Indicators for Measuring Progress Towards Forest Landscape Restoration

A DRAFT framework for WWF's Forests for Life Programme

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Summary
The following paper proposes a framework, and some possible indicators, for measuring progress towards Forest Landscape Restoration, based around fulfilment of some underlying principles. The framework aims to provide a set of criteria that will allow comparison between sites, whilst allowing flexibility in choice of indicators to reflect the varied conditions and priorities of programmes aimed at Forest Landscape Restoration. The paper is a draft: the proposed framework will now be tested in a series of field situations and modified as appropriate.

Preface
WWF's overall approach to forest conservation could be characterised as "**protect, manage and restore**". These three concepts are reflected in three targets within the Forests for Life programme, relating to protected areas, sustainable forest management and Forest Landscape Restoration (FLR).

The FLR target represents a relatively new area of work for WWF and accordingly the initial focus will be more heavily biased towards research, internal capacity building and action learning than for the other two targets. It draws on a joint IUCN and WWF initiative – Forests Reborn – that has helped develop the concept of FLR and drawn together proposals for its implementation.

WWF, in the context of its target on FLR, is proposing to test this draft framework during 2002. We recognise that there are other frameworks in the making and expect to improve this draft by testing it but also by drawing on these other processes as well as contributing to their development.

Introduction
WWF and IUCN define **Forest Landscape Restoration** as: ***a planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded forest landscapes and beyond***. This definition was drawn up at a workshop in Segovia (Spain) in July 2000. It was agreed that choices about restoration should be made at a landscape scale and on a case-by-case basis in response to specific conditions – with overall *landscape benefits* being the overall goal against which success is measured.

A target for FLR was set at the WWF Forest Advisory Group meeting in Bali in January 2001: *By 2005, **undertake at least twenty Forest Landscape Restoration initiatives in the world's threatened, deforested or degraded forest regions to enhance ecological integrity and human well-being***.

Since then, a number of milestones have been developed to help track progress towards the target over the next five years.

- **Milestone 1**: A gap and threat analysis of priority conservation landscapes in all focal forest ecoregions completed by the end of 2002
- **Milestone 2**: Socio-economic and ecological criteria and indicators for tracking progress with Forest Landscape Restoration developed by the end of 2002
- **Milestone 3**: The concept of Forest Landscape Restoration adopted by five international organisations by the end of 2003
- **Milestone 4**: Forest Landscape Restoration initiatives underway in ten of the world's threatened, deforested or degraded forest regions by 2003
- **Milestone 5**: Economic, financial and/or policy incentives that contribute to forest loss or degradation eliminated in at least one case by the end of 2004

The following paper addresses the second milestone: i.e. the development of ecological and social criteria and indicators for tracking progress with FLR. It draws on the outputs of the Segovia meeting, on experience

with assessing forest quality and on the results of two workshops held at WWF International to propose some indicators to measure progress towards the target.

Principles

The following criteria and indicators are based around fulfilment of a series of basic principles. Forest Landscape Restoration should increase forest quality at a landscape scale from the perspectives of both ecological integrity[1] and human wellbeing[2]. It promotes a package of planning and implementation tools within the context of a landscape, rather than focusing exclusively on site-based conservation. Overall landscape benefits are therefore more important than choices relating to individual stands or sites. Forest Landscape Restoration aims to address both socio-economic needs (such as eco-tourism, sustainable timber production and livelihood security) and ecological needs (such as habitat, connectivity and soil protection). This inevitably involves trade-offs between different site-level functions and key stakeholders should be involved in determining how to balance the trade-offs required for sustainable solutions. Some underlying principles for FLR can be identified by reference to the Segovia minutes, the draft WWF/IUCN position on plantations, the TDP target set at Bali and prior work by the Forests Reborn team. These have been summarised and explained below.

- ***Authenticity (naturalness or ecological integrity) of forests should increase at a landscape scale***.

Under FLR, some sites may reasonably be dedicated to highly unnatural tree cover (wood fuel plantations, tree crops etc), if these fulfil legitimate social and economic needs. However, to qualify as FLR as defined here, there should be a net increase in authenticity of forests within the landscape. The implication is that FLR will on balance favour natural regeneration over conventional tree planting, and will also tend to favour management systems that involve minimum interference with the natural ecological cycle. An important underlying theme of the approach is that the more natural forest mosaic that results should have improved resilience to threats such as climate change and disturbances such as fires and storms.

- ***Environmental benefits should at least remain stable at a site scale and should increase at a landscape scale***.

Forest management that results in either on-site or off-site environmental damage – such as soil erosion, fertiliser run-off, pesticide spray drift or downstream hydrological effects – is incompatible with the wider aims of FLR. Thus the principles for environmental benefits are more stringent than for either authenticity or social benefits, having both site and landscape components. There may, however, be occasions when the best that can be hoped for environmental benefits at site level is that these will remain stable, so that the principle at site level is for no further decline. At a landscape scale, on the other hand, restoration and ecological resilience should result in an increase in environmental benefits.

- ***Livelihoods secured at a landscape scale***.

As with authenticity, FLR may not improve social wellbeing at every site. But the definition for FLR and WWF's target are both clear that these should improve on a landscape scale. The involvement of key stakeholders in decision-making processes should help to ensure that issues relating to human wellbeing are fully addressed. As FLR provides a vehicle to halt and reverse forest loss and degradation, a key element in the approach is to address the underlying causes that drive forest loss. Many of these are linked to human wellbeing and include issues outside traditional conservation concerns, such as gender, equity and land tenure. Actions that aim to reverse the underlying causes of forest degradation at a landscape scale are of necessity long term and require matching long-term commitment from the various partners.

Criteria and generic indicators for Forest Landscape Restoration

The variable nature of FLR means that, although we can identify some criteria and a few general indicators, most indicators will need to be chosen on a case-by-case basis, chosen to fit within the template during project planning. A draft set of ten criteria and some examples of indicators are given below.

Criteria	Examples of specific indicators
Indicators relating to authenticity	

[1] Ecological integrity is defined as: "maintaining the diversity and quality of ecosystems, and enhancing their capacity to adapt to change and provide the needs of future generations".

[2] Human wellbeing is defined as: "ensuring that all people have a role in shaping decisions that affect their ability to meet their needs, safeguard their livelihoods and realise their potential".

Forest composition and pattern	• Amount/proportion of natural forest (i.e. forest made up of natural species and allowed to develop natural characteristics) • Proportion of forest containing several different successional stages (measured against natural forest type of the region)
Forest ecosystem function and process	• Distribution of rare or threatened forest-dependent species • Amount of a specific indicator associated with natural forest processes – e.g. dead timber
Forest fragmentation and extent	• Area of forest in the landscape compared with original forest extent (use FAO definition of forest) • Median size of forest stands
Indicators relating to environmental benefits	
Environmental services	• Water quality and quantity • Changes in stream sediment load[3]
Environmental resilience and resistance	
Indicators relating to secure livelihoods	
Increased livelihood opportunities	A proxy measure of food, shelter, clothing, education etc, e.g.: • Number of jobs supported by forests in the landscape • Numbers of key NTFPs available on a sustainable basis
Reduced human vulnerability	Need indicators relating to specific "pressure points" within a landscape
Increased equity	Specific indicators will be needed relating to targets in a landscape, e.g.: • Number of traditional livelihoods supported • Opportunities for participation in management decisions
Maintenance of cultural values	Specific indicators will be needed relating to targets in a landscape, e.g.: • Protection/restoration for sacred sites in forests • Number of recreational visits to forests and woodland
Enabling political and institutional environment	• Enabling legislation • Funding • Positive government incentives

The framework, and the criteria and indicators, are still a theoretical model that needs to be tested in field conditions and modified accordingly, before being finalised for general use within the target driven programme. Testing will take place in 2002 and several possible test sites have been identified. In the meantime, any comments on the proposals will be very welcome and should be directed to Stephanie Mansourian: Smansourian@wwfint.org[4]

[3] Note that whilst carbon sequestration might seem to be an ideal indicator, any use of this would require careful handling to ensure that WWF's position on the Kyoto Protocol of the Framework Convention on Climate Change is not undermined.
[4] The paper has been developed by Mark Aldrich, Nigel Dudley, Jack Hurd, Tom McShane and Stephanie Mansourian