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Evaluating Conservation Gains in North America through HCVF Assessments

Report Prepared for World Wildlife Fund – Canada

by Marcelo Levy & Nick Moss Gillespie
Responsible Forestry Solutions

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Executive Summary

The present study was undertaken by Responsible Forestry Solutions (RFS) on behalf of World Wildlife Fund Canada (hereafter WWF-Canada) to assess the on-the-ground conservation gains resulting from the implementation of High Conservation Value Forest (HCVF) assessments through forest management certification activities. A secondary objective was to document strengths of the HCVF approach as well as areas for improvement under a continuous improvement model. The concept of High Conservation Value Forests (HCVF) was developed by the FSC for use in forest certification (FSC Principle 9). A forest (or subset thereof) that has an HCVF designation is one that contains outstanding, exceptional or critical attributes. A related tool of conservation planning is Criterion 6.4 of the FSC Principles & Criteria, which addresses the issue of maintaining representative samples of existing ecosystems, and pre-dates HCVF as part of the FSC approach. Up to the end of March 2006, a total of 171 FSC Forest Management certificates had been issued in North America (Canada, the US, and Mexico) with a total area of 25,145,601 hectares. RFS conducted a scan of all the public summary certification reports of these 171 certificates, publicly available from certification bodies' websites, as a requirement of the FSC system. The information collected focused on the work that had been undertaken by certification applicants, and the findings of their certification auditors, on Criteria 6.4 and Principle 9. The information was compiled in a database, and a number of tables and charts generated, providing an easily-accessible breakdown of the data by key factors such as standard used, certification body, size of operation, and tenure.

Conclusions - Overview

- While over 60% of certificate holders have identified or are in the process of identifying candidate protected areas to meet the requirements of Criterion 6.4, the identification and setting-aside of representative areas has been undertaken primarily by large (and public) landowners. Meanwhile, in over half the certificates reviewed, auditors have found it necessary to record a Corrective Action Request (CAR) regarding Criterion 6.4. While this indicates that compliance by Forest Managers could be improved, it also suggests that the FSC process is working to integrate aspects of conservation planning into FMPs.

- The greater part of applicants' efforts in meeting the requirements of Principle 9 have focused on the identification of HCVs and HCVFs. Fewer managers have taken the next step of identifying management prescriptions and monitoring procedures for HCVFs.

- The relatively good performance in addressing P9.1 masks variation in the types of HCVs identified. HCV1 and HCV3 (RTE species and ecosystems) are the most common HCVs identified while HCV2, HCV4, HCV5 and HCV6 are less common. It is likely that good performance around HCVs 1 and 3 stems from the protection of RTE species in regulation; forest operators have had several decades to determine how to comply with this legal requirement. Newer conservation approaches, as outlined in HCV2 and HCV4, suggest needed improvements in these areas.

- The situation in Mexico is relatively undeveloped with regard to the implementation of HCVF, given the lack of progress in terms of developing national standards.

- The date of the original certification assessment provided some level of variation in terms of the integration of HCVF analysis with management planning. The current version of Principle 9 was formally approved in 1999, but there is a significant transition period between this date and the incorporation of the new principle into existing standards and operational plans. Hence, reports and internal documents of operations which were originally certified in 2000 or 2001 (which are close to embarking on their second audit cycle, given the 5-year certificate life-span) contain very little reference to HCVF. The up-take of HCVF within the FSC system continues to progressively take effect, but this factor explains some degree of temporal variance amongst the certificates reviewed.

- The national and regional context in which standards were developed appears to have had some bearing on the expectations contained therein, and the process by which standards evolved. Differing results were generated in terms of the onus placed on managers to identify and set-aside protected areas under Criterion 6.4. Greater expectations are generally placed on management of public lands, in terms of gap analysis and so forth, and the size and type of tenure is more significant in this regard than which side of the US/Canadian border an operation is situated. There is some conceptual confusion in evidence concerning the intent of the Criterion – i.e. what constitutes ecosystem representation, and what other values may better be captured under Principle 9, such as the presence of Old Growth or "features that are ecologically unique".

- A great deal of emphasis is placed on 'Old Growth' in the US where Principle 9 is concerned, with an applicability note indicating that Old Growth forests should normally be classified by default as HCVFs (although what constitutes 'old growth' is to be determined at the regional level). The Canadian standards are less prescriptive in approach, relying instead on a detailed guidance document to address each of the six HCVF attributes.

1. Background

World Wildlife Fund Canada (hereafter WWF-Canada) has been heavily involved in the Forest Stewardship Council (FSC)'s standards development process in Canada. WWF-Canada views FSC certification as a market-based tool to integrate conservation planning into forest management plans to improve protection and management of forest ecosystems. This report reviews progress in North America around two key elements of FSC certification related to systematic conservation planning:

- Principle 9 or High Conservation Value Forests; and
- Criterion 6.4, which addresses protection of representative samples of existing ecosystems.

The concept of High Conservation Value Forests (HCVF) was developed by FSC for use in forest certification (FSC Principle 9). A forest (or subset thereof) that has an HCVF designation is one that contains outstanding, exceptional or critical attributes. The key to the successful implementation of this concept is the identification of such attributes. These attributes encompass biodiversity concentration areas, large intact forest areas, rare threatened or endangered (RTE) species, ecological services, and cultural and social aspects critical to meeting the needs of local communities (see Appendix I for the full text of Principle 9 and definitions). Principle 9 requires managers to identify these values and to develop management strategies to maintain them.

The HCVF approach is gaining wide acceptance and is being used beyond FSC certification audits, for example by major companies in need of screening tools to guide purchasing policies. Forest companies are using this approach for planning purposes, and forest conservation groups use HCVF as an advocacy tool. "This rapid uptake reflects the elegance of the concept, which has moved the debate away from definitions of particular forest types (e.g. primary, old growth) or methods of timber harvesting (e.g. industrial logging) to focus instead on the values that make a forest particularly important. By identifying these key values and ensuring that they are maintained or enhanced, it is possible to make rational management decisions that are consistent with the protection of a forest area's important environmental and social values."[1]

The other key indicator of conservation progress in WWF-Canada's support for FSC certification was to achieve ecosystem representation. Criterion 6.4 (See Appendix II for the full text of this Criterion) requires protection of forest areas in order to maintain representative samples of any given forest ecosystem. The intent of this criterion is that the areas the certified operation sets aside tie into a protected area network established at a landscape level. This criterion does not cover reserves set up for localized values such as raptor nests or riparian buffers that are not specifically intended to be part of a protected area network.[2]

Compliance with these requirements should result in on-the-ground conservation, social, or cultural gains related to the values identified in the forest area in question. As certification

[1] HCVF Toolkit, Part 1: Introduction to HCVF. 2003**. (***S. Jennings, R. Nussbaum, N. Judd and T. Evans).*
[2] National Boreal Standard. August 2004. FSC Canada. Intent Box for Criterion 6.4 p.81.

activities increase, WWF-Canada has a keen interest in assessing the result of its involvement in FSC certification in order to develop appropriate strategies and activities to ensure the continued credibility of the FSC and to meet conservation targets.

2. Assessing Conservation Gains – The Study

This project was not intended as an in-depth study, but rather as a general review of the results of FSC certification activity across North America (Canada, Mexico, and the US) with respect to Principle 9 and Criterion 6.4. The purpose of this study is to identify, and to a certain degree, assess the conservation gains realized through the implementation of the requirements of Principle 9 and Criterion 6.4 in North America in order to provide: a) insight into whether conservation gains are being realized; and b) an understanding of the nature of those gains.

It is expected that the implementation of Principle 9 should result in the protection of forests containing outstanding/exceptional attributes. The implementation of Criterion 6.4, meanwhile, should contribute to the expansion of a network of protected representative ecosystems. There are a number of variables that were identified as potentially playing a significant role in shaping the implementation of these two elements. The size of the operation, the type of tenure (private, communal, or public), and the regional standard requirements were key variables around which the data collection was designed. The depth of the publicly available information also influenced the design.

As the standards, through specific requirements, set the level of expectations with respect to the elements in question this study also carries out a brief examination of the potential differences in the standards developed for Principle 9 and Criterion 6.4 in different jurisdictions. The FSC Principles and Criteria (P&C) set the platform for the development of standards at the national and/or regional level. While this creates flexibility to address local circumstances, it is also possible that standards developed will have varying requirements and may result in different certification outcomes and/or conservation gains on the ground.

2.1 Methodology

Phase 1. Review of Certification Public Summary Reports

The first phase of this study consisted in the review of the public summaries required to be made available from FSC certification audits, with a particular focus on Criterion 6.4 and Principle 9, and involved the compilation and organization of the data. The study reviewed all Certification Public Summaries issued for Canada, Mexico and the United States (as of March 2006). The information from the Certification Public Summaries was entered into a database to facilitate analysis. Key categories used in the analysis of the information were:

- Regional standard used (or in many cases certifiers' generic standards/guidelines)

- Certification Body
- Size of operation
- Type of Tenure

Basic information was collected to allow the identification of the forest operation (location, name, FM/COC certificate number). To allow for some level of stratification, information on tenure, type of operation (natural/plantation), size, was also collected.

In order to carry out the analysis of Criterion 6.4 and Principle 9 an analytical framework was developed to assess the level of effort in addressing Criterion 6.4, and Principle 9 (including the 6 HCV categories).

For Criterion 6.4, responses were categorized into:

- ***Areas identified***: when representatives areas have been identified
- ***No Areas Identified***: when no work or no areas were found
- ***Work in progress***: when some work was carried out

For Principle 9, the Certification Bodies assessment (Criteria 9.1, 9.2, 9.3, 9.4) is separate from the identification of the HCVs and whether they are being addressed or not.

For the analysis of the Criteria (9.1, 9.2, 9.3, 9.4) we categorized the responses into:

- ***Addressed***: the assessment has been carried out
- ***N/A***: Not Applicable when no HCVs were found
- ***Partially Addressed***: when some work was carried out
- ***Not Addressed***: when no work was carried out

For the HCV attributes the responses were categorized into:

- ***Identified – Addressed***: the attribute was identified and being maintained
- ***Identified – Not/Partially Addressed***: the attribute was identified but no or little work to ensure its maintenance has been carried out
- ***N/A*** (Not Applicable): when no HCV attribute has been identified for that particular forest
- ***NSI*** (Not Sufficient Information): when it is not possible to know from the Public Summary whether any work has been carried out on the particular HCV attribute

In all cases it was noted whether pre-conditions, conditions, observations, or recommendations (Corrective Action Requests or CARs) were issued.

Phase 2. Review of Regional Standards

The purpose of the review was to assess differences in standards' requirements for Principle 9 and Criterion 6.4 that may result in different certification and/or conservation outcomes. During

this phase, Principle 9 and Criterion 6.4 were compared in order to identify common features and differences between all standards. The study included the following standards:

- Canada: Boreal, British Columbia, Great Lakes–St. Lawrence (Draft) and Maritimes
- United States: US National Indicators; Appalachia; Lake States; Mississippi Alluvial Valley; Northeast; Ozarks – Ouachita; Pacific Coast; Rocky Mountains; Southeast; and Southwest
- Mexico: Mexican National Standards

Phase 3. Review of Selected Forest management Certificates

The purpose of this review was to validate the findings from the survey of the Certification Public Summary reports and to add depth to the study so as to better understand the nature of the potential conservation gains. Based on the initial review of Certification Public Summary reports a limited number of Forest Management Certifications were selected as case studies, in order to test or refute the tentative conclusions emerging from the broader scan. The initial review discovered differences in implementation of Criterion 6.4 and Principle 9 related to the size of the operation, type of ownership, and standard used, as critical elements for analysis. (It was also decided to select operations audited by different certification bodies). The certified operations were selected to cover these variables, and the results confirmed the trends deduced from the broader analysis.

3. General Scope of FSC Certification in North America

This section provides an overview of the scope of FSC certification with respect to Principle 9 and Criterion 6.4 in North America. It provides some basic statistics to understand the extent and impact of certification in general. It also breaks down the statistics to provide some more detailed information.

3.1 FSC Certification in North America (as of March 2006)

The total number of FSC certificates issued in Canada, Mexico and the United States is 171,[3] encompassing a total of 25,145,601 hectares, according to the following breakdown:

Table 1 Number of Certificates and Area certified by country

Country	Number of Certificates	%	Hectares	%
Canada	30	17.5	16,564,282	65.9
Mexico	43	25	1,243,098	4.9
United States	98	57.5	7,338,221	29.2
Total	**171**		**25,145,601**	

[3] As of March 31, 2006, according to information available on FSC and Certification Bodies' web sites.

Chart 1 Number of Certificates by Country

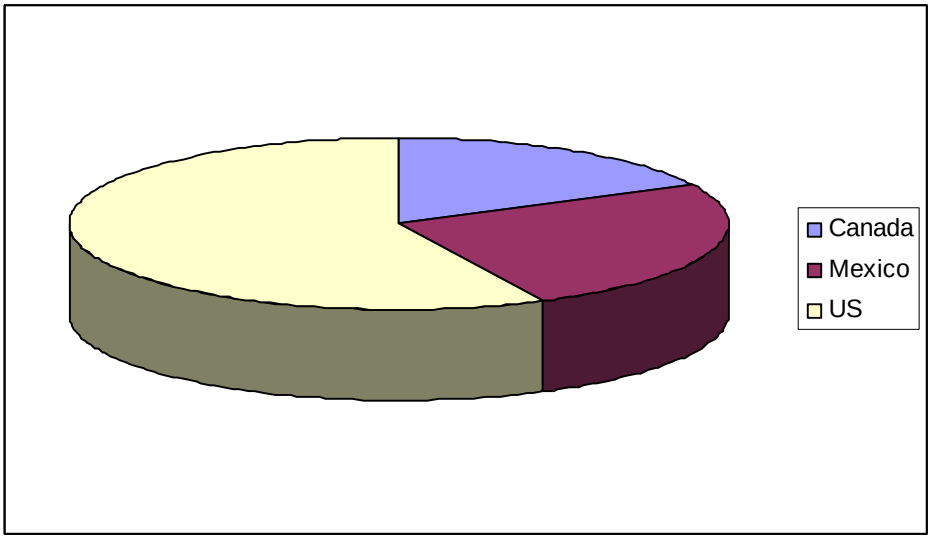
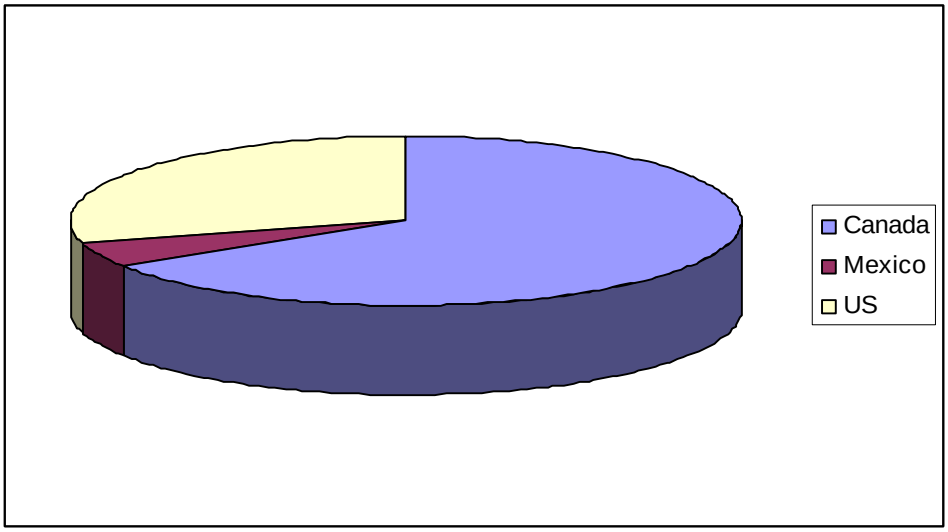


Chart 2 Hectares certified by Country



3.2 Standards

In Canada, there are four regional standards, each of them developed by their respective working groups. The National Boreal standard was developed directly by FSC Canada and some of its work particularly around Principle 9 was used and incorporated in revision of the British Columbia, Great Lakes–St. Lawrence, and Maritimes Standards. The FSC-US National Initiative developed a set of National Indicators, and regional working groups worked within that framework to address regional issues through applicability notes and regionally specific indicators. The FSC US National Indicators represent the baseline for FSC certification and

bring consistency across the United States. The Mexican standards are in draft form dating back to 1998 and do not incorporate the HCVF concept at all. Moreover, there are no indicators/verifiers for Criterion 6.4. In Mexico, all certifications up to March 2006 have been carried out using the Certification Body's adapted generic standard.[4] Therefore, it is not possible to analyze this draft in the context of the work done to date vis a vis the work done in Canada and the United States.

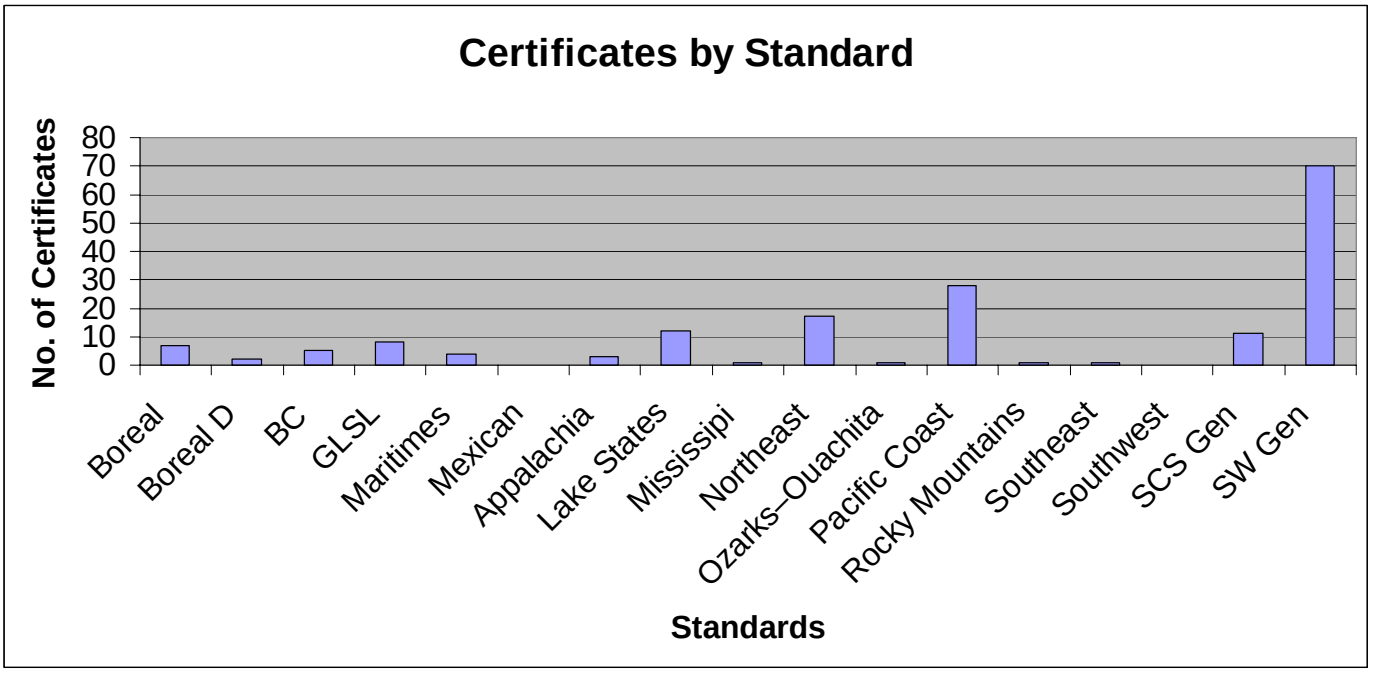
In addition to the regionally developed standards, the FSC accredited certification bodies have, as part of their accreditation, generic standards that they have to adapt through a consultative process to use when working where no regional standards have been approved. The number of certificates issued in relation to the standards used to assess them is as follows:

Table 2 Number of Certificates issued by Standard

Standard used	**Number of Certificates issued**
Boreal	7
Boreal Draft/GL-SL Draft	2
British Columbia	5
Great- Lakes St. Lawrence (Draft)	8
Maritimes	4
Mexican National Standards (Draft)	0[5]
Appalachia	3
Lake States	12
Mississippi Alluvial valley	1
Northeast	17
Ozarks – Ouachita	1
Pacific Coast	28
Rocky Mountains	1
Southeast	1
Southwest	0
SCS Interim Standards	11
SmartWood Generic Standards	70
Total	**171**

[4] SmartWood Generic Guidelines, version March 2000/August 2005.
[5] The standard is in draft form and no certificate has been issued using the Mexican standards. The CBs' adaptation of their generic guidelines takes into consideration the work done to date on draft standards for Mexico, and the 43 certificates issued to date (by SmartWood) have been audited to the CB's adapted generic standards (included as part of the 70 certificates recorded in the table above).

Chart 3 Number of certificates by Standard



It should be noted that some early certificates were initially issued under draft standards. Those have now been consolidated into the final approved standard for the region.

The Criterion 6.4 contained in the Mexican Standards (based on the working draft obtained by RFS) consists of the Spanish translation of 6.4 as per the FSC P&C. The SmartWood Generic Standards (Version August 2005) contain the same text, plus three indicators (see Appendix IV for details). The Mexican Standards (i.e. the draft, working document) contain the old Principle 9, dealing with the maintenance of natural forests. The SmartWood Generic Standards do contain the new Principle 9, however, as included here in Appendix IV.

3.3 Certificates issued by Certification Body

There are 4 certification bodies active in North America:

- Scientific Certification Systems (SCS);
- Société Générale de Surveillance (SGS);
- SmartWood; and
- Soil Association-Woodmark

SmartWood and SCS, the two US-based certifiers, have between them issued most of the forest management certificates in North America (about 93.5% of the total). SmartWood has certified 129 operations (75.4%) and SCS has certified 31 (18.1 %). SmartWood is the only certification body that has issued certificates in Mexico (that remain currently active). Chart 4 and Tables 3 and 4 below illustrate the data that relate certifiers to a number of variables.

Chart 4 Number of Certificates by CB and by Country

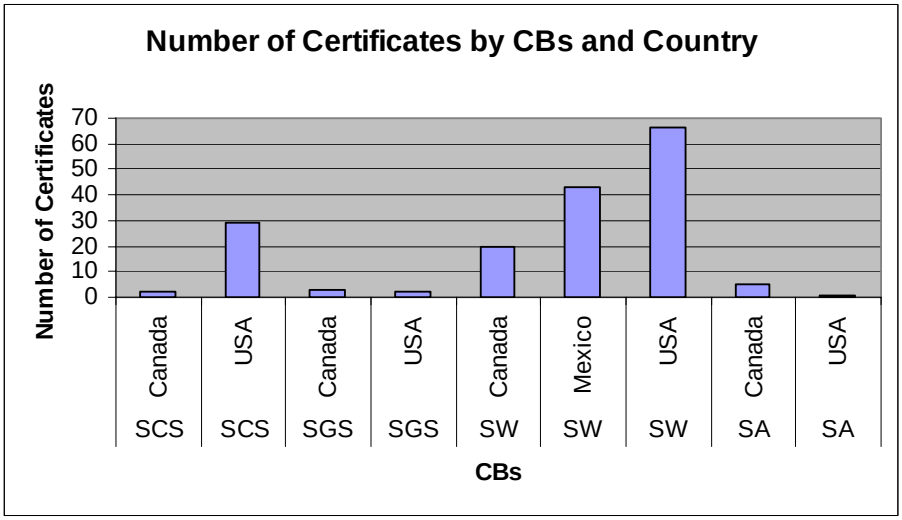


Table 3 Number of Certificates by CB and by Country

CB	Country	Number of Certificates
Scientific Certification Systems	Canada	2
Scientific Certification Systems	USA	29
SGS	Canada	3
SGS	USA	2
SmartWood	Canada	20
SmartWood	Mexico	43
SmartWood	USA	66
Soil Association	Canada	5
Soil Association	USA	1
Total		**171**

Table 4 Hectares certified by CB and by Country

CB	Hectares Certified
Scientific Certification Systems	5,578,978
SGS	2,273,684
SmartWood	17,276,623
Soil Association	16,316
Total	**25,145,601**

3.4 Certificates by Size of Operation and Tenure

For the purposes of this study, forest operations smaller than 1,000 hectares were considered small.[6] The study found that there were three types of tenure: private land, public land (managed directly by a government agency or licensed to forest companies) and communal lands owned/managed by communities. Communal lands are very common in Mexico (*ejidos*) and there are also a few examples of communal lands in the United States and Canada (held by Indigenous Peoples in both countries). The percentage of large operations (larger than 1,000 hectares) is very high. In North America, 87.7% of all certified operations fall in the large category. In terms of tenure, 18.7% of certified operations are on public lands, 56.7% are on private land and 24.6% are on communal lands. In terms of hectares certified in relation to tenure, 1,421,638 (5.7%) were communal; 3,580,825 (14.2%) were private and 20,143,138 (80.1%) were public lands.

It is important to put this data in the context of the different regulatory and tenure systems in the three different countries. In the United States forest lands are predominantly private; in Mexico, the Ejidos are a very common form of communal land use; while in Canada forests are predominantly on public land. The data reflect this situation and given the relatively large size of the licenses in Canada the results of certified land by hectares are skewed toward public ('Crown') land. However, if we consider the tenure in relation to the number of certificates, slightly more than half of all certificates have been issued to private landowners, about a quarter to communal landholders and less than a fifth to operations on public lands.

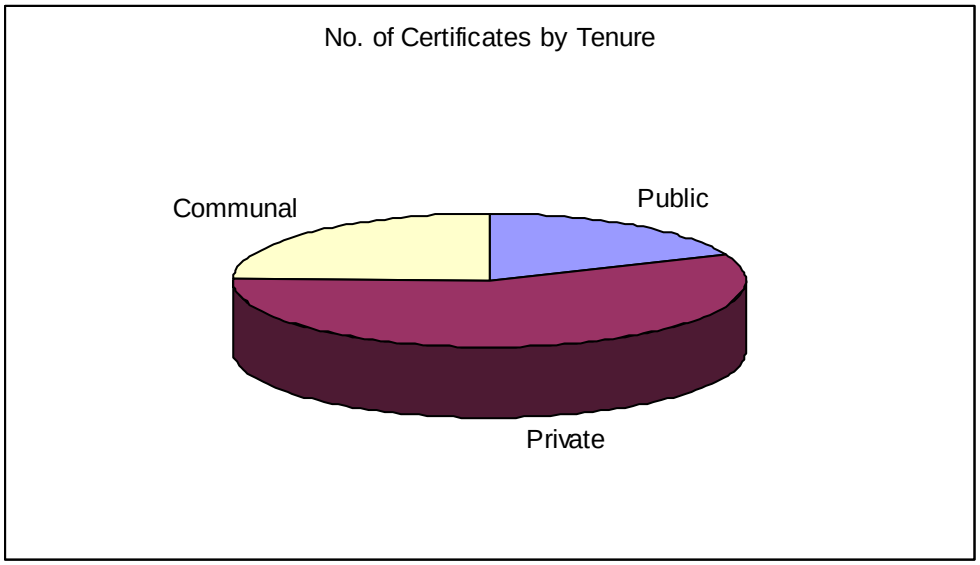
The following is a breakdown of the data by country, size, and tenure:

Table 5 Certificates by country, size, and tenure

Country	Number of Certificates	Size	Tenure
Canada	9	Large	Private
Canada	15	Large	Public
Canada	1	Small	Communal
Canada	5	Small	Private
Mexico	38	Large	Communal
Mexico	5	Large	Private
USA	2	Large	Communal
USA	65	Large	Private
USA	16	Large	Public
USA	1	Small	Communal
USA	13	Small	Private
USA	1	Small	Public

[6] The size chosen is consistent with the work carried out by FSC on Small and Low Intensity Managed Forests ('SLIMFs').

Chart 5 Number of Certificates by Tenure



4. Analysis

In this section, the information gathered from the Certification Summary Reports and from the analysis of the standards is combined to provide some insight into the potential conservation gains that result from undertaking FSC certification. The standards are a key component of the certification program as they set the expectations. The audit itself is the other key component as it determines the level of effort needed to comply with the standards. In order to understand the on-the-ground results of FSC certification it is important to analyze both the assessment process and the standards concerned separately, as well as how these two key factors interact.

4.1 Analysis of Data gathered on Implementation of Criterion 6.4

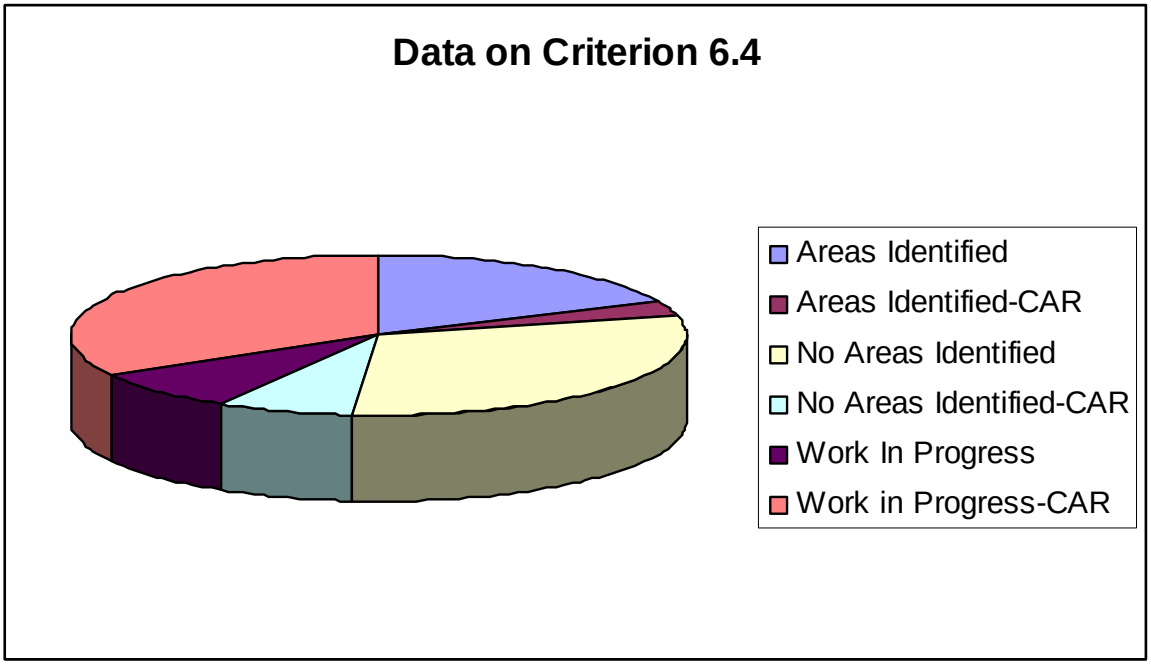
In this section, the information gathered from the Certification Summary Reports for Criterion 6.4 is analyzed in more detail. As described in the methodology above, the information focused on identifying whether representative areas were identified, whether the Criterion was met or whether Corrective Action requests were issued. The objective was to understand what the level of performance is in identifying and setting aside representative areas as a result of implementing FSC certification. Compliance, as noted by the auditors, was a key feature in the Certification Summary Reports to assess performance.

The overall performance of certified operations in identifying ecosystem representative areas is high (62.6% either have areas identified, or work is in progress as directed by CARs) indicating good compliance with FSC standards, as demonstrated in the following data:

Table 6 Performance ranking for Criterion 6.4

Criterion 6.4	Number of Certificates	%
Areas Identified	31	18.2
Areas Identified-CAR	5	2.9
No Areas Identified	52	30.4
No Areas Identified-CAR	12	7
Work In Progress	14	8.2
Work in Progress-CAR	57	33.3

Chart 6 Performance ranking for Criterion 6.4



Of the 171 certificates reviewed, 62.6% have either identified representative areas or are carrying out work to meet the requirements of the Criterion. When the data was broken down for further analysis, it was found that of a total of 31 certificates that have identified representative areas, 28 are large operations while 3 are small.

Table 7 Performance ranking for Criterion 6.4 by Size of Operation

6.4 Addressed/CAR	Large	Small
Areas Identified	28	3
Areas Identified - CAR	5	
No Areas Identified	38	14
No Areas Identified - CAR	12	
Work in Progress	11	3
Work in Progress - CAR	56	1

This confirms that the brunt of the work in terms of identifying representative areas and setting them aside has been undertaken by large (and public) landowners. This finding is consistent with the expectations set out in the standards (see discussion below in the Analysis of Regional Standards section).

4.2 Analysis of the Data gathered on Implementation of Principle 9

In this section, the information gathered from the Certification Summary Reports for Principle 9 is analyzed in more detail and related to the standard. As described in the methodology above, the specific information gathered on Principle 9 from the Certification Summary Reports focused on the certification body's assessment of the operation in terms of the performance indicators to comply with the standards. The research therefore included a breakdown by conditions, observations and recommendations (including previous pre-conditions), and to the extent possible given limited time and access to detailed information, a scan of the High Conservation Values identified.

The information for the four Criteria in Principle 9 is as follows:

Table 8 Level of Effort Principle 9

Principle 9	Criterion 9.1	Criterion 9.2	Criterion 9.3	Criterion 9.4
Addressed	57	45	44	34
Addressed - CAR	1	0	0	0
N/A	17	17	17	19
Partially Addressed	5	31	23	23
Partially Addressed – CAR	65	38	57	59
Not Addressed	4	17	9	12
Not Addressed - CAR	22	23	21	24

The data demonstrate that most operations have done some work in terms of identifying HCVs. About 75% of the operations certified have fully addressed the standard or have initiated work as a result of Corrective Action Requests (Addressed and Partially Addressed in the table above). Even those that have not addressed the standard (12.8%) have initiated work to keep their certificate.

In terms of the rest of the Criteria for Principle 9, there is a significant change in the "Partially Addressed" category when comparing data between Criteria 9.1 and the rest of the Principle 9 Criteria. Only 5 certificates fall in this category for 9.1 but this number jumps to 31 for 9.2 and 23 for 9.3 and 9.4 in the context of a slight decline in the number of "Addressed". Consistent with the discussion in the Analysis of Regional Standards section below, it seems that the identification of HCVs has been the key activity both in terms of standards and in terms of effort from forest managers. It should also be noted that even in operations with combined natural/semi-natural forest management (and that in some cases included plantations) some level of work was carried out by the operator or by the certifier (through issuing CARs, observations, and recommendations).

In terms of HCVs identified, as the data below illustrate, one of the most frequently addressed HCVs (particularly in the United States) is habitat for rare, threatened, and endangered species. At least 63.16% of the operations identified HCV1 (whether they addressed them or not) and 36.26% identified HCV3. HCV4 (ecosystem services, watershed protection) followed with 24.56% of the operations identifying this value. The fact that the protection of RTE species is regulated and therefore forest operators must comply with this legal requirement may explain, to a certain degree, the prevalence of RTE habitat protection as the most identified HCV. Other values such as the prevention of soil erosion, the protection of watersheds and water quality (in the United States), the conservation of large landscape level forests, watersheds and cultural attributes (mostly in Canada) were also identified.

Table 9 High Conservation Values Identified

HCVFs	**HCV 1**	**HCV 2**	**HCV 3**	**HCV 4**	**HCV 5**	**HCV 6**
Identified - Addressed	47	8	26	17	1	5
Identified – Not/Partially Addressed	61	8	36	25	3	14
N/A	16	20	16	18	17	18
NSI	47	135	93	111	150	134

It should be noted that a key issue in bringing any degree of statistical value to this data is that the Certification Public Summary Reports did not provide sufficient information to understand the nature of the value protected. With the exception of HCV1 the largest number is for Not Sufficient Information – 'NSI'.

The situation in Mexico is also very interesting since a large proportion of the certificates were issued to *ejidos* (properties under regimes of communal use-rights) or *comunidades indígenas* (indigenous communities with a similar tenure system) with varying degree of capacity. It should be noted that most of the ejidos are large (with a range between 10,000 and 200,000 hectares) and that their ability to implement management strategies depends on collective decisions. Due to a combination of factors beyond the scope of the present study, for the most part in Mexico the situation is one of "work in progress". Most ejidos had pre-conditions and later conditions on both Criterion 6.4 and/or Principle 9. It was noted in a number of the Certification Summary reports that while there has been some level of assessment conducted on HCVF, the concept was not well understood at the time of audit.

One additional issue that would merit further discussion (but is beyond the scope of this report) is that the date of the assessment provided some level of variation in terms of analyzing level of effort and/or depth of information in the Certification Summary Reports. The current version of Principle 9 was formally approved in 1999 but it took several years for it to be incorporated into standards and operationalized. As a result, early reports dating back to 2000 or 2001 (which are or will be undertaking re-certification, given the 5-year certificate life-span) contain very little reference to HCVFs. Furthermore, many of the standards have not been approved yet so Certification Bodies used their own approved regional adaptation of their respective generic standards (provided for under the FSC system for use in the absence of fully endorsed standards).

4.3 Analysis of Regional Standards

In the United States, a set of National Indicators was developed as a baseline on which regional groups would build-in appropriate characteristics through regionally specific applicability notes, and/or indicators and verifiers. In Canada, each regional standard developed indicators and means of verification. In order to provide further guidance to managers and auditors, Intent Boxes were inserted directly into the standard, and in some cases separate guidance documents were developed (e.g. in British Columbia). The Mexican standard is still in draft form with no indicators/verifiers under 6.4 and the HCVF concept has not been incorporated (the draft version reviewed from 1998 still has the old FSC Principle 9, i.e. written prior to the introduction of HCVF in 1999). This study could not include the Mexican standard in the comparative analysis since there are no indicators, verifiers, or guidance of any kind for the Criteria analyzed.

4.3.1 Analysis Criterion 6.4

The key topic that Criterion 6.4 covers is that of ecosystem representation. It requires the setting aside of areas in order to retain representative samples of any given forest ecosystem. Both in the United States and Canada the requirements under Criterion 6.4 reflect different expectations placed on public and private lands. Most of the US standards were developed in the context of the prevalence of private over public ownership of forests. In Canada, the opposite is true; the Boreal and British Columbia standards in particular were developed in the context of large industrial licenses on public land. The Great Lakes-St. Lawrence and Maritimes standards

reflect the ownership patterns of their respective regions, with a larger proportion of private land than in the Boreal and BC settings.

Under this Criterion, the US National Indicators outline the functions of representative samples: 1) Create/maintain ecological reference condition; particularly 2) where the given condition is under-represented and; 3) protect a specific unique or rare feature. There is also discussion of fixed protected areas (which fall under category 3) and protected areas that move across the landscape (the latter fall under categories 1 and 2). An Applicability Note in the US National Indicators (and adopted in the regional standards), states that "While public lands (see Glossary) are expected to bear primary responsibility for protecting representative samples of existing ecosystems, FSC certification of private lands can contribute to such protection. Representative samples may be protected solely by the conditions of the certificate and/or through the use of conservation easements or other instruments of long-term protection."[7]

For the most part, the standards in the United States are concerned with Old Growth as an intrinsic value to be protected (mostly as a category 3 protected area). Many of the FSC US standards require that managers protect Old Growth by default unless they can demonstrate that the forest does not need protection. Most US standards require that large private landowners be aware of and contribute to a protected area network in their region, as set out through a public process/designation. The US Regional standards contain in the applicability notes either a reference to a document or a list of potential species/areas that are likely to contain remnants of Old Growth characteristics. Some standards explicitly differentiate between small private owners and mid-size or large forest owners who would be expected to contribute to the protection of representative areas.

The Boreal and British Columbia standards require managers to conduct a gap analysis of the protected areas at the landscape level in order to identify forest types that are under-represented. It is expected that these areas will be set aside to meet the requirements of 6.4. These two standards are also very explicit on what is counted as protected area under 6.4 and what are normal reserves or buffer zones (e.g. riparian reserves). In addition, the BC standard has a threshold for representation (i.e. percentage to be set aside). The Great Lakes-St. Lawrence standard has different requirements for public lands (require gap analysis, take candidate areas out of Annual Allowable Cut calculations, etc) than for private lands (awareness, ability to contribute by simply not logging certain sites). The Maritimes standard refers to areas and features that are "ecologically unique", but also requires peer-reviewed gap analysis for the purpose of contributing to ecosystem representation.

In general, it can be said that, for the most part, the US standards differ from the Canadian standards in that they tend to refer to sources of information or to directly identify types of ecosystems that may meet the requirements of this Criterion. Only a few US regional standards (e.g. Northeast) require managers to assess adequacy of existing representative areas. In Canada, all standards require gap analysis (the Great Lakes-St. Lawrence and the Maritimes Standards have this requirement for large or public landholders). In terms of level of effort to meet the standard, the expectation is that forest managers operating on large operations and/or on public

[7] FSC US National Indicators, Applicability Note to Criterion 6.4.

land are for the most part responsible for meeting this Criterion in both countries. While standards in the US and Canada explicitly state that smaller operations should be aware of, and can contribute to, representative areas, the reality in practice as gleaned from the Certification Public Summary Reports is that, for the most part, there are fewer expectations placed on smaller operations (See Analysis of Implementation of Criterion 6.4 above). This seems to confirm the assumption that expectations are greater for managers operating on large and/or public lands on both sides of the Canada-US border. In short, the prevalent size and type of ownership, as reflected in the standard used, tend to influence the level of effort and expectations more than which side of the US-Canada border the operations happen to be on.

From this review, an interesting issue emerges that merits further discussion (and is beyond the scope of this report): there seems to be a tendency to equate "protected areas" to Criterion 6.4. While to a certain degree some features need to be protected for "representation purposes" (consistent with criterion 6.4) some of the features and elements included in some of the standards could be looked at from the perspective of an HCV attribute. For example Old Growth or "features that are ecologically unique" could well fall under the HCV concept more than under Criterion 6.4. Interestingly enough, the US standards have a designated function to protect unique/rare ecosystems under Criterion 6.4. Areas identified as category 3 could be candidate protected areas, but could also be designated HCVF. There might be an "ecosystem representation" value present in an historic context (i.e. remnant ecosystems), but also clearly, an HCV element. It is an interesting conceptual point worth discussing further as the understanding of the HCV concept and other elements of the FSC standards continue to evolve.

4.3.3 Analysis Principle 9

Principle 9 requires the maintenance of the attributes that define High Conservation Value Forests (HCVFs). Under this Principle, the key concept is the appropriate management of forests that have unique, outstanding and/or critical characteristics in order to maintain or enhance them. In the United States, the US National Indicators set a process to address the identification of HCVs. Indicator 9.1.a) requires that HCV attributes be identified, that the findings be submitted to a consultative process and that resulting HCVFs be delineated and mapped. There is also an applicability note to the effect that Old Growth forest should normally be classified as HCVF. Most regional standards essentially adopted these processes. The Canadian standards require the use of a detailed guidance document on how to conduct an HCV assessment, but do not prescribe HCVs. The guidance explicitly addresses each of six HCV attributes. This document was developed as part of the Boreal Standard process, and was adapted and adopted in the BC, Great Lakes-St. Lawrence and Maritimes Standards.

The US Regional standards add indicators and notes, and in some cases directly identify ecosystems/forest types likely to contain HCVs. They do this in appendices, or additional applicability notes. The focus in all standards is on Old Growth, "un-entered forests", and in some cases roadless areas. These attributes would fall under HCV1 (endangered species) and HCV3 (endangered ecosystems) and to a lesser degree HCV2 (large landscape level forests). The National Indicators' applicability note for P9 states that Old Growth would normally be considered an HCVF. The Northeast standard is the only one that developed a guidance

document (an appendix) to explicitly address each of the HCV attributes during the identification phase. There are some standards that also explicitly address other social and cultural values including those of Indigenous Peoples.

Criterion 9.2 requires consultation on the identification of HCVs and most standards have very few additional requirements. Criterion 9.3 requires that management actions maintain and enhance the identified values. The US National Indicators have an Applicability Note with respect to the applicability of the precautionary principle:

> "The applicability of the precautionary principle and the consequent flexibility of forest management vary with the size, configuration, and tenure of the HCVF:
> a) More flexibility is appropriate where HCV forest is less intact, larger in area, has a larger area-to-perimeter ratio, and its tenure is assured over the long term.
> b) Less flexibility is appropriate where HCV forest is more intact, covers a smaller area, has a smaller area-to-perimeter ratio, and future tenure is uncertain based on social considerations, and is consistent with Principle 3."

Most Regional Standards in the US add very little in terms of management requirements other than with respect to Old Growth and un-entered forests. Canadian standards do not add much with respect to management actions either, other than linking management strategies to Criterion 9.4 through a requirement to monitor effectiveness of management activities in maintaining the identified values.[8] Most US standards have no indicators for this Criterion with the exception of the Lake States standard, which differentiates between requirements for small operations and mid-to large size operations. The Canadian standards have indicators that require setting up a monitoring program and require that action be taken to reverse the trend when monitoring indicates increased risk to an identified value.

In conclusion the review of Principle 9 indicates that:

- The identification of values (Criterion 9.1) and how that is carried out appears to be the element that received most attention during the standards development processes as demonstrated by the requirements, applicability notes, and guidance documents, references and direct identification in the standards of potential HCVF candidate areas.

- Standards in the US tend to directly identify or provide sources of information for the identification of potential HCVFs in the region. The focus is on Old Growth, un-entered forests, RTE species and a process of identification, consultation and mapping. Depending on the region, other values identified in the standards include protection of watersheds and cultural/indigenous values.

- Standards in Canada tend to guide the HCV assessment process rather than identify areas with potential HCVF designations. All standards adopted the HCV guidance document developed with the National Boreal standard.

[8] Criterion 9.4 addresses monitoring the effectiveness of the actions in maintaining identified values.

- Most values identified tend to be HCV1 (RTE species and critical habitats) and HCV3 (endangered ecosystems).

- The Mexican standard is dated, has the old version of Principle 9, and does not incorporate the HCVF concept. It has not, therefore, been included in the body of this study.

5. Case Studies

The purpose of conducting a more detailed study of selected case studies was to validate the findings from the Certification Public Summary reports and to add depth to this review so as to better understand the nature of the potential conservation gains. Based on the initial review of Certification Public Summary reports a limited number of Forest Management certifications were selected. The initial review discovered differences in implementation of Criterion 6.4 and Principle 9 related to the size of the operation, type of ownership, and standard used, as critical elements for analysis. It was also decided to select operations audited by different certification bodies. The certified operations were selected to cover these variables, by agreement with WWF-Canada.
All documentation made available by the certificate holders was reviewed, in the light of the public summary documents pertaining to the original certification audit and all subsequent monitoring or surveillance audits. RFS analyzed the case studies in order to arrive at conclusions concerning the following elements:

- How Standards are written and what expectations they create
- Interpretation on the part of the auditor (Conditions, Observations, etc.)
- Actual results: outputs of representative areas and HCVFs
- Implementation: incorporation of these elements into forest management plans

A number of variables were taken into account, such as the FSC regional standards applied, the different size and ownership of the entities in question, and the slightly differing methodologies and approach of the certification bodies concerned. The purpose of the exercise was to ascertain whether these variables had any significant impact on the results, (albeit through a very small sample size), and to confirm emerging trends in terms of the broader analysis**.**

As a result of the implementation of Criteria 6.4 and Principle 9 it can be said that all operations taken as case studies have worked on the identification of representative areas and HCVs. They have mapped both representative areas and HCVFs and incorporated them into their management plans. Meanwhile, the results in terms of management prescriptions appear to be less consistent. This supports the general conclusions drawn from the assessment of the Certification Summaries: that most of the work has focused on the identification of representative areas and HCVs, generally building on legal requirements first. The uneven incorporation of HCVs in management prescriptions likely indicates that the challenge certification applicants confronted first was the identification and mapping of HCVs, in the context of different regulatory frameworks that were not built around the HCV approach.

The discussion above also points to the relationship between Criterion 6.4 and Principle 9. HCV assessments can easily be used to determine the presence and the need for protection of representative areas in any given forest operation. There are obvious overlaps in the concepts as well as in the way some standards treat representative areas and Principle 9. The US standards have representative areas designated for different purposes: as ecosystem benchmarks, to address under-representation, and to protect rare, exceptional ecosystems. The HCV assessment can be used to address these conservation issues as they can also be evaluated as HCV1, HCV2, or HCV3.

In comparing the standards as a variable in the case studies it can be said, and not surprisingly, that there is a very high degree of correlation between the expectation as set out in the standards and the level of effort in meeting them. The US standards, as they pertain to Criterion 6.4 and Principle 9, tend to be more prescriptive, going as far as to identify forest types that could potentially be designated as HCVFs. As we have seen, old growth forests were identified as HCVFs by default. The operations in the US (therefore) tended to emphasize old growth as the key HCV identified. The Canadian standards, on the other hand, include a guidance document to assess HCVs. The two operations reviewed used the assessment document and developed a comprehensive assessment of the conservation values in question. It should be noted that the use of the assessment tool resulted in clearer expectations for the forest operator and more consistent results. The HCVF report is organized around the 6 HCV categories and therefore made it easier to understand the values identified and the measures necessary to protect them. It also seems that the guidance document fosters the development of a more comprehensive assessment and planning process, rather than a piecemeal approach to addressing the values identified.

6. Conclusions

RFS undertook this study with the aim of determining the net conservation goals attributable to the implementation of HCVF assessments (and indirectly the interplay of P9 with Criterion 6.4) through FSC Forest Management audits across North America. One challenge encountered was that the Certification Summary Reports often do not provide very detailed information regarding HCVF assessment, and it is advisable to consult other materials in order to gain a better understanding of the process undergone. The closer inspection of a limited number of case studies provided more insight into how certification applicants and certifiers have handled the issues around Principle 9, through a thorough examination of work done on HCVF assessment, including HCV reports where these exist. This exercise provided confirmation of the overall results generated by the broader scan. A database was constructed containing the information collated from 171 certification public summary reports, and graphs and tables generated to present the results in more accessible form. Key factors of analysis included the FSC standard/s used for audit, the certification body employed, the size and nature of the operation, and the tenure system in place.

Summary of Findings

As far as Criterion 6.4 goes, more than 60% of certificate holders overall have identified candidate protected areas, or are in the process of doing so, and this is encouraged by the large number of CARs issued by auditors to this effect (in over half the certificates reviewed). This supports the view that the FSC process is working to favour the inclusion of conservation planning in resource use planning processes. Meanwhile, the setting-aside of representative areas has largely been implemented by larger entities, often operating on public lands. It is clear that factors of scale play a role here; there are clearly more resources available for landscape-level planning in larger operations, but the implementation of HCV assessment, and addressing of representation, cannot be skirted altogether by smaller tenures.

Some analysis was attempted of the effect of the regional/national context in the standard-setting process, and how this played out in terms of expectations created around the application of Criterion 6.4 and P9. Key determining factors appear to be the size and nature of the tenure (i.e. public or private land), rather than geographic location per se, although some differences in approach to guidance issued do appear to play out in terms of the process adopted for the identification and demarcation of HCVs, and likely therefore produce slightly different results on the ground. There is also an ongoing dynamic at play between 6.4 and P9 regarding ecosystem representation (covered by 6.4), and features that are ecologically or otherwise unique, that may best be captured by P9. This is in evidence, for example, in the delineation and treatment of 'old growth' in some jurisdictions. Several regional standards in the US are currently undergoing review, and it may be timely to encourage discussion of the relative merits of having a more structured guidance document around HCVF incorporated in standards, as opposed to the more open-ended approach currently taken in the US which is nevertheless linked to more prescriptive definition of what constitutes a HCV on the landscape.

It was discovered at an early stage that the full inclusion of the Mexican certificates in the study was not possible, as they had been evaluated to an earlier version of P9 which does not incorporate the HCVF concept. Meanwhile, the date a certificate was originally issued emerged as having an impact on the evaluation of HCVF, as the new P9 was only introduced in 1999, and has progressively been incorporated into standards being applied on the ground since that time. At this juncture, HCVF assessment should be undertaken as part of the planning and audit process for all new or renewed certificates, and also through the mandatory annual audit of existing certificates. In fact, there are some small discrepancies in the implementation and level of awareness of HCV as a tool, although these are likely diminishing over time, particularly with increased awareness and adoption of the HCV approach globally.

There is a relatively high degree of consistency in the level of effort invested by certification applicants in the identification of HCVs. The level of effort and progress is more uneven in the determination of appropriate management prescriptions and monitoring procedures to ensure that HCVs are maintained and enhanced across the landscape. In closing, the conservation gains described above should be put in the context of the gradual adoption of a new assessment approach. The HCVs most commonly identified are to a certain extent related to those values

which may be protected by existing legislation, for example concerning rare, threatened and endangered species and ecosystems (HCVs 1 and 3). This is not unexpected, as forest operators have much greater experience of designing management plans and the like to accommodate these legal requirements. As this new approach evolves, it will be interesting to observe how more innovative approaches to conservation, such as maintaining significant, landscape-level forests and the ecosystem services they provide (HCVs 2 and 4), are incorporated into planning processes in future. These values currently constitute areas where the comprehensiveness of the HCVF assessment approach can help forest operators implement conservation best management practices, beyond compliance with legal requirements. Developments in this regard will likely be a major focus for both practitioners and conservation advocates going forward.

Appendix I: Full text of Principle 9 and definitions:

FSC Principles and Criteria for Forest Stewardship (FSC-STD-01-001, April 2004).

Principle #9: Maintenance of high conservation value forests: [9]

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

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

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

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

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

High Conservation Value Forests: High Conservation Value Forests are those that possess one or more of the following attributes:

a) forest areas containing globally, regionally or nationally significant :
concentrations of biodiversity values (e.g. endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance

b) forest areas that are in or contain rare, threatened or endangered ecosystems

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

d) forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

[9] The FSC Members and Board of Directors ratified the revised Principle 9 in January 1999.

Appendix II: Full text of Criterion 6.4:

FSC Principles and Criteria for Forest Stewardship (FSC-STD-01-001, April 2004).

Principle #6: Environmental impact
Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

Appendix III: SmartWood Generic Standard, Criteria 6.4 and Principle 9: [10]

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

6.4.1 Representative samples of existing ecosystems shall be protected in their natural state, based on the identification of key biological areas and/or consultation with environmental stakeholders, local government and scientific authorities (a 10% target figure is encouraged but not mandatory).

6.4.2 In conjunction with experts, restoration and protection activities shall be defined, documented, and implemented in the forest.

6.4.3 Applicable to SLIMF FMOs only: (note: above indicators do not apply) Representative samples of ecosystems that are unique and not under protection by public or private agencies known to exist in the FMU shall be identified, documented and excluded from the harvest area. Such areas should be mapped.

PRINCIPLE 9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS
Management activities in high conservation value forests shall maintain or enhance the attributes, which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

9.1.1 FMOs shall have conducted an assessment to identify HCVs. Such an assessment should include:

- Consultation with conservation databases and maps;
- Consideration of primary or secondary data collected during forest inventories on the designated forest area by FMO staff, consultants or advisors;
- Interviews with environmental/biological specialists indigenous/local communities, and scientific experts, etc.;
- Documentation of threats to HCVs; and,
- If threats to HCVs or HCVF exist, identification of actions to address the threats.

9.1.2 For **large** operations, FMO shall:

- Produce written HCVF assessment(s) that identify(ies) HCVs or HCVF and proposes strategies to ensure their protection; and,
- Conduct credible, independent, technically qualified review of the HCVF assessment and related recommendations to address HCV threats and protection; and,

10 Rainforest Alliance/SmartWood Generic Standards for Assessing Forest Management (August 2005).

- Demonstrate that credible actions are being taken to address HCV/HCVF protection and/or threat reduction.

9.1.3 Applicable to SLIMF FMOs only: Consultations shall have occurred with environmental stakeholders, government or scientists to identify HCVs and/or HCVF. This may occur during the actual certification assessment. If HCVs or HCVF are present, FMO shall take all reasonable steps to protect these values and/or reduce threats.

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

9.2.1 FMO consultations with stakeholders shall clearly outline identified conservation attributes as well as proposed strategies for their maintenance or threat reduction. .

9.2.2 For **large** operations, the stakeholder consultation for HCVF strategy development, and actions taken in response to such consultation, shall be documented.

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

9.3.1 If HCVF or HCVs are present, planning documents shall provide site-specific information which describes the measures taken to protect or restore such values.

9.3.2 Measures to protect HCVF values shall be available in public documents or in the FMO management plan summary.

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

9.4.1 A system for continuous monitoring of HCVF values shall be incorporated into the FMO's planning, monitoring and reporting procedures.

Appendix IV: List of Web Sites with further information on FSC standards and HCVF

FSC International: http://www.fsc.org

FSC Canada: http://www.fsccanada.org

FSC U.S.: http://www.fscus.org

High Conservation Value Resource Network: http://www.hcvf.org

World Wildlife Fund – Canada: http://www.wwf.ca