



# FSC in the Northern Appalachians

A Regional and Sub-regional  
Analysis of Forest Stewardship  
Council Certification as a Tool for  
Forest Conservation

Constance L. McDermott, Benjamin Cashore, and  
Michael Conroy

Yale Program on Forest Policy & Governance

Yale University  
School of Forestry & Environmental Studies  
Global Institute of Sustainable Forestry

# FSC in the Northern Appalachians

A Regional and Sub-regional Analysis of  
Forest Stewardship Council Certification  
as a Tool for Forest Conservation

Constance L. McDermott  
Yale School of Forestry and Environmental Studies

December 2006  
GISF Research Paper 009  
Yale Program on Forest Policy and Governance

Yale University  
School of Forestry and Environmental Studies  
Global Institute of Sustainable Forestry  
360 Prospect Street, New Haven, Connecticut 06511 USA  
[www.yale.edu/gisf](http://www.yale.edu/gisf)

This project was supported by a grant from the Kendall Foundation

## Acknowledgements

Benjamin Cashore and Michael Conroy served as advisors to this project, and their contributions are deeply appreciated.

The Yale Program on Forest Certification would like to thank the Kendall Foundation for its support in making this report possible. Many thanks also to the interviewees and key contacts who generously shared their experience and time. The report has also benefited greatly from the feedback of peer reviewers, including Thomas Beckley, Deanna Newsom, Stacy Brown, Michael Ferrucci, Abigail Weinberg, Jeff Amos, and Martin von Mirbach. For a full list of contributors, please refer to Appendix A.

This report and its findings are the sole responsibility of the author, and participation in the study in no way implies agreement with its content.

## Table of Contents

Executive Summary .....	6
Introduction .....	10
Methodology .....	11
FSC certification and its distribution within the Northern Appalachian region .....	13
Land Ownership .....	13
Land Ownership and FSC-accredited Certification .....	14
The FSC and Other Conservation Tools .....	17
Drivers and barriers to FSC certification in the region .....	22
Market dynamics .....	22
Market Demand—Existing and Potential .....	23
Market Supply .....	27
Public Lands .....	27
Industrial Forestry—Private and Crown Lands .....	28
Financial Investors .....	29
Conservation Easements.....	30
Non-profit Landowners .....	30
Family Forests .....	31
Logging Contractors .....	32
Social Dynamics .....	32
The effectiveness of certification in achieving on-the-ground forest management improvements .....	36
Interviewee perspectives .....	36
Written Documents .....	40

Overview of comparative literature on forest certification standards and procedures .....	40
FSC policies for regional differentiation and harmonization of forest management standards, and a comparison of the US FSC NE, Canadian Maritimes, and Canadian Boreal standards ...	40
Analysis of Corrective Action Requests .....	44
Field-based impact assessments .....	46
Opportunities to use FSC-accredited certification as a tool for forest conservation .....	47
What types of projects might best increase the FSC's effectiveness? .....	47
Where should certification efforts be targeted? .....	51
How might certification best be integrated with other conservation tools? .....	52
Summary Recommendations.....	53
References Cited .....	55
Appendix A—List of Interviewees, Key Contacts and Peer Reviewers .....	58



## Executive Summary

This report was commissioned by the Kendall Foundation, funded by a grant to the Yale Program on Forest Certification, to explore key issues and opportunities relative to Forest Stewardship Council (FSC) certification of forestland ownerships within the Northern Appalachian region. The objective is to inform foundations and other interested parties about how potential investments in FSC certification programs might further goals to restore and protect the ecological integrity of this region by protecting and connecting the forested landscape. The report is based on interviews and other research that addresses the background, context, pressing issues, and potential intervention opportunities for FSC certification-related investments in the study area.

The Forest Stewardship Council was designed to improve the management of working forests and to create public awareness of the environmental and social impacts of forest product production (FSC-AC 2002). In order to achieve these goals, the FSC provides an eco-label for forest management and forest products that meet its standards of responsible practice, thereby allowing consumers to support environmentally sensitive forestry by buying FSC certified products. The FSC's focus on forest production gives it particular potential as a tool for implementing conservation objectives outside of strict protected areas, thereby decreasing habitat fragmentation while promoting more responsible and sustainable resource consumption.

The ability of FSC to meet its goals depends on the effectiveness of its forest management standards, the scope of its on-the-ground influence, and its ability to promote learning and dialogue among stakeholders and the general public. This report assesses the key factors shaping FSC's progress in these areas and identifies opportunities for strategic action. Regardless of FSC's future trajectory, its thirteen-year history in this ecologically similar but socio-economically diverse region provides invaluable learning opportunities for forest stakeholders in northeastern North America and beyond.

Key findings of this report are:

1. **Five percent of the total forestland area in the Northern Appalachians, equaling about 1.6 million hectares (3.9 million acres), has been certified to the FSC as of January 2006.**
2. **The same conservation tool can yield highly variable results depending on time and place.** *As a stark example of this, 98% of the region's FSC certified forests are located on the US side of the border.*
3. **Open policy networks and multi-stakeholder collaboration are critical to the FSC's effectiveness as a conservation tool.** Historically in the Maritimes, industry and government have formed a relatively closed policy network, with very limited civil society participation. This contributed to polarization between NGO and industry interests in the early FSC regional standards development process and led some key industry players to view the FSC as inhospitable, thereby slowing FSC's spread (Cashore and Lawson 2003). *FSC certified lands currently cover less than one-half of one percent of forestlands in the Maritimes.* However, over time the FSC has also played an instrumental role in strengthening regional capacity for multi-stakeholder processes on both sides of the border. *As a result, there are signs that the environment may be improving for the FSC, particularly in the Maritimes.*

4. **Market pull is as important as stakeholder push.** *FSC certified lands cover 7% of forestlands in the US Northern Appalachians. Even in the FSC-NE region where many forest producers have shown themselves receptive to the FSC, sustained producer support will require systematic and strategic attention to market incentives. This has been reiterated repeatedly by FSC certified producers in the US Northern Appalachians who question their ability to renew their FSC certificates without some sign of market compensation.* The issue is all the more crucial given frequent changes in land ownership, since markets could provide a source of continuous conservation incentive despite multiple land sales. The pulp and paper sector currently provides a market success story, with reports of increased market access and price premiums for certified wood.
5. **FSC can be an accessible tool for a wide variety of forest owners and managers.** *Thirty-nine percent of the total certified area in the region is state-owned forestlands, 30% percent is owned by three large pulp and paper-producing firms, 17% by Timber Investment Organizations and 15% by other non-industrial operators including non-profit organizations.* This diversity indicates that the FSC can be applied to a wide variety of forest ownerships. While small-scale operators face major challenges with economies of scale, FSC's group certification system has resulted in over 1,000 family forests in the region receiving FSC certification. These include innovative woodlot groups that support local production and consumption and have developed their own certification standards and community education programs. Likewise, the coordination of the Maine Master Logger Program with FSC certification makes the FSC accessible to a wider variety of landowners, strengthens the FSC Chain of Custody for firms that lack a vertically integrated production system, and provides certified loggers with the same incentives and benefits available to certified landowners.
6. **The integration of two or more conservation tools can heighten their effectiveness.** The FSC is only one of many available policy tools, and a number of these tools hold potential for synergy. For example, FSC certification has been used to set the terms of conservation easements and monitor easement management. Easements in turn, help to cover the costs of certification. Other examples of policy tools that can work synergistically with the FSC include government tax incentives and stewardship programs, carbon credit markets, and other markets for environmental services.
7. **The effectiveness of forest certification as a tool for conservation rests in a balance between the level of the performance requirements and the level of the uptake (i.e. adoption of certification on-the-ground).** If performance requirements (as embodied in both the standards and their implementation in the field) do not effectively promote forest conservation, then regardless of the size of forest area certified, the conservation impact may be insignificant. However, if certification uptake is minimal then, regardless of the performance requirements, the impacts may be likewise minimal. In the Maritimes, the FSC regional standards contain more stringent performance requirements than in the US Northeast. Hence there has been less uptake in the Maritimes but those operations that are certified have met more stringent standards of forest conservation. This cross-border diversity provides a unique opportunity to step back and consider the net impact of different levels of environmental performance requirements.
8. **Uptake of certification is impacted by stakeholder relations, the perceived legitimacy of the certification standards and procedures, and the perceived market benefits and costs.** The conflict over Maritimes standard development contributed to stakeholder distrust of industry and industry reluctance to pursue FSC certification. This in turn failed to create agreement on the legitimacy of existing standards and procedures, and slowed FSC's development. Meanwhile, limited market demand has inhibited FSC's growth on both sides of the border, regardless of differences in certification standards and procedures.

9. **The measure of conservation benefit, and the improvement of certification's conservation effectiveness, ultimately requires a better understanding of on-the-ground impacts.** There has been very limited field research measuring the on-the-ground impacts of forest certification on biodiversity and forest connectivity.

**Summary of recommendations to foundations and other stakeholders interested in strengthening FSC-based forest certification as a conservation tool in the Northern Appalachians.**

1. To strengthen the supply of FSC-based certified products produced in the region so that it can reach critical minimum scale and improved economic returns:
  - a. Engage large-scale producers, including individuals and TIMOs/REITs in regional biodiversity protection strategies, including certification. This will strengthen markets for certified products.
  - b. Provide financial support and capacity building for group certification of family forest organizations, helping to expand the pool of participating forest owners;
  - c. In Canada, support marketing boards in identifying and assisting woodlot owners interested in achieving FSC certification;
  - d. Provide financial support and capacity-building for innovative mechanisms for bringing certification to family forests, such as Master Logger Programs linked to FSC-based certification; and
  - e. Support further expansion of FSC-based certification on state lands in the US and Crown lands in Canada.
2. To expand further the demand for FSC-based certified forest products produced in the region, and, hence, the conservation benefits of certified forest management:
  - a. Support market research, education and ad campaigns on sources of supply and demand for FSC-based certified forest products;
  - b. Support research and development of business plans and economic guidance materials for community-based forest producers;
  - c. Support the further development and promotion of procurement policies and green building standards linked to FSC-based certification; and
  - d. Support the development of school curricula on FSC-based certification and sustainable resource use.
3. To strengthen the conservation effectiveness, or quality on the ground, of FSC-based certification:
  - a. Support further multi-stakeholder cross-border collaboration on FSC standards development, with a focus on protected areas and forests of high conservation value;
  - b. Support forester education on the application of FSC principles, including training in the identification and management of forests of high conservation value;
  - c. Support further research on FSC's impacts, including field-based monitoring; and
  - d. Support multi-stakeholder processes for developing a framework for FSC impact assessment and policy learning.
4. Focusing carefully on the location of FSC-supporting investments:
  - a. Prioritize conservation areas, including forest connectivity objectives, while also considering the broader market flows necessary to support certification in these priority areas; and

- b. Include social and economic criteria in establishing priority focal areas, including the consideration of product flows, proximity to urban markets, and opportunities to use certified properties for public communication and education.
- 5. Expanding integration of FSC-based certification with conservation easement processes and other policy tools in the region:
  - a. Support collaboration and learning about conservation criteria for easements and the integration of these criteria with FSC standards; and
  - b. Support research opportunities for synergy between FSC certification and other policy tools, including carbon credits, payments for environmental services, state-based forest stewardship and tax incentive policies, and other government policy-making.
- 6. Support Problem-focused Forest Certification Learning Processes that Recognize Changing Impacts Over Time
  - a. Support efforts that reward companies interested in the FSC, rather than providing obstacles that firms perceive as insurmountable.
  - b. Support efforts that see initial interest as a first step towards broader societal support and institutionalization.
  - c. Support the development of a “community” of stakeholders with a long-term perspective on desired end goals and how best to achieve them.
  - d. Undertake efforts to integrate FSC competitor systems when doing so will lead to “ratcheting up” over time, rather than legitimizing the status quo.

## Introduction

This report assesses the past, current and future potential of FSC-accredited forest certification as a tool to promote forest conservation within the Northern Appalachians. The Northern Appalachian forests, spanning from New England to Quebec and the Canadian Maritimes, face a diversity of social and ecological threats. Among the largest of these threats are climate change, changes in land ownership (with uncertain effects on conservation incentives), intensive timber harvest, forest fragmentation and development pressures (Bateson 2005; Friedland et al. 2004; Hagan, Irland, and Whitman 2005).

Climate change is a global-scale challenge that affects every corner of the region. According to two respected climate models, the Hadley and Canadian Models, New England can expect increases in temperature from 6°-10° F and a rise in precipitation of 10-30% over the next century. Depending on which prediction is closest, this would change the climate of Boston, for example, to that of Richmond, Virginia or Atlanta, Georgia (UNH. ISEOS 2001). An increase in extreme weather is also expected including ice storms, flooding, nor'easters, hurricanes and drought (CNEGECP 2001). Warmer temperatures and the biological stress of rapid climate change will also increase the frequency and severity of insect outbreaks, including forests pests such as the non-native gypsy moth (Government of Canada 2004a; Government of Canada 2004b). In sum, these and other changes are expected to profoundly alter the forests of the region in a manner that is difficult to predict and even more difficult to address.

The other major threats to forest conservation vary greatly in their distribution across the landscape, calling for sub-regional analyses and strategies tailored to local contexts. In terms of fragmentation and biodiversity loss, the largest threat lies in urban sprawl and suburban creep. In New England, these development pressures are greatest in the southern portion of the region from Connecticut to southern Maine, New Hampshire, and Vermont. In the Maritimes, new development is concentrated in southern New Brunswick and coastal Nova Scotia, particularly near major urban centers such as Fredericton and Halifax. Forest production in these areas is dominated by family farms and hence, if

certification is to have a direct impact on real estate development, it must be capable of addressing the needs and concerns of family forest owners. Forest product consumption is concentrated in urban and suburban populations, making them the best potential source of market pull for certified products.

The dynamics of remote areas in the Northern Appalachians, and in particular northern Maine and parts of the Maritimes, are quite distinct from those of the south. These areas support large swathes of intact forest and hence the greatest existing and potential habitat for forest dependent species, from large mammals to migratory birds to deep forest lichens, mosses and fungi. Forest threats in these areas include intensive forest management and invasive pest epidemics (exacerbated by climate change and intensive forestry practices). These remote forests have historically been controlled by old-line family industries and other large-scale vertically integrated forestry firms. More recently, there has been increasing industry consolidation in the Maritimes, while forestry firms on the US side have been rapidly divesting their lands to short-term financial investors, logging contractors and "timber barons" (Hagan, Irland, and Whitman 2005). For certification to be relevant in this region, it must create appropriate incentives for this diverse and changing suite of forestry actors.

The following analyses will address the dynamic and diverse nature of this region by disaggregating the data and recommendations presented among sub-regions, forest producer types, and specific conservation challenges. It will also distinguish between two related, but distinct dimensions of analysis. The first dimension, quantity, relates to the extent of the FSC's spread across the landscape. Evidence to date suggests that FSC's viability may depend on a growing supply and demand of certified products. Quality refers to the ability of certification to help achieve forest conservation goals within the forested areas where it is implemented. Issues of quality and quantity intersect in a number of ways. At a most basic level, certification's impacts are a function of the level of conservation achieved, as well as its distribution and extent across the landscape. This report addresses issues of both quantity and quality with the understanding of their basic interdependence.

The following section presents our research methodology. This is followed in Part III by a brief introduction to the FSC and then an overview of certification's geographic spread and demographic distribution among the case study jurisdictions. Part IV addresses current drivers and barriers to the FSC's regional development. Part V addresses the issue of quality by analyzing the on-the-ground impacts. Finally, Part VI of the report concludes with recommendations regarding the regional and sub-regional appropriateness of FSC as a tool for forest conservation and the ways in which foundations and other forest stakeholders might heighten its effectiveness.

## Methodology

The data presented in this report are based on a range of verbal and written sources. A core data source is the in-depth, semi-structured interviews that were conducted in-person and/or by phone with 45 key FSC stakeholders throughout the Northern Appalachians. One large category of stakeholders interviewed was forest product producers, including woodlot owners, resource managers, Master Logging program representatives, non-profit landholders, Timber Investment Organizations, industrial forestry firms and industry associations. Another category was staff and committee members of FSC-Canada, FSC-US, and the Maritimes and US Northeast regional working groups, as well as staff and auditors for FSC-accredited certification bodies. Other categories included environmental groups (ENGOs), government officials and university faculty.

Interviewees were selected to ensure broad geographic coverage as well as a wide variety of interest groups on both the US and Canadian side of the border. Individuals and organizations were identified based on recommendations from the Kendall Foundation, interviewee recommendations, and the Yale Program on Forest Certification's contact list. The individuals contacted were quite generous with their time and none refused to participate in the study. However, our selection was by necessity somewhat opportunistic in that it relied on personal contacts as well as interviewee availability and a limited time frame. In sum, there are far more key stakeholders present in this region than there were resources to contact them.

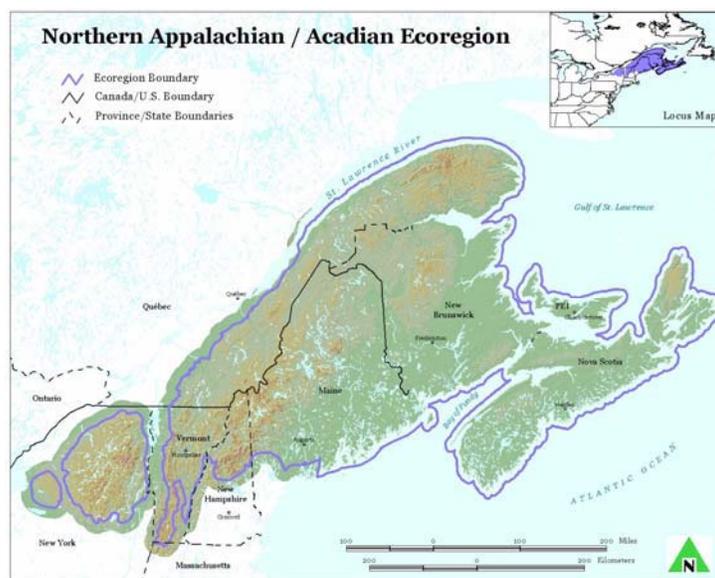
Given the deliberate and somewhat opportunistic approach to interviewee selection, it is important to outline a few caveats when interpreting interviewee data. The report does not provide statistically significant or otherwise definitive findings regarding stakeholder perspectives. The authors do at times take the liberty of categorizing responses and listing the number of respondents who expressed a particular point of view. These data should be viewed, however, as part of a qualitative representation of interview content. It may or may not resemble FSC stakeholder viewpoints as a whole.

In addition to the semi-structured interviews, verbal sources include less structured communications that

we reference as “personal communications”. Appendix A provides a complete list of individuals interviewed as well as a partial list of individuals informally consulted.

The sources of written data are diverse, and are referenced as appropriate in the report. In regards to the systematic collection of quantitative data, key databases accessed include FSC international, national and regional websites as well as US and Canadian federal forestry databases. The public summaries of all FSC-accredited forest operations were reviewed for key pieces of quantitative and descriptive information not available elsewhere. In addition, the Metafore database on FSC forest management certificates and FSC Chain of Custody certificates provided another critical source of information. We also refer to existing primary and secondary documentation, as well as our own previous analysis of forest certification in this region, North America, and globally (see for example Cashore, Auld, and Newsom 2004; Cashore et al. pending; Cashore and Lawson 2003; McDermott 2003; McDermott and Hoberg 2003; McDermott, Noah, and Cashore pending).

The geographic boundaries of the study area are based on those of the Two Countries One Forest – Deux Pays, Une Forêt project, a project involving a large consortium scientists, conservationists and funders throughout the region. The area covered spans from the southern tip of the Berkshire Plateau in Connecticut to the Gaspé Peninsula in Quebec in the north and from the Atlantic coastline on the east westward to the Northern Adirondacks (Bateson 2005). The interviews we conducted involved individuals concerned with forest certification within these biogeoclimatic boundaries. Much of the FSC data and forest inventory information however, is only readily available at the state and provincial level. Hence our analysis of these data sources encompasses the entirety of every relevant state and province, with the exception of Quebec, since the Appalachian region overlaps only the far southeastern corner of Quebec. The states and provinces covered are New Brunswick, Nova Scotia, Maine, New Hampshire, Vermont, New York, Massachusetts and Connecticut (see Figure 1 below). Due to the small size of the Gaspé Peninsula in proportion to the rest of Quebec, our report provides disaggregated data for the Peninsula where available. Where data are not available, the Gaspé is excluded from quantitative cross-jurisdictional analyses.



**Figure 1 Location of Study Area<sup>1</sup>**

Map: Courtesy of the Kendall Foundation

<sup>1</sup>The study area extends to the northwestern corner of CT, which is not shown on this map.

## FSC Certification and its Distribution within the Northern Appalachian Region

The Forest Stewardship Council (FSC) is one among a number of forest certification systems worldwide that governs the “certification” of forestry practices meeting agreed upon environmental, social and economic standards of good forestry. Forestry operators can apply for certification under the FSC label as a means to gain market recognition as responsible forest stewards. The FSC does not itself certify forestry practices, but rather develops standards for forestry performance and accredits certifiers to audit forestry operators according to those standards.

The FSC has created an overarching set of Principles and Criteria that serve as an international baseline standard applicable worldwide. In addition, the FSC accredits national initiatives to develop additional indicators appropriate within national and/or sub-national contexts (the latter are referred to as “regional standards”). Within the US, nine different regional standards have been developed. One of these is the Northeastern regional standard, which is applicable to all of the US case study states addressed in this report. Canada currently has four regional standards, three of which are of direct relevance to the provinces covered in this report. The Maritimes standard applies to New Brunswick and Nova Scotia, and was the first Canadian standard to be endorsed by FSC. The early development of the Maritimes standard had a profound effect on FSC’s growth in the region and hence is a major focus of our analysis later in the report. The National Boreal Standard was endorsed in 2004 and covers the entire expanse of boreal forests stretching from the Pacific to Atlantic coasts, including the interior of Quebec’s Gaspé Peninsula. Finally the FSC Great Lakes St. Lawrence standard, which is still under development as of October 2006, is relevant to other forest types on the Gaspé.

The diversity of FSC standards relevant to the Northern Appalachians highlights the diverse settings within which forestry takes place in this region. FSC’s role in

sustainable forest management likewise varies between states, provinces and even watersheds.

This section will begin to examine this diversity by analyzing FSC’s growth as it relates to land ownership patterns and certification. It will then discuss the distribution of FSC-accredited certification in relation to other key area-based conservation tools, and highlight the need for coordinated and spatially informed strategies to heighten the FSC’s effectiveness.

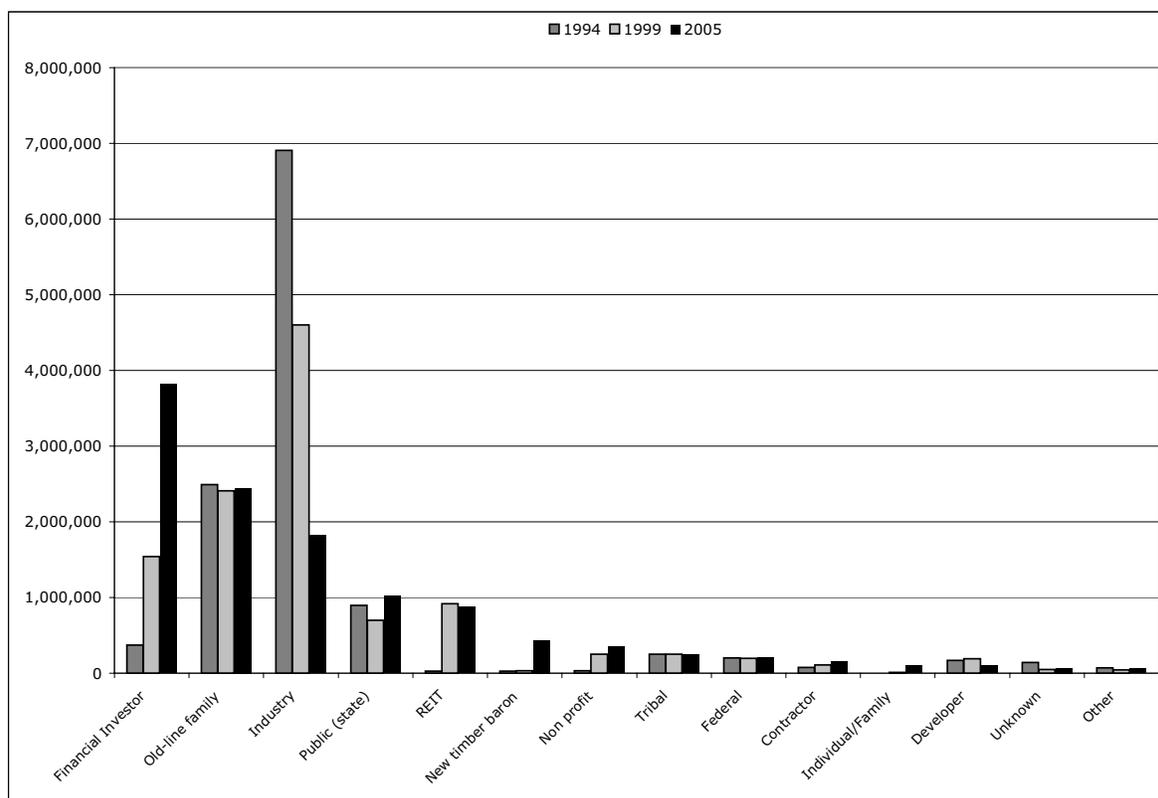
### Land Ownership

Forest certification relies on the voluntary cooperation of forestland owners. Its spread across the landscape, therefore, depends on the nature and number of forest owners present within any given land area. Hence, in order to understand the challenges facing FSC certification in the Northern Appalachians, it is first necessary to identify and categorize the total pool of forest producers in the region.

There are marked differences in land ownership between the US and Canadian portions of the study area. Forestlands in the Canadian Maritimes are almost evenly divided between public and private tenures. Large forestry firms hold tenure rights to the majority of these public lands as well as owning forests in fee simple. Most of the remaining forest area is distributed among small woodlot owners.

Forest ownership on the US side is relatively heterogeneous and volatile. Non-industrial forest ownerships cover the majority of the landscape, ranging from 52-85% of total forestlands in each state. Public landownership accounts for only 6-22% of forestlands, and these lands are largely owned and managed directly by state agencies. The remaining private forests are divided into large forest tracts historically owned by integrated industrial forestry firms. More recently, along with the decline of forest industry in the region, many industrial properties have been bought by Timber Investment Organizations (TIMOs) and other non-industrial financial investors.<sup>1</sup>

<sup>1</sup> “Industrial” is defined as “an ownership class of private lands involving individuals or companies operating wood-using plants.” Smith et al. pg. 12. Financial investors generally do not own wood processing facilities and hence do not fit this definition. Non-industrial owners, therefore, is a broad category encompassing diverse ownership types ranging from TIMOs, to land conservation trusts, to family forests, etc.



**Chart 1. Timberland Ownership in the State of Maine, 1994-2005**

Chart source: Hagan, John M., Lloyd C. Irland, and Andrew A. Whitman. 2005. Changing timberland ownership in the Northern Forest and implications for biodiversity. Brunswick, Maine: Manomet Center for Conservation Sciences.; original data source J. W. Sewall Co., Old Town, ME. Complete through April 2005.

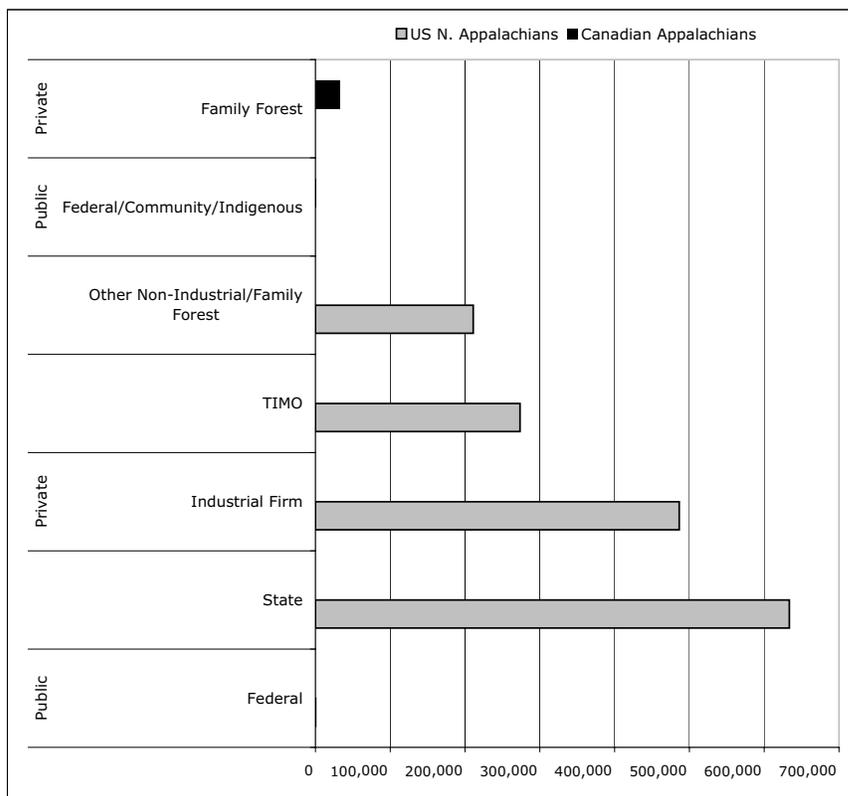
Chart 1 illustrates changes in timberland ownership in Maine as an example of the shifting composition of US forest producers. Maine contains the largest private timberland ownerships in New England and has recently undergone the most rapid ownership changes in the region.

### Land Ownership and FSC-accredited Certification

As of January 2006, FSC certification had spread across 7% of the forestland area on the US side, while accounting for less than one-half of one percent in New Brunswick, Nova Scotia and the Gaspé Peninsula. Two key observations can be made from these data. The first is that FSC certification is yet to prove a dominant force across the Northern Appalachian landscape. The second is that, at least in terms of area certified as of 2005, the FSC's presence in the Maritimes is negligible.

Land ownership patterns provide a partial explanation for this cross-border difference. The predominance of large-scale, industrial tenures on Maritime Crown lands has meant that industry participation is crucial to FSC's expansion. At the same time public ownership of the forestlands on which these tenures are held may have contributed to greater controversy over forest practices (Cashore and Lawson 2003). For these and other reasons to be discussed later, the forest industry has largely declined to participate in FSC certification in the Maritimes. While a substantial number of small woodlot owners are FSC certified, their small size barely registers within the totality of Maritimes forest area.

On the US side, in contrast, a number of larger landowners including state governments, industrial firms, and TIMOs, are FSC certified. Chart 2 provides a break down of certified area by forest ownership type, illustrating how these larger landowners account for the majority of FSC certified area.



**Chart 2. Distribution of FSC Certified Forest by Ownership Type (ha.)**

Chart sources: [http://www.fsc.org/en/about/about\\_fsc/certification](http://www.fsc.org/en/about/about_fsc/certification) 1/9/06, downloaded 3/16/06; SmartWood, SCS, SGS, Soil Association public summaries as of 3/16/06

The certified US industrial firms represented in the data in Chart 2 consist of only three companies (Finch-Pruyn, Canadian-based Domtar, Inc. and Seven Islands Land Company). Likewise, five public land certificates account for all state certified state lands, and two TIMOs account for all TIMO lands certified. In contrast, non-industrial certificates encompass over 350 properties in the US and over 700 in Canada<sup>2</sup> but cover a relatively small portion of the landscape.

The size of forest ownerships also helps to explain some of the differences in certification's spread among individual states and provinces. Charts 3 and 4 show a breakdown of FSC certified area by individual jurisdiction.<sup>3</sup>

In total, 59% of the FSC forestland certified in the Northern Appalachians is located in Maine, and Massachusetts and New York each account for 15% of the remaining certified area. The majority of Maine's certified area is distributed between two large industrial firms and a few state ownerships. In Massachusetts most of the certified lands are held by the state, and in New York a single industrial firm owns the majority of certified property. All of the certified industrial firms produce pulp and paper, a key factor to be further discussed in Part V of this report.

The small percentage of certified forests under private, small-scale and non-industrial ownership has been identified as a major barrier to forest certification's

<sup>2</sup> The large numbers in Canada are owing to a single major woodlot group on the Gaspé Peninsula in Quebec.

<sup>3</sup> The charts represent original data compiled from multiple sources. No pre-existing databases were identified that provide this data in disaggregated form, suggesting a data gap that impedes informed analysis of FSC's geo-political development. The FSC-US and Metafore sites provide state/provincial data based on the location of the company's primary contact person. The data in these charts reflect the location of the forests themselves.

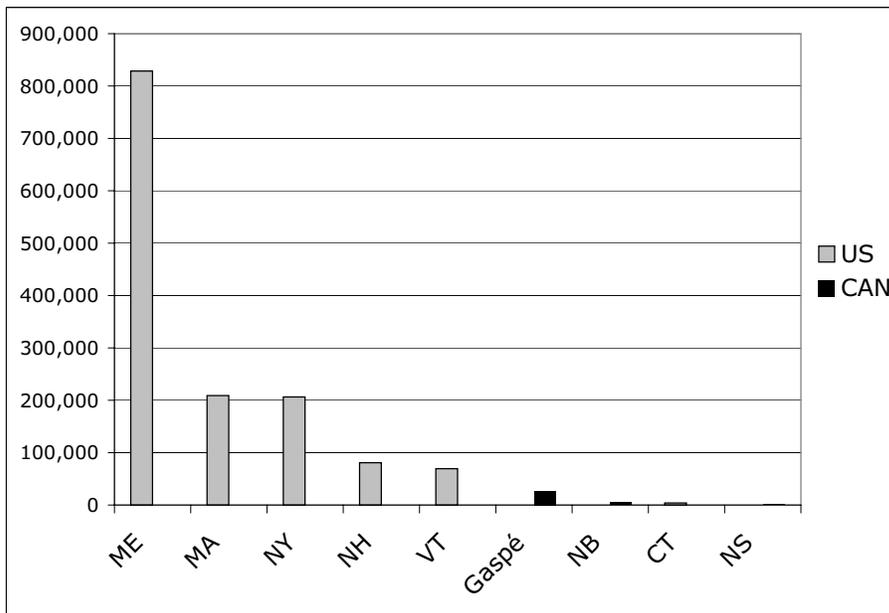


Chart 3. FSC Certified Area by State and by Province (ha.)

Sources: [http://www.fsc.org/en/about/about\\_fsc/certification](http://www.fsc.org/en/about/about_fsc/certification) 1/9/06, downloaded 3/16/06; SmartWood, SCS, SGS, Soil Association public summaries as of 3/16/06; <http://www.neforestry.org/forestry/>; personal communications

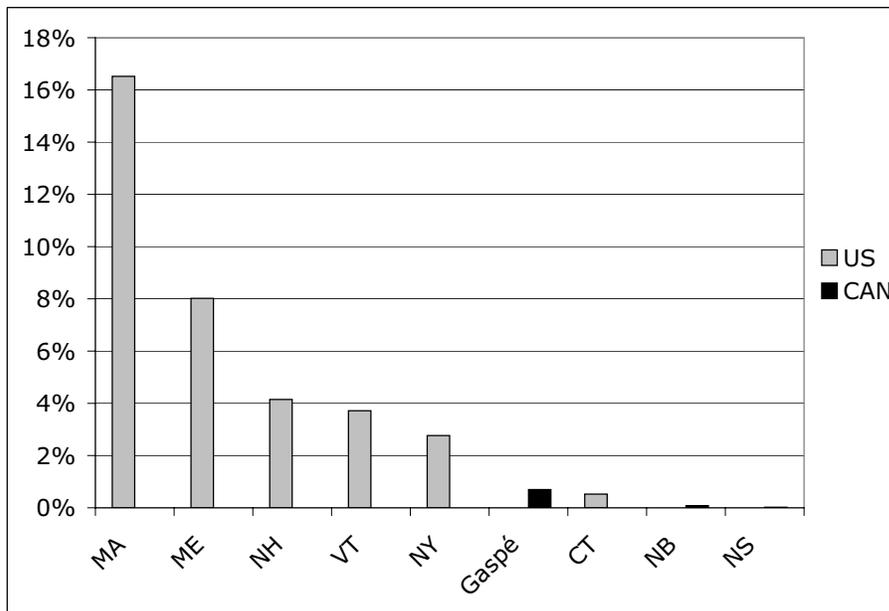


Chart 4. FSC Certified Area as Percent of Forests by State and by Province

Sources: [http://www.fsc.org/en/about/about\\_fsc/certification](http://www.fsc.org/en/about/about_fsc/certification) 1/9/06, downloaded 3/16/06; SmartWood, SCS, SGS, Soil Association public summaries as of 3/16/06; <http://www.neforestry.org/forestry/>; personal communications; Smith W., P. Miles, J. Vissage, S. Pugh. 2004. Forest Resources of the United States, 2002. North Central Research Station, USFS. Page 29.; NRC, CFS. Canada's National Forest Inventory. Accessed 4/29/06 @ [http://nfi.cfs.nrcan.gc.ca/canfi/data/area-large\\_e.html](http://nfi.cfs.nrcan.gc.ca/canfi/data/area-large_e.html). Gaspé forest cover data sent via email 5/12/06 from Jean-Marie Johnston, Chef, Service de l'acquisition et de la gestion d'informations forestières, Direction des inventaires forestiers, Ministère des ressources naturelles et de la Faune.

effectiveness (Hansen et al. 2006). In the Northern Appalachians, as in many other parts of the US, these landownership types cover a large percentage of the landscape, particularly in more densely populated areas at risk of forest conversion. Hence if certification is not accessible to these small landowners this will seriously limit the FSC's growth. Furthermore, the exclusion of small-scale producers from the potential market benefits from certification could actually *undermine* the practice of sustainable forestry by reducing economic incentives to keep land in forest and/or to invest in best management practices. In recognition of these challenges, the FSC has adopted several mechanisms to aid in the certification of small-scale and non-industrial land ownerships. These include Resource Manager certification, group certification, and the use of Small and Low Intensity Managed Forest (SLIMF) standards and procedures. Together, these certification types account for about 2/3 of the total number of FSC certificates awarded in the region.

## The FSC and Other Conservation Tools

The FSC's development and its effectiveness as a conservation tool are shaped in part by its interactions with other area-based conservation efforts. Key among these are other forest certification systems, state-based protected areas, public and privately managed conservation easements, and priority conservation areas.

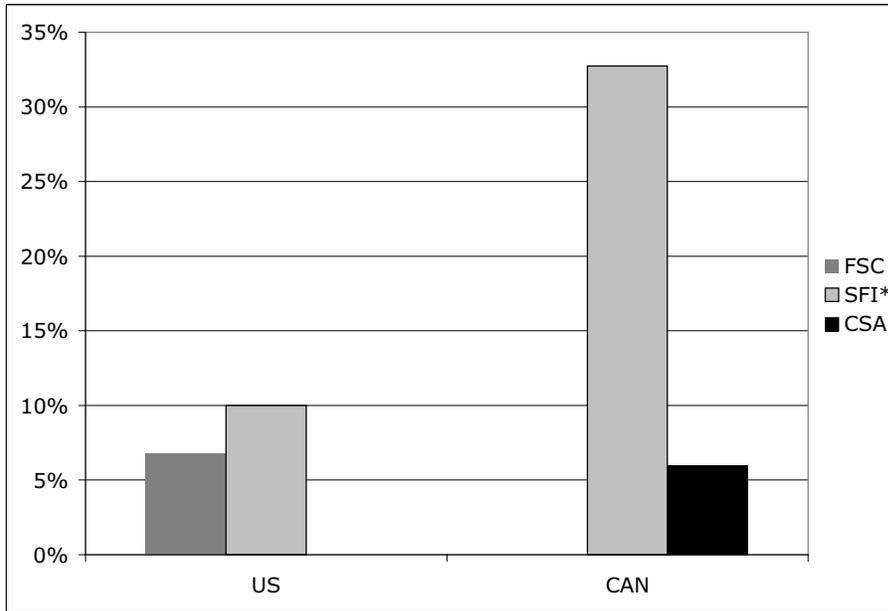
In addition to the FSC, there are several major forest certification systems currently active in North America. These include the Sustainable Forestry Initiative (SFI), which has certified forestlands in both the US and Canada, the American Tree Farm System (ATFS) in the US, and the Canadian Standards Association (CSA), which has focused exclusively in Canada. The SFI and CSA systems have recently been endorsed by the international Program for the Endorsement of Forest Certification (PEFC). Competition between the FSC and these other systems has played a role in shaping certification standards and procedures, with different results in different regions. The interactions between systems have been so extensive and complex, in fact, that it is at times difficult to tease apart the influence of

any one particular system on forest conservation. For the purposes of this report, however, our discussion of competing North American systems will be limited to a brief overview of their on-the-ground growth in the case study region. The reader seeking more in-depth analysis of inter-system interactions is directed to alternative sources (Cashore, Auld, and Newsom 2004; Gale 2004). We do note, however, that the implications of our paper for firm level support requires careful attention to the dynamic and interactive relationship between the FSC on the one hand, and FSC competitors, on the other hand. In particular, FSC strategists often walk a tightrope between maintaining strong requirements of their program, and attempting to gain the highest level of forest producer support. Similarly, FSC competitors walk a tight-rope between their industry and forest owner association creators who desire a flexible and less prescriptive approach to forest certification, and stakeholders who demand more stringent forest practice requirements.

For these reasons, the development of FSC and its competitor programs is highly dynamic. Chart 5 compares the area certified to the FSC, SFI and CSA standards in the US Northeast, New Brunswick and Nova Scotia as of 2005. The SFI and CSA systems do not accommodate group certification and have primarily been adopted by large-scale forest industries. The size of the SFI and CSA forest management units ranges from about 3,000 ha. (the Yale Myers Forest in Connecticut, which is also FSC certified) to over 2 million ha. (a UPM-Kymmene tenure in New Brunswick).

The SFI is not primarily designed to accommodate small, non-industrial holdings. Instead the SFI system recognizes the sixty-year-old American Tree Farm System, which has been revised in recent years to conform more closely to today's certification models. Regional statistics on ATFS certification are not currently available, but at the national level, third party ATFS certification covers roughly one percent of US forestlands (Sandler pers comm. 10/28/05). The direct impact of the ATFS is thus marginal, given that family forests as a whole account for roughly 42% of the nation's forestlands (Butler and Leatherberry 2004).<sup>4</sup> In the Maritimes, woodlot owners have been supporting the development of Pan-Canadian standards specifically

<sup>4</sup> This figure for family forests is based on the following definition by Butler and Leatherberry: "Family forests include lands that are at least 1 ac in size, 10% stocked, and owned by individuals, married couples, family estates and trusts, or other groups of individuals who are not incorporated or otherwise associated as a legal entity. This definition also applies to the remainder of the report.



**Chart 5. Percent of Northern Appalachian Forestland Certified by Certification System**

\* The SFI figures are an overestimate due to the lack of disaggregated information on the location of SFI certified properties.

Sources: [http://www.fsc.org/en/about/about\\_fsc/certification](http://www.fsc.org/en/about/about_fsc/certification) 1/9/06;  
[http://www.aboutsfb.org/generalPDFs/SFI\\_Certification\\_List\\_Website.pdf](http://www.aboutsfb.org/generalPDFs/SFI_Certification_List_Website.pdf) 2/24/06;  
[http://www.certificationcanada.org/english/status\\_intentions/provincial.php](http://www.certificationcanada.org/english/status_intentions/provincial.php); pdfs dated December 20, 2005.  
 Download date 3/16/06; Smith W., P. Miles, J. Vissage, S. Pugh. 2004. Forest Resources of the United States, 2002. North Central Research Station, USFS. Page 29.; NRC, CFS. Canada's National Forest Inventory. Accessed 4/29/06 @ [http://nfi.cfs.nrcan.gc.ca/canfi/data/area-large\\_e.html](http://nfi.cfs.nrcan.gc.ca/canfi/data/area-large_e.html)

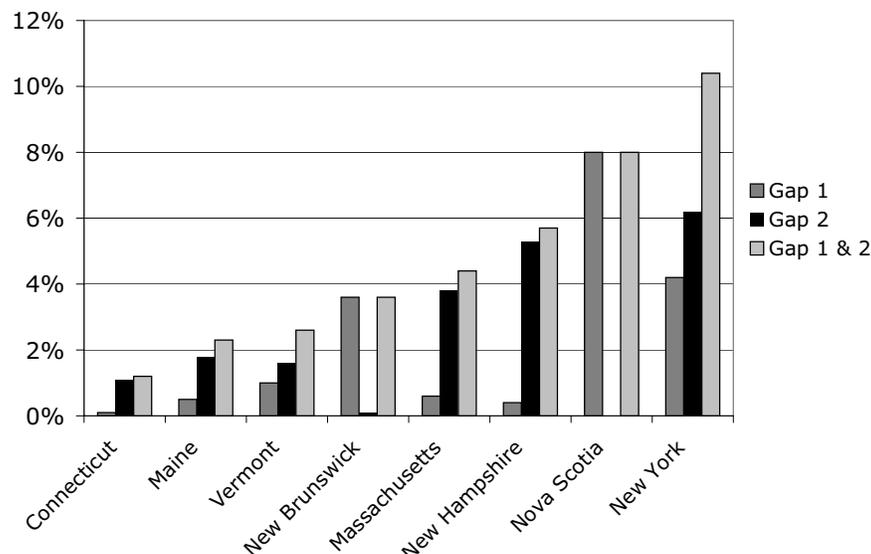
designed for woodlots. These standards are currently being revised by the CSA to form a new CSA SFM standard, CSA Z804, to be released for public review in the fall of 2006.

Considering all of the systems currently active in the region, it is clear that SFI certifications in the Canadian Maritimes cover by far the largest percentage of forestlands under any system and jurisdiction covered. The vast majority of these SFI certifications, furthermore, apply to New Brunswick's large Crown licensees. Reflecting the dynamic nature of support for forest certification, the large area certified to the SFI in New Brunswick could largely be explained by a recent provincial decision requiring that all Crown licenses be certified to the SFI, CSA and/or FSC standards.

In addition to forest certification, protected areas (i.e. public parks and reserves) and private conservation easements are other area-based conservation tools of importance in the region. Chart 6, based on the most

up-to-date single sub-national assessment of US and Canadian protected areas, shows the percentage of areas protected in each of the states and provinces under study.

Other than the fact that Connecticut ranks the lowest of the US states in both data sets, there is no clear pattern linking the area certified to the FSC and the amount of state-based protected areas. Nor do these data suggest any simple correlation between state participation in the FSC and protected areas. Nevertheless, protected areas and forest certification are policy tools that could potentially interact with each other. This interaction could be mutually complementary, by providing a diversity of approaches to meet a diversity of conservation needs. It could also result in competition for political support and resources. Hence the effectiveness of either tool clearly requires the consideration of their mutual impacts across the landscape.



**Chart 6. GAP I & GAP II\* Protected Areas as Percent of Total Land Area**

\*GAP I refers to protected areas where no industrial economic development activities are allowed. GAP II refers to protected areas where limited economic development activities may occur.

Source: Della Sala, D.A.; N.L. Staus, J.R. Strittholt, A. Hackman, and A. Iacobelli. 1999. An Updated Protected Areas Database for the United States And Canada. Ecological Applications. CBI/WWF Protected Areas Database (CD ROM). Corvallis, Oregon: Conservation Biology Institute.

As a complement to public protected areas, conservation easements provide the promise of forest conservation on private lands. Chart 7 summarizes the current distribution of US conservation easements across select US case study states.

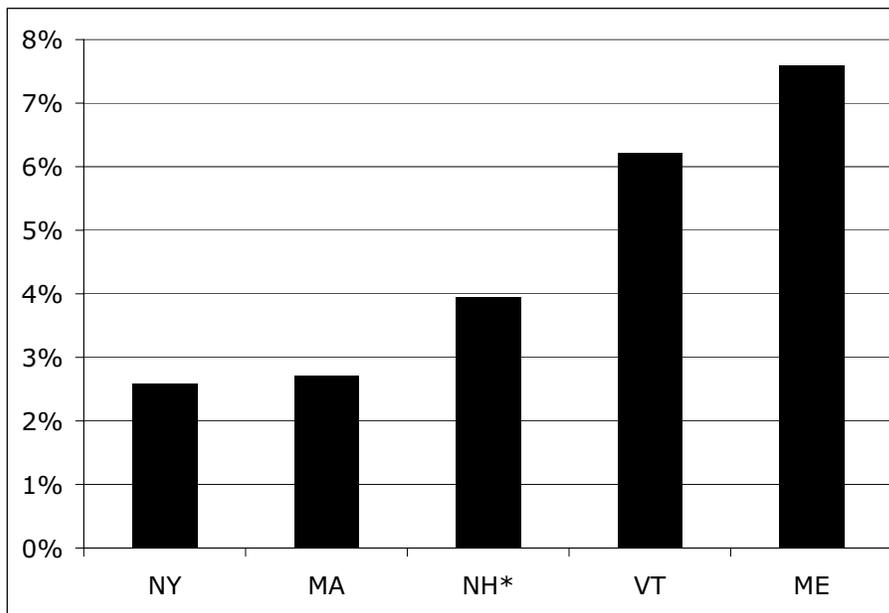
Viewing the easement chart in comparison with the protected area chart, suggests possible differences between some states in their preference for these different policy tools. Most notably, Maine leads the region in the percentage of land under conservation easement while ranking among the lowest in the percentage of protected areas. At the same time, Maine contains the largest percentage of FSC certified forestlands. As will be discussed later in this report, considerable potential for synergy exists between conservation easements and forest certification.

There appears to be a lack of comparable documentation on easements in Canada that would allow a direct, up-to-date cross-border comparison. In general, easements have been slower to develop in Canada but there has been a notable growth in recent years. A study conducted in 2001 reported 794 hectares of easements in Ontario and Quebec and 2,180 hectares

in the Atlantic provinces, although those figures were reportedly not comprehensive (Watkins and Hilts 2001).

From a conservation perspective, the question of where conservation areas are located is perhaps as, or more, important than how much area is protected. Mapping is a useful technique for assessing the effectiveness of area-based conservation tools including public reserves, private conservation areas and FSC certification. A first step in assessing effectiveness is to locate areas of high priority for conservation. Once these priority conservation areas have been identified, it is then possible to compare their locations with the location of existing conservation tools. To this end, the Rainforest Alliance has worked with conservation partners to produce a map locating FSC certified areas in relation to protected area and priority conservation areas (outlined in red) within a number of the US case study states. The authors have generously agreed to share the map shown in Figure 2.

Figure 2 highlights the variability of conservation coverage within different jurisdictions. Other than Adirondack Park in New York, there appears to be little correlation between the application of FSC certification



**Chart 7. Conservation Easements as Percent of Forestlands by State**

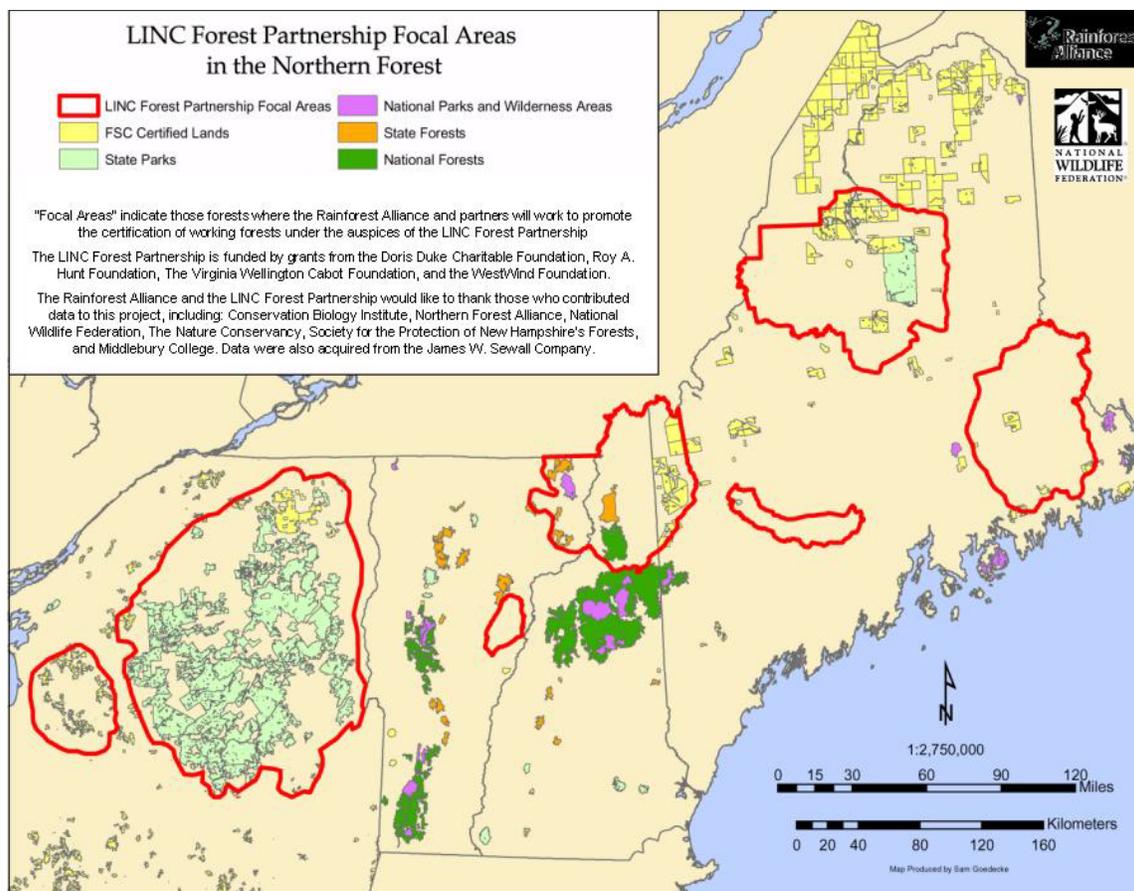
\*New Hampshire figures are for “Private, Non-profit” protected land, 94% of which is reported to be under easement. No data were readily available for Connecticut. Sources: Society for the Protection of New Hampshire Forests. *New Hampshire’s Changing Landscape 2005: Population and Land Use Changes: What they mean for the granite state*; The Nature Conservancy. *Conservation Easements in Massachusetts. 2/2005*; The Nature Conservancy. *Conservation Easements in Maine. 2/2005*. The Nature Conservancy. *Conservation Easements in New York. 3/2005*; The Nature Conservancy. *Conservation Easements in Vermont. 5/2005*.

or protected areas and priority conservation areas, at least as the latter are defined by Rainforest Alliance partners. In order to conduct a more complete analysis of the overlap of area-based tools and areas of high priority for conservation, however, information is also needed on the location and requirements of other conservation tools, including conservation easements and alternative forest certification systems. Such detailed mapping, if applied to both the US and Canadian sides of the region, could greatly enhance spatially based conservation priority-setting.

If we view the map in light of all of the other data provided in this section, it would appear that land ownership patterns play a much greater role in shaping the distribution of FSC certification than do conservation priorities. The relatively large and contiguous certified area in Northern Maine corresponds to a high concentration of large-scale forest ownerships, plus a portion of Baxter State Park. A key lesson to be gleaned from this analysis could be that opportunistic certification, i.e. focusing

certification efforts on the types of land ownerships and individual landowners most open to certification, or on covering the largest possible land area, cannot be expected to yield maximum conservation benefits.

In summary, this section has outlined the distribution of certified forestlands in the Northern Appalachians and explored the relationship between the distribution of FSC certificates, land tenure, and other area-based conservation tools. In terms of the area certified, the FSC has grown much faster on the US side of the border than on the Canadian side. If we consider this distribution in the context of land tenure, we discover that a diversity of large-scale forest owners on the US side has pursued FSC certification while large-scale Canadian industries do not hold FSC certificates. We also discover that a relatively large number of small-scale Canadian forest owners have received FSC-accredited certification but that the small size of these properties covers less than one-half of one percent of total Maritime forestlands. On the US side, the majority of



**Figure 2. FSC Certified Properties, Protected Areas, and Priority Conservation Areas (LINC Focal Areas) in the Northern Appalachians as of 2001**

Source: Rainforest Alliance. 2005. Northern Forest & Southern Appalachia LINC Forest Partnership, Landscape Initiative for Nature Conservation. Project Period: October 1, 2001 – June 30, 2005. Report submitted to the Doris Duke Charitable Foundation. Rainforest Alliance, New York. The map was created for the commencement of the LINC project in 2001.

FSC certified forests are owned by a few state agencies, industrial firms and TIMOs. Likewise the FSC's distribution among the different US states can primarily be explained by the participation of these large-scale landowners.

Other forest certification systems have also been establishing themselves in the region. The interaction of these diverse certification systems has influenced the very nature of forest certification standards, procedures and stakeholder support. Due to limited time and resources however, this report restricts its discussion of other certification systems to a comparison of their relative growth in total forest area. Such a comparison reveals that roughly equal areas of forestland have been

certified to the SFI and FSC standards respectively (although a lack of disaggregated SFI data precluded precise measurements). The area certified to the SFI in the Maritimes, however, far exceeds any other system, accounting for about a third of all forestlands in the area.

The comparison of area certified, however, provides only one piece of a much larger puzzle regarding the FSC's usefulness as a conservation tool. We have therefore expanded our focus to include the FSC's development in relationship to protected areas, conservation easements and priority conservation areas. Such an analysis reveals that achieving specific forest conservation targets may require moving beyond the path of least resistance as defined by land tenure,

land ownership sizes, or other socio-political constraints, and considering strategies to protect key conservation priority areas.

While awareness of the geographic distribution of area-based conservation tools is clearly important, any successful area-based strategy also requires a thorough understanding of the barriers and constraints affecting the FSC's ability to grow and sustain itself across the region as a whole. The following section contributes to such an understanding through an in-depth analysis of the economic (market) and social dynamics that have thus far accompanied the FSC's development in the Northern Appalachians.

## Drivers and Barriers to FSC Certification in the Region

### Market dynamics

FSC certification was intended as a market-based instrument. The goal was to provide green premiums and/or improved access to eco-sensitive markets, thereby creating incentives to forest managers to practice good forestry. At the very least, green markets were expected to compensate forest managers for the direct and indirect costs of certification assessments and maintaining higher forestry standards. Of particularly great importance in this region, strong markets for FSC products would help to ensure that FSC certification is retained on forest properties despite frequent changes in ownership.

A common perspective among the diversity of interviewees, however, was that market incentives to date are minimal or non-existent for many landowners. The certifiers, practitioner groups and the majority of producers interviewed also claimed that many certified operators will drop their certificates without increased market benefits in the near future.

The presence of markets for certified forest products is clearly critical if the FSC is to be accessible to the region's diversity of landowners as well as a significant percentage of its consumers. Yet FSC's development in this region and elsewhere has conspicuously lacked strategic

analyses and planning focused on the linkage of supply and demand. In reference to this problem, the Director of the SmartWood Program of the Rainforest Alliance refers to "push" versus "pull" strategies. Push strategies, in this context, refer to efforts aimed at supply-side participation and pull strategies to efforts focused on the retail and distribution end.<sup>5</sup> In SmartWood's experience, this pull approach has reportedly been the most effective method for recruiting clients.

SmartWood's pull strategy refers specifically to the identification of finished products, distributors and retailers where demand exists or potentially exists and the systematic linkage of this demand along the entire Chain of Custody to appropriate sources of supply. ENGO market campaigns aimed at shaming brand name retailers could be seen as another form of pull strategy. These efforts have proven effective in creating industry awareness of certification and have resulted in impressive commitments by Home Depot, Lowes, Time, Inc., etc. to source certified wood. To date, however, FSC supply has been vastly inadequate to allow these large-scale retailers to fulfill such commitments. Furthermore, most major retailers have chosen to recognize SFI and CSA as well as FSC and the wood available from these competing systems swamps FSC certified products (Cashore, Auld, and Newsom 2004).

More recently, some FSC supporters have focused on identifying particular products amenable to certified trade. A certifier respondent listed the following product attributes as conducive to eco-labeling:

1. Visible (Products that are tangible and in plain sight are more amenable to eco-labeling than products that are structural and/or covered from view.)
2. Prolific (Frequent product consumption is a plus from the perspective of widely marketing labels. Items such as high quality domestic furniture are bought infrequently. Commercial building supplies and furniture, however, are often bought in bulk.)

<sup>5</sup> To date, relatively little attention has been focused on consumers.

3. Linked to other green goods and/or high end consumers (LEED and other green building initiatives provide a framework supporting responsible purchasing including wood products.)
4. Broad market range (The larger the potential market, from regional to national to global, the greater the opportunities for capturing eco-sensitive markets.)

From an ecological perspective, items two and four above could create perverse effects by promoting consumption and/or increase the long distance transport of goods otherwise available locally. As will be discussed later, these concerns have lent support to various community-based production and consumption initiatives.

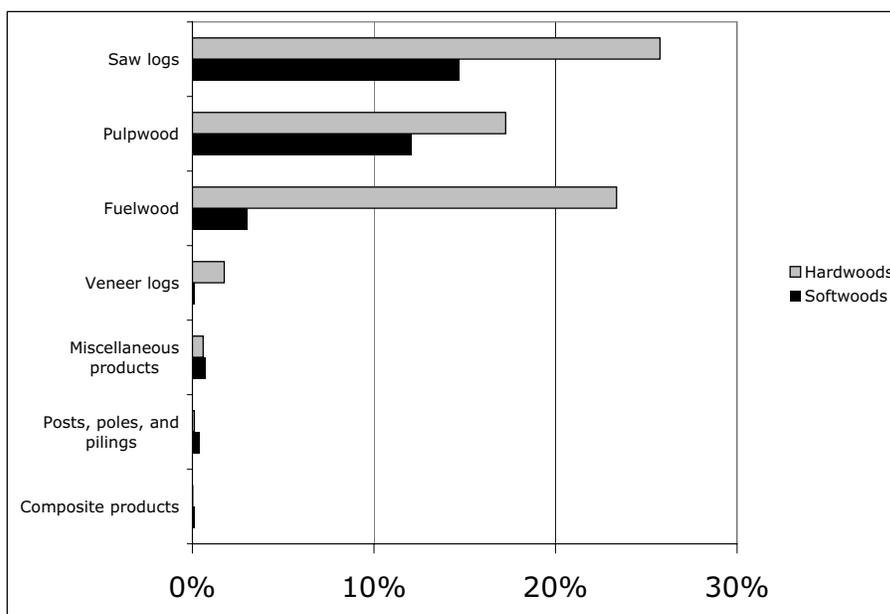
**Market Demand — Existing and Potential**

FSC certified paper has shown relatively strong growth in recent years. Time, Inc., ENGOs such as WWF and the National Wildlife Federation, publishing companies and other source conscious organizations have

supported a market for FSC certified paper through adopting and/or promoting aggressive procurement policies. Paper, particularly high-end print quality paper, is visible, it is consumed on a frequent basis, and it reaches environmentally conscious consumers and a global scale market.

Pulp and paper constitutes the only instance of market pull mentioned by interviewees in the study region. Both Domtar and Finch Pruyn produce FSC certified paper and have promised market access and green premiums to procure certified pulp from local producers. In Nova Scotia the major pulp and paper producer Stora Enso has been actively participating in the revision of the FSC Maritimes standard, suggesting serious interest in FSC certification. These large industry players depend on small-scale producers for much of their supply and vice versa. In Nova Scotia, a group of woodlots have sought and achieved FSC certification expressly to supply certified pulp to Stora Enso. Hence industry participation in the FSC has a major ripple effect across a range of producer types.

A market assessment of FSC in the region should also consider the structure and nature of its wood supply



**Chart 8. Percent of Forest Production by Product Type for the US Northeast**

Source: Smith W., P. Miles, J. Vissage, S. Pugh. 2004. Forest Resources of the United States, 2002. North Central Research Station, USFS. Page 127.

and its potential to link with demand. There is a need for additional detailed research focusing specifically on markets. However, even a cursory look at regional production can provide useful insight. Chart 8 shows a breakdown of forest product production by product type. State-by-state data were not available for the US Northern Appalachian region, so the figures shown span the region from West Virginia north to Maine and from the East Coast west to Pennsylvania.

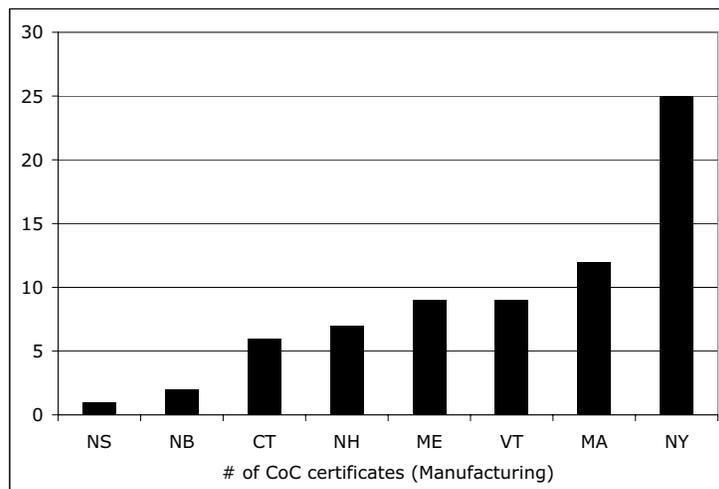
Pulpwood production is clearly of major importance to the region's forest industry. Hence further growth in FSC certified paper could create significant market pull to sustain some level of certification.

The future of the region's pulp industry, however, is in question. A recent study of global product trends highlights a number of factors contributing to industry decline. These factors include increasing global wood supply, decreasing supplies of low cost energy and, in Canada, an appreciation of the Canadian dollar (resulting in less competitive manufacturing). Compared to other major wood producing regions, Eastern Canada is at the top of the curve in fiber costs for pulp and paper producers. Meanwhile emerging markets in China, India and Russia are increasing global price competition (Roberts 2006).

These changes call for new strategies and a search for alternative markets. In Canada, one interviewee has suggested that industry turnover on Crown lands provides governments with an opportunity to redesign provincial tenure systems. A new emphasis could be placed on smaller operators meeting high environmental performance standards, such as the FSC, and producing high value-added forest products.

The high quality hardwoods characteristic of the region are in fact ideally suited for a number of value-added forest products that carry strong potential for certified market development. These include indoor furniture, flooring, doors, windows, veneers, moldings and other finished products that, if certified, can also be used to earn points under the US Green Building Council's LEED building standard.

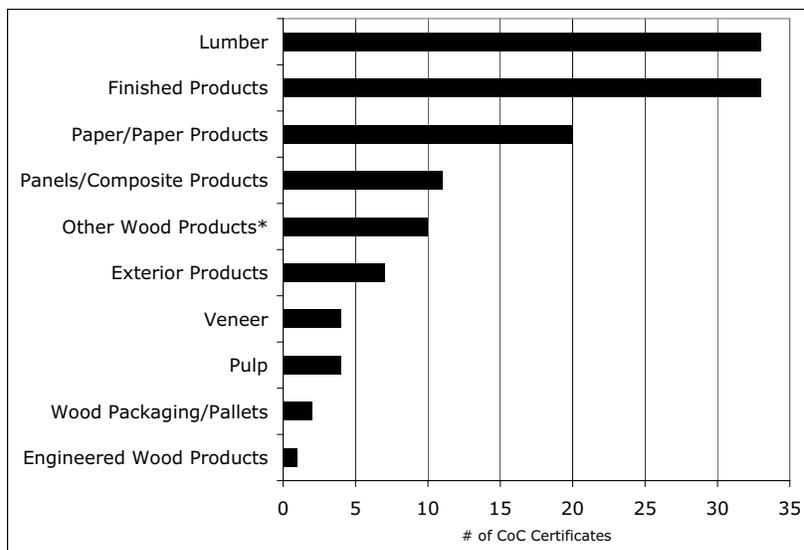
The third largest production category is fuelwood, amounting to a significant 26% of production on the more heavily populated US side. Fuelwood is visible and prolific but is generally sold locally; hence the demand for certified fuelwood must primarily come from local consumers. An interviewee from Nagaya Forest Products reported success in selling certified fuelwood locally. As will be discussed in greater detail, the presence of producers committed to developing local markets for eco-friendly products together with a receptive local demographic could increase the



**Chart 9. Number of CoC Certificates by State/Province<sup>^</sup>**

Source: Metafore web site, <http://www.certifiedwoodsearch.org/searchproducts.aspx>, Accessed 5/06/06

<sup>^</sup> The chart excludes certificates to landowners and/or land managers without processing facilities, as an indication of potential demand for landowners to produce certified products.



**Chart 10. Number of CoC Certificates by Product Type<sup>^</sup>**

Source: Metafore web site, <http://www.certifiedwoodsearch.org/searchproducts.aspx>, Accessed 5/06/06

<sup>^</sup> The chart excludes certificates to landowners and/or land managers in order to indicate potential demand for certified products from those landowners and managers. The chart shows all products sold. Many of these entities sell a variety of products and hence the total number of certificates by product type is greater than the total number of certificates.

\* "Other Wood Products" are firewood/fuelwood in all case study jurisdictions. This should not be taken as an indication that manufacturers have pursued CoC certification expressly for fuelwood. Instead, some certified manufacturers sell fuelwood along with other higher value-added products.

quantity and quality of FSC certificates and also provide important opportunities for public education.

Data on the volume, value and content of certified products sold to date is seriously lacking, and is often limited to anecdotal evidence and informal producer self-reporting. One proxy for estimating the distribution and composition of certified markets is the assessment of Chain-of-Custody (CoC) operations. Chain-of-custody certification is required of all entities wishing to sell products with an FSC label, from the forest owner to the processor to the end retailer. Hence, even if a CoC certified business is not currently selling certified products, the certification suggests the anticipation of market demand. Charts 9 and 10 provide a quick demographic of CoC certificates. Chart 9 shows the number of CoC certificates by state and province issued to entities other than landowners and land managers (i.e. certificates that indicate demand for certified products from forest producers). Chart 10 shows the number of these certificates by product type. Some of

these CoC certificates are group certifications, involving groups of small-scale manufacturers.

These charts are most useful for analyzing perceptions of market potential. They should not be equated directly with consumer demand. It is common for companies to hold a CoC certificate and to fail to sell any certified products. In fact companies that do not receive requests for certified products may never make use of the FSC label at all. Furthermore, some companies may favor FSC-labeled products as a form of source verification but may choose not to display the label in order to avoid diverting attention from their own brand name and/or casting a negative light on non-labeled products. The market in CoC certificates, furthermore, is tremendously volatile. In a study conducted in the Northern Forest region between 2001 and 2005, it was found that only four of the original 33 CoC certified processors had retained their certificates across the five-year study period. Meanwhile, eighteen new CoC certificates were awarded over that same time span (Rainforest Alliance 2005: 16).

Given all of these caveats, there are still some useful observations that can be made. Overall the number of CoC certificates varies substantially by state. This variation, furthermore, does not correspond with the number or area of forest management certifications, but rather may in part reflect differences in state manufacturing and/or market capacities. There is also a considerable range of product types that could potentially be sold as certified.

In addition to the well-established markets reflected in currently available wood product data, there are some new markets emerging that are likely to increase in significance in the near future. One such market is biomass. Biomass production creates its own unique set of opportunities and threats. On the one hand, it may help local producers survive economically, support their efforts at sustainable forest management and be less likely to subdivide and sell their properties for development or other uses of intense environmental impact. On the other hand, biomass production favors rapid, mass production and complete removal of forest biomass in short rotations—these management approaches can run completely counter to environmental and socio-economic sustainability. As observed by an interviewee from Manomet Conservation Center, there is as yet no market for FSC certified biomass and it is unclear if one will develop in the near future, rendering the FSC largely ineffective in moderating biomass production.

Another market-related development is the rapid expansion of land trusts and no-development easements. As will be discussed later in this report, there are a number of existing and potential synergies between certification and conservation easements.

Environmental services provide other potential market opportunities. Perhaps the most developed example of an environmental service market is carbon credits. This market shares many of the possible rewards and risks with biomass. An important difference, however, is that the mechanisms for awarding credits are still very much in flux and leave greater room for accommodating what are traditionally non-market values. The Regional Greenhouse Gas Initiative is working on developing a carbon trading system in the region. As reported by an employee of Environment Northeast, many ENGOs have supported requirements making conservation easements

and/or FSC certification a pre-requisite to obtaining credits. Whether or not this approach is adopted across the board, at the very least it is already being explored within other arenas such as the retail carbon offset market.

Finally, there are two other general market categories of critical ecological importance. The first is “salvage”. Some forms of wood salvage, such as wood from an old barn, or from the bottom of a reservoir, may result in less environmental impact than, for example, building logging roads in remote regions and cutting late successional timber. At the same time, other methods of salvage logging are more controversial, such as salvage of dead or diseased wood from functioning forested habitats. To date, for a complexity of reasons, the FSC has not developed a system for labeling salvage wood. The SmartWood Program of the Rainforest Alliance, however, provides its own third party verification of salvage wood products through their “Rediscovered Wood” program.

The FSC, as part of its “percentage-based claims” process, recognizes some sources of wood (including certain types of salvage) as “neutral”, meaning that their production results in minimal environmental impact. FSC percentage-based claims allow sellers to make percentage claims on FSC-labeled products containing up to 70% non-certified material as long as that material qualifies as “neutral”. This policy, which has generally increased in flexibility over time, has proven quite controversial. At the same time, the increased flexibility has led to dramatic increases in the quantity of wood sold as FSC certified. For a more detailed description of FSC’s complex system of percentage-based claims, we refer the reader to other sources (FSC-AC 2001; FSC-AC 2006a; FSC-AC 2006b).

Having now provided a broad overview of demand-side dynamics, let us return to forest managers on the supply side. If demand and supply are to be effectively linked, it is essential to understand the very particular opportunities and constraints facing the diverse range of forest producers in this region. This knowledge can be coupled with a spatial strategy, whereby efforts to protect specific forested localities can be tailored to the appropriate land ownership and production types.

## **Market Supply**

Hagan et al. identify 13 major landowner and forest product producer types in the US Northern Forest area (Hagan, Irland, and Whitman 2005). For the purposes of analyzing US markets we will focus on the six major categories of state land managers, industrial forestry firms (both industry freehold and Crown land tenures), Timber Investment Organizations (TIMOs), non-profit organizations, logging contractors and family forest owners. Our market analysis of the Maritimes will consider large Crown license holders and small, private woodlot owners.

## **Public Lands**

State lands in Maine and Massachusetts account for over a third of all certified area in the Northern Appalachians. These state properties place a strong emphasis on non-timber values. Forest management intensity and timber harvest levels are well below standard levels for industrial operators in the region (Hagan, Irland, and Whitman 2005) and large forested areas have been set aside for non-timber uses. Under the FSC-NE standards, public forestlands are held to higher standards in regards to protected areas (FSC-NE 2002). In practice, there is evidence that public lands may be held to higher standards on a wide range of issues, as witnessed by more Corrective Action Requests and lower scores for state forestry than intensively managed industrial forests (Lansky 2002). These inconsistencies undoubtedly have significant impacts on the costs of assessments for public land managers. Given the current lack of lucrative, eco-sensitive markets to provide economic compensation for these increased costs, this suggests that state forests are perhaps among the least market-sensitive of the region's producer types. Their potential contribution to the certified product stream, not to mention high public profile, however, can be substantial and hence state lands represent a good strategic option for strengthening FSC certified product markets as well as contributing to public education.

Major Crown licenses in the Maritimes are the single largest and most promising forest tenure type in regards to forest area covered and access to commodity

markets. Large license-holders hold harvest rights for nearly half of Maritime forests. In New Brunswick as of 2003, Crown licenses were held by only six separate firms, although each of these licensees is assigned to a number of sub-licensees (DNR-NB 2003). None of the major tenure holders are currently certified under the FSC. Instead, all six of these license holders are certified under the SFI in fulfillment of a provincial requirement that Crown licenses adopt one of the three available North American certification systems.

The lack of industry involvement in FSC certification in the Maritimes can in part be attributed to the political dynamics of the FSC's Maritime regional standard-setting process. These stakeholder dynamics will be discussed in a later section of this report. In regards to market incentives, the focus of this section, there clearly has been industry interest for many years. Irving, Ltd., the most dominant old-line family as well as a major industry player in the region, was one of the first North American applicants for FSC certification. The first field audits of Irving's Black Brook property in New Brunswick began in 1996. Irving had been the subject of longstanding campaigns and criticism by environmental groups over their Spruce Budworm spraying program. Irving's original decision to apply for FSC certification was an effort to confirm to outside audiences its assertions that it was an exemplary and responsible forest manager (personal interviews, long-time Irving forester, and Cashore and Lawson 2003). Irving was awarded a certificate but soon after rejected its FSC certification due to disputes over the Maritimes standards and standard-setting process (Cashore and Lawson 2003). Purportedly, the position of the Maritimes standards on biocides, exotics and plantations was unreasonable and unworkable from a forest industry standpoint. Irving later achieved certification of its forestlands in Maine under the less restrictive US Northeast Regional Standards but has since decided to not renew its US certificate. The Irving case has had a major cooling effect on FSC's reputation with industrial operators in the region and beyond.

Meanwhile, Irving has successfully achieved ISO 14001 and SFI certification. The forester interviewed for this analysis reported that these certificates have been helpful for maintaining market access and that there has been no market pressure to revisit FSC certification. However, he also claims that Irving would reconsider

FSC certification if there were enough evidence of market demand to justify meeting its standards.

Stora Enso in Nova Scotia, however, has already demonstrated considerable interest in FSC certification. They have a company representative participating in the FSC Maritimes re-drafting committee and have agreed to the latest regional standards draft. Possible motivations for Stora Enso's interest is their adoption of FSC in Europe and the relatively strong national market for FSC certified paper products. Reportedly at Stora Enso's request, a group of woodlots have become certified under the FSC. If a major industry player like Stora Enso does decide to pursue FSC certification, this could have a significant ripple effect on other industrial companies in the region. Given the hard economic times that industry is currently facing, however, Stora Enso's continued presence in Nova Scotia is somewhat in question.

In the interviews conducted for this report, there is still a wide-spread perception among industry, government officials, academics and other stakeholders that the second iteration of the Maritimes standard will still be too onerous for industry involvement. Furthermore, a number of these same interviewees expressed the opinion that the certification of Irving was central to establishing a foothold for FSC in the region. On the opposite side, several environmental interests felt adamantly that Irving's intensive management style was fundamentally non-certifiable. Many of the interviewees on either side had not yet read the revised draft of the Maritimes standards posted on the FSC-Canada website and hence their comments were not directed at specific flaws in the new draft standards.

In addition to Crown licensees, tribal lands are another type of land ownership of relevance in the Maritimes. As with the Menominee in the US, the Pictou Landing First Nation was an early FSC pioneer. Since that time, the Eel Ground First Nation has also received certification for its lands in New Brunswick. While these certifications do not add up to a large forest area, they contribute to the diversity of FSC certificates and hence to opportunities for stakeholder learning and innovation.

### ***Industrial Forestry—Private and Crown Lands***

Industrial forestlands are a close second to state forests in terms of the area certified thus far. Three firms account for all industrial land certified, consisting of Domtar, Seven Islands Land Company and Finch Pruyn. The pulp and paper mills of Domtar and Finch Pruyn produce FSC certified paper, and are the only examples that interviewees provided of significant market access and green premiums for certified wood.

In the early days of the FSC, ENGO market campaigns and public shaming rather than market incentives seem to have been a strong driver in sparking industry's interest. This approach was particularly successful when applied at the retail end to large brand-name companies such as Home Depot, or other visible companies such as Time, Inc. The result was a string of promises to buy only certified products, or stop buying wood from old growth forests, etc.

In this earlier phase, however, not only was there little apparent linkage of market campaigns to supply side dynamics, but the NGOs spearheading the retail campaigns were at the same time actively resisting industry participation in the FSC. When companies with reputational challenges such as Irving or Western Forest Products applied for FSC certification the result was an ENGO backlash which contributed to general industry avoidance of the FSC.

Key among industry avoidance strategies was the creation of competing certification systems such as the SFI and CSA. To the degree that large industry has fought against the FSC, those retailers who have made public commitments to purchase certified wood have been having great difficulty in procuring such wood and have generally expanded their policies to accept SFI and CSA as well as FSC wood.

What has since helped to break down that wall, is the development of genuine market incentives leading to a string of large-scale FSC-accredited certifications of pulp and paper companies in the US and Canada. In other words, political dynamics may help to shape markets, but it is the markets themselves that largely generate the adoption of FSC certification. As will be discussed later on in this report there is a possibility

that increased market demand and industry involvement, i.e. an increase in the quantity of certified land and certified products, will lead to a watering down in the quality of certification standards. Continued ENGO participation may be crucial to ensure that market expansion is balanced with equally strong and effective certification standards. The effectiveness of ENGO participation will be increased, furthermore, if stakeholders are well informed as to how certified markets work. Well-informed stakeholders are less likely to develop contradictory strategies that result in producer alienation and backlash.

The vertical integration of wood supply and wood processing, or the lack of such integration, is one technical factor that was frequently mentioned in interviews of both industry and financial investors. Given the distribution of land ownership on both the US and Canadian side of this region, many company mills source their wood products from numerous small-scale producers. This creates challenges for accessing a consistent source of FSC product as well as for tracking that product to the end consumer via FSC's strict chain of custody standards. If the demand for FSC products is strong enough, however, then presumably this inter-dependence of large and small producers could lead to an acceleration of small-scale landowner certification. This does appear to have happened in the case of the FSC certified woodlot owners supplying Stora Enso in Nova Scotia. Such large and small industry coordination could be greatly facilitated if certified mills pay directly for the certification of small-scale landowners. This sponsorship becomes increasingly difficult, however, the larger the number of suppliers and the more erratic the supply. Many woodlot owners harvest infrequently and lack patron-client relations with large mills.

### ***Financial Investors***

The large landholdings of the US Northern Forests, once predominantly owned by old-line families and large-scale, vertically integrated forest industries, are now largely under the ownership of Timber Investment Organizations (TIMOs) and other financial investors (Hagan, Irland, and Whitman 2005). There has been considerable debate as to what this means for the environmental standards of forest management.

Perhaps the biggest environmental concern is that these new, mostly absentee, landowners lack the long-term commitment and investment in forestry and forest processing and hence may subdivide and sell their land for development. Furthermore, these landholdings are commonly sold within a period of ten years, likely resulting in limited concern about local reputation and local impacts. Interviews with two FSC-certified TIMOs active in the region, The Forestland Group and Lyme Timber Company, however, suggest that some TIMOs have chosen to carve out a market niche for themselves as environmentally responsible companies.

According to the managing director of one FSC certified TIMO, his organization has pursued three basic strategies to distinguish itself from competing timber investors. The first is a focus on natural hardwood forests rather than plantations. This TIMO now owns over 2 million hectares of forestlands in seventeen states (including New York, New Hampshire, Vermont and Maine in the study region) and an estimated 90% of these forests are hardwood dominated. The second is the development of ecologically sensitive Forest Management Plans. The third strategy is the adoption of FSC certification, aimed at third party confirmation to investors that the TIMO is in fact a high environmental performer. The certification coordinator for this TIMO added that FSC certification also helped their organization to simplify the language and negotiations for their conservation easements and also served as a "pre-emptive" strike against future state forest practices acts and litigation.

The TIMO started with a pilot certification of one property as a first step. Several years later, having deemed the process workable, the firm successfully applied for Resource Manager certification and now all of their lands are FSC certified. The company director and certification coordinator both report similar positive experiences with certification and positive reports from most of its forest managers. In particular, they claimed that they did not have to radically change their management practices, but that certification helped in the standardization and documentation of their operating procedures as well as in communicating new concepts about sustainable forestry to their foresters.

An interviewee of another FSC certified TIMO also mentioned easements as critical in the decision to pursue FSC certification. This respondent observed that his firm is “already 60/70/80% of the way towards FSC with the easements. FSC has helped in the planning process, in looking over our shoulder, and in monitoring.” The respondent also claimed that, “Certification is better at monitoring than land trusts or state agencies.”

TIMO interviewees did mention a number of challenges, however, regarding the decision to remain certified as well as the ability to sell products with the FSC label. One was FSC’s recent release of a new list of prohibited chemicals. One respondent reported that this new policy was untenable, particularly in regards to its southern plantations. Furthermore, there was considerable uncertainty around the FSC’s policy towards plantations as a whole and whether or not landowners would ultimately be required to revert and/or convert all plantations to natural forests.

In terms of selling FSC product, the TIMO respondents indicated that their current sales of certified products were negligible. One interviewee estimated that probably less than one percent of the firm’s logs are now sold as certified. A primary obstacle is that her firm sells stumpage and does not own wood processing facilities. Furthermore, they work with a very large and shifting population of logging contractors and hence it is highly unlikely that the FSC chain of custody will be maintained in most cases. This report’s upcoming section on logging contractors will delve further into this issue.

In sum, financial investors present a number of opportunities and challenges to FSC certification. They vary greatly in their economic strategies and emphasis on environmental values. Clearly, the investors that these organizations attract play a key role in their motives and ability to become and remain certified. The recent growth of conservation easements seems to play a pivotal role for some investors, helping to justify investment in the FSC. Their general lack of wood processing capacity, however, presents a major obstacle in terms of contributing wood to the certification marketplace. This represents a major lost opportunity for market development, considering the large area of TIMO lands already certified to the FSC.

### ***Conservation Easements***

The linkage of FSC certification and conservation easements is an issue of growing importance (Hudson 2005) and worthy of its own separate analysis. A study by Hagan et al. found that many forestland easements in the Northern Forests lacked any form of biodiversity provision. Furthermore, the management of these no-development easements involved fewer biodiversity practices than the management of forestlands unencumbered by easements. This same study found that certification to either SFI or FSC certification was correlated with “significantly stronger biodiversity practices” (Hagan, Irland, and Whitman 2005).

In addition to the terms of an easement, its location is also of central ecological importance. The rapid growth of no-development easements in relatively remote areas, particularly in Northern Maine, has been criticized as obscuring the need for fully protected areas as well as the need for easements in areas facing immediate development threat (Lewis 2001). This highlights how conservation easements, though a potentially powerful tool in concert with certification or other well-articulated environmental management approaches, are not a panacea but are rather part of a dynamic suite of conservation efforts interacting at multiple scales. The assessment of easement impacts, therefore, should not just focus within easement boundaries, but also on larger regional level patterns and trends.

Conservation easements have been relatively slow to develop in Canada. One respondent active on the Gaspé commented on a general tendency in Quebec to “either conserve or manage forests but nothing in between.” However, she reports that over the last few years a number of NGOs have become actively engaged in promoting working forest easements in the region. As an example, she reports progress in negotiations with a “small TIMO” to establish a new easement in the Appalachian corridor.

### ***Non-profit Landowners***

The Nature Conservancy (TNC) and other non-profit holders of land trusts and easements are a growing presence in the Northern Forest. TNC, for example, has committed to the certification of all of its lands open to

commercial timber production. A TNC respondent claimed that third party verification systems such as the FSC are becoming increasingly important for NGOs as a means to demonstrate accountability.

While conservation and a good reputation may be TNC's first priorities, however, their approach to certification is that it should pay for itself. As already discussed, a number of interviewees have claimed that the FSC is a reasonably economical means to address easement requirements and hence may fit TNC's needs even without other sources of market pull. The same apparently holds true for SFI certification. TNC has recently purchased property from International Paper and IP had been certified to SFI standards. That property came with a supply agreement with IP and hence TNC may maintain their SFI certificate. According to the respondent interviewed, TNC's choice between SFI or FSC certification depends on market demand.

In addition to NGO's who own land or hold easements, there are many non-profit organizations involved in promoting and supporting certification among tenure holders. For example, a respondent from the Open Space Institute (OSI) pointed out that OSI operates a large grant-making program aimed at improved management in the Northern Forest. OSI, through its Northern Forest Protection Fund, provides incentives to NGOs to promote improved management on their easements and FSC certification is used as a proxy for good management. The respondent points out how the easement contract provides an opening for land trusts and the grant programs that influence them to impact the market for FSC certification.

### **Family Forests**

Family forests cover a large percentage of the Northern Appalachian forests, including areas under the greatest threat of subdivision and development. These ownerships range tremendously in size as well as in land use objectives. They range from some of the most progressive examples of long-term, ecosystem-based forest management, to private no harvest reserves, to real estate speculation. As such, they are a group that is as challenging as it is important to target for the purposes of promoting forest connectivity and biodiversity protection.

A diversity among owners calls for a diversity of strategies. Many forest owners are not interested in systematic timber harvest but may make spot decisions to sell timber to cover debts, pay estate taxes, or other financial reasons. These occasional harvesters may be resistant to hiring foresters to write management plans or invest otherwise in silviculture and biodiversity management. The uninformed landowner is thus often vulnerable to unscrupulous logging contractors. For such reasons, respondents from the Resident's Committee to Protect the Adirondacks (RCPA) emphasized the extensive need for landowner education and outreach.

RCPA has received FSC-accredited resource manager certification and aims to help many more woodlots gain FSC certification. Despite low levels of awareness among many of the neighboring landowners, there are still a substantial number of forest owners who are wait-listed to join the FSC group certification. As further incentive, if they are able to obtain management plans they may be eligible for tax breaks. The only reported obstacle in their way is a lack of resources to pay the RCPA forester to prepare the management plans (RCPA interview April 2006). These observations precisely echo that of several other interviewees involved with certified woodlot groups. In sum, the demand for management plans and FSC certification apparently far exceeds the supply.

The preparation of management plans addresses the supply side of the FSC equation. As already discussed, the presence of market demand may be necessary to sustain FSC certificates, particularly in the face of ownership change. However, even if markets already exist, small-scale and/or inexperienced forest owners face considerable hurdles in identifying and accessing them. The FSC's resource manager and group certification program, described briefly in the previous section, can help to address such capacity problems by encouraging woodlot owners to organize and pool their expertise and resources.

For those woodlot owners that sell to a commodity market, the certification of industrial operators could create a major market pull. However, some woodlot owners and manufacturers are leading the way in developing alternative, locally-based forest product markets. Examples of this include the Acadian Family

Forests in Nova Scotia and New Brunswick, Vermont Family Forests, Vermont Woodnet, Maine Woodnet, the Massachusetts Woodlands Cooperative, and a certified boat builder in the Adirondacks. The inclusion of such creative efforts among FSC certified lands creates another potential source of diversity and innovation.

A more wholesale opportunity for engaging large numbers of woodlot owners in forest certification exists with the forest product marketing boards of Quebec, New Brunswick and Nova Scotia. These marketing boards were formed decades ago to negotiate forest product prices, provide technical assistance and generally protect the interests of private woodlot owners (Sandberg 1992). As one woodlot interviewee points out, the broad reach of these marketing boards “could really advance FSC in the Maritimes if they were brought on board.” The interviewee suggests that marketing boards could also “be key players in ensuring that the good plans made by FSC certified resource managers and the good intentions of woodlot owners are not scuttled by unscrupulous or simply ignorant and careless contractors.”

### **Logging Contractors**

Loggers form a crucial link in the forest management chain. Firstly, they are the actors that can make or break the quality of on-the-ground forest management. Secondly, they often serve as both forest manager and logger for many family forest owners and may themselves invest and manage their own forest properties. Thirdly, large-scale non-industrial owners such as TIMOs may contract their logging to numerous logging operations leading to a break in FSC Chain of Custody and the loss of an important potential source of certified products.

Master Logger Programs represent an innovative attempt to develop and audit logging performance standards and codes of conduct. Examples of active logger programs in the region include the Atlantic Master Logger Program in the Maritimes and the Maine Master Logger Program. The latter Program has recently partnered with the Rainforest Alliance to explore ways to link logger certification with the FSC. In addition to allowing loggers to share the benefits of FSC certification, this linkage holds tremendous potential to increase the stream of certified forest products into the marketplace.

### **Social Dynamics**

The FSC is a tool that attempts to bring order to the chaos of market problems and forest ownerships just described. It is itself however, a broad-based membership organization. While for the sake of simplicity one might be tempted to equate the FSC with a particular set of actors, attitudes and beliefs, in practice it is a highly dynamic process that is constantly redefined and re-negotiated among a range of players. In terms of the FSC’s goals, there has long been a tension between quantity and quality, i.e. the need for FSC to spread across a significant portion of the landscape and capture a sufficient share of the wood products market, versus the need for forest management standards that are sufficiently demanding to promote concrete changes in forestry practices.

In regards to the broader context of forest governance, it has been argued that the US Northeast has a history of relatively open policy-making networks in contrast to the relatively closed network of government and industry alliances that have historically characterized Crown land policy-making in the Maritimes (Lawson and Cashore 2003). The following brief history outlines how the combination of conflicting goals and different dynamics of governance led to two very different outcomes within an otherwise contiguous forest landscape. It is important to consider these dynamics when designing strategies to promote forest conservation in the region.

When the FSC held its first meeting in Toronto in 1993, it brought together representatives of international NGOs, certifiers that had already pioneered their own systems of forest certification, and grass-roots NGOs focused on addressing issues of central concern to their respective localities among others. Included among those initial attendees was the future chair of the FSC-Maritimes regional standard-setting committee and the Senior Vice President of the California-based certifier Scientific Certification Systems. While the focus of many international interests at that time was on tropical forestry, these and other Canadian and US activists and practitioners viewed the FSC as a tool of direct relevance to North America as well.

Several years later, around the time when the FSC was formally launched as an organization, and before the development of regional standard-setting processes, Scientific Certification Systems (SCS) began conducting a certification assessment of a Maritimes industry leader, Irving, Ltd. As reported by the lead SCS certification auditor, Irving soon proved itself very committed to improving its practices and willing to make significant changes as long as its leadership was convinced of the scientific validity and logic of those changes. Examples were offered of management changes due to certification, were a change from straight-edged to irregularly shaped clearcuts and the inclusion of forest patches for wildlife habitat.

Irving joined the FSC-Maritimes regional standards working group, first initiated in 1996. As the sole industrial forestry representative, Irving's interests did not mesh well with the remainder of the committee.

The Committee Chair was a founder of the Acadian Forest Families and owner of Windhorse Farm in Southwestern Nova Scotia. He was a proponent of low-impact ecosystem management and the promotion of locally based production and consumption. The chair, with support from key Maritimes NGOs, saw in FSC the potential to transform, rather than merely reform, forest practices.

The history of the Maritimes standards development from that point onward is a long and complex one, outlined in succinct detail in previous research (Cashore and Lawson 2003; Lawson and Cashore 2003). For the purposes of this report, however, it is important to outline a few key historical events. The SCS certification of Irving's Black Brook freehold lands proceeded during the standards development process and resulted in Irving's certification. When the FSC Maritimes group passed on the standards for approval by FSC Canada and FSC International, Irving unsuccessfully appealed those standards claiming that the rules surrounding biocides, exotics and plantations were untenable and that the standard-setting process was flawed. Irving then returned its FSC Black Brook certificate.

Meanwhile, a very different set of FSC-Northeast regional standards were completed south of the border with relatively little conflict or fanfare. Irving received an FSC certificate for its forestlands in Maine. More recently Irving declined to renew the Maine certificate,

claiming in part a lack of respect for the FSC process and for the existence of two very different standards in ecologically similar areas.

There are several key outcomes of these diverse processes that are of particular relevance. Firstly a number of interviewees reflected on how the standard setting processes helped to open the lines of communication between local ENGOs, industry and government. A number of interviewees, in fact, listed increased cross-interest communication or public involvement in forestry as a chief benefit of the FSC. In the case of the Maritimes, with its history of closed forest networks and interest group conflict, the effect of promoting cross-stakeholder communication and learning was perhaps particularly significant. As an example of a communication breakthrough, a CPAWS interviewee reported that the FSC process facilitated Irving's subsequent agreements on protected areas, leading to a ripple effect throughout New Brunswick. Specifically, the FSC standard-setting process was credited with opening lines of communication between CPAWS and Irving through both general relationship building and the identification of priority areas for protection within Irving's operating areas.

A second, and somewhat contradictory observation, is that interviewees on both sides of the debate reported an atmosphere of bitterness, suspicion and even betrayal over the finalization of the first set of Maritimes standards. So, while the FSC process in the Maritimes may have helped create better communication more broadly, it also resulted in polarized attitudes towards FSC certification. The FSC-Maritimes standards are notably more prescriptive and challenging than the FSC-NE standards. While a considerable area of industrial forestlands have been certified on the US side of the border, none as yet have been certified in the Maritimes. Some interviewees claimed, however, that such bad feeling was generated from the standards process that the entire process would need to be redone from scratch, and FSC demonstrate significant procedural reforms, before Irving or many other forest companies would be interested in applying again to the FSC.

This brings us to a third key point. The issue of FSC quantity versus quality is still unresolved. A number of interviewees expressly stated the opinion that Irving was

fundamentally uncertifiable. Others suggest that without industry involvement, and in particular Irving involvement, the FSC's effect in the region will be virtually nil. As stated by the FSC-Canada standards facilitator, "FSC should take on the challenge of improving general practices carried on in industrial forestry, rather than simply recognizing companies that are already doing well." This diversity of opinion is not restricted to the Maritimes but is also present on the US side of the border.

One Maritimes woodlot owner has described the crux of the problem in the following way:

"They've {the FSC} tried to do two different things. And consequently they haven't done either one of them very well... I think they {FSC} could have become a really high-end certifier - a niche market certifier. Or they could have become the standard for good industrial forestry. Either way would have been good...{but} you can't be all things to all people..."

Recent developments in the Maritimes standards, together with an innovative approach since adopted by the Acadian Forest Families, however, suggests some possible ways past this dilemma. With cross-border collaboration, the capacity to address the quantity/quality dilemma could be yet further enhanced.

The first FSC-Maritimes standard was submitted to FSC-CAN and then FSC-AC in 1999. In January of that year, the FSC endorsed the standard subject to conditions related to the Irving controversy, leading to revisions completed in 2003. It is an FSC requirement to update standards every five years and hence the Maritimes standards committee, now with a new chairperson, has been working on standards revision. In June 2005, a working draft update was posted on the web and distributed to select stakeholders. The majority of Maritime stakeholders interviewed seemed either unaware or unfamiliar with the new draft standard. Several ENGO interviewees aware of the new draft expressed some disappointment, suggesting that the standards may have loosened some of their environmental protection requirements. Academic and industry interviewees either assumed or speculated that changes to the new draft would be inadequate to allow industry participation. Stora Enso, however, has participated as an active member of

the re-drafting committee and reportedly approved the release of the draft standard for review.

Having completed the public review process, the draft is now being revised by the FSC Canada headquarters in an attempt to further harmonize the standards with the FSC-Boreal and FSC-British Columbia standards. According to FSC Canada's Vice President and coordinator for standards revisions, the draft includes a number of important improvements. These include a modified policy on chemical use, including the removal of the term "biocide," that would allow managers greater flexibility particularly in the use of insecticides (which are already restricted to organic agents by law) and, more controversially, some more leeway with herbicides. According to the Vice President, these and other modifications will make the standard feasible for use by industry, beginning perhaps with Stora Enso.

The dynamics of FSC certification on the Gaspé Peninsula is in many ways distinct from the Canadian Maritimes. The forests of the Gaspé can be characterized as boreal and Great-Lakes St. Lawrence forest types. There were no appropriate FSC regional standards in place at the time of the first FSC field assessment on the Gaspé in 2001. This first assessment was conducted by the FSC-accredited Rainforest Alliance and involved a relatively non-controversial group of woodlot owners known as the Groupement Forestier de L'Est du Lac Temiscouta, Inc. (GFELT). The Rainforest Alliance assessed the GFELT group according to a field checklist that incorporated elements of the FSC Maritimes standards. That same year the National Boreal Standard process was launched. The Boreal Standard, which was endorsed in 2004, represents a harmonization of Canadian standards across the entire boreal eco-region, from the eastern to the western seaboard. As of the writing of this report, millions of hectares of industrial forestland have achieved FSC certification under the Boreal standard, providing evidence of significant industry support. Hence, now that much of the Gaspé falls under this more widely accepted regional standard, there would appear to be fewer barriers to industry certification in the area. Meanwhile the other standards of relevance to the Gaspé, i.e. the Great Lakes Saint-Lawrence standards, are still under development.

The endorsement of the FSC National Boreal standard has had a significant effect outside of the boreal region as well, influencing the Maritimes and other standard-setting processes. FSC-Canada's Vice President and lead staff person on standards revisions sees the Boreal standard as a potential model for the harmonization of standards across the country. In particular the Vice President saw opportunities for strengthening FSC's treatment of Criterion 6.4 on protected areas, Principle 9 on High Conservation Value Forests (HCVF), and the linkage of these two sections of the standards. Harmonization of these elements would allow for a more systematic approach to prioritizing reserve areas and defining HCVF across the country. The Vice President also emphasized the need for region-specific guidance material on HCVF. He hopes there will be time to prepare such guidance material for the Maritimes once the revised standards for that region are submitted for endorsement.

Meanwhile, FSC-US is concurrently working at the national level on updating their standards. However, there has reportedly been little communication between the two organizations on substantive issues. FSC-Canada's Vice President suggests that cross-border collaboration, particularly in developing HCVF guidance material for FSC-Maritimes and FSC-NE, is an area that could benefit greatly from Foundation support. Perhaps echoing this view, SmartWood's Director commented that Canada is leading the way on addressing HCVF and the FSC-NE is in need of much better guidance in that area.

While the trend within the FSC is a move towards standards harmonization and the encouragement of industry certification, the Acadian Forest Families have pursued an interesting alternative route. This group developed their own forest certification standards, known as the Nagaya standards, based on the original FSC-Maritimes standards. All of the Acadian Forest Families are certified to these standards by Nagaya Forest Restoration, Ltd. Nagaya, in turn, has been granted a Resource Manager certification under the FSC. Hence all members of the Acadian Forest Family Forests are certified under both systems.

An interview with a woodlot and mill owner, and founding member of Acadian Forest Families, highlights the broader significance of this approach.

This interviewee is a proponent of locally based production and consumption. He sells a wide variety of wood products locally, from 2X4s to flooring, to high-end woodcrafts. He reports that he emphasizes the Nagaya label on these products both because of its local cachet as well as for the purposes of public education about sustainable resource use. The highest value-added product produced by this interviewee is tonewood. Since the local market for tonewood is limited, these products are mostly sold to US guitar-makers. The woodlot interviewee claims that the internationally recognized FSC label is a more effective communication tool for his US buyers. He also predicts that he will retain the FSC label to use on his tonewood, even with a further weakening of the FSC standards, as long as those standards do not fall below a critical threshold.

In this way, the Acadian Family Forests have become their own "high end" or "niche market certifier." The Nagaya certification system takes advantage of the opportunities for locally tailored standards rather than the larger-scale, one-size-fits-all approach of national and international level certification schemes. This approach has served as an effective communication tool for local Maritimes markets as well as an effective business tool for very high value-added international markets.

The woodlot interviewee finds that the market for his products far exceeds what he can supply and believes that there is room for many more operations like his. As witness to this, another Nagaya interviewee also reported having developed his own furniture shop and art gallery "TREES". The TREES gallery sells its products both locally and internationally via the internet and applies the FSC label to some of its gallery pieces.

While these vertically integrated local businesses are doing well financially, Nagaya Forest Restoration Ltd., the group responsible for their certification, has been struggling. To date Nagaya has largely relied on the volunteer efforts of its chief forester to help other landowners join the Acadian Forest Families group. One interviewee claims that Nagaya needs help growing from 25 families to about 100. He estimated that once there are 100 woodlot members, the organization may then be self-sustaining. He observes that there is already a line of woodlot owners hoping to join the program and, as discussed earlier, the biggest

barrier to joining is help in the development of forest management plans. In terms of growth in locally based production and consumption, what is needed is research and practical guidance material that documents how businesses like his can make such a production system work. This interviewee reports that he had to learn a lot through trial and error, including errors that almost drove his business under. There is no need for every entrepreneur to repeat the same mistakes.

## The Effectiveness of Certification in Achieving On-the-Ground Forest Management Improvements

This section will focus on quality. As discussed in previous sections, FSC's impacts in part depend on its ability to sustain itself on the landscape and in the marketplace. By itself, however, the quantity of certified lands and certified products tells us little about its on-the-ground impacts. The following discussion therefore will provide an overview of existing data and methodologies for analyzing the FSC's potential effectiveness.

Firstly, we will provide a qualitative analysis of stakeholder perspectives on the FSC's impacts in the region. This analysis will include reports of specific actions taken as a result of FSC certification and, just as importantly, will discuss some of its more intangible and indirect effects, including attitudes and perceptions of appropriate forestry.

We will then focus on written evidence of the FSC's impacts. Seemingly, the easiest and most straightforward means to assess the FSC's effectiveness is to analyze and compare its written standards and procedures. There is now a considerable body of written material that does exactly this, and this section provides a brief review of this existing work.

Following the literature review, we will then conduct a brief and focused assessment of the FSC-Maritimes, FSC-Boreal and FSC-NE standards. This assessment will address a few key elements of the standards of direct relevance to forest connectivity and biodiversity conservation.

The FSC's impacts also depend on how large a departure the FSC standards are from a manager's forest practices prior to certification. This section will

therefore examine past FSC Corrective Action Requests, in order to ascertain what changes have been made as a direct result of FSC certification. As already mentioned, some stakeholders argue that FSC certification is best suited to award good forestry rather than change irresponsible practices. To the degree that this is so, the FSC could be a useful tool even if it does not force major changes on the properties certified.

Finally, the section will conclude by discussing the role of on-the-ground, landscape-scale monitoring of environmental change both within certified areas (direct effects) and around them (indirect effects). This includes a discussion of how such a monitoring system might be established, as well as how it might be linked with studies of cause and effect.

## Interviewee Perspectives

The stakeholders interviewed for this report were asked what effect the FSC has had on forestry in their region. On the US side, the majority (15 out of 18) of the respondents argued that the FSC has been a useful tool for forest conservation in the US Northeast. Those that thought it had either no effect or a negative impact included two environmental interests and one industry interest. On the Canadian side, only two interviewees reported that FSC had a significant positive effect on forestry in the Maritimes. One of these positive respondents was an environmental activist and the other a woodlot owner. The following discussion reviews the key points made, both pro and con, regarding the effectiveness of the FSC as a conservation tool in the Northern Appalachians.

The most common arguments in favor of FSC's effectiveness on both sides of the border were related to issues of communication. A number of interviewees praised the FSC for its role in opening the lines of communication between interests formerly at complete loggerheads with each other. One interviewee went further in suggesting that the FSC served to institutionalize public involvement in forest management. Some respondents emphasized third party FSC certification as a communication tool to the public or investors that the interviewee's forestry operation was practicing environmentally responsible forestry. One large-scale producer reported that FSC was useful in improving

communication within the organization at multiple levels, from top leadership down to foresters and other employees working on the ground. A similar benefit was mentioned by a resource manager, who stated that FSC certification helped communicate to clients that his consulting business was doing a good job managing the clients' properties. FSC was also credited with educating consumers about the sources of the wood they buy. Finally, several respondents said that the FSC helped create a template, or common language, around the meaning of good forestry. As summed up by one forest manager, "The FSC changed the definition of good forestry in North America."

One positive comment was related to forest governance and policy. This respondent argued that the conflict over Irving was central to the province's decision to require certification of all Crown forestlands. He stated that even if "SFI is weak", it has improved forest practices over the status quo. It could be added, as mentioned earlier in the report, that FSC certification has also put pressure on SFI itself to adapt its standards and procedures to better address NGO concerns.

Another category of benefit accredited to the FSC relates to its role in promoting a more systematic, conscious and/or standardized approach to environmental protection. For a large producer with forestlands in multiple states it "helped to standardize our operations." For a smaller family ownership, "FSC made us pay more explicit attention to ecological values. To justify what we are doing in ecological terms."

The majority of forest producers interviewed said that they did not need to make major changes to their forest practices to become certified. Most required changes, furthermore, related to increasing documentation. The exceptions to this were two family forest interviewees. One such forest owner stated that the FSC "has greatly impacted my management for the better" and the other that the FSC "has greatly improved management planning and the quality of management {among woodlot association members}."

There are many possible interpretations of these claims about management changes. One explanation could be that the woodlot owner interviewees were practicing destructive forestry prior to certification and hence the FSC had a larger impact on their

management. Given that both of these interviewees are long-time environmental advocates and that the woodlots in their association represent the first family forests to step forward and apply for FSC certification, this explanation is suspect at best. Instead, an important part of the answer could lie in the above-mentioned role of the FSC in communicating a common language of good forestry and in promoting a more standardized and systematic approach to forest practices. Presumably, professional foresters working for larger-scale and/or more intensive forestry operations would be better versed in describing, and better resourced for documenting, how their forest practices meet current accepted best practices. While on the one hand forest owner education in best forestry practices could have many positive effects, the fact that woodlot owners are the only operators that reported the need for major change could also be a cause for some alarm. Not only does this imply a relatively greater financial burden on woodlot owners but perhaps even more importantly, it highlights certification's emphasis on documentation and systemization. This emphasis could result in industrial operators with greater capacity to justify their intensive forestry practices making fewer on-the-ground changes than much less intensive forest management operations. It also places de-facto greater value on "science-based" forestry than traditional and/or local knowledge.

One respondent from New Brunswick suggested that FSC could lessen the burden for woodlot owners by developing a template that prescribes in simple terms how to become certified. Likewise, this interviewee suggested, FSC could provide mutual recognition to the Pan-Canadian woodlot standard currently under review by CSA. Similarly, another respondent and woodlot owner from Nova Scotia reported a transformative effect when he showed an organized group of woodlot owners his own FSC certified management plan. He observed how the concrete example of certification translated into woodlot management served to dissolve suspicion and "gossip" and catalyze woodlot owners into pursuing FSC certification.

In terms of concrete examples of on-the-ground changes, one forest producer interviewee mentioned two. The first was the requirement to paint or otherwise more permanently mark the boundaries of Special Management Zones in riparian areas rather than use

flagging tape. The second was the requirement in the FSC-NE standards that clearcut sizes be limited to 10 acres with 20% basal area retention. Clearcutting is not a common practice in much of New England currently. However, this size limit is smaller than state regulations in Maine, for example. Some foresters reportedly have found the FSC-NE standards' prescriptive approach to clearcuts problematic. They argue for greater flexibility, for example, in degraded forests where perhaps the best method of regeneration could be to clearcut and replant.

It is important to emphasize the role of perception in measuring the FSC's impacts. Respondents could be expected to vary significantly in their perception of on-the-ground changes. Forestry professionals, for example, may be likely to assign relatively high ratings to their management practices both before and after certification and may not attach the same significance to changes of great importance to other stakeholders. For example, in the Irving certification, the company forester did not report significant changes, some outside stakeholders described significant changes, and other stakeholders viewed Irving's practices as essentially unchanged and equally unacceptable both before and after certification. Even within a company, the nature of the interviewee's position also serves to shape their viewpoint. Those respondents involved at

the management or executive levels may be less aware of on-the-ground changes than their field staff. An in-depth study of on-the-ground changes would therefore be greatly enriched by more interviews with field staff. This report will also discuss a number of alternative methodologies that can be used to measure change independently of interviews.

The final category of positive interviewee comments relate to FSC's spillover into other forestry arenas. This category is in many ways related to the broader category of communication, but in this case refers to concrete examples of FSC's indirect effects on broader conservation objectives. One Maritimes respondent credited the FSC Maritimes standards negotiations with facilitating negotiations over New Brunswick's recent expansion of protected areas. More specifically, this respondent indicated that the standards discussion led directly to Irving's identification and release of a portion of its operating area for protection.

Conservation easements were also offered as a concrete example of spillover benefits from FSC certification. As mentioned previously in this report, several interviewees emphasized the usefulness of FSC certification in defining and enforcing the terms of conservation easements.

Communication	1. Between interests
	2. With investors
	3. With public
	4. With consumers
	5. Public involvement in decision-making
	6. Common language of ecosystem management
	7. Common language for government policy
Governance	1. Influence on government policy and other certification systems
Systematization	1. Standardization of operations/planning
	2. Articulation of ecological values
Forest management	1. Improved woodlot management plans and forest practices
	2. In Canada: creation of industry set-asides/protected areas
	3. Improved terms and monitoring of conservation easements
	4. Increased marking of riparian zones in the field
	5. Smaller clearcuts, increased tree retention

**Table 1. Summary of interviewee positive comments about the FSC.**

Table 1 provides a summary of comments about the FSC's positive effect on forest management in the region.

Let us now turn to the comments critical of the FSC's impact in this area. The majority of these negative comments referred to the FSC's history in the Maritimes. These criticisms encompassed three basic arguments. One was that there was simply too small a quantity of land certified to have a significant effect. This perspective was dominant among the industry, government, and academic representatives interviewed. The second critique involved the FSC's appropriateness for forest producers, both industrial and non-industrial. The standards were viewed by some as unattainable for industry, particularly in regards to pesticides, exotics and plantations (the three areas historically reported by Irving as deal breakers). In terms of non-industrial forestry, several respondents argued that woodlot owners in the Maritimes were too independent-minded to pursue FSC. One government interviewee further claimed that the FSC's aggressive and uncompromising approach has alienated woodlot owners.

The third category of negative response related to issues of motive and integrity. In the Maritimes, several respondents claimed that the process of creating the FSC-Maritimes standards generated considerable bad will. Arguments were made by ENGOs suggesting less than good faith behavior on industry's side and similar allegations were made in regards to ENGO involvement. Two respondents argued that the only way to undo the damage done, and to produce a technically solid standard, was to start the process over from the beginning. An interviewee from FSC-Canada suggested that the new draft

Maritime standard is, in fact, sufficiently different from the existing standard as to be considered a new standard.

One respondent on the US side of the border focused his criticism on the certifier auditing process. He claimed the process lacked credibility and that the auditors were influenced by their industry clients. He has produced a number of white papers and press releases supporting the argument that the FSC standards have been applied very inconsistently and inappropriately. Specific instances of inappropriate auditing mentioned include the very high scores awarded to Irving's Maine certificate in stark contrast to the relatively low scores given the State of Maine Bureau of Parks and Lands . In addition to scoring, arguments are also made about a lack of auditing transparency. For example, he cites a case where an FSC public summary praises an operator for large streamside buffer zones well exceeding state requirements but does not mention that overstory removal is allowed within these buffer zones making the buffers "invisible" to the public eye. Finally, another major area of concern reported relates to a lack of certifier attention to worker rights, worker safety, rights to organize, and fair wages. This latter criticism is accompanied by reports of serious rights violations in Bangor media sources, including one incident resulting in the death of 14 migrant workers.

Table 2 summarizes the comments relating to areas where FSC lacks effectiveness.

Quantity	1. In the Maritimes: too little land is certified to have a significant impact
Standards	2. In the Maritimes: standards are inappropriate/unattainable for industry
Process	3. In the Maritimes: FSC standards-writing and/or dispute resolution processes are unfair
	4. Auditors are biased towards industry clients
	5. Auditors ignore abuses of worker and contractor rights and fair labor practices

**Table 2. Summary of Comments Relating to Areas Where FSC Lacks Effectiveness**

## Written Documents

### *Overview of Comparative Literature on Forest Certification Standards and Procedures*

The evaluation and comparison of forest certification systems has been the subject of numerous studies and reports in North America and beyond. Some studies have focused primarily on detailed descriptions of the structure and procedures of competing systems (Meridian Institute 2001). Others have assessed the perceptions of landowners, certifiers and/or stakeholders regarding the clarity, adequacy, credibility and/or other key features of different certification standards and procedures (Mater, Price, and Sample 2002; UPM 2005). Another approach has been to assess the “rigor” or difficulty of achieving a given certification standard in comparison to other standards (Gale 2004; UPM 2005), and/or in comparison to underlying government regulations (Cashore et al. forthcoming 2007; Cook and O’Laughlin 2003; Fletcher, Adams, and Radosevich 2001; McDermott, Noah, and Cashore pending). A “checklist approach” has been favored by some as a means to compare a large number of standards by recording the number and range of issues addressed in the standards that are of relevance to “sustainable forest management” (Holvoet and Muys 2004). Some comparative studies go yet a step further in establishing their own set of normative requirements for “credible” certification programs, and then apply these to existing systems. Such normative guidelines may be based on stakeholder “consensus” (Nussbaum and Simula 2004), or on those of a given organization or association (FERN 2004; IFIR 2001; WB/WWF 2003), or on the procedural requirements of the International Organization for Standardization (CEPI 2005). These and other studies worldwide constitute important contributions to the global dialogue on “appropriate” certification programs. However, their diverse comparative approaches and divergent findings can generate considerable confusion. While making no claims about which approach is “best,” the next section will therefore provide its own analysis of FSC regional standards within the context of the Northern Appalachians.

### *FSC Policies for Regional Differentiation and Harmonization of Forest Management Standards, and a Comparison of the US FSC Northeast, Canadian Maritimes, and Canadian National Boreal standards*

This section begins with a discussion of FSC’s own policies relating to regional standards and their “harmonization” worldwide. It then compares the three endorsed FSC standards now in place in the region, focusing specifically on key factors relating to biodiversity conservation and forest connectivity.

The structure of FSC standards is unique in two major ways. Firstly, in contrast to the SFI, CSA and other national-level certification systems, the FSC has created a set of international performance requirements (i.e. the FSC Ten Principles and Criteria) intended to be applicable anywhere around the world. Secondly, the FSC has included an additional layer of national and/or sub-national performance indicators, known as “regional standards,” to be designed “in accordance with local ecological, social and economic circumstances.” It is held that, “The existence of locally defined forest management standards contributes to a fair, transparent and systematic certification process (Evison 1998: 59).”

The creation of locally distinct standards, however, raises its own issues of fairness and credibility, since it could result in operators in one region being required to meet more costly and difficult standards than those in another, while bearing the same FSC label and receiving the same market benefits. The FSC, therefore, has established a policy of standards “harmonization” whereby regional standards are to “provide a consistent interpretation of the Principles and Criteria worldwide.” While the FSC allows for some variation in standards based on legal or political reasons, “significant variations in the ecological indicators and verifiers for similar or identical forest ecosystems would imply inconsistent interpretation of the FSC Principles and Criteria” (Evison 1998: 63).

The development of FSC standards in the Northern Appalachian region provides a perfect illustration of the challenges of addressing socio-economic differences while aiming for the same environmental results. Early

development of sub-national standards in both the US and Canada was generally fairly insular, resulting in draft standards of highly inconsistent structure and content. Over time, the US and Canadian national working groups have developed different strategies to improve the coordination of their diverse regional standards-writing processes.

In the US, a pivotal point in standards harmonization was the creation of an FSC national indicators template in 2001. Once these national indicators were released, all existing regional standards groups were asked to “incorporate” these new national indicators. Incorporation did not need to be verbatim, but was to either capture the “intent” of the national indicator or else provide a “scientifically based rationale explaining why the national indicator was not considered regionally applicable” (FSC-US 2001: 4). The result was a significant increase in consistency across US regional standards. This process of harmonization is likely to proceed yet further with the first revision of FSC-US endorsed regional standards. The FSC-US has decided to handle the five-year regional standards revision processes all at once and at the national level. The results of this review have been released for public comment in October of 2006. Among the proposals included in this review is to “consolidate the nine regional standards into a national standard that incorporates regional variations,” as well as to create a separate standard or explicit guidelines that will make FSC certification more accessible to family forests (FSC-US 2006).

Meanwhile, Canadian standard-setters have taken a distinctly different approach. As already discussed, the Maritimes standards-writing process had become quite polarized by the time of its completion in 1999. The launch of the National Boreal standard two years later represented a new, nationally coordinated effort to harmonize Canadian FSC standards across all of the boreal forests in Canada. These standards were “unanimously approved” by FSC-Canada in December, 2003 (FSC-CAN 2003) and FSC endorsed by August, 2004 (FSC-CWG 2004). According to the FSC-Canada Vice President, efforts have been made to incorporate elements of the Boreal standard into the new draft Maritimes standard. However, the Vice President also suggests that such harmonization is likely to be ad hoc in comparison with the US regional processes since the

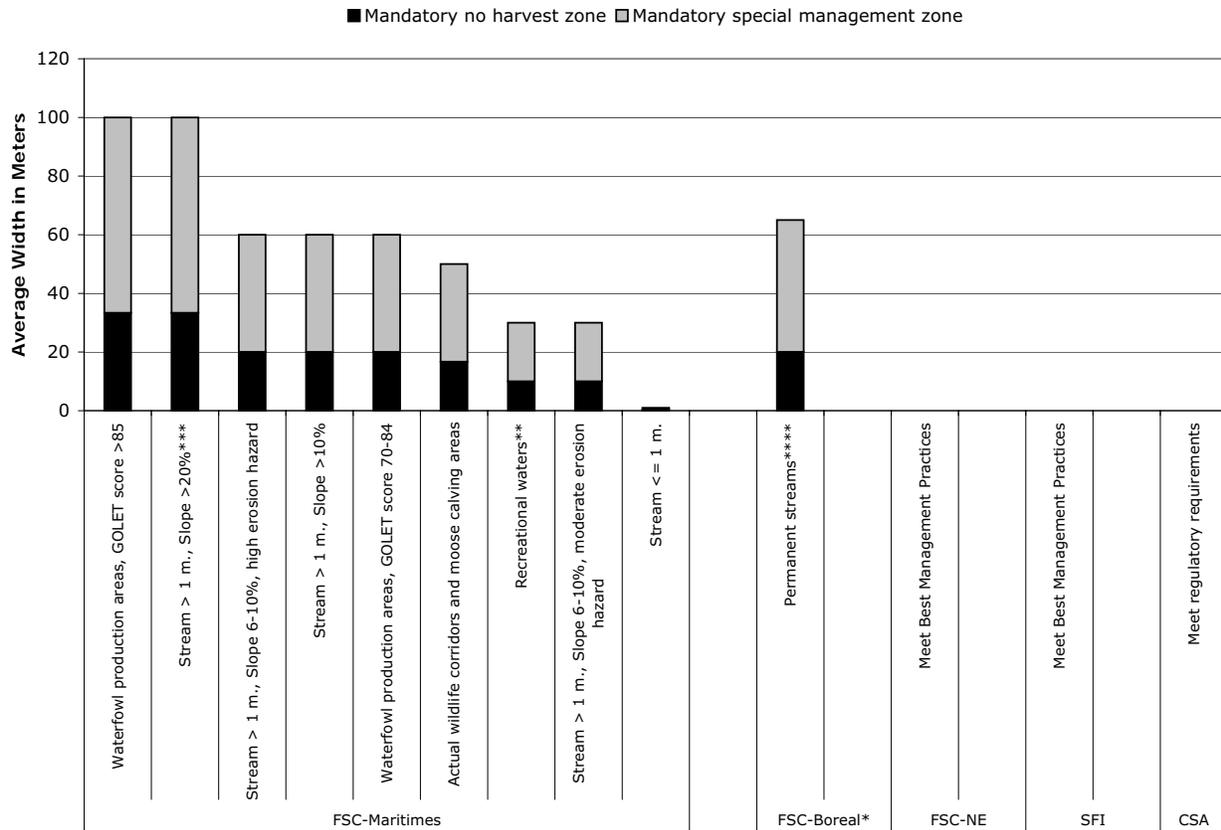
Canadian regional working groups have already progressed too far in their independent directions.

While both the US and Canada have developed strategies for achieving a more coordinated approach to standard-setting, there is to date relatively little evidence of harmonization across the US and Canadian national boundary. This is an area where foundations and other interested parties could exert considerable strategic influence. Firstly, there is important research that could be conducted to assess how the very different US and Canadian approaches to harmonization may impact the effectiveness of regional standards in achieving key goals for forest conservation. Secondly, appropriate investments could foster increased dialogue and cross-border learning about the effectiveness of different standards approaches.

Let us now turn to an analysis of the evolving Northern Appalachian standards themselves, and see how they vary amongst each other and across time. For the purposes of the report, we will focus the comparison on riparian policies, protected areas, and high conservation value forests.

Riparian zone management holds widely accepted relevance to both connectivity and habitat protection. The World Wildlife Fund has estimated that half of the 1,200 species on the US endangered species list depend on rivers and streams as critical habitat (WB/WWF 2003). Maintaining forested buffers along riparian zones protects water quality and quantity and provides these species with an interconnected network of habitat and transportation corridors. At the same time, riparian zones also contain some of the highest value timber, creating significant tension between environmental and economic values. As one measure of FSC's approach to riparian management in the region, Chart 11 shows the minimum threshold requirements for riparian buffer zones along streams in the FSC-Maritimes, FSC-Boreal and FSC-NE standards, as well as in the SFI and CSA standards.

The 2003 FSC-Maritimes and 2004 National Boreal standards take the most prescriptive approach. The latest draft of the FSC-Maritimes standards, however, diverges somewhat from its earlier approach by deferring to provincial regulations “on both public and private lands, even those that are legally required only



**Chart 11. Streamside Riparian Buffer Zone Width Requirements in Certification Standards Applicable within the Northern Appalachian Eco-region**

\* The National Boreal Standard includes special riparian buffer zones for the Yukon, including reserve zones and much larger special management zones. The Yukon standards are not shown here because they are not applicable to the report’s geographic focus.

\*\*minimum 30 m. buffer. High-use recreational river buffers 30-60 m. Government listed recreational waters 30-100 m.

\*\*\*site specific, 100 m. buffer is the minimum requirement

\*\*\*\*In the Boreal standard, partial harvest may be allowed in the “no harvest” zone subject to public consultation. The special management zone is applied “to maintain fish and wildlife habitat and/or cultural and recreational values, as appropriate.” Alternative prescriptions may be applied subject to an “ecological rationale” (Indicator 6.3.17).

Sources: FSC-Maritimes. 2003. Certification Standards for Best Forestry Practices in the Maritime Forest Region: Canadian Maritime Regional Initiative of the Canadian FSC Working Group.; FSC-Canada Working Group. 2004. National Boreal Standard, August 6.; FSC-NE. 2002. Forest Stewardship Standard for the Northeast Region (USA): Northeast Region Working Group, Forest Stewardship Council, US initiative; SFI. 2005. Sustainable Forestry Initiative 2005-2009 Standard. Washington, D.C.: Sustainable Forestry Initiative.; CSA. 2002. CAN/CSA Z809-02 Sustainable Forest Management Requirements and Guidance. Mississauga, Ontario: Canadian Standards Association.

on Crown lands" (MRSC 2006: 29). The new draft includes an appendix that summarizes government regulations in all provinces covered by the standard.

Since all FSC, SFI and CSA standards require conformance with government regulations, a complete comparison must consider existing government policy. In both the US and Canada, these requirements vary by state and province. On the whole, however, forestry regulations tend to be more prescriptive on publicly owned lands than on private lands (Cashore and McDermott 2004). Since there is a larger percentage of private lands on the US side of the Northern Appalachians, that indicates that government riparian policies in the US are less prescriptive on average than those north of the border. Hence certified companies on the US side of the study region are generally subject to a much more flexible policy environment than are their Canadian counterparts.

Quantitative threshold requirements lend themselves most easily to systematic, transparent comparison. In part for this reason, such prescriptive requirements are supported by environmental interests or others that distrust forest managers and/or certifiers to otherwise adequately protect the forest resource (McDermott 2003). This does not mean, however, that quantitative requirements are necessarily a more effective means to achieve environmental protection. Some certified producers have complained that environmental interests have been prone to continually moving the goal posts, adding on unnecessary regulations and procedural requirements, and ultimately penalizing those forest managers who have tried to do the right thing by supporting the FSC. Any assessment of the efficacy of a particular system should likewise consider the effect it has on stakeholder relations and forest producer willingness to cooperate.

In addition to the 2003 FSC-Maritimes and 2004 FSC-Boreal quantitative requirements, all of the FSC standards in the region include qualitative indicators addressing riparian zone protection. The Maritimes and Boreal standards are more detailed in these qualitative requirements, specifying a number of ecologically important functions of riparian areas. The FSC-NE qualitative language emphasizes the development of "systems" for riparian protection. This difference in specificity may impact the way that the standards are

implemented to the extent that there is diversity in the management approach and philosophy of forest managers and/or certifiers. Such differences may grow the more the certified pool expands and the larger the number of certifiers accredited to apply the standards.

The next focus of this standards comparison is Criterion 6.4, addressing protected areas.

FSC International Criterion 6.4 reads:

"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."

(FSC-AC 2004)

The FSC-Maritimes 2003 indicators reiterate that representative samples should be protected in their natural state (6.4 Indicator). In the case of "large landowners" they also require that an appropriate proportion of these representative areas within the "given ecological unit" must be protected to the level of IUCN I or II (6.4.2). The wording of the new 2006 draft Maritimes standards has been shortened and simplified, calling for ecosystem inventories based on provincial classification, and including an expanded emphasis on public consultation.

The Boreal standards are more detailed and prescriptive than either version of the Maritimes standards. The prescriptions include a detailed process of gap analysis and peer review (6.4.1), mapping of a protected areas system (6.4.4), and written proof of stakeholder support for the system thus designed (6.4.5).

The FSC-NE standards are generally the least prescriptive. These standards approach Criteria 6.4 with a preamble stating that forest management that emulates an intact, mature forest or other under-represented successional phases will qualify as protection of a representative sample (6.4 Applicability Note). In other words, the FSC-NE standards place less emphasis on establishing strict protected areas where timber harvest is

prohibited. Another distinct feature of the FSC-NE indicators under Criterion 6.4 is their specific emphasis on the protection of old growth and late successional forests (Applicability note, 6.4.b, 6.4.e).

This latter point touches on an area of considerable concern to the Manomet Center for Conservation Sciences. The Director of the Forest Conservation Program identified not just old growth, but the in-between stages of late successional forests (from 100 to 200 years old) as age classes dramatically under-represented across the region. Furthermore, the Director reports a dearth of information on where late successional forests (LSF) are located. The Manomet Center has developed a rapid assessment tool for inventorying LSF and is experimenting, with the help of Baskehegan Timber Company, with the development of a pilot LSF management plan. The Forester for Baskehegan argues that conservation priorities and forestry aimed at long-term profit maximization are often complementary. He states that LSF management, however, is one area where forest companies may face significant financial loss. This pilot LSF management study, however, will help to quantify just exactly what the costs are associated with LSF conservation. The Baskehegan forester also praised FSC certification in that it helps foresters like him make an economic case to their employers for investing in environmental protection measures such as LSF management or biodiversity monitoring.

The Manomet Center interviewee reports that FSC certification is doing little to address LSF conservation “since nobody knows where these forests are anyway.” The issue of LSF, however, was raised a few times in interviews with stakeholders in New England, but was never brought up by the stakeholders interviewed in the Maritimes. The FSC-Canada interviewee was questioned on the topic in relation to FSC standards. He responded that he did not know about Manomet’s work on LSF in the US and that it would be beneficial if there were better communication across the border.

In terms of FSC’s Principle 9 on High Conservation Value Forests (HCVF), relatively little regional-level guidance is provided in the original Maritimes and

FSC-NE standards. The 2006 revised Maritimes standard, however, provides additional guidance and includes a new prohibition on logging in “primordial forests” (Indicator 9.3.4). The Boreal standards include a “High Conservation Value National Framework” which provides a step-by-step process for identifying and protecting HCVF forests (Appendix 5). As stated, “The framework is not intended to be a prescriptive approach” (Appendix 5). However the standard requires extensive public consultation and documentation of the HCVF designation process and resulting management decisions.

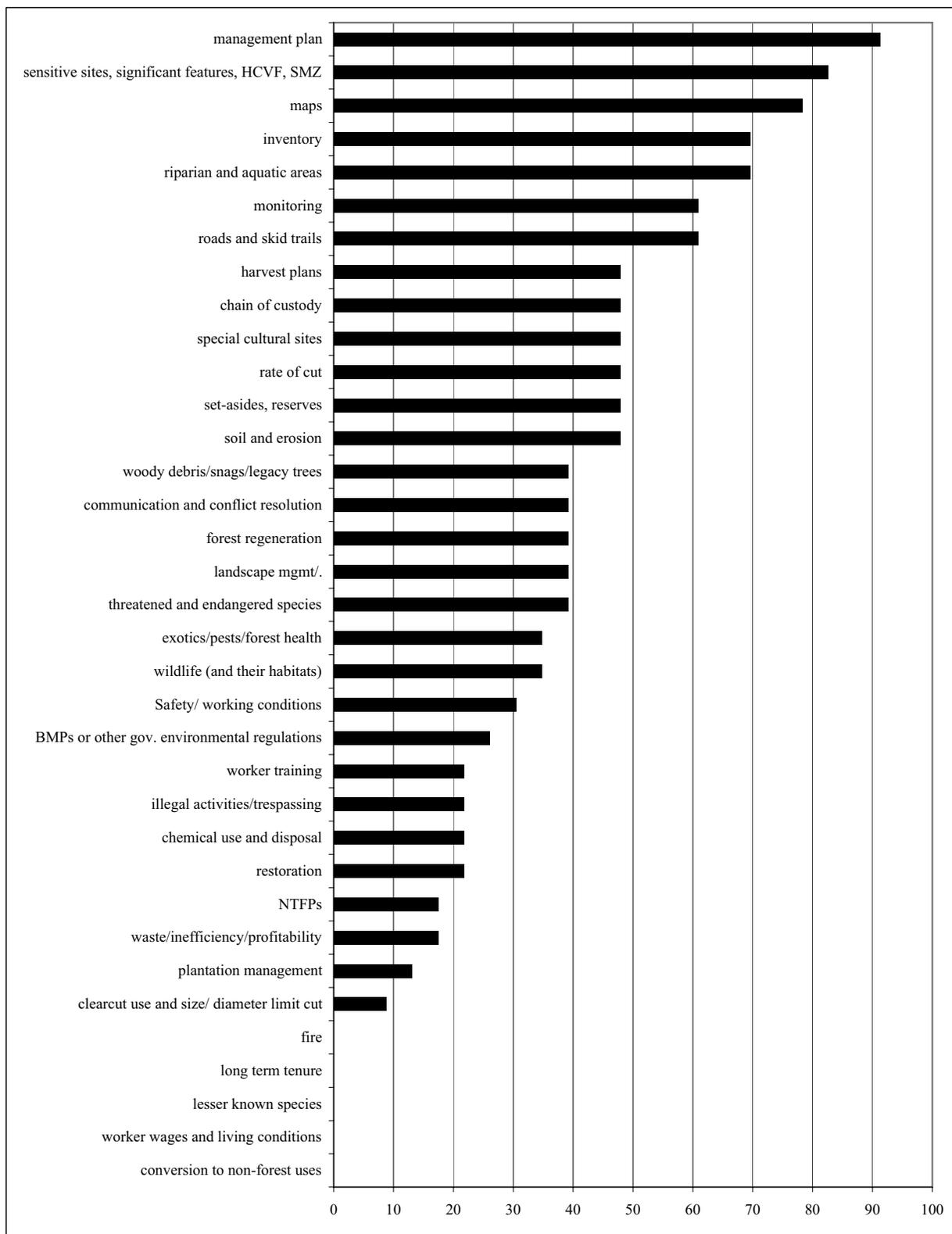
In sum, the differences between the regional standards applicable to the Northern Appalachians is notable. Given the ecological similarity of the Maritimes and the US case study states in particular, it would seem this variability could be largely explained by socio-economic factors. According to FSC’s stated goals for harmonization, this difference would qualify as evidence of “inconsistent interpretation of the Principles and Criteria.” The challenge for FSC supporters, however, is how to arrive at a more standardized interpretation. This would seem to require, at the least, an increase in cross-border communication and collaboration.

#### *Analysis of Corrective Action Requests*

Moving beyond the written standards to their direct impacts on forest practices, let us now turn to the work of Newsom, Bahn and Cashore. Newsom et al. conducted a systematic evaluation of all requirements for improved forest management issued to SmartWood certified operators in the US in 2003 (Newsom et al. 2006). These include both “conditions” that had to be addressed within a set time frame and “pre-conditions” that had to be addressed prior to certification. The authors generously shared with us their results for our US case study region.<sup>6</sup>

Chart 12 illustrates that forest managers were required to make a substantial number and variety of changes in prior forest management practices in order to obtain FSC certifications. The areas of change, furthermore,

<sup>6</sup> The only state in the FSC-NE standards that is not included as a case study in this report is Rhode Island. There are currently no FSC-accredited forest management operations certified in Rhode Island.



**Chart 12. Percentage of SmartWood Certified Operations in CT, MA, ME, NH, NY and VT That Were Given Pre-conditions or Conditions Related to the Issues Listed\***

Source: A subset of data from Newsom et al. 2006.

\*N=23 operations. These were all certified operations as of September 2003.

are of recognized importance to sustainable forestry. Further analysis of these data could reveal whether the certifier or the size and/or type of forest operation influenced the nature and number of corrective action requests. Most importantly, on-the-ground research is needed to determine if and how these changes have translated into improved on-the-ground conservation.

### **Field-based Impact Assessments**

The most direct approach to assessing FSC's effectiveness as a tool to promote forest conservation in the Northern Appalachians would involve 1) measuring changes in forest connectivity and biodiversity; 2) assessing, to the degree possible, the role that the FSC has had in influencing such changes; and 3) conducting and communicating this assessment with the support of a wide range of key stakeholders. Ideally, such an assessment would be linked with similar monitoring efforts in other regions as well.

Monitoring will be most useful if it promotes collaborative learning. As witnessed by FSC's development thus far, those interests that consider themselves excluded from decision-making are unlikely to lend credibility, and hence act on, the resulting decisions. Furthermore, all forestry stakeholders have much to learn from each other. Over the years since FSC's inception, many ENGOs have developed a more sophisticated understanding of the nature and importance of wood products markets. Likewise, diverse stakeholders have developed enough of a common language around forestry to enable meaningful dialogue. Further collaborative learning can be encouraged by working with multiple stakeholders to develop a shared monitoring framework.

It is important to monitor both direct and indirect impacts of forest certification. Direct impacts would include changes within certified forestry operations. These changes, when possible, should be traced to their primary cause. The monitoring of direct impacts can involve extensive sampling of certified forestry operations throughout the region, as well as intensive and in-depth case studies. Indirect impacts include landscape-level changes across both certified and non-certified operations. Certification outcomes are shaped by complex and dynamic economic, social

and environmental factors, such as how rapidly and widely FSC certification is adopted, how it is distributed across land ownership types, the content of its regional standards (Gale 2004), what changes are required of certified operators (Cashore et al. forthcoming 2007), and how certification affects wood products markets and profitability. Assessments must consider these landscape level patterns of cause and effect if they are to promote constructive policy learning.

Such future efforts to monitor biodiversity values would be strengthened through integration with existing regional efforts, such as the Manomet Center's work on late successional forests. The Manomet Center's development and dissemination of methodologies for measuring and managing the distribution of late successional forests across the landscape is of direct relevance to FSC Criterion 6.4, which calls for the protection and mapping of "representative samples of existing ecosystems." Improvements in the definition and measurement of FSC Criterion 6.4 was identified as a critical conservation issue by several interviewees on both sides of the US and Canadian border.

## Opportunities to use FSC-accredited Certification as a Tool for Forest Conservation

FSC-accredited certification has emerged among shifting societal perceptions of forest conservation. It reflects a view of conservation as involving more than the creation of protected areas to counterbalance resource extraction and development. Instead, it attempts to integrate environmentally responsible resource extraction with equally responsible consumption, while claiming to include a wide range of stakeholders, from loggers and landowners to engineers and architects to urban consumers. As such, the FSC is a tremendously ambitious concept. Not surprisingly, it has yet to reach its full potential.

Forest certification in some form or another, is likely here to stay. It is not clear, however, just what it will look like or whether it will represent a net gain in responsible forestry. It could be used to justify status quo forestry practices while edging alternative, smaller-scale or lower intensity operations out of the marketplace. It could evolve into a less ambitious non-market, regulatory tool for auditing public lands and conservation easements. Or it could continue to develop and innovate its way past all of the challenges outlined in this report.

The authors of this report concur that overall, the FSC can be a useful tool for forest conservation in the Northern Appalachians. Furthermore, well-targeted financial support is critical for ensuring that the FSC further develops and evolves in a manner that heightens its effectiveness. In order to identify priority areas for support, this section addresses three basic questions: What types of projects might best increase the FSC's effectiveness? Where should certification efforts be targeted? How might the FSC best be integrated with other conservation tools?

## What Types of Projects Might Best Increase the FSC's Effectiveness?

This sub-section will begin with a review of the recommendations provided by the interviewees. This will be followed by discussion and then further synthesis of the recommendations based on the data provided throughout this report.

Interviewees were asked where resources might best be invested to further forest conservation in their region.<sup>7</sup> They were also requested not to restrict themselves to recommendations involving the FSC.

In total, 11 out of the 16 Canadians that offered suggestions expressed the opinion that the FSC was a useful tool to promote forest conservation, although several of these responses were conditional. One Canadian respondent said the FSC was a good tool to support those forest managers already practicing excellent forestry but should not be used as a tool to promote good forestry. One respondent felt it was too early to tell. Three Canadian respondents supported alternative forest certification systems rather than the FSC. In the US, all 14 who responded to this question felt that the FSC was, or could potentially be, a good tool to promote sustainable forest management. One US interviewee who did not respond directly to this question, was very negative about the application of FSC thus far.

The recommendations offered by interviewees for how to best support forest conservation were diverse. Nevertheless if we categorize their suggestions it is possible to identify substantial areas of overlap. Table 3 provides a summary of the recommendations offered by respondents, organized into 6 categories. The number in parenthesis next to the recommendations represents the number of respondents who volunteered roughly the same suggestion.

**Support certification among small-scale operators.** The first two categories in Table 3 focus on FSC supply and demand. The single largest shared recommendation was that there be stronger support for the certification of small-scale operators. As discussed elsewhere in

<sup>7</sup> Interviewees were free to address this question for the Maritimes, the FSC-NE region and/or the Northern Appalachians as a whole.

this report, small-scale operators cover the largest percentage of forestlands of any land ownership type in the region and also face the greatest hurdles in becoming certified. In areas where a local group certification already exists, interviewees in both the US and Canada claimed that the largest barrier to their group's expansion was the preparation of management plans. These interviewees requested the aid of student interns and/or direct financial support to enable their organization to reach a point of self-sufficiency.

In Canada, marketing boards hold considerable potential for facilitating woodlot certification by identifying and supporting those owners with the greatest interest and/or potential to achieve certification. Foundations and other interested parties could help fund such efforts.

**Support the further development of broad markets for certified forest products.** In addition to that "push" side of FSC certification, Table 3 reflects a major awareness of the importance of market "pull." If there is a strong market, forest certification will overcome the diversity of obstacles and expand. If not, then many forest properties that have already been certified may lose their certificates. This need for market signals was reported to be important even for forest owners who first chose to be certified primarily for non-market reasons. If these owners subdivide, sell or otherwise transfer rights to their forest property, a common occurrence in this region, then the odds of a dropped certificate are even greater. Interviewees were aware of this dynamic and showed strong support for market research and efforts to link demand with supply.

**Support market-connecting activities within the Northern Appalachians.** While the ENGO market campaigns of the 1990s were effective in attracting the attention of major retailers, they may have thus far done more to create industry incentives for the SFI and CSA than the FSC. Focused market studies that identify existing demand and actively aid in locating supply could go a long ways towards helping FSC develop market share and hence keep the momentum needed to push the green envelope. Market research

in the Northern Appalachians could benefit through coordination with the WWF's revived US Forest Product Buyers Group. The Northern Appalachians, with its large numbers of relatively well-educated, environmentally conscious, rural as well as urban populations, is perhaps among the best poised to be a market leader for the FSC.

**Promote efforts to encourage greater industrial-scale certification.** As the area of industrial forestry certified under the FSC continues to grow in the Northern Appalachians, and indeed worldwide, there seems to be a growing acceptance within much of the ENGO community that the FSC is not aimed primarily at the niche eco-forestry market. Instead, it is often being used to ratchet up the environmental standards of status quo industry practices. It is perhaps unfortunate, as was pointed out by an interviewee who participated in the Maritimes standards process, that this path was not clearly established from the outset. If it had been, the FSC might not have lost as much industry cooperation and participation to the SFI and CSA systems. When it comes to global-scale commodity markets in particular, the interests of industrial and non-industrial forestry operators, including family forests, are not so far apart. If the FSC is to develop sufficient market share then more industrial lands need to be certified to the FSC. This, in turn, could help to pull along smaller operators as well. With sufficient market support, industry will increasingly support the certification of the smaller operators that supply them by offering market share, market premiums and/or directly covering the cost of certification.<sup>8</sup>

**Support innovative coalitions in the region that adopt and use FSC certification.** There would be a tremendous loss of innovation and diversity, however, if at the same time there was inadequate support for locally based forest production and consumption involving high end eco-forestry standards and niche markets. It was this type of forestry, after all, that first inspired the development of the FSC in North America (McDermott and Hoberg 2003). Fortunately, this study identifies some concrete ways to support local, small-scale forest operators. There are already some strong

<sup>8</sup> This approach is in fact officially supported by FSC-CAN policy, as stated in a policy document first introduced in 2003 and then revised in 2004 and 2006; FSC-CAN. 2006. FSC Canada Goals and Intent Regarding the Application of Standards (Revised): The Forest Stewardship Council Canada.

Category	Total # recommendations	Summary (# of respondents)
Capacity-building	17	<ol style="list-style-type: none"> <li>1. Increase # of small operators certified (8), including support w/ mgmt. plans (2)</li> <li>2. Support local NGOs (2)</li> <li>3. Increase total certified area (1)</li> <li>4. Aid producers in developing marketing plans to sell certified products (1)</li> <li>5. Sponsor certification of Crown Lands (1)</li> <li>6. Train foresters in FSC principles including HCVF (1)</li> <li>7. Support Master Logger programs and linkage with FSC (1)</li> </ol>
Marketing	12	<ol style="list-style-type: none"> <li>1. Conduct market research/surveys on certified wood products (3)</li> <li>2. Connect supply and demand for certified wood (3), including support of wood brokers (1)</li> <li>3. Build investor awareness of certification (2)</li> <li>4. Develop markets for certified wood products (1)</li> <li>5. Sell FSC in media and markets (1)</li> <li>6. Research marketing and development of community-based wood product production and produce how-to manual (1)</li> </ol>
FSC Standards and Impacts	7	<ol style="list-style-type: none"> <li>1. Redo FSC-Maritimes standards (2)</li> <li>2. Incorporate protection of late successional forests into FSC standards (2)</li> <li>3. Support cross-border collaboration on HCVF in FSC standards (1)</li> <li>4. Increase cross-border consistency of FSC standards (1)</li> <li>5. Research certification's on-the-ground impacts (1)</li> </ol>
Land Tenure	5	<ol style="list-style-type: none"> <li>1. Link easements and certification (1)</li> <li>2. Improve easement conservation criteria (1)</li> <li>3. Fund easements (1)</li> <li>4. Shorten easement time frames (1)</li> <li>5. Increase government protected areas (1)</li> </ol>
Policy	6	<ol style="list-style-type: none"> <li>1. Support collaboration between certification systems and government (3), including subsidize Crown Land certification (1)</li> <li>2. Support collaborative processes for government policy-making (1)</li> <li>3. Create more effective government regulations for private, non-industrial forestry including family forests (1)</li> </ol>
International Pressure	1	<ol style="list-style-type: none"> <li>1. Exert international pressure for forestry reform. Then let local NGOs translate the pressure to locally appropriate action (1)</li> </ol>

Table 3. Interviewee Recommendations for Supporting Forest Conservation in the Northern Appalachians

examples in the region of family forest owners organizing and forming their own forest management standards and brands. These standards, furthermore, carry greater market cachet within their local markets. Among the most advanced models of such community-based marketing is Nagaya Forest Restoration, which has developed and applied not only its own on-product label but also its own certification system. Another example of a local producer group with its own branding system includes Vermont Family Forests. In a similar vein, Vermont Woodnet and Maine Woodnet represent locally based consortiums of high quality woodworkers that are FSC Chain of Custody certified.

These groups face considerable economic challenges in becoming established and growing to a size that is capable of being self-sustaining. One way to support such growth, as suggested by an interviewee at Windhorse Farm, is to fund research on the economics of community-based wood product production and the publication of a practical guide for local wood producers on how to build a successful community-based business. Windhorse Farm and the TREES Gallery in Nova Scotia provide examples of how such businesses can be successful. Another way to help is through sponsoring certified wood products brokers for a period of time adequate for developing a self-sustaining certified products business. Thirdly, more support is needed for efforts like The Cornerstone Project in Vermont, an initiative of the Vermont Sustainable Jobs Fund, that involves various institutions committed to green building procurement policies. As observed by an interviewee from the National Wildlife Federation's Northeast Natural Resource Center, buyer education is also needed if institutions interested in green building and/or other buyers would like to support local wood production. Buying locally, for example, may require communicating product needs to local suppliers further in advance.

Master Logger Programs also form an important piece of holistic forest certification system. Logging practices, logger accountability, and logger benefits could be supported through the development and dissemination of Master Logger certification programs in the region. Linking these programs with FSC certification would help to further strengthen the chain of custody for certified forest products.

**Support cross-border strengthening of regional FSC standards.** The final category is "FSC standards and impacts." These recommendations focus directly on the question of certification quality. The FSC is a useful conservation tool only if it results in improved forest management and is able to demonstrate such improvements. In terms of improving forest conservation, Criterion 6.4 on protected areas and Principle 9 on High Conservation Value Forests are both directly related to forest connectivity and biodiversity protection and are often among the less well-defined sections of the standards. Both FSC-US and FSC-Canada are currently involved in revising the FSC regional standards. To date there has reportedly been little communication between them. There is an excellent window of opportunity to promote cross-border forest policy learning and strengthen a critical area of the standards.

According to the interviewee from the Manomet Conservation Center, FSC in the Northeast has failed to effectively slow the loss of the region's remaining late successional forests, a forest-type that is already poorly represented across the landscape. Presumably FSC Criterion 6.4 should address this issue, in that it calls for the "protection of representative samples of existing ecosystems...appropriate to...the uniqueness of the resource." According to the Manomet respondent, however, it is critical that the FSC-NE standards address more explicitly late successional forests and operationalize how they are to be identified and protected. Otherwise, they will continue to not receive the attention they deserve in future FSC audits. This observation would likely be relevant on the Canadian side of the border as well, given similar forest types and the general need for refined methodologies to better manage LSF. Foundations and others interested in strengthening the FSC's conservation impacts could promote the development of the FSC standards and/or supporting documents to address LSF, perhaps in tandem with cross-border collaborative learning around Criterion 6.4 and Principle 9 as a whole.

The most direct means for demonstrating and learning from FSC's impacts is on-the-ground monitoring. This can be done by means of a systematic, large-scale monitoring framework supported as part of a multi-donor collaborative project. It can also involve in-depth case studies of certified properties and their surroundings.

### *Place Maritimes and Northeast regional approaches to FSC in a Global Context*

Recent research by Cashore et al (Cashore et al. forthcoming 2007) reveals that whether and how certification emerges in a particular region is, in part, dependent on its global reputation. For example, this study found that whether forest certification in a region is viewed as helping to stop destructive practices elsewhere (such as in critical biodiversity hotspots in the tropics) while incrementally improving domestic practices versus whether the domestic context is seen as in need of immediate and paradigmatic change, will affect the nature and extent of support for the FSC.

The remainder of the recommendations in Table 3 address areas where certification can be integrated with other policy tools, a topic we will discuss in a following sub-section. First, however, we will provide a brief discussion of area-based conservation approaches.

### **Where Should Certification Efforts be Targeted?**

**Prioritize support for certification at critical locations where the biggest market impact may be felt.** Effective conservation strategies require the prioritization of desired outcomes, which often involves the selection of particular geographic focal points. Selection criteria may be based on a number of factors, including the uniqueness or ecological value of the area and/or the level of environmental threat (Gordon, Franco, and Tyrrell 2005). The Rainforest Alliance's Landscape Initiative for Nature Conservation (LINC) project was a pilot effort to develop a more deliberate pattern of certified properties across the North and South US Appalachian regions. This project, conducted in partnership with the National Wildlife Federation, aimed to develop an area-based conservation strategy for FSC certification in collaboration with various other NGOs, including the Conservation Biology Institute, the Northern Forest Alliance, the Nature Conservancy, the Society for the Protection of New Hampshire's forests, as well as academic institutions. Figure 2 (see page 8) illustrates the priority areas the LINC project identified in the US Northern Appalachians (Rainforest Alliance 2005).

The 2005 LINC report, plus interviews with several participants in the project, suggests that area-based strategies can be useful but must be integrated with viable economic strategies. As discussed previously, two means for increasing the economic viability of FSC certification are to couple certification with conservation easements, and to research and implement market-based strategies that consider local and regional product flows. It may well be, for example, that the most effective means to promote FSC certification in a given area of Maine would be to certify the large licensees and mills in the Maritimes that buy wood from that priority area. As also mentioned, a feasible alternative in less remote areas is to provide support for the development of community-based wood processing operations.

### **Support public education and consumer awareness.**

Besides economic considerations, there are social issues that have not always been well integrated into ENGO area-based strategies. Two such issues are the conservation value of public education and consumer awareness. From this perspective, proximity to urban areas should perhaps be included as an appropriate selection criterion for FSC certification. As an example, Windhorse Farm serves as a learning center for high school students in Halifax, and troubled inner city youth, as well as a broader urban and suburban population.

### *Promote Policy Learning Across an Array of Stakeholders*

Recent conceptual work and empirical findings on FSC processes suggests that "input legitimacy," i.e. stakeholder evaluations of the process, matter as much, if not more, than "output legitimacy," i.e. the specific requirements of the governance systems (Skogstad 2003). As a result, there remains significant potential for unlocking "win-win" solutions where stakeholders engage in a permanent system of learning and feedback. This means expanding beyond the holding of a specific workshop, to institutionalizing ongoing stakeholder dialogue and problem solving. Such an effort could involve the integration of communities through email listservers, teleconferences on specific topics, and select in-person meetings that disseminate and present current knowledge. We argue elsewhere that such learning must occur at the local,

national and international levels. These ideas are gaining hold with many involved in the United Nations Forum on forests and are already integral to the FSC model. A Northern Appalachian process would fit well into these broader international efforts. (For a more complete analysis of this approach see Bernstein and Cashore 2006).

### **How Might Certification Best be Integrated with Other Conservation Tools?**

**Strengthen the linkages between regional conservation easements and FSC certification.** The possibilities for integrating certification into the application of other conservation tools is immense, as evident in part by the interviewee recommendations provided above. One prime example of such integration is in the development and monitoring of conservation easements. The integration of certification with conservation easements could be instrumental in addressing the problems identified by Hagan et al. These authors found that companies operating on no-development easements that lacked biodiversity criteria were actually performing to a lower biodiversity standard than companies operating in areas unencumbered by easements. Given that considerable public and private money has been invested (and hence diverted from other uses) into no-development easements, and that some of these easements are located in remote areas that are relatively unlikely candidates for development (Lewis 2001), there is a need for better developed and more consistent conservation criteria lest these investments be wasted. These problems are perhaps exacerbated by major variation in state-based easement criteria. In the Maritimes, meanwhile, conservation groups have been struggling to better develop the concept and implementation of easements north of the border.

Interviews with easement-holders, meanwhile, highlighted a number of benefits from FSC certification. These include a reduction in the cost and complexity of negotiating easement criteria, access to experienced auditors and FSC-accredited certifiers, and third party verification to investors and/or the public at large. These benefits, plus the money generated by the easements, helped to justify investments in FSC certification even in the absence of

markets for certified wood products. All of these factors led one TIMO interviewee to offer the following advice to foundations and others interested in supporting the FSC: "If SmartWood, SCS, and other thoughtful people were brought together to link easements with certification, this might help reduce variability in easement requirements by state, and improve their effectiveness."

**Promote emerging links between certification and carbon-offset markets.** Another less well-developed tool with potential for synergy is the carbon offset market. The Regional Greenhouse Gas Initiative (RGGI), involving multiple Northeast and Mid-Atlantic states, has involved various stakeholders in working on a forest-based carbon credits system. Environment Northwest and other ENGO stakeholders have been working on ways to effectively monitor carbon offsets. The establishment of conservation easements is one method for doing so, and there is some question of also tying in FSC certification (pers comm). This latter possibility is of particular interest if afforestation credits are to allow for future forest management activities. Additional support is needed for research and policy development to address these issues, as well as pilot projects designed to test the financial scope and viability of these offsets.

**Promote awareness of tax benefits available for improved forest management.** There are also many opportunities to better integrate FSC certification with government tax laws, tax incentives, and other regulatory forest practice instruments. Several organizations, including the Resident Committee for the Protection of the Adirondacks in New York, and the National Wildlife Federation Northeast Natural Resource Center in Vermont, have pointed out how family forest owners are eligible for tax benefits upon the development of forest management plans that meet state requirements. A lack of forest management plans, furthermore, is one of the single largest barriers to the FSC certification of many family forest owners. Interviewees suggested that there is a potential for synergy between government tax policies and FSC certification if 1) landowners are better educated about their options and the integration of FSC requirements and state management plan requirements, and 2) there were funds available to support woodlot owner education and management plan development, at least until certified woodlot groups reached the critical mass necessary for self-sufficiency.

**Support efforts to expand FSC certification of state and crown lands.** Potential for direct government and certification system collaboration is perhaps at its greatest on public lands, including Crown lands in the Maritimes. New Brunswick has made forest certification mandatory on its Crown lands. No particular system was specified and all the Crown licensees jointly chose to pursue SFI certification. An NGO representative in Nova Scotia reported negotiations in that province to require forest certification on Crown lands. As was reported in New Brunswick, NGOs in Nova Scotia have pushed for requiring FSC certification specifically. Regardless of the outcome of that particular negotiation, increased support for multi-stakeholder policy-making processes in the Maritimes would help increase the possibilities for cross-pollination of certification and government policies and policy learning.

### **Summary Recommendations for Potential Foundation and other Funder Support for Strengthening FSC-based Forest Certification as a Conservation Tool in the Northern Appalachians.**

1. To strengthen the *supply* of FSC-based certified products produced in the region, so that it can reach critical minimum scale and improved economic returns:
  - a. Provide financial support and capacity building for group certification of family forest organizations, helping to expand the pool of participating forest owners;
  - b. In Canada, support marketing boards in identifying and assisting woodlot owners interested in achieving FSC certification;
  - c. Provide financial support and capacity-building for innovative mechanisms for bringing certification to family forests, such as Master Logger Programs linked to FSC-based certification; and
  - d. Support further expansion of FSC-based certification on state lands in the U.S. and Crown lands in Canada.
2. To expand further the *demand* for FSC-based certified forest products produced in the region, and, hence, the conservation benefits of certified forest management:
  - a. Support market research and promotional efforts on sources of supply and demand for FSC-based certified forest products;
  - b. Support research and development of business plans and economic guidance materials for family forest producers;
  - c. Support the further development and promotion of procurement policies and green building standards linked to FSC-based certification; and
  - d. Support the development of school curricula on FSC-based certification and sustainable resource use.
3. To strengthen the conservation effectiveness, or *quality* on the ground, of FSC-based certification:
  - a. Support further multi-stakeholder cross-border collaboration on FSC standards development, with a focus on protected areas and high conservation value forests;
  - b. Support forester education on the application of FSC principles, including training in the identification and management of “High Conservation Value Forests;”
  - c. Support further research on FSC’s impacts, including field-based monitoring; and
  - d. Support multi-stakeholder processes for developing a framework for FSC impact assessment.

4. Focusing carefully on the *location* of FSC-supporting investments:
  - a. Prioritize conservation areas, including forest connectivity objectives, while also considering the broader market flows necessary to support certification in these priority areas; and
  - b. Include social and economic criteria in establishing priority focal areas, including the consideration of product flows, proximity to urban markets, and opportunities to use certified properties for public communication and education.
5. Expanding *integration* of FSC-based certification with conservation easement processes and other policy tools in the region:
  - a. Support collaboration and learning about conservation criteria for easements and the integration of these criteria with FSC standards; and
  - b. Support research opportunities for synergy between FSC certification and other policy tools, including carbon credits, payments for environmental services, state-based forest stewardship and tax incentive policies, and other government policy-making.
6. Support institutionalization of problem focused multi-stakeholder learning processes surrounding potential and realized impacts of forest certification.
  - a. Support efforts that reward companies interested in the FSC, rather than providing obstacles that firms perceive as insurmountable.
  - b. Support efforts that see initial interest as a first step towards broader societal support and institutionalization.
- c. Support the development of a “community” of stakeholders with a long-term perspective on desired end goals and how best to achieve them.
- d. Undertake efforts to integrate FSC competitor systems when doing so will lead to “ratcheting up” over time, rather than legitimizing the status quo.

## References Cited

- Bateson, Emily M. 2005. Two Countries, One Forest — Deux Pays, Une Forêt: Launching a Landscape-Scale Conservation Collaborative in the Northern Appalachian Region of the United States of Canada. Conservation Practice at the Landscape Scale.
- Berstein, S., and B. Cashore. 2006. Can Non-State Global Governance Be Legitimate? A Theoretical Framework. Joint IDDRI CIRAD and Sciences-Po research unit conference, in conjunction with the Association Française de Sociologie on the role of norms (standards) in the governance of economic activities (“Dispositif de normalisation comme technologie de gouvernement économique”), Montpellier, France.
- Butler, Brett J., and Earl C. Leatherberry. 2004. America's Family Forest Owners. *Journal of Forestry* (October/November):4-14.
- Cashore, Benjamin, Graeme Auld, and Deanna Newsom. 2004. *Governing Through Markets: Forest Certification and the Emergence of Non-state Authority*. New Haven: Yale University Press.
- Cashore, Benjamin, Beth Egan, Graeme Auld, and Deanna Newsom. forthcoming 2007 *Revising Theories of Non-state Market Driven (NSMD) Governance: Lessons from the Finnish Forest Certification Experience*. *Global Environmental Politics* 7 (1).
- Cashore, Benjamin, Fred Gale, Errol Meidinger, and Deanna Newsom, eds. pending. *Confronting Sustainability: Forest Certification in Developing and Transitioning Societies* New Haven: Yale School of Forestry and Environmental Studies.
- Cashore, Benjamin, and James Lawson. 2003. Comparing Forest Certification in the U.S. Northeast and the Canadian Maritimes. *Canadian-American Public Policy* 53:1-50.
- Cashore, Benjamin, and Constance L. McDermott. 2004. *Global Environmental Forest Policy: Canada as a constant case comparison of select forest practice regulations*. Victoria: International Forest Resources.
- CEPI. 2005. *Comparative Matrix of Forest Certification Systems* [web site]. Confederation of European Paper Industries, 2005 [cited June 1 2005]. Available from [http://www.forestrycertification.info/phpprograms/Content/story\\_template.php3?xtid=home](http://www.forestrycertification.info/phpprograms/Content/story_template.php3?xtid=home).
- CNEGECP. 2001. *Climate Change Action Plan 2001*. Halifax; Boston: The Committee on Environment and the Northeast International Committee on Energy of the Conference of New England Governors and Eastern Canadian Premiers.
- Cook, Philip S., and Jay O'Laughlin. 2003. *Comparison of Two Forest Certification Systems and Idaho Legal Requirements*. Moscow: University of Idaho, College of Natural Resources, Policy Analysis Group.
- DNR-NB. 2003. *Management of New Brunswick's Crown Forest*: New Brunswick Department of Natural Resources.
- Evison, I. J. 1998. *FSC National Initiatives Manual: The Forest Stewardship Council, A.C.*
- FERN. 2004. *Footprints in the Forest: Current practice and future challenges in forest certification*. Gloucestershire, UK: FERN.
- Fletcher, Rick, Paul Adams, and Steve Radosevich. 2001. *Comparison of Two Forest Certification Systems And Oregon Legal Requirements*. Corvallis, OR: Oregon State University, College of Forestry.
- Friedland, Andrew J., Ross T. Jones, Thomas F. Gross, and Stephen D. Blackmer. 2004. Towards a sustainable northern forest: forest health and potential threats. *Journal of Sustainable Forestry* 18 (1).
- FSC-AC. 2001. *FSC Trademark Policy Manual*. Bonn: Forest Stewardship Council, International Center.
- FSC-AC. 2002. *Forest Stewardship Council A.C. By-Laws, Ratified, September 1994; Editorial Revision, October 1996; Revised February 1999, August 2000, November 2002*. In Document 1.1.
- FSC-AC. 2004. *FSC Principles and Criteria for Forest Stewardship*: Forest Stewardship Council.
- FSC-AC. 2006a. *FSC Controlled Wood Standards: Avoiding wood from the most controversial sources*: Forest Stewardship Council.
- FSC-AC. 2006. *Trademark and Logo Use* [Web site]. 2006b [cited May 25 2006].
- FSC-CAN. 2003. *FSC Canada's Boreal Forest Standard Unanimously Approved: Forest Stewardship Council Canada Working Group*.
- FSC-CAN. 2006. *FSC Canada Goals and Intent Regarding the Application of Standards (Revised): The Forest Stewardship Council Canada*.

- FSC-CWG. 2004. National Boreal Standard Forest Stewardship Council Canada Working Group.
- FSC-NE. 2002. Forest Stewardship Standard for the Northeast Region (USA): Northeast Region Working Group, Forest Stewardship Council, US initiative.
- FSC-US. 2001. FSC-US National Indicators for Forest Stewardship: Forest Stewardship Council United States.
- FSC-US. 2006. Review of the FSC-US Standards, Background [website]. Forest Stewardship Council United States, 2006 [cited October 18 2006]. Available from [http://www.fscus.org/standards\\_criteria/standards\\_review.php](http://www.fscus.org/standards_criteria/standards_review.php).
- Gale, Fred. 2004. The consultation dilemma in private regulatory regimes: negotiating FSC regional standards in the United States and Canada. *Journal of Environmental Policy & Planning* 6 (1):57-84.
- Gordon, Elizabeth A., Oscar E. Franco, and Mary L. Tyrell. 2005. Protecting Biodiversity: A guide to criteria used by global conservation organizations. New Haven: Global Institute of Sustainable Forestry, Yale School of Forestry and Environmental Studies.
- Government of Canada. 2004a. Climate Change: Provincial and Territorial Impacts — Regional Impacts, New Brunswick [Web site]. Government of Canada. Retrieved May 23, 2006 from, [http://www.climatechange.gc.ca/english/affect/prov\\_territory/nb.asp](http://www.climatechange.gc.ca/english/affect/prov_territory/nb.asp).
- Government of Canada. 2004b. Climate Change: Provincial and Territorial Impacts — Regional Impacts, Nova Scotia [Web site]. Government of Canada. Retrieved May 23, 2006 from, [http://www.climatechange.gc.ca/english/affect/prov\\_territory/ns.asp](http://www.climatechange.gc.ca/english/affect/prov_territory/ns.asp).
- Hagan, John M., Lloyd C. Irland, and Andrew A. Whitman. 2005. Changing timberland ownership in the Northern Forest and implications for biodiversity. Brunswick: Manomet Center for Conservation Sciences.
- Hansen, Eric, Rick Fletcher, Benjamin Cashore, and Constance McDermott. 2006. Forest Certification in North America: Oregon State University Extension Service.
- Holvoet, B., and B. Muys. 2004. Sustainable forest management worldwide: a comparative assessment of standards. *International Forestry Review* 6 (2):99-122.
- Hudson, Leslie J. 2005. A Guide to Forest Stewardship Council Certification for Land Trusts: Rainforest Alliance.
- IFIR. 2001. Appendix Four — Criteria & Indicators of credible SFM certification systems and standards [From: Report of the working group on mutual recognition between credible sustainable forest management certification systems and standards]. International Forest Industry Roundtable Working Group. Retrieved June 1, 2005 from [http://www.sfcw.org/mutualrecognition/appendix\\_four.htm](http://www.sfcw.org/mutualrecognition/appendix_four.htm).
- Lansky, Mitch. 2002. Grade Inflation?: SCS certification of Irving's Allagash Timberlands, A report for Sierra Club.
- Lawson, James, and Benjamin Cashore. 2003. Company Choices on Sustainable Forestry Forest Certification: the case of JD Irving, Ltd. In *Forest Policy for Private Forestry: Global and Regional Challenges*, edited by L. Teeter, B. Cashore and D. Zhang. Wallingford, UK: CABI Publishing. Pp. 245-248.
- Lewis, David J. 2001. Easements and Conservation Policy in the North Maine Woods. *Maine Policy Review* (Winter):37.
- Mater, Catherine M., Will Price, and V. Alaric Sample. 2002. Certification Assessments on Public and University Lands: A field-based comparative evaluation of the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI) Programs. Washington, D.C.: Pinchot Institution for Conservation.
- McDermott, Constance L. 2003. Personal Trust and Trust in Abstract Systems: a study of Forest Stewardship Council-accredited certification in British Columbia. Ph.D., Department of Forest Resource Management, Faculty of Forestry, University of British Columbia, Vancouver. Pp. 229-250.
- McDermott, Constance L., and George Hoberg. 2003. From state to market: forestry certification in the U.S. and Canada. In *Two Paths Toward Sustainable Forests: Public Values in Canada and the United States*, edited by B. Schindler, T. Beckley and C. Finley. Corvallis: Oregon State University Press.
- McDermott, Constance, Emily Noah, and Benjamin Cashore. pending. Differences that "Matter"? Identifying Analytical Challenges in the Comparison of Forest Certification Standards.
- Meridian Institute. 2001. Comparative Analysis of the Forest Stewardship Council and Sustainable Forestry Initiative Certification Programs: Volume II, Description of the Forest Stewardship Council Program. Washington, DC: Meridian Institute.

MRSC. 2006. Certification Standards for Best Forestry Practices in the Maritimes Region: Proposed Revised Standard: Maritimes Regional Steering Committee.

Newsom, Deanna, Volker Bahn, and Benjamin Cashore. 2006. Does forest certification matter? An analysis of operation-level changes required during the SmartWood certification process in the United States. *Forest Policy and Economics* 9(3):197-208.

Nussbaum, Ruth, and Marku Simula. 2004. *Forest Certification: A Review of Impacts and Assessment of Frameworks*. New Haven: Yale University, School of Forestry and Environmental Studies, *The Forests Dialogue*.

Rainforest Alliance. 2005. *Northern Forest & Southern Appalachia LINC Forest Partnership, Landscape Initiative for Nature Conservation*. Project Period: October 1, 2001 – June 30, 2005. New York: Rainforest Alliance.

Roberts, Don. 2006. *Global Trends in the Forest Products Sector: China's Boom*. Vancouver: CIBC World Markets.

Sandberg, L. Anders, ed. 1992. *Trouble in the Woods: Forest Policy and Social Conflict in Nova Scotia and New Brunswick*. Fredericton: Acadiensis Press.

Sandler, L. 2005. *ATFS Certification Manager*. Washington, DC, American Tree Farm System.

Skogstad, Grace Darlene. 2003. Who Governs? Who Should Govern?: Political Authority and Legitimacy in the Twenty-First Century. *Canadian Journal of Political Science* 36 (5):955-973.

UNH. ISEOS. 2001. *How Will the New England Region be Affected by Climate Change?* Durham: Institute for the Study of Earth, Oceans and Space, Morse Hall, University of New Hampshire.

UPM. 2005. *Parallel field testing of forest certification standards*. Valkekoski, Finland: UPM.

Watkins, Melissa, and Stew Hilts. 2001. *Land Trusts Emerge as an Important Conservation Force in Canada: A Summary of the Land Protected by Land Trusts and the Current Issues and Challenges Facing the Growing Land Trust Movement in Canada*. Paper read at *Caring For Our Land and Water: Stewardship and Conservation In Canada*, at University of Guelph.

WB/WWF. 2003. *Questionnaire for Assessing the Comprehensiveness of Certification Schemes/Systems*: World Bank/ WWF Alliance.

## Appendix A -- List of Interviewees, Key Contacts and Peer Reviewers

Name		Organization	Position	State/ Province	Country
Jeff	Amos	Maritimes Regional Standards Committee	Chair	NS	CAN
Mark	Arsenault	NB Forest Products Association	CEO, President	NB	CAN
Thomas	Beckley	University of NB	Professor, DNR Task Force Chair	NB	CAN
Sandy	Brawders	Maine Master Logger Certification Program	Executive Director	ME	CAN
Hooper	Brooks	Surdna Foundation	Program Director	NY	US
Stacy	Brown	NWF, Northeast Natural Resource Center	Certification Coordinator	VT	US
Blake	Brundson	J. D. Irving, Ltd., Woodlands Division	Chief Forester	NB	CAN
John	Cashwell	Seven Islands Land Company	Owner	ME	US
Roberta	Clowater	Canadian Parks and Wilderness Society	Executive Director	NB	CAN
Chip	Collins	The Forestland Group	Co-Founder, Managing Director	MA	US
Joanne	Cook	Ecology Action Center	Standing Tall Project	NS	CAN
David	Coon	Conservation Council of New Brunswick	Policy Director	NB	CAN
Robert	Dick	NB Department of Natural Resources	Manager, Forest Mgmt. Planning, Forest Mgmt. Branch	NB	CAN
Richard	Donovan	SmartWood/Rainforest Alliance	Director/ Chief of Forestry	VT	US
Roger	Dower	FSC-US	President	DC	US
Jim	Drescher	Windhorse Farm/ FSC-Maritimes Standards Committee	Founder, Owner/ Former FSC-Maritimes Steering Committee Chair	NS	CAN
Peter	Duinker	Dalhousie University	Professor, Chair of CSA SFM Technical Committee	NS	CAN
Roger	Dziengesleski	Finch, Pruyne & Co., Inc.	Woodlands Manager	NY	US
Katie	Eckman	Turner Foundation	Senior Program Officer	GA	US
Tom	Erdle	University of NB	Professor, DNR Task Force Chair	NB	CAN
Michael	Ferucci	Interforest, LLC; Ferrucci and Walicki, LLC	Company Partner, Forestry Consultant, FSC field auditor	CT	US

Graham	Forbes	University of NB	Professor, Chair of Greater Fundy Ecosystem Research Project	NB	CAN
Kate	Gardner	Resident Committee to Protect the Adirondacks	Foundation Director	NY	US
Bill	Ginn	The Nature Conservancy	Director of the Global Forest Initiative	ME	US
Tracy	Glynn	Conservation Council of New Brunswick	Forest Campaigner	NB	CAN
Linda	Gould	NB Forest Products Commission	Executive Director	NB	CAN
Louise	Gratton	Conservation de la Nature Canada, Region du Quebec	Directrice des Sciences et de la Gestion des Milieux Naturels	QC	CAN
John	Hagan	Manomet Center for Conservation Sciences	Dir. of Forest Conservation Program	ME	US
Peter	Hornbeck	Resident Committee to Protect the Adirondacks	Chair of BoD	NY	US
Lloyd	Irland	Yale University	Lecturer and Research Scientist	CT	US
Lorne	Johnson	WWF-Canada	Director, Ottawa Bureau	Ottawa	CAN
Mitch	Lansky	Northern Appalachian Restoration Project	Former Project Director	ME	US
Michelle	Lichtenfels	Environment Northeast	Forest Sequestration Analyst	CT	US
Sandler	Liz	American Tree Farm Association		DC	US
Bruce	Lourie	Richard Ivey Foundation	Executive Director	Ottawa	CAN
Doug	Mason	NB Department of Natural Resources	Manager, Wood Products For. Mgmt. Branch	NB	CAN
Peter	McQuarrie	NB Department of Natural Resources	Director, Program Development	NS	CAN
Roger	Milliken	Baskehegan Timber Company	Chief Forester	ME	US
Deanna	Newsom	TREES Program, Rainforest Alliance	Researcher, Consultant	QC	CAN
Bob	Seymour	University of Maine, Bangor	Professor	ME	US
Inuk	Simard	Conservation Council of New Brunswick	Forester	NB	CAN
Peter	Stein	Lyme Timber Co.	General Partner	NH	US
John	Sullivan	Resident Committee to Protect the Adirondacks	Member of RCPA Certified Woodlands	NY	US
Jeremy	Turner	Meadowsend Timberlands Ltd./Ecosystem Management Company	Forest Manager	NH	US
Kaarsten	Turner-Dalby	The Forestland Group	Director of Forest Information Systems	NC	US

---

Martin	von Mirbach	FSC-Canada	Vice-President	Ottawa	CAN
Abigail	Weinberg	Open Space Institute	Program Coordinator, Conservation Finance	NY	US
Mary	Williamson	NB Forest Products Association	Director of Communications	NB	CAN

---

**Yale University**  
**Global Institute of Sustainable Forestry**

**Chadwick Oliver**

Faculty Director

**Mary Tyrrell**

Executive Director

**Barbara Ruth**

Program Coordinator

Since its founding in 1901, the **Yale School of Forestry & Environmental Studies** has been in the forefront of developing a science-based approach to forest management, and in training leaders to face their generation's challenges to sustaining forests. The School's **Global Institute of Sustainable Forestry** continues this tradition, in its mission to integrate, strengthen, and redirect the School's forestry research, education, and outreach to address the needs of the 21st century and a globalized environment. The Global Institute fosters leadership through innovative programs, activities, and research to support sustainable forest management worldwide.

The Global Institute has become the center for forestry at the School, coalescing and coordinating activities through programs focused on specific areas of research, including Forest Health, Forest Physiology and Biotechnology, Forest Policy and Governance, Landscape Management, Private Forests, and Tropical Forestry. The Institute is home to the Yale School Forests, 10,880 acres of managed forests in New England used for education and research; and is host to The Forests Dialogue, an international group committed to the conservation and sustainable use of forests. The Yale Forest Forum (YFF) is the convening body of the Global Institute of Sustainable Forestry. Through YFF, the Institute holds events at the Yale School of Forestry & Environmental Studies involving stakeholders from diverse sectors.

The mission of the **Yale Program on Forest Policy and Governance**, a core program within the Global Institute of Sustainable Forestry, is to research, teach, and conduct outreach to foster innovations on sustainable forestry management and policy. The program maintains a broad focus on all forms of state and non-state policy and governance, from domestic forest policy, to global inter-governmental negotiations, to market-based systems for promoting sustainable forest management.