

Revolutionizing County Forest Management in Minnesota: Aitkin County and SmartWood™ Certification

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Editor's Summary

In 1997, Aitkin County, Minnesota forest lands became the first county lands in the United States to be certified for sustainable forest management. Their certification has inspired other local level agencies to pursue certification as a way to meet the increasing demand for “responsibly” produced forest products.

The story of Aitkin County certification begins with a local entrepreneur, county level land managers, and local and non-local non-profit organizations who were able to meld their ideas about good business, community development, and environmental responsibility with community and north-woods restoration and sustainable management of the local forest. A young owner of a small, wood products manufacturing operation announced that his company would eventually purchase only certified wood, and began what he refers to as a “crusade” to open the market for certified forest products in Minnesota. At about the same time, the long-term commissioner and vice-commissioner of the Aitkin County Land Department, who had been overseeing innovative forest management on county lands for a broad variety of ecosystem values including wildlife, water, recreation, and native forest restoration, were promoting a vision of forest management as “heroic re-intervention” with a 200-year time horizon. Certification was a way to get there. Enter resources and assistance from a couple of local non-profit organizations, and the Forest Stewardship Council SmartWood™ certification process was underway. Certified forest sources were soon to become the rule rather than the exception in Aitkin County.

Most environmental organizations oppose certification of public lands because they believe it insufficiently addresses historic abuse and habitat values while allowing for degrading industrial practices. It remains to be seen whether or not environmental opposition to the certification of public lands is maintained in the years to come, or whether national environmental organizations begin to explore sustainable use as a means to restore forest ecosystems. For the time being, the Aitkin County Land Department might be considered a model agency for other agencies attempting to promote both community development and ecosystem restoration while marrying business opportunities to forest restoration and sustainability.

Introduction

In the fall of 1997, the Land Department of Aitkin County, Minnesota became the second public forest manager and the first at the county level to be SmartWood™ certified as an environmentally responsible timber provider. Managing over 220 thousand acres of forest land for a variety of purposes including timber production, wildlife habitat, and recreation, the Aitkin County certification by the Rainforest Alliance SmartWood™ Program was followed closely by SmartWood™ certification of 400 thousand acres of State of Minnesota lands in Aitkin County managed by the Department of Natural Resources Division of Forestry. In the year since the two Aitkin County certifications, interest in “green certification” of publicly owned forestlands in the region has exploded. Currently nine other counties in Minnesota and many U.S. National Forest districts and forestland agencies in other states have begun pursuit of Forest Stewardship Council certification. Opposition

to these efforts has arisen as well; after lobbying by the Sierra Club and other organizations, the United States Forest Service imposed a one year moratorium on federal land certification and the American Forest and Paper Association successfully lobbied against other public land certification attempts in Wisconsin and Michigan.

The story of Aitkin County Land Department certification involves key players and factors from the wood products industry, nonprofit organizations, FSC, SmartWood™ program, institutions of higher education, and grant-making foundations. The key factors include rules of the European, and especially the United Kingdom market, consumer willingness to pay a premium for certified wood, and more than a decade of Aitkin County Land Department work in trying to manage a forest with a legacy of 150 years of clearcutting, high-grading, devastating fires, and general abuse for multiple uses.

Industry Kicks off the “Revolution”—And the Demand

Eric Bloomquist doesn't look like a crusader. The self-effacing and enormously successful owner of Colonial Craft, a wood products manufacturer headquartered in Minneapolis-St. Paul, disclaims any revolutionary intent. Yet, Eric and Colonial Craft, like Ben Cohen and Jerry Greenfield of Ben and Jerry's Ice Cream in the ice cream industry, have started a revolution in the Minnesota wood products business that is influencing the way industry will operate in the future. He is one of a handful of key individuals including Roger Howard and Mark Jacobs of the Aitkin County Land Department; Mark Ritchie of the Institute of Agriculture and Trade Policy in Minneapolis; Bob Brander, former director of the Sigurd Olson Environmental Institute in Ashland, Wisconsin; Jon Jickling and Richard Donovan of SmartWood™; Catherine Mater of Mater Engineering; and John Krantz of the Minnesota Department of Natural Resources, who kicked off a process that is revolutionizing state and county land management in Minnesota.

An understanding of the more than 75 years of clearcutting and devastation of the once great pine forests of the upper Midwest in Michigan, Wisconsin, and Minnesota from the 1840s to the 1920s, an event that is documented in small community museums across the region, is essential for comprehending the end-of-the-century forest products business in Aitkin County and throughout the region. The lumbering exhibit covering two floors of the Castle Museum in downtown Saginaw, Michigan covers in apologetic detail¹ the numerous logging camps, sawmills, and river drives that turned the once rich forests, swamps, and river systems of the upper Midwest into the farming and manufacturing center of glorified ditches and contaminant laden canals, factory sites, neatly plowed fields, and remnant woodlots that characterize the area today. As local fisherman and autoworker Jim Fauver said on a 1998 tour of Saginaw County, “There's hardly a place to fish in the entire state where there isn't a fish consumption advisory due to some contaminant or other.” Like many of its cousins in Michigan, Wisconsin and Minnesota, Saginaw County today consists of farmed fields interrupted by ditches that once were rivers; narrow woodrows; small villages and urban industrial patches.

In *Rediscovering America: John Muir in His Time and Ours*, Historian Frederick Turner discusses a folk truth from the time of European settlement of the East which said that “a squirrel could start in a tree on the seaboard and travel west all the way to the Mississippi without having to touch the earth.” According to Turner, by 1800 the more than 400 thousand square miles of gigantic climax forest reaching to the Mississippi had “been broken to the western portions of Pennsylvania”² and by the 1880s, 30 years after Muir's teen age years in central Wisconsin, “the great eastern forests had been logged out and so had most of those in the Midwest.”³ Turner describes the clearing of the great woods as a kind of thoughtless rage, as if they really were at war with the wilderness, as Thoreau said.⁴

By the late 1920s, the headwaters of the Mississippi in Minnesota and Wisconsin had been thoroughly logged, the soils played out by poor farming practices causing spring floods to scour the soil from the Mississippi watershed's north woods to the Gulf of Mexico with increasing regularity. Environmental and economic devastation increased together with the Great Depression, documented in such movies as the 1937 award winning *The River*, directed by Pare Lorentz.⁵

Out of this context of devastation, Colonial Craft, which manufactures window grille inserts, moldings and casings, high quality picture frames, and specialty wood parts like the racks on gas barbecue grills, in 1993 announced to its wood suppliers that it intended eventually to buy only wood certified to have been grown and harvested in an environmentally sound and sustainable manner. It was a bold move, given that none of its suppliers were certified by either of the two major assessors in the United States accredited by the Forest Stewardship Council Scientific Certification Systems or the SmartWood™ Program of the Rainforest Alliance.

In the late 1960s, like many of his North Country contemporaries, Bloomquist worked during high school in a small manufacturing business. Rasmussen Millwork Inc. was a small operation specializing in window grille inserts. In 1972, Bloomquist dropped out of college to buy the then six-employee company doing business as Colonial Craft.⁶ In 1980, with the first contract with Anderson Windows, the business began its major growth, and Bloomquist began to build Colonial Craft Inc. into a 30 million dollar, 250 employee, three state (Minnesota, Wisconsin, and Alabama) business with customers in the U.S. and Europe.

According to Bloomquist, he came into business more an environmentalist than a businessman. He said that initially people within the company were thinking “we’re in the wood products business, we’re killing trees. We were always concerned about where our product came from, but to be really honest we didn’t have a clue. We always supported the environmental groups.”

Bloomquist belonged to the Minnesota Wood Promotion Council, a small trade association. In 1992, Forestry Professor Jim Bowyer of the University of Minnesota spoke at an association meeting and talked about the “green certification” he had just heard about. Bloomquist was sold on the idea of having a way to verify where Colonial Craft’s raw material was coming from. The Minnesota Wood Promotion Council formed a “Green Certification Task Force” consisting of Bloomquist, who promptly hired a student intern from the University of Minnesota to find out about the fledgling certification organizations.

The “task force” published a four page brochure in 1992 for the Minnesota Wood Promotion Council titled “What is Certification?” and what Bloomquist refers to as “the crusade” began. Colonial Craft and the Council participated in the founding events of the Forest Stewardship Council and had early conversations with both Scientific Certification Systems and SmartWood™. Bloomquist found that with one exception, the Scientific Certification System certification of the Menominee Tribal Enterprises forest in Wisconsin, neither Scientific Certification System nor SmartWood™ had certified any land managers in the United States. Midwest Hardwood Corp, one of Colonial Craft’s suppliers, had non-exclusive chain of custody certification in 1994, but did not manage land. Bloomquist then went with Richard Donovan of SmartWood™, Jeanne Germain, marketing manager of Colonial Craft, and John Krantz of the Minnesota Department of Natural Resources, and made a presentation to the Keweenaw Land Association, Ltd., a forest management ownership group in the Western Upper Peninsula of Michigan. Keweenaw Land produces logs, some of which enter the SmartWood™ certified chain of custody, and was one of Colonial Craft’s major suppliers. Bloomquist asked them to pursue source certification.

Keweenaw received SmartWood™ source certification in 1994, and Colonial Craft received non-exclusive chain of custody certification from SmartWood™ in 1995.

Bloomquist said of the results for Colonial Craft:

“We like the notoriety we have gotten. It has been good for our business . . . I don’t have the dollars in my pocket yet, but we got a couple of opportunities we’re working on that are there only because of certification.”

Bloomquist says that Colonial Craft would not be on any major new customer’s radar screen except for the certification. SmartWood™ certification has led to some interesting new business opportunities, particularly in Europe because of the European Economic Union’s requirement that all imported wood be green certified.

Relating the timber wars in the remnants of old growth forest in the Pacific Northwest, and non-certified harvesting of the regrown forests of the Midwest, Bloomquist said:

“. . . we think [certification] is the right thing to do. I also believe that it’s good for the industry. What are the alternatives? What do these [timber industry] guys think? Do they think they can stick their head in the sand and say, ‘we’ll win the war’? They’re not going to win the war. And here especially, when they say they’re going to win the war, all they’ve got to do is go out to Oregon and Washington and look around.”

Aitkin County Responds

By the late 1980s and early 1990s, Aitkin County Land Commissioner Roger Howard and Assistant Land Commissioner and Forester Mark Jacobs had developed a reputation for innovative forest management in Aitkin County. County lands have been managed during Howard’s 24-year tenure for a broad variety of ecosystem management goals, including wildlife habitat, water quality, native forest restoration, and recreation.

Molly MacGregor, former executive director of the Mississippi Headwaters Board, a regional land use regulatory authority with jurisdiction over the upper 400 miles of the Mississippi river including its 100 miles in Aitkin County, says Howard’s attitudes and long tenure in Aitkin County are unusually progressive. According to MacGregor, many of Minnesota’s county land departments have historically focused solely on the revenues available from timber harvest, and few commissioners remain in office long enough to effectively establish consistent policies.

MacGregor says Howard and Jacobs are also unusual in the depth of their understanding of ecosystem approaches to land management, and in their commitment to a quality environment and quality of life for the county’s residents and visitors. MacGregor, who resigned from the Headwaters agency to found and direct a private statewide river watershed protection organization, the Minnesota Rivers Council, said the Aitkin County Land Commission’s concern for aesthetic and environmental impacts of poor forestry practices, in addition to their long-term view of the economic returns the county must make on its lands, is being emulated by other land departments in northern Minnesota. “They are opinion leaders in the state and as such serve valuable functions far beyond their borders,” MacGregor says.

The interest of the Aitkin County Land Department in SmartWood™ source certification grew, in part, out of the efforts started by Colonial Craft in 1992. Jacobs and Howard had been thinking about pursuing certification of some sort since Keweenaw’s certification in 1994.⁷ They had initially thought certification might provide some validation of what they hoped was leading-edge work in restoring the county forests for more productive timber harvest, while also providing for healthy and diverse wildlife populations and recreational opportunities for people.

Howard was appointed Land Commissioner in 1974 and had worked as a logger and land assessor prior to running the County Land Department. By 1994, Mark Jacobs had 15 years of experience as a forester, including seven years as a field forester with Aitkin County (he was appointed Assistant Land Commissioner by Howard in 1989). The political stability of Howard's appointed position and the long-term tenure of several foresters including Jacobs, led to an unusual opportunity for restoration forestry in the county with a long-term perspective. Jacobs commented, "In other Minnesota counties the Land Commissioner position is fairly competitive but [in Aitkin] it is pretty stable, and we have been able to sustain good forestry and land management practices as a result."

Jacobs says that one key factor in the county's reputation for progressive management has been its willingness to partner with organizations like the Mississippi Headwaters Board, various educational institutions, and economic development agencies to try out and learn new approaches to land management. Support of the county economic base was a major reason for the Aitkin County Land Department's pursuit of SmartWood™ certification. Jacobs said, "There were three reasons we always talked about in this certification. One of them is public confidence. We felt that there are often misguided public concerns about management in this area of northeastern Minnesota. We thought that if we could go through this process, stick our necks out, and meet the standards, it would give the public a lot more confidence in what we do."⁸ Jacob's second reason was prestige. "Aitkin County has been a down-trodden county over the years. Seems like whenever we make the news it is something bad, murder, or flood or something like that, so we thought this would be a real feather in the cap."

The Forest Stewardship Council

The Forest Stewardship Council is a nongovernmental institution with headquarters in Oaxaca, Mexico. FSC was established to set standards for forestry certification programs worldwide and to accredit certification organizations that comply with those standards. Certifiers, forest products businesses, and environmental groups formed FSC to monitor certification and prevent a confusing proliferation of standards. SmartWood™ was accredited by the FSC in early 1996.

The SmartWood™ Program

Initiated in 1989, SmartWood™ is the first and largest forestry certification program in existence. SmartWood™ is a program of the Rainforest Alliance, an international nonprofit environmental group based in New York City, and is accredited by the Forest Stewardship Council. The SmartWood™ program initially focused on tropical forests, but now works in all forest types worldwide. The SmartWood™ program is staffed by an experienced group of forestry specialists, biologists, and economists headed by SmartWood™ Executive Director Richard Donovan in the SmartWood™ offices in Richmond, Vermont.

The purpose of SmartWood™ is to provide an independent, objective evaluation of forest management practices, forest products, timber sources, and companies. The SmartWood™ process and certification enables the public to identify products and practices that do not destroy forests. Through certification and use of the SmartWood™ label, the program provides a commercial incentive for forest managers to adopt sustainable forestry practices. SmartWood™ certifies forest products that come from "sustainable" or "well-managed" forests. Candidate sources may include a national forest, a plantation, a large commercial operation, or a small-scale community project. SmartWood™ also certifies companies that process, manufacture, or sell products made from certified wood, through "chain of custody" certification.

From an economic standpoint, Jacobs and Howard thought the prospect of higher prices for certified wood had the potential “to boost some of the local wood products industries and to give them a little step up in potential value added for the products that they will be able to market as green certified wood.” Early results in 1998 auctions in Aitkin County show wood prices up slightly but Jacobs says, “most of it will not enter the ‘certified stream’. We are too ‘early in the game’. We have received a lot of inquiries about certified wood from our lands and have several local sawmills seriously looking into certification.”⁹ The Palisade Supply Inc. “Green Hardwood Dimension” mill received approval for chain of custody certification in July 1998.¹⁰

Sustainable forestry at the turn of the 21st century, particularly forestry with a view toward multiple-use management from a landscape perspective of the region, has many biological challenges in Aitkin County, according to Ph.D. wildlife ecologist Robert Brander. “In northern Minnesota, the land was grossly misused through flawed public policies. The resultant poorly formed forest was inherited by the State Conservation Department and the Aitkin County Land Department when they began their forest management program in the 1930s.”¹¹

At the turn of the century, Aitkin County forests are changing from a predominance of aspen to northern hardwoods. Brander, who was leader of the Aitkin County and Keweenaw SmartWood™ assessment teams, argues that responsible forest management in Aitkin County will keep all silvicultural options open to achieve fully productive forests over the next 100 to 200 years. Because human intervention throughout the northern Great Lakes forest in the last century was so destructive, the only hope of regaining a fully structured and productive forest is through an equally intense human re-intervention, he believes.

The SmartWood™ Network

To facilitate credible and low-cost evaluation, monitoring, and certification in all forest types, SmartWood™ has developed the SmartWood™ Network, composed of collaborating nonprofit organizations throughout the world. This constantly expanding network has staff representatives in Central and South America (Bolivia, Brazil, Costa Rica, Guatemala, Honduras, Mexico), six regions of the United States (California, Florida, Oregon, Pennsylvania, Wisconsin, Vermont), and expanding coverage in Europe, Southeast Asia, and Africa. A complete list of current SmartWood™ representatives can be obtained through SmartWood™ headquarters. Network representatives, including the Aitkin county case, the Sigurd Olson Environmental Institute in Ashland Wisconsin, offer the complete range of SmartWood™ label. According to SmartWood™ the advantages of certification through the nonprofit SmartWood™ Network include:

- high credibility and acceptance with local environmental groups, scientists, government, and forest industry; thus reducing environmental or corporate risk and fostering positive local relationships;
- low cost certification and monitoring services;
- immediate, local access to multilingual representatives of the SmartWood™ program;
- access to, and understanding of certified forest products markets worldwide;
- and
- international coverage and representation.

The SmartWood™ Certification Process

SmartWood™ certification of forest “sources” is based on field review by approved local groups (including the Sigurd Olson Environmental Institute in Ashland, Wisconsin and the Rogue Institute for Ecology and Economy in Oregon) using SmartWood’s generic guidelines, or when available, country or bioregional guidelines which have been written in consultation with local experts and organizations, often in collaboration with the Forest Stewardship Council. Aitkin County’s certification was conducted under the “Lake States Guidelines for Assessing Natural Forest Management” published by the SmartWood™ regional certification partner, the Sigurd Olson Environmental Institute. In 1994, Bob Braner, a former director of the Institute, and Bob Simeone, a consulting forester in Wisconsin, put together a draft for the Great Lakes states based on the SmartWood™ generic guidelines and then convened a group of 15 scientists and practitioners including loggers and foresters, for a two-day meeting to refine the draft and finalize the guidelines.

In general, candidate operations must meet the following broad principles:

- 1) long-term security for the forest (i.e. it will not be cleared in the foreseeable future);
- 2) maintenance or improvement of environmental functions, including watershed stability and biological conservation;
- 3) sustained yield forestry production;
- 4) positive impact on local communities; and,
- 5) the existence of a plan for long-term forest management planning and monitoring, including a written forest management plan.

In the case of plantations, SmartWood™ does not endorse the conversion of standing forests to tree plantations, but will certify those that have been developed on previously deforested lands and/or that are a first step towards forest restoration. SmartWood™ sees some plantations as a means to restore tree cover, protect soils and watersheds, and to reduce pressure on natural forests.

SmartWood™ sources are certified according to how closely they adhere to SmartWood™ principles and guidelines. Sources operating in strict adherence to those principles, and having long-term data to support their practices, are classified as “sustainable.” Sources that can demonstrate a strong operational commitment to the principles and guidelines are classified as “well-managed.”

Chain of Custody Certification

Certification of companies marketing SmartWood™ products (e.g. wholesalers, processors like Colonial Craft, retailers, brokers, etc.) is granted after a “chain of custody” audit confirms that certified wood is being used in certified product lines. The SmartWood™ name, logo, and certification mark are the property of the Rainforest Alliance; their use for marketing and advertising purposes must be certified, licensed, or authorized by the Rainforest Alliance.

But this time, Braner says, “we must proceed with the best silvicultural science and the emerging scientific disciplines of conservation biology and landscape ecology, with forest management planning that doesn’t quail at horizons 100 or 200 years into the future.”

Braner is passionate about a long-term view of acceptable forest management in the Great Lakes region. He says,

“Minnesota forests have been managed for fiber and for good reason. That is what the land use history drove the land to, but that is beginning to change. [Now, in] ‘ripped over’ mismanaged [or] unmanaged forest approaches, which existed up to

the 1960s in the northern Great Lakes, the only hope of restoring anything resembling a fully productive forest is a well-directed re-intervention. It may include every silvicultural system that we have—some that some of us may find repulsive, such as clearcuts for massive white pine restoration. If there is public will for white pine restoration in Minnesota it will require heroic re-interventions, but this time with a different purpose. The previous re-interventions were ill-directed or strictly economic.”

The real question in Bob Brander’s mind is whether the forest succession in Aitkin County is going to be managed, or whether it will happen in natural succession. The aspen, or pulp forest, is going to disappear. To return it to a sustainable, selective cut forest without highgrading is a 100-year process. Brander noted,

“Aitkin County is right at the cusp of losing the Aspen forest and transitioning to a northern hardwoods forest and maybe then back to white pine. One hundred years out we can see this returning to a productive white pine forest. That has tremendous implications for the wood products industry in terms of keeping the pulp mills and the operator base alive until there are enough saw logs to justify investment in new machinery and equipment. That entails a lot of transition management.”

Land-use History¹²

Aitkin County encompasses 1.2 million acres of land. Three major ecological subsections intersect within the county: the St. Louis Moraines, which in pre-settlement time supported white pine, red pine, aspen-birch forests, and some of the best northern hardwood forest in Minnesota; Tamarack Lowlands, a glacial lake plain and ground moraine which supported conifer swamp, bog, and aspen-birch forest; and Mille Lacs Uplands, ground and end moraines which in pre-settlement times supported white pine-red pine forest and aspen-white birch-white pine forest in the uplands, with equally as much conifer swamp (tamarack, black spruce, white cedar) in the lowlands.

The composition, structure and, to a lesser degree, distribution of present-day forests in Aitkin County are largely the result of excessive logging that began late in the 19th century, the massive fires that followed, and the extensive drainage of wetlands for agriculture. By the late 1920s these events culminated in a northern landscape largely unable to support agriculture or logging, land owners unable or unwilling to pay their land taxes, and massive tax forfeitures of private ownerships. A series of complex and unique state statutes were promulgated and much of the tax-forfeited land was transferred into state and county ownership and/or management.

In 1935, the state legislature authorized each county board to appoint a land commissioner “to gather data and information on tax-forfeited lands; make classifications and appraisals of land, timber and other products and such other duties concerning tax-forfeited lands as the County Board may direct.” Forest management as a responsibility of the land commissioner was implied but not specified in the statute. Aitkin County appointed its first land commissioner in 1939 and thus set the foundation for the Aitkin County Land Department and formal authority for the county to engage in forest management. The Department offered its first timber sale in November 1939.

In 1990, 754,200 acres of the total was classified as forested. Of the forested land, 700,500 acres were classified timberland capable of producing more than 20 cubic feet per acre per year of wood crops.

Ownership of the 700,500 acres of timberland in 1990 was, in thousands of acres:

Federal	State	County & Municipal	Forest Industry	Individual	Corporate	TOTAL
7.9	249.9	196.3	11.3	228.8	6.3	700.5

While reforestation since the 1930s is impressive, the “new forest” is unlike it was 100 years ago. Before scientifically based forest management could be put in place by state and county agencies, two or three more decades of “logger’s choice” logging continued to threaten the recovery of forests in Aitkin and surrounding counties.

Aspens, a minor component in the 1800s, occupied 31.6 per cent of Aitkin County’s timberland in 1990, while the once vast white-red-jack pine type occupied only 1.3 per cent. Many aspen stands, however, are over-mature and unless harvested soon will convert to shade-tolerant types. At the same time, increasing commercial demand for wood fiber since the late 1970s has led to a substantial area of young (under 20 years) aspen stands. The northern hardwood type (sugar maple-basswood-ash-red maple-elm), whose distribution in pre-settlement Aitkin County is not well understood, is increasing its range on many sites through succession from other types; these northern hardwoods now occupy approximately 32 per cent of the county’s timberland. The “new forest” of Aitkin County, contains a small (less than four per cent) but economically lucrative red oak type; much on a successional path that will likely lead to the northern hardwood.

Lowland conifers (black spruce, tamarack, white cedar) occupy 22 per cent of the county’s timberland. While the lowland conifers acreage is less than it was 100 years ago, it approximates its natural distribution, stocking and age more than any other forest type in the county. It appears that the only management strategy to promote survival of northern Minnesota’s signature white pine type is an intensive public and private restoration program. While blister rust and other problems particular to white pine will be distinctive challenges, silvicultural scientists and pathologists predict that a properly designed restoration program will be successful.

Tax Law and Policy¹³

Both the Minnesota Department of Natural Resources and the Aitkin County Land Department are governed in their management of forest lands by a long series of state laws that addressed unparalleled tax delinquency in the northern counties during the 1920s and 1930s. Two acts passed in 1935 are most important in this regard: (1) Chapter 278 gave the state absolute title to tax-forfeited land after the specified tax redemption period expired; (2) Chapter 282 (formerly Chap. 386) provided details for the administration of parcels which forfeit to the state, including the requirements that the county board classify all tax-forfeited parcels as agricultural or non-agricultural, and that the classification must be approved by the Conservation Commission (now the Commissioner of Natural Resources). Later acts enlarged on the significance of non-agricultural lands and increasingly emphasized timber values. The act of 1945 authorized county boards to set aside tax-forfeited land more suitable for forest purposes than for any other purpose, and it provided for the establishment of county memorial forests.

In addition to tax-forfeited lands, the state took legislative actions on the titles of other lands by assuming responsibility for the drainage bonds in Aitkin, Roseau, and Mahnomen counties. The lands thus acquired are commonly known as “reforestation areas” or “reforestation and flood control areas.” In 1949, the legislature combined receipts from the lands acquired by these means in a “Consolidated Conservation Areas Fund.” Lands within the 1949 act are commonly called “con-con lands.”

Colonial Craft and 'Bloomquist's Crusade'

Colonial Craft is an unusually progressive operation in regard to its emphasis on employee education, extensive list of employee benefits, and general sense of corporate responsibility. Owner and CEO, Eric Bloomquist says, "If there is a [n employee] benefit we offer it." Colonial Craft offers extensive education benefits, health coverage, three kinds of profit sharing (a traditional annual pension profit sharing, a 401(K) hourly profit sharing matching 50 percent of what the employee puts in, and "gain sharing" each month) along with a high degree of training in teamwork and relationship building. Company financial information is shared with employees every month, and in 1996 Colonial Craft paid out 60 percent of its profits back to employees. For Bloomquist, one of the joys of the expansion and success of Colonial Craft since he bought the company in 1974 is that "we're bigger but we are not a lot different."

One benefit, which Bloomquist is especially proud of, is a learning center built in Colonial Craft's remote Luck, Wisconsin facility, "The Mind Molding Center". Built partly with a grant from the state technical schools in Wisconsin, the center is a dedicated space including a number of computer learning stations. It is open to any employee and their families, during hours and off-hours, for anything from learning how to balance a checkbook, to getting a GED, calculus, college prep, or other studies available through the remote learning network. Bloomquist says the key to facility success is having instructors on-site a few days a week. Two out of 100 employees in the facility got their GED one year, people, according to Bloomquist, who had never considered it before. The company has moved with the university to put together a program for Colonial Craft employees at the college for a day or two. Bloomquist says, "There's always somebody doing something neat. You can't get too smug in this business because there are way too many neat things you haven't thought of or become aware of and it changes fast."

So it is no surprise that Bloomquist calls his quest to find certified lumber for his manufacturing plants a "crusade." After meeting with SmartWood's Richard Donovan for the first time in 1994, Bloomquist said,

"Look, we really want to do this, but there is no certified wood out there so what do we do? So we went out on a couple year crusade, the vast majority my personal time. I had an assistant who worked with me an awful lot, and we spoke to anybody who would listen . . . to all the trade organizations, got visibility quickly, and because we were willing to just say what we thought, talk about it, tell the numbers, tell the stories that people tended to listen to. We got in to the Hardwood Research Council, the NHOA annual meeting, to make the pitch. [We'd say] this is good for us, we think its good for the industry, we need some of you to get on this bus because we can't do it without you. We pushed really hard. It wasn't somebody coming in telling them to 'clean up their act.' It was us standing there with \$10 million in purchase orders. . . . In a crass sort of way, I said in the beginning, all you need to [be able to] participate in certification is a purchase order and checkbook."

As to the actual costs of certification, Bloomquist says "The 'crusade' has been very expensive. The actual certification process has been reasonable."

The upshot of this lengthy "forfeiture legislation" is state ownership of much of Aitkin County's timberland, and title to the forfeited lands "impressed with a trust in favor of the county and other local taxing districts." Thus, the framework for public forest management in Aitkin County includes a tacit partnership of the Department of Natural Resources and the Aitkin County Land Department. The partnership works well according to Aitkin County's Assistant Land Commissioner Mark Jacobs, who says the partners share several joint management areas and work together on issues such as fire succession and wildlife management.¹⁴

The perceived relationship between northern Minnesota's economy and forest ecosystem has provided the impetus for new forest law and policy. Technological advances by the 1970s elevated aspen from a weed species to the primary component in the manufacture of wafer board and ori

ented strand board. Subsequent massive harvests of aspen and other species to feed the demand for wood fiber and chips in northern Minnesota, led concerned citizens to ask the state to assess the potential environmental impacts of continued harvests. The state responded in 1989 with a generic environmental impact statement. Approved by the state in 1994, the statement now provides important background information for the long-term management of Minnesota's northern forests. In 1995, it prompted the Minnesota Sustainable Forest Resources Act, which authorized the creation of a Forest Resources Council and the Forest Resources Partnership to coordinate partnerships in which landowners, managers, and loggers work together on implementing sound forestry practices.

In 1994, the Department of Natural Resources issued guidance on "old-growth forests." The guidance proposed definitions of old growth, set goals for old-growth management on state lands, and reserved stands identified as old growth until they could be evaluated. In 1995, the guidance was expanded to establish Department of Natural Resources teams for each landscape subsection, with the charge of "selecting and designating old-growth and future old-growth stands."

In response to widespread concern about the white pine resource in Minnesota, a White Pine Regeneration Strategies Work Group was appointed by the Department of Natural Resources in early 1996, with a charge to report their findings to the Forest Resources Council. In January, 1997, the Forest Resource Council endorsed the recommendations of the Work Group. A biennial appropriation of \$1.5 million was appropriated by the legislature in 1997 and in the 1998 capital budget the legislature appropriated an additional \$600,000 for various purposes related to white pine restoration.¹⁵ Aitkin County received \$11,000 for fiscal year 1998 (which covered the planting of approximately 20,000 white pine seedlings along with pruning, thinning and other site preparation and disease and deer and insect predation prevention practices) and will receive \$14,000 in fiscal year 1999. The white pine restoration funds are shared statewide by the Department of Natural Resources, counties, the University of Minnesota, and private forest stewards.

Economic and Social Context

Department of Natural Resources and Aitkin County Land Department management of local forests contributes to a major segment of the Aitkin County economy. The forestry sector in Aitkin County generated full and part-time employment for an estimated 202 persons in 1994 (excluding sole proprietorships or family partnerships).¹⁶ This represents 3.6 percent of total employment in the county and 47 percent of the manufacturing sector employment. According to estimates made by the Minnesota Department of Natural Resources, each \$1.00 in stumpage sold results in \$40.17 in value added to the state's economy (\$28.62 to \$1.00 in impact for saw-timber, \$42.99 to \$1.00 in stumpage for pulpwood). Based upon these figures, the estimated impact of the forest products industry on Aitkin County in 1994 was \$11,673,810 in direct impact of actual spending (202 jobs), plus \$10,389,690 as a multiplier effect of this spending on other trades and services (269 jobs), resulting in a total impact of over \$22 million (471 jobs in the county).

Because of expansion of the wood products industry in northern Minnesota and Wisconsin over the past 20 years, and because Aitkin County has extensive markets for its timber, Aitkin County lies within the "woodshed" of numerous large wood-using plants. While each plant has different requirements, these fiber-based industries use large volumes of aspen, though they also consume mixed hardwood and conifer species. Competitive demand for these fibers keeps timber prices (principally aspen) high, with prices driven by the global market. Markets for hard and softwood saw-timber have likewise expanded over this period with a clear trend towards increased utilization of smaller diameter and lower quality logs. This trend is especially significant given the relatively young age of most of Aitkin County's hardwood resource. These market opportunities help

increase management options for hardwood intensification and stand improvement initiatives currently underway.

The 1995 analysis of Minnesota's fifth forest resources inventory supports the view that hardwood saw-timber will increase in economic importance in Aitkin County. Eleven per cent of Aitkin's net growing stock (expressed in thousands of cubic feet) is "soft hardwoods," which includes species such as aspen and basswood.

Maintenance of soft hardwoods stock has been the primary objective of forest managers in northern Minnesota since new wood products technologies appeared in the 1970s. However, as the 1995 inventory shows, 19 percent of Aitkin's growing stock is now "hard hardwoods" such as sugar maple, oak, ash and other high-density woods. At 214 million cubic feet, Aitkin's inventory of hard hardwoods is the largest of any county in the state. Moreover, Aitkin County contains 16 percent of the stock (expressed in thousands of board feet) of hardwood saw timber in the 17 counties in northern and northeast Minnesota. This current finding that Aitkin County is a major repository of hard hardwood saw timber is supported by the analysis of pre-settlement forests in the St. Louis Moraines ecoregion, which extends southwesterly well into Aitkin County.

Fast-moving social and demographic events also have the potential to direct forest management in Aitkin County. Minnesota population shifts from 1990 to 1996 show an increase in Aitkin County's estimated population from 12,425 to 13,715, a 10.4 percent increase and 15th highest of the 88 counties in the state and second highest of the northern counties. The Aitkin Area Chamber of Commerce and others believe that the recent surge in population growth is due to development of new businesses and the influx of retirees and "metropolitan transplants." The University of Minnesota Department of Applied Economics, however, projects that Aitkin County's population will decrease approximately 23 percent between 1995 and 2020 due, in large part, to declining birth rates and a rapid drop in kindergarten age children. Aitkin County reached a high of 17,865 people in 1940 when nearly three fourths of the population was classified as "rural farm." In contrast, less than seven percent of the population was classified that way in the 1990s.

Aitkin County is also within territory ceded by several bands of Ojibwa through mid-19th century treaties with the U.S. government. Traditional rights retained, as specified in the various treaties, include the right to hunt, fish, and gather within ceded territory. Recent federal court decisions uphold the retained rights. Because the right to "gather" implies harvests of wild herbaceous foods, medicinal plants, and structural materials, there are implications for management of public forest lands in Aitkin County. According to John Landis of SmartWood™,¹⁷ there seem to be no major conflicts of interest with tribal rights in Aitkin County.

Forest Management Administrative Structure and Scope of Operations¹⁸

The current structure of the Department's forest management administration has been in place since 1989. While Land Commissioner Roger Howard has county board-delegated responsibility for forest management, day-to-day operations are supervised by Assistant Land Commissioner Mark Jacobs. Three district foresters do fieldwork. District I is 115,510 acres; District 2 is 71,732 acres; and District 3 is 34,517 acres, which average approximately 74,100 acres for each of the three foresters. The Commissioner's office and the district foresters receive technical support from a geographic information system (GIS) specialist and forestry inventory specialist.

Some 221,000 acres are within administrative oversight of the Department. Of that total, approximately 134,000 are dedicated "memorial forest," i.e., a statutory multiple-use forest. Most of the memorial forest dedications occurred in the 1960s. County parks (a relatively minor acreage) were also dedicated according to statute. Large blocks of county land are neither dedicated forest

nor park. Thus, there are three broad categories of land administered by the Aitkin County Land Department: memorial forest, county park, and “other.” Removal of lands from memorial forest or park status requires public hearing and affirmative decision by the county board but such removals rarely occur. The Department often permits timber sales on lands in the category of “other.” Another option often used by the Department is to use “other” lands as exchanges for privately held lands within or adjacent to memorial forest.

Through county board resolutions, the Department participates with Department of Natural Resources Division of Fish and Wildlife and Division of Forestry in joint management of nine of the 25 state wildlife management areas in Aitkin County. Those nine Wildlife Management Areas total approximately 18,911 acres, or 39 percent of the total 47,962 acres of Wildlife Management Area in the county.

Aitkin County is one of several in northern Minnesota that in 1990 formed a County Forest Advisory Committee. The Committee advises the County Board of Commissioners and the Department of Natural Resources on the county’s forest lands management and, in particular, the harvest schedules proposed by the county and Department of Natural Resources. The department provides the secretarial support for the Committee. Jacobs says the “department staff brought the certification idea to the Forest Advisory Committee,” and they “had a pretty active role in deciding to go ahead with the certification process.” The 14-member committee consists of eight citizen seats (one each appointed by the five county commissioners and three at large) along with four industry professionals and two county commissioners.

In 1994, the Forest Advisory Committee commissioned a public perception survey, which included direct mail, and surveys at meetings with stakeholder groups like the lake associations, snowmobile clubs, a loggers group, and others. The survey reinforced early discussions about certification. According to Jacobs, water quality issues were the number one concern overall in the surveys, while jobs and wildlife habitat came in a close second and third. Recreation and visual quality were behind the top three, while old growth rated a poor response, and soil productivity was last.

In addition to its obligations for generating timber revenues on tax-forfeited lands, the department has a broader mission including providing recreation, water quality, wildlife habitat management, and environmental education on public lands. The broad focus on ecosystem management for uses other than timber is unusual among Minnesota counties. Aitkin County’s leadership in promoting wildlife management, recreation, water quality, and healthy natural systems has evolved over the last two decades under the influence of Commissioner Howard. He says the evolution from a singular economic analysis of the revenues from timber harvest to the broader cost/benefit appreciation of the values of recreation, wildlife, safe drinking water, and related ecosystem restoration issues has been relatively painless in Aitkin County. “We’ve had to answer many questions from the county commissioners over the years, and we’ve done a lot of educational outreach and the political support has been good,” he says. He notes that the economic benefits of the county’s broadly based approach to land management grows over time as the land becomes more productive for wildlife and timber harvest at sustainable levels.

The department’s 13-person staff oversees four major county developed and owned campgrounds and Minnesota’s oldest residential environmental education facility, the Long Lake Conservation Center. (The Conservation Center’s total 1996 attendance included 5,553 students and 1,338 adult participants in its programs.) It also contracts with clubs for maintenance of over 600 miles of snowmobile trails, and itself maintains 100 miles of ATV summer trails and two cross country ski trails. The department also maintains 21 county-owned river and lake accesses, and, under contracts with the state, maintains an additional 27 state-owned river and lake accesses.

Jacobs is particularly proud of the county's geographic information system (GIS) developed since 1995. The computerized modeling system includes a variety of data layers used to create maps, project timber growth and sales, recreation impacts, and a number of other uses. Data layers include watershed and sub watershed boundaries, soil types and distribution, forest inventory, roads, tax districts, public campgrounds, public ditches, major landmarks, settlement restricted areas, zoning, public accesses, and others. The GIS serves a number of county departments in addition to the department, including the Sheriff's Department and Planning and Zoning. Jacobs says the maps and reports created from the GIS data layers were essential in assisting the SmartWood™ assessment team in the certification process.

Local Processors and Certification

Bob Bartz,¹⁹ a retired state forester and self-described tinkerer, got out of forestry in the early 1960s to start a mill making pallets and pre-cut pallet parts. The pallet company grew to a high of 25 employees before it shut down in the 1980-82 recession. In 1985, Bartz restarted his mill with one employee in a crating lumber business. Employment gained until 1990, when he cut back again to three to four employees and went on an extended road trip to research other lumber markets.

In 1991, Bartz attended a "hardwood dimension" workshop in Green Bay, Wisconsin, which gave him an awareness of the hardwood dimension industry. He later heard of a process used in Japan and Germany in which raw logs are cut into dimensional pieces, kiln dried, and sold ready for use in a variety of products. Wainscoting made by these processes, for instance, results in 94 percent of what previously would be waste products used in final manufacturing. After years of experimentation with low grade logs and lumber, with building and customizing of precision cutting equipment, small dry kilns and wood waste fuel systems, Bartz is operating his own Palisade Supply Inc. "Green Hardwood Dimension" business outside Palisade, Minnesota.

Bartz, who in 25 years of business in Aitkin County had almost no contact with the Aitkin County Land Department until he was asked to serve on the Forest Advisory Committee in 1990, said at first he thought it was going to be "a big waste of my time, sitting in some meeting just because some environmental group says we have to." But he soon became a fan of the Forest Advisory Committee. "It didn't take very long before I realized that this was a meeting that wasn't interested in just screwing the logger, [but got] private citizens involved, getting them to learn about forestry, getting the state Department of Natural Resources people, the county people, the fisheries and wildlife people, and the refuge manager sitting at the same table talking to each other. That first couple of years there was some hard words and yelling, but after they got through that stage and decided that they were going to work together, things got accomplished."

Bartz, also a member of the Minnesota Wood Promotion Council, is impressed with what the department staff has accomplished. He emphasized Jacob's and Howard's strategic thinking and persuasive abilities. He also provides an overview of the timber harvest in Aitkin County over the years:

"When I first started buying logs, most of it was cut by part-time loggers, construction workers, in the wintertime. Then it progressed to full-time loggers, and the full-time loggers got more and more and the John Deere equipment got bigger and bigger. We started with 420 model dozers, and there's humongous grapple skidders and all that equipment, which is fine for large tracts of industrial timber, but it doesn't work in our type of timber here. Our timber is in small tracts, largely aspen and mixed hardwoods, and you take that pulpwood logger and pulpwood mentality

and put him in one of our stands and before long you've got damage. So we need to change the way we do things.”

Bartz says only a small percentage of loggers in Aitkin County cause major damage to the resource. When apprised of a citation Jacobs had issued to a logger who had skidded trees out of the woods, across a gravel county road into a neighboring pasture, causing deep ruts in the forest soils, the gravel road, and the turf in the pasture, Bartz exclaimed “That’s a butcher. The percentage of this type of operation is getting less and less. But there’s still a few out there.”

Bartz and others say, however, that the incentive to invest in new logging equipment is marginal given the partial transition in the forest types from pulp to hardwoods. Brander maintains that the fragmented nature of land ownership in the county, and the small, highly personalized logging outfits can work to the county’s advantage in restoration efforts, particularly in white pine restoration.

“One or two person operators who do highly personalized logging, have the ability to do micromanagement. What we’re suggesting, for example, is to begin to experiment, attempt to emulate wind throw, for example. So much of this has to do with the equipment available and the skill of the logger. In upper Michigan, cable skidding was once considered state of the art. Or if not state of the art, that was just how people did it. But then we go and see an operator with some of the new wood processing equipment, and other than the slashings and stumps in the stand, you can’t tell he’s been there. That’s a half million-dollar investment. The loggers have to gear up and have the right equipment to simulate wind throw and other natural regeneration systems.”

Rich Peterson is another former forester (and current business management teacher) who has started a small value-added processing mill in the county, Master Millwork and Lumber. Peterson was appointed to the Forest Advisory Committee in 1996 and is a big supporter of the certification efforts. He sees the SmartWood™ certification as an opportunity to help the timber industry add value. “Historically, the timber industry in Minnesota never added value by processing here. Most wood was shipped out to Wisconsin and points elsewhere because of the tax climate and workers compensation costs.” Peterson says the “jury is still out on the promise of higher sales prices on certified wood.” He maintains that the certified material would be best used within the county to generate quality products and industry locally. “Manufacturing could and should provide a major portion of the local economy,” he says.

The Institute of Agriculture and Trade Policy—the Global View

The Aitkin County story is incomplete without an understanding of the role that the non-profit Institute of Agriculture and Trade Policy (IATP) played in the regional certification effort. Institute of Agriculture and Trade Policy President Mark Ritchie explains that the institute was founded in 1986 to link rural communities and environmental organizations, particularly family farms with environmental issues as directly and closely as possible. The institute’s primary focus over the last decade has been on the connections between local and global policy. Over the years the institute has worked in relation to various natural resource issues affecting rural people such as water, watershed, and forestry, including the impact of forest management and forest products on local family farmers and in other countries.

Institute of Agriculture and Trade Policy’s involvement in wood certification grew out of one of the Institute’s major projects, a systematic analysis of product sustainability labeling around the world. Ritchie explained:

“Two years ago we began to expand from our work on eco-labeling which was in the agricultural area, particularly organic, to look at eco-labels and how they might be used in the farm community for sustainably produced agriculture products . . . and value-added goods, especially if there was an environmental component to that value-added, or an economic sustainability component. That led us into looking more carefully at eco-labeling and certification in forest products and how that might be useful and helpful to farmers . . . I believe there are a lot of lessons in forest certification that can be useful for farmers active in sustainable agriculture labeling.”

One of the important issues that the institute looked at early in its study of forest certification, was supply and demand for certified wood. Ritchie says “There was an argument, back and forth, the chicken and the egg, not enough product couldn’t get a big enough market—and without a big enough market, couldn’t get enough product. So one of the answers that’s been proposed is that certification of wood from state and county owned forests would increase the supply enough to the point that the market would grow.”

The institute began to serve as a conduit for funds in the Great Lakes states for several private foundations²⁰ that were pushing timber producers to meet environmentally sustainable forestry practices. As a funds conduit, the institute came into partnership with SmartWood™ and Bob Brander and Sigurd Olson Environmental Institute, and ultimately with the Aitkin County Land Department.

Bloomquist believes there is a demand for certified wood, arising from a variety of sources, including government requirements and consumer demand. He says supply is still his biggest problem in 1998. Even though Aitkin County Land Department and the state lands in Aitkin County have been certified as suppliers, and two farm co-ops and nine additional Minnesota counties have entered the certification process, log processors have yet to come on line, and it will be a year or two for there to be enough certified sawmills to make the Aitkin County supply reliable.

Conclusion

Mark Ritchie imagines that consumers and producers will establish new social compacts around agricultural and forest products:

“Farmers are large owners of land and big influencers of water, so we deal with that constituency, and see the SmartWood™ label as an effective tool for that constituency. At the same time, we are in relationship to the wood products industry and the buyers. This is a tremendous tool for the industry doing its own niching, [product] differentiation and rate sustaining in general. Then there are the individual values of people ranging from the folks who don’t want the forests cut, all the way to the people who are in this industry who love wood, and are attached to the idea that there is a [work] process that could express that love—like people who love the land, who love trout, who love cows, who want to live and work in a way consistent with their heart. If they’re home making furniture they’re not in control of the forestry process, but if they have a label, that gives them assurance that in each stage of the process of growing and getting that wood there was someone else who loved wood and was operating according to [stated] principles.”

Mark Ritchie and Bob Brander, among others, see the Aitkin County Land Department's success with progressive forestry and emphasis on a wide range of uses and services for county residents and the larger public as the "story" in Aitkin County. "The story is the advanced thinking in Aitkin County. They have developed many public amenities; they know the importance of wildlife management and the broad list of values that the Land Department supports. Most of the counties don't even begin to think about many of these issues," says Ritchie.

Aitkin County's story is being told in increasingly wider circles. In the year since certification, the Aitkin County Land Department has received numerous awards, including the Minnesota Association of Counties Achievement Award, a 1998 Achievement Award from the National Association of County Officials, and a Governor's Partnership Award from the State of Minnesota. Mark Jacobs received the JC "Buzz" Ryan Award as Forest Manager of the Year from the Minnesota Forest Employees Association.

More important than the awards, are the dozens of inquiries Jacobs says come into his office from interested organizations, state and county agencies, universities, and certified industries across the United States. One initiative of particular importance was the Minnesota Department of Natural Resource's proposal to the 1998 Minnesota legislature asking for \$700,000 to go ahead with SmartWood™ assessments of state lands in nine additional Minnesota counties, including assessments of county lands in two counties. In addition, inquiries for certified wood have come in from two manufacturers in the United Kingdom and from lumber suppliers in both the United Kingdom and Canada.

Meanwhile, Eric Bloomquist continues his speaking engagements and advocacy for certification in front of any audience that will listen. He says his "crusade time" is down to a more manageable 30 percent. Finding enough certified lumber for his quickly expanding mills is an ongoing problem, forcing him to consider buying logs at the Aitkin County auctions in 1999. Most importantly, the early success with certification of county public lands will likely encourage county residents and political leaders to support county and Department of Natural Resources efforts to restore Aitkin County's severely high-graded, poor quality forests to a naturally balanced and productive forest for timber, recreation, water quality, and wildlife.

Notes

¹. One entrance to the exhibit states in large text "The era of 'green gold' is over. It would be easy to condemn those who were involved in lumbering for the destruction of the pine forest, but this 20/20 hind site (sic) does not do these people justice. Although greed and ignorance were involved in the lumbering industry, there was also a solid belief that what they were doing was right.

². *Rediscovering America* page 305 (Turner, 1985).

³. *Ibid.* page 305.

⁴. *Ibid.*

⁵. See *Power and The Land: Four Documentary Portraits of the Great Depression* (1994) which includes the Lorentz films *The River* and *The Plow that Broke the Plains*. The films, narrated with epic poetry and musical scores by Virgil Thompson, include rare footage of logging camps and river drives and documents the deforestation of the Mississippi Valley. Distributed by Kino Video, New York City (800)-562-3330.

⁶. Rasmussen Millwork, after Bloomquist's purchase, was eventually officially incorporated as Colonial Craft, Inc. Bloomquist also notes that he did go back and finish college in the first few years he owned the business.

⁷. All references and quotes from Mark Jacobs and Roger Howard from in person interviews taped and

transcribed from June 14-16, 1997 unless otherwise cited.

8. Quotes from personal interviews with Mark Jacobs taped and transcribed July 14-16, 1997 unless otherwise cited.
9. Email communication from Mark Jacobs 7/21/1998.
10. Telephone interview with Eric Bloomquist, July 22, 1998.
11. All quotes from taped and transcribed personal interview with Robert Brander, July 12, 1997 unless otherwise cited.
12. This section has been adapted from the Smart Wood and Sigurd Olson Environmental Institute Certification Assessment Report of the Aitkin County (Minnesota) Land Department's Management of County Forest Lands, July 1, 1997 pp.8-9.
13. This section has been adapted from the Smart Wood and Sigurd Olson Environmental Institute Certification Assessment Report of the Aitkin County (Minnesota) Land Department's Management of County Forest Lands, July 1997 pp. 9-11.
14. Quotes from personal interviews with Mark Jacobs taped and transcribed July 14-16, 1997.
15. Telephone interview with Bruce ZumBahlen of the Minnesota DNR, July 22, 1998.
16. Parts of this section have been adapted from the Smart Wood and Sigurd Olson Environmental Institute Certification Assessment Report of the Aitkin County (Minnesota) Land Department's Management of County Forest Lands, July 1, 1997 pp. 11-13.
17. Interview with John Landis, Forest Health Specialist, Richmond, Vermont, June 26, 1997.
18. Parts of this section have been adapted from the Smart Wood and Sigurd Olson Environmental Institute Certification Assessment Report of the Aitkin County (Minnesota) Land Department's Management of County Forest Lands, July 1, 1997 by Robert Brander pp. 13-15.
19. Information and quotes from an in-person interview with Bob Bartz at the Palisade Supply Inc. mill July 14, 1997.
20. The Rockefeller Brothers Fund provided funding to help pay for Aitkin County's certification assessment, while the Heinz Endowments provided funds for an assessment on public lands in Pennsylvania. A public foundation, The Great Lakes Protection Fund, provided funding for a 1997 market survey in the region.

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