

# Assessment, management and monitoring of High Conservation Value Forest

*A practical guide  
for forest managers*





# Assessment, management and monitoring of High Conservation Value Forest (HCVF) *A practical guide for forest managers*

Tim Rayden

ProForest, Oxford

South Suite  
Frewin Chambers  
Frewin Court  
Oxford OX1 3HZ  
United Kingdom  
Telephone  
+44 (0)1865 243439  
Fax  
+44 (0)1865 244820  
Email  
info@proforest.net  
Website  
www.proforest.net

<b>1</b>	<b>Introduction</b>	4
1.1	Aim of this guide	4
1.2	Background	4
1.3	Defining HCVs	7
<b>2</b>	<b>Assessing a forest for HCVs</b>	8
2.1	Preparation and planning	8
2.2	Information gathering	9
2.3	Assessing the presence of HCVs	10
2.4	Use of the precautionary approach	15
2.5	Guidelines on consultation	16
2.6	Presentation and discussion of preliminary findings	16
<b>3</b>	<b>Managing forest areas containing HCVs</b>	18
3.1	What is the management objective for each value?	20
3.2	Identifying threats	21
3.3	Mitigating threats	24
3.4	Defining precautionary management	26
3.5	Developing long-term monitoring based on detailed information	27

## Annex 1

FSC Principle 9 29

## Annex 2

FSC definition of HVCF 29

## Annex 3

Definition of the precautionary principle 30

## Annex 4

Uses of the HCV concept 30

Published April 2008

### Author's acknowledgement

Initial drafts of this practical guide were reviewed by Tom Evans, Jeff Hayward, Gary Paoli, Chris Stewart and Nilofer Ghaffar. I am extremely grateful to everyone for their insightful comments and razor-sharp editorial aptitude

Images © ProForest,  
except page 30 © Chris Wilks

## 1 INTRODUCTION

### 1.1 Aim of this guide

This guide is intended for forest and land managers and aims to help those interested in the sustainable management of forests and those committed to certification against the Forest Stewardship Council's Principles and Criteria for Responsible Forest Management (FSC P&C).

To meet Principle 9 of the FSC standard, forest managers need to determine if part of their forest area will be considered **High Conservation Value Forest (HCVF)**, and if so, how they should manage these HCVF areas to maintain or enhance the **High Conservation Values (HCVs)** that are present. Where HCVs exist, monitoring is needed to show that management is effective. This guide lays out a practical process that can be followed to achieve this aim. It focuses on the key steps that are necessary for robust, credible and transparent decisions. This guide is intended to help with the identification of HCVs and the definition of appropriate management and long-term monitoring.

The guide draws on experience from the consultancy work ProForest has carried out with certification applicants. It is clear from this work that Principle 9 remains one of the most difficult of the FSC requirements to understand and implement in practice, and that there remains a need for practical guidance, tailored to the forest manager, on how the requirement can be met. This guide attempts to provide advice directed at the problems most frequently encountered. It explains the meaning of the concept, and provides examples of how it has been addressed in different settings. However, this guide is not normative, and there is no intention that it should be endorsed as such.

### 1.2 Background

Established in the FSC Principles and Criteria in 1999, the concept of HCVF has provided a useful new approach for defining and managing forest

areas of critical conservation significance. HCVF provides a framework for understanding what gives a forest an exceptional value, and a process of managing such forests appropriately. It provides a more practical and systematic basis for conservation efforts that were previously focused on 'pristine forests' or 'natural ecosystems'.

The concept is both thorough in its treatment of all conservation priorities and flexible enough to be applied in a variety of contexts. As a result it has been applied in a range of settings, and has been used outside forest certification as well as within it.

### Different conservation values

The conservation question has many facets, and different conservation groups have different priorities. Some have a focus on a specific species, while some have a much wider sustainable development agenda. Furthermore, these interests may be expressed at different geographic scales; local, national or global. An individual Forest Management Unit (FMU) may have many different attributes of conservation value, including threatened species and habitats, ecosystem service provision and social and cultural significance. Thus forest managers may have to address all of these areas.

The concept of HCVF includes all of these aspects, and it therefore covers the widest possible range of conservation priorities. Carrying out an HCVF assessment means assessing a forest area for each of the different values.

### The six High Conservation Values (HCVs)

The concept outlines six HCVs. These are six distinct attributes that give an area critical conservation significance.

The six values are shown in the table below. These come directly from the FSC definition of HCVF (see Annex 2), and are described in greater detail in the *ProForest HCVF Toolkit*.<sup>1</sup>

These headings are broad and general. In order to assess a forest area against these values, and develop appropriate management plans, more specific guidance is needed. The *ProForest HCVF Toolkit* (Parts 1 and 2) provides some of this guidance by further

<sup>1</sup> ProForest HCVF Toolkit (ProForest 2003)

**Box 1 The six High Conservation Values (HCVs)**

<b>HCV 1</b>	Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia)
<b>HCV 2</b>	Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance
<b>HCV 3</b>	Forest areas that are in or contain rare, threatened or endangered ecosystems
<b>HCV 4</b>	Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control)
<b>HCV 5</b>	Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health)
<b>HCV 6</b>	Forest areas critical to local communities' traditional cultural identity (e.g. areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities)

sub-dividing each HCV into a number of components, and outlining a process by which each value can be **interpreted** in a national context.

The purpose of this document is to help with practical actions at the level of the forest area. It sets out the key

points to consider under each of the values, and how to translate these into management plans. This document will be useful in structuring a process of assessment, management and monitoring for the HCVs.

**Using the concept**

All forests are important, and nearly all have attributes worth conserving. HCVFs are fundamentally more important because they contain certain attributes (**values**) that are of critical conservation priority (like rare or threatened habitats or important cultural sites). HCVF is a useful concept because it first asks: 'What is the value?' or 'Which values are present here?' Second, it asks: 'Is the value of critical significance?' Third, it asks: 'What type of management is necessary to maintain the value(s)?' The *ProForest HCVF Toolkit* (Part 3) and this practical guide seek to lead the user through this series of questions.

Asking first 'what values?' helps us to define the attribute that needs to be conserved and managed. The HCVs are those attributes (a number of endangered species or a threatened ecosystem, see Box 2) that need a special focus, and the process of defining and identifying each value helps a great deal in defining and identifying what you need to do about managing for it.



### Box 2 Defining the value

This FMU covers the catchment area of a stream that provides the only source of drinking water for a remote village. The villagers have installed a gravity feed water pipe in the stream above the village and are concerned that the planned logging activity will affect their water supply.

The value is **HCV 4: Basic services of nature in critical situations**.

More precisely, the forest is fundamentally important for the **provision of drinking water**, a basic need for the community, and this service must be maintained.

Considering each conservation value therefore leads you towards what you need to do to **maintain or enhance** the value. In the example in Box 2, the service (i.e. the provision of drinking water) is what needs to be maintained. All operations that may affect the provision of drinking water from this

stream will need to be reviewed. Measures should be put in place that will safeguard the provision of drinking water from the stream, (which might include wider exclusion zones around the stream area, modified culverts or changing the route of a planned road). As long as the value is maintained forest management will be considered to have dealt appropriately with this HCV.

Note that the FSC standard does **not** require that an area of forest classified as HCVF becomes a protected area. In some cases, it may be possible to make commercial use of the forest while maintaining the value. However, there will be other cases where certain values can only be maintained if an area is completely protected.

The identification process does not determine default **set aside areas**. If a HCV is present, there must be a decision making process that determines what **form** of management will be consistent with **maintaining** that value.



## HCVF within the FSC Principles and Criteria

The FSC standard contains conservation-related requirements in several areas. Principle 6 of the standard requires the conservation of representative samples of existing ecosystems, and the protection of threatened species and their habitats. Principle 3 covers the identification and protection of sites of cultural significance to indigenous peoples, and Principle 2 addresses the maintenance of local peoples' customary rights to use areas of the forest. If these principles are all addressed in full many of the issues of **conservation value** in any given forest will be identified and properly managed.

However, Principle 9 asks the forest manager to take a wider view, and to consider conservation issues of high priority or significance on a national, regional or global scale. It is intended to ensure:

- values of national/international conservation significance are properly identified and addressed
- relevant stakeholders are consulted in the process, and can have input into the management and monitoring decisions relating to these values.

The fundamental assumption is that some forests really are more important than others, and therefore there are forests that **have**, and forests that **do not have** HCVs. The FSC standard demands an assessment of the forest area for attributes consistent with these HCVs. However, not all forests will contain them. An FMU may or may not have HCVF.

## 1.3 Defining HCVs

### Definitions and interpretations

The wording of the values leaves some important decisions open to the interpretation of the forest manager. For example, when does the use of an important forest resource become **critical** for the local community, or how many threatened species make a **concentration**?

In some countries workshops have been convened to produce guidance material or a **national toolkit**<sup>2</sup> for HCV. This is usually achieved through discussions



about how to define and interpret each value for a given national context. Some national HCV toolkits provide more detail and suggest thresholds that can be used in deciding when something should be considered an HCV. However, some interpretation by the forest manager will always be required. For this reason, the standard emphasises consultation with local stakeholders and the involvement of independent experts.

### Box 3 The FSC requirement for consultation, Criterion 9.2

The consultative portion of the certification process must place emphasis on the identified conservation attributes and options for the maintenance thereof.

In many cases, where no national HCVF interpretation exists or limited guidance on identifying HCVs is available, it will be necessary for those responsible for the assessment to consider a range of views, and try to achieve a balanced understanding amongst the key stakeholders.

The most important decision the forest manager has to make is about the level of priority: Is this an HCV area? i.e. is this aspect of the forest of conservation significance at the national, regional or global scale? Where there is little guidance available, or limited previous experience in making these decisions, a process of stakeholder consultation is vital. It is important to seek relevant, independent expert advice on both the **assessment** of the forest and the options for the **management** of the HCVs that are present. For further guidance on the process of consultation see section 2.5 and Box 12.

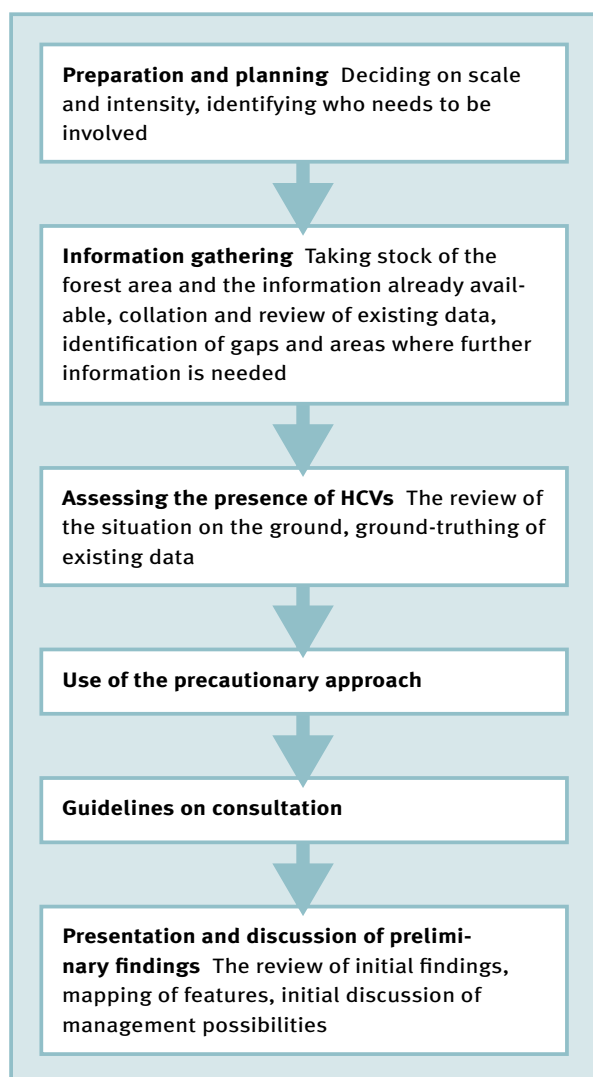
<sup>2</sup> A variety of countries where national interpretations of the HCVs have taken place can be found on the HCV Resource Network website [www.hcvnetwork.org](http://www.hcvnetwork.org)

## 2 ASSESSING A FOREST FOR HCVS

An HCVF assessment means assessing whether any attributes consistent with the HCVs are **present** in the forest area. For this it will be necessary to consider the forest in relationship to the immediate and wider landscape. In some cases, the relationship of the forest to the surrounding area will be part of its conservation significance (i.e. in the case of landscape level forests HCV 2).

An assessment of the area for HCVs must consider all six values. Any forest area can potentially contain or support one or more of the values, and in the assessment process it should be assumed that each of them could **potentially** be present.

Figure 1 **The assessment process**



In the following sections some key steps to planning and executing an assessment are outlined in more detail (see Figure 1).

### 2.1 Preparation and planning

#### Assess scale and impact to determine scope of HCV assessment

A judgement must be made on the scope and depth of the HCV assessment that will be required. This will depend on the scale and impact of the proposed or existing forest operations. That is, on the size of the forest area (scale) and the intensity of existing or planned operations (impact). If the forest area is very small (less than one thousand hectares) or if existing operations are of limited intensity (low volume removal, NTFP or Non-timber Forest Product collection, conservation or subsistence based management),<sup>3</sup> then a detailed assessment of HCVs is unlikely to be needed. Consideration of the values likely to be present can usually be made based on background regional literature, and it will not be necessary to make a thorough investigation of the management options. This is because, in small or low intensity managed forests, management is unlikely to have major impacts on the values that are present. Note that localised impacts such as those on water quality or social and cultural issues will still need to be thoroughly assessed.

If on the other hand, the forest area is large and the focus of management is commercial levels of extraction, or if part of the area is planned for conversion to non-forest uses, a more in-depth investigation will be needed. It will be necessary to determine in some detail the presence and locations of the different HCVs and assess the degree to which each value will be affected by the proposed operations. If existing data are scarce, this is likely to require field-based surveys of biological, cultural, and ecosystem based values. It will also be necessary to consider how the impacts of forest operations can be mitigated through a formalised process of impact assessment.

<sup>3</sup> See for example the FSC definition of a Small or Low Intensity Managed Forest (SLIMF): Small = less than 1,000 ha, Low intensity = subsistence extraction of timber or NTFPs



## Identify who needs to be involved in the assessment

In high impact/controversial situations extra care should be taken to ensure decisions are based on the best possible information, and made in the most transparent manner. The forest manager will need to decide if it is possible to carry out a suitable assessment **in house**, or if some external assistance will be needed. Some of the HCVs will require specific expertise (e.g. in hydrology, cultural anthropology, resource rights, or wildlife biology). Some may be controversial and it will be necessary to consider the views of interested stakeholders in both identification and management decisions. Some form of social assessment of local communities will almost always be required. If this is the case, the use of an independent institution to carry out the work is recommended. The team selected to assess HCVs will depend on the amount of information available about the likely conservation values (see below), and the technical competence of staff at the manager's disposal.

### Box 4 Key considerations in preparation and planning

- Identify the relevant stakeholders before you plan any assessment activity
- Consult with experts to identify efficient ways to gather relevant information
- Recruit external experts to carry out focussed studies where you do not have the skills within your own organisation

## Define the assessment process

The various tasks including information review, stakeholder engagement and, if necessary, field data collection, all require time and resources. The forest manager must decide in broad terms how much time each phase will require. It may only take a few days to bring together the relevant background material and discuss this with independent experts. It will take much longer to organise and execute any field data collection (e.g. ecological aspects, social surveys or impact assessments) if this is deemed necessary.

The process should be planned out, and estimates made for:

- how much time each element will require
- who needs to be involved at each stage
- what logistical support will be necessary.

## 2.2 Information gathering

### What values are likely to exist?

The first stage of preparing for an HCVF assessment is to bring together what is known about the forest resources to diagnose the potential HCVs. Basic information should be collected about: the location and size of the forest in relation to the surrounding landscape, nearby reserves and protected areas, watercourses and wetlands, special vegetative communities or wildlife usage, species, ecosystems, ecosystem services and local people's needs. For example:

- What ecosystems or forest types are represented in and around the FMU? Are these considered to be conservation priorities by any conservation groups or government rules or plans? Do they provide habitat for known threatened or protected species?
- Does the FMU cover any major water catchments? Are there rivers and streams that supply local villages? Are there steep slopes that may be susceptible to soil erosion?
- Are there local communities living near, or within the forest area? Are members of these communities known to use the forest for any reason?

If the answer is yes to any of the above questions, some of these features may be considered HCVs. The FMU has a higher likelihood of containing one or more HCVs than if the answer was no to all questions.

### Information sources

In order to make decisions about whether or not these values are HCVs, information about the forest

area and its landscape context should be brought together from some or all of the following sources:

- Internal forest inventory/mapping data
- Regional/district land-use plans, landscape level management plans and ecological publications, particularly those prepared for protected areas, parks, and nature reserves nearby
- Topographical and hydrology maps of watersheds/catchments and maps of settlements. A GIS (Geographic Information System) can be very useful in modelling slopes and distances to local settlements
- Local knowledge and the results of recent socio-economic surveys
- Wildlife surveys carried out for forest management purposes, or surveys by other interested parties, e.g. local universities
- Web-based international sources such as the IUCN (International Union for Conservation of Nature) database of threatened species, the Birdlife International database of important bird areas and their species

- Web-based briefings such as the descriptions of priority ecoregions (WWF) and biodiversity hotspots (Conservation International)

Any information that indicates the **potential** presence of a value should be noted. Some examples of things to look for are shown in Box 5.

### 2.3 Assessing the presence of HCVs

The process of identifying whether HCVs are present is the first step to determining whether a specific forest area is HCVF. This part of the assessment process should aim to define what values are present and where these values are located. Consideration of what management will be necessary to maintain each value is discussed in section 3.

#### Assessing HCV 1: Species values

Identifying HCV 1 requires basic data on species and their habitats. That is: what species commonly occur in the forest area and which species would be likely to occur based on their habitat requirements. Both plant and animal species information needs to be considered.

#### Box 5 Types of useful information

Value	Type of information
HCV 1, 2, 3	<ul style="list-style-type: none"> <li>● Reasons for reservation of nearby protected areas (e.g. species protection, landscape value, existence of rare habitats, cultural sites)</li> <li>● Maps of forest extent and condition of protected areas within the landscape</li> <li>● Maps of forest cover/condition change</li> <li>● Presence and condition of suitable forest habitats</li> <li>● Historical records of species distributions</li> <li>● Recent surveys of species populations or distributions</li> </ul>
HCV 4, 5, 6	<ul style="list-style-type: none"> <li>● The presence of communities in or near the FMU</li> <li>● The presence of communities near water courses</li> <li>● The absence of certain amenities (e.g. piped water, markets, clinics, good road access) in these communities</li> <li>● The presence of gravity fed water systems using streams within the FMU</li> <li>● The common use of non timber forest products in peoples houses and/or diets</li> <li>● The historical use of forest for burial, ceremony, rites of passage and other rituals</li> </ul>

Much of this information can be derived from general or published sources about the dominant **forest types**. Each will have known associations with particular communities of species, but it may be necessary to consult with an experienced forest ecologist to produce a list of what one would expect to find.

Following this, if the forest area contains habitat types that are known to support rare, threatened, endangered or endemic species, it will be necessary to define where in the FMU these species are likely to occur. Independent experts may be able to make informed judgements on this (e.g. using literature resources or through the analysis of remote sensing information) but it may be necessary to carry out a survey of the forest area.

If so, it is likely that survey work will need to consider at least the following:

- Bird survey for forest dependent, endemic or threatened species
- Mammal survey for forest dependent, endemic or threatened species
- Consultation with local people and forest workers about recent sightings

Survey effort should be concentrated on the confirmed/potential presence of forest dependent, endemic or red-listed species. The Global IUCN Red List of threatened species<sup>4</sup> or the national red-data book of threatened species should be consulted. Those that are listed as **Vulnerable (VU)** or equivalent **Endangered (EN)** or **Critically Endangered (CR)** are most likely to be considered HCV species.

#### Box 6 How many threatened species make a 'concentration'?

**HCV 1** refers to concentrations of endangered, endemic or migratory species.

**Concentration** has been interpreted as:

- **Either** The presence of a **number** of different species, all of which are nationally protected or listed as vulnerable by IUCN
- **Or** A large population of **one** species that is more severely threatened (e.g. IUCN Endangered)

#### Examples

- The presence of long-tailed macaque, pig-tailed macaque, banded leaf monkey, greater slow loris, agile gibbon and siamang. These species are either listed as Vulnerable by IUCN, or are listed on CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). However, their presence together at the same site was sufficient to constitute HCV status. (Teso Nilo, Indonesia)
- The presence of a **viable population** of at least **one** endangered species of mammal e.g. banteng, orang utan, clouded leopard, sun bear (Sabah, Malaysia)
- The presence of at least 25% of the forest dependent species listed in the national red data book **or** a population of one nationally-protected species whose survival in Ghana depends on the maintenance of that population (Ghana)

The Birdlife International series on **Important Bird Areas (IBAs)** and **Endemic Bird Areas (EBAs)** is extremely useful. These are indispensable references for global and regional sites of conservation priority, and for information about endemic bird species that may occur in or around the forest area.

If available information and/or survey results indicate that a number of endemic, vulnerable, endangered or critically endangered species occur in the forest area, the part or parts of the forest on which these species depend will be HCVF. Therefore survey results will need to provide a means to map the actual or likely distributions of the species in question.

All or part of the FMU is likely to contain HCV 1 if...

- Several species listed as Vulnerable (VU) Endangered (EN) or Critically Endangered (CR) are likely to occur in your FMU
- Your FMU contains habitat that is of known value to one or more of these species
- There are several endemic species that are likely to occur in the forest area
- The FMU provides habitat for a large concentration of migratory species at a critical phase in their life cycle

### Assessing HCV 2: Large landscape level forests

If the FMU is all or part of a large block of relatively intact natural forest it may have attributes of a large **landscape level forest** under HCV 2. HCV 2 refers to forests that support most of the naturally occurring species in their natural patterns of distribution. Large and relatively undisturbed forest areas may well meet this criterion

To determine if this is likely to apply, it is necessary to assess forest cover and forest cover change over a large scale to judge the relative importance of the FMU in this regard. If the FMU is part of a large block of continuous forest where these are rare in the landscape, it is likely to be considered under HCV 2.

It will also be considered under HCV 2 if it is found to contain most naturally occurring species. Sometimes the presence of one or two forest species that require a relatively large forest area can be used to **indicate** the presence of many more species.<sup>5</sup> In some cases the size of the forest block has been used to suggest an area has HCV 2. However the appropriate size threshold will depend on the ecological context. Depending on the productivity of the forest ecosystem, areas of 20,000 ha may be large enough to support most or all species (including top carnivores) and their natural processes. In other areas the size threshold may be much larger: 50,000 ha or even 100,000 ha.

However, if the forest area has been heavily disturbed by previous logging and/or has been subjected to high hunting pressures, even large areas are unlikely to contain this HCV.

#### Box 7 Examples of HCV 2

- In Ghana forest cover is highly fragmented. Individual forest reserves can be up to 50,000 ha in size, but all have been subjected to both logging and high hunting pressures in the past. As a result, no areas were found that were consistent with this HCV.
- By contrast, in the boreal areas of Canada and Russia, there are many areas that are both large and relatively undisturbed by human activity. Some of these areas are regarded as large landscape level forests.

Overall forest condition should be assessed, together with the likelihood that a large proportion of the natural forest species still exist there in patterns of natural abundance. This will be a combination of factors such as size, age, condition, degree of fragmentation and the amount of pressure the forest is under from local people.

It is important to remember that the FMU may be a part of a larger forest area that altogether is considered a large landscape level forest.

All or part of the FMU is likely to be considered HCV 2 if...

It is a significant part of large and relatively intact block of forest where these are rare in the wider landscape

### Assessing HCV 3: Rare, threatened or endangered ecosystems

Ecosystem<sup>6</sup> mapping is a crucial stage in any biological assessment of the forest area. Under Principle 6 of the FSC standard, the forest manager is required to identify the different ecosystems present:

<sup>5</sup> Expert advice should be sought to determine if a suitable indicator species exists

<sup>6</sup> Here **ecosystem** is used to refer to the biological and physical components of an area together with the ecological processes that give it a distinguishable character. It is therefore not intended to apply to vegetation types such as **secondary forest** which are temporary features of an ecosystem

<sup>7</sup> Accepted frameworks include eco-regional planning, or Strategic Conservation Planning at an eco-regional or provincial level

‘Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps’  
(*FSC Principles and Criteria for Forest Stewardship* 1996)

The forest manager needs to identify the different ecosystem types, both forest and non forest that may be present (e.g. lowland forest, montane forest, limestone forest, grassland, scrub, wetland). These different ecosystems should be presented on maps.

Next an assessment must be made of whether the ecosystems present are rare, threatened or endangered in the wider context. Forest habitat types may be deemed HCV 3 if they are:

- naturally rare
- significantly reduced from their original extent by the effects of man.

Forest types and/or habitats that are consistent with HCV 3 will usually be:

**Either** areas proposed for conservation by regional or national land use plans or strategic plans for biodiversity conservation

**Or** areas that have been proposed for conservation through a well conceived and robust regional analysis carried out by an expert institution or an NGO (Non-governmental Organisation)<sup>7</sup>.

They may also be ecosystem patches that are known to be threatened, but that are poorly represented in the national protected area network.

### Box 8 Examples of HCV 3

In the interpretation of HCVs in Vietnam some forest types known to be threatened or rare were included as examples of HCV3. For example:

- *Fokienia hodginsii* forest (All forest of this type regardless of area or condition)
- Mangrove forest (All blocks over 100 ha)
- Xeric dune forest (All forest of this type regardless of area or condition)
- Dry Dipterocarp forest (Good condition large area)
- Freshwater swamp forest (All forest of this type regardless of area or condition)

Again, maps of the region should be consulted to identify the extent and whereabouts of these different ecosystem types in the wider landscape context. For the ecosystems that occur in the FMU, the question of how significant these examples are in the landscape context must be addressed.

All or part of the FMU is likely to be considered HCV 3 if...

- There are particular ecosystems that are identified in eco-regional/land use plans as significant (e.g. threatened/rare) at the national, regional or international level
- These ecosystem types support some of the species identified under HCV 1

### Assessing HCV 4: Ecosystem services

This HCV concerns ecosystem services provided by forests such as watershed/water catchment protection, protection from soil erosion and the role they can play in preventing the spread of wildfire. Future revisions to the *ProForest HCV Toolkit* may include such aspects as carbon storage (e.g. in peat soils), or other environmental services.

A forest area may be considered HCVF if the forest is protecting or providing one of these services **in a critical situation**.

For example a forest may provide a function in regulating the flow of water within a catchment. This service may be considered critical when people are dependent on the guarantee of water for drinking or irrigation, or where the regulation of water flow guarantees the existence of fishing grounds or agricultural land on which the local people are dependent.<sup>8</sup>

Similarly, a forest area may provide a vital function in stabilising slopes above a settlement, or, in the upper reaches of an important stream catchment. This service may be critical when disturbing operations in the forest would lead to drastic soil erosion with impacts on people’s property or livelihoods.

<sup>8</sup> Note that in some cases the level of dependence may need to be determined, which may require the setting of and measurement against a threshold. Setting a threshold is difficult and limited guidance is available. See section 3.1 for more information

In both these examples, what defines the value is the existence of people who are **making use of, or dependent on, an environmental service.**<sup>9</sup>

In most cases national classification systems and laws regulating water catchment areas and disturbance to steep slopes will already exist. These systems should be consulted to determine whether such sites occur in your FMU.

Any relevant classifications and the areas to which they correspond (including steep slope areas, watersheds, catchment boundaries) should be presented on maps. Streams, rivers and settlements will also need to be mapped in detail. The following questions should be considered:

- Are all the relevant regulations and guidelines on slope protection and water course management being observed?
- Are there any slope/catchment areas that appear particularly significant to local people?

It is then necessary to consider whether current regulations and restrictions for such areas effectively protect this conservation value. This is a difficult judgement that may mean management goes beyond the existing requirements of the law. Expert opinion should be sought, and consultations should be held with organisations working with the local people before a final decision on the presence of this value is made.

All or part of the FMU is likely to be considered HCV 4 if...

- The FMU contains watershed or catchment areas that meet government classifications for particular protection (i.e. high priority or equivalent)
- New/recent settlements in or around the forest mean that existing protection classifications may be out of date

### Assessing HCVs 5 and 6: Social and cultural values<sup>10</sup>

HCV 5 relates to resources that local people derive from the forest. A forest area needs to be considered HCVF if the local people use the area to obtain resources on which they are critically dependent.

This may be the case if local people harvest food products from the forest, or collect building materials or medicinal plants where **no viable alternative** exists. Some examples are shown in Box 9.

#### Box 9 Basic needs met from forest areas

- Building materials (e.g. rattans, bamboo, timber poles)
- Medicinal plants
- Hunted meat and or fish
- Other food plants (e.g. leaves, nuts, tubers)

The forest manager will need to determine whether the local people are critically dependent on a product from the forest area. In the case of a food product, this would be the case if it constituted a major or significant part of their diet. The product could be needed throughout the year, or may only be critical during one season, but in either case, the provision of this product would be an HCV. It is important to recognise that changes in land use within and outside the FMU can change the status of these values over short timescales.

Assessments of HCV 5 will require:

- review of any social assessments/socio-economic assessments carried out in the area
- consultations with relevant organisations working on community development with the communities in question (or other similar communities in the area)

<sup>9</sup> Some services provided by forests have widespread and diffuse benefits (e.g. atmospheric effects, or climate control) that are extremely difficult to quantify. There are few robust ways to identify or calculate the effect that a given forest area is having at this wider scale. For this reason, HCV 4 is usually identified on a local scale only, where there are clear links between the environmental service and the immediate user

<sup>10</sup> Note that in the FSC standard there are other elements that deal with questions of land rights and other issues regarding indigenous communities. HCVs 5 and 6 sit alongside these requirements as additional safeguards for exceptional circumstances. They are not intended to replace these requirements or to be applied in the absence of a wider consideration of the land and customary use rights of local people

- a survey of the relevant communities, to determine their interactions with the forest area and the products and services they use
- review of all results/findings to determine the levels of use of each resource.

#### Box 10 Examples of HCV 5

It may be necessary to set a **threshold of dependence** where you will recognise a service as an HCV. A practical approach to this was developed in the *Indonesian HCVF Toolkit*. The approach used percentage thresholds (e.g. 25%). If local people rely the forest area for more than 25% of their requirement for the product, the forest area where the product was collected is considered HCVF<sup>11</sup>.

It is strongly recommended that an independent organisation is used to carry out any social surveys that are deemed necessary. Independence from the owner manager of the forest is necessary to facilitate discussion on some key aspects of forest use that may affect, or be affected by forest operations.

All or part of the FMU is likely to be considered HCV 5 if...

Local people appear dependent on one or more of the forest resources where no viable alternative exists

HCV 6 represents areas of cultural significance that have traditional importance to local or indigenous people. These may be religious/sacred sites, burial grounds or sites at which regular traditional ceremonies take place. These are frequently well known by the local people, and most countries forest law requires them to be identified and protected. However, you will still need to assess whether or not this value is present, and if so, whether the existing legal restrictions are sufficient to safeguard the sites/areas.

All such sites should be identified **in consultation with the local community** during the social survey. It may be necessary to review maps of the area with local communities, or to carry out participatory mapping exercises in which the local communities highlight the areas of importance to their traditions and culture.

Areas and features that are deemed central to a community's cultural identity may be HCVs. However, as with HCV 5 identifying thresholds for when something is or is not critically important is rather difficult. Whatever approach is taken to identifying such areas, the process must involve discussion with the local community.

All or part of the FMU is likely to be considered HCV 6 if...

The forest contains sites deemed culturally significant by local people

## 2.4 Use of the precautionary approach

The following definition is taken from the FSC discussion paper<sup>12</sup> on the use of the precautionary principle (2005). The definition is adapted from the *Preamble to the Convention on Biological Diversity* (1992)<sup>13</sup>:

'Where there are threats of **serious or irreversible social or environmental damage**, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent such damage.'

The precautionary approach means that when there is some doubt as to the presence of a HCV, the **precautionary assumption** is that the value is present. Incomplete information shall not be used as a justification for actions that may negatively affect an attribute of HCV.

<sup>11</sup> See the *Indonesian HCVF Toolkit* (2003) for more details

<sup>12</sup> FSC Discussion Paper FSC-DIS-01-008

<sup>13</sup> See Annex 3

In section 3 a process of incorporating the precautionary approach into management planning is outlined. In this approach, where HCVs are present, an investigation of the potential threats to the value must be carried out. If this investigation shows that the threats can be effectively mitigated then it is acceptable to continue with proposed operations (and the necessary mitigation activity) in conjunction with a detailed monitoring programme to evaluate the maintenance of the value.

#### Box 11 Using the precautionary approach

Remember that a central requirement of Principle 9 is that the precautionary principle is employed in the identification of HCVs. What this means in practice is that where there is some evidence to indicate a value is present, the manager should assume that it is present and manage accordingly.

Consider the following example concerning Woodland caribou, an endangered species, from Ontario, Canada:

‘Recent sightings of woodland caribou have occurred in the northern half of the FMU, but the species has not been sighted in the southern half of the FMU for the last 7 years despite the fact that suitable habitat exists there and the pattern of previous sightings suggests that they have used the area in the past. Their recent absence may have been due to warmer winters in recent years which allowed the caribou to use grazing lands further to the north.’

Using the precautionary approach, one has to assume that woodland caribou will still require the habitat areas in the southern half of the FMU when the colder weather returns. You should not assume that the suitable habitat in the southern half of the forest area is no longer of any value to the species. The forest manager may choose to focus his species management in the northern area, but will need to consider some contingency management in the south as well.

## 2.5 Guidelines on consultation

Decisions about HCVs are often controversial, especially where there are diverse and entrenched opinions on conservation priorities or the need for change of land use. The HCVs provide a framework for decision making, but like any decision support tool, they don't make the decisions for you. The incorporation of the precautionary principle inevitably draws in a range of possible interpretations. Managers need to be aware that where there is no 'scientific' answer, the only way a reliable decision can be reached is through consultation. The points listed in Box 12 should be considered.

## 2.6 Presentation and discussion of preliminary findings

Depending on the amount of information available it will be possible to identify the **likely presence** of some or all of the relevant values. It should be possible to make a preliminary decision about which values will need to be addressed in more detail. It may be useful to document the initial findings in a table as shown in Box 13.

### Discussion of preliminary findings

It is important to provide an opportunity for the assessment team to review the initial findings. This can often be best achieved through a team meeting where each part of the team presents their findings for discussion. Team members should provide a brief overview of the source materials used, the survey work carried out (if any) and the areas they believe to possess HCVs. It may be necessary to obtain input from key stakeholders at this stage, so some form of consultation should be considered.

### Mapping areas where values occur

Basic features like habitats, roads, streams and rivers and settlements should all be mapped. Where values are at least potentially present, it should be possible to define the areas that support the value. In some cases this will be a part of the forest area. In other



**Box 12 Guidance on consultation**

**Identify key stakeholders at the beginning of the process**

The key stakeholders are those who will be directly affected by, or bear the cost of a potential measure. For example, local communities who make use of products or services from the forest will almost always be considered key stakeholders. Those organisations that speak for them are equally important. Similarly, those whose legitimate commercial use of the natural resources will be altered by precautionary measures are also key stakeholders. Environmental organisations who represent the wider public and have an interest in the way the forests are managed are usually key stakeholders. Government bodies will always need to be kept informed of discussions even if they are not directly affected.

**Ensure key stakeholders have the opportunity to participate**

The manager responsible for the assessment should ensure that the key stakeholders are aware that an assessment is being made and have been given the opportunity to participate. Participation can come in many ways, either in planning, being directly involved with an assessment team, participating in review meetings, participation on focussed consultations or peer-reviewing the written outputs of the process.

**Recognise the value of independent expert opinion**

Independent views are valuable because they highlight things that people close to the situation may be unaware of. Independence generally means a better ability to balance the relative merits of different opinions, and weigh scientific information against commercial and emotional priorities.

**Recognise that a scientific solution is not always possible**

Decisions will have to be made in the absence of full information. There may not be a scientific solution to a question if little is known about, for example, the distribution and abundance of certain species, or the potential impacts of an action on a critical environmental service. But this does not mean that reasonable, informed decisions cannot be made. One of the important roles of the manager responsible for the assessment is to involve experts who are comfortable to express informed opinion based on experience and a good grasp of what is already known.

**Recognise that compromise is essential**

Consultation gives you the chance to assimilate different views and opinions. Over time these will help steer management in a more sustainable and conflict-free direction, though it may be difficult to reconcile contrasting views at first. It is important to approach the process with the idea of a compromise in mind.

**Ensure all consultations are documented and recorded**

It is important to record all the meetings and interviews that you have held with consultees, and all the responses you get to your enquiries. These records will be useful for your own process of management planning, but your assessor will also need to see evidence that consultation has been undertaken. Minutes of meetings and other notes are ideal for this purpose.

**Box 13 Initial identification of values**

Value	Present	Potential	Absent	Justification
<b>HCV 1: Protected areas</b>	●			Protected grassland areas within FMU
<b>HCV 1: Species</b>		●		Suitable habitat within species range
<b>HCV 2: Large landscape</b>			●	Forest area is degraded and fragmented
<b>etc</b>				

cases the value may be present throughout the entire forest area.

Where GIS facilities are available as much information as possible should be captured in digital form. This can then be used to facilitate discussion about the appropriate management for each area. Digital maps can also provide an invaluable basis for wider consultation on the findings of the assessment

### 3 MANAGING FOREST AREAS CONTAINING HCVS

This section sets out the steps to developing a management plan for each of the HCVs identified as potentially present. It considers the use of the precautionary approach, both in assuming that an HCV is present, and in devising a management approach that seeks to avoid damaging the value.

For each HCV identified, the manager is required to plan out how this value will be maintained or enhanced through management of the area. The management could be something that is done, like restoration of wetland habitats, or something that is not done, like not carrying out operations in a certain area. The rationale for the approach must be:

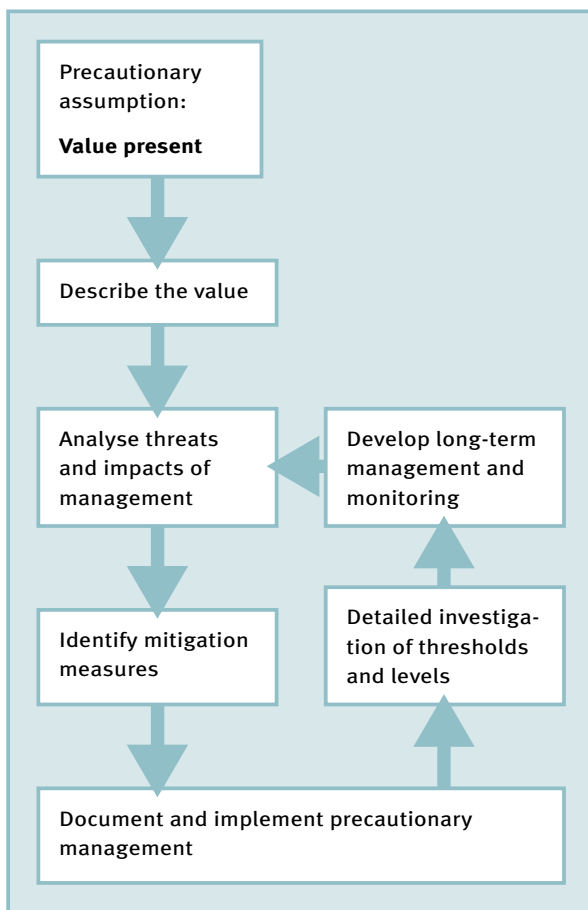
- aimed at maintaining or enhancing the identified value, and
- clearly described and explained in the management plan.



The process of management must incorporate the precautionary approach. This means if there is any doubt, an assumption must be made that an HCV is present, and potential impacts on the value must be investigated.

If there is reasonable assurance that potential impacts can be mitigated within the management strategy, it may be acceptable to proceed with **precautionary management** i.e. management that is unlikely to have a negative effect on the value. However while doing this, a monitoring programme to check that the value is being maintained **must** be implemented.

Figure 2 **Flow diagram for implementation of HCV management based on a precautionary decision**



There are several stages to this process. It is recommended that the management plan should be structured as shown in Box 14.

**Box 14 Elements of an HCV management plan**

**Define the management objective for each value you are seeking to maintain**

The value may be the **presence** of a group of species or particular forest habitat or the **provision** of a service. The management plan must be specific about the focus of management, and about what level or threshold is to be maintained.

**Identify and quantify the major threats to this objective**

Threats may be coming from planned management activities (road building, harvesting etc.) or from external sources like forest conversion or fire within the landscape. The *extent* to which these are impacting the value must be determined. Therefore some form of impact assessment should be conducted.

**Identify suitable mitigation measures**

Options may include changing harvesting practice, road layouts, the schedule or intensity of harvesting activity, or engaging with other stakeholders to find participatory conservation solutions.

**Define precautionary management**

Assuming that a given value is present, it may be possible to proceed with management that attempts to mitigate the major threats or avoid negative impacts. This is a management strategy that explicitly recognises all possible information is not available, but that nevertheless attempts to address the obvious and major impacts/threats while more information is collected.

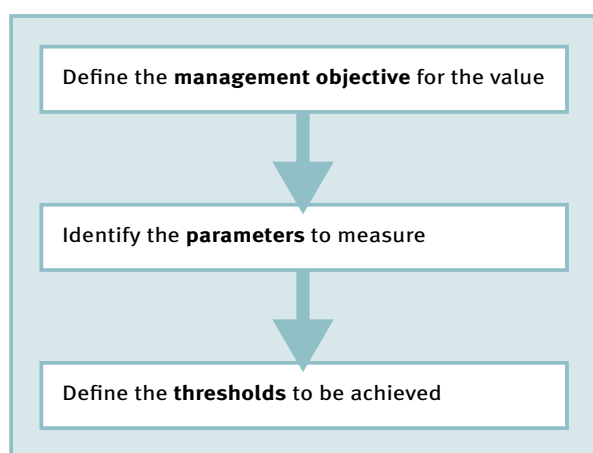
**Develop long-term monitoring based on detailed information**

Gathering the detailed information necessary to prove that an HCV is actually being maintained, including measuring changes to levels and populations. This may include long-term/on-going data collection and analysis.

### 3.1 What is the management objective for each value?

The management plan should re-state clearly the nature of each value that is to be conserved. Then, for each value it should define the management objective, and outline how it will be possible to demonstrate that this objective is being met. There are three steps, shown in Figure 3.

Figure 3 **Steps to defining parameters and thresholds**



Defining the management objective is important because the six HCVs differ in their essence. The management plan must be clear about what needs to be achieved, and to set this out as plainly as possible.

In some cases the objective may be very obvious, but in others less so. The objective may be trying to maintain the **presence** of a group of species, or the **provision** of a particular service. Some examples are shown in Box 15 below.

The next step is defining the things about the value can be measured (the parameters) and the **level** (or threshold) of the value that is to be maintained. This need not be complex, but is important to ensure definite, objective measurements can be taken that show that management is effective.

#### Identification of parameters

The relevant parameter will come from the management objective. For each HCV the manager should decide how he/she can tell if the value is being maintained. This will require some kind of measurement, but may, in fact, be very simple.

**Example A** In Box 15 the objective for HCV 3 is the protection of all limestone forest outcrops. It will therefore only be necessary to know where these are (their location and area), and demonstrate that disturbances have not occurred

In other cases identifying what to measure may be more difficult

**Example B** In Box 15 the objective for HCV5 is to manage levels of harvesting of natural products. The current levels of harvest will need to be determined,

Box 15 **Examples of management objectives for different HCVs**

Value	Definition	Management objective
HCV 1	Concentrations of endemic species	The maintenance of suitable habitat for white-breasted guineafowl, Ghana cuckoo-shrike, brown-cheeked hornbill and black-throated rufous warbler
HCV 3	Threatened or endangered ecosystems	Protection of all limestone forest outcrops from human use or damage (including quarrying, road building and fire)
HCV 4	Forests critical to water catchments	Maintain catchment under permanent forest. Introduce road building BMP (Best Management Practice). Harvest only in dry season
HCV 5	Forest areas fundamental to meeting basic needs of local communities	Manage levels of rattan and bush-pig harvesting within community use areas

and, in order to decide if these can be maintained over the long-term, information is needed on the number of bush pig that are caught (e.g. per month) over what area, and whether this has been changing over time. In this case, the parameters could be:

- The actual catch rates
- The average time spent hunting for a given catch
- The average distance travelled for a given catch

It is important that the parameters selected will give useful guidance to management. In most cases, information about the number, density or quality of the value will be needed. For example, for HCV 4, the provision of clean drinking water, both the quantity and quality of water are parameters that could be measured. However, if riparian protection zones, reduced impact timber extraction techniques and proper stream and river crossings are used it may be the monitoring of these **operations** that is most important in the short term.

Riparian protection reserves are established based on a rationale that they will perform their function. It is important to first ensure that these practices are followed before considering the need for more detailed water quality monitoring. When operational monitoring shows that best practice is being followed it is time to look in more detail at the question of whether the riparian reserves (and other techniques) are achieving the management goal. In this case water quality monitoring could be used to evaluate whether existing practice delivers an **acceptable** level of water quality.

### Identification of thresholds

Once the parameters to measure have been identified, a threshold level must be maintained. As in example A above, the threshold may be obvious; the maintenance of all examples of limestone forest. In example B it will require consideration of the level at which the value needs to be maintained. This may be the current level of hunting, or perhaps some change to the current level.

In the case of riparian protection areas, the threshold (width of the protection zone) has already been set. Similarly with steep slopes and erosion risks, forest regulations typically set a slope

threshold beyond which no logging should take place (e.g. 25 degrees).

Thresholds can be set for biological values too. For example the amount of suitable habitat that should be maintained in order to safeguard a group of species, but this is likely to require specialist input.

Sometimes there is little scientific basis for setting such a threshold. Instead it is based on experience, expert views and a practical compromise. The same principle should be applied with the other values. An expert view on what is an appropriate threshold should be sought.

#### Box 16 Examples of thresholds

- X breeding pairs of rhinoceros hornbill within the FMU
- Y ha of forest that is mature or that retains 'old growth' features in any harvesting coupe
- X tonnes/ha of coarse woody debris on the forest floor
- No more than Y bush pig caught within the FMU in a month
- No harvesting within X metres of all tertiary streams

The threshold should be regarded as a conservation target to be achieved. There are two advantages to setting thresholds:

- It puts the focus on the **how** questions, (that is, **how** do I get from here to there?)
- It provides performance benchmarks that can be measured and monitored

### 3.2 Identifying threats

In order to maintain each value it is necessary to focus on the threats to this objective. Identification and mitigation of threats is the central focus of managing HCVs. Again here, threats may be very obvious, especially in the case of direct threats. However, there may also be some more subtle or hidden threats that merit consideration.

## Identify internal and external threats

Threats can arise from actual or planned operations (**internal**) or can come from other actors outside the direct control of the forestry organisation (**external**). They also have **proximate** (immediate) and **ultimate** causes. Of the many possible examples, consider the simple case outlined in Box 17.

### Box 17 Proximate and ultimate threats

Local people from a nearby village have started cutting house building timber in an area of your FMU which had been designated as a conservation zone. This threat has an immediate cause (the people) and an ultimate cause, which is the absence of house building timber within the community forest area adjacent to the FMU

Threat analysis is a common feature of most conservation planning frameworks. The Nature Conservancy (TNC), for example, emphasises the importance of threats analysis in their guide to developing site-based conservation plans.<sup>14</sup> However the TNC talks about **stresses** (i.e. things putting pressure on a conservation value) and **sources of stress** (the ultimate causes of the threat). It is often useful to characterise the stress that the value is under first, as this makes one think more clearly about how a perceived threat is actually affecting the value.

## Prioritise your action

Major threats can be identified quickly and easily. But it can still be a useful exercise to **prioritise** their

### Box 18 Prioritisation of threats

HCV	Threat	Severe	Immediate	Mitigation measures
Threatened forest type	Hunting	✗	✓	
	Illegal clearance	✓	✗	
	Illegal logging	✓	✓	
	Fire	✓	✗	

relative importance. This can help to identify the area that should be the immediate focus of your management.

One option is to prioritise threats by ranking them as severe or immediate. Threats that are both severe and immediate should be the focus of mitigation strategies.

This type of exercise can be done intuitively without much need for quantitative information. However, to transform this into a useful management outcome, it is necessary to consider the **extent** to which the threat is likely to compromise the management objective.

### Box 19 The link to EIA: Setting a threshold of concern

Impact assessments for forestry operations are sometimes criticised for being too generic to be useful. But, the process can provide a very good basis for decisions. The key is carefully defining the scope of the assessment.

Impact assessment approaches aim to set **thresholds of concern** for the potential impacts of threats. This is a valuable exercise when the focus of the assessment is correctly and specifically defined. When the various threats are identified and prioritised, a more detailed impact assessment can be carried out for those immediate and severe threats that cannot be obviously avoided.

The assessment should seek to identify the thresholds beyond which change to a value will be unacceptable. This measure is fundamental to a good assessment, and must be included.

<sup>14</sup> *The Five-S Framework for Site Conservation, A practitioners handbook for site conservation planning and measuring conservation success* The Nature Conservancy, 2000

## Establish an appropriate level of responsibility

The response to the question of what needs to be done to maintain a conservation value will often be related to the overall condition of the value within the landscape.

There is an important point to acknowledge here. If an aspect of the forest area is considered a HCV, this means it is a significant conservation concern at the national, regional or even global level. It also means that the forest manager has to accept a level of responsibility for the management of this value. The level of responsibility will depend on the role that the FMU plays in the conservation of that HCV within the landscape.

Where the FMU is the only remaining suitable habitat for a concentration of a threatened species, the level of responsibility is high. Where the landscape beyond the FMU contains a large proportion of suitable habitat, the level of responsibility is reduced.

For species values, threatened habitats, and some environmental services, this status will depend on the extent and condition of other protected areas in the region, and the way in which land use has been changing in recent years.

### Box 20 Establishing the level of responsibility: Key questions

- How well protected is the value elsewhere in the landscape?
- How has the status of the value been changing in recent years?
- How much does your current/planned management add an additional threat?

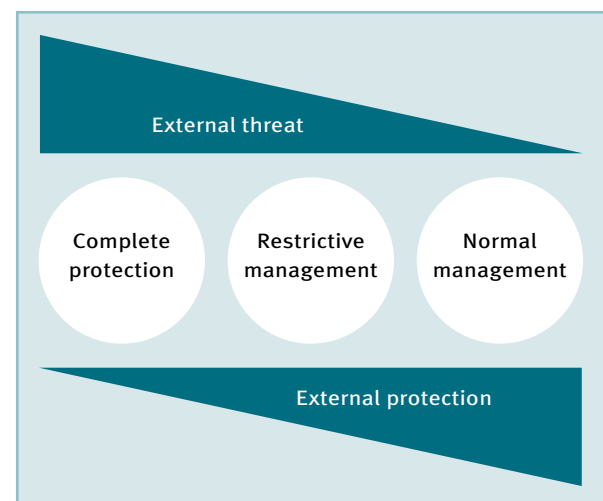
Where the value appears to be well protected within the landscape, and this condition is relatively stable it may not be necessary to change the normal/planned management activities to a great extent. However, where the value is threatened in the wider landscape the FMU becomes relatively more important for the maintenance of the value. This must be explicitly considered in the management plan.

Some information on the **coverage** (area and representation) and **status** (condition) of the network of protected areas will be useful. Many countries have carried out reviews of the protected area networks as part of protected area planning approaches. A good example of this is the Protected Area Systems Review of the Indo-Malayan realm,<sup>15</sup> which reviews the representation of different habitats within the protected area system in that biogeographic realm.

The status of protected areas has a profound impact on the effort necessary to conserve certain habitats found within the FMU. Protected Area (PA) coverage may be quite extensive, but if certain habitats are poorly represented in the PA network they may need additional emphasis in conservation planning within the FMU.

It may be helpful to consider the following diagram when deciding to what extent the management response should take responsibility for the HCV.

Figure 4 Considering the landscape context in establishing the level of management response



The diagram shows how the level of threat to a value may change with the extent to which it is protected in the landscape. On the left of the diagram the value is under threat (e.g. from land use change) and is poorly represented in protected areas. Under these conditions management of the FMU should be orientated towards high levels of protection for the value. This may require restricting management interventions or establishing complete protection zones.

15 Mackinnon J (Ed) (1997) *Protected areas systems review of the Indo-Malayan Realm* World Conservation Monitoring Centre and Asian Bureau of Conservation on behalf of the World Bank

Notice how different this approach is from one that simply asks for the protection of a percentage of the area. Forestry laws often ask that a percentage of area is set aside for conservation.

Consider also the following examples, A and B (also illustrated in Figure 5) where the forest provides suitable habitat for a critically endangered species:

**Example A A large protected area exists within the landscape, where the conservation of a certain species is a major aim** In this case the amount of the FMU dedicated to the conservation of that species may be limited.

**Example B No protected area exists** The management of a larger area the FMU should focus on the conservation of the species.

What is called for under this approach to HCVs is a reasoned decision, where management of each value is justified on the basis of the threats. Managers should be aware that this approach may mean going well beyond the requirements of law.

### 3.3 Mitigating threats

Internal and external threats will require different approaches.

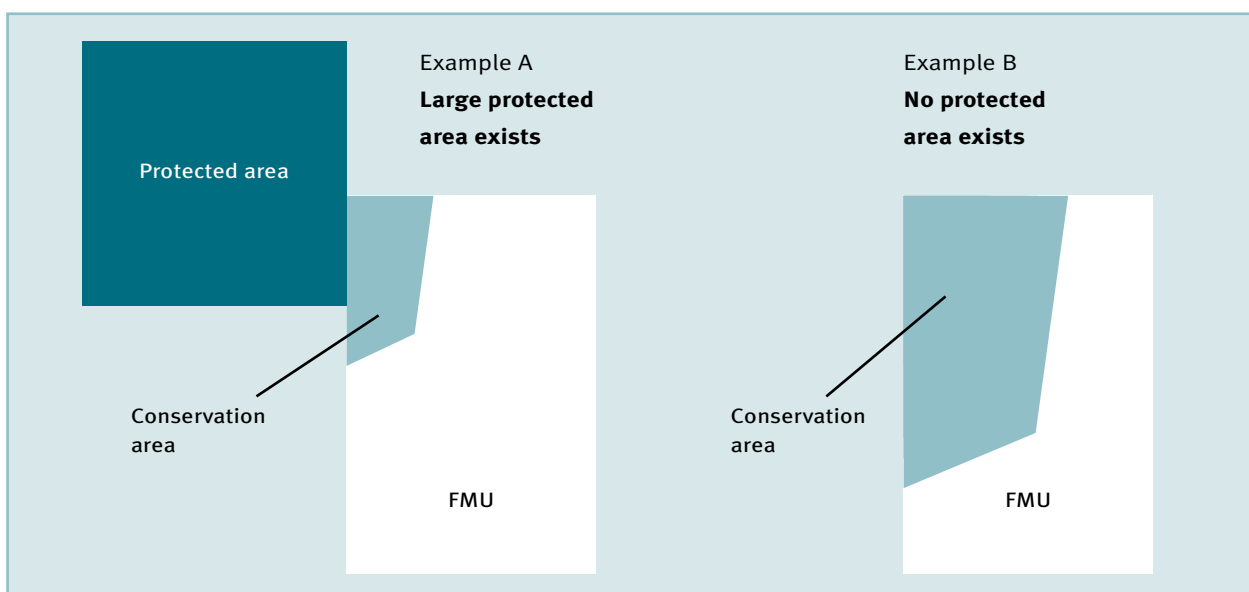
#### Internal threats

Mitigation measures for threats coming from forest management will be relatively easy to identify. There are many examples of international best practice that can be adopted, given sufficient training of operational staff. Mitigation measures might include:

- forgoing all operations and creating non-intervention areas
- incorporating protective measures into operations
- following examples of best practice.

If there is room for improvement in logging, road building, control of access and hunting there will be an example of international best practice to follow. For example, the conservation and economic benefits of implementing reduced impact logging techniques are well documented in the scientific literature. However, the effective implementation

Figure 5 Responding to the landscape context





of these techniques may require specific training for forest workers. It may be necessary to use external expertise to train staff and demonstrate good practice.

Consider the example below of reducing logging impacts on a wetland area. The following measures were implemented:

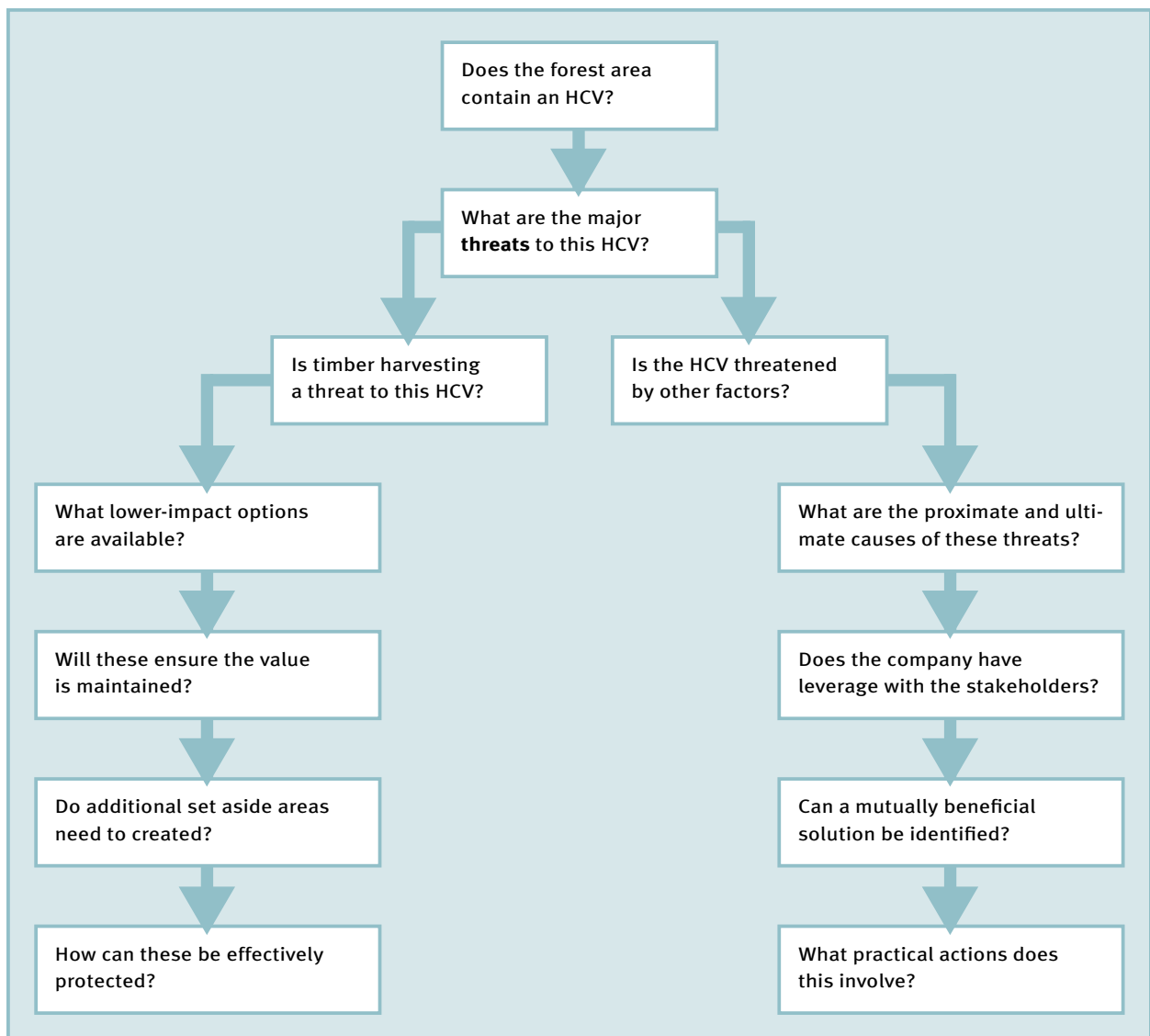
- Delineation of a buffer zone around the wetland and the stream that feeds it
- Review of the route of a proposed new road that will be built to extract the logs
- Implementation of a best management practice for new road building

- The use of silt traps and culverts on all minor stream crossings
- Reduction by 30% of the permitted timber harvest volume

**Box 21 Mitigating impacts: Key questions**

- What is considered national best practice and do you meet it?
- What is considered international best practice and do you meet it?
- Is the compensatory measure planned going to deliver the required conservation gain?

Figure 6 Approaches to mitigating internal and external threats



### External threats

For threats that are coming from outside the forest management operation the mitigation measures are not always so obvious, nor are they readily within the control of the manager. Government and other land users may be the cause. However, understanding the ultimate causes of these threats is crucial to finding solutions. It is also important to recognise that there are opportunities to find partnerships that can benefit both the forest owner and other stakeholders.

Threats coming from local people, such as encroachment, fire, illegal collection, timber cutting or hunting all have ultimate causes, for example, a lack of access to alternative resources. It may be possible to address these needs and, in return, secure the participation of local people in efforts to protect the HCVs and maximise the efficiency of forest management.

Consultation with the key stakeholders and a willingness to look for mutually beneficial solutions will be invaluable.

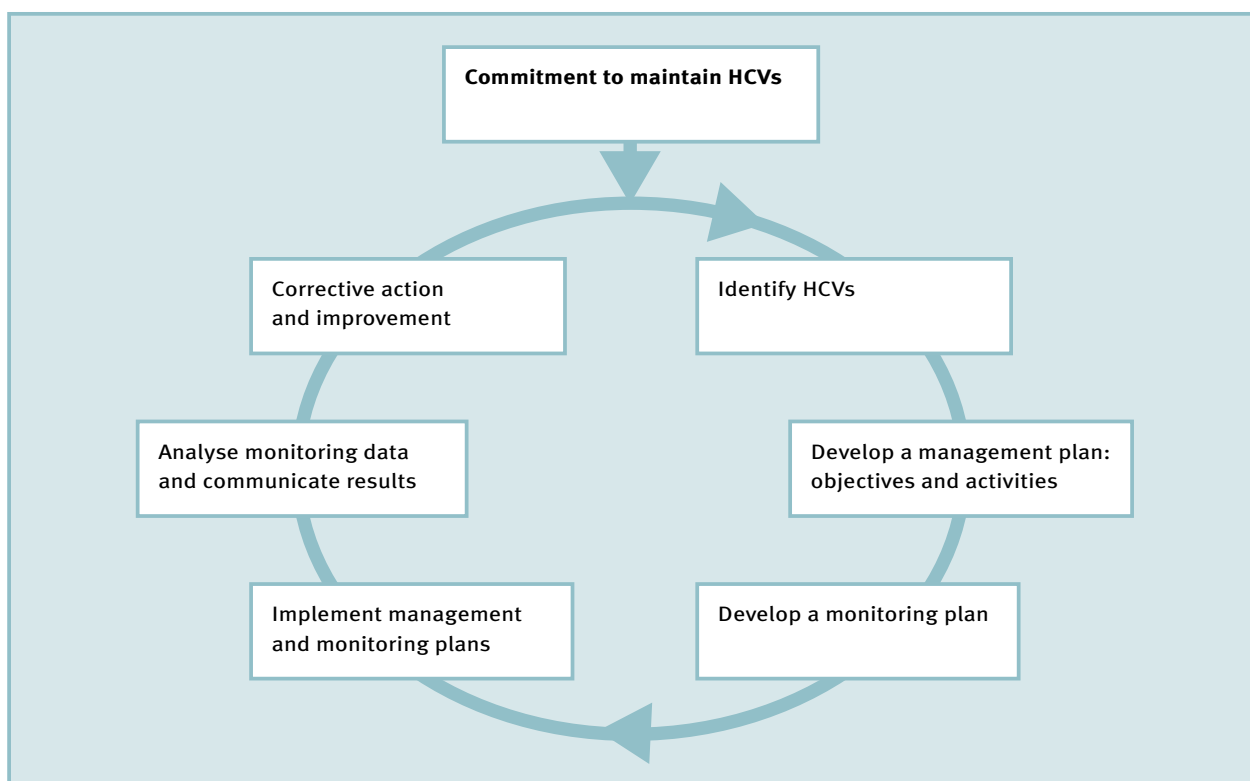
### 3.4 Defining precautionary management

If the threats to the HCVs can be effectively mitigated, it will be possible to proceed with what can be described as **precautionary management**. This could be defined as:

A course of action that makes the best use of the available information about the impacts of your operations, and takes steps to implement best practice, while recognising that ongoing monitoring is necessary fully to understand how to maintain the value.

It is important that no irreversible changes are made without adequate investigation of the likely impacts. This point is especially important in the context of conversion forestry, where credible assurances against irreversible losses will depend on meaningful stakeholder engagement. Where the major impacts and threats can be reliably mitigated, however, incomplete information should not be a reason **not** to proceed.

Figure 7 **The adaptive management cycle**



Thus, precautionary management goes hand in hand with a programme of monitoring that feeds back into management decisions (so-called **adaptive management**) in such a way that management decisions can respond quickly to needs or changes.

The approach taken to manage the HCVs cannot sit outside the normal process of management planning. Therefore all this must be detailed and documented in the management plan. The management plan must provide the evidence that your proposed actions have been carefully thought through and are

#### Box 22 The value of maps

GIS and mapping techniques are normally a vital part of the **communication** of the management strategy. But it should be remembered that while a map is a powerful communication tool, it needs to be backed up by trained staff with a clear plan of activity.

Many decisions are concerned with the allocation of **areas** for different purposes, and are easily communicated in map form. For example:

- Deciding where set aside areas/conservation areas should be located
- Deciding where roads and landing areas should be avoided
- Deciding where reduced impact techniques should be employed
- Deciding where extra restrictions should be placed on harvestable volume

Other decisions might not be so easily communicated in map form. For example:

- The decision to carry out regular anti poaching patrols and boundary checks
- The decision to widen riparian buffer strips throughout the FMU
- The decision to put in place a species monitoring programme

All of these measures need to be identified and detailed in the management plan. But the management plan needs to be a functional working document, that is used by the management staff in planning their day to day activities. It must effectively communicate how and where actions will be carried out to the relevant staff.

being monitored. Each value occurring within the forest area may need a specific strategy. But where straightforward, generic forest management practices (such as the implementation of reduced impact logging) will ensure a value is maintained, there is no need for an additional layer of management planning. Nevertheless, justification will still be needed as to why and how this strategy will deliver the target. The auditor will be looking for a reasoned and well thought out rationale.

### 3.5 Developing long-term monitoring based on detailed information

Together with a precautionary approach to management, it is necessary to collect the kind of information that will show that management objectives are being met. This requires:

- information on the parameters that have been chosen
- collection of data in repeatable way
- data that can inform whether the targets/thresholds that have been set are being met.

It is often assumed that monitoring of HCVs needs to involve complex science. This is not true. However, a successful approach to monitoring should have two features:

- The first level is the monitoring of the basic operational procedures that have been put in place in the management plan (e.g. the establishment of a buffer zone, the implementation of a new road building plan). This is usually referred to as **operational monitoring**.
- The second level is defined by the management objective that is to be achieved. For example, under HCV 1 where the objective might be to maintain areas of good forest habitat for a threatened species, and ensure that the species is still present in this habitat. Thus monitoring must check that the **quality** of the habitat is still suitable and that the species is still using the habitat. This is necessary to demonstrate that the **strategic** objective is being achieved, and i.e. usually referred to as **strategic monitoring**.

Consider the following example:

**Box 23 Monitoring example: Maintaining a population of *Picathartes gymnocephalus***

The FMU contains a few breeding pairs of a rare species of ground-nesting bird that is an HCV. The management objective is to maintain these breeding pairs in the FMU. An exclusion zone around each known nest location has been established, as well as around similar sites where nests have been seen in the past.

Monitoring has three essential elements:

- 1 **Operational monitoring** Checking that the exclusion zone is marked, that harvesting crews can recognise the markings and that they are respected in practice. This should include post harvest checks that exclusion zones have remained intact.
- 2 **Strategic monitoring** Checking that nesting still occurs that the protected sites following logging activity. It may be necessary to monitor the sites over the next several breeding seasons.
- 3 **Analysis and review** Review of the results of monitoring and feedback. In the event that nesting success appears to be affected, this includes due consideration of extending the exclusion zones in sites where harvesting is due to take place, rescheduling harvesting activity to occur after breeding, or complete cessation of harvesting activity until a cause of the nesting failure can be properly determined.

Data collected must be analysed and fed back into decision making. Bear in mind that if this analysis is not being done, the monitoring effort is a waste of time, and not giving you information that is useful.

Remember that in most cases information will be needed on the **levels and thresholds** of the aspect that is being measured. This will go beyond a simple presence/absence measure in most cases and will require a measurement of **relative changes** to the parameters. To do this it will be necessary to select

an indicator for the aspect to be measured, and a threshold that you are seeking to maintain. Refer back to the examples in section 3.1. It may be wise to seek advice from experts in the field of wildlife conservation, soil science, hydrology, or local people's needs in order to develop an appropriate approach. For detailed guidance on monitoring of ecological aspects in forestry, the WWF guide *Ecological monitoring of forestry management in the humid tropics*<sup>16</sup> is recommended further reading. It is available in English and Spanish from [www.hcvnetwork.org](http://www.hcvnetwork.org).



<sup>16</sup> *Ecological monitoring of forestry management in the humid tropics; A guide for forestry operators and certifiers with emphasis on high conservation value forests* translated from *Monitoreo Ecologico del manejo forestal en el Tropico Humedo: Una guia practica para operadores forestales y certificadores con enfasis en Bosques de Alto Valor Para la Conservacion* WWF Central America

## ANNEX 1

### FSC PRINCIPLE 9

#### FSC Principles and Criteria for Forest Stewardship FSC-STD-01-001 (Version 4) (1996)

##### Principle 9: Maintenance of HCVFs

Management activities in HCVFs shall maintain or enhance the attributes which define such forests. Decisions regarding HCVFs shall always be considered in the context of a precautionary approach.

**9.1** Assessment to determine the presence of the attributes consistent with HCVFs will be completed, appropriate to scale and intensity of forest management.

**9.2** The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

**9.3** The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

**9.4** Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

## ANNEX 2

### FSC DEFINITION OF HCVF

**HCVFs** are those that possess one or more of the following attributes:

- Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
- Forest areas that are in or contain rare, threatened or endangered ecosystems.
- Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control).
- Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (e.g. areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

### ANNEX 3

#### DEFINITION OF THE PRECAUTIONARY PRINCIPLE

The following definition is taken from the *Preamble to the Convention on Biological Diversity* (1992)

‘[W]here there is a threat of **significant reduction** or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.’

### ANNEX 4

#### USES OF THE HCV CONCEPT

The HCV concept has been useful in the following areas:

- Identification of conservation priorities or targets
- Communication of conservation priorities
- Advocacy for conservation
- Guidance on conservation-based management of natural resources

**Identification of conservation priorities or targets** HCVs represent a framework for identifying conservation priorities where these priorities have not been well defined or articulated. The HCV framework identifies the range of features that may be important about an area, so provides a systematic basis for the evaluation of the priority issue or issues.

**Communication of conservation priorities** Where systematic approaches to land use or protected area planning have already been carried out, conservation priorities and targets should be well known. In this case it can be useful to harmonise these priorities with the HCVs, to aid communication of the ideas. The term HCV has a global currency that both conservation and industry stakeholders can relate to. The concept therefore presents opportunities to create leverage on both sides.



**Advocacy for conservation** Where HCVs have been identified and defined at a national level, this provides a powerful tool for conservation advocacy. The values themselves or the natural habitats that support them need to be maintained, which may rule out some forms of land use change altogether.

**Guidance on conservation-based management of natural resources** The concept was written into the FSC standard to act as a conservation safeguard within responsible forest management. However, existence of an HCV does not mean all forms of land management must cease in HCV areas. Instead, it opens the space for an important dialogue concerning the ways in which each value must be managed. The framework of conservation values provides a structure for addressing individual threats and opportunities and setting thresholds for achievement. It draws in useful information and can provide a good basis for conservation-based management.



**April 2008**

**ProForest**

South Suite  
Frewin Chambers  
Frewin Court  
Oxford  
OX1 1ST  
United Kingdom

Phone +44 (0)1865 243439

Fax +44 (0)1865 244820

Email [info@proforest.net](mailto:info@proforest.net)

Website [www.proforest.net](http://www.proforest.net)