

Assessing Family Forestland Certification Opportunities: A Minnesota Case Study

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ABSTRACT

Minnesota family forest owners were surveyed to assess their perspectives on forest certification. The study found that in spite of the increased visibility of forest certification, its awareness among family forest owners continues to be low. Moreover, after developing an understanding of forest certification, only 4% of family forest owners were certain they wanted to certify their forests, and 19% were sure they would never want to do so. Landowners familiar with certification were no more likely to certify than those who had not heard of the concept. The design and outcomes of a certification program were found to have a substantial influence on landowner interest in forest certification. The lack of owner awareness and interest in forest certification, forest management plan requirement, and limited group certification opportunities suggest substantial expansion of certified family forestland is unlikely in the foreseeable future.

Keywords: forest certification, family forests, sustainable forestry, nonindustrial private forestland

The establishment of forestland certification systems is arguably one of the most influential global developments in forestry of the past 10 years. These systems benchmark forestland management and timber harvesting policies and practices against predetermined standards to ensure forest resources are managed for their environmental, economic, and social benefits. To date, the vast majority of the approximately 65 million forested acres (13% of timberland in the United States) that have

been third-party certified is owned by large, corporate owners and, to a lesser degree, state and county governments and universities (Vogt et al. 2000, Smith et al. 2001, Cabbage et al. 2003, Sample et al. 2003, Kilgore et al. 2005).

Certification of private, noncorporate forestland (i.e., family forests), although comprising 59% of the nation's timberland land base, has been extremely limited (Smith et al. 2001, Newsom et al. 2003, Kilgore et al. 2005). Previous studies, although few in

number, have documented that most family forest owners are either unaware of forest certification or not interested in having their forest certified (see Newsom et al. [2003] and Vlosky and Granskog [2003]). Rickenbach (2002), in a synthesis of existing research on the nation's family forest owners, described four major challenges to certifying small acreage forests: family forest owners are largely unaware of forest certification and its potential; family forest owners' perceptions of certification are inconsistent with their own values; landowners are not willing to pay to have their forests certified; and a lack of market opportunities for certified forest products in the form of price premiums and greater market access.

The visibility of forest certification has increased considerably since the last family forest certification studies were conducted. Many state and national forestry associations now devote substantial coverage to forest certification through their websites and/or newsletters. The general news media also has given greater coverage to forest certification in the last few years. Of the 166

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articles discussing forest certification that have appeared in US newspapers since 1997, 61% have been published since 2002 and 35% have been published within the last 2 years. In the Midwest, 75% of the newspaper articles on forest certification published in the past 10 years appeared within the last 2 years (Lexis-Nexis 2006).

In light of the increased visibility of forest certification since the last family forest owner certification studies were conducted, we sought a contemporary understanding of landowner perspectives on certification. Guided by research on environmental behavior (e.g., Sia et al. [1986], Hines et al. [1987], and Kollmus and Agyeman [2002]) and family forest landowner adoption of new practices or approaches (e.g., Jacobson et al. [2000]), we hypothesized that this visibility has increased family forest interest in forest certification. With a focus on the major challenges identified by Rickenbach (2002), we sought to identify the extent to which family forest owners (1) are familiar with the concept of forest certification, (2) perceive the importance of certification program design affecting their interest in certification, (3) are interested in certifying their forestland, (4) are willing to pay to do so, and (5) can be differentiated with respect to their interest in forest certification according to certain characteristics about them or the forestland they own.

Study Context

The geographic focus of our study was Minnesota. Forest certification activity in Minnesota has been considerable within certain ownership groups. For instance, the Minnesota Department of Natural Resources (DNR) recently secured Forest Stewardship Council and Sustainable Forestry Initiative certification for 4.9 million ac of forestland it manages. In total, over 7.5 million ac of state, county, and private industrial forestland have been certified (roughly, one-half of the state's timberland base), with several additional counties planning to initiate certification application procedures for the forestland they manage in the near future. However, despite forest certification's popularity among public and industrial private lands, only a few thousand acres of the state's family forestland have been certified.

Minnesota has 5.6 million ac of private forestland owned by nearly 150,000 individuals. The state's family forest owners and forests are similar in many respects to family

forest owners within the northeast 20-state region (defined as generally those states north and east of the state of Missouri) and nationally. A profile of Minnesota's family forests and their owners shows that parcel size is small, averaging 64 ac (60% regionally and 47% nationally of forestland parcels are less than 100 ac); the length of ownership is substantial, averaging 23 years (44% regionally and 39% nationally have been owned by their current owner for at least 25 years); nontimber reasons for ownership such as wildlife habitat and recreation often rate higher than timber objectives (22% regionally and 32% nationally are owned by those who rank timber production as an important or very important reason for ownership); and family forests are an important source of wood fiber accounting for nearly one-half of the state's timber harvest in 2004 (65% regionally and 69% nationally have commercially harvested timber); (Baughman [1988], Rathke [1993], Miles et al. [1995], Cervantes [2003], Butler and Leatherberry [2005], and Minnesota DNR [2005]).

Survey Methods

During the spring of 2005, the University of Minnesota conducted a mail survey of family forest owners who were selected randomly from property tax records in four large and heavily forested northern Minnesota counties: Itasca, Cass, Aitkin, and St. Louis. The criteria used to select study participants were that the parcels they owned were forested, undeveloped (e.g., contain no structures), and at least 10 ac. Both individuals living on or adjacent to their forestland and absentee owners were included in the survey. To ensure that we obtained only the perspectives of family forest owners, the initial database was screened and any corporate forestland owners were removed from the sample.

Following Dillman's Tailored Design Method (Dillman 2000), surveys were sent to 469 randomly selected family forest landowners from the screened tax records. A total of 236 completed and useable questionnaires were returned. Forty-five questionnaires were returned but unusable, and another 16 questionnaires were undeliverable. The overall response rate to the questionnaire was 62%. To address the potential for nonresponse bias, we compared the number of acres owned and the place of residence among survey respondents and nonrespondents using the property tax data and

found no significant differences between the two populations.

The questionnaire was developed using academic literature, forest certification websites and related certification documents, and input from research and extension personnel at the University of Minnesota's Department of Forest Resources who focus on family forests and their owners. The survey consisted of three sections. The first section asked family forest owners about their familiarity with forest certification, perceptions of possible certification benefits and costs, support for forest certification under various program design alternatives and market outcomes, willingness to pay for forest certification, and interest in certifying their forestland. The second section inquired about the owner's reasons for owning forestland and history of forest management. The last part of the survey collected socioeconomic and demographic information from the respondents. The survey also contained a brief description of forest certification and the forest certification process for those family forest owners who were not familiar with the concept.

Results

Profile of Responding Family Forest Landowners. The majority of survey respondents were men (89%) and clustered in the 50- to 69-year-old age group (58% of the respondents). There was a wide range of educational attainment among the respondents, with nearly 40% having at least a 4-year college degree and all but 2% having a high school diploma. Most of the survey respondents were either working full time (50%) or retired (35%). The survey participants were geographically diverse: 37% lived in rural areas, 28% lived in small to large rural communities, and 36% lived in a large metropolitan area. Nearly two of three survey respondents were absentee owners.

More than one-half of the respondents owned less than 100 ac of forestland. The median acreage owned was 80 ac, and the mean tract size was 183 ac, reflecting the fact that several landowners owned forested tracts exceeding 1,000 ac. About 60% of the respondents owned only one or two forest parcels. Land tenure among the respondents was considerable. Thirty-seven percent of the respondents had owned their forestland for at least 25 years, whereas those owning their land for 1 year or less accounted for only 3% of the responding owners.

Almost one-half of the family forest owners had commercially harvested trees on their forestland during their tenure with the property. However, use of a forest management plan was very low—more than three-fourths of the respondents did not have one. Moreover, only 42% had sought advice from or been contacted by a professional forester during the time they had owned their forestland. However, when asked about their intent to harvest timber from their property in the near future (i.e., next 10 years), 40% of respondents answered affirmatively. Only one-quarter said they have no intention of harvesting timber in the next 10 years.

The top reasons for forestland ownership cited by Minnesota's family forest owners that were surveyed were noneconomic. At least three-fourths rated wildlife watching and hunting as an important reason for ownership. Other reasons cited by a majority of the respondents were hiking, investment, and seasonal residence. Slightly less than one-half stated timber production is an important reason for owning forestland.

Are Family Forest Owners Familiar with Forest Certification? We hypothesized that increased attention to forest certification would lead to greater awareness of the concept among family forest owners. This premise turned out to be incorrect. Familiarity with forest certification among family forest owners was extremely low—the majority of respondents had never heard of the concept before receiving the survey (53%). When including those who described their understanding of forest certification as minimal, the percentage of landowners increases to 80%. Importantly, only 3% of the family forest owners indicated they had an extensive understanding of forest certification.

Does Certification Program Design Affect Interest in Certification? We hypothesized that although family forest owners may support the concept of forest certification, their decision to become certified is influenced considerably by the design of specific certification programs. To assess whether program design prejudiced desirability to participate, family forest owners were asked to assess their interest in participating in a forest certification program under various certification program arrangements. Survey responses were grouped into three categories: likely to participate, neutral, and not likely to participate.

Level of Involvement. The Minnesota family forest landowners in the sample expressed a clear interest in being involved in certifying their land. However, they slightly preferred that their participation take place only at important stages in the certification process (38% indicated that they were likely to certify under this arrangement) rather than being involved at all stages (35%; see Table 1). Only one in five was interested in having their forestland certified if they were not involved in the certification process.

Program Affiliation. When suggested that a forestland certification program could be affiliated with a forest landowner association, a majority of respondents indicated they would likely certify their land (Table 1). With all other program affiliations, less than 50% of the respondents stated they were likely to participate. Under only one program affiliation did the majority of family forest owners indicate they would not likely certify their forests, that being when the certification program was affiliated with a government organization. If run by government, only 23% said they were likely to certify their land.

On-Site Inspections. The requirement to have on-site inspections of forest management and timber harvesting practices did not have a major influence on the interest of the respondent in certifying his or her family forestland (Table 1). Landowners were only slightly less inclined to have their land certified if inspections were required (33% said they would likely certify under such a requirement) rather than when field audits were not required (37%). However, the percent of landowners indicating they would not likely certify their forests increased from 32% when no on-site inspections were required to 44% when inspections were mandatory.

Disposition of Field Audit Results. Family forest owners preferred not having the results of a certification field audit made available to the public in their entirety (Table 1). If the public was given full access to these reports, only 19% of the respondents said they were likely to have their land certified. However, forest owners were largely indifferent about whether the audit results should be released to the public in summary form or not at all. Under both scenarios, 27% said they were likely to get certified, and only slightly more (33% versus 29%) indicated they would not certify if a summary of the audit results were made public.

Landowner Requirements. Minnesota's family forest owners expressed the greatest interest in having their land certified when doing so least constrained their land management decisionmaking control (Table 1). For example, the percent of owners inclined to certify their forestland was considerably higher when they were able to select the logger of their choosing (49%), compared with having to use only loggers that had completed formal training in the application of best management practices (BMP; 38%). Landowners who responded to our survey also slightly favored a certification program that does not require them to use the services of a professional forester when conducting forest management activities on their property.

Most and Least Preferred Certification Program Designs. Minnesota's family forest owners expressed clear preferences for many important aspects of a forest certification program. Based on the mean scores from the survey results, the most preferred family forest certification program was one that

- Requires landowner involvement only at certain stages of the certification process.
 - Is administered by a forest landowner association.
 - Does not require landowners to pay the costs of certification.
 - Does not require on-site inspections.
 - Does not make any inspection results available to the public.
 - Encourages but did not require a forest management plan.
 - Does not require the use of a professional forester.
 - Does not require the use of trained or certified loggers.
- In contrast, based on the mean scores from the survey results, the least preferred program was one that
- Does not involve the landowner in the certification process.
 - Is administered by a government organization.
 - Requires the landowner to pay all the certification costs.
 - Requires on-site inspections.
 - Makes on-site inspection results fully available to the public.
 - Does not require a forest management plan.
 - Requires the use of a professional forester.

Table 1. Interest in participating in a forestland certification program under different program arrangements.

	n	Mean ^a	Percent of respondents ^b		
			Likely	Neutral	Not Likely
Would you participate if you were					
Required to be involved only at certain stages of the certification process?	211	2.96	38	23	39
Required to be involved throughout the process of certifying your forest?	208	2.82	35	22	43
Not involved in the certification process?	198	2.42	21	27	52
Would you participate in the certifying organization was affiliated with					
A forest landowner association?	219	3.25	51	21	28
An educational institution?	215	3.11	44	25	31
A forest products industry association?	216	2.77	32	25	43
An organization not affiliated with any particular organization or group?	195	2.79	28	35	37
A government organization?	208	2.37	23	26	51
Would you participate if on-site inspections of your property were					
Not required?	207	3.02	37	31	32
A possibility?	212	2.92	36	28	36
Required?	216	2.69	33	23	44
Would you participate of the results of on-site inspections were					
Not made available to the public?	198	2.92	27	44	29
Made available to the public only in summary form?	191	2.77	27	40	33
Made fully available to the public?	183	2.54	19	41	40
Would you participate in a forest management plan was					
Encouraged but not required?	195	3.17	39	23	38
Required?	173	3.03	34	39	27
Not required?	187	3.02	32	38	30
Would you participate if you were					
Not required to use a professional forester when managing your forest?	180	3.14	35	40	25
Required to use a professional forester when managing your forest?	178	2.81	32	34	34
Would you participate if you					
Could use any logger you choose?	183	3.44	49	30	21
Were required to use only loggers trained in environmental harvesting practices?	196	3.27	38	25	27

^a Responses based on a five-point Likert scale: 1 = very unlikely to participate, 2 = unlikely to participate, 3 = neutral, 4 = likely to participate, and 5 = very likely to participate.
^b The "likely" response category includes responses of "very likely" and "likely"; the "not likely" response category includes responses of "unlikely" and "very unlikely."

• Requires the use of trained or certified loggers.

How Does Cost Influence Certification Interest? We hypothesized that cost continues to be a major deterrent to family forest owner participation in a certification scheme. Although Minnesota's family forest owners were much more likely to have their land certified if there was no cost of doing so, nearly one-quarter indicated they still would not participate. When asked about their interest in certifying their forest when they were required to pay some but not all of the certification costs, the percentage of likely certifiers dropped to 28%. Very few landowners (8%) were likely to certify their forestland when required to underwrite the full cost of certification for a typical small acreage parcel.

Figure 1 illustrates what Minnesota's family forest owners were willing to pay to have their forestland certified. As the annual

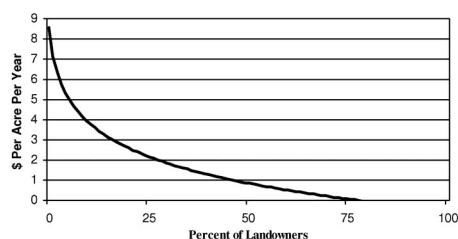


Figure 1. Minnesota family forest owner's willingness to pay to certify their forestland.

cost to certify forestlands increased, the number of family forestland owners indicating they would be willing to pay that amount declined. At a cost of \$1/ac per year, 48% of the respondents said they were willing to have their forestland certified. In contrast, only 3% were willing to pay for forest certification when it meant it would cost them at least \$6/ac per year.

Are Family Forest Owners Interested in Certification? We hypothesized that

family forest owner interest in certification has increased since the last family forest certification studies had been conducted. In our study, however, only a very small fraction (4%) expressed a strong interest in certifying their forestland (Table 2). Approximately three-fourths of the respondents could be considered "persuadable," meaning they were either slightly inclined or disinclined to have their land certified but had not made up their mind. Of these, 33% indicated they may be interested in certifying their forestland but need additional information before deciding, and 44% stated they were not likely but could change their mind. Nearly one in five family forest landowners indicated they would never want their forestland certified.

We also assessed family forest owner interest in certification if being certified provided them preferential market position. When asked whether receiving a price pre-

Table 2. Interest in Minnesota family forest owners in certifying their land.

	Percent of respondents
Under existing market conditions	
Very likely to have forestland certified	4
May want my forestland certified, but need additional information before deciding	33
Not likely to certify forestland, but could change mind	44
Will never want forestland certified	19
If given a price premium for certified timber	
Likely to have forestland certified	53
Not likely to have forestland certified	24
Not sure	23
If given preferential market access for certified timber	
Likely to have forestland certified	44
Not likely to have forestland certified	26
Not sure	30

mium for their timber would influence their decision to have their forest certified, a slight majority (53%) of survey respondents reported they were likely to participate (Table 2). Approximately one-quarter (24%) indicated they were still not likely to have their forestland certified even with a price premium, and 23% were uncertain how a price premium would influence their interest in certification. Similarly, 44% of the family forest owners stated they would likely certify their forest if doing so meant forest products mills would give them greater consideration over timber coming from noncertified forests. Twenty-six percent were still not likely to be certified, with the remaining 30% of respondents undecided.

Certification Perspectives among Landowner Subgroups. To determine whether Minnesota family forest landowner opinions about forestland certification could be differentiated according to certain characteristics about them or the forestland they own, survey respondents were grouped according to several key attributes. They included whether a survey respondent:

- Had a forest management plan (hypothesizing these owners were more active forest managers and therefore saw a greater benefit of having their forest certified).
- Owned at least 100 ac of forestland (hypothesizing large acreage forest owners were more active forest managers and therefore saw a greater benefit of having their forest certified).
- Was familiar with forest certification (hypothesizing those familiar with the concept were more likely to have their forest certified).
- Was likely to have forestland certified (hypothesizing these owners perceived

greater benefits of having their forest certified).

Statistical comparisons between subgroups were made using *t*- and chi-square tests.

Table 3 summarizes the results of these analyses. Family forest owners with a management plan and those owning large forest acreage shared similar characteristics. These two groups were more active forest managers as defined by their interest in timber production, participation in forestry assistance programs, and consultation with foresters than their counterpart subgroups. They also were more likely to be members of the state forestry association. With respect to certification, both groups were more familiar with the concept and saw greater economic opportunities from certification than did those without a management plan or less than 100 ac. A higher percentage of the large acreage owners also tended to have future timber harvesting plans than smaller acreage owners. However, neither family forest owners with a management plan, nor those owning large forest acreage, were more likely to have their forest certified than those without a plan or owning small forest acreage. Our hypothesis that more active managers would have greater interest in and perceived benefits from forest certification was not supported.

Family forest owners familiar with forest certification possessed many of the traits that would characterize active forest managers: they had greater interest in timber production, were more likely to have a forest management plan, were more likely to have participated in a forestry assistance program, and were likely to be members of the state forestry association. They also placed greater importance on the economic benefits of cer-

tification than those not familiar with the concept. Still, familiarity with forest certification did not mean a family forest owner was more likely to have its forestland certified. The study found no statistically significant relationship between an owner's familiarity with forest certification and the owner's interest in having the forestland certified, thus not supporting our hypothesis for this subgroup.

Family forest owners who were likely to have their forest certified were distinct from those not likely to certify in only a few regards. Likely certifiers had a greater interest in timber production. They also saw greater benefits of forest certification and were more willing to pay to be certified than owners who were not interested in having their land certified. Consequently, our hypothesis that those likely to certify would perceive greater benefits from forest certification than landowners not likely to certify was supported.

Discussion and Conclusion

The study's findings indicate it is unrealistic to expect a substantial portion of family forests will be certified in the near future. Landowner interest in forest certification was extremely reserved. Only 4% of the respondents were definitely interested in certifying their forest, and 19% were sure they would never want to do so. These owners also specified that the design of a forest certification program as well as the outcome of being certified (e.g., higher prices for their timber) are important considerations in their decision whether to certify their forest. They indicated clear preferences for certain program arrangements. A forest certification program does not currently exist that would satisfy all these preferences. Moreover, the certification program most desired by Minnesota family forest owners would have considerable difficulty gaining widespread credibility with industry and environmental organizations, as well as with the general public.

There also are important practical constraints that may limit the expansion of certification among family forests under currently available certification schemes. One is the absence of forest management plans on most family forestlands. This study found only 23% of the respondents had a forest management plan, which is consistent with estimates from the Minnesota DNR on the extent to which such plans have been written for the state's family forests. However, the regional and national picture looks to be

Table 3. Comparison of differences among Minnesota family forest owner subgroups.

	Forest management plan		Forest acres owned		Familiarity with forest certification		Interest in certifying forest	
	No plan	Have plan	<100	≥100	Not familiar	Familiar	Not likely	Likely
Landowner characteristics								
Absentee owner ^a	67	52	71	55*	17	31**	72	69
Live in rural community ^a	34	42	34	41	55	48	35	39
Own ≥100 ac ^a	37	71***	—	—	33	57***	60	40
Forest management characteristics								
Have a forest management plan ^a	—	—	12	37***	16	29*	21	26
Importance of timber production ^b	3.07	3.71**	2.89	3.63**	2.91	3.56**	2.98	3.65***
Have participated in forestry assistance programs ^a	10	48***	9	29***	11	27*	58	42
Have consulted with forestry professional ^a	31	82***	25	61***	40	44	38	49
Member of state forestry association ^a	4	21***	3	14***	1	16***	6	12
Intend to harvest timber in future ^a	33	55	12	58***	29	48	38	42
Forest certification variables								
Interest in certifying forest (very likely to may want) ^a	36	43	36	40	30	44	—	—
Familiar (extensive to some) with forest certification ^a	17	33*	13	30**	—	—	17	25
Importance of expanded markets as certification outcome ^b	3.11	3.65**	2.99	3.54**	2.96	3.58**	3.06	3.55**
Importance of price premiums as certification outcome ^b	3.22	3.67*	3.07	3.65**	3.12	3.60*	3.13	3.67**
Importance of increased record keeping and paperwork ^b	3.76	3.69	3.68	3.80	3.93	3.61*	3.81	3.63
Importance of periodic inspections ^b	3.32	3.06	3.18	3.33	3.38	3.14	3.35	3.09
Importance of need to follow a management plan ^b	3.46	3.35	3.48	3.40	3.56	3.38	3.57	3.22
Willing to pay \$1/ac per year to be certified ^a	46	56	45	51	44	55	41	75***

^a The chi-square test, reported as percent of participants who responded “yes.”

^b The *t*-test, mean value reported is measured using a 5-point scale from 1 (very unimportant) to 5 (very important).

P* ≤ 0.05; *P* ≤ 0.01; ****P* ≤ 0.001.

even more challenging with only 15% of family forest acreage in the northern region and 17% nationally having written management plans (Butler and Leatherberry 2005). Additionally, in some areas of Minnesota, the demand for forest management plans currently exceeds plan writing capacity, with waiting periods of 6 months to a year being common. Because all family forest certification options currently require a forest management plan, this prerequisite appears to be a considerable bottleneck to greatly increasing the number of certified forest acres from this ownership group.

An argument can be made for not requiring a management plan on the smallest forest parcels as a precondition to being certified. Forestry-related activity on these tracts usually is very infrequent, often with decades passing between a timber harvest or forest management activity. Consequently, the owners of these tracts are less inclined to see the need for a management plan. Several European countries have effectively addressed this issue in the certification programs available to their family forest owners.

The other constraint to widespread interest in family forest certification is the in-

efficiency associated with individually certifying small acreage parcels. With more than 60% of family forest ownerships, both regionally and nationally, being less than 10 ac in size, any attempt at individual certification would be onerous at best. Most countries with high levels of certified family forestlands have very organized regional forest owner administrative structures (e.g., forest management or owner associations) that enable thousands of family forest holdings to be group certified. Finland, e.g., uses a regional certification concept in which all participating forestland within a defined geographic area is certified under a single certificate (Programme for Endorsement of Forest Certification Schemes 2004). In spite of having an estimated three times the number of family forest parcels as Minnesota, greater than 90% of Finland's family forests have been certified through its regional certification process (Finnish Forest Research Institute 2003, Finnish Forest Certification Council 2005).

Notwithstanding the preponderance of factors limiting expansion of family forest certification, the following opportunities ex-

ist to advance the level of certification activity among the nation's family forests:

Groups certify family forestlands using existing administrative structures. Many structures such as preferential state forest property tax programs may lend themselves to opportunities for group certifying large areas of family forestland. For example, Wisconsin used the American Tree Farm System's Group Certification program to certify over 2 million ac of forestland enrolled in its forest property tax program, the Managed Forest Law (MFL), and is an excellent model to follow for certifying considerable family forest acreage under a single group certificate (Wisconsin DNR 2006). Several state forest property tax programs require participants to have and follow a forest management plan, use BMPs when conducting timber harvesting and forest management operations, and maintain the land in an undeveloped, forested state—conditions required of all forest certification systems currently available (Hibbard et al. 2003). Consequently,

these programs represent an opportunity to group certify family forests. As with the MFL, participation in a group certificate would need to be entirely voluntary and done at no or very low cost to the landowner.

Certify loggers. Without clear evidence that a sizable portion of family forest owners are likely to certify their forests, performance-based logger certification holds substantial promise for expanding certification activity among family forests. Performance-based logger certification programs are relatively new and currently exist in only a few states. To obtain the status of being a certified logger under this type of program, a logging company's timber harvesting operations and business practices must be judged by an independent, third-party reviewer as meeting or exceeding the certification organization's standards for sustainable operations. Like forest certification, participation in a performance-based logger certification program is entirely voluntary.

Certifying logging businesses represents a more realistic and cost-effective approach than certifying individual family forest owners. For example, The Minnesota Logger Education Program (MLEP) recently established a Minnesota Master Logger Certification Program (MLEP 2006). If all logging businesses that are currently members of the MLEP become certified, more than 80% of the state's harvested wood would be sourced from certified loggers. Certifying an estimated 600 logging businesses represents a more realistic and cost-effective approach than certifying the state's estimated 150,000 family forest owners.

The types of data collected through this study can be extremely helpful in assessing family forest owner interest in certification for a particular locale. This interest can vary considerably because of different land tenure arrangements, parcel characteristics, land-ownership objectives, forest management activity, and the socioeconomic background of family forest owners. Although the family forest owners in our survey expressed clear preferences for certain certification program arrangements, owners in other regions may

have a completely different perspective on these same program attributes. Additional research is needed to understand how and to what degree family forest owner perspectives toward forestland certification differ from one part of the country to another and what factors are major drivers for these varying attitudes.

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