

Part 2

***Defining High Conservation
Values at a national level: a
practical guide***

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1. Introduction to defining High Conservation Value Forest at a National Level

1.1. How does the Toolkit work?

This part of the Toolkit is aimed at anyone (including FSC national standards setting groups) who need to interpret the global HCV definitions for use in a particular country, region, forest type or other large political or natural unit. Following the introductory section, the Toolkit is divided into four sections that deal with each of the criteria under FSC Principle 9 in turn:

Introduction: this discusses who conducts the process of defining HCVF at a national level, the key steps in the process and discusses how different types of information can be used to define HCVFs.

Defining individual HCVs: This section takes each of the six generic HCVs in turn and provides guidance on how to define them in a clear and precise way at a national or sub-national level, providing the basis for easy use of the concept by forest managers, certification auditors, timber purchasers, investors etc. Different options are given and the option used will depend upon the type and quality of information available. Potential sources of useful information are also given.

Developing requirements for consultation: This section discusses requirements for involving stakeholders in the identification and management of HCVF. It outlines some of the basic issues for which guidance can be provided to forest managers, particularly with respect to HCVs 5 and 6, for which consultation is particularly important.

Developing requirements for managing HCVFs: The basic task of forest managers who have identified one or more HCV within their FMU is to maintain or enhance the value. Given the variety of HCVs, it is not possible to suggest global management prescriptions for them. Instead, this section provides guidance on how HCVF working groups can develop appropriate management recommendations for forests managers.

Developing requirements for monitoring HCVFs: Monitoring is an integral part of all forest management and is particularly important for ensuring that each identified HCV is maintained or enhanced. This section provides an outline of the basic processes needed to develop robust monitoring protocols.

1.2. Who conducts the process

The Toolkit will normally be used to assist the process of defining HCVs for a country, region, forest type or other large political or natural unit. This will be done, for example, by a specific HCVF working group, an existing group working on related issues or a group working on defining or mapping forest values. This part of the Toolkit is

organised for use by such a HCVF working group, who should follow the process of identifying the locally relevant parameters for each element, establishing threshold levels and communicating this through preliminary and full assessment requirements.

When the generic HCVF definitions are interpreted to develop a national standard, it is usually done by a multi-stakeholder group working over a period of months or even years in consultation with a wide range of different interested parties. However, in many cases it will be desirable to have a national interpretation of HCVF before a full national standard process has been undertaken. This is particularly important if, for example, a national standard-setting process is underway but will still take a long time to be completed, or where there is as yet no national standards process. Efforts should be made to coordinate the HCVF definition process with the full national process and any 'stand-alone' HCVF definition should be subordinate to a full national standard. This is important to avoid there being multiple and conflicting interpretations of HCVF.

In the absence of an existing national or regional standard there are two possible approaches to defining HCVF for a particular country, forest type or region:

- **Multi-stakeholder, consensus-based approach:** This will result in a definitive interpretation that has the same degree of wide-ranging support as a national or regional standard. If a definitive national or sub-national standard for HCVF is the desired outcome, then a process that involves a wide range of stakeholders and achieves their support will be necessary. It is a good idea to base such processes on the guidance which has been developed for this type of standard-setting¹;
- **Technical adaptation:** Using a representative working group or team, this approach will result in an interpretation of HCVF which may not be definitive, but could be extremely useful as a practical way forward. This can be then incorporated into a national standard once such a process is up and running.

If the adaptation is to be made by a technical HCVF working group or team, there are some important things that should make the process successful.

Firstly, be clear from the beginning that the process is not equivalent to a national standard-setting process and that the product will not have the status of a national standard or norm.

Secondly, be sure that the HCVF working group or team includes:

¹ For example, Scrase, H. and Lindhe, A (2001) Developing Forest Stewardship Standards – A Survival Guide. Available at www.taigaescue.org; World Bank – WWF Alliance (2002) Capacity Building Toolkit for Working Groups on Forest Certification (website). Available at www.piec.org/mswg_toolkit

Expertise: the expertise of the members of the group or team needs to cover the full range of topics included in the HCVF definition, including biological, environmental services and social aspects.

Range of views: defining HCVF should always be based on the best available scientific information, but deciding on the threshold level at which a ‘value’ becomes a ‘High Conservation Value’ is inevitably a value judgment. The outcome will depend on the membership of the group. As a result, it is important to try to make sure that the membership represents an appropriate range of views and perspectives.

Practical experience: it is very important that the group or team includes people with real, current, practical experience to ensure that the interpretation and accompanying guidance are appropriate, implementable and accessible to forest managers.

The output of this process should be a clearly defined set of HCVs for a country or region (Section 2), and may also include some level of management and monitoring guidance for each value (Sections 4 and 5).

1.3. Steps in the process

The six global, generic HCV definitions from FSC have to be transformed into definitions that are specific to and appropriate for each country or region. For two of the six types of High Conservation Value (HCV1 and HCV4, see Section 2), the Toolkit identifies some separate elements that need to be considered. It then provides guidance for each value or element on how to decide whether what constitutes a HCV within the country or region. The national definitions developed by using the guidance in this document can then be used by forest managers and other users to evaluate specific forest areas for the presence or absence of the HCVs, in order to identify and delineate HCVFs.

The process of defining HCVs requires two critical steps:

- Decide what the relevant forest values are, such as forest types, species assemblages, etc. and specify the **parameters** used to measure them
- For each forest value and parameter, define **thresholds** for deciding when to designate a High Conservation Value (Box 1.1). Thresholds are actual levels, numbers, types or locations. For example, thresholds could relate to the number of species from a particular taxonomic group, a minimum size of a specific forest type, or simply the presence/absence of a particularly important type of religious site.

Box 1.1: Example of Defining an HCV
Generic HCV: Concentrations of biodiversity values (HCV 1)

Specific national-level HCV: Intact coastal forest showing interior forest conditions (minimum area 1000 ha) with presence of two or more key red-listed indicator species (e.g. bird species dependent on old growth forest).

Management guidance: Maintain interior forest habitat in these areas and include considerations of landscape connectivity in forest planning.

Deciding parameters and thresholds for each HCV (or element) is potentially a complex and time-consuming process. Fortunately, in any given country, parameters and thresholds that define forests that are critical to maintaining many of these values will have already been developed by a variety of different processes and initiatives. It is recommended that, where appropriate, these existing processes are used (see Sections 1.4-1.6).

The process of national interpretation should aim to make the defined HCVs as clear, detailed and straightforward to interpret as possible, so that they can be understood by non-specialist users, and their presence unambiguously assessed at the forest level. The more precise the HCVF working group makes its definitions the fewer value judgements have to be made by individual forest managers, increasing the transparency, fairness and robustness of the system.

In discussing thresholds, the working group needs to be aware of the implications of its decisions for forest management. Establishing thresholds that are too high will result in inadequate protection for forest values, since important sites will be omitted. Setting thresholds that are too low will lead to excessive areas of forest being defined as HCVF and place an unnecessary burden on forest management.

1.4. When is a 'value' a 'High Conservation Value'?

The HCVF working group needs to define High Conservation Value Forests by interpreting words such as 'significant', 'critical', 'threatened' and 'fundamental' that are used in the FSC Principles. This is particularly difficult because, although some values may have simple yes/no alternatives, many will be measured on a continuum of gradually increasing importance. This means that, although HCVF definitions should always be based on the best available scientific information, they will inevitably involve value judgements.

For example, slope angle may be chosen as a parameter in assessing landslide risk. The likelihood of a major landslide increases as the angle of slope increases, but there is no one angle at which one can say – 'beyond this point the risk clearly changes from moderate to high'. A slight decrease in slope angle causes a slight decrease in risk, but the risk remains almost the same.

As a result, for slope (and for most other most parameters) there will not be a single point at which one can say with scientific objectivity – ‘above this point the value is high, below this point the value is not high’. There is no objective reason why, for example, a 33% risk of landslide in the next 50 years should be considered ‘high’ whereas a 32% risk is considered ‘moderate’.

Despite this, the HCVF working group will eventually have to settle on a threshold slope angle above which the risk of landslips is deemed unacceptably high if the site is uphill from a village or town. This threshold may vary depending on the bedrock or climate zone, but in any one area the group will define it clearly. Unfortunately, the threshold chosen may not be acceptable to everybody – some will argue that it should be placed lower, whilst others will argue that it is too cautious and higher risks would be acceptable. Where this is so, the HCVF working group will be able to argue that it has followed the right process to find the most widely acceptable position (see Section 1.2.1), and that its decisions should therefore be respected.

It may seem highly impractical to suggest a detailed review of relevant evidence for each forest value, followed by the setting of numerical thresholds for each. In reality, many existing studies and reviews will already have established parameters and thresholds for these for various HCVs and so the HCVF working group will be able to use these existing approaches to define HCVs. For example there may already have been a nationwide process of mapping landslide risk. The HCVF working group will first need to assess whether the study is sufficiently high quality to be used as a basis for their decision-making, and they will also need to assess whether the spatial resolution was sufficient (e.g. a county-by-county map is likely to be inadequate, and the scoring system used may not be adaptable to finer scales). If it is adequate, then its findings can be used to define the relevant HCV.

The existence of previous studies will have a strong bearing on the choice of threshold levels used for defining HCVFs. For example, the map of landslide risk mentioned above might categorise the risk into ‘very high’, ‘high’, ‘moderate’, ‘low’ and ‘very low’. The sensible course for the HCVF working group would then be to look at the definitions of these existing categories to see whether one or more of them would adequately match the criterion of ‘high value’ for HCV purposes. This has two advantages over conducting a fresh analysis of the raw data. Firstly, the previous analysis has probably benefited from more specialist technical input than the HCVF working group would be able to supply. Secondly, the previous analysis may already be accepted by a range of stakeholders and in some cases may already be implemented by forest managers, which means that implementation of the HCVF definition is likely to be more straightforward.

The important message here, is that ***HCVF working groups should rely wherever possible on previous reviews and studies.***

1.5. Types of available information

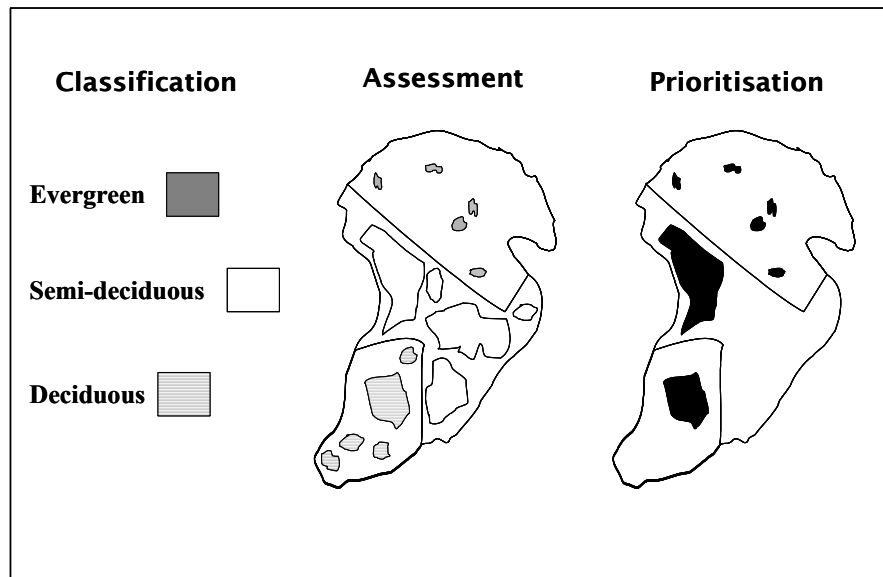
As discussed in Part 1 of the Toolkit, one of the advantages of the HCVF approach is that it can bring together a wide range of different approaches and analyses for identifying important forest values. Using existing sources of information is highly preferable. For example, the forestry regulations of a particular country may have already defined what areas of forest are vital to maintaining stream flow in water catchments prone to flooding. Provided that these regulations are adequate to achieve the goal of maintaining watershed functioning in these critical catchments, there is little point in the HCVF working group undertaking a new study to define ‘watershed protection in critical catchments’.

The critical step of defining HCVF therefore becomes a question of how to use existing information. The first step in this is to understand what type of information is available for any given parameter. Available information can be in one of four forms:

- **Data:** this is the underlying information that serves as the building blocks for any assessment scheme. Examples might include the results of vegetation surveys, records of species occurrence, studies of the susceptibility of different soils and slopes to erosion, or surveys of forest use by rural communities.
- **Classification:** this divides the parameter in question into different classes or types. Examples might include an ecosystem classification, a classification of the conservation status of species, a classification of erosion risk, or a classification of the degree of forest dependence of different rural communities.
- **Assessment:** this makes the classification ‘real’ by reflecting the actual extent of each class. For example, adapted classifications might show the extent of different forest types, the occurrence of rare species, forests protecting against severe erosion, or identification of parts of the country where communities are forest dependent.
- **Prioritisation:** this is the final step in the process of defining what specific forest areas are of outstanding importance. The results of an assessment are considered against criteria that allow individual forest areas to be identified as being of outstanding importance. For example, a prioritisation scheme might identify which forest areas are critical to conserving a threatened forest type or species, which forest areas are necessary to prevent extensive soil erosion in high-risk catchments, or which forest areas have customary land-use rights.

Defining HCVF requires the final type of information: a prioritisation of which forests are ‘significant’, ‘critical’ or ‘fundamental’ for each HCV. This is illustrated in Figure 1.1, which takes the example of forest types in a notional country or landscape. The forest types within the country are defined by a classification, which identifies three forest types: evergreen, semi-deciduous and deciduous forest. The assessment then looks at forest cover, which gives information on the actual extent of each forest type.

Figure 1.1 Classifications, assessments and prioritisations



This varies between the forest types: a reasonable amount of the deciduous forest type remains in small and medium sized blocks; in the semi-deciduous forest several large blocks of forest occur; whereas the evergreen forest occurs only in tiny, fragmented patches. However, this assessment still does not tell us which individual forests are of the greatest importance for preserving each of the three forest types. For this, the final step is required: a prioritisation scheme. In this step, the largest blocks of the more common forest types (deciduous and semi-deciduous forest) and all remaining fragments of the rare evergreen forest have been selected as priority areas that should be maintained to ensure the long-term persistence of each forest type.

1.6. Using the available information

Different levels of information may be available for different HCVs. Section 2 provides a framework for defining HCVFs at a national level and is structured around making decisions depending on the type of information available for defining each HCV. This is because the types of existing information will differ between countries. For example, whereas one country may have an existing process for identifying critical forest habitats (a prioritisation scheme), another may have only information on the cover of different forest types (an assessment). Therefore, in the first country, the working group may only have to assess the suitability of the prioritisation scheme and then 'repackage' this as HCVF (see Box 1.2). In the second country, the working group will have to decide which forest types are threatened and provide its own thresholds for the size, habitat quality etc that would make an example of these forest types a HCVF (in effect, make a

prioritisation scheme for this value, based on the available assessment). This means that the defining HCVFs will entail different processes, depending on the type of information available.

The framework provided takes this into account by providing different routes that allow HCVs to be defined when different types of information are available. It will usually be necessary to follow only one of these routes, but which route is taken will depend upon what type of information is available for that value (Figure 1.2).

The starting point for defining each HCV (or HCV element) will be to decide whether or not it occurs within the country. This is because not all HCVs are present in all countries. For example, the United Kingdom does not have any local communities for whom forests are critical to their traditional cultural identity, and so HCV5 does not exist there, whereas in Indonesia, Canada, Brazil or Ghana, this value is clearly present.

The second step is to identify any existing plans, schemes, maps² or processes that identify particular areas of forest as being priority areas for that value and that could potentially be adopted as the definition of the HCV. These are the 'prioritisations' described in the preceding section. Examples might include forestry regulations that specify priority forests for watershed protection (i.e. HCV4.1) or priority forests for conserving rare ecosystems (HCV3). Guidance is given on possible sources of information on such prioritisation schemes.

Where such prioritisation schemes occur, a decision will have to be made about whether they are appropriate to define the HCV, and the Toolkit provides guidance on how to determine this (see Box 1.2).

Box 1.2: Using existing prioritisations to define HCVF
Three important points need to be considered when thinking about using existing prioritisations to define HCVs: <ul style="list-style-type: none">• <i>Consistency with the global HCV definition.</i> Just because an organisation has produced criteria or a map of important forests does not mean that it is

² Some of the existing approaches adopted to define HCVs may come in the form of maps. Others may come in the form of criteria (i.e., parameters and thresholds). For example, a forestry technical norm may define forests critical to erosion control as being those forests on slopes greater than 35°. Forests meeting this criterion may or may not have been mapped already.

The main job of the HCVF working group will be to produce definitions of HCVs: whether they also produce maps of HCVF will depend on the specific aims of the group, the available resources, etc. On the other hand, forest managers will almost always have to delineate HCVFs as part of their operational planning. Maps of HCVF are, of course, extremely useful to other users of the HCVF concept (e.g. timber purchasers, land-use planners).

automatically equivalent to HCVF. For example, a map showing ‘socially important forests’ would not be equivalent to HCV5 if the parameter used was forests used for recreational purposes. The HCVF working group should always consider the parameters and thresholds used by existing prioritisations to decide whether they are consistent with the HCV in question.

- *Quality.* The quality of an existing prioritisation has several aspects:
 - Resolution – only schemes that identify individual forest areas are suitable for direct use in defining HCVs. Many approaches identify parts of the country as being important for a value but do not distinguish which individual forests within this area contain that value and which forests don’t.
 - Underlying data used – if the prioritisation is based on information that is out of date (e.g. that fails to reflect recent changes in forest cover) then it will not reflect the true values present within the country.
- *Scope:* existing prioritisations are often produced with a very specific focus. For example, an approach that identified forests that contain rare bird species would certainly be useful for defining HCVF, but might have to be combined with information on other taxonomic groups (e.g. mammals, vascular plants) in order to capture the necessary scope of the HCV.

The next step is to decide whether the prioritisation can be adopted as it is, or whether it will have to be interpreted in some way to become an appropriate definition of the HCV. For example, there may be an existing approach that has identified forests which support significant concentrations of rare species, which the HCVF working group finds fully consistent with HCV1.1. Where the prioritisation is appropriate as it stands, then the HCVF working group should describe clearly how forest managers use this definition.

For other identified prioritisations, the HCVF working group may have to adapt them to make them consistent with the global definition of the HCV. For example, the national forestry regulations might categorise forests protecting watersheds into different classes of importance. The HCVF working group will then have to decide which of these classes are consistent with the HCV definition and communicate this clearly to forest managers. For example, priority forests for watershed protection might be communicated as: ‘all areas defined as categories WP 1 and WP 2 forests in National Forestry Regulation T/2002 are HCVF.’

Up until this point, we have assumed that a prioritisation scheme exists and that it is appropriate for use in the national definition of the HCV, either as it is, or with minor adaptation. Where no such prioritisation scheme exists for the value in question, or if it is not appropriate (for example, if it fails to take into account recent large changes in forest cover within the country) then the working group has to take a different approach.

This will firstly involve specifying areas of the country (and/or habitat types or cultural groups, etc, depending on the HCV in question) that have been identified as being of greatest concern for that HCV. For example, river valleys that are known to be prone to catastrophic flooding or drought can be listed. This step is in itself a useful outcome, as it can be used to alert forest managers as to whether they are could potentially have this HCV within their forest management unit. This can form a '**preliminary assessment**', allowing forest managers to assess rapidly whether their FMU is likely to contain HCVs. This will relieve the user of the need (and cost) of conducting detailed surveys for HCVs that are definitely not present. This may be particularly useful for managers of small, low-impact and community managed forests. Forest management units within the identified regions would, however, have to carry out a '**full assessment**' to determine whether one or more HCVs are actually present within a particular area of forest.

Following this, any local prioritisation or management plans can be identified. To continue the example of forests for watershed protection, this would include catchment-wide management plans. These can then be evaluated on a case-by-case basis, in a similar way to that described for national prioritisations, to determine whether they are appropriate to be used for HCVF. These can then be used to define the HCV.

The final situation is when neither national nor local approaches are available or suitable to define a HCV. In this case, then the HCVF working group will need to develop their own parameters and thresholds to define that value. The aim is to produce results similar to those produced in prioritisation exercises. This can be based conveniently on the critical regions, habitat types, cultural groups identified above. The Toolkit provides guidance on simple criteria can be developed to define HCVs. To continue the example of the critical watershed, the threshold criteria may be 'all forests within catchment x and any forest greater than 100 ha in catchments y and z are HCVFs'.

Table 1.1 can be used as a checklist to help decide on the approach or approaches to be used for each HCV or element.

Figure 1.2. A decision tree for using existing information and approaches to define each HCV or HCV element.

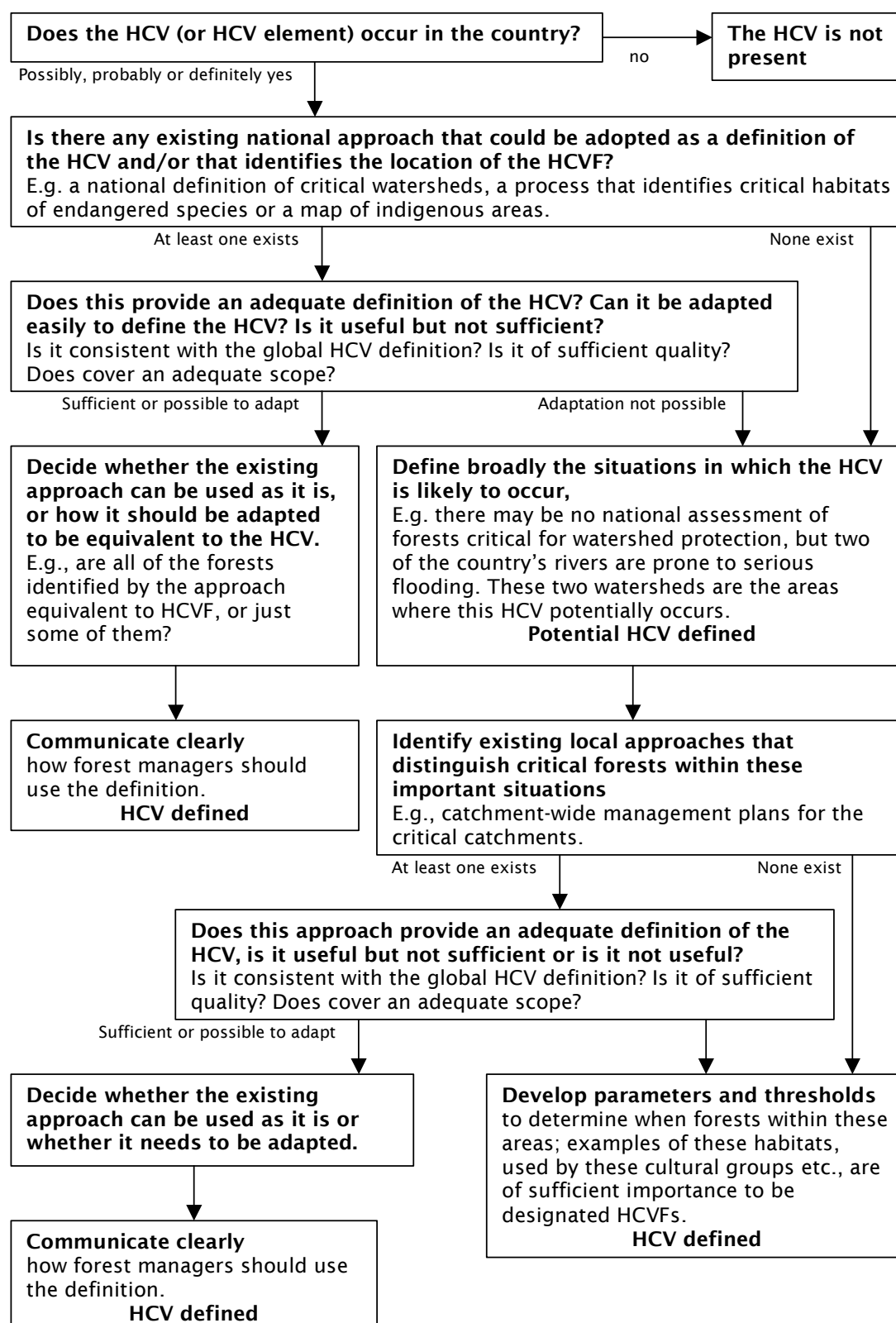


Table 1.1 Working checklist of the method chosen for defining each HCV or element in a given national process

HCV (or HCV element)	Use existing national prioritisation	Use existing local prioritisations where HCVF potentially occurs	Develop new prioritisations for areas lacking them
<i>HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values</i>			
<i>HCV1.1 Protected Areas</i>			
<i>HCV1.2 Threatened and endangered species</i>			
<i>HCV1.3 Endemic species</i>			
<i>HCV1.4 Critical temporal use</i>			
<i>HCV2 Globally, regionally or nationally significant large landscape level forests</i>			
(No additional elements)			
<i>HCV3. Forest areas that are in or contain rare, threatened or endangered ecosystems</i>			
(No additional elements)			
<i>HCV4. Forest areas that provide basic services of nature in critical situations</i>			
<i>HCV4.1 Forests critical to water catchments</i>			
<i>HCV4.2 Forests critical to erosion control</i>			
<i>HCV4.3 Forests providing barriers to destructive fire</i>			
<i>HCV5. Forest areas fundamental to meeting basic needs of local communities</i>			
(No additional elements)			
<i>HCV6. Forest areas critical to local communities' traditional cultural identity</i>			
(No additional elements)			

2. Defining individual High Conservation Values

This section of the Toolkit aims to assist the process of defining HCVs and HCVFs at a national (or sub-national) level. Each of the six generic HCVs are discussed in turn. For two of these (HCV1 and HCV4) separate elements are distinguished to enable clearer treatment of the HCVs.

Each HCV is discussed under the following headings:

- **Introduction.** This includes a general discussion, with examples, of what is intended to be included (and excluded) within each HCV. It also distinguishes the **elements** that comprise HCV1 and HCV4 and explains the importance of each element. Not all elements will be relevant to every country or area. For example, element 2 of HCV 4 includes forests critical to protecting against serious avalanches: highly appropriate in the European Alps but clearly irrelevant in the Brazilian Amazon.
- **Defining the HCV.** A decision tool, in the form of a table, is given for each HCV or HCV element. As described in Section 1.6, the emphasis is on identifying and using existing information to define HCVs and HCVFs.
- **Examples.** Examples of national (or sub-national) definitions that were produced using the approach outlined here or an analogous one are given for each HCV.

2.1. Defining HCV1: significant concentrations of biodiversity values

2.1.1.HCV1.1 Protected Areas

Protected Areas are a vital component of biodiversity conservation. The network of protected areas within your country also affects decisions about other HCVs and will be revisited throughout this part of the Toolkit.

For the purposes of this Toolkit, protected areas include legally protected areas equivalent to IUCN categories I-V³. Areas that have been proposed for protected area status by the relevant statutory body but not yet gazetted should be treated similarly.

It is worth noting that some types of protected area may be treated under other HCVs. For example, legally defined water catchment areas may be HCVs under HCV4.

A further issue regards other legally protected areas (e.g. production forest reserves) and areas proposed by other bodies. This is complex in many countries, since protected areas may be proposed (and opposed) by a range of different stakeholder groups. It is suggested that such areas are treated on a case-by-case basis, i.e. that they are considered HCVFs if they contain any of the other HCVs or HCV elements.

1.1.1 Identify existing protected areas and their category	
Guidance	<p>Protected areas are usually categorised by management objective, ranging from areas that are managed mainly for science of wilderness protection (IUCN Category I) to those that are managed mainly for the sustainable use of natural ecosystems (IUCN Category VI). The category of protected areas is important information because it will influence decisions about how protected areas are designated HCVF.</p> <p>Collect information on the categories of existing forested protected areas designated under the appropriate local, provincial or national legislation. Areas that have been proposed for protected area status by the relevant statutory body but have not yet been gazetted should be treated similarly.</p> <p><i>Go to step 1.1.2</i></p>
Information sources	<p>National, provincial and local government agencies responsible for protected areas or conservation, IUCN, UNESCO World Heritage Sites⁴, RAMSAR Sites⁵.</p>

³ Definitions of IUCN protected area categories can be found at <http://wcpa.iucn.org/>

⁴ Information on UNESCO World Heritage Sites can be obtained from: <http://www.unesco.org/>

⁵ Maps of wetlands of international importance can be obtained from: <http://www.wetlands.org/>

1.1.2 Assess information on how effective the protected areas network is	
Guidance	<p>The degree to which protected areas are effective in conserving biodiversity will influence the threshold decision. This has two aspects:</p> <p>Threats: in some countries, protected areas are threatened by encroachment, degradation or by land-use plans that would result in use incompatible with their status.</p> <p>Representation: the existing protected areas network may not be sufficient to maintain critical biodiversity sites, habitats or species within the country.</p> <p>If no formal assessments exist, then the working group could either talk to conservation biologists and protected areas specialists, or potentially perform its own assessment.</p> <p><i>Go to step 1.1.3</i></p>
Information sources	<p>Information on threats to protected areas can be obtained from relevant government or other conservation agencies, conservation NGOs and conservation biologists.</p> <p>Information on the effectiveness of the protected area network, including recent reviews of the protected areas network, existing gap analyses of protected areas, or the area of land area covered by protected areas can be obtained from similar sources.</p> <p>If the working group decides that it needs to perform its own assessment, then potential tools include a gap analysis⁶ or threats analysis⁷.</p>
1.1.3 Interpret and communicate	
Guidance	<p>Depending on the threats to and effectiveness of the existing protected area network, categories of protected area can be assigned to one of three categories:</p> <p>Protected areas that are entirely HCVF: This will normally include the higher IUCN categories, although lower categories might be included if the protected area network is threatened or if critical biodiversity features are not represented. Individual protected areas with exceptional biodiversity protection function could also be included, even if they are in a relatively</p>

⁶ WWF gap analysis is a system for identifying gaps in protected area networks, using a land classification system based on enduring features as a way of approximating to original vegetation: Tony Iacobelli, Kevin Kavanagh and Stan Rowe (1994); *A Protected Areas Gap Analysis Methodology*, WWF Canada. Contact tiacobelli@wwfcanada.org or see <http://www.wwfcanada.org>

⁷ Threat analysis methodology developed to help identify key issues during ecoregion surveys. Contact Jason.Clay@wwfus.org or see <http://www.worldwildlife.org>

	<p>low IUCN category.</p> <p>Protected areas with core areas that are HCVF: Some protected areas may contain a mixture of areas that are critical for biodiversity protection, environmental protection or of outstanding cultural significance as well as other areas that are of less importance. In this case, the ‘core’ areas identified in the protected area management plans could be considered HCVF and the remaining areas would be considered HCVF only if they contained one or more of the other HCVs or HCV elements.</p> <p>Protected areas to be treated as any other forest area: Protected areas in lower management categories in countries where protected areas provide good representation of biodiversity habitats and are severely threatened can be treated as any other forest area and only be considered HCVF if they contained one or more of the other HCVs or HCV elements.</p>
Output	<p><i>HCVF defined</i></p> <p>For example, ‘all reserves and national parks defined under the 1999 Biodiversity Protection Act and designated biodiversity core areas in nature parks are HCVF’.</p>

2.1.1.1. Examples

Example 1: Indonesia⁸

Definition: All gazetted protected areas, proposed protected areas already in a legislative process at any level of government, *Hutan lindung* and other zones designated for protection by any government agency are HCVF.

Example 2: Bulgaria⁹

Definition: Protected areas designated under the Protected Areas Act and the Forests Act are considered to be HCVFs, as follows:

- Lands and forests from the forest fund (LFFF) in reserves, managed reserves, national parks, protected areas and nature sites;
- LFFF in nature parks included in biodiversity conservation areas, designated under management plans or park management plans;
- LFFF in nature parks without management documents;
- LFFF included in protected areas designated under the Biological Diversity Act.

2.1.2. HCV1.2: Threatened and endangered species

Forests that contain concentrations of threatened or endangered species are clearly more important for maintaining biodiversity values than those that contain none or a few, simply because these species are more vulnerable to continued habitat loss, hunting, disease etc. FSC Criterion 6.2 already deals in a general way with individual rare, threatened or endangered species present. HCV element 1.2 adds further protection for forests that contain outstanding *concentrations* of rare and endangered species.

⁸ Example taken from 'Identifying, Managing, and Monitoring High Conservation Value Forests in Indonesia: A Toolkit for Forest Managers and other Stakeholders'. August 2003. Available from Jeff Hayward, SmartWood Asia Pacific Program (jhayward@smartwood.org).

⁹ Example taken from 'Identifying, Managing, and Monitoring High Conservation Value Forests in Bulgaria'. Draft of 15 July 2003. Available from Zhivko Bogdanov, WWF DCP Bulgaria (zhbogdanov@internet-bg.net).

1.2.1 Identify existing processes for designating priority sites for rare, threatened or endangered species	
Guidance	<p>Some countries have existing processes for identifying sites of outstanding importance for the conservation of rare, threatened or endangered species¹⁰.</p> <p>In other countries, prioritisation schemes may be partial, in that they are limited to either particular regions of the country or limited to certain important taxonomic groups. Such schemes or plans should be treated similarly to national processes.</p> <p><i>If such a process exists, go to step 1.2.2</i></p> <p><i>If no such process is available, go to step 1.2.4</i></p>
Information sources	<p>National, provincial and local government agencies responsible for conservation, NGOs.</p> <p>Various prioritisation schemes that consider only certain key areas of the country have been conducted by different NGOs using slightly different approaches¹¹, in addition to the sources outlined above.</p> <p>Prioritisation schemes that consider only particular taxonomic groups include Important Bird Areas¹² and Important Plant Areas¹³, in addition to the sources outlined above.</p>
1.2.2 Determine whether existing prioritisation schemes are sufficient	

¹⁰ For example, within the European Community, member countries have the responsibility of designating sites of outstanding importance for the protection of rare birds, animals and plants and these can then be incorporated into the 'Natura 2000' network of protected sites.

¹¹ For example, WWF have used Ecoregion Vision Workshops (<http://www.worldwildlife.org>) and Systematic Conservation Planning (bpressey@ozemail.com.au), The Nature Conservancy use 'The Five-S Framework System' (<http://nature.org>) etc.

¹² BirdLife International provides maps and lists of Important Bird Areas (IBAs). Current level of coverage varies between regions and in countries within regions. Information (including data sources), can be found at <http://www.birdlife.net/sites/index.cfm> and for North America at: <http://www.audubon.org/bird/iba/index.html>

¹³ Information on Important Plant Areas (IPAs) in Europe can be found at Plantlife: <http://www.plantlife.org.uk>

Guidance	<p>Quality: a suitable prioritisation analysis will have taken into account recent changes in the conservation status of species as well as recent biological surveys or inventories. It will also have assessed the scale at which species are rare (e.g., one species may be common nationally yet may be critically endangered elsewhere, another may be rare within the country and yet common globally, etc).</p> <p>Scope: a suitable delineation of priority sites will also have covered an adequate range of taxonomic groups. In practice, it is impossible to consider all taxonomic groups, due to lack of information or difficulties in identifying some. However, a scheme that, for example, only considered one group (e.g. mammals) might not be considered sufficient in a country where other groups (e.g. birds, trees) were also known to be of high conservation concern.</p> <p>Consistent with HCV definition: the priority sites should all contain populations or sub-populations of rare, threatened or endangered species and should exclude sites that protect species that are characteristic but not of high conservation status or that contain only one or a few species that are of relatively low conservation concern (e.g., ‘vulnerable’).</p> <p>Where more than one prioritisation scheme exists, it will be necessary to choose between them, or to combine their results in some way (e.g. by including all sites prioritised by either scheme, or only those sites prioritised by both).</p> <p><i>If they are sufficient, go to step 1.2.3</i></p> <p><i>If not, or for parts of the country or important taxonomic groups not covered by existing forest prioritisation plans, go to step 1.2.4</i></p>
1.2.3 Interpret and communicate	
Guidance	Accept the sites identified by the prioritisation scheme (or particular priority categories, if more than one is provided) as HCVF.
Output	<p><i>HCVF defined</i></p> <p>It should be communicated in a way that is clear to forest managers. For example, ‘all forest areas identified as top priority for species conservation by the ‘national species conservation plan’ are HCVF.’</p>
1.2.4 Determine whether there is any individual species whose presence would on its own constitute a HCV	
Guidance	This would normally be the case only for species of exceptional international concern (e.g. mountain gorilla, giant panda, Javan rhinoceros) where the existing legislation and the current protected area network does not provide sufficiently for their protection. Consider species with the highest international conservation status (e.g. IUCN ‘Critically Endangered’).

	<p>For individual species of critical conservation status, the presence of a single breeding pair or regular non-breeding occurrence might be sufficient to warrant HCVF designation, although a higher threshold may be set if appropriate.</p> <p><i>Go to step 1.2.5</i></p>
Information sources	National conservation lists often include the IUCN category of endangered species, IUCN red data lists ¹⁴ and Appendices I and II of CITES ¹⁵
1.2.5 Identify critical habitat types that are known to contain outstanding concentrations of rare, threatened or endangered species	
Guidance	<p>The most efficient way of identifying concentrations of significant species may be to locate the habitats that support them. Failing this, it will be necessary to look for the concentrations directly.</p> <p>Some parts of the country may be known to contain significant concentrations of the rare, threatened or endangered species identified in steps 1.2.4 and 1.2.5, and specific forest types within these areas will be particularly critical¹⁶. In other countries, information may be lacking, or concentrations of rare, threatened or endangered species may be found in many habitat types or in most areas of the country.</p> <p><i>If specific habitat types or areas of the country can be identified, go to step 1.2.6</i></p> <p><i>If none can be identified, go to step 1.2.7</i></p>
Information sources	National, provincial and local government agencies responsible for conservation, conservation biologists and NGOs. Global assessments of critical habitat types
1.2.6 Define when examples of these habitat types would constitute HCVFs	
Guidance	<p>Even within habitat types and regions of the country that are known in general to contain outstanding concentrations of rare, threatened or endangered species, not all forests will actually do so. Whether an</p>

¹⁴ IUCN Red Lists of Threatened Species can be found at: <http://www.iucn.org>

¹⁵ CITES (Convention on International Trade in Endangered Species). Species that are listed on Appendix I and II can be found at: <http://www.cites.org>

¹⁶ Examples of specific areas and forest types within particular countries might include:

- In Costa Rica, the Talamancan forests, that extend from the western lowlands to the mountains of the interior, are some of the most diverse montane forests in Central America as well as containing several threatened species.
- In Spain, mountain conifer and broadleaf mixed forests contain over half of all Spain's recorded plant species including many that are threatened or endangered.

	<p>individual forest area contains HCVs may depend on:</p> <ul style="list-style-type: none"> • how well the existing legislation and the current protected area network protect rare, threatened and endangered species • the size of individual examples of these habitats; • the condition of examples of these habitats (e.g., the proportion of the forest that is covered with infrastructure such as roads or settlements, stand structure, species composition etc); • the landscape context of an individual habitat (e.g., areas adjacent to or that connect large protected areas, or patches of forest in a largely agricultural landscape are all more likely to be critical in maintaining concentrations of species of conservation concern than forests that are not in these situations).
Information sources	Conservation biologists
Output	<p><i>HCVF defined</i></p> <p>For example, 'all areas of natural broadleaf forest in region x that are at least 100 ha in size and all forests above 1000 m altitude in regions y and z are HCVFs'</p>
1.2.7 Decide what populations of the identified species or assemblages would constitute a significant concentration	
Guidance	<p>Assemblages that qualify as HCVs may include any large concentration of species of conservation concern. The national interpretation will need to give guidance on how large this needs to be in order to become a HCV. The definition will need to be flexible enough to take into account the population sizes of individual species (large populations being more significant) and the range of concentrations of rare species that can be found in different forests in the country.</p> <p>Assemblages may also include groups of particular scientific or ecological interest. For example, the presence of a complete assemblage of species with critical ecological functions (e.g. top predators) or evolutionary status (e.g., a suite of closely related rare species) that included a number of threatened or endangered species might be considered of outstanding importance and therefore warrant HCV status.</p> <p>It may be helpful to provide guidance on what information a forest manager will need to collect to determine whether the FMU contains this HCV. This might include guidance on which particular species or taxonomic groups should be surveyed for.</p>
Information sources	National (or provincial) legislation will designate threatened or endangered species. In addition, many countries will have recognised bodies that have a mandate to assess conservation status of species (e.g. COSEWIC in

	Canada) or that are respected authorities on biodiversity (e.g. NatureServe and Infonatura ¹⁷). Conservation planning maps may be available from government agencies, NGOs and local research institutes. Individual conservation biologists may also be able to provide useful information.
Output	<p><i>HCVF defined</i></p> <p>For example, 'Any forest containing at least one breeding pair of species b or c, and/or that contains populations of at least six of the species listed on the attached appendix contains a HCV and the forest area critical to maintaining these (e.g. breeding sites and critical feeding habitat) is a HCVF'.</p>

2.1.2.1. Examples

<p>Example 1: Bulgaria</p> <p>Definition: A list of 11 rare species and 1 taxonomic group with a population threshold level given for each was produced – a forest containing any of these is a HCVF.</p> <p>Example 2: Indonesia</p> <p>Definition: The presence of any forest containing species listed as 'critically endangered' on the IUCN Red List of Threatened Species or on Appendix I of CITES and any species agreed to be of exceptional conservation concern by a consensus of informed stakeholders.</p>

2.1.3. HCV1.3: Endemic species

Endemic species are ones that are confined to a particular geographic area. When this area is restricted, then a species has particular importance for conservation¹⁸. National

¹⁷ NatureServe provides searchable databases and other information on species and ecosystem distribution in North America (www.natureserve.org) and distribution of birds and mammals in Latin America at www.infonatura.org

¹⁸ Clearly, the scale at which species distributions are considered (e.g. country, region, ecoregion or bioregion) is fundamental to determining endemism. For example, amongst the true mahoganies, one species (*Swietenia mahogoni* – Cuban Mahogany) is endemic to the islands of the Caribbean, whilst another species (*Swietenia macrophylla* – Bigleaf Mahogany) has a vast natural range from Mexico through to the southern rim of the Amazon basin. There are various technical definitions of 'endemic' (e.g., species with a global range of less than 50,000 km²; species where more than 75% of the population are contained within a single ecoregion), none of which are universally accepted. Toolkit users should therefore use existing information, such as

interpretations would be expected to decide which species are considered endemic for forests to which the standard applies. Because biological boundaries rarely follow political boundaries, this will sometimes include species whose range only partly overlaps with the area to which the standard applies.

1.3.1 Identify existing processes for designating priority sites for endemic species	
Guidance	Existing priority site designations for endemics may be nation-wide, or may be specific to particular areas of the country or to a limited number of taxonomic groups. <i>Go to step 1.3.2</i>
Information sources	National prioritisation schemes may be available from government agencies responsible for nature conservation, conservation biologists or NGOs. Prioritisation plans that are limited to particular parts of the country may be available from NGOs ¹⁹ . Important sites for endemic birds are available from BirdLife International ²⁰ . Locally published sources such as conservation priority setting maps, botanical floras, vegetation classifications and zoological texts provide information on nationally important centres of endemism.
1.3.2 Determine whether existing prioritisations are sufficient	

assessments of priority sites for endemic species and national lists of endemic species, where available.

¹⁹ Priority sites for endemics within particular areas of the country may have been identified by, for example, WWF (e.g., Ecoregion Vision Workshops, Systematic Conservation Planning), The Nature Conservancy (e.g., The Five-S Framework), Conservation International, as well as by local NGOs.

²⁰ BirdLife International defines 218 areas worldwide as being of outstanding importance for endemic bird species. A detailed account of the world's 218 Endemic Bird Areas (EBAs): Alison J. Stattersfield, Michael J. Crosby, Adrian J. Long and David C. Wege (1998). *Endemic Bird Areas of the World*. BirdLife International. See also <http://www.birdlife.net>

Guidance	<p>Quality: a suitable prioritisation analysis (or analyses) will have taken into account recent changes in forest cover, taxonomy and biological surveys.</p> <p>Scope: the priority sites will also cover an adequate range of taxonomic groups. In practice, it is impossible to consider all taxonomic groups, due to lack of information or difficulties in identifying some. However, a scheme that only considered one group (e.g. birds) might not be considered sufficient in a country where other groups (e.g. freshwater fish, orchids) were also known to have high levels of endemism.</p> <p>Consistent with HCV definition: the priority sites should all contain significant concentrations of endemic species.</p> <p>Where more than one prioritisation scheme exists, it will be necessary to choose between them, or to combine their results in some way (e.g. by including all sites prioritised by either scheme, or only those sites prioritised by both).</p> <p><i>If they are sufficient, go to step 1.3.3</i></p> <p><i>If not, or for parts of the country not covered by existing forest prioritisation plans, go to step 1.3.4</i></p>
1.3.3 Interpret and communicate	
Guidance	Accept the sites identified by the prioritisation scheme (or particular schemes) as HCVF.
Output	<p><i>HCVF defined</i></p> <p>For example, 'all forest areas identified as top priority for endemic species conservation by the 'national endemics conservation plan' are HCVF.'</p>
1.3.4 Specify critical habitats that are known to contain outstanding concentrations of endemic species	
Guidance	<p>The most efficient way of identifying concentrations of endemic species may be to locate the habitats that support them. Failing this, it will be necessary to look for the concentrations directly.</p> <p>Some parts of the country may be known to contain concentrations of endemic species, and particular forest types within these areas will be</p>

²¹ Examples of specific areas and forest types within particular countries might include:

- The moist forest of the Mollucas islands, Indonesia, which have a higher density of endemic species than any comparable land area anywhere in the world.
- Mixed broadleaf deciduous forests in Turkey, which contain highly diverse assemblages of plants, vertebrates and invertebrates, many of which are endemic.
- Moist forest in the southern part of the Western Ghats in India, which contains numerous endemic species, including at least 84 amphibians that are found only in India.

	<p>particularly critical²¹. However, in other countries, information may be lacking, or concentrations of endemic species may be found in many habitat types or in most areas of the country.</p> <p><i>If specific habitat types or areas of the country can be identified, go to step 1.3.5</i></p> <p><i>If none can be identified, go to step 1.3.6</i></p>
Information sources	<p>Global assessments of areas that contain concentrations of endemics are available from WWF Global 200 Ecoregions²² and from Conservation International ‘hotspots’²³.</p> <p>Local assessments may be available from national, provincial and local government agencies responsible for conservation, conservation biologists and NGOs.</p>
1.3.5 Determine when examples of these habitat types would constitute potential HCVFs	
Guidance	<p>Even within habitats and regions of the country that are known to contain outstanding concentrations of endemic species, not all forests will actually contain significant concentrations. The following should be considered:</p> <ul style="list-style-type: none"> • how well the existing legislation and the current protected area network protect endemic species • the size above which examples of these ecosystems would be designated a HCVF; • the condition which would classify examples of these ecosystems as HCVF (e.g., the proportion of the forest that is covered with infrastructure such as roads or settlements, stand structure, species composition etc); • the landscape context of a habitat (e.g., naturally isolated habitats, such as islands, isolated mountain groups or outcrops of unusual bedrocks often contain particularly high levels of endemism).
Information sources	Government agencies responsible for nature conservation, NGOs, conservation biologists
Output	<p><i>HCVF defined</i></p> <p>For example, ‘all areas of natural forest on limestone substrate in region x</p>

²² WWF Global 200 Ecoregions. Globally important ecoregions defined on the basis of species richness; endemism; higher taxonomic uniqueness; extraordinary ecological or evolutionary phenomena and global rarity of the major habitat type. Information can be found at <http://www.panda.org>

²³ Conservation International ‘hotspots’ are areas that contain outstanding levels of endemism and that have suffered high levels of habitat loss. Information available at www.conservation.org

	that are at least 100 ha in size and all forest within 500m of alpine pasture in regions y and z are HCVFs'
1.3.6 Decide how many species, and their populations, that would constitute a significant concentration	
Guidance	<p>Threshold decisions should take account of four key factors</p> <ul style="list-style-type: none"> the number of species that a forest contains: this would normally be a significant proportion of the endemic species in the taxa identified in step 1.3.4 above; the conservation status of the species involved - threatened endemics should be accorded higher significance population size: large populations or sub-populations should be considered. the range of concentrations of endemic species that can be found in different forests in the country. <p>It may be helpful to provide guidance on what information a forest manager will need to collect to determine whether the FMU contains this HCV. This might include guidance on which particular species or taxonomic groups should be surveyed for.</p>
Information sources	Government agencies responsible for nature conservation, NGOs, conservation biologists
Output	<p><i>HCVF defined</i></p> <p>This could be communicated, for example, as 'any forest with breeding populations of least x number of endemic primates is a HCVF'.</p>

2.1.3.1. Examples

Example 1: Bulgaria

Definition: A list of endemic species with a population threshold level given for each was produced – a forest containing any of these is a HCVF.

2.1.4. HCV 1.4: Critical temporal concentrations

This element is designed to ensure the maintenance of important concentrations of species that use the forest only at certain times or at certain phases of their life-history. It includes critical breeding sites, wintering sites, migration sites, migration routes or corridors (latitudinal as well as altitudinal).

1.4.1 Identify existing processes for designating priority sites for critical temporal

use	
Guidance	<p>Some countries have existing processes for identifying sites of outstanding importance for migratory species or others that are dependent on specific forest areas at particular times of year.</p> <p><i>If prioritisation processes exist, go to step 1.4.2</i></p> <p><i>If none exist, go to step 1.4.4</i></p>
Information sources	<p>Information on Important Bird Areas (IBAs) can be obtained from BirdLife International²⁴ or the Audubon Society²⁵. National and local agencies with responsibility for wildlife issues will have information on nationally important areas as well as the migratory requirements of threatened or endangered species. Conservation priority setting maps from local or regional scientists and NGOs may also be available.</p>
1.4.2 Determine whether existing prioritisations are sufficient	

²⁴ BirdLife International provides maps and lists of Important Bird Areas. Current level of coverage varies between regions and in countries within regions. Information (including data sources), can be found at <http://www.birdlife.net/sites/index.cfm>

²⁵ Audubon Society. Information on Important Bird Areas in North America can be found at: <http://www.audubon.org/bird/iba/index.html>

Guidance	<p>Quality: a suitable prioritisation analysis will have taken into account changes to the importance of individual sites based on any recent loss of critical temporal habitats, or changes in the conservation status of the species using them.</p> <p>Scope: it should take into account a suitable range of taxonomic groups (e.g. birds, mammals) as well as an appropriate range of critical uses, which might include critical breeding sites, wintering sites, migration sites, migration routes or corridors (latitudinal as well as altitudinal)</p> <p>Consistent with HCV definition: the priority sites should all be sites that contain critical concentrations of species for at least part of the year (in some cases actual use may not be annual, e.g., when winter feeding grounds are used only in harsh winters, they may nevertheless be critical for maintaining populations). It should exclude sites that are used by only a small number of individuals or species (which should be maintained under other forest management criteria).</p> <p>Where more than one prioritisation scheme exists, it will be necessary to choose between them, or to combine their results in some way (e.g. by including all sites prioritised by either scheme, or only those sites prioritised by both).</p> <p><i>If they are sufficient, go to step 1.4.3</i></p> <p><i>If not, or for parts of the country not covered by existing forest prioritisation plans, go to step 1.4.4</i></p>
1.4.3 Interpret and communicate	
Guidance	Accept the sites identified by the prioritisation scheme (or schemes) as HCVF.
Output	<p><i>HCVF defined</i></p> <p>For example ‘all sites designated as ‘critical breeding sites’ or ‘critical ungulate winter feeding grounds’ under provincial wildlife regulations are HCVF’</p>
1.4.4 Determine landscape features or habitat characteristics that tend to correlate with significant temporal concentrations of species	
Guidance	<p>Consider the habitat requirements of species:</p> <ul style="list-style-type: none"> • with international migration patterns where a large proportion of the regional or global population uses the country; • that depend on seasonally available resources (e.g., food, or breeding sites). <p>Some habitats, or particular habitats within certain parts of the country, may be known to contain critical temporal concentrations of species. An example of a landscape features that would indicate HCV 1.4 would be a</p>

	<p>forest area that connected two other areas (such as protected areas) that contain concentrations of rare species and so could act as a migration route between them. For example, a forest concession between two areas that contain tigers and elephants and other endangered mammals might be an important migration corridor. An example of a habitat feature that indicates significant temporal concentrations of species might be a forest that contains a number of salt licks that are used by many species of animal from the surrounding landscape.</p> <p><i>Go to step 1.4.5</i></p>
Information sources	National and local agencies with responsibility for wildlife issues, conservation biologists and NGOs.
1.4.5 Determine when examples of these habitat types would constitute HCVFs	
Guidance	<p>Even within habitats and regions of the country that are known to contain outstanding temporal concentrations of species, not all forests will actually contain such concentrations. The following should be considered:</p> <ul style="list-style-type: none"> • how well the existing legislation and the current protected area network protect these species • the proportion of national, regional or global populations that the site maintains • the size above which examples of these ecosystems would be designated a HCVF; • the condition which would classify examples of these ecosystems as HCVF (e.g., the proportion of the forest that is covered with infrastructure such as roads or settlements, stand structure, species composition etc); • the landscape context of a habitat (e.g., areas adjacent to or that connect large protected areas, or patches of forest in a largely agricultural landscape are all more likely to be critical in maintaining temporal concentrations of species than forests that are not in these situations).
Output	<p><i>HCVF defined</i></p> <p>This should be communicated clearly, for example, 'all riverine forests in region x that are at least 100 ha in size are HCVFs'</p>

2.1.4.1. Examples

Examples of outputs for HCV1.4
<p>Example 1: Indonesia</p> <p>Definition: A significant concentration of:</p> <ul style="list-style-type: none">• Palaeartic migratory bird species or as determined by listed independent authorities; or• A habitat feature (e.g. salt licks; high concentrations of strangler figs; elephant migration corridors) that is used by many different taxa, or by a large proportion of the local population of one species, confirmed by local and indigenous knowledge. <p>Only forest managers whose FMU contains extensive mangroves, freshwater swamp forest and peat swamp forest, riparian forest, or one of the listed habitat features is expected to conduct biological surveys to determine the significance of them.</p> <p>Example 2: Bulgaria</p> <p>Definition: A forest containing a significant permanent or temporal concentration of species or a refuge of critical importance, for:</p> <ul style="list-style-type: none">• Concentrations of migratory birds• Breeding places of Capercaillie• Bat colonies• Fish migrating to spawning grounds• Deer breeding grounds

2.2. Defining HCV2: Significant large landscape level forests

This HCV includes forests that are in (or close to) what might be called their 'natural' or undisturbed condition over large areas. Such forests have a full complement of the species that are appropriate to the habitat. Importantly, they are also large enough and managed with sufficiently low intensity that natural ecological processes continue to occur - for example natural wildfires and other catastrophes that benefit early successional species, cyclical population changes, seasonal movements or congregations and so on. The area and the degree of 'naturalness' that are required for a forest to be designated a HCVF will vary from country to country depending on the forest cover remaining and the way humans have historically used the forests.

2.1 Identify existing priority sites for maintenance of forest landscapes	
Guidance	<p>This might include protected areas set up to preserve largely natural landscapes, as well as 'intact natural forest'²⁶</p> <p><i>If such a prioritisation process exists, go to step 2.2</i></p> <p><i>If not, go to step 2.4</i></p>
Information sources	<p>National, provincial and local government agencies responsible for protected areas or conservation.</p> <p>Maps and descriptions of intact natural forest are available for some countries from Global Forest Watch²⁷.</p>
2.2 Determine whether it is sufficient	

²⁶ For example, in Russia, Global Forest Watch defined 'intact natural forest' as forest areas of at least 50,000 ha devoid of infrastructure and unaffected by forestry, agriculture etc. (Global Forest Watch Russia (2002), 'Atlas of Russia's Intact Natural Forest Landscapes').

²⁷ Global Forest Watch (www.globalforestwatch.org).

Guidance	<p>Quality: a suitable prioritisation analysis will have taken into account recent changes in forest cover.</p> <p>Consistent with HCV definition: the priority sites should exclude large forests that are unexceptional in the global, regional or national context as well as large forest areas that do not support most naturally occurring species.</p> <p><i>If it is sufficient, go to step 2.3</i></p> <p><i>If not, or for parts of the country not covered by existing forest prioritisation plans, go to step 2.4</i></p>
2.3 Interpret and communicate	
Guidance	Accept the priority sites (or particular priority categories, if more than one is provided) as HCVF.
Output	<p><i>HCVF defined</i></p> <p>It should be communicated in a way that is clear to forest managers. For example, ‘all forest areas identified as priority landscape forests in map x and all Category A protected areas are HCVF.’</p>
2.4 Identify significant forest landscapes from forest cover maps	
Guidance	<p>Forest cover maps should be recent and also be available at sufficient resolution to allow fragmentation (e.g., by roads or settlements) to be distinguished. The next step will be to select criteria for identifying significant forest landscapes^{28,29}. The criteria used will depend on how common and secure large forest areas are within the country, but would normally include:</p> <ul style="list-style-type: none"> • Size. This will normally be tens of thousands of hectares. The size threshold within a country will be affected by the national or regional context. For instance, where the territory is small, the proportion of remaining natural forests is small, or where there are few existing protected areas, then the minimum size threshold may be reduced (see also step 2.6). • Fragmentation. Recent human activities such as roads, forest clearance or oil and gas pipelines, should be considered. Such

²⁸ If resources allow, this can be done in a spatially explicit manner, resulting in maps of large landscape level forests. Details of an analogous approach used by Global Forest Watch to identify ‘intact natural forest’, including the criteria used, are available from www.globalforestwatch.org

²⁹ It may be more appropriate to assess different ecological zones (e.g. ecoregions) separately, depending on available information, the size and complexity of the country and on where there are considerable differences (either naturally or through human activities) in patterns of forest cover, so that the most significant forest landscapes from each can be selected.

	<p>fragmentation can have a dramatic effect upon the ecological sustainability of forests through restricting movement or spread of certain species as well as reducing the area of habitat available to sensitive species. When there are few blocks of unfragmented natural forest within the country, then it may be decided to also select some of the least fragmented forests.</p> <ul style="list-style-type: none"> Condition: this can be approached by defining the scale of natural disturbance patterns that occur in forest types, and the species composition, stand structure, habitat composition and degree of absence of exotic species is likely to be sufficient to allow the maintenance of most naturally occurring species. Where there is little or no forest within the country that can be considered to have escaped serious anthropogenic modification, the working group may decide to choose the least disturbed forests that still remain. <p>In some cases, although there are large areas of forest, no obviously significant forest landscapes will be apparent (e.g., where there is no great threat to existing large forest areas or where human activities are relatively uniform).</p> <p>In addition, there may be no areas where ‘most or all naturally occurring species occur in natural patterns of distribution and abundance’, in which case this HCV is not present within the country (e.g., the United Kingdom).</p> <p><i>If no significant areas are apparent, choose either step 2.5, or step 2.6</i></p>
Information sources	Government departments or agencies responsible for forestry or conservation, national remote sensing institutions, conservation biologists, NGOs. International sources include Global Forest Watch and, in the tropics, The Tropical Rain Forest Information Centre ³⁰ .
Output	<p><i>HCVF defined</i></p> <p>These might include maps or simple criteria, such as ‘any forest in region x that is whole or part of a forest area at least 50,000 ha in size and which includes less than x % plantations is HCVF’.</p>
2.5 Use protected areas as focal areas for defining large landscape level forests	
Guidance	<p>One way of defining significant large landscape level forests is to use protected areas as a focus, as the protected areas are likely to have been identified as a significant landscape and may be relatively secure. The working group should decide which protected areas (or protected area categories) are largely covered by natural vegetation and are of sufficient size to potentially contain most if not all naturally occurring species. The working group could then decide to define this HCV as either:</p>

³⁰ The Tropical Rain Forest Information Centre (TRFIC) provide forest cover maps for many areas of the tropics: <http://www.bsrsi.msu.edu/trfic>

	<ul style="list-style-type: none"> large protected areas that are not wholly defined as HCVF under HCV1.1; or forest management units adjacent to large protected areas, that, <i>together with</i> the protected area, would constitute a significant large, landscape level forest.
Information sources	National, provincial and local government agencies responsible for protected areas or conservation, IUCN, Ramsar, UNESCO
Output	<p><i>HCVF defined</i></p> <p>For example, 'protected areas x and y together with the forest management units adjacent to them will together constitute HCVF'</p>
2.6 Select 'umbrella species', populations of which will indicate HCV2	
Guidance	<p>'Umbrella species' are those with known ecological requirements that can be used to indicate habitat condition. In this context, the presence of populations of species with large range requirements (such as top predators or other large mammals) could be used to indicate that a forest is capable of maintaining most or all naturally occurring species³¹.</p> <p>Information on the minimum size of forest that can potentially support viable populations³² of such species, or important sub-populations³³ can then be used to define the size of HCVFs.</p>
Information sources	Wildlife biologists
Output	<p><i>HCVF defined</i></p> <p>For example, 'any forest management unit which is at least 50,000 ha in size or which is part of a forest area at least 50,000 ha in size and which contains sub-populations of elephants and tigers is a HCVF'</p>

³¹ Developed by the Wildlife Conservation Society (WCS) for planning through use of ecologically functioning populations of a suite of landscape species: <http://wcs.org>

³² The concept of 'viable population' is complex, but (with several assumptions), 50 individuals is often considered sufficient to reduce the level of inbreeding to acceptable levels (Franklin, I.R. (1980), Evolutionary changes in small populations. I: Soulé, M.E., Wilcox, B.A. (Eds.), Conservation Biology: an Evolutionary-Ecological Perspective. Sinauer Associates, Sunderland, MA, USA). The working group may of course prefer other definitions.

³³ Where large, landscape level forests are rare, it may be decided to include important sub-populations of very wide-ranging and vulnerable species (e.g. wolverine, tiger, elephant) even though the sub-populations may not in themselves be viable in the long term.

2.2.1.1. Examples

Example 1: NE China and Inner Mongolia³⁴

Definition: Remaining large, unfragmented blocks of forest identified by remote sensing and GIS (details from contact in footnote).

³⁴ Taken from '*Identifying High Conservation Values in Northeast China and Inner Mongolia: A Toolkit for Managers and Other Stakeholders*'. Draft of September 2003. Available from Dr. Zhu Chunquan, WWF China (chgzhu@wwfchina.org).

2.3. Defining HCV3: Forest areas that are in or contain rare, threatened or endangered ecosystems

Some ecosystems are widespread and under little threat, whereas others are naturally rare or are declining rapidly due to human pressures. In order to conserve the full range of biodiversity, it is important that sufficient areas of each of these rare or declining habitats are kept in good condition. The most effective way to achieve this is to aim for adequate coverage within secure protected areas. Where this is not feasible, or has not yet been achieved, sympathetic management is needed for key sites outside the protected areas system. The goal for this HCV is to identify sites where this is required for each rare, threatened or endangered habitat type. For some habitats, no such special management will be required, for others every surviving example of the habitat may be considered precious, but for many there will be a need to identify and concentrate on the higher priority sites from a range of sites of varying importance.

3.1 Identify the level of information available on ecosystem conservation	
Guidance	<p>Various levels of information and syntheses may be available:</p> <ul style="list-style-type: none">• a country-wide identification of priority forests for ecosystem conservation (<i>go to step 3.2</i>)• identification of priority forests in specific parts of the country (<i>go to step 3.2</i>)• identification of priority areas within the country or priority regions or forest types (<i>go to step 3.4</i>)• an assessment of the extent of existing forest cover for each forest type (<i>go to step 3.4</i>)• an ecosystem classification (<i>go to step 3.4</i>)
Information sources	<ul style="list-style-type: none">• Information on individual forest areas that have been identified as priority sites for ecosystem conservation may be available from conservation priority setting maps produced by government agencies responsible for environmental conservation³⁵, acknowledged

³⁵ For example, under the 'Habitats directive, member states of the European Union must identify and designate as Special Areas of Conservation sites that contain habitats whose natural range is very small or has shrunk considerably or that are outstanding examples of European Community ecosystems. These form part of the 'Natura 2000' network of protected sites.

	<p>authorities on biodiversity (e.g. NatureServe, Infonatura³⁶), NGOs and research institutes.</p> <ul style="list-style-type: none"> • Areas of the country that are a particular priority for conservation may be found from global conservation priorities are available from WWF Global 200 ecoregions³⁷ and Conservation International ‘hotspots’³⁸, as well as from the sources listed above. • Assessment of forest cover and ecosystem classifications should be available from local agencies responsible for environmental conservation, NGOs and research institutes. • Where little information exists, build on all available sources and previous definitions of ‘threatened and endangered’³⁹.
3.2 Determine whether the existing prioritisation plan(s) is/are sufficient	

³⁶ NatureServe provides searchable databases and other information on species and ecosystem distribution in North America (www.natureserve.org) and distribution of birds and mammals in Latin America at www.infonatura.org

³⁷ WWF Global 200 Ecoregions. Globally important ecoregions defined on the basis of species richness; endemism; higher taxonomic uniqueness; extraordinary ecological or evolutionary phenomena and global rarity of the major habitat type. Information can be found at <http://www.panda.org>

³⁸ Conservation International ‘hotspots’ are areas that contain outstanding levels of endemism and that have suffered high levels of habitat loss. Information available at www.conservation.org

³⁹ For example, the US National Biological Service classify ecosystem as critically endangered (>98% decline), endangered (85-98% decline), and threatened (70-84% decline) by comparison to original pre-European settlement distributions with both quantitative and qualitative indicators (area, relative abundance of seral stages, particularly old-growth, etc). Noss, R.F., E.T. LaRoe, and J.M. Scott. 1995. Endangered ecosystems of the United States: a preliminary assessment of loss and degradation. Washington, DC: Biological Report 28. USDI National Biological Service.

Guidance	<p>Quality: a suitable prioritisation analysis will have taken into account recent changes in forest cover.</p> <p>Scope: it will also have assessed the scale at which the forest types are rare, threatened or endangered (e.g., one forest type may be common nationally yet may not occur outside the country, another may be rare within the country and yet common globally, etc).</p> <p>Consistent with HCV definition: the priority sites should all be rare, threatened or endangered forest types, and should be those examples of these forest types that are of sufficient importance to be designated HCVF. It should exclude forest types that are characteristic but not rare, threatened or endangered (as discussed in Toolkit Part 1 Section 2.3).</p> <p>Where more than one prioritisation scheme exists, it will be necessary to choose between them, or to combine their results in some way (e.g. by including all sites prioritised by either scheme, or only those sites prioritised by both).</p> <p><i>If it is sufficient, go to step 3.3</i></p> <p><i>If not, or for parts of the country not covered by existing forest prioritisation plans, go to step 3.4</i></p>
3.3 Interpret and communicate	
Guidance	Accept the sites identified by the prioritisation scheme (or particular priority categories, if more than one is provided) as HCVF.
Output	<p><i>HCVF defined</i></p> <p>It should be communicated in a way that is clear to forest managers. For example, ‘all forest areas identified as top priority for conservation by y study are HCVF.’</p>
3.4 Define rare and threatened forest types	
Guidance	<p>The HCVF working group should decide which forest types are rare, threatened or endangered, excluding ones that are not. This will define the parameters of HCV3 that could be used as the list of potential HCVFs for preliminary assessments by forest managers.</p> <p>The HCVF working group should consider:</p> <ul style="list-style-type: none"> • forest types which are rare or threatened within the country (either naturally rare or that have become threatened by historical or recent human activity) • forest types that are regionally or globally rare, threatened or endangered (even though they may be relatively extensive within the country) • forest types with other exceptional characteristics, such as unusually high species richness, habitat for species of critical conservation

	<p>concern etc.</p> <p>For each of these types the level of coverage by existing protected areas and national/provincial legislation should be assessed. For those where current protection is inadequate, it will be necessary to treat at least some unprotected sites as HCVF.</p> <p><i>Go to step 3.5</i></p>
Information sources	<ul style="list-style-type: none"> Forest cover maps, national ecological texts, WWF ecoregions, CI hotspots, Natureserve, expert knowledge and information on protected areas from the relevant government agency.
Output	<p><i>Potential HCVF defined</i></p> <p>The HCVF working group can consider producing a list of rare, threatened or endangered forest types (i.e. the parameters for HCV3) as a preliminary assessment for forest managers. For example, 'if your FMU contains forest type a, b or c, or if your FMU is in region x of the country and contains forest type d, then the forest potentially contains a HCV and a full assessment is required'.</p>
3.5 Determine thresholds for HCVF	
Guidance	<p>In determining the appropriate thresholds for each forest type, it is useful to consider:</p> <ul style="list-style-type: none"> Whether certain forest types or parts of the country have been identified as being of outstanding conservation concern the extent to which that forest type is protected by the existing protected area network and by national/provincial legislation the decline in extent of that forest type in recent years the proportion of the global or regional cover of the forest type that is found within the country <p>Some may be so endangered that any example should be designated HCVF. For ecosystems that are less threatened, the following should be considered:</p> <ul style="list-style-type: none"> The size above which examples of these ecosystems would be designated a HCVF The condition which would classify examples of these ecosystems as HCVF (e.g., the proportion of the forest that is covered with infrastructure such as roads or settlements, stand structure, species composition, etc)
Information sources	<p>Forest cover maps, expert knowledge</p> <ul style="list-style-type: none"> areas of the country of outstanding conservation importance can be determined from national conservation plans and legislation, Global 200 Ecoregions, CI hotspots, Natureserve etc

	<ul style="list-style-type: none"> • information on the forest types within protected areas can be obtained from national or provincial government agencies with responsibility for protected areas • the remaining extent of forest types can be assessed using forest cover maps produced by local agencies responsible for environmental conservation, acknowledged authorities on biodiversity, NGOs and research institutes. • the proportion of the global or regional cover of the forest type that is found within the country can be obtained from the sources listed above
Output	<p><i>HCVF defined</i></p> <p>Communicate clearly, e.g., ‘any forest of type x which is at least 2,000 ha in size and has less than 5% of its area covered by infrastructure (roads and settlements) and any forest of type y that is at least 200 ha in size is HCVF’</p>

2.3.1.1. Examples

Example 1: Indonesia

Definition: Threatened forest types (including cloud forest, upper montane forest, lower montane rain forest, peat swamp forest, freshwater swamp forest, heath forest, savannah, limestone forest, mangrove and lowland forest in some areas⁴⁰) are HCVF when these areas have also been identified as priority sites by independent conservation planning processes (including Indonesian Biodiversity Strategic Action Plan, Regional committees responsible for producing the Bioregional priorities of IBSAP, existing National Conservation Plan, existing ecoregional plans – for example TNC for East Kalimantan, CI plan for West Papua).

Example 2: North Atlantic Autonomous Region (RAAN) of Nicaragua⁴¹

Definition: Riverine forest dominated by bamboo.

⁴⁰ Lowland forest is not included for those provinces where deforestation has been relatively limited.

⁴¹ Example from ‘Validando el Protocolo para Definir Bosques de Alto Valor para la Conservación (BAVC). Puerto Cabezas, Región Autónoma Atlántica Norte (RAAN), Nicaragua’. September 2002. Available from Steve Gretzinger, WWF Central America (sgretzin@wwfca.org).

2.4. HCV4. Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control).

2.4.1.HCV4.1 Forests critical to water catchments

All forests affect the watersheds in which they occur. However, the watershed protection function of individual forests is not always critical. Forests can be considered critical to watershed protection when a particular forest area protects against:

- potentially catastrophic floods or drought
- widespread loss of irreplaceable water for drinking, agriculture, hydroelectric schemes and other uses,
- the destruction of fisheries where spawning grounds had been protected by mangroves or riparian forests
- changes to the hydrology of a catchment that would seriously and irreversibly degrade a protected area.

Some forest types are particularly important in regulating stream flow, and so more likely to be critical to watershed functioning. Examples include riparian forest and cloud forest.

4.1.1 Identify existing criteria for identifying forests critical to maintaining vulnerable catchments	
Guidance	<p>Most countries have a system for identifying critical watersheds. This is often part of the national forestry regulations. It typically consists of zonation of forest areas into different protection classes depending on the risks of breakdown of watershed protection and of the potential consequences of such a breakdown.</p> <p><i>If a critical catchment classification exists, go to step 4.1.2</i></p> <p><i>If none exists, go to step 4.1.4</i></p>
Information sources	National forestry regulations, government catchment zonation systems, etc.
4.1.2 Determine whether the existing classification is sufficient	

Guidance	<p>Quality: a suitable classification will reflect recent changes in forest cover within the country and up to date understanding of hydrology as well as being widely accepted and implemented.</p> <p>Scope: the classification should cover the appropriate range of parameters (see introduction to this section). For example, a classification that dealt only with protection of hydroelectric dams would have insufficient scope in a country with a history of catastrophic floods.</p> <p>Consistent with the HCV definition: one or more protection classes should capture all forest areas that are essential to the protection of critical watersheds whilst excluding forests that are important but not critical (i.e. when normal best forest management practices are sufficient for maintaining watershed functioning).</p> <p><i>If it is sufficient, go to step 4.1.3</i></p> <p><i>If not, go to step 4.1.4</i></p>
4.1.3 Interpret and communicate	
Guidance	Select the protection class(es) that are most consistent with the definition of HCV4 (as discussed in Toolkit Part 1 Section 2.4)
Output	<p><i>HCVF defined</i></p> <p>Communicate in a way that is clear to forest managers. For example, 'all areas defined as categories WP 1 and WP 2 forests in National Forestry Regulation T/2002 are HCVF.'</p>
4.1.4 Identify critical catchments	
Guidance	<p>These might include catchments with a high risk of catastrophic flooding or drought or that provide critical supplies for reservoirs, irrigation, river recharge, hydroelectric schemes, that protect fisheries or that are critical to the ecological functioning of protected areas⁴².</p> <p><i>Go to step 4.1.5</i></p>
Information sources	Information on areas that are prone to serious flooding or drought either historically or in recent years, or that are critical to maintain important supplies for reservoirs, irrigation, river recharge, hydroelectric schemes and fisheries as well as hydrological maps should be available from government departments or governmental agencies.

⁴² In some circumstances, the management plans of protected areas will include an assessment of potentially degrading external impacts (e.g. a requirement of management plans for Natura 2000 sites). In addition, there may be some types of protected areas that are intrinsically prone to degradation by activities occurring outside their borders (e.g. protected areas of peat swamp forest in Indonesia, protected areas that are dependent on protection of riverine forests).

4.1.5 Identify whether these critical catchments have catchment-wide management plans	
Guidance	<p>Even if there is no suitable national watershed protection classification, those watersheds where the consequences of function breakdown are particularly severe will often have catchment-wide management plans. These will need to be evaluated on a case-by-case basis.</p> <p><i>If yes, follow steps 4.1.2 and 4.1.3 for each</i></p> <p><i>If no, go to step 4.1.6</i></p>
Information sources	Government or provincial/local government, bilateral agencies etc.
4.1.6 Assume forests in these catchments are HCVF unless it can be demonstrated that they are not	
Guidance	<p>Following the precautionary principle, the onus will be on forest managers in such areas to demonstrate that their forests are not HCVF. Guidance can be provided to them on ways in which this might be done. For example, indications that an FMU may not play a critical role in protecting the catchment might include:</p> <ul style="list-style-type: none"> • If the catchment is still largely forested or • If the FMU covers a very small proportion of the catchment
Information sources	Expert knowledge
Output	<p><i>HCVF defined</i></p> <p>For example 'all forests within catchment x and any forest greater than 100 ha in catchments y and z are HCVFs.'</p>

2.4.1.1. Examples

Examples of outputs for HCV4.1
<p>Example 1: Indonesia</p> <p>Definition: All protected forests, DAS <i>Super-Prioritas</i> and DAS <i>Prioritas</i> areas, other significant DAS and Sub-DAS areas designated by relevant experts, as well as cloud forests, will be considered HCVFs.</p> <p>Example 2: Bulgaria</p> <p>Definition: The following Lands and Forests from the Forest Fund (LFFF) are HCVFs:</p> <ol style="list-style-type: none">1. LFFF included in the water catchment areas of torrential water currents, whose forest cover exceeds 40%;2. <i>Pinus mugo</i> communities;3. LFFF forming the high forest border (HFB) and regulated under the Forests Act, or included in the 200 m belt below the HFB;4. Natural riparian forests in the flooded river terraces that contain <i>Quercus pedunculiflora</i>, <i>Q. robur</i>, <i>Fraxinus oxycarpa</i>, <i>Ulmus minor</i>, <i>U. laevis</i>, <i>Salix alba</i>, <i>Alnus glutinosa</i>, <i>Populus alba</i>, <i>P. nigra</i>, <i>Platanus orientalis</i>;5. Forests between the dyke and the southern bank of the Danube, island forests and the 200 m belt from the high riverbank;6. Forests in the 100 m belt of Maritza, Toundja, Mesta, Strouma, Arda, Lom, Tzibritza, Ogosta, Skut, Iskar, Yantra, Vit, Sazlijka, Stryama, Ossam, Roussenski Lom, Kamchiya, Veleka and Rezovska (the Bulgarian part of it) Rivers;7. LFFF included in sanitary guarded area 3 of drinking water dams, regulated under Regulation 3, 2002.

2.4.2. HCV4.2 Forests critical to erosion control

Forests are often important in maintaining terrain stability, including control of erosion, landslides and avalanches. Most standards for responsible forest management take this into account. In some cases, though, the risks of severe erosion, landslides and avalanches are extremely high and the consequences, in terms of loss of productive land, damage to ecosystems, property or loss of human life, are potentially catastrophic. In these cases, the ecosystem service provided by the forest is critical, and it is these that should be designated HCVFs. As with the other elements of this HCV4, the main task of the working group will be to decide when these services are critical.

4.2.1 Identify an existing approach that distinguishes sites that are critical to erosion control and terrain stability	
Guidance	<p>Most countries have a system for identifying areas that are critical to erosion control and terrain stability. This is often part of the national forestry regulations. It typically consists of zonation of forest areas into different erosion protection classes depending on the risks of serious erosion and on the potential consequences of such erosion.</p> <p><i>If a critical erosion protection classification exists, go to step 4.2.2</i></p> <p><i>If none exist, go to step 4.2.4</i></p>
Information sources	National forestry regulations, government departments and maps as well as consultation with relevant experts.
4.2.2 Determine whether the existing classification sufficient	
Guidance	<p>Quality: a suitable classification will reflect recent changes in forest cover within the country and up to date understanding of erosion. It will ideally be widely accepted and implemented.</p> <p>Scope: the classification should cover the appropriate range of parameters.</p> <p>Consistent with the HCV definition: one or more protection classes should capture all forest areas that are essential to the protection against severe erosion or terrain instability in areas where the consequences of these are severe. It should exclude forests that are important but not critical (i.e. when normal best forest management practices are sufficient for erosion protection).</p> <p><i>If it is sufficient, go to step 4.2.3</i></p> <p><i>If not, go to step 4.2.4</i></p>
4.2.3 Interpret and communicate	
Guidance	Select the protection class(es) that are most consistent with the definition of HCV4 (as discussed in Toolkit Part 1 Section 2.4)
Output	<p><i>HCVF defined</i></p> <p>Communicate in a way that is clear to forest managers. For example, ‘all areas defined as categories EP1.1 and EP 1.3 forests in National Forestry Regulation T/2001 are HCVF.’</p>
4.2.4 Identify critical erosion areas	
Guidance	The first step will be to identify regions where there is likely to be a risk of serious erosion, landslides and avalanches. These will be areas with a history of serious erosion or terrain instability or where the soils, geology and slope make the terrain vulnerable. Secondly, you will need to define the types of catastrophic or serious cumulative impacts of erosion and

	<p>terrain instability that will need to be protected against by designated HCVFs. Potential impacts of severe erosion and terrain instability might include loss of productive agricultural land, damage to ecosystems or property or loss of human life.</p> <p><i>Go to step 4.2.5</i></p>
Information sources	Information on areas that are prone to serious erosion or avalanches either historically or in recent years, and where the consequences of these are catastrophic should be available from government departments or governmental agencies.
4.2.5 Determine whether these critical areas have local protection plans	
Guidance	<p>Even if there is no suitable national erosion and terrain protection classification, critical areas may have local protection plans or regulations. These will need to be evaluated on a case-by-case basis.</p> <p><i>If yes, follow steps 4.2.2 and 4.2.3 for each</i></p> <p><i>If no, go to step 4.2.6</i></p>
Information sources	National, provincial/local government, bilateral agencies etc.
4.2.6 Assume forests within these critical areas are HCVF unless it can be demonstrated that they are not	
Guidance	<p>Following the precautionary principle, the onus will be on forest managers in such areas to demonstrate that their forests are not HCVF. Guidance can be provided to them on ways in which this might be done. Indications that an FMU may not play a critical role in protecting against erosion and terrain instability include:</p> <ul style="list-style-type: none"> • if the FMU contains only a small area of vulnerable soils or slopes • if the particular topographic situation of the FMU protects it from potentially severe, erosion inducing rains
Information sources	Expert knowledge
Output	<p><i>HCVF defined</i></p> <p>The decision should be communicated in a clear way to forest managers, for example ‘any forests areas in regions x and y that have slopes above z degrees are HCVFs.’</p>

2.4.2.1. Examples of outputs for HCV4.2

Example 1: Indonesia

Definition: All protected forests, DAS *Super-Prioritas* and DAS *Prioritas* areas, other significant DAS and Sub-DAS areas designated by relevant experts, as well as cloud forests, will be considered HCVFs.

Example 2: Bulgaria

Definition: The following Lands and Forests from the Forest Fund (LFFF) are HCVFs:

1. LFFF with over 30° slope (or less, in case they are under the water-fusion area with over 10° slope and length over 200 m) with a total area over 1 ha and tree density over 0.6;
2. Areas not suitable for forests, covered with tree and shrub vegetation;
3. Forests grown under technical projects for erosion control, regulation, bank-protection and wind-protection forest belts, and forests protecting engineering equipment;
4. Forests protecting settlements or communication structures, situated on the usual way of falling avalanches (data from the Mountain Rescue Service), forests in the snow assembly areas with over 20° rise, forests situated under a deforested snow assembly area over 200 m long and with over 20° rise;
5. *Carpinus orientalis* communities on poor or very thin soils.

2.4.3. HCV4.3 Forests providing critical barriers to destructive fire

Most standards for responsible forest management contain requirements for fire prevention and control in areas where this is appropriate. This element is not intended to include forests where fire is a natural or normal part of forest ecosystem process. Rather, it will include those few forests that provide natural barriers to fire where uncontrolled spread of fire could pose a serious risk to human life and property, economic activity, or to threatened ecosystems or species. Examples of forests that provide natural barriers to fire include natural strips of broadleaved forest found in areas of eucalypt forest in Australia or in tropical pine forests.

4.3.1 Identify an existing fire protection classification

Guidance	Many countries that are at risk from catastrophic fires have a system for
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	<p>identifying forests that are critical for controlling fire. This is often part of the national forestry regulations. These will typically designate areas of forest around vulnerable towns, protected areas etc, as protection forests.</p> <p><i>If a classification exists, go to step 4.3.2</i></p> <p><i>If none exist, go to step 4.3.4</i></p>
Information sources	Relevant government agencies and from forest fire experts in research institutions.
4.3.2 Determine whether the existing classification is sufficient	
Guidance	<p>Quality: a suitable classification will reflect recent changes in forest cover and fire risk within the country. Ideally, it will be widely accepted and implemented.</p> <p>Scope: the classification should cover the appropriate range of parameters (see step 4.3.5).</p> <p>Consistent with the HCV definition: one or more protection classes should capture all forest areas that are essential to the protection against uncontrolled, destructive fire in areas where the consequences of fire are severe. It should exclude forests that are important but not critical (i.e. when normal forest management practices are sufficient for fire protection and control).</p> <p><i>If it is sufficient, go to step 4.3.3</i></p> <p><i>If not, go to step 4.3.4</i></p>
4.3.3 Interpret and communicate	
Guidance	Select the fire protection class (or classes) that should be considered HCVF.
Output	<p><i>HCVF defined</i></p> <p>Communicate in a way that is clear to forest managers. For example, 'all areas that meet the definition for category FP1.1 forests in National Forestry Regulation T/2001 are HCVF.'</p>
4.3.4 Identify regions where there is a high risk of uncontrolled destructive fire	
Guidance	<p>Regions that are prone to serious fires either historically or in recent years should be delineated.</p> <p>Specific forest areas or types within these regions, where forests can or do act as a barrier to the spread of uncontrolled, destructive fires should also be identified.</p> <p><i>Go to step 4.3.5</i></p>
Information sources	Government agencies and from forest fire experts in research institutions.
4.3.5 Identify whether these areas have existing fire control management plans	

Guidance	<p>Even if there is no suitable national fire protection classification, areas with high risk of catastrophic fire may often have specific fire protection management plans. These will need to be evaluated on a case-by-case basis.</p> <p><i>If yes, follow steps 4.3.2 and 4.3.3</i></p> <p><i>If no, go to step 4.3.6</i></p>
Information sources	Provincial or local government agencies.
4.3.6 Assume forests within these critical areas are HCVF unless it can be shown that they are not	
Guidance	<p>Forests within the high risk areas identified in step 4.3.4 will be normally assumed to HCVF if they:</p> <ul style="list-style-type: none"> • contain or are adjacent to human settlements or communities; • contain or are adjacent to places of important cultural value (e.g. sacred places, archaeological sites); • contain or are adjacent to protected areas that contain threatened or endangered species or ecosystems; • sufficiently large to provide a significant barrier <p>If any of these indicators are present in a region identified at step 4.3.4, then following the precautionary principle the onus will be on the forest manager to demonstrate that the site is not a HCVF.</p>
Output	<p><i>HCVF defined</i></p> <p>Communicate clearly, for example ‘any broadleaf-dominated forest in region x that is within 5 km of one or more human settlement or that is adjacent to a protected area or national monument is HCVF’.</p>

2.4.3.1. Examples of outputs for HCV4.3

<p>Example 1: Bulgaria</p> <p>Definition: All deciduous forests (except those dominated by birch, <i>Acacia</i> and poplar hybrids/cultivars) among coniferous plantations, between coniferous plantations and settlements, and between coniferous plantations and lands with different agricultural uses and that are at least 250 m wide are HCVFs.</p> <p>Example 2: North Atlantic Autonomous Region (RAAN) of Nicaragua</p> <p>Definition: This HCV element is not present in RAAN.</p>
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2.5. HCV5. Forest areas fundamental to meeting basic needs of local communities

Forests can supply a huge range of basic needs to local communities. However, we deal with the various elements of this HCV together, because the basic issues that the working group will have to decide, which include defining what constitutes a ‘basic need’ and what constitutes ‘fundamental’, will be the same whether the value in question is water for daily use, food, fuel, or construction materials, etc.

This HCV is different from the biological and environmental HCVs because its identification requires consultation with local communities. That means that a working group can define where this HCV is likely to occur, but consultation at a local level is required to determine whether HCV5 is actually present within a particular forest.

The working group should therefore consider providing two types of guidance to forest managers: a ‘preliminary assessment’ which describes the situations (areas of the country or cultural groups) where the HCV can potentially occur, plus guidance on how forest managers within these situations should perform consultation to find out if the HCV actually occurs.

As part of the preliminary assessment, the working group can identify the local communities, types of community or regions where communities potentially depend on forests for their basic needs. This should include both people living inside forest areas and those living adjacent to it as well as any group that regularly visits the forest. The basic needs of local communities that are provided by forests within the country should also be identified. The group should consider food, medicine, fodder, fuel, building and craft materials, water for drinking and other daily uses, income, and forests that maintain subsistence agriculture through ameliorating local microclimatic conditions.

The working group should also consider providing guidance on consultation that forest managers would be required to conduct if this HCV is potentially present within their FMU. This might include guidance on appropriate consultation techniques, what types of information would be needed and how to assess this information. As HCV6 also has a requirement for consultation, the working group could choose to consider these HCVs together when they are developing guidance on consultation.

5.1 Identify cultural groups that are known to use forests for their basic needs	
Guidance	Cultural groups that should be considered include peoples in voluntary isolation, indigenous peoples, self-governing local communities as well as other cultural groups that are dependent on the forest for their livelihoods. This will often include economically disadvantaged groups. <i>If one or more such groups exist, go to step 5.2</i>

	<i>If no such group exists, this HCV is not present within the country</i>
Information sources	Indigenous people's organisations, government agencies with responsibility for indigenous groups or for rural development, professional social scientists and anthropologists with local expertise, representatives of cultural and community groups.
5.2 Identify the parts of the country where these groups live	
Guidance	The groups identified above may live in certain regions of the country, in which case a list of these areas will be information that the interpretation group could usefully provide to forest managers. <i>Go to step 5.3</i>
Information sources	Maps of indigenous areas etc., in addition to the sources listed under 5.1.
5.3 Identify how far from the settlements people customarily travel to use the forest for their basic needs.	
Guidance	The groups that are potentially dependent on forests will often use forests within a certain distance from their settlements for their basic needs, not only on a regular basis but also seasonally and as part of longer land-use strategies. Again, this is information that the working group could usefully provide to forest managers. <i>Go to step 5.4</i>
Information sources	As for step 5.1
5.4 Identity what types of basic need the identified communities get from the forest	
Guidance	Potential fundamental basic needs include, but are not limited to: unique sources of water for drinking and other daily uses; food, medicine, fuel, fodder, building and craft materials, protection of agricultural plots against adverse microclimate (e.g., wind). <i>Go to step 5.5</i>
Information sources	As for step 5.1
5.5 Interpret and communicate	

Guidance	<p>Steps 5.1 – 5.5 should allow you to determine where HCV5 is potentially found within the country. This can form the preliminary assessment for forest managers.</p> <p><i>Go to step 5.6.</i></p>
Output	<p><i>Potential HCVF defined</i></p> <p>It should be communicated clearly, e.g. ‘any forest in regions a, b, and c that are within 5 km of a settlement of j and k groups and that are used by members of those communities to hunt, fish and to gather fuel are potentially HCVFs’.</p>
5.6 Develop guidance on appropriate consultation methods	
Guidance	<p>This step aims to help forest managers determine whether use of the forest is both fulfilling one or more of the community’s basic needs and whether the forest is fundamental to the community (or communities).</p> <p>As discussed above identification of HCV5 ultimately requires consultation with local communities that are potentially dependent on individual forest areas for their basic needs. The working group will therefore have to develop guidance on appropriate consultation methods that will assist forest managers to determine whether forest use is fundamental to the basic needs of the communities. This guidance has several aspects, which are discussed further in Section 3.2:</p> <p>Characterising the community: different parts of the community may use the forest in different ways, and so finding out about forest use will normally require consultation with different sub-groups. The working group should consider developing guidance on which sub-groups should be consulted.</p> <p>Consultation methods: there are many different ways of communicating with communities. The working group should consider providing guidance on appropriate forms of consultation.</p> <p>What information is needed: various types of information will be required to determine whether forest resources are fundamental to meeting the basic needs of local communities. This would normally include:</p> <ul style="list-style-type: none"> • What the community use the forest for • Patterns of resource use (how much, when) and alternative sources • Whether use of one resource conflicts with the maintenance of another HCV • Whether resource use is sustainable <p>How to interpret the information obtained: provide guidance on how the information gathered during consultation should be used to determine whether a basic need is fundamental to the local community. Potential indicators that a forest is fundamental to local communities include when:</p>

	<ul style="list-style-type: none"> • A high proportion of the community's need comes from a particular forest; • There are no readily available, affordable and acceptable alternatives; • A community would suffer diminished health or well-being through reduced supply of a resource; • A particular resource provides only a small proportion of a community's basic needs or is only used occasionally but is nevertheless critical (e.g. when a forest provides a modest proportion of overall food consumed but most of the protein, or when a forest provides famine food or provides a large proportion of food at particular times of year).
Information sources	As for step 5.1
Output	<i>Methods for full HCV assessment</i>

2.5.1.1. Examples of outputs for HCV5

<p>Example 1: Indonesia</p> <p>A comprehensive procedure on how forest managers should consult with local communities and how they can use the information obtained to determine whether HCV5 is present within their FMU is provided in '<i>Identifying, Managing, and Monitoring High Conservation Value Forests in Indonesia: A Toolkit for Forest Managers and other Stakeholders</i>'. August 2003. Available from Jeff Hayward, SmartWood Asia Pacific Program (jhayward@smartwood.org)</p>
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2.6. HCV6. Forest areas critical to local communities' traditional cultural identity

We deal with the various components of this HCV together, because the basic issues that the working group will have to decide, which include defining what constitutes 'critical', will be the same whether the value in question is cultural, religious etc.

The difference between having some significance to cultural identity and being **critical** will often be a difficult line to draw and as with meeting basic needs, the way in which it is established will be highly variable. However, to be an HCV, the forest must be critical to the culture, and the working group will need to define what 'critical' means within the various social contexts found within the country.

As with the preceding HCV, identifying whether a particular forest contains HCV6 will ultimately require consultation. That means that the working group can identify areas where the value is likely to occur and this could be used as a preliminary assessment by forest managers. The HCVF working group can also provide forest managers with guidelines on the appropriate consultation methods for determining whether this HCV actually does occur within a particular FMU. Because of the shared requirement of consultation for HCV5 and HCV6, it will usually be more convenient for forest managers to examine them together.

6.1 Identify cultural groups that are likely to have a strong cultural association with forests	
Guidance	<p>Certain communities are so closely bound to the forest that it is highly likely that the forests are critical to their traditional cultural identity. These would include:</p> <ul style="list-style-type: none"> • peoples in voluntary isolation, • indigenous peoples, • self-governing local communities, • cultural groups that are dependent on the forest for their livelihoods, <p>However, forests can also be of critical cultural importance to communities that are less dependent on the forest than these. The HCVF working group should consider what types of communities are considered to have traditional cultural identities related to forests, in addition to those listed above:</p> <ul style="list-style-type: none"> • groups that are known to have strong cultural links with forest. <p><i>If one or more such groups exist, go to step 6.2</i></p> <p><i>If no such group exists, this HCV is not present within the country</i></p>

Information sources	Indigenous people's organisations, maps of indigenous lands, government agencies with responsibility for indigenous groups or for rural development, professional social scientists and anthropologists with local expertise, representatives of cultural and community groups.
6.2 Identify the parts of the country where these groups live	
Guidance	<p>In many countries, groups that have traditional cultural links to forests are limited to particular areas of the country. Defining the areas where local communities are potentially culturally dependent on forests will help forest managers decide whether or not they potentially have this HCV present.</p> <p><i>Go to step 6.3</i></p>
Information sources	See information sources listed under step 6.1.
6.3 Compile and interpret the information	
Guidance	<p>A list (or map) of areas within the country where groups exist for which forests may be critical to their traditional cultural identity, along with a list of the relevant cultural groups will allow forest managers to rapidly assess whether they are likely to have this HCV present within their FMUs.</p> <p><i>Go to step 6.4</i></p>
Output	<p><i>Potential HCVF defined</i></p> <p>For example, this could be communicated as 'forest managers in regions a, b or c who's forest is used at least occasionally by x and y cultural groups or by communities without road access potentially have HCV6 and should perform a full assessment through consultation with the communities in question'</p>
6.4 Develop guidance on appropriate consultation methods	
Guidance	<p>This step aims to help forest managers determine whether any part of their FMU is of sufficient importance to the traditional cultural identity of local communities that it should be considered a HCVF.</p> <p>As discussed above, identification of HCV6 requires consultation. The HCVF working group will therefore have to develop guidance on appropriate consultation methods that will assist forest managers to determine whether an individual area of forest is critical to the traditional cultural identity of the communities. This guidance has several aspects, which are discussed further in Section 3:</p> <p>Characterising the community: different parts of the community may have different cultural associations with the forest, and so consultation with different sub-groups will normally be required.</p> <p>Consultation methods: the HCVF working group should consider providing guidance on appropriate forms of consultation.</p>

	<p>What information is needed: various types of information will be required to determine whether the forest is critical to the traditional cultural identity of local communities. This would normally include:</p> <ul style="list-style-type: none"> • Indicators of potential cultural significance, which might include sacred or religious sites, specific areas that have historically been actively governed and regulated, specific areas with remnants from the past linked to the identity of the group (e.g., statues, megaliths etc), frequent use of forest products/materials for artistic, traditional, and social status purposes, names for landscape features, stories about the forest, historical associations, amenity or aesthetic value; • How long the community has been associated with a particular forest. <p>How to interpret the information obtained: provide guidance on how the information gathered during consultation should be used to determine whether a cultural association is <i>critical</i> to <i>traditional</i> cultural identity of the community (i.e. whether a cultural value is a HCV). Possible indicators include:</p> <ul style="list-style-type: none"> • When change to a forest can potentially cause an irreversible change to traditional local culture (e.g., temples, sacred burial grounds or sites linked to particular cultural or religious activities) • When a particular forest provides a cultural value that is unique or irreplaceable of a forest (e.g. when a forest is used to gather materials for artistic, traditional, and social status purposes that are not present in, or available from, other local forests); • When a value is 'traditional' to a community. Where a community has been associated with a particular forest for hundreds of years, then they are clearly traditional. When the community has arrived more recently, this becomes less clear. The HCVF working group may choose to define a threshold of decades or number of generations that a group has been associated with a particular forest before that association could be deemed critical.
Output	<i>Guidance and criteria on how a forest manager can identify HCV6.</i>

2.6.1.1. Examples of outputs for HCV6

Example 1: Indonesia

A comprehensive procedure on how forest managers should consult with local communities and how they can use the information obtained to determine whether HCV5 is present within their FMU is provided in '*Identifying, Managing, and Monitoring High Conservation Value Forests in Indonesia: A Toolkit for Forest Managers and other Stakeholders*'. August 2003. Available from Jeff Hayward, SmartWood Asia Pacific Program (jhayward@smartwood.org)

3. Involving stakeholders in HCVF identification and management

HCVFs are, by definition, the most outstanding or critical forests. It is therefore important that a wide range of opinions and knowledge is used when identifying them, developing management regimes for their maintenance and in reviewing the effectiveness of the management. Involvement of stakeholders in these processes has at least two major advantages:

- Calling on a wide range of experience and knowledge provides a greater degree of certainty that identification and management decisions are suitable.
- Involvement of interested stakeholders provides greater assurances to society that the HCVs are being dealt with in an appropriate manner.

The importance of stakeholder involvement is encapsulated in FSC Criterion 9.2 (see box).

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

The HCVF working group may therefore choose to provide forest managers with guidance on what consultation is appropriate to fulfil this criterion (or other similar requirements, if HCVF is being used outside the FSC framework). In this Section we first discuss briefly the provision of guidance on consultation that applies to the identification, management and monitoring of all HCVFs. Because consultation is an intrinsic part of identifying HCVs 5 and 6, more detailed consideration is given to these.

3.1. General advice on HCVF consultation

3.1.1. Who should be consulted?

There are two basic types of stakeholders that would need to be involved in HCVF consultation:

- **Stakeholders directly affected by management.** These would include communities or individuals living in or near to the FMU.
- **Groups and individuals with a special interest in the HCV.** The HCVF working group may choose to provide forest managers with a list of special interest groups, and their contact details, for each HCV. For example, special interest groups for HCV 1.2 (significant concentrations of threatened or endangered species) might include

national, provincial and local government agencies and NGOs responsible for conservation. These would often be the same groups that are potential ‘sources of information’ given in Section 2.

3.1.2. How should they be consulted?

There are two basic options for HCVF consultation processes:

- **Informal stakeholder contacts.** This would involve contacting interested stakeholders periodically and inviting opinions on the identification of the HCVF and the management options for it. These stakeholders would also be kept informed as to the management of the HCVF. The advantages of this process are that it would be relatively cost-effective and the working group may therefore decide that it is the most appropriate model for small, low intensity or community-managed forests. Disadvantages could potentially include that some stakeholders may feel (rightly or wrongly) that the forest managers were not addressing their concerns.
- **Stakeholder Management Forum.** This would involve setting up a formal group of interested stakeholders, who would then meet periodically with the forest managers to discuss and advise on the management of the HCVF. Any consensus reached on the management of the HCVF would be incorporated into management planning and actions. The advantages of this approach include that the involved groups are more likely to provide strong technical and time inputs if they are part of a formal structure, it provides a degree of transparency to the process of consultation and involved stakeholders know that their opinions are being heard. Disadvantages include increased cost in arranging and facilitating meetings. These constraints mean that the working group may decide that this is inappropriate for small, low-impact or community-managed forests.

3.2. *Specific guidance for HCV5 and HCV6*

As discussed in Section 2, final identification of these HCVs will always require consultation⁴³, and the working group is encouraged to provide detailed guidance on

⁴³ As discussed above, the assessment for both social values is very similar and so the two are best examined together. If there is an interest in FSC certification, then this should also be linked to the requirements of Principles 2, 3 and 4. Sources of information:

1. Knowledgeable people and organisations such as NGOs, local community organisations or academic institutions. These types of groups can often provide a quick introduction to the issues and provide support for further work.
2. Literature sources such as reports and peer-reviewed papers, where available, can be very useful sources of information.

consultation techniques that will determine whether a forest is fundamental to meeting any basic needs (HCV5) or is critical to the community's cultural identity (HCV6). Because full consultation is likely to both time- and resource-consuming, Section 2 suggests that the HCVF working group provides information on when such consultation needs to be carried out and when it is unnecessary (i.e. a preliminary assessment). For the same reason, the working group should consider what is required of managers of small forests, where it will not usually be appropriate to undertake a major consultation process. The working group should make this clear and provide guidance on acceptable processes.

Consultation methods are enormously variable, depending on the socio-economic context. Sometimes the forest manager will need to seek guidance from social scientists who specialise in the region. However, it will always involve consultation with the community itself.

The forest manager should be provided clear guidance on consultation processes for the full assessment. This should include consideration of:

- The appropriate types of consultation.
- Looking at members or subgroups rather than treating the community as homogenous.
- Appropriate stakeholder groups (where possible, maintain a central database of groups that have already expressed interest).
- The best sources of information.
- The consultation techniques that might be appropriate for particular groups.
- Communities and forest managers with experience of this process who are prepared to share this experience with others new to the process.

Some issues which need to be considered

- What to do when a community doesn't have the capacity to engage in consultation.
 - How to deal with secret knowledge that people won't share.
 - Is it appropriate to set numerical limits – for example that a forest is fundamental to meeting basic needs if a community derives at least 15% of its diet from that forest.
- There are two potential problems with this approach:

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3. Consultation with the communities themselves is the most important way of collecting information. This is also a difficult task and may require adequate professional help in planning and implementing the consultation process to ensure that the necessary information is gathered within an appropriate timeframe.

Further guidance on consultation is provided in Appendix 1.

- the information may not be readily available and communities may not want to provide information for fear of being charged, taxed or told that what they are doing is illegal.
- it may prove too crude – for example a community may get only 5% of its diet from a forest but this is 100% of its protein making the forest fundamental although the 15% limit is not reached.
- If the forest is very small then it will not usually be appropriate to undertake a major consultation process, and the working group should make this clear and provide guidance on acceptable processes. Information on consultation processes can be gained from professional social scientists and anthropologists with local expertise.

The consultation process must be adequate to ensure that the information collected is appropriate to both the size and type of forest organisation and the type of community being consulted. Specific guidance on appropriate methods and processes will need to be developed locally, but the following general guidelines are usually followed in consultation:

- Consultation is an ongoing, iterative process – not a ‘one-off’ exercise. Adequate time and effort must be provided to build trust and learn how to communicate effectively.
- The consultation procedure should be planned and, in most cases, documented (at an appropriate level)
- The approach taken to consultation should be culturally appropriate and locally acceptable, and this approach should be justified and explained using the appropriate languages⁴⁴.
- Those being consulted must be informed, in a culturally appropriate way, of the purpose of the consultation.
- All relevant stakeholders should be identified and their contact details recorded.
- For consultation with communities it is important to establish
 - the identity of decision-makers within the community (you should adjust your consultation techniques to accommodate these persons)
 - the processes by which decisions are reached and disputes resolved (you should adjust your consultation techniques to accommodate these processes)
 - whether the spokesperson is appropriate/relevant to the decision-making process

⁴⁴ For example, verbal communication should be used for non-literate communities, and this should be done on their terms, by, for instance, attending a scheduled community meeting rather than demanding a time convenient for the forest manager.

- that all relevant groups, especially marginalized groups and women have a voice
- whether people are genuinely able to say what they think or whether they are within a context which doesn't allow it (e.g. within a war zone or country or company where free speech is not possible)
- The feedback mechanism should be established and communicated to consultees.
- It is very important to be aware of how questions are asked and information solicited since people may not mention things they take for granted or do not really understand.

For example, someone asked 'Is the forest critical to your basic needs' may answer 'no' because they find the concept confusing. However, when asked 'where does the river providing your drinking water come from' the reply becomes 'the forest'.

4. Providing guidance on managing HCVF

Defining HCVs at a national or regional level is critical to all end users. For some, such as timber purchasers or landscape planners, this will be the most important phase. However, many users, including forest managers and certification auditors, will also require guidance on managing HCVs. For these stakeholders, identification of HCVF is only the first stage of the process, and they will then also need to focus on the implications for management, to ensuring that any HCVs that are identified within their FMU are maintained or enhanced. It is therefore desirable that working groups provide guidance on how to manage HCVs once they have been defined and identified.

FSC Principle 9 requires that forest management must ensure that the identified values are maintained or enhanced, and it seems likely that others using the concept will have similar requirements. This process also needs to be closely integrated with a monitoring programme, which is discussed in Section 5.

FSC Criterion 9.3 The management plan shall include specific and implemented 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.

The key consideration at this stage is that forest management must clearly and demonstrably aim to maintain or enhance **each specific** HCV that has been identified.

4.1. Generic guidance for managing HCVFs

This section provides general guidance on managing HCVs, for adaptation at the local level. As with the identification of HCVs, it is not possible to be very specific at a global level, so most of the guidance will require considerable refinement at a national or FMU level. The level of detail of management requirements of HCVs that interpretation groups will provide will probably be highly variable. For example, in some regions and for some HCVs, the management practices necessary to maintain or enhance specific HCVs may be well understood and tried and tested. For example, if the HCV is a suite of endangered beetles, it may be known that their populations are maintained if the density of dead wood remains above a given threshold beneath a closed canopy. The HCVF working group may therefore make specific recommendations that these forests are selectively logged, with a certain density of trees being high-felled, snags retained and at least a certain volume of coarse woody debris left within the stands. For other

HCVs, or where variability makes specific recommendations difficult, the working group may prefer to offer more general guidance. HCVF working groups should consider the particular needs and limitations of small forest managers. Nevertheless, some guidance is universal, in particular that the management of HCVs should:

- always be based on the precautionary approach to minimise the risk that any irreversible damage is done to these critical values (see box).
- always be within a framework of adaptive management, i.e. by planning, implementation, monitoring of effects and where necessary re-planning on the basis of the analysis of the results of monitoring.

There are three basic options available for managing HCVF:

- **Protection of the area**, through reserves, buffer zones, marking boundaries and control of activities that degrade the HCV (e.g. hunting of rare species). Where doubt exists as to whether any of the other management options are able to maintain or enhance the identified HCVs, then, consistent with the precautionary approach, protection will be the preferred option.
- **Modifications or constraints on operations**, or specific operational prescriptions/systems. Any threats to the HCVs which will be posed by operations or other activities in the forest will need to be identified and documented. This analysis should include all potential effects, both direct (e.g. harvesting operations or use of chemicals) and indirect (e.g. increased hunting as a result of better access along logging roads). The constraints that these threats will put on operations and other activities should also be examined. The decision to adopt any particular operation must be made based on the precautionary approach, which means that if you are not sure whether a particular activity might have a negative effect on a HCV, then you should assume that it will until you have collected information to prove that it does not. Examples might include implementation of particular cutting cycles, retention of named species or maximizing notable habitat features such as areas suitable for nesting or feeding.
- **Restoration activities** where the forest area requires some remedial action, such as removal of alien species or enrichment of riparian functions.

The Precautionary Approach

An important component of the management of HCVFs is the application of the Precautionary Approach. HCVFs are, by definition, the most important forests from a conservation or social perspective (depending on the HCVs identified). Therefore, it is critically important that the values identified are not lost. But with the current level of knowledge about forests and how they function, it is not possible to be sure in every case that a particular management strategy will work. Therefore, it is essential to use the precautionary approach when dealing with HCVFs. In practice, this means:

“Planning, management activities and monitoring of the attributes that make a forest management unit a HCVF should be designed, based on existing scientific and indigenous/traditional knowledge, to ensure that these attributes do not come under threat of significant reduction or loss of the attribute and that any threat of reduction or loss is detected long before the reduction becomes irreversible. Where a threat has been identified, early preventive action, including halting existing action, should be taken to avoid or minimise such a threat despite lack of full scientific certainty as to causes and effects of the threat”

(FSC Principle 9 Advisory Panel, 2000).

4.2. Developing specific guidance for each HCV

Where possible, specific guidance for each HCV should include:

- Whether there are any constraints placed on management of the HCVF (or HCV) by law. For example, if it is within a protected area, or contains a species covered by either national legislation (e.g. wildlife laws) or by international conventions (e.g. if the species is listed by CITES or on IUCN Red Data Lists), or if its management is covered by forestry regulations.
- Collating information on tried and tested management practices that are known to be effective in maintaining each HCV. These might come from forestry regulations (for example, where critical watershed management is constrained by law) or from forests where management has had a history of successful maintenance of the value.
- Key baseline information, including current status, main trends and threats. This should include an evaluation of the impacts of standard management. This will help forest managers to identify, and make provision for, any external threats to the HCV as well as alerting forest managers to potential problems with their current management practices.

- Lists of organisations, institutions and individuals who would be able to provide specific guidance on management of each HCV. Many of these will be the same as the list of stakeholders discussed in Section 3.
- For HCVs 1-3, the HCVF working group could usefully collate and interpret relevant information on the biology of species or the ecological processes that are relevant to each HCV. This is needed to devise sound management practices to ensure their long-term protection.
- For HCVs 5 and 6, provide guidance on relevant consultation techniques (see also Sections 2 and 3).

5. Monitoring HCVFs

Monitoring is an essential part of any forest management. In the context of HCVFs, the main purpose of monitoring is to establish whether or not the identified HCV is being maintained or enhanced. Monitoring allows the forest manager to check whether management is working and, if it is not, to warn forest managers when management must change. HCVF working groups should provide detailed information on what types of monitoring (e.g. types of indicators, monitoring program design and review processes) are likely to be required for each of the HCVs that they define. Particular attention should be paid to monitoring requirements for small and low impact forest operations, so that unnecessary technical and economic constraint are not placed upon them by monitoring requirements.

Monitoring of HCVs will mostly be concerned with monitoring them in the FMU, although some of these monitoring requirements may also require consideration of events that occur outside the FMU where these affect the identified HCV (e.g. changes to the conservation status of ecosystem types, provision of alternative drinking water sources to local communities). Other stakeholders, such as land-use planners, may need to monitor HCVs at a landscape scale, but this is not specifically addressed here.

The link between management and monitoring is made very clearly by the FSC requirements for HCVF in Principle 9, (Criterion 9.4).

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

It will usually be impractical for HCVF working groups to describe in detail the appropriate monitoring programme for each type of HCV, but the HCVF working group can usefully provide:

- **Description of appropriate systems.** Whatever the HCV or HCVF being monitored, monitoring programmes are more likely to be successful if they follow some basic processes. The HCVF working group could usefully outline these;
- **Reference to sources of information on monitoring.** These might include any monitoring requirements in forestry laws and regulations, descriptions of proven monitoring indicators that are relevant to each HCV and details of appropriate publications, organisations or individuals that have developed appropriate monitoring protocols.

These are considered in the following section.

5.1. *Appropriate monitoring systems*

In addition to monitoring that each HCV is being maintained or enhanced, it is also advisable to monitor that the proposed management measures are actually being carried out as planned. This is often called ‘operational’ monitoring. For example, it is common to monitor that harvesting operations are following the required procedures. This helps to identify any obvious problems before they may actually be detected from the results of a longer-term (or ‘strategic’) monitoring programme.

When developing any monitoring programme, the following step-wise procedure should be followed: selection of indicators, design of the programme, and review of the results⁴⁵:

- **Indicators.** An indicator is a measurable characteristic that reflects the HCV in question, so that changes in the measured changes in the value of the indicator reflect real changes in the status of the HCV. For example, an indicator of critical temporal use (HCV1.4) might be the number of migratory bird species using a lake each year; an indicator use of a forest by local communities (HCV5) might be the income local people derive from collecting non-timber forest products. Where possible, more than one indicator should be used to monitor each HCV. This ensures that different aspects of the HCV are being monitored and so increases the robustness of the monitoring programme. The HCVF working group will probably not be able to specify indicators for all HCVs, except where they are laid down in forestry regulations or are tried and tested methods. A final consideration is levels of indicators:
 - **Coarse filter indicators:** these are broad measures of the main features of a forest . Examples include forest structure (e.g. basal area, canopy cover) for wildlife habitat (HCV1) or rare ecosystems (HCV3). The advantages of coarse filter indicators are that they are usually rapid to measure and often do not require expert knowledge or complex equipment. A potential disadvantage is that they may not accurately mirror changes in other aspects of the forest, such as the populations of individual threatened species. The HCVF working group may decide that coarse filters are sufficient for small and low impact forest operations. The working group may choose to provide sample indicators for each HCV (see also Section 5 in Part 3 of the Toolkit).

⁴⁵ A comprehensive manual for monitoring biological HCVs in Central American natural forests is given in Hayes, J., Finegan, B., Delgado, D. & Gretzinger, S. (2003). ‘*Biological monitoring for forest management in High Conservation Value Forests*’. Much of this could readily be adapted for use in forests in other parts of the world. The manual is available from Bryan Finegan (bfinegan@catie.ac.cr).

- **Fine filter indicators:** these are more specific measures of a particular, narrow aspect of the forest. Examples might include measuring the populations of one or more rare species (HCV1), species composition of tree regeneration (HCV3), water flow and sediment load (HCV4.1). These are usually more complex and costly to measure but may be necessary, particularly if coarse filter indicators do not adequately reflect the features of interest. The working group may choose to provide sample indicators for each HCV (see also Section 5 in Part 3 of the Toolkit).
- **Designing the monitoring programme.** This would include consideration of how to decide when a change has occurred that would require changes in management, how and when information should be collected, how often the measurements should be made, how the information should be analysed and processes to review the results and incorporate them into management. As with the choice of indicators, it will usually be preferable to allow forest managers to define the details of their monitoring programme, but it may be useful for the HCVF working group to provide outlines of potential structures, examples of monitoring programmes or detailed guidance for particular types of forest managers (e.g., small forest operations). A specific point concerns the frequency of monitoring. FSC Criterion 9.4 states that annual monitoring is required. However, annual monitoring is not necessarily appropriate to all HCVs and HCVFs (see example), and so we interpret this as meaning that ‘monitoring should take place with a frequency relevant to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes and this should be reviewed at least annually’. The HCVF working group should therefore consider whether certain types of monitoring should take place more frequently than once a year, but should make clear that the results of HCVF monitoring programmes should be reviewed at least annually.

Example of a HCVF monitoring protocol in which different components are monitored at different frequencies

HCV: the sole source of drinking water for a local community, which is supplied by a stream arising in the forest management unit (HCV5).

HCVF: a riparian protection zone where no harvesting takes place, plus a further buffer zone around this where harvesting is limited (in terms of the density of trees taken, plus further requirements on directional felling and skidding).

Monitoring Programme: The operational monitoring would include checking that the strict protection zone was respected and that harvesting in the buffer zone followed the management guidelines. Clearly, it would only make sense to do this monitoring during harvesting and therefore it would only need to be done annually if some harvesting operations were taking place each year in buffer zone. The strategic monitoring could include monitoring water flow and sediment load as well as consultation with local villagers to ensure that their needs were being addressed. The

key times for monitoring water flow and sediment load would be when water flow was at its highest (e.g., after storms) and lowest (during periods of prolonged drought), which will be more frequent than annual. Consultation with the community could involve frequent, informal talks with the village health worker (to find if there were any outbreaks of water-borne diseases) as well as more formal discussions with the community (which could be conducted annually unless a problem arose).

Review of results: Discussions with the community annually or immediately if a serious reduction in water flow and quality was identified or following a significant increase in the incidence of water-borne disease.

5.2. Sources of Information

There are numerous sources of information that may be useful for forest managers who need to design and implement HCVF monitoring protocols. The working group can collate such sources and refer forest managers to them as and when necessary. These might include:

- forestry regulations that govern a specific HCVF;
- forest management guidelines that outline the processes of developing monitoring programmes and integrating monitoring into forest management
- texts describing particular indicators and how to measure them
- sources of baseline information that may allow assessment of the impact of events outside the FMU on the HCV it contains (such as national trends in migratory bird numbers for HCV1.4).