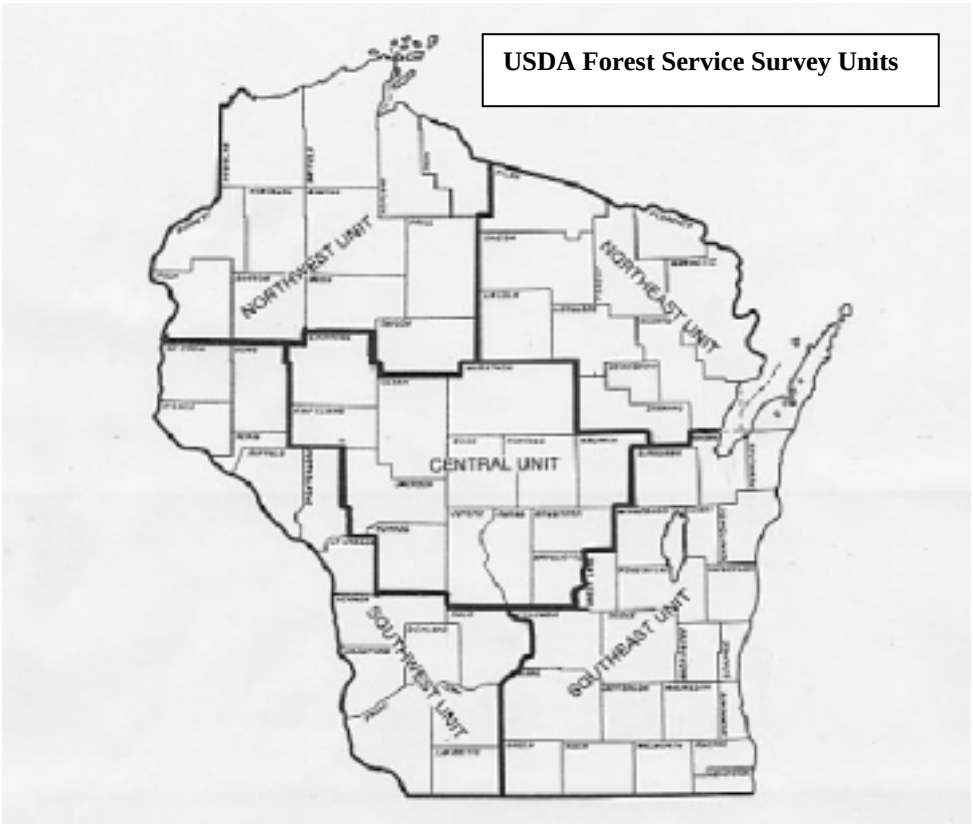
Woodlands of Opportunities and Challenges

Mark Rickenbach, Scott Bowe, Jeffrey Steir and Kimberly Zeuli

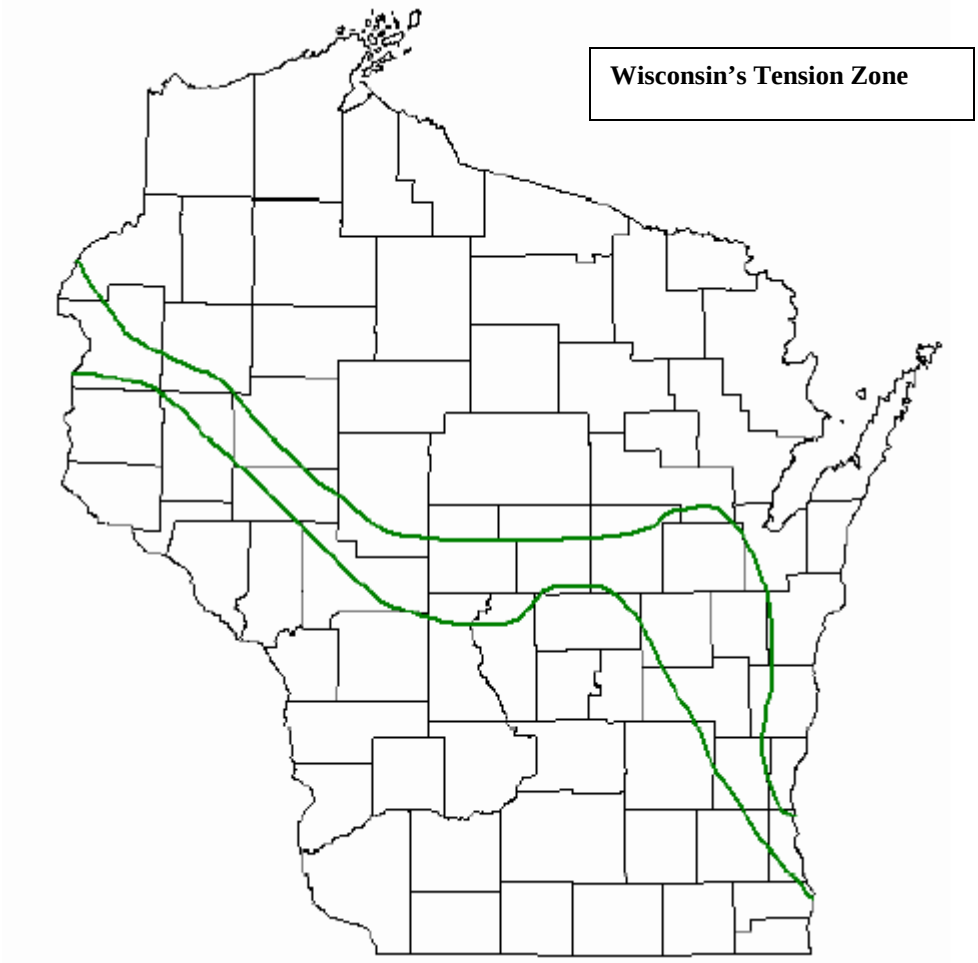
Forests and woodlands are an important component of rural life in Wisconsin. In many places they are isolated woodlots on the fringe of agriculture and suburbia. In the north, they are the dominant landscape feature. Whether isolated or dominant, woodlands and forests are rooted in Wisconsin's history, its culture and its economic and ecological future. In what follows, we will provide an overview of Wisconsin's forests and woodlands and the industry that depends on these resources for raw materials.

While woodlands and forests are found throughout the state, we will focus on those to the south. The USDA Forest Service divides the state into five geographic regions for purposes of conducting periodic forest inventories and reporting forest statistics. The most heavily forested regions are the two northern survey units which span most of the upper half of Wisconsin. The Central, Southwest and Southeast survey units are less heavily forested, have higher proportions of agricultural land and contain three-quarters of all farm forests. We will also describe some emerging and long-standing opportunities to improve forest management as well as the challenges that continue to hinder expansion in the south.



Wisconsin's Forests

Most of Wisconsin is either farm or forest. Wisconsin covers a total land area of almost 35 million acres. Roughly equal shares of the state are covered with agricultural land and forests — about 16 million acres each. The state straddles two major ecological regions: (1) the northern mixed forest which is similar to that in the Upper Peninsula of Michigan and parts of northeastern Minnesota; and (2) the southern broadleaf forest which more closely resembles the eastern hardwood forests of Indiana and Ohio. Forests in the north are adapted to a cooler climate and lighter, often sandy soils. Those in the south are favored by a more moderate climate and soils that are generally higher in nutrients than those in the north. The demarcation between these two regions is more of a band than a line. Called the "tension zone" by Curtis (1959), vegetation within the band is characterized by a rich woody flora that includes species common to both the northern and southern forest regions.



Wisconsin's forests are predominantly (84 percent) in hardwood species such as oak-hickory, elm-ash-cottonwood, maple-birch, and aspen-birch. The percentage of forestland area in hardwoods does not differ greatly between the north and the south. Nevertheless, there are significant regional differences. The northern half of the state contains 75 percent of the total area in softwood forests such as pine and spruce-fir, 80 percent of the aspen-birch type, and two-thirds of the sugar maple forests. The region south of the tension zone is better-suited to oak-hickory, although sugar maple and basswood forests do occur there as well.

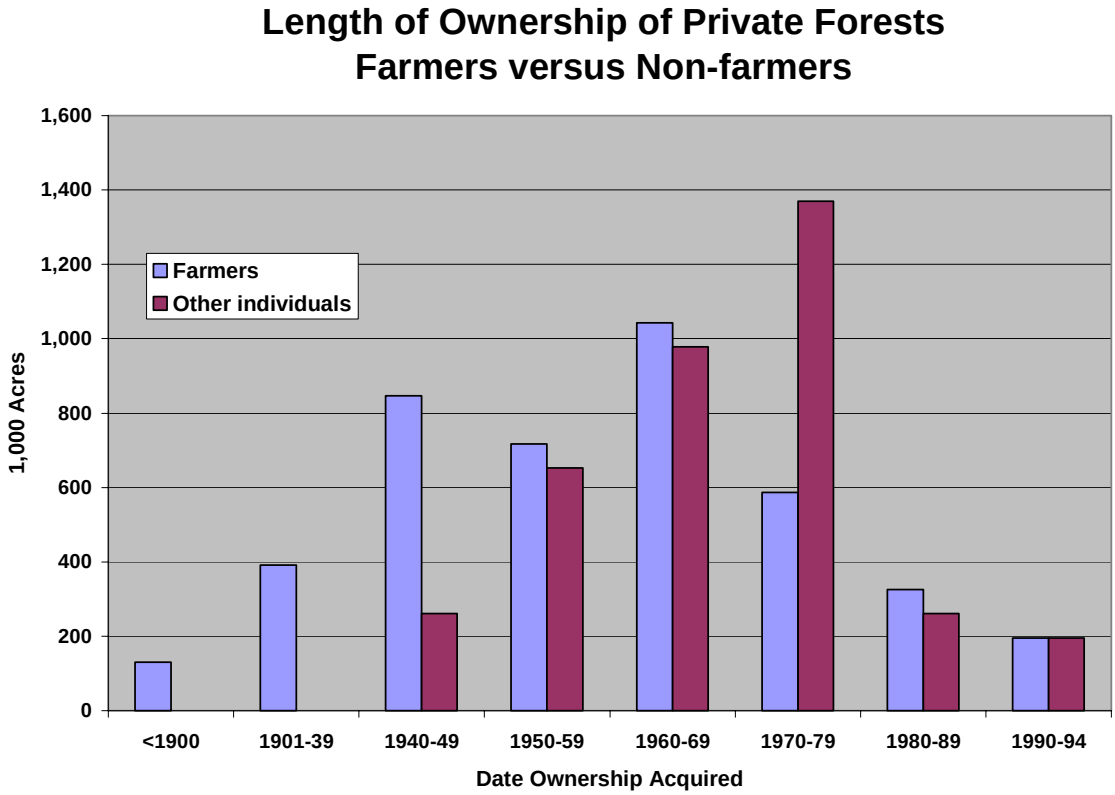
Total forestland increased from 14.5 million acres in 1968 to 16 million acres in 1997. Sixty percent of that increase occurred in the southern three survey units, where marginal farmland reverted to forest. There have also been changes in the type of forest that occurs there. In 1968, 38 percent of the forestland was oak-hickory and 15 percent was maple-basswood; by 1997 the oak-hickory type had declined only slightly to 36 percent, but the maple-basswood type had increased to 29 percent. Maple-basswood forests tend to develop on moist, nutrient-rich sites that do not experience fire or other major disturbance. Over time, and in the absence of active forest management, many of the remaining oak-hickory forests on the richer sites in the south will probably be replaced eventually by maple-basswood forests as well.

Ownership

Sixty-eight percent of all Wisconsin forestland is privately owned, and 55 percent is in the hands of approximately 250,000 individuals and families who own no timber-processing facilities This group is commonly referred to as *non-industrial private forestland* (NIPF) owners. Fifty years ago, most of these were farmers (in 1956, farmers held 41 percent of all forestland). But the numbers of farms and farmers has been declining steadily since then, and there has been a corresponding decline in the share of farm forestland. Today, the best estimates show that about 75,000 farmers own a little over 3 million acres of forestland. Average farm size increased as the number of farmers declined, but just the opposite has been true for forestland. The number of NIPF owners has been growing over time and average size of forest owned has been decreasing. Today, 70 percent of all holdings are less than 200 acres, and half of all ownerships are less than 100 acres (Leatherberry, 2001).

Farmers are different from other NIPF owners in at least two important ways. First, farmers tend to have longer tenure of ownership. This gives them greater opportunity to shape the development of their forests over time through their management decisions.

Second, farmers typically seek to earn a living from the land. Other NIPF owners hold land for myriad reasons, and in most cases economics does not rank very high. In the most recent statewide landowner survey, land value increase and timber production were



cited by only 5 percent of owners as a primary reason for ownership. Recreation and aesthetics enjoyment are the most commonly cited reasons for ownership (Leatherberry 2001). The survey broadly defines recreation such that it can include anything from hunting and bird watching to snowmobiling and ATV use.

The varied perspectives and needs of owners challenge efforts to foster sustainable forest management. The share of forest owners who actively engage in management planning by owners — long used as a barometer of thoughtful stewardship — remains at around 20 percent. In addition, the wide array of expectations for the land makes delivery of management and policy-related education information difficult. For example, what might appeal to an owner interested exclusively in better deer habitat may be irrelevant to one interested only in managing red pine for profit. Yet landowners, with highly diverse interests, levels of knowledge and experience continue to harvest and provide more than half of the timber used by the state's forest products industry (Schmidt 1998).

Forest Products Markets

Wisconsin's agricultural and tourism industries receive a great deal of media attention. This is understandable, since we lead the nation in cheese production, and our ample natural resource and vacation attractions offer a variety of tourism opportunities. Often

overlooked is the fact that Wisconsin is also the nation's number-one paper-producing state, ranking first in fine papers and sanitary paper products. The state also ranks first in millwork and high-quality children's furniture and third in hardwood veneers.

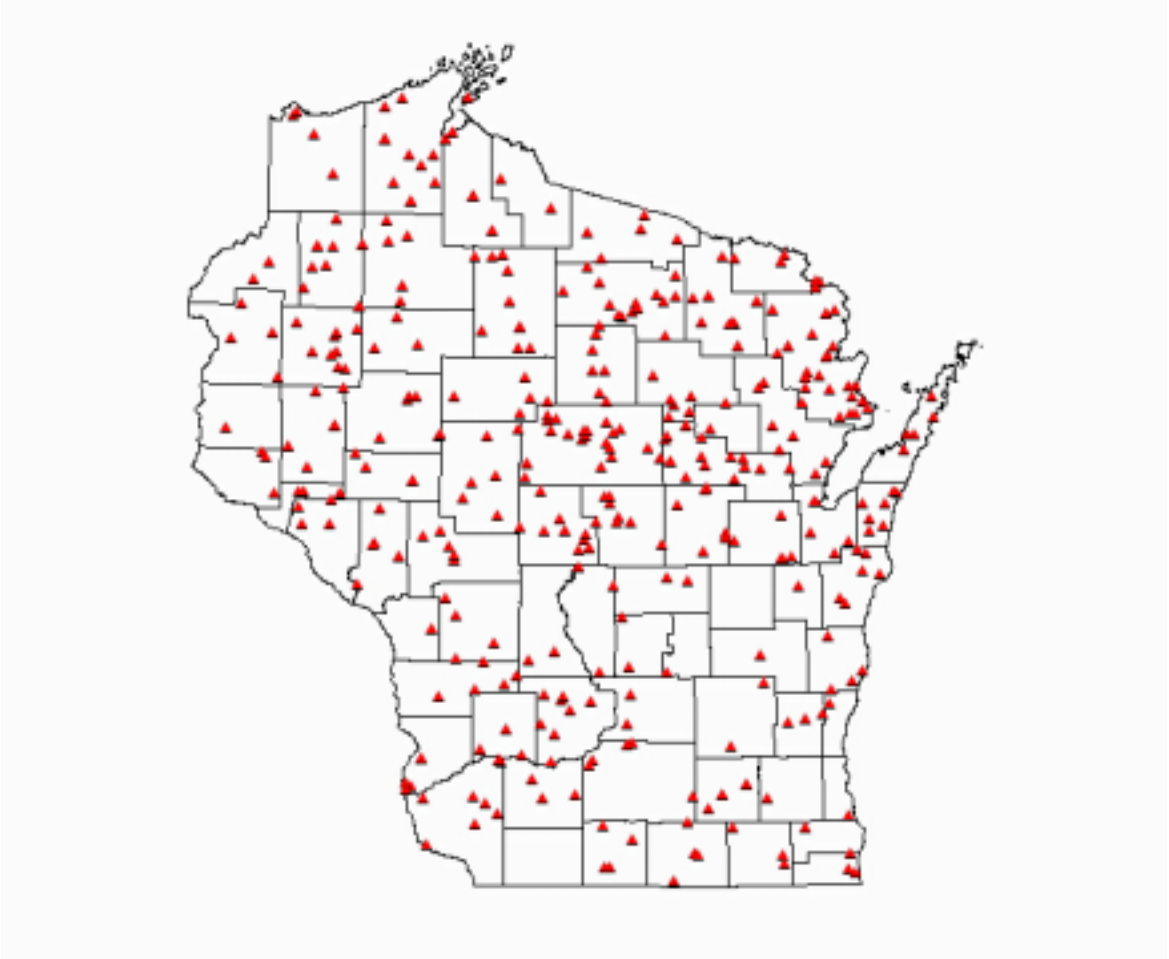
Where is Wisconsin's Forest Products Industry?

Wisconsin's forest products industry is broken down into two groups: *primary forest products producers* and *secondary forest products producers*.

Primary forest products producers are companies that obtain their raw materials directly from the forest. Sawmills and paper mills are primary forest products producers since they utilize trees as their raw material.

Wisconsin has about 400 primary forest products companies. This does not include the hundreds of small hobby mills found across the state. Though more concentrated in the heavily forested counties of the north, a number of mills are found in the southern counties.

Primary Forest Products Companies

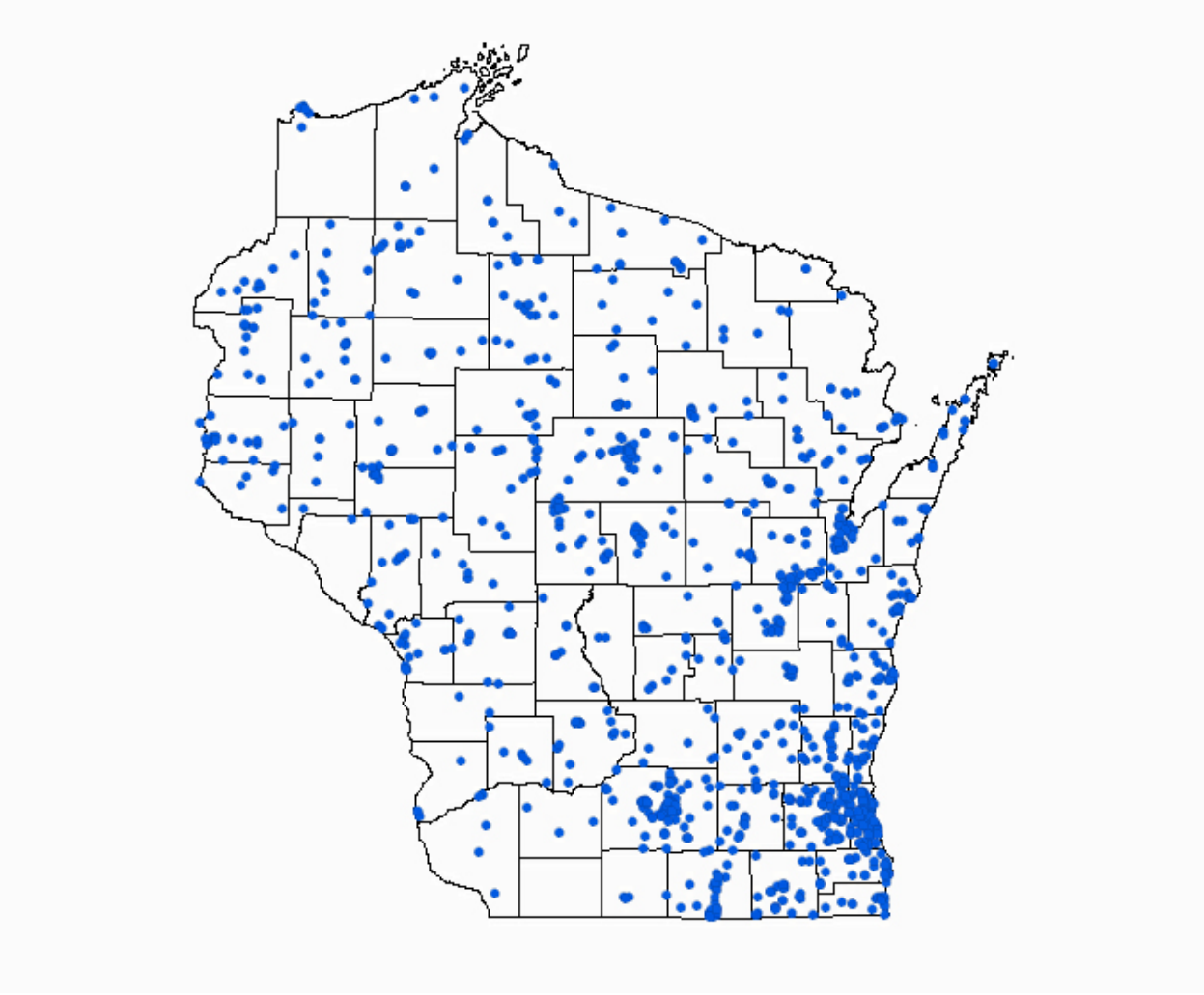


Source: Prichard 2002

Secondary forest products producers are firms that obtain their raw materials from the primary forest products producers. A furniture manufacturer that obtains its lumber from a sawmill fits into this group. Wisconsin has about 1,200 secondary forest products companies involved in solid wood manufacturing. This does not include the thousands of related companies in the paper-converting and printing industries.

Given the abundant forest resource in northern Wisconsin, one might expect the secondary forest products producers to be concentrated there. In fact, much of the secondary forest products industry is concentrated around urban areas in the southern half of the state.

Secondary Forest Products Companies



Source: Prichard 2002

Types of Forest Products Produced in Wisconsin

A variety of products are produced from Wisconsin's forest resource. The three major raw material categories include sawlogs, veneer logs and pulpwood. Sawlogs are processed into a variety of products including lumber, railroad ties and pallet cants. Lumber is further processed into value-added products such as molding, wood flooring, furniture and cabinetry. Much of the low-grade lumber is consumed by the pallet and container industry.

Wisconsin's Forest Products Categories

Product	*Production (% of Total)*
Pulpwood-based Products	65.3
Lumber	29.9
Other Wood Products	2.5
Plywood and Veneer	2.3

Source: Adapted from Hackett *et al*. 2002

Paper and composite wood products also play a large role in the forest products industry and benefit from Wisconsin's large pulpwood resource. High-quality writing paper, liner board for corrugated cardboard and medical gown fabric are a few examples of paper products manufactured in the state. Pulpwood-based production utilizes the largest raw material volume of the state's forest products industry. The large paper industry comprises most of this segment. Lumber follows, representing 30 percent of the state's raw material use.

Several composite wood product mills add to Wisconsin's forest products industry. A composite wood product refers to reconstituted wood such as a particle board panel, where wood is ground into small pieces, mixed with adhesives and formed into panels.

Forest Products Industry Economic Impact

Recent analysis shows that Wisconsin's forest product industry is significant and growing. During the period from 1994 to 1997, the industry's output increased from $14.9 billion to $17 billion (Marcoullier and Mace 1999).

The actual annual output is $10 billion higher if all of the indirect and induced economic benefits are added (Mace 2002). This represents 14.7 percent of Wisconsin's manufacturing industry output. Across the state, the forest products industry accounts for nearly 100,000 jobs, which represent more than $4.1 billion in wages and benefits.

Forest Product Economic Impact by Forest Service Region, Wisconsin, 1997

Forest Service Region	*Industry Output ($Mil.)*	*Number Employed*	*Compensation ($Mil.)*
Northwest	1,056	8,891	255
Northeast	1,667	10,650	372
Central	3,843	23,225	930
Southwest	627	5,859	154
Southeast	9,826	50,486	2,418
Total All Regions	**17,019**	**99,111**	**4,130**

Source: Mace 2002

The pulp and paper industry is responsible for 73 percent of the state's forest products output value. In fact, the pulp and paper industry is responsible for more than 50 percent of the industry output in all of the Forest Service regions except the Northwest and Southwest.

Pulp and Paper Industry Impact

Forest Service Unit	*Pulp and Paper Industry Output (% of Total)*
Northwest	27.6
Northeast	56.0
Central	66.9
Southwest	7.7
Southeast	86.6
Total, All Units	72.6

Source: Mace 2002

This regional distribution of economic impact is not surprising given the concentration of the pulp and paper industry in central and eastern Wisconsin. Southwestern Wisconsin is the only region in the state lacking a paper production facility. Forest managers in that region have a difficult time selling the pulpwood material from forest operations. Transporting pulpwood from the southwestern portion of the state to pulp and paper mills in the north is cost-prohibitive. As a result, much of the pulpwood raw material remains in the woods.

Opportunities and Challenges for Expanding Forest Management and Markets

Forests and the multitude of benefits they provide owners and society are an important resource for Wisconsin. Recent and continuing trends offer both opportunities and challenges for expanding both forest management and markets. Forest landowner cooperatives and other more traditional landowner organizations offer opportunities to foster active forest management by NIPF owners — particularly in southern Wisconsin. Federal and state agencies offer a variety of cost-share programs to help landowners meet some of their land management objectives. And forestland taxation offers both opportunities and challenges to the management and conservation of forests.

Cooperatives

Long a familiar business model for Wisconsin agriculture, forestry cooperatives have emerged as a tantalizing tool for improving both forest management and marketing. Several of these modern forest landowner cooperatives have embraced value-added processing. In particular, they seek to identify market opportunity for low-value, small-diameter trees, which are common byproducts of improving forest productivity and quality.

Forest landowner cooperatives are not a new idea. Europe and Japan have a long history of business cooperatives centered on private landowners. However, forestry cooperatives in the U.S. have fared poorly since they first formed in the 1910s. At their height, they numbered 68 (Smith and Sisock 2002). Just prior to their reemergence in 1998, only two forestry cooperatives were actively operating in the U.S. Based on preliminary data collected this year, there are 15–20 forest landowner cooperatives with several other groups considering some type of similar organization. Much of this activity is centered in the Upper Midwest region with seven cooperatives in Wisconsin. These forest landowner cooperatives, like those in the past, look to provide members with services otherwise unavailable, access to markets and increased income. Unlike prior efforts, these cooperatives also foster sustainable forestry through forest certification (Fletcher, Rickenbach and Hansen 2002), land protection and ecological restoration.

The oldest of these newer cooperatives, started in 1996, is the Sustainable Woods Cooperative (SWC) based in Lone Rock, Wis. The goals of SWC are to provide members with (1) forest management services and resources, (2) processing and marketing services, (3) education about sustainable forestry and (4) education to customers on sustainable forestry. With around 150 landowner-members, SWC combines forest certification with small-scale value-added processing and a variety of educational programs to meet these goals. With a forest base of roughly 15,000 acres, SWC primarily produces hardwood flooring, panels and sawn lumber. In the past, substantial support has come through grants from federal, state and foundation partners, but the SWC hopes to see profitability by 2003.

By standard definition, cooperatives are business organizations that are owned and controlled by those who "use" the business: the members. In the case of forestry cooperatives this means NIPF owners. Owners, who supply the cooperative with timber or who use the cooperative's services, provide the equity and govern the co-op. Under current laws, only members can provide equity capital in cooperatives (though debt capital can be acquired through conventional means such as loans and mortgages). Another defining characteristic of a cooperative is that net profits are distributed to members based on their level of use, rather than on how much they have invested in the enterprise. For instance, the relative share of timber a member markets through the cooperative determines that member's share of the cooperative's annual net profits.

Although it is most common in agriculture, the cooperative model is used extensively for a wide variety of businesses. Some challenges inherent in this model cut across sectors. Cooperatives that require substantial capital contributions to cover either start-up costs (e.g., a multi-thousand dollar sawmill) or growth (e.g., to finance mergers and acquisitions) face one of the most fundamental constraints of the business model: the ability to raise equity capital. Unlike limited liability companies (LLCs) and other types of corporations, cooperatives cannot seek capital from non-member sources. In sectors such as forestry, this means seeking large amounts of capital from a pool that is fairly limited in both breadth (numbers) and depth (liquid resources). Further, most cooperatives are limited in the returns they can offer their investors (in Wisconsin, dividends can't exceed of 8 percent annually). No other business faces this type of legally imposed ceiling on equity returns.

In the case of forestry, there is an additional investment constraint created by the fact that members who sell timber to the co-op might actually only "use" the co-op (assuming they do not take advantage of its services) once or twice in their lifetime. The motivation for members to invest in a cooperative that will serve others for most of its existence is quite low. This problem is compounded by the fact that members are also being promised very limited returns. Despite these constraints, forest landowner cooperatives in Wisconsin have taken hold. Indeed, Wisconsin is seen as a leader in forestry cooperatives in the United States.

Other Landowner Organizations

Cooperatives are not the only landowner-led organizations that seek to assist their fellow owners in the management of their land. The oldest and largest of these organizations is the Wisconsin Woodland Owners Association, which began in 1979 and currently comprises 2,200 members. WWOA was established to accomplish four goals: 1) to advance the interests of woodland owners and the cause of forestry; 2) to develop public appreciation for the value of Wisconsin's woodlands and their importance in the economy and overall welfare of the state; 3) to foster and encourage wise use and management of Wisconsin's woodlands for timber production, wildlife habitat and recreation; and 4) to educate those interested in managing Wisconsin's woodlands.

WWOA's primary approach to achieving its goals is education through landowner conferences, a magazine and other means. WWOA operates under the assumption that individual owners with good information will make good decisions about forest management and stewardship.

At a local level, a new landowner organization model has developed. Wisconsin Family Forests (WFF) seeks to organize landowners at the township level to actively engage their forests and their neighbors. Like WWOA, WFF believes that many owners don't realize the benefits of forest ownership because they lack information and assistance, or because they aren't aware of their forests' full potential. WFF consists of township alliances of local forest

landowners who share what they know and pool efforts to obtain professional assistance and additional knowledge. The local alliances focus on sustainable forestry practices, neighbors working together, strengthening community connections, and improving the management of local natural resources. Currently there are three Alliances in Wisconsin located in Waushara, Door and Wood counties.

Foresters and policymakers have often described the state's 260,000 landowners as a "faceless they." Landowner organizations provide entry points for learning about landowners and identifying appropriate policy tools. These organizations allow for greater segmentation of landowners, making their members less faceless.

Unfortunately, current landowner organizations appear to be quite homogeneous. Recent research suggests that WWOA members and SWC members in southwestern Wisconsin are more similar than different. WWOA members favor more traditional forestry practices while SWC tend toward newer ideas (e.g., restoration ecology). However, on topics such as timber harvesting and invasive species control, there is little difference (Rickenbach, Guries, and Schmoldt 2002). Hence, most landowner organizations, while segmenting portions of the landowner audience, still do little to appeal to the vast majority of NIPF owners.

Cost-Share programs

Cost-share programs provide landowners with financial assistance to carry out specific, approved practices. Generally, cost-share agreement create a contractual obligation whereby the landowner agrees to complete specific activities and ensure that they are maintained for a specified contract period in exchange for both financial and technical assistance.

Since 2001, federal cost-share programs for forestry have changed dramatically. Both the Forest Incentive Program (FIP) and Stewardship Incentive Program (SIP) have been replaced by a new program, the Forest Land Enhancement Program (FLEP). Under FLEP, each state is responsible for determining how to spend their allocation among three major areas: education, technical assistance and cost-share.

Wisconsin, with a huge backlog of cost-share requests from both federal and state programs, has opted to place all its FLEP dollars into cost-share. The state's priority areas for cost-share under FLEP include stewardship planning, tree planting, improvement thinning, invasive species control and more. Another significant change between FLEP and the previous FIP and SIP is that the oversight for the cost-share payments has moved from USDA NRCS to WDNR.

The state also continues to provide cost-share opportunities to NIPF owners through the Wisconsin Forest Landowner Grant Program (WFLGP). This program was developed by the state to assist landowner with a variety of forestry-related practices. For example, a landowner can gain assistance in developing a forest management plan for their property or cover a portion of the cost of timber stand improvement. WFLGP provides

$1 million annually, but demand currently outstrips available funds. Approved activities are funded on a first come, first serve basis. Almost every year, there is a backlog of proposals awaiting funds. Given their similarity, the arrival of FLEP should do much to reduce this backlog of WFLGP practices and offer expanded assistance.

FLEP and WFLGP are cost-share programs that focus directly on forestry-related efforts. Yet, two other programs are worth noting. The Conservation Reserve Program (CRP) encourages farmers to plant long-term, resource-conserving covers, including trees, to improve soil, water and wildlife resources. For landowners interested in aiding wildlife, the Wildlife Habitat Improvement Program may be the right choice. It cost-shares many of the same type of projects as the other cost-share program, but all the practices funded must benefit wildlife and wildlife habitat**.**

Taxation of Forestland

The Wisconsin Department of Revenue reports that full implementation of use-value assessment for agricultural lands substantially reduced both assessed values and taxes on farmland, but the equalized values of the "Forest" and non-productive "Swamp and Waste" property rose by 15–18 percent last year. The escalating costs of owning these classes of property drove landowners to search for relief. Many turned to the Managed Forest Law (MFL) program. The DNR reports that they expect almost 4,000 applications for entry into the MFL program in 2003, triple the number of applications they processed in 1990.

But farmers argue that the MFL program is not really appropriate for farm forests and certainly not for "swamp and waste" land. The Wisconsin Farm Bureau Federation made extending use-value assessment to farm forestland and non-productive wetlands one of its top legislative issues last year.

The concept of extending such a program to forestland is not at all unusual. About half of the states now assess forestland based on its use value, sometimes also called productivity value. But Wisconsin has a 75-year history with the timber yield tax, so changing to use-value assessment of forestland or creating a special program for farm forests has less appeal.

Wisconsin long ago recognized that forestland doesn't produce an annual income like agricultural land, and that forests are a valuable resource for the citizens of the state. In 1927, the Forest Crop Law (FCL) was enacted as an alternative to the real property tax on forestland. It was the first law in the nation to defer a portion of property taxes until income was realized through harvest of the timber crop. This program still exists but has been closed to new entries since 1986 when the MFL program became available. Today some 27,000 landowners have enrolled a total of 2.7 million acres of forestland in the FCL and MFL programs.

Cost-Share Programs Directed Toward or Applicable to NIPF Owners

Program	*Administration*	*Cost-share and caps*	*Typical Practices*
Wisconsin Forest Landowner Grant Program (WFLGP)	State program administered by the DNR	Up to 65 percent cost-share, maximum payment of $10,000 per year	Plan preparation. Tree planting. Timber Stand Improvement. Soil and water protection. Fencing. Wildlife improvements. Fisheries improvements. Buffer establishment. Threatened species. Historic and aesthetic enhancements.
Conservation Reserve Program (CRP)	Federal program administered by Farm Services Administration	Annual payments based on bid submitted by landowner. 50 percent cost-share for cover establishment.	Plan preparation. Tree planting. Wildlife planting. Grass establishment. Erosion control structures. Stream buffers.
Forest Landowner Enhancement Program (FLEP)	Federal program administered by the DNR	Up to 65 percent cost-share, with a maximum of $10,000 per year	Tree Planting. Timber stand improvement. Water quality improvement. Forest health. Exclusion fencing. Fish and wildlife habitat. Wildfire and other risk reduction. Restoration from wildfire and other events. Invasive species control.
Wildlife Habitat Incentives Program (WHIP)	Federal program administered by NRCS	75 percent cost-share with a maximum of $10,000 per year for 5- or 10-year contract period.	Wildlife planting. Grass establishment. Wildlife practices. Fisheries practices. Wetlands restoration. Farmstead shelterbelts. Grazing systems .
Environmental Quality Incentives Program (EQIP)	Federal program administered by NRCS	Up to 75 percent cost-share with a maximum of $10,000 per year for 5 or 10 year contract period.	Tree planting. Ecosystem management. Agricultural waste management. Stream buffers.

Adapted from a fact sheet maintained by Linda Depaul, WDNR, Division of Forestry

Both forestland tax programs require that owners have a DNR-approved forest management plan. Landowners must define their objectives for the land and then develop a set of management recommendations for management of timber, watershed protection, recreation, wildlife, endangered resources and aesthetics. Timber harvesting on tax law lands must have prior DNR approval, and a yield tax is assessed on the income from the harvest. In addition, landowners must pay a fixed tax per acre annually, currently $0.74 per acre if the land is open to the public and $1.74 per acre if it is not. No more than 80 acres may be closed per township. Landowners must make a commitment for either 25 or 50 years. With that commitment, the landowner receives an average of 80 percent property tax savings annually, according to a Legislative Audit in 1994. Forest conservation may be an added benefit. Research indicates that MFL can aid in land protection by requiring 25- or 50-year contract periods and penalties for early withdrawal (Heasley 2002).

While MFL is popular, two things hamper its full implementation. First, the DNR staff is overwhelmed by requests for approval of forest management plans. Some private sector foresters write plans using DNR guidelines, but DNR must still approve them.

Second, even for land currently enrolled, many mandatory practices have yet to be completed by enrollees. The DNR reports that 13,984 mandatory practices covering 216,415 acres ranging from tree planting to thinning and regeneration cuts have yet to be completed or accounted for. This is partly due to DNR understaffing. However, many enrollees see the MFL as a tax-relief program and are not particularly motivated to follow through on the forest management.

Conclusions

Whether for timber, wildlife, aesthetics or other values, forests contribute much to the economic diversity and social fabric of Wisconsin. Society has recognized this through a myriad of programs that seek to encourage good stewardship. Private organizations unite landowners to learn and manage. Private consultants and the forest products industry provide advice and services. The state creates cost-share, tax incentives and educational programs to foster management. There is overwhelming demand for DNR resources and assistance. All these efforts are done in the hope of maintaining forests and their multi-faceted contributions to society.

For the north, with its continuous cover of forests and forest product and wood products firms, this importance is evident in the log trucks that travel county roads and the sawmills, and pulp mills that dot the landscape. In the south, woodlands and forests are usually an afterthought. Yet, even in this agricultural landscape, trees matter. They provide recreation and income for farmers and other landowners. They may also be a haven for those escaping Madison, Milwaukee and the Twin Cities. The south is also the source of innovative thinking about forest management on small parcels.

We'll probably never think first about forests and forestry when we think about rural southern Wisconsin. But if we overlook them, we'll miss a fundamental element of the landscape, resource base and culture. Sound stewardship can improve the land, the financial well-being of the owners and the diversity of local economies. With continued nurturing and recognition, woodlands and forests can maintain and grow in their contribution to the state.

About the authors: Mark Rickenbach (608/262-0134) and Scott Bowe (608/265-5849) are assistant professors and Extension specialists (forestry and wood products, respectively) in the Department of Forest Ecology and Management. Jeffrey Stier (608/262-9975) is a professor in the Department of Forest Ecology and Management. Kimberly Zeuli (608/263-3981) is an assistant professor and Extension Cooperatives specialist in the Department of Agricultural and Applied Economics

Literature Cited

Birch, Thomas. 1996. *Private forest-land owners of the northern united States, 1994*. USDA Forest Service, Northeastern Forest Experiment Station. Radnor, Pennsylvania. Resource Bulletin NE-136.

Curtis, J. T. 1959. *The vegetation of Wisconsin; an ordination of plant communities*. University of Wisconsin Press. Madison, Wisconsin.

Leatherberry, E. 2001. *Wisconsin private timberland owners: 1997*. USDA Forest Service North Central Research Station. St. Paul, Minnesota. Research Paper NC-339.

Hackett, R.L., R.J. Piva, and J.W. Whipple. 2002. *Wisconsin Timber Industry – An Assessment of Timber Product Output and Use, 1996*. USDA Forest Service North Central Research Station. St. Paul, Minnesota. Resource Bulletin NC-201.

Mace. T. 2002. *Wisconsin IMPLAN Professional™ Database. 1997 dataset*. Wisconsin Department of Natural Resources, Division of Forestry. Madison, Wisconsin. December 18, 2002.

Marcouiller, D. and T. Mace. 1999. *Forests and Regional Development – Economic Impacts of Woodland Use for Recreation and Timber in Wisconsin*. University of Wisconsin Cooperative Extension. Madison, Wisconsin. G3694.

Fletcher, R. M. Rickenbach, and E. Hansen. 2002. *Forest Certification in North America*. Oregon State University Extension Service. Corvallis, Oregon. EC1518.

Prichard, T. 2002. *Primary and Secondary Forest Products Producer Images. Based on the Wisconsin wood using industry databases*. Wisconsin Department of Natural Resources, Division of Forestry. Madison, Wisconsin.

Smith, Denny and Mary Sisock. 2002. *Distribution of existing forest cooperatives in the United States*. Paper presented at the 9th International Symposium on Society and Resource Management. June 2-5, 2002. Bloomington, Indiana.

Rickenbach, Mark G., Raymond P. Guries and Daniel L. Schmoldt. 2002. *NIPF Landowners: A hierarchy of forest management participation*. Final grant report submitted to the USDA Forest Service's Wood Education and Resource Center. Morgantown, West Virginia.

Heasley, Lynne. 2000. *A thousand pieces of paradise: Property, nature, and community in the Kickapoo Valley*. University of Wisconsin-Madison, Department of Forest Ecology and Management. Madison, Wisconsin. PhD Thesis.

Schmidt, Thomas L. 1998. *Wisconsin Forest Statistics, 1996*. USDA Forest Service North Central Forest Experiment Station. St. Paul, Minnesota. Research Bulletin NC-183.