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Regional Forestry Practices and Forest Management Certification

by
Steverson O. Moffat[1] and Frederick W. Cubbage[2]

Abstract

Under a "mandated" management scenario, landowners in states with comprehensive forest practices laws meet more sustainable forestry standards and certification programs' guidelines than do owners in states with other regulatory approaches. This confers certification advantages to landowners in the Pacific Northwest where comprehensive forest laws predominate. Under a "combined" management scenario that includes regulatory programs with voluntary BMPs and Stewardship guidelines, no appreciable regional advantages exist. In both scenarios, numerous gaps remain between management practices and sustainable forestry standards and certification guidelines. The amount of NIPF timberland under each scenario is small: 12% of NIPF timberland is located in states with comprehensive forest practices laws, while 5.7% of NIPF timberland fits our definition of "combined" management.

INTRODUCTION

Sustainable forestry programs can be divided by their scope (international or national level) and by their sponsor (United Nations, non-governmental organization (NGO), or private). They can be further divided by whether they advocate and utilize performance-based or systems-based measures, and by whether they operate at the first-, second-, or third-party levels. Finally, while some programs focus only on forest management, others also monitor the chain of custody from the forest to the showroom to certify that those particular products originated from a "sustainable" forest.

The major private sector organizations currently engaged in creating and implementing sustainable forestry standards in the United States include the American Forest and Paper Association, the American Tree Farm System, the National Woodland Owners Association, Rainforest Alliance's SmartWood program, and Scientific Certification Systems. The very presence of these programs means that some in the forestry community have moved beyond trying to reach consensus regarding what sustainable forestry means and have begun to practice their own version of it.

Statistics--In the United States, SmartWood and Scientific Certification Systems (SCS) have certified 5.2 million acres (Landis 1999; Hammel 1999). This figure is approximately 1% of the country's 490 million acres of productive timberland (Powell et al. 1993). When we include the 57.1 million acres in the American Forest ad Paper Association's (AF&PA) Sustainable Forestry Initiative (SFI), the percentage of the country's timberland verified by one of these major organizations climbs to almost 14% (AF&PA 1999).

Looking more closely at this 14%, we find properties ranging in size from 20 acres to 1.2 million acres in the third-party certification programs and from 1,000 acres to 5 million acres in the AF&PA's SFI (Goetzl 1998; Hammel 1999; Landis 1999). Smaller properties of 100 acres or less account for 6% of the area of forests enrolled in these three sustainable forestry programs in the United States. Given that 59% of the United States' timberland is in non-industrial private (NIPF) ownership, and that 90% of those properties are 100 acres or less (Birch 1994), a major challenge to any type of verification or certification program will be enrolling these smaller NIPF lands.

The American Tree Farm System verifies the management practices of NIPF owners who have at least 10 acres of forestland. To date, 66,000 of the country's 9.9 million NIPF owners have enrolled in the program (American Tree Farm System 1997; Birch 1994). Including the 25 million acres enrolled in the American Tree Farm System, the percentage of the country's 490 million acres of timberland in one of these four standards programs climbs to 17.8%. Finally, in 1998, the National Woodland Owners Association (NWOA) established its Green Tag Forestry program especially for NIPF owners. Green Tag reports that as of December 1999, woodlands in nine states totaling 43,487 acres have been or are

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currently being certified. Inclusion of Green Tag acres does not appreciably change the 17.8% figure.

Barriers to Certification--The major barriers to NIPF participation in second- and third-party standards and certification programs are the direct costs borne by the landowner to have a property evaluated and the indirect costs associated with meeting the certifier's management requirements. For those wanting to market goods from a certified forest, there are also the costs of monitoring the chain of custody. Cabarle et al. (1995) estimate that in the United States, the costs to certify a forest may range from approximately $0.02 to several dollars per acre per year, with substantial economies of scale. These estimates are consistent with the Green Tag program, which charges $0.10 - $3.00 per acre (NWOA 1999).

Objectives of this Research--Given that there are regional differences in the way forests are regulated in the United States, there should also be regional differences in the relative ease and expense of certification. As of this writing, no research has been conducted to examine whether these differences could result in competitive advantages for one or more regions due to lower incremental costs of changes to forest management. Accordingly, we wanted to test the hypothesis that the more comprehensive forest practices laws prevalent in the northwestern United States would make the marginal costs certification less expensive (and more attractive) for landowners in that region. Relatively lower costs could enable NIPF landowners in the Pacific Northwest to capture a greater portion of any market niches for certified forest products that may develop in the future.

METHODS

We first developed a methodology to correlate the diverse forestry practices in the United States. We next compared regional differences between the correlated practices, and then identified and examined the practices deemed "sustainable" by leading standards and certification groups. Lastly, we compared the regional forestry practices with the guidelines developed by the standards groups to arrive at a reasonable conclusion about relative regional advantages for landowners pursuing certification.

Correlation Protocol--No single management regime can be termed typical for any one state, let alone region. Management intensity differs among landowners, as do the primary management objectives, the mix of species grown, the rotation age, the intermediate treatments (if any), the harvest methods, and a host of other considerations (climate, rainfall, and site quality also come to mind).We chose to focus on management constraints. These constraints come in two forms: (1) what forest landowners are required to do by state law and (2) what forest landowners are required to do when they participate forestry assistance programs.

There are recognized regional differences between state regulatory programs (Ellefson et al. 1995). In general, there are fewer forestry regulations of any kind in the South. States in the Intermountain West employ a mix of permit-based compliance systems and specific practices acts, while proportionately more of the Lake States augment their permit-based compliance systems with tax relief programs. In the Northeast, many states utilize permit-based approaches, and a few states have comprehensive forest practices laws. Finally, states in the Pacific Northwest demonstrate the most extensive reliance on comprehensive forest practices laws. *Ceteris paribus*, these regulatory programs set the minimum standard for forestry practices in the jurisdictions where they apply and mandate the practices forest landowners must utilize. As such, they will be used to represent "mandated" forest management in this paper.

Regulations alone do not encompass the full breadth of state forestry guidelines, however. In a broad sense, voluntary and regulatory BMPs, combined with Stewardship guidelines, represent state-sponsored efforts for sustainable forestry. While not every landowner practices forestry to the standards set forth by state programs, it is reasonable to assume that a landowner interested in certification would meet the conditions stipulated by BMPs as well as be enrolled a state's Stewardship Program. *Ceteris paribus*, BMPs and Stewardship guidelines together offer a high, but attainable, standard for forest management in each state, and will represent "combined" management practices for the purposes of this paper.

The United States was divided into five regions: Northeast, South, Lake States, Intermountain West, and Pacific Northwest. We selected one state to serve as a proxy for each region based on the importance of forestry to its region, the distribution of NIPF ownership in the state, and, based on consultation with forestry professionals, how representative the state is to the overall regulatory characteristics of its region. Using these criteria, we selected Pennsylvania, Georgia, Wisconsin, Montana, and Oregon to represent their respective regions.

Standards and Certification--We focused on the five most prominent sustainable forestry standards and certification programs in the United States. SmartWood and SCS are the only two FSC accredited, third-party certification groups active in the U.S.; the NWOA is presenting its certification program as an alternative to the third-party certification offered by SCS and SmartWood; while the American Tree Farm System and the SFI have the most significant amount of U.S. timberland enrolled in their programs and have the support of the forest industry.

Final Methods--We collected primary literature from each organization and conducted informal interviews with their representatives to clarify issues not covered in their literature. We did the same to gather information about the representative states' BMPs and Stewardship Guidelines.

Based on the data collected from these processes, we summarized the main points of the various state and private programs and constructed tables to compare the state programs to the standards and certification programs to illustrate the relative gaps between "mandated" practices, "combined" practices, and the standards and certification programs.

Table 1
Forest and stewardship statistics for the five states

Forest Level Acreage Statistics (In Thousands of Acres)					
	GA	PA	WI	MT	OR
Total Forest Acres	23,631	15,850	14,921	15,863	21,614
Total NIPF Acres	16,995	11,847	9,527	4,340	3,683
% Of U.S. NIPF Acres	5.9%	4.1%	3.3%	1.5%	1.2%
% Of U.S. NIPF Owners	6.1%	5.2%	2.5%	.8%	1.7%
Stewardship Statistics					
Number of Plans	2,103	1,210	20,284	633	988
Percent of U.S. Plans	.63%	.36%	6.1%	.19%	.29%

RESULTS

State Regulatory Programs, Voluntary BMP Programs, and Stewardship Programs--A total of 17 regulatory, quasi-regulatory, and voluntary elements were identified through analysis of the five states' programs. These included management plans; harvest plans; road, skid trail, harvesting, and streamside regulations and guidelines; and clearcutting, endangered species habitat, burning, herbicide, reforestation, and aesthetic regulations and guidelines.

Under the "mandated" scenario (Table 2), Oregon's comprehensive forest law addressed 16 of the 17 elements. Wisconsin followed with 10/17, Georgia and Montana met 9/17, and Pennsylvania met 7/17. When voluntary BMP guidelines were included with the mandatory elements (Table 2), Oregon still met the most with 16/17; Pennsylvania, Wisconsin, and Montana met 13/17; Georgia addressed 11/17.

Including Stewardship Incentive Program elements to develop the "combined" scenario (Table 2) added three new elements while augmenting the 17-regulatory/BMP elements described above. Stewardship elements addressed timber, soil, water, wildlife and fisheries management; recreational uses, aesthetic attributes, forest health, and endangered species. Under the "combined" scenario, Oregon met 20 of the 20 elements; Georgia met 17/20, Pennsylvania and Wisconsin 15/20, and Montana 13/20.

Table 2
Comparison of the Various States and State Regulatory, Voluntary BMP, and Stewardship Programs

Number of Elements Addressed / Number of State Program Elements					
Scenario	GA	PA	WI	MT	OR
"Mandated"	9/17	7/17	10/17	9/17	16/17
"Mandated" + Voluntary	11/17	13/17	13/17	13/17	16/17
"Combined"	17/20	15/20	15/20	13/20	20/20

Standards and Certification Guidelines--Although each of the five standards and certification groups has slightly different guidelines, we were able to identify groups of "program elements" (Table 3). Each program element contained a number of requirements. For example, there are seven

requirements under the "operational attributes" element; 12 requirements for the timber management element; 12 for the environmental impact element; nine for the community and efficiency element; and one for the chain of custody element. In general, SmartWood and SCS had a greater number of prescriptive, quantitative requirements in all program elements. Green Tag was less prescriptive, and SFI and Tree Farm provided the most flexibility in their standards.

"Mandated" and "Combined" Management and Standards and Certification Programs--
Table 3 illustrates the number of program elements addressed (the numerator in Table 3) by selected state approaches and the five standards and certification program element requirements (the denominator in Table 3). Two comparisons are made: (1) between "mandated" management (what forest landowners are required to do) and (2) between "combined" management (what forest landowners are also encouraged to do by voluntary BMPs and Stewardship Programs).

Table 3
Comparison between "Mandated" and "Combined" Management Practices in Selected States and Sustainable Forestry Standards and Certification Program Elements

Number of Elements Addressed / Number of Program Elements Under Mandated Management					
Program Element	Georgia	Pennsylvania	Wisconsin	Montana	Oregon
Operational Attributes	0/7	0/7	1/7	1/7	2/7
Timber Management	2/12	5/12	5/12	5/12	8/12
Environmental Impacts	1/12	2/12	2/12	3/12	6/12
Community and Efficiency	0/9	0/9	1/9	0/9	1/9
Chain-of- Custody	-	-	-	-	-
Number of Elements Addressed / Number of Program Elements Under Combined Management					
Program Element	Georgia	Pennsylvania	Wisconsin	Montana	Oregon
Operational Attributes	3/7	3/7	3/7	2/7	3/7
Timber Management	9/12	8/12	8/12	7/12	10/12
Environmental Impacts	7/12	7/12	7/12	5/12	9/12
Community and Efficiency	2/9	2/9	2/9	0/9	2/9
Chain-of- Custody	-	-	-	-	-

DISCUSSION

Do regional differences in state forestry programs create an advantage for landowners in the Pacific Northwest? The results of this research indicate the answer is yes, although the degree of the advantage varies between "mandated" and "combined" management practices. Under mandated management, landowners in Oregon (and by proxy other landowners in the Pacific Northwest) have the fewest gaps between what they are required to do via state regulation and what the sustainable forestry standards and certification groups require, and by extension lower incremental costs to meet the certification requirements. This advantage persists under combined management, but by a much lesser degree. The advantages also vary among the five program elements as well as between and within the five standards and certification programs.

Mandated Management--The distinct advantages to owners in the Pacific Northwest are accrued primarily under the timber management and environmental impacts program elements. Oregon's comprehensive forest practices law addresses 8 of the 12 timber management standards and certification criteria, and 6 out of the 12 environmental impacts

criteria (Table 3). Other regulatory approaches (mandatory BMPs, permit-based regulation, and tax incentives programs) as utilized in the Northeast, the Lake States, and the Intermountain West on average meet 5 of the 12 timber management criteria and 2 of the 12 environmental criteria, leaving substantial gaps for landowners to fill in both program elements. The primarily voluntary programs utilized in the South address the fewest criteria.

No appreciable regional advantage exists for landowners in the remaining three standards and certification program elements. For the most part, regulatory programs neither require the type of information stipulated by the operational attributes and the community relations / operational efficiency guidelines; nor do states monitor the chain-of-custody. Again, Oregon landowners have a slight advantage in meeting operational attributes guidelines due to the requirements that they have management plans and file notice with the state prior to engaging in forestry activities. Wisconsin's Managed Forest Law is the only regulatory program that specifies recreation guidelines; and as such it is the only state that addresses one of the community relations program elements.

From these results, it may be inferred that landowners in states with comprehensive forest practices acts have a certification advantage over landowners in other jurisdictions. Given the preponderance of comprehensive forest management laws in the Pacific Northwest, the indirect and marginal costs of adapting management to meet standards and certification program guidelines will be lower under the mandated management scenario required of landowners in those states.

It is worth observing that 288 million of the nation's non-reserved productive timberland is in NIPF ownership, and 70% of that non-reserved productive timberland is located in the East. The states in the Pacific Northwest have 7.7% of the total U.S. timberland base and 2.9% of the total NIPF timberland area (Powell et al. 1993). Despite the regional advantages under the mandated management scenario, the potential contribution to the standards and certification programs is rather small. Even if we assume that all NIPF acres in the Pacific Northwest eventually are enrolled in a sustainable forestry standards or certification program, they represent only 1.7% of the total U.S. timberland acres (Table 4).

If we shift the focus from regional advantages and look instead at comprehensive practices, we see that ten states (Alaska, California, Connecticut, Idaho, Maine, Massachusetts, Nevada, New Mexico, Oregon, and Washington) have passed comprehensive forest practices laws (Ellefson et al. 1995). These regulatory programs affect a total of 35.3 million NIPF timberland acres, or 12% of the total NIPF timberland base (Powell et al. 1993). If we assume that all of these acres are eventually enrolled in a sustainable forestry standards or certification program, they would represent 7% of the U.S. timberland base (Table 4).

Combined Management--No appreciable advantages exist in any states for any of the program elements under the combined management scenario. Voluntary BMPs and Stewardship Program guidelines on average address 8 of the 12 timber management criteria, 7 of the 12 environmental impacts criteria, 3 of the 7 operational attributes criteria, and 2 of the 9 community and efficiency criteria. As a general rule, Oregon landowners have the fewest gaps to fill overall, but the remaining four states show a high degree of parity among all elements (note again Table 3). The sole exception to this rule appears to be Montana, but this is due to its particular approach to Stewardship that provides a high degree of discretion to landowners, rather than programmatical omissions. As with mandated management practices, none of the combined practices address chain-of-custody criteria. Despite the gaps that persist, landowners practicing combined management will face roughly similar costs of compliance regardless of their location within the United States.

If we let Stewardship Programs serve as a proxy for "combined" management, acreage comparisons can be made with the "mandated" management scenarios discussed earlier in this section. As of 1997, a total of 16.6 million acres, or 5.7% of NIPF lands, had been enrolled in the Stewardship Program (USDA Forest Service 1998; Powell et at. 1993). Again, if we assume that all persons enrolled in Stewardship go on to register their properties with a sustainable forestry standards or certification program, they would represent 3.4% of the total U.S. timberland base. As can be seen below in Table 3, a relatively small percentage of NIPF lands under each management scenario come close to meeting the program elements established by most of the sustainable forestry standards and certification organizations.

Table 4
Percentage of U.S. NIPF, Total Private, and Total Timberland Acres in the "Mandated" and "Combined" Management Scenarios

Management Scenario	NIPF Acres	Private Acres	Timberland Acres
Mandated: Pacific Northwest	2.9%	2.4%	1.7%
Mandated: Comprehensive States	12%	10%	7%
Combined: Stewardship Program	5.7%	4.6%	3.4%

CONCLUSION

Our results indicate that a regional advantage in certification exists in the Pacific Northwest as far as the mandated management scenario is concerned. (This does suggest that they are bearing greater mandated costs now, however.) Fewer gaps exist between all five standards and certification programs and the regulations stipulated by comprehensive forest management acts. The Pacific Northwest's regional advantage persists, albeit slightly, under the combined management scenario. Voluntary BMPs and Stewardship Programs are enough alike to result in parity among landowners in all regions, resulting in a level playing field for all U.S. NIPF landowners under this scenario.

This suggests that sustainable forestry standards and certification organizations will need to reduce direct and indirect costs to NIPF landowners and develop ways to increase benefits in order to enroll a significant amount of NIPF lands in their programs. Sustainability continues to be an important issue in forest management, however, and interest in verifying the quality of forest management in the United States is increasing. Time will tell if standards and certification, as currently defined, will prove effective as an approach for NIPF landowners.

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