas are highly unlikely to regain ecological viability. This new approach combines the restoration obligation recommended by the technical working group, which would be retained for riparian reserves, steep slopes or areas of high conservation value for their watershed protection function, with a new biodiversity offset obligation for areas of biological high conservation value that can be met by purchasing offset credits from a series of FSC-certified conservation banks across the region. Conservation banks are long-term biodiversity offset projects that restore, protect and enhance the high conservation values of degraded or threatened natural forest areas and incorporate a permanent, non-wasting endowment fund that provides sustainable long-term financing. Such areas already retain significant levels of ecological viability as well as expert conservation managers and so help make restoration and conservation significantly more cost-effective. Monitoring and accountability levels are also higher as offset credit production can be directly linked to verified conservation works on the ground.

Biodiversity offsets and conservation banks are well established as a legal requirement in the USA, where the market for offset credits has a value of in excess of US \$3 billion per annum. In addition, the Business and Biodiversity Offsets Programme (BBOP) of international NGO Forest Trends have developed a large body of methodologies, guidance materials and a series of pilot projects worldwide. BBOP have also published a set of Principles to guide best practice in biodiversity offset design. We outline some of the key methodological approaches that could be used by FSC in this paper. New Forests has established the first tropical conservation bank, the Malua Wildlife Habitat Conservation Bank, in Sabah, based on the US model that it is offering as a potential pilot site for assisting FSC in evaluating and testing the new approach. Malua Wildlife Habitat Conservation bank achieved full FSC forest management certification in June 2011.

If introduced, the changes to the FSC P&C proposed in this paper would enable significant expansion of certified plantation and natural forest area in tropical Asia whilst at the same time ensuring there is "no net loss" of high conservation values by securing significant new and additional funding from plantation managers for cost-effective restoration and conservation of high conservation values in conservation banks across the region. The proposed approach would also remove the "ownership loophole" in current requirements as the restoration and offset obligations would be associated with the land and trees, rather than with the owner or manager.

This paper is a discussion document and we hope it stimulates a fruitful cross-chamber discussion that leads to a positive outcome for tropical Asian forests.

About New Forests

New Forests manages investments in sustainable forestry and associated environmental markets, such as carbon, biodiversity and water, for institutional and private equity clients. The company is committed to responsible investment – integrating social, environmental and governance considerations into investment decision making – and to sustainable land management practices that positively contribute to the natural environment and community livelihoods. New Forests is a signatory of the UN's Principles of Responsible Investment¹ and a member of the FSC Economic (South) Chamber. The company currently has over US\$ 1 billion of assets under management and is headquartered in Sydney, Australia, with offices in San Francisco and Kota Kinabalu, Malaysia.

Introduction

A full review of the Forest Stewardship Council (FSC) Principles and Criteria is currently underway and this provides the opportunity to revisit unresolved concerns raised by stakeholders during previous policy development processes. The vote on the final draft of the Principles and Criteria is scheduled to take place in November 2011.

The FSC Principles & Criteria Version 5-0 Draft 4-0 that is currently undergoing consultation includes Criteria 6.9 (revised) and 6.10 (revised) on natural forest conversion to plantations. As these requirements currently stand, they will act as a significant barrier to certification of both natural forest and plantations across tropical Asia, including in Sabah, Malaysia. In this paper we highlight the situation in Sabah as a case study in the challenges of implementing Criteria 6.9 and 6.10 and examine the option of combining biodiversity offset purchases from FSC-certified conservation banks² (based on the US mitigation banking model), with the restoration approach proposed by the technical working group (expert group D) that concluded its work in 2009. We believe a combined restoration/offsets approach could deliver a comprehensive "no net loss" solution to the conversion challenge, that:

1) enables the significant expansion of FSC certification in both natural and plantation forests in Sabah as well as other parts of tropical Asia;

¹ www.unpri.org

² A conservation bank is a project to restore, protect or enhance high conservation values in an area of natural vegetation (e.g., forest), wetland or water body that is undertaken to sell offsets that developers buy to compensate for unavoidable environmental impacts elsewhere. In the US there are endangered species banks, but the most developed are wetland mitigation banks. In New South Wales, Australia conservation banks are called biobanks.

- 2) ensures FSC is able to influence the conversion process expanding across tropical Asia and avoids becoming a niche certification system rather than one that is truly transformative of industry practices;
- 3) provides an incentive to progressive companies that seek to establish and manage plantations responsibly whilst at the same time penalizing conversion of natural forests and deterring future conversion;
- 4) demonstrably reduces the pressure on remaining natural forests through channelling funding to conservation banks to deliver clear, measurable, significant and additional net conservation benefits through the restoration and protection of natural forest High Conservation Values; and,
- 5) eliminates the "ownership loophole" present in the existing Principles & Criteria, by ensuring the restoration/offset liability is associated with the land, not the owner.

At the FSC's General Assembly in June, Sabah Forestry Department will host a side event "Forest Certification towards 2014 in Sabah – conversion and offsets". This paper has been prepared for distribution at that meeting.

FSC Conversion Policy - A Brief History

In 2008, FSC convened a technical working group (Expert Team D) to examine the issues relating to the FSC policy towards "conversion" of natural forests to plantations that had not been resolved by the policy phase of the FSC Plantations Review during 2004-2007.³ Expert Team D was specifically charged with studying the cut-off date of November 1994, after which the FSC would normally not certify areas of forest management units which have been converted from natural forest to plantations (Criterion 10.9 in the FSC Principles and Criteria – P&C). Expert Team D was also tasked with making recommendations for conversion of non-forest natural ecosystems, and for revised Criteria for the P&C in respect of these issues.

Amongst the issues that the working group examined were concerns raised by stakeholders, including:

- i) The conversion prohibition discriminates against southern and tropical regions that have yet to convert natural forest to plantations and favours developed countries, most of which have converted their forests prior to 1994.
- ii) Progressive companies that seek to establish and manage plantations responsibly but have converted or are planning to convert after 1994 are excluded from becoming FSC certified by the cut-off date.
- iii) The cut-off date fails to provide an incentive for good forest management and precludes FSC from influencing such conversions in a positive way (especially in developing countries).
- iv) The current policy permits certification of Forest Management Units (FMUs) that have been converted from natural forests to plantations after November 1994 if there is a change of ownership (the "ownership loophole").

³ See http://www.fsc.org/fileadmin/web-data/public/document_center/Current_consultations/FSC-DIS-30-005_V1-0_Conversion_Policy_Final_Report.pdf.

v) Conversion to plantations must demonstrably reduce pressure on natural forests.

The technical working group completed its review in 2009 and identified options for how to deal with organizations responsible for what they termed “downward” conversion (i.e. clearance of natural forest and other forms of native vegetation with loss of biodiversity and ecosystem services) that occurred after the November 1994 conversion cut-off date and before the application for FSC certification. The Review recommended that such organizations be required to begin a restoration process (that the review called “upwards conversion”) prior to applying for certification.

The Review (under Option 2D) proposed that applicants for FSC certification should be required to undertake restoration of converted areas, with the nature of the restoration obligation determined according to the type and area of forest converted, the area to be restored, the rate of restoration and the quality of restoration. The review identified that the proposal would require a great deal of information about the state of the forest at the time of conversion and the process of conversion. Recognizing that this may not be practical in all cases, a sliding scale was also proposed. The scale for restoration proposed was a 1:1 ratio for most recent conversion, decreasing for areas of older conversion. In addition, the panel suggested that very rapid or large scale conversion would also imply a higher restoration ratio. A consultation process was recommended for the development of restoration ratios (which the review called a “Tariff Matrix”). However, the policy development process did not progress beyond this point.

Experience suggests that in some FMUs restoration or “upwards conversion” may in fact be difficult to achieve in a reasonable time frame, be prohibitively costly and ultimately fail to achieve satisfactory levels of ecologically viability or “no net loss” of biodiversity and ecosystem function. In addition, the solution proposed did not address the challenge of ensuring conversion to plantations demonstrably reduced pressure on the remaining natural forests.

Existing FSC Criteria on Conversion

In the revised draft FSC Principles & Criteria D4-0 v5.0 Criteria 6.9 (revised) and 6.10 (revised) both deal with the issue of natural forest conversion. They state that:

6.9

“The Organisation shall not convert natural forest to plantations nor natural forests or plantations to any other land use except when the conversion

- a) affects a very limited portion of the area of the Management Unit, and*
- b) will produce clear, substantial, additional, secure long term conservation benefits in the Management Unit, and*
- c) does not occur in or threaten HCVs, nor any sites necessary to maintain or enhance HCVs.”*

6.10

Management Units containing plantations that were established on areas converted from natural forest after November 1994 shall not qualify for certification, except where

- a) clear and sufficient evidence is provided that The Organisation was not directly or indirectly responsible for the conversion or*

- b) *the conversion affected a very limited portion of the area of the Management Unit and is producing clear, substantial, additional, secure long term conservation benefits in the Management Unit.*

The Forest Industry in Asia

There is already a large and growing demand for timber products within Asia both for domestic use and for re-export to other markets. Demand continues to grow due to the expansion of regional economies, most notably China and India. In fact China and India have offset a reduction in demand from Japan and Korea and now rival or exceed the past market peaks of those countries. Other regional markets such as Vietnam, Malaysia, Taiwan, Thailand and Indonesia also play an important role in trade within the region.

An analysis of the remaining natural forest resources of Southeast Asia shows that, based on current trends, future timber production will continue to decline from past levels. The fundamental reasons for this are:

1. The natural forest resource base has been and is still being eroded through conversion to other land uses, particularly agriculture; and
2. The accessible forests that remain have typically been logged at unsustainable levels for the more valuable species.

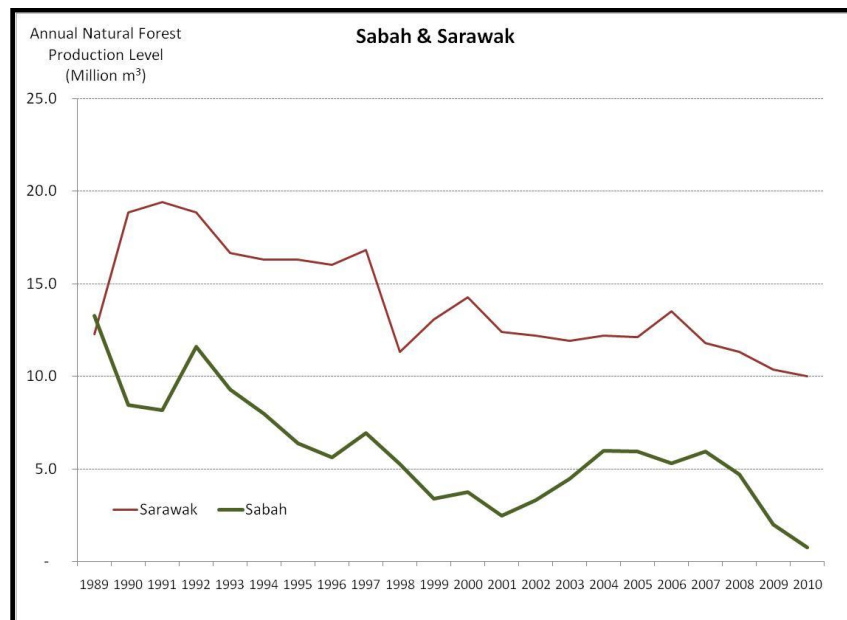


Figure 1: Declining log production from natural forests in Sabah and Sarawak
Source: Malaysia Timber Council and personal communication with Yayasan Sabah.

While timber royalties were low and short-term returns from natural forest logging operations were high, there was little or no incentive to establish long-term timber supply from plantations. This is now leading to the emergence of a supply shortfall in the face of rising timber demand.

While there has been considerable investment in plantation forestry in some parts of Asia by both the private and public sectors, investment to date has not created a resource base sufficient to substitute for the declining supply of many timbers from natural forests. In fact, all the large-scale timber plantation forests in the region have primarily been geared toward intensive short rotation crops, such as *Acacia mangium* (acacia), as a fibre resource for wood pulp production. The majority of the commercial forest plantations established to date have typically not been managed for higher value end product uses, such as durable construction, appearance grade veneer/plywood, internal decorative finishing and furniture. Investment into longer rotation, higher quality timber plantations, which could substitute for natural forest species, has been limited until recently. However, investors are beginning to seek opportunities in this region based on the recognition that there is significant land available, strong government support and technical capacity to grow plantation species like rubberwood, teak, eucalyptus and larger, longer rotation acacia at a commercial scale. There is also an expectation of rising real timber prices and of price premiums for certified timber.

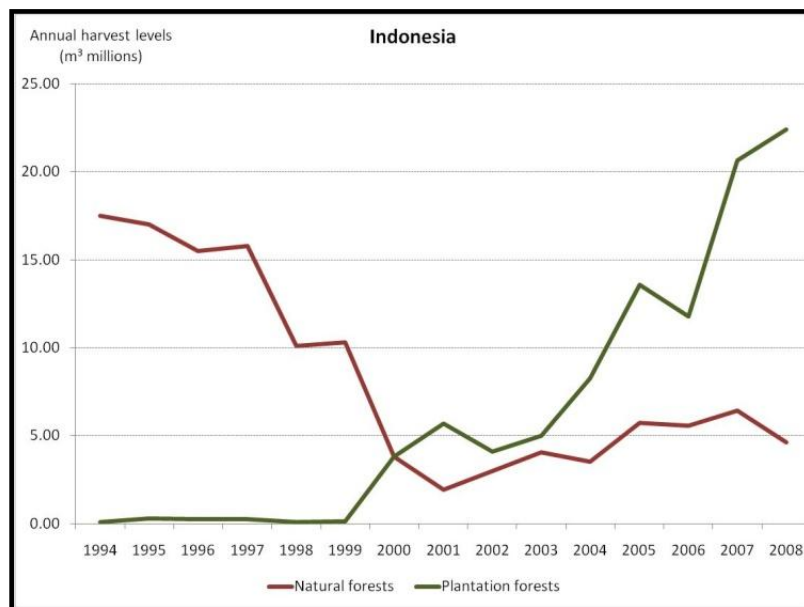


Figure 2: Declining log production from Indonesia's natural forests has now been exceeded by increases in plantation log production, mostly pulpwood for the pulp and paper industry.

Source: Indonesian Forestry Department Annual Report, 2008.

At the same time, Tropical Asia is widely regarded as one of the world's most imperiled biodiversity hotspots. Much of the region's rainforests have been logged or converted to agricultural uses such as oil palm plantations. The rate of timber extraction and deforestation in the region over the past decade has exceeded that of most other tropical regions. Indeed timber exports from Borneo alone surpass those from all of tropical Africa and Latin America combined.⁴

⁴ Daniel Cleary, Timothy Boyle, Titi Setyawati, Celina Anggraeni, Emiel Van Loon, and Steph Menken, "Bird Species and Traits Associated with Logged and Unlogged Forest in Borneo" *Ecological Applications*, vol. 17, no. 4, 2007, pp. 1184–1197.

In the region's economically accessible dipterocarp forests, virtually all of the large, marketable trees have been removed. Depending on market demand and other factors, most trees remaining after the first logging rotation are often harvested less than 20 years later, leaving behind a highly degraded forest. Such degraded forests exhibit a dramatically altered structure, with a low, open canopy and high density of climbing vines and bamboos in which forest recovery is patchy. Factors leading to difficulty in forest recovery include the heavy damage and water stress in large canopy gaps to sapling stage trees in the understorey; soil compaction; invasive weeds; higher levels of seed predation suppressing germination of seeds; and other anthropogenic threats such as fire, poaching and illegal logging that cause further degradation. The forests that remain after several rounds of logging are vulnerable to conversion to agriculture or timber plantations by large companies or small holders.

Despite this level of degradation, many of these forests retain significant biodiversity or high conservation values. For example, in Sabah the heavily degraded production forests are still home to over half of the state's critically endangered large mammal species populations such as the orangutan, pygmy elephant, Sumatran rhino and tembadau (wild oxen). However, with little or no commercial value—and increasing pressure on the state government to generate revenue from degraded forestry estates to compensate for declining royalties from timber production—these forests are now highly vulnerable to conversion to other uses. Economic migrants seeking new land for smallholder agricultural development add additional pressure. In light of the transition that is underway in the wood products industry in tropical Asia away from natural forest logging towards plantation management in order to meet the wood supply deficit in the region, a key challenge for FSC is to ensure its continued relevance and ability to incentivise responsible forest management and the protection and enhancement of High Conservation Values.

Barriers to FSC Certification in Asia - the Case of Sabah

The following provides a brief overview of the forest industry in Sabah, highlighting the industry's transition to plantation-grown timber, as a case study on the challenges to FSC certification in tropical Asia.

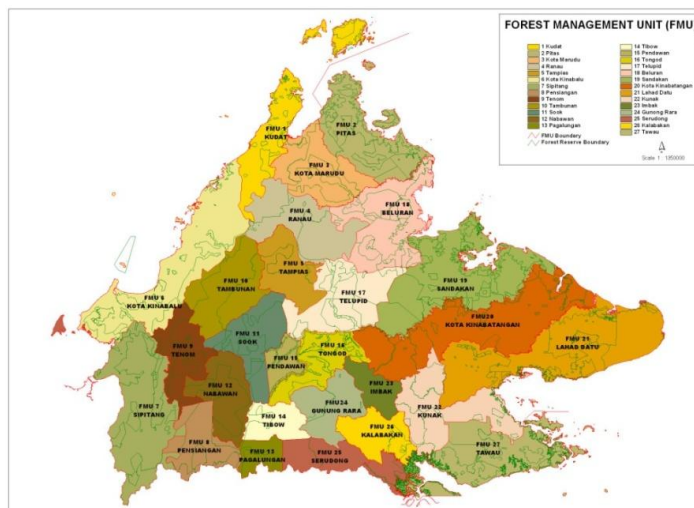


Figure 3: Map of FMUs in Sabah
Source: Sabah Forest Department

Below we outline some key facts and figures on forestry in Sabah:

- Sabah's permanent forest estate is divided into 27 FMUs within which 100-year Sustainable Forest Management License Agreements (SFMLAs) were issued over approximately 2.5 million hectares in 1997.
- Most of the licensed SFMLAs cover both areas designated for selective harvesting under a Reduced Impact Logging regime (Natural Forest Management or NFM areas), and areas designated for conversion to timber plantations (Industrial Tree Plantation or ITP areas).
- The ITP designation is generally reserved for the most heavily degraded natural forest areas. Inclusion of ITP areas is essential to make SFMLAs economically viable and to meet growing timber demand within the region as the logged over NFM areas in most cases will not generate any significant commercial timber revenues over the next two to three decades before the next harvesting cycle.



Heavily degraded natural forest designated for ITP within a Sustainable Forest Management License Agreement area in Sabah

- Of the 26 SFMLAs issued, 62% (16) have more than 5% of their license area already under ITP (the FSC has set a cap of 5% for the proportion of an FMU that can be excised to enable certification on the remainder) and the SFD sets a limit of 20% of the total area of a FMU that can be designated ITP.
- Since 1997 more than 450,000 ha (336,541 ha net area) of logged over and degraded natural forest have been earmarked for conversion to plantations. As of December 2010, 96,883 ha of this had been converted to ITP.

The Sabah Forest Department is the regulatory authority responsible for ensuring license holders adhere to the terms and conditions of their SFMLAs. It has mandated all SFMLA holders to achieve certification of sustainable forest management by 2014, and there is a strong preference within the department for FSC certification.

However, very few SFMLA holders will be able to comply with Criteria 6.9 and 6.10 given the presence of significant ITP areas within the FMUs. As a result, FSC certification on most of the 2.5 million hectares of natural forest and plantation in Sabah is not possible, and SFD and industry will need to apply for certification under other schemes, notably the Malaysian Timber Certification Scheme (MTCS). As the Sabah forestry industry is typical of the forest industry in many other parts of tropical Asia, where a transition from logging degraded natural forests to a plantation resource is underway to meet the growing regional wood supply deficit, the Sabah example demonstrates a challenge that FSC faces in tropical Asia. If the status quo is maintained, the FSC risks losing relevance and applicability as industry trends and needs develop. The conversion of degraded natural forest areas to high yielding, fast growing plantations will proceed in many parts of tropical Asia, driven by the need to boost timber production to meet growing demand. For FSC to be able to materially influence this process, a revision of Criteria 6.9 and 6.10 will be essential.

A Combined Restoration and Biodiversity Offsets Approach to Conversion

Companies facing compliance issues with Criteria 6.9 and 6.10 should be incentivised to seek cost-effective upwards conversion opportunities. In many cases where natural forest has been cleared, restoration of riparian and steep land reserves is a necessary and worthwhile first step towards compliance with FSC requirements and may be the only way to compensate for impacts such as soil erosion and impairment of watershed protection functions. However, it will almost always not be ecologically feasible or cost effective to compensate all impacts fully through on-site actions, particularly for small forest owners and managers. Edwards *et al.* published data in Conservation Letters 2010⁵ indicating that forest fragments in oil palm plantations in Sabah had a 60-fold lower abundance of threatened bird species and a 1.8-fold lower abundance of all birds than larger areas of similar forest type and condition nearby, suggesting that restoration of natural forests and their associated biodiversity in a plantation landscape will often not be achievable, at least over meaningful timescales.

In such cases, offsets generated by conservation banks, if designed appropriately, can provide an invaluable mechanism for securing more ecologically superior and cost-effective long term conservation gains, that are clear, additional and permanent.

Many separate forest managers with compensation obligations under FSC standards could consolidate their compensation obligations on larger and more ecologically valuable sites through the purchase of offset credits from conservation banks located in different geographic regions. In addition to allowing forward-thinking forest managers to achieve certification, such a scheme would strengthen the objective of having certified plantations demonstrably alleviate pressure on natural forests, by directing restoration and conservation efforts to natural forests.

The joint restoration and compensatory conservation approach would enable forest managers to account for past downward conversion in a cost-effective manner. The approach would employ a similar restoration tariff as is suggested in the Review's proposal, but in addition to on-site restoration, equivalent areas could be either restored or conserved off-site through the purchase of conservation bank credits. New Forests envisions that under this scenario, a higher tariff could be applied to off-site mitigation activities and that conservation would

⁵ Edwards, D.P., Hodgson, J.A., Hamer, K.C., Mitchell, S.L., Ahmad, A.H., Cornell, S.J., Wilcove, D.S. (2010) Wildlife-friendly oil palm plantations fail to protect biodiversity effectively, Conservation Letters Volume 3, Issue 4, pages 236–242, August 2010

be limited to HCV areas. In theory, maintaining a lower tariff for on-site restoration would incentivise on-site actions first before forest managers sought to compensate for downward conversion via the purchase of credits from conservation banks.

The proposed system would require that the conservation banks themselves become FSC certified against a dedicated FSC standard for biodiversity offset projects for having achieved upwards conversion or ensuring effective conservation of the desired attributes (species biodiversity, habitat diversity, structural complexity of the vegetation, ecosystem functionality, economic productivity, and social significance) against real threats. A process for certifying such areas would be required and could be modeled on the existing FSC P&C as well as the principles and lessons learned from mitigation banking in the United States and the work of BBOP (see next section). Under the US system, impact mitigation can be accomplished (1) on-site by the developer, (2) by a government agency or (3) by a third-party entity that has restored or protected habitat for the express purpose of mitigating impacts to similar habitat in a given region (these third-party entities are known as mitigation or conservation banks). The first choice is akin to the already proposed Option 2D, which would allow forest managers to conduct upward conversion restoration on-site. The second mechanism (mitigation by a government agency) may be less feasible in the case of conversion restoration and difficult to implement across FSC's operations areas in many countries. The third choice aligns with our proposal: allowing credit purchases from off-site conservation banks undertaken expressly to conserve ecosystem values and mitigate the impacts of deforestation and forest degradation. Such conservation banks could offer a practical and efficient mechanism that could easily be incorporated into the FSC program. New Forests currently manages one such conservation bank, the Malua Wildlife Habitat Conservation Bank (www.maluabank.com), in Sabah, Malaysia, which was created in order to meet the demand for vital ecosystem restoration and conservation in sustainable supply chains and could be used to pilot test an FSC system. Malua Wildlife Habitat Conservation Bank achieved full FSC forest management certification in June 2011. More information on the project is provided in Appendix 2.

New Forests believes that a combined restoration and biodiversity offsets approach also addresses the conversion issues described in Annex 1 of the Review's report that were listed as only "Partly solved" or "Theoretically solved." Namely, this expanded approach ensures that "conversion to plantations...demonstrably reduce[s] pressure on natural forests" by supporting ongoing conservation of intact forest areas and/or restoration of degraded areas. The approach also theoretically solves the issue that "FSC must retain the 1994 cut-off date to prevent creation of new plantations from natural forests" given the same justification as provided by the Expert Team D, that "those planning to become certified might be discouraged from downwards conversion because this would require restoration." The proposed 2:1 ratio for HCV off-site mitigation is designed to deter clearing of HCV areas and natural forests for the purpose of plantation establishment; New Forests recognizes that a higher tariff ratio would constitute a stronger deterrent.

Biodiversity Offsets and Conservation Banking

Where conversion of natural forest to plantation has occurred, or is being considered, compensatory conservation (a form of biodiversity offset) provides a mechanism for maintaining or enhancing environmental values⁶.

There is a large body of standards and methodologies developed for compensatory conservation and biodiversity offset programs, and there are regulatory programs and voluntary private sector initiatives in place in many countries around the world. The Business and Biodiversity Offsets Programme (BBOP) of the international NGO Forest Trends, in conjunction with a large number of private sector, government and NGO stakeholders worldwide, has been at the forefront of biodiversity offset design work over the past five years and has developed a set of Principles of Biodiversity Offsets and a substantial body of detailed technical guidance materials.⁷ The BBOP Principles are attached as an appendix to this document.

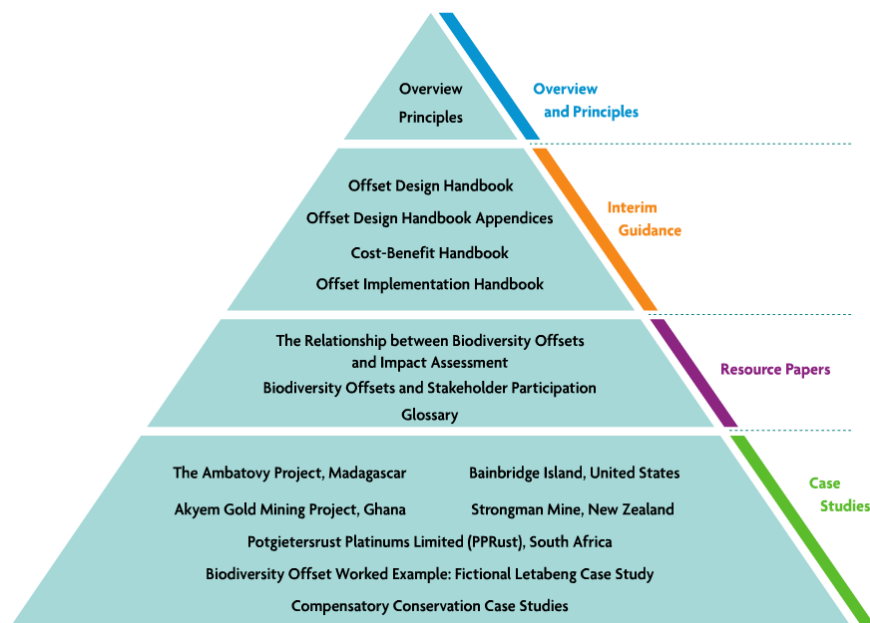


Figure 4: BBOP suite of guidance materials

Biodiversity offsets are defined by BBOP as measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity. BBOP also recognise in their Principles that there will often need to be a limit placed on what can be offset, for example, particularly vulnerable or irreplaceable high conservation values.

⁶ Kiesecker J.M, Copeland, H., Pocerwicz, A., & McKenney, B, (2009) Development by design: blending landscape-level planning with the conservation hierarchy. *Frontiers in Ecology and the Environment* doi:10.1890/090005

⁷ see www.forest-trends.org/biodiversityoffsetprogram

BBOP guidelines stipulate that each offset must demonstrate additional, measurable conservation outcomes. While appropriate offset activities will vary from site to site, a range of different land management interventions could typically be involved in biodiversity offsets, including:

- Strengthening ineffective protected areas through improved protection against poachers or replanting degraded areas with native species and/or removing invasive alien species.
- Safeguarding unprotected areas where there is a clear threat of deforestation or degradation.
- Addressing underlying causes of biodiversity loss, for example by working with communities to support sustainable livelihoods, such that unsustainable activities (currently depleting biodiversity – e.g. charcoal burning or crop plantation in forests) are stopped.
- Establishing corridors by identifying and securing the conservation management of land that provides biological corridors between protected areas.
- Establishing buffer zones, for instance, around a national park lacking a buffer zone.
- Securing migration paths.
- Removing grazing domestic animals from a biologically sensitive site which is being overgrazed.

Biodiversity offsets are not, however, a license to "destroy", but an option of last resort. The mitigation hierarchy is a key component of the BBOP Principles of Biodiversity Offsets, and the concept can be used to determine priorities and process when designing appropriate compensatory conservation measures and incorporates the following hierarchy of actions (with highest priority at the top):



Below is a diagrammatic representation of the mitigation hierarchy showing how the impact of a project (in this case conversion of natural forest) can be reduced through application of the mitigation hierarchy of mitigating and compensatory actions:

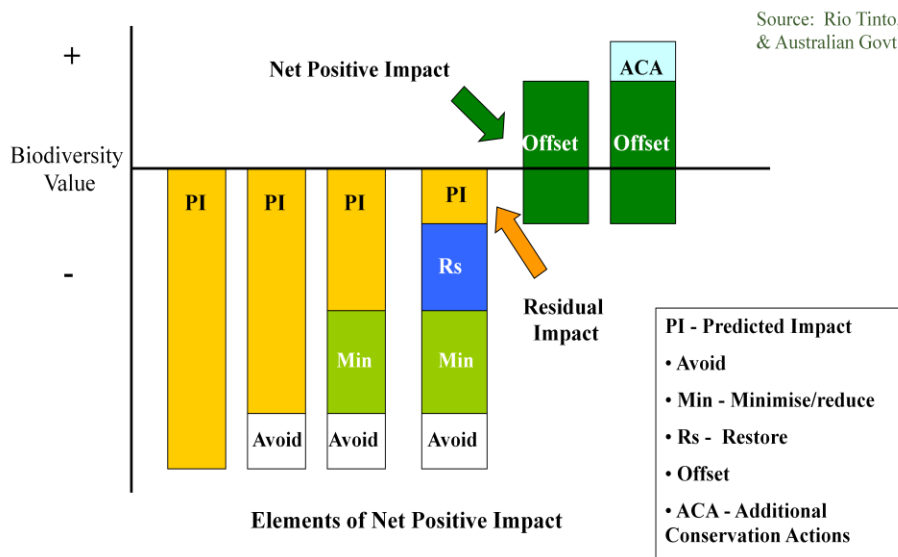


Figure 5: Theoretical Application of the Mitigation Hierarchy

Restoration and offsets should therefore be seen as "last resorts" for addressing unavoidable residual biodiversity impacts when all other cost-effective options have been pursued.

BBOP distinguishes between pure prospective biodiversity **offsets** where baseline studies are undertaken before the project takes place and there is real measurement of losses (this is recommended best practice) and retrospective actions where the offset is designed after the project has started. Retrospective actions are called **compensation** to distinguish them from pure offsets.

One way to maximise the ecological value of offsets is through the use of conservation banks, pioneered in the US and Australia. Over the past 20 years, conservation banks selling credits covering both endangered species habitat ("endangered species banks") and wetlands ("mitigation banks") have spread across the US, and conservation banking has developed into a viable market-based mechanism for conservation. There are 615 active and sold-out banks in the US and over 280,000 ha have been restored or protected through the program.⁸

The Clean Water Act and the Endangered Species Act in the United States allow for and enable compensatory mitigation, such that habitat impacts that cannot be avoided must by law be offset by an equal amount of restoration and protection in an area of similar ecological value. In the US, the market for offsets was in excess of US \$3 billion in 2007. US mitigation banks sell credits to developers under a "like-for-like" principle (impacts in a particular habitat or species type must be offset through the purchase of biodiversity credits from the same habitat or species type). Prices are based on the estimated costs of the developer having to implement a conservation project itself, including land, management and opportunity costs of land development. In Australia, a state scheme in New South Wales came into force in 2008. The United Kingdom announced in 2011 that it will pilot a two-year trial phase for biobanking starting from 2012.

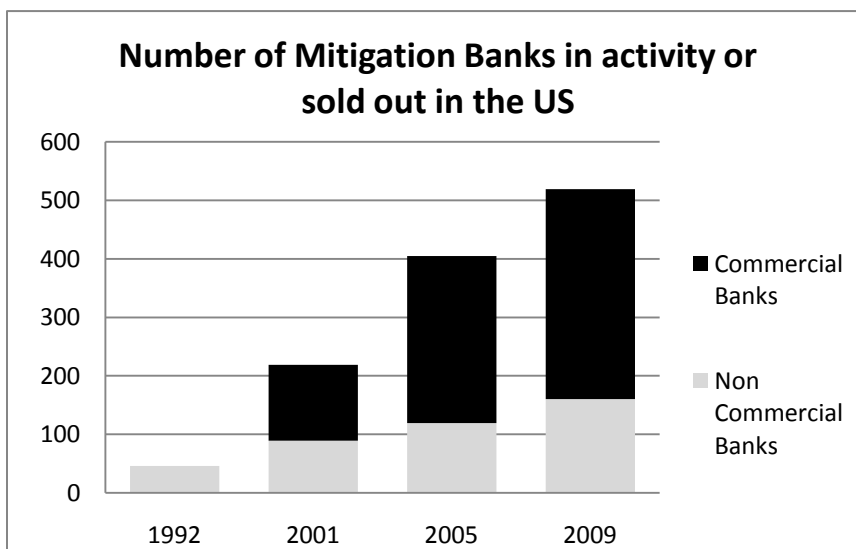


Figure 6: Wetland mitigation banks have been growing in number in the US since 1992 and this chart shows that there were over 500 banks in 2009. This increased to over 600 in 2010, many of which have "sold out" of offset credits to developers. The US National Academy of Wetland Scientists has declared wetland mitigation banking to be the most effective form of wetland conservation.

⁸ Marsden, B, Carroll, N., Moore Brands, K., (2010) *State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide* [//www.ecosystemmarketplace.com/documents/acrobat/sbdlmr.pdf](http://www.ecosystemmarketplace.com/documents/acrobat/sbdlmr.pdf)

Support for Compensatory Conservation as a Solution

Support for compensatory conservation is growing among organisations and governments that recognise that where society accepts losses of biodiversity that overall there should be 'no net loss' and even a substantial gain of biodiversity through seeking appropriate offsets. The International Finance Corporation's Performance Standard (6) on biodiversity conservation recognises that where the overall benefits of the project outweigh the environmental costs, the loss of biodiversity will be acceptable but only if there is appropriate conservation so that overall there is 'no net loss' of biodiversity. They identify actions that include post-operation restoration of habitats and offset of losses through purchase of credits from conservation banks.⁹

As noted above, there is substantial experience in the US in the design and operation of effective compensatory mitigation regulations for species, habitat and wetlands. In countries such as Australia, sophisticated processes (e.g. conservation hierarchy) have been developed to determine where it is permissible to allow the loss of biodiversity and how any losses will be offset to ensure there is an overall net gain of biodiversity. More recent developments in the United Kingdom and at the European Commission indicate the geographic expansion of the conservation banking model. The European Commission has recently approved a new strategy for reversing biodiversity loss by 2020 which has 'no net loss' as a cornerstone. It means that any new development that disrupts certain habitat or wetlands, must offset that damage by restoring or rescuing similar systems nearby, resulting in no net loss of biodiversity. The new strategy lays the groundwork for conservation banking across the European Union.¹⁰ Momentum behind these government initiatives is supported by the demonstrated advantages of efficient and effective mitigation using compensatory conservation strategies.

The main advantages of conservation banking over on-site restoration projects or other forms of biodiversity offset are:

- 1) Conservation banks provide a mechanism for consolidating compensatory conservation activities into a single large site instead of several smaller sites, providing larger areas which have higher conservation value and are less prone to fragmentation or edge effects. In contrast, onsite restoration projects conducted by developers often result in a disconnected patchwork of small poorly managed conservation sites.
- 2) Conservation banks can be operated by expert conservation managers and be more cost-effective through economies of scale. Many developers are not conservation experts and are dealing with relatively small areas, and they therefore find on-site restoration work time consuming and expensive.
- 3) Conservation banks are subject to greater levels of accountability, as credit sales can be directly linked to independently verified conservation gains, such that poor management reduces revenues and could lead to loss of certification status.
- 4) Conservation banks incorporate a perpetual, non-wasting endowment funded through credit sales, which ensures long term financial sustainability.

⁹ International Finance Corporation: www.ifc.org

¹⁰ Zwick, S. 2011 Proposed EU Biodiversity Strategy Supports Species Banking
http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=8284§ion=news_article

Biodiversity Offset Design Process

A valid offset or compensation involving a transaction of conservation banking credits between a forest manager seeking FSC certification and an FSC-certified conservation bank would be required to design the offset in accordance with the following steps:

- 1) Determine and ensure "like for like or better" exchange
- 2) Identify a secure offset site in an appropriate "service region"
- 3) Quantify losses at the impact site
- 4) Quantify gains at the offset site
- 5) Deliver benefit of equal or greater magnitude to the loss ("no net loss or net gain")

The **like for like or better** concept seeks to ensure that the conservation gain that the conservation bank delivers is equivalent to the conservation loss caused by the project impact, e.g. conversion of natural forest to plantations. This requires that when practicable, credits represent the same suite of environmental characteristics (e.g. forest type, species compositions) as the characteristics that were degraded or destroyed. The "like for like or better" concept also recognises that in some instances, designers of the offset scheme may determine that it is possible to "trade up" through the purchase of credits from a conservation bank in an area of greater conservation value than the area destroyed.

A critical consideration of like for like equality relates to each bank's location and **service region**, the biogeographical area within which a conservation bank is permitted to sell credits on a like for like basis. For example, lowland dipterocarp forests in Sabah and Peninsular Malaysia may be very similar floristically but contain distinct faunal species compositions (e.g. no orangutan in Peninsular Malaysia, no tigers in Sabah) that may lead the scheme designers to determine that a conservation bank in one or other region should not be permitted to sell credits to offset impacts on forests in the other region. The limits to the service region can be defined based on ecosystem or species characteristics.

The next step in developing a biodiversity offset or compensatory conservation action for a project impact is to **quantify the loss and gain** of biodiversity. There are many different ways to calculate this and a growing body of experience and guidelines that can assist. BBOP recognise four possible approaches:

- (1) Area
- (2) Area x quality (or 'condition')
- (3) Species' populations
- (4) Economic valuation

The most common method used is (2) – an 'area x forest quality' approach. For retrospective offsets, where the forest was cleared in the past, area can be determined using satellite imagery.

Forest condition can also be assessed using a number of well defined and readily measurable **attributes** or biodiversity proxies and can include use of satellite imagery, as well as field survey of neighbouring forest areas of similar condition and desktop review of relevant documents documenting biodiversity and forest condition at

the site, where these are available. Supplementary methods may be needed if impacts on species are not closely related to loss of area or condition of habitat. Offset or compensation multipliers can be applied to address permanence risk and to allow for the lack of precision associated with quantification of biodiversity.

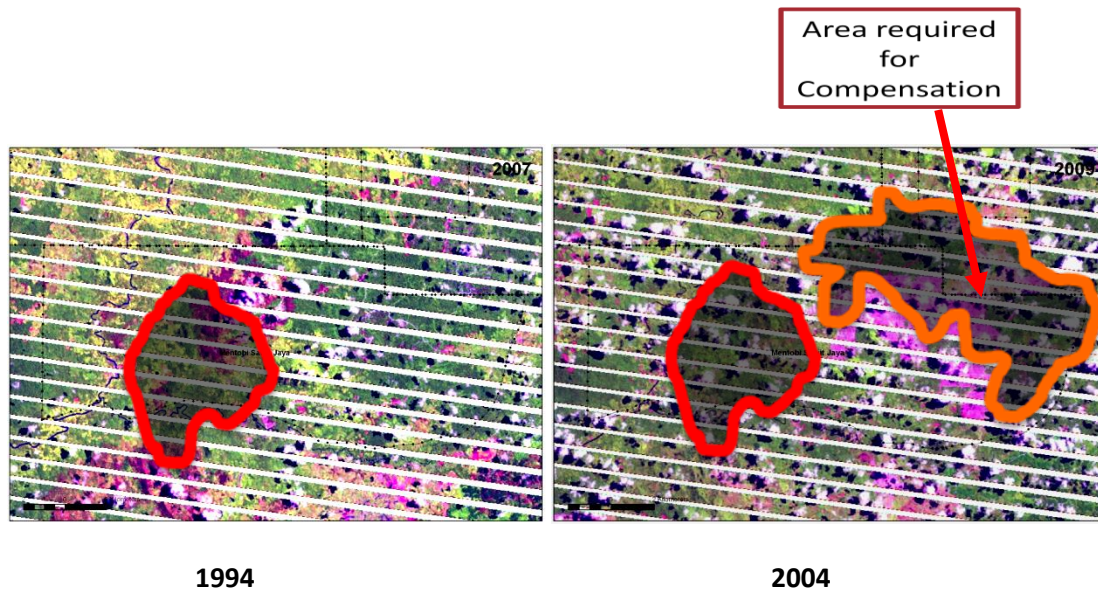


Figure 4: Assessment of forest area converted can be readily determined using satellite imagery.

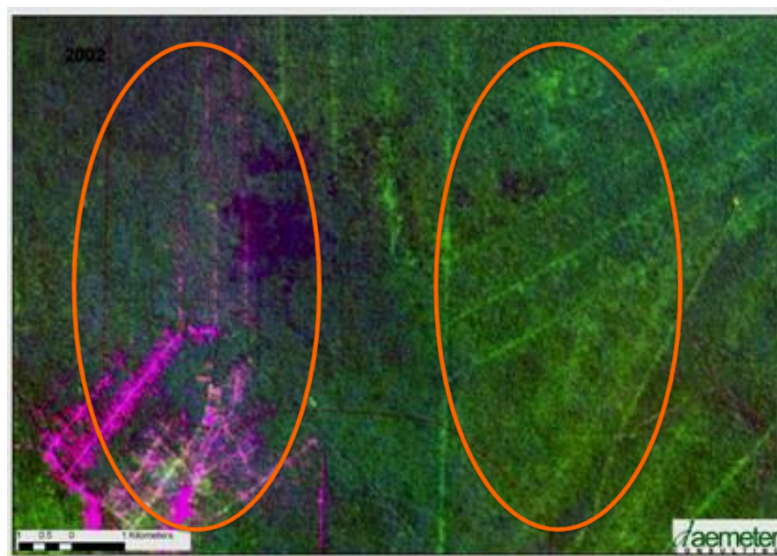


Figure 5: Assessment of forest condition is possible with analysis of satellite imagery where this is combined with field survey data from proxy areas of existing forest of similar condition to the area lost.

Proposed Revisions to Criteria 6.9 and 6.10

New Forests believes that consideration should be given to revising Criteria 6.9 and 6.10 to allow for the certification of organisations under the circumstances described:

6.9

The Organisation shall not convert natural forest to plantations nor natural forests or plantations to any other land use except when the conversion:

meets the conversion standards and has an acceptable compensatory conservation and/or restoration plan which achieves clear, substantial, additional, secure long term conservation benefits within the landscape.

6.10

Management Units containing plantations that were established on areas converted from natural forest after November 1994 shall not qualify for certification, except where:

the conversion standards are met and there is an acceptable compensatory conservation and/or restoration plan which achieves clear, substantial, additional, secure long term conservation benefits within the landscape.

Circumstances when future conversion is not acceptable would need to be identified, e.g. on areas of the "social" HCVs (4, 5 and 6) there could be a prohibition on conversion, and this could also apply to areas of irreplaceable or highly vulnerable "biological" HCVs (1, 2 and 3). However, these are just suggestions and detailed **conversion standards** could be prepared to provide clear guidance to governments and industry alike.

As a starting point for discussion, New Forests provides below a sample Tariff Matrix. The Tariff Matrix demonstrates one possible approach that involves removal of the cut-off date and a restoration and compensation requirement based on the number of years since conversion took place (following the recommendation of Expert Team D) and whether the area contained HCVs or not. However, there are other other permutations that could be explored, including retaining the cut-off date and limiting permissible forest conversion to non-HCV areas only. Under the sample Tariff Matrix in this paper, the tariff ratios decrease for conversion that happened farther in the past and level off at conversion that occurred 10 or more years from the date of application for certification.

In order to account for the differential value of off-site restoration, New Forests suggests a higher ratio in the Tariff Matrix be used for off-site restoration and compensation using conservation banks. This would serve to encourage the prioritisation of on-site restoration in accordance with the mitigation hierarchy, as well as reinforce incentives against downward conversion and to ensure compensatory actions deliver a net gain of biodiversity compared with the negative impacts of downward conversion that occurred in the past. Under the proposed approach, the compensation obligation is associated with the FMU not the manager and so removes the ownership loophole.

Year of Downward Conversion	On-site: Restoration	Off-site: Compensatory Mitigation	
	Upward conversion area ratio	Non-HCV area ratio	HCV area ratio
Application year -1	1.00	1.50	2.00
Application year -2	0.95	1.43	1.90
Application year -3	0.90	1.35	1.80
Application year -4	0.85	1.28	1.70
Application year -5	0.80	1.20	1.60
Application year -6	0.75	1.13	1.50
Application year -7	0.70	1.05	1.40
Application year -8	0.65	0.98	1.30
Application year -9	0.60	0.90	1.20
Application year -10	0.55	0.83	1.10
Application year ->10	0.50	0.75	1.00

Conclusion

The FSC conversion requirements have been a controversial area of policy that remains unresolved since the P&C were first developed. Meanwhile, in forest-rich countries in tropical Asia and elsewhere as the economically accessible natural forest log resources dry up, the forest industry is in transition to a plantation resource base that is driving forest conversion, mostly of areas of logged over or otherwise degraded forest. This process is driven by the current wood supply deficit in Asia and growing wood demand as many of the region's major economies continue to grow at a fast pace. Some of this degraded forest, such as much of the forest that remains in Sabah, Malaysia, retains significant HCVs.

The challenge therefore remains for the development of FSC requirements on conversion that will enable the FSC to retain relevance during the transition that the industry is undergoing, influence the conversion process to ensure HCVs are enhanced or maintained and in the process substantially grow the area of tropical plantation and natural forest under FSC certification in tropical Asia. For FSC to be able to do this, we believe that a revision of Criteria 6.9 and 6.10 will be essential.

Appendix 1 - Business and Biodiversity Offset Program

BBOP is a program of international NGO Forest Trends that represents more than 50 different organisations (including businesses, government and civil society organisations) and has developed a number of pilot biodiversity offset projects around the world and a large body of guidance materials.⁶ BBOP supports offsetting of the residual negative impacts of a project on biodiversity through securing credits from a relevant and credible conservation banking scheme, which has undergone independent third party verification.

BBOP Biodiversity Offset Principles

1. **No net loss:** A biodiversity offset should be designed and implemented to achieve in situ, measurable conservation outcomes that can reasonably be expected to result in no net loss and preferably a net gain of biodiversity.
2. **Additional conservation outcomes:** A biodiversity offset should achieve conservation outcomes above and beyond results that would have occurred if the offset had not taken place. Offset design and implementation should avoid displacing activities harmful to biodiversity to other locations.
3. **Adherence to the mitigation hierarchy:** A biodiversity offset is a commitment to compensate for significant residual adverse impacts on biodiversity identified after appropriate AVOIDANCE, minimisation and on-site rehabilitation measures have been taken according to the mitigation hierarchy.
4. **Limits to what can be offset:** There are situations where residual impacts cannot be fully compensated for by a biodiversity offset because of the irreplaceability or vulnerability of the biodiversity affected.
5. **Landscape context:** A biodiversity offset should be designed and implemented in a landscape context to achieve the expected measurable conservation outcomes taking into account available information on the full range of biological, social and cultural values of biodiversity and supporting an ecosystem approach.
6. **Stakeholder participation:** In areas affected by the project and by the biodiversity offset, the effective participation of stakeholders should be ensured in decision-making about biodiversity offsets, including their evaluation, selection, design, implementation and monitoring.
7. **Equity:** A biodiversity offset should be designed and implemented in an equitable manner, which means the sharing among stakeholders of the rights and responsibilities, risks and rewards associated with a project and offset in a fair and balanced way, respecting legal and customary arrangements. Special consideration should be given to respecting both internationally and nationally recognised rights of indigenous peoples and local communities.
8. **Long-term outcomes:** The design and implementation of a biodiversity offset should be based on an ADAPTIVE MANAGEMENT approach, incorporating MONITORING AND EVALUATION, with the objective of securing outcomes that last at least as long as the project's impacts and preferably in PERPETUITY.
9. **Transparency:** The design and implementation of a biodiversity offset, and communication of its results to the public, should be undertaken in a transparent and timely manner.
10. **Science and traditional knowledge:** The design and implementation of a biodiversity offset should be a documented process informed by sound science, including an appropriate consideration of traditional knowledge.

Appendix 2 - The Malua Wildlife Habitat Conservation Bank

- ❖ Malua Wildlife Habitat Conservation Bank is a conservation bank that invests in the restoration and protection of the high conservation values of Malua Forest Reserve and seeks to generate commercial returns from the sale of certified biodiversity offsets
- ❖ Malua Wildlife Habitat Conservation Bank was awarded a full FSC Forest Management Certificate in June 2011 and is the world's first tropical conservation bank and the world's largest at 34,000 ha in area and covering an entire watershed comprising mostly logged over lowland dipterocarp forest (an endangered ecosystem)
- ❖ Malua contains one of the world's highest concentrations of orangutan (est. population of 650 individuals – 1.5% of the world's population) and is also home to the critically endangered Sumatran rhino, Tembadau (*Bos Javanicus*), Asian elephant, Bornean Clouded Leopard, Bornean Gibbon and Sun Bear and many other IUCN data book species
- ❖ Malua lies within the Heart of Borneo boundary, is surrounded by six palm oil estates and acts as a critical buffer zone for the pristine Danum Valley conservation area to the south; before the project started, wildlife poaching levels were high and the area was being encroached illegally for palm oil cultivation on the margins
- ❖ The Malua Wildlife Habitat Conservation Bank is a public-private partnership between the Sabah government and the Eco Products Fund, a private equity fund
- ❖ The Sabah government has committed the entire 34,000 hectare Malua Forest Reserve to the project and the Eco Products Fund has committed \$10 million for the restoration and protection of the area over a 6 year period from 2008-2014
- ❖ Twenty percent of the gross sales proceeds from the conservation bank go to create a permanent non-wasting endowment fund, the Malua Trust, managed by HSBC Trustees, that will provide sustainable long-term financing for the conservation management of the area after 2014
- ❖ The Malua Wildlife Habitat Conservation Bank has a 50 year renewable conservation lease, the first of its kind, from the Sabah government
- ❖ Malua is also a world class conservation science research site due to its large size, the long term nature of the project and its proximity to Danum Valley Field Centre and is home to the Royal Society's Sabah Biodiversity Experiment
- ❖ An Advisory Committee, comprising local and international environmental groups and scientific experts, provides guidance on technical aspects of conservation and independent oversight of the project
- ❖ The project has a high international media profile through coverage in The Economist, New Scientist, Mother Jones, NHK (leading Japanese satellite broadcaster) amongst others, as well as being featured in many reports on innovative approaches to conservation