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(FORM UPDATED: 08/11/2010)

WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

2003-04

(session year)

Assembly

(Assembly, Senate or Joint)

Committee on Forestry...

COMMITTEE NOTICES ...

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INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

- Appointments ... **Appt** (w/Record of Comm. Proceedings)
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 - (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
 - (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

* Contents organized for archiving by: Stefanie Rose (LRB) (July 2013)

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The next Dutch elm disease?

Beetles ravage Michigan ash trees; Wisconsin officials fear invasion

By DAN EGAN
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Posted: Feb. 21, 2004

A Michigan doughnut shop will become ground zero this week in that state's desperate campaign to halt a rapid invasion of an ash-tree killing beetle that already has claimed millions of trees in the Detroit area and is threatening to spread to other states.

The Michigan Department of Agriculture has 155 full-time employees in a fight that, if lost, federal officials say could cause as much as \$60 billion in damage to U.S. forests and neighborhoods that turned to ash trees to patch the damage wreaked by Dutch elm disease in the 1960s and '70s.

Environment

The emerald ash borer has not been found in Wisconsin, but a monitoring campaign will be conducted this summer in state forests and parks.

The beetle was first discovered in the United States when Michigan officials found it just two years ago. It is believed to have hitched a ride from Asia in wood packing material or in wood used to stabilize loads in cargo ships.

There are about 700 million ash trees in Michigan and more than 600 million in Wisconsin, not counting those trees planted in urban areas. Ash are among Wisconsin's most popular street trees because of their durability, said John Kyhl, plant pest and disease specialist with the Wisconsin DNR.

"It's hard to impress upon people the impact of this insect," said JoAnn Cruse, Wisconsin director for plant protection and quarantine for the federal Animal and Plant Health Inspection Service. "It was even hard for us to comprehend until we saw it over there, when we saw how many trees had died."

The first target in the push to eradicate the bug - and its potential host trees - is a half-mile radius around a doughnut and coffee shop in Saginaw County in northeast Michigan. Some trees from an infested nursery in the Detroit area were planted at the site in July 2002.

Every ash tree inside that circle around the doughnut shop will be chopped down beginning this week. Crews expect to take down about 20,000 trees at a cost of about \$500,000. The job will take a few weeks, and then crews will move on to about a dozen other sites in the state as part of a federally funded control effort that could cost \$43 million this year alone.

"It's analogous to mad cow disease," said Therese Poland, a research entomologist with the U.S. Forest Service. "If you find an infected cow, you destroy the whole herd."

The tainted wood will be chipped and hauled to an electricity-generating incinerator.

Clandestine killer

A 13-county region in southeastern Michigan in the Detroit area has already been put under quarantine, where no ash, dead or alive, can be transported out. Officials are now figuring how and where to build a "firebreak" that will level all the ash trees in a wide swath around the perimeter of the region's core infested area.

But, as was the case with the doughnut shop in Saginaw County, some infested nursery trees and firewood made it out before the quarantine took effect.

Those are the areas agriculture officials are most worried about now. Most are within Michigan, although some have been located in the southeast part of the country, as well as in Ohio.

Emerald ash borer can be more of a problem than the tree-munching gypsy moth and the Asian longhorn beetle, largely because it does its work so clandestinely.

The beetle lays its eggs in the bark of a tree, where they are almost impossible to spot. The bugs then hatch and bore into the tree, where they devour a layer just underneath the bark. That cuts off the delivery of nutrients between the leaves and roots.

The adult bug then bores its way out the next year when, iridescent green, it is easy to spot. But by then it is too late to save the tree; the damage has been done. Even healthy trees can succumb to the bug within two or three years.

"You can't see any symptoms on these trees until it's too late," Poland said.

Not in Wisconsin

The most likely way the beetle would make the jump from Michigan to Wisconsin would be through imports prior to the Detroit-area quarantine.

Wisconsin officials stress that a dead or dying ash tree doesn't mean the beetles have landed here.

"There is a lot of ash out there declining from other causes, and we don't want to give people the impression that if you have an ash tree with dead branches that it is (because of) the emerald ash borer," said Jane Cummings-Carlson, forest health coordinator for the Wisconsin Department of Natural Resources.

Still, she said the state needs to be vigilant in looking for it and isolating pockets of infestation if they do pop up. Michigan is now paying the price for not identifying the source of the problem in its early stages.

"It really did sneak up on them, and when they realized what they were looking at . . . the extent of it is just amazing," Kyhl said.

Ash trees in the Detroit area had been dying for several years, but it wasn't until 2002 that researchers identified the source of the problem. But even when they found the culprit, they weren't sure what they had.

"Nobody in Michigan could identify what this insect was. The Smithsonian couldn't even identify it. Then it was sent to other scientists across the globe, and it was actually a Slovakian entomologist who was able to identify it as a beetle native to Asia," said Sara Linsmeier-Wurfel of the Michigan Department of Agriculture.

Because the bug is kept in check in its native lands through tree resistance and natural predators, very little research has been done on it. Linsmeier-Wurfel said Michigan researchers could find less than two pages on it in Chinese literature.

ENVIRONMENT BEETLE THREATENS MICHIGAN TREES

An exotic pest known as the emerald ash borer is killing millions of ash trees in southeastern Michigan. Some foresters fear the insect could easily could show up in Wisconsin.

IDENTIFICATION, APPEARANCE AND SYMPTOMS

The emerald ash borer belongs to a group of insects known as metallic wood-boring beetles. Adults are dark metallic green in color, one-half inch in length and one-sixteenth inch wide and are present only from mid-May until late July. Larvae are creamy white in color and are found under the bark.



The borer's host range is limited to species of ash trees (identified by their distinctive leaves, which are located directly across from each other on the leaf stem and bark). In Michigan, most ash trees are white, black or green. Emerald ash borer does not attack mountain ash, which is not related to white, black or green ash trees.

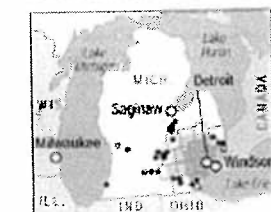
Usually the borer's presence goes undetected until the trees show symptoms of infestation - typically the upper third of a tree will die back first, followed by the rest the next year. This is often followed by a large number of shoots or sprouts arising below the dead portions of the trunk.

The adult beetles typically make a D-shaped exit hole when they emerge. Tissue produced by the tree in response to larval feeding may also cause vertical splits to occur in the bark. Distinct S-shaped tunnels may also be apparent under the bark.

EMERALD ASH BORER INFESTATIONS

JAN. 14, 2004

- Confirmed borer presence
- Suspected borer presence
- Borer quarantine
- Current borer re-identification zone
- ▨ Proposed addition to borer quarantine



Source: Michigan Department of Natural Resources

Graphic/Journal Sentinel

Beetle Threatens Michigan Trees

Quotable

“It's analogous to mad cow disease. If you find an infected cow, you destroy the whole herd.”

- Therese Poland, research entomologist, U.S. Forest Service

Linsmeier-Wurfel said there are no firm plans yet on how and where to build the firebreak around the 2,500-square-mile core infested region near Detroit, though one federal official privately said it likely would have to be at least 3 miles wide.

State law allows Michigan to order the destruction of infested trees, and Linsmeier-Wurfel said most in Michigan are resigned to the sacrifice they must make to keep the pest from spreading.

"Nobody likes to see the trees go, but for the most part there is support because there is an understanding that if something isn't done now, it will just get that much worse," she said.

Researchers are working on insecticides to combat the bug, and early data shows that some are effective at wiping out about 85% of a population. That isn't good enough to eradicate the beetle. But it may offer hope for some homeowners in the core infested area around Detroit, where officials believe the tally of dead trees could soon reach 12 million.

It is already an ugly scene.

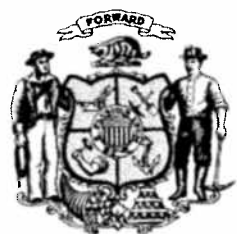
"It's like the old Dutch elm disease days, with rows and rows of dead ash in the urban areas," said Cummings-Carlson of the Wisconsin DNR.

For more information, see www.emeraldashborer.info.

From the Feb. 22, 2004 editions of the Milwaukee Journal Sentinel



WISCONSIN STATE LEGISLATURE



Joint Letter to Wisconsin's Legislators Regarding the Management of Public Forests

Recently, you may have received a copy of a letter signed by a group of scientists containing allegations about mismanagement of national forests. These allegations center timber production, especially estimates of the economic value of various goods and services derived from national forests. However, these allegations are based on questionable economic assumptions and extraordinarily generous extrapolations from very limited data. In fact, much of the information contained in the letter is drawn from a consultant's report commissioned by the Sierra Club¹. The estimates that form the basis for their allegations have been challenged in the past², are known to be erroneous, yet they continue to be misused to discredit federal forest management— and we believe by extension — all forest management. We would like to correct some of these errors.

First, we all recognize that national forests - indeed, all forests - are important to our state and nation's social, ecological and economic well being. Forests provide many goods and services that we value - and they will continue to do so if we protect, conserve and manage them. Forest management today is informed by scientific results discovered at land grant universities, natural resource colleges, and state and federal laboratories during the past several decades. Using this science, forest managers understand that forests are dynamic ecosystems with strong inherent capacities to regenerate and support rich, diverse, and productive forests. Science-based forest management works within the ecological patterns and processes that facilitate forest recovery following natural disturbances and historic land uses.

Second, any call for a ban on timber harvesting on all national forests grossly oversimplifies the management of 188,000,000 acres of public land. This "one size fits all" approach fails to consider the unique conditions of individual forests, and fails to account for historical forest use or future forest condition. Consider as one example, Wisconsin's own Chequamegon-Nicolet National Forest. This forest rose from the ashes of an era of profligate waste and destruction that had many social and economic roots. Today these lands provide numerous multiple benefits including recreation, clean water, fish and wildlife habitat, and a range of forest products. More than 1250 miles of Class I, II and III trout streams (13% of Wisconsin's total) are located on the Chequamegon-Nicolet. Yet during recent years, the forest returned \$1,200,000 - \$2,000,000 annually to local governments as payments in lieu of property taxes. It is important to note that forest growth continues to exceed harvest here by more than 80 percent. These results belie claims of destruction and damage, and instead provide evidence that careful management — including harvesting — can contribute to good stewardship and forest restoration. In

¹ This report entitled "Seeing the Forests for their Green: the Economic Benefits of Forest Protection, Recreation, and Restoration", was prepared for the Sierra Club by ECONorthwest in 2000. It contains only secondary data and extrapolations from earlier reports summarized in graphics format.

² See for example, the paper by Dr. Con Schallau and colleagues entitled "Some Flaws in the Draft 1995 RPA Program", published in *Forest Products Journal* 48:43-47 (1998), documenting over-estimates of recreational visitor days and under-estimates of timber values on national forests.

truth, the 'cutover' faced by foresters in Wisconsin nearly a century ago has *already been restored* to a healthy and diverse forest, albeit it a forest different in structure and composition than the 'pre-settlement' forest. The future composition and management of Wisconsin's public forests continues to stimulate healthy and open discussion among diverse interest groups as state and federal forest plans take shape.

Third, any proposed ban trivializes the importance of timber harvesting to many rural communities. Federal lands *do* provide a declining proportion of the nation's wood and fiber supply, but efforts to eliminate commercial harvesting on National Forests appear ill-advised on many grounds. Even 'old growth' restoration activities will become more difficult and more expensive. These activities make far more sense as part of a forest management strategy that includes commercial sales that contribute to local economies. And positioning forest recreation as a competitive rather than complementary source of employment simply plays one segment of rural communities against another. Worse, it flies in the face of research results documenting that rural economies are stronger when both recreation and commodity production contribute to rural livelihoods³. Contributions from several employment opportunities together provide a safer economic strategy than relying on only one sector such as tourism.

Finally, national forests in the eastern U.S. are among the best-managed forestlands in the nation. Given the many diverse uses of our Lake States' national forests, their origins in human disturbance, and their recovery during the past century under the stewardship of professional foresters, any ban on harvesting seems illogical. These forests serve as models of management for other public and private landowners, but this valuable role is pre-empted if we ban harvesting and attempt to meet more of our wood and fiber needs from imports. The U. S. is already an importer of foreign wood – some 35-40% of our dimension softwood lumber is imported from Canada. Do we really believe that imported wood and fiber originate in forests better managed than our own? Furthermore, alternatives to wood such as plastics, steel and concrete all exact much higher environmental costs in production and recycling⁴. In the end, nations such as the U.S. have an obligation to be producers as well as consumers, especially for those commodities such as wood where we have a technical advantage.

We firmly believe that our public forestlands - national, state and county - are ecologically richer, more productive and more attractive as recreation destinations than at any time since their formation during the past century. We urge you to learn the truth

³ Dr. Dan Chappelle completed analyses documenting this for the Lake States in his paper entitled, "Interaction of Tourism and Forest Products Sectors on Community Employment/Unemployment in the Lake States Region", published in Lake States Regional Forest Resource Assessment, USDA-Forest Service, Gen. Tech Rpt. NC-189 (1997). Dr. Dave Marcouiller and Terry Mace completed a report entitled, "Forests and Regional Development: Economic Impacts of Woodland Use for Recreation and Timber with an Emphasis on State and County Lands in Wisconsin", published by the Wisconsin DNR (1998) that further documents the benefits of a diversified forest-based economy.

⁴ See for example, the energy costs associated with production and recycling of construction materials provided in a research paper by Dr. Peter Koch entitled "Wood versus Non-wood Materials in U. S. Residential Construction: Some Energy-related International Implications", published in *Forest Products Journal* 42:31-42 (1991).

about their management that contradicts the portrait created by one particular group of scientists. We would be pleased to provide first-hand evidence of the excellent stewardship practiced on public forestlands in Wisconsin today. If you wish to arrange a visit to one of Wisconsin's public forests please contact one of us below.

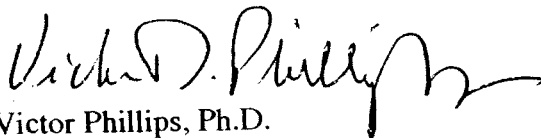
Sincerely,



Gene Francisco
State Forester, Wisconsin DNR



Robert Rogers, Ph.D.
Chair, Wisconsin SAF and
Professor, UW-Stevens Point



Victor Phillips, Ph.D.
Dean, College of Natural Resources
Management
UW-Stevens Point



Jeffrey Stier, Ph.D.
Chair, Forest Ecology &

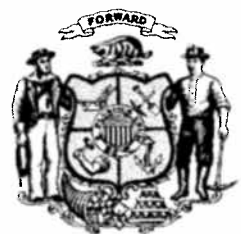
UW-Madison

About the Society of American Foresters

The Society of American Foresters (SAF) is the national scientific and educational organization representing the forestry profession in the United States. Founded in 1900 by Gifford Pinchot, it is the largest professional society for foresters in the world. Throughout its more than 100-year history SAF has advanced the science, education, technology and practice of Forestry. SAF is committed to maintaining the connection between environmental stewardship and professional foresters. Wisconsin's SAF chapter represents more than 400 professional foresters who help manage public, private and industrial forest lands throughout the state.



WISCONSIN STATE LEGISLATURE



FROM THE CHIEF'S DESK

By Gene Francisco

I will begin my final Chief's column as I did my first back in July 1998 with a sincere thank you for your support as expressed in numerous emails, calls, letters and personal contacts. It has been truly an honor working alongside you advancing the principles of sustainable forestry during my tenure as Chief State Forester and representing Wisconsin and our Forestry Division in Wisconsin and throughout the nation. I can say with great confidence and pride that Wisconsin's Forestry Division is highly regarded throughout our state and nation for our extremely well qualified staff and our progressive forest management and protection programs.

Many of you expressed your sympathy to me for how I was treated at the end of my 34-year career with the Department. I thank you for your concern, but I also want to assure you that from a personal perspective this fits into my planned 2003 retirement window. However, I am concerned about how this "new to DNR" political appointment process will impact long term continuity in our progressive forestry programs and our national reputation as a leader in sustainable forestry.

Many of you and my State Forester colleagues from across the nation have asked if this signals a change for Wisconsin forestry. With the appointment of Deputy Chief State Forester Paul DeLong as my successor, I am confident the answer is no. Obviously Paul has his own style and will develop his own agenda, but he shares our sustainable forestry vision that has been the foundation of Wisconsin forestry for nearly 100 years. Paul brings integrity, enthusiasm, intellect and a passion for forestry to the job that will serve the Forestry Division well. I am very pleased with his appointment and leave feeling confident that the Forestry Division is in good hands.

When I became Chief State Forester my goal was to advocate for "a work environment and resources that allow you and our partners in the forestry community to ensure that future generations have healthy sustainable forests to use and enjoy". I am pleased with the progress that we (the forestry community and DNR) have made in the last four years.

We have a forestry division with a requirement that the Administrator/Chief State Forester hold an accredited forestry degree. We have bureaus within the division and a forestry division field structure with forestry supervisors that will help facilitate efficient and effective use of forestry resources to meet a burgeoning forestry workload.

We have a statutory Forestry Council and an Assembly Forestry Committee to advocate for forestry resources and legislation at the highest level in state government. And we have a shared vision among forestry interest groups that will sustain this sustainable forestry work environment.

We have also significantly increased resources available to advance the principles of sustainable forestry. Forestry Division staffing has increased from 397 in 1999 to 460 in 2003 (still below 1985 staffing level of 465). The number of private forestry consultant firms have increased by 30% and forestry operations budgets have been significantly increased to fund new technology and meet inflationary increases.

We now invest over \$1 million annually in forestry education and awareness grants and activities. And we are currently in negotiations with Milwaukee County for a 65-acre Forestry Education Center site.

We have a new state forest, a new county forest and we have recently purchased a 35,000-acre Forest Legacy easement to protect working forests from development. And the list goes on with improved recruitment and hiring, forestry cost share grants, improvements in forest fire protection, pest management, urban forestry, nursery operations and more.

We can all take pride in these accomplishments. But there is still much to do. Most urgent is preparing for what is shaping up to be a historic forest fire year. The number of new forest tax law applications and mandatory practices continue to rise outstripping our ability to meet this statutory workload. Our understaffed state forests are thinning less than one half of the required thinning acreage needed to maintain healthy forests and our aging forest fire control radio communications infrastructure is on the verge of failure. You have your work cut out for you and I know you are up to the task.

For me, I plan to stay engaged in forestry consulting part time during retirement. I have already had a number of availability inquiries. I intend to stay politically active in forestry issues through SAF and other venues. And my number one priority is to rescue my tree farm from the ravages of 15 years of passive management (neglect) and build a new cabin. Sue and I will continue our residence in Sun Prairie for the next several years and we welcome an email note from you on occasion (gfrancisco@charter.net) to let us know how you are doing. I am extremely proud of each and every one of you for your dedication to the protection and management of our valuable forest resource. Keep up the good work!

THE TECHNICAL VIEW

By Mike Knipfel

There are some changes brewing folks and you get to be a part of it! The Equipment and Safety Specialist Team is working on resurrecting the proverbial "Phoenix" from its ashes in the form of "*Shop Notes*". It has been quite a few years since there were "regular" *Shop Note* fliers coming around and now the hope is to make them more accessible than ever!

Web sites and the DNR Intranet have opened up a new forum for the distribution of the old *Shop Notes*. No longer will they be on paper sent through the mail, but they will be on the Intranet under "Forestry", "LeMay Forestry Center". This will hopefully be a huge improvement in the ability to update and to provide access to the Notes. It will take some time to go through all the old *Shop Notes* and discard what isn't pertinent so please be patient with its development.

Now this is where we would like to get some help from all of you. The site titled LeMay Forestry Center will be the location to access *Shop Notes*, but it could be a lot more than just that! There have been other ideas bounced around that could make the site even MORE useful. The other items that we have thought of so far include: 1) a CATALOG that shows any items that can be ordered from the LeMay Center, 2) PERSONNEL INFORMATION that can tell you who works there, their function, and a way to contact them, or 3) a SEARCH button that can help you locate special items in either the *Shop Notes* or the equipment catalog. There are lots of possibilities and we would like to hear from you if you have an idea for the site. All you have to do is drop me an

email with your suggestion before our next Equipment and Safety Specialist Team meeting, scheduled for February 18th and 19th, and I will take your suggestion to the Team.

Your help and ideas are greatly appreciated and hopefully this will become a useful tool for all of us in Forestry. To contact me with your ideas, send me an email at knipfm@dnr.state.wi.us or send me a hard copy at DNR, 660 Wheelock St., Medford, WI 54451; phone 715-748-4955. If any of you have other ideas for items that you would like to see on the Forestry Intranet, contact Kirsten Held at heldk@dnr.state.wi.us or give her a call at 608-264-6036.

Eastern White Pine Tree Improvement Efforts in Wisconsin

By David Stevens and Greg Edge

Eastern white pine (*Pinus strobus*) is the largest native Wisconsin tree species, with the ability to grow over 200' tall and live up to 500 years. It was once a major component of northern Wisconsin's forests, as well as some forests of southern Wisconsin such as the Kickapoo River Valley and the Baraboo Hills. For many it still symbolizes the "north woods". White pine became the first tree species to be exploited by the European settlers. In his book *Empire in Pine*, Robert Fries notes that "in the early years of the industry only white pine interested the lumbermen of Wisconsin. Light and easily workable, it was an ideal wood for all building purposes and was easily transportable by water." Fueled by the rapid development of the great prairies of Illinois, Iowa and Southern Wisconsin lumber activities quickly surpassed mining and fur trading as the state's top business. According to Fries, cutting started in earnest around 1840 and reached a high of over four billion board feet in 1892. By 1910 the majority of Wisconsin's white pine had been cut and much of what remained was destroyed by wildfires or converted to agriculture.

Early reforestation efforts focused on red pine due to its high productivity under plantation culture, desirable form and relatively low insect and disease problems. While the state nurseries currently produce about three million white pine seedlings per year, red pine production has traditionally been two to five times higher. Concern over the species' susceptibility to white pine blister rust (*Cronartium ribicola* Fisch.) and white pine weevil (*Pissodes strobi* Peck) has resulted in a lower frequency of white pine plantings. Renewed interest in the species has been steadily growing, however. Where as red pine is known to have little genetic variation, white pine has been found to be much more genetically diverse. The potential for increased height and volume growth, greater insect and disease resistance and improved form characteristics has been known for some time. Currently, however, little is empirically known about Wisconsin white pine seed sources, making recommendations on seed collection areas and plant distribution within the state difficult to judge.

Wisconsin's past white pine tree improvement efforts have focused in two areas. The Division of Forestry has worked cooperatively with the USDA Forest Service's white pine blister rust research program at the Oconto River Seed Orchard for twenty years. During that time grafts of putative blister rust -resistant eastern white pine were obtained from Forest Service collections and used to establish a ten-acre clonal seed orchard at the Sawyer Creek Fishery Area in Washburn County. Increasing quantities of seed have been collected annually from this orchard for use in the state nurseries. More than 200 bushels of cones were collected in 2002. The second area of research has been the establishment of a southern Appalachian seed source trial.

Southern Appalachian seed sources have proven to be faster growing than local sources in many areas of the country. Results of the Wisconsin trial indicate that southern Appalachian seed sources do not exhibit superior growth over local sources except in southwest Wisconsin.

The Division of Forestry and the U.W.-Madison Department of Forest Ecology and Management have begun a genetic evaluation and improvement effort to better understand basic genetic information on the extent and patterning of variation in Wisconsin's remaining white pine populations and to provide a source of improved seed for the state nurseries. Open pollinated seeds from 234 trees representing 50 natural stands of eastern white pine were collected across Wisconsin during 1996, 1998 and 2000. In addition, Dr. Richard Meier (USDA-Forest Service, R-9) provided seed from 142 USDA-Forest Service selections made in the Upper Peninsula of Michigan, Minnesota and Wisconsin (Figure 1). Unfortunately not all cone collections produced enough viable seed to be included in the trial. Starting in 1999, two sets of seedlings, each a year apart, were propagated and grown for one year at the UW-Madison Walnut Street greenhouses. The seedlings were out-planted at the Wilson State Nursery and allowed to grow for another year. In the spring of 2002, the first set was lifted and planted on a 14-acre site on the NHAL State Forest near Lake Tomahawk, Wisconsin. This northern Wisconsin trial consists of 256 families, planted in 4 tree plots and replicated in 10 blocks. A second "southern" trial will be planted in the Black River State Forest in the spring of 2003. A ten-acre site was identified this year and site preparation including herbicide application and disking was performed over the summer.

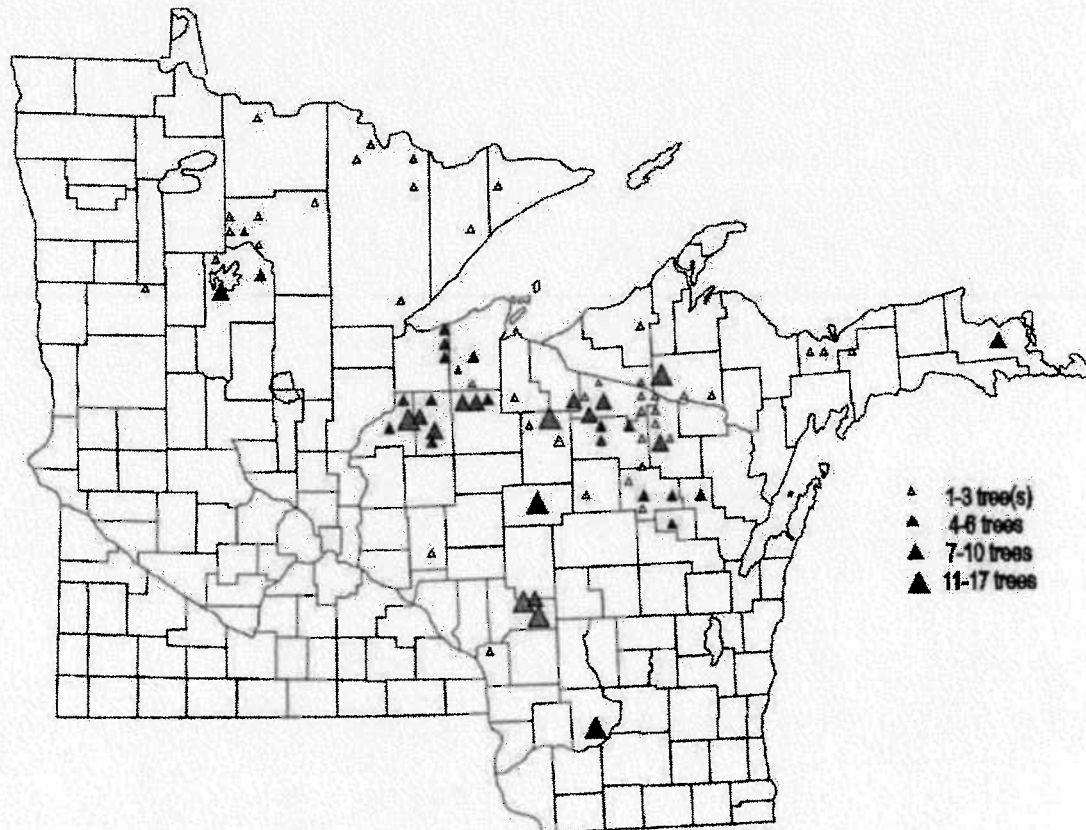


Figure 1: Origin of white pine selections. Symbols represent the relative number of trees selected from each stand.

Growth rate, disease resistance and form characteristics will be evaluated over the next 15-20 years to determine the extent and pattern of genetic variation within these regional white pine populations. The short-term benefit of this research will be the identification of white pine seed sources appropriate for use in the state nurseries. The northern and southern orchard design will allow for a close examination of latitude effects on family performance. The long-term benefits will be the development of two seedling seed orchards for future seed production and genetic resource conservation of Lake States white pine.

Special thanks to the many Forestry staff who have assisted with the ongoing white pine research projects!

About the authors:

David Stevens works as the Tree Improvement Specialist within UW-Madison's Department of Forest Ecology and Management. David's position is part of a cooperative research agreement with WDNR designed to further Wisconsin tree improvement efforts.

Greg Edge works as the Forest Geneticist and Nursery Specialist within the Division of Forestry.

Friendship Forestry Team Coordinates Harvesting of State Capitol Holiday Tree

By John Schwingel, Friendship Forestry Team Leader

On November 21st, 2002, a 46-foot tall balsam fir destined to be the State Capitol's holiday tree was harvested from private land in southern Adams County.

The DNR forestry staff from Wisconsin Dells and Friendship had the task of arranging the tree cutting ceremony. Forester Ranger Gary Bibow was the Master of Ceremonies for this event. This involved finding donors and coordinating their efforts to harvest and transport the tree to the Capitol to be displayed in the rotunda. No State funds were to be used in this ceremony, so donations were essential to complete the task. Donations were also sought for paper and printing of the ceremony programs, restroom facilities and assistance to the schools wanting to make ornaments for the tree.

The forestry staff organized a cutting ceremony that included area fourth grade students, media and elected officials. Approximately 500 students and guests were on hand to witness the holiday tree cutting. Students sang carols as part of the ceremony. Forestry staff distributed seed packets and fire prevention materials to the students attending the ceremony.

On December 6th, the forestry staff was invited to the Governor's tree lighting ceremony in the Capitol rotunda where the Friendship Forestry Team received a citation of commendation from the State Assembly for their efforts in coordinating the cutting ceremony. Team members shown in the picture are (left to right): John Schwingel, Gary Bibow, Terri Wilson, Jodi Malin and Kirk Fitpold. Team members not pictured are Nina Stensberg, Carl Backhaus, Mark Johnson and Terry Walter.

Brule Master Plan Completed

By Melissa Lake

The Natural Resources Board approved the Brule River State Forest Master Plan on December 4, 2002. A number of people spoke at the Board meeting concerning the plan; speakers both favored and opposed the plan. Some said they wanted to see issues tracked and actions summarized as DNR moves forward in implementing. In response in approving the plan, the Board asked staff to prepare a summary of key plan provisions and the ways in which the plan ensures protection of the river. The summary document will be included in the final printed document.

The master plan will guide operations of the 41,000-acre state forest over the next 15 years. The NRB approval of the master plan caps more than five years of extensive public involvement that will shape the ecological, economic, social and cultural facets of the forest. In all, 13 public meetings were held at key steps in the process. Additional input was sought from integral stakeholders, including neighboring landowners, anglers, hunters, canoeists, environmental and conservation groups, forest product and tourism-related businesses, local governments and tribal interests.

Located in Douglas County in northwest Wisconsin, the Brule River State Forest is approximately 30 miles north to south and contains the entire 44-mile long Bois Brule River, nationally known for trout fishing and whitewater paddling. The property also offers exceptional forest-based recreation including hunting, camping, cross-country ski and snowmobile trails. Three major ecosystems—the Lake Superior Clay Plain, the Bayfield Sand Plain and the Mille Lacs Uplands—are home to threatened, endangered species and rare species.

The BRSF plan offers diverse management practices to protect water quality, restore boreal forest and pine barrens, and improve recreational experiences through increased education and enforcement. The plan also establishes a passive management zone along the Brule River that is triple the distance of the old plan, and is contained within scenic and native community management areas.

“While no plan can completely meet the expectations of every constituency, this plan contains a mix of active and passive management practices,” according to Steve Petersen, Brule River State Forest Superintendent. “Those who most value aesthetics will support the increased passive management zone along the river.” The combination of active (timber harvest to thin or naturally regenerate the forest, planting, prescribed burning, etc.) and passive management on the rest of the property will meet restoration goals and continue to provide a base for game habitat advocates and maintain healthy vibrant forest ecosystems. Petersen continued, “Water quality and the fisheries resource will also benefit from a combination of management practices, as confirmed by numerous fisheries biologists, water specialists and ecologists during the development of the plan.”

The three “themes” outlined in the BRSF plan include 1) protection of the Brule River system and sport fishery, 2) land management to achieve ecological goals and 3) recreation. In addition, a proposed boundary expansion focuses on private industrial forests in the area to assure protection from development and the availability of forest products.

The forest staff is implementing the Brule River State Forest Master Plan. However, some elements will depend on future funding. During the course of the master planning, the public

offered divergent opinions on the future management of the BRSF. The primary issues revolved around passive versus active management, protection of the Brule River and the type level of river recreation. The plan offers a balance of the resource capability and the various public demands. Constituents that favored more passive management have filed for judicial review challenging the EIS decision and Natural Resource Board's approval.

What is a 'Fire Prevention Education Team'?

By Catherine Regan

Here's the scenario: Your area is experiencing very dry conditions and low relative humidity, predicted for the next two weeks. You're noticing an increase in the number of wildfire ignitions caused by individuals in the wildland urban interface who have decided not to inquire about burning permits and regulations. The problem is, you do not have the manpower to support prevention type work at this time due to the priority of your suppression efforts.

Solution: Call in a Great Lakes Forest Fire Compact (GLFFC) 'Fire Prevention Education Team.'

The purpose of the Wildland Fire Prevention/Education Teams (FPET) is to assist the local unit in the prevention of unwanted human-caused wildfires. Furthermore, because fire weather conditions *are* predictable, wildland fire prevention/education teams can be mobilized in advance of fires, when severe burning conditions or high fire occurrence exist. Other circumstances that warrant a FPET are when firefighting resources are committed and preparedness levels are above normal. All of these situations would benefit from the 6-8 person FPET for a two-week commitment by reducing the loss of human life and property, reducing resource losses, reducing the cost of suppression, and improving interagency relations.

In November 2002, the Wisconsin Department of Natural Resources and the Great Lakes Forest Fire Compact hosted its first National Fire Prevention and Education Team Member Workshop in Madison, Wisconsin. The goal of the workshop was to train 40 individuals in the new and developing concepts in wildfire prevention and in the event of severe drought conditions or high fire occurrence, the GLFFC would then call for a Prevention Team to be mobilized in the high risk area. The workshop gave folks the opportunity to develop the skills and knowledge necessary to participate effectively as a member of a national fire prevention/education team, meet fellow wildfire prevention staff as well as learn from a nationally recognized cadre of instructors.

So, this spring fire season, keep in mind that this resource is available. If you have any further questions or interest in Fire Prevention Education Teams, please do not hesitate to contact Catherine Regan - Wildfire Prevention Specialist at 608-266-2359.

Smart Forestry for Smart Growth

By Chris Cahill, Associate Forestry Planner in the Division of Forestry – Bureau of Forestry Services

While they may not want to always want to admit it, foresters have more in common with planners than you might think. The forestry profession has long recognized that sustainable forest management requires good data, a comprehensive approach, and the kind of long-range thinking that thoroughly considers the future consequences of the decisions we make today. Foresters are great planners, and Wisconsin's new Smart Growth law provides a perfect forum for those skills.

As Dylan Jenkins and Dan Goerlich write in this month's *Journal of Forestry*, "Foresters have a competitive advantage in the local land use planning process: We perform land use planning and management activities for a living. No new skills are necessary."

For all the heated debate you may be hearing about Smart Growth from politicians in the paper and your neighbors down the street, Smart Growth planning simply means planning for the future of our towns and cities in the same way that we plan for the future of our forests.

More often than not, when people in Wisconsin use the term Smart Growth they are talking about local comprehensive planning. Between 1999 and 2001, the state adopted some of the most significant changes to its planning and land use laws since the early 1940s. The new Smart Growth comprehensive planning law requires that towns, villages, cities, counties, and regional planning commissions adopt a comprehensive plan to guide future decision making by 2010. Although Wisconsin's Smart Growth plans are required to address a series of nine elements, communities are actually given broad freedom in the specific issues they choose to address in their plans.

From a forestry perspective, few communities are adequately considering forest resources when they put together their comprehensive plans. What's worse is that in many cases the communities that should be paying the most attention to their forests, communities that are heavily forested, located in or next to a county, state or national forest, or dependent on the forest products industry, are not considering them at all.

In hopes of improving the way forest resources are considered in local comprehensive plans, Forestry is partnering with the Department's [Land Use Team](#), UW Extension, and other interested individuals and organizations to create the *Smart Forestry for Smart Growth* campaign. *Smart Forestry for Smart Growth* is a three-tiered approach aimed at educating private citizens, local officials, and land use planners about the importance of Wisconsin's forest resources. We hope to provide communities with resources they can use to better include forests in their comprehensive plans and foresters with better information about comprehensive planning.

As stewards of Wisconsin's forests for nearly 100 years, DNR Forestry knows about the wise use and sustainable management of our shared resources. We also know that planning for the future is not always quick or easy, but it's worth it when you consider the consequences of not planning at all.

The History of Arbor Day

Submitted by Tracy Salisbury

J. Sterling Morton said, "Other holidays repose upon the past; Arbor Day proposes for the future."

Most of you have probably participated in an Arbor Day celebration sometime in your career. Maybe you have made a Tree City USA presentation or handed out tree seedlings at an elementary school as part of an Arbor Day event. Arbor Day is also known as the tree planters holiday and it celebrates the role of trees in our lives and promotes tree planting and care. Wisconsin officially celebrates Arbor Day on the last Friday in April.

In 1854, Julius Sterling Morton and his wife moved from Detroit to the treeless plain of the Nebraska Territory. They established their home and quickly planted trees, shrubs and flowers to improve the barren landscape. Morton was a journalist and soon became editor of Nebraska's first newspaper. Through his articles, he spread his enthusiasm for trees. He wrote about how trees were needed for windbreaks to keep soil in place, for fuel and building materials and for shade from the hot sun. Morton not only advocated tree planting by individuals, but he also encouraged civic organizations and groups to join in. He became secretary of the Nebraska territory, which provided another opportunity to stress the value of trees. Morton wrote and spoke about environmental stewardship and encouraged everyone to set aside a specific day to plant trees.

In 1872, the State Board of Agriculture accepted a resolution by J. Sterling Morton "to set aside one day to plant trees, both forest and fruit." The Board declared April 10, Arbor Day and offered prizes to the counties and individuals that properly planted the largest number of trees on that day. More than one million trees were planted in Nebraska on the first Arbor Day. With this first tree planting holiday observance, J. Sterling Morton became known as the "Founder of Arbor Day."

Shortly after this 1872 observance, other states passed legislation to observe Arbor Day each year with appropriate ceremonies. Today, Arbor Day is celebrated in all fifty states.

Arbor Day has also spread beyond the United States and is observed around the world.

- In Israel, it is called the New Year's Day of the Trees.
- Korea has a Tree-Loving Week.
- Iceland has a Student's Afforestation Day.
- Yugoslavia holds an Arbor Day in the spring and an Afforestation Day in the fall.
- India celebrates a National Festival of Tree Planting.

Most holidays celebrate something that has already happened and is worth remembering like the day someone was born or a religious holiday celebrating a past event. Arbor Day celebrates the future.

Source: The National Arbor Day Foundation

Red Pine Pocket Decline

By Sally Dahir, DNR Forest Health Protection

Background and Objectives

Red pine pocket decline was first reported in Wisconsin in 1975. Initially almost unknown to most foresters, in the past five years we have seen a dramatic increase in the number of pockets reported in certain parts of the state. Red pine pocket decline is actually a disease complex involving several species of root and lower stem-feeding insects along with their fungal symbionts. They initiate a sequence of events that create circumscribed areas or "pockets" of progressive mortality of one to several trees (Figure 1). Once introduced, fungal hyphae spread through the extensively grafted root system of red pine stands continually stressing new trees. These otherwise healthy pines then become attractive to beetle attack, creating an expanding border of dead trees. Unless root grafts are severed, harvesting symptomatic trees will not halt the spread of the fungus to healthy trees.



Figure 1. A typical pocket has trees in several stages of mortality indicating the progressive nature of the disease.

In 2001, members of the Dept of Natural Resources Silvicultural Committee in cooperation with the staff of Forest Health Protection initiated a multi-year study of red pine pocket decline. The objectives were 1) to determine geographic differences in disease incidence and severity, 2) to investigate site or stand characteristics or past management practices which might be

correlated with disease incidence, and 3) to develop from this analysis, silvicultural guidelines which would help prevent pocket formation and/or limit expansion of already established pockets.

The study was divided into 2 stages. The first involved an extensive survey of randomly selected 30-40 year old red pine stands to determine geographic distribution of the disease and to identify site or stand characteristics correlated with incidence. The second stage would involve an intensive study of selected stands to further delineate the role of factors identified in stage one.

Discussion

The incidence of red pine pocket decline observed in this study was fairly high. Figure 2 shows the location of surveyed stands and the number of pockets per stand. Over two-thirds (109) of 157 surveyed stands had at least 1 pocket. However, the number of pockets per stand was small in most cases and most pockets had few symptomatic trees, over one-third having fewer than 6. On the other hand, there were several stands with a large number of pockets, over 1 pocket for every 2 acres surveyed and where pockets were fairly large, averaging between 1 and 2 percent of all red pine in these stands. This wide variation suggests either that pocket decline is worse on some sites and self-limiting on others or that it is just beginning to show up in many red pine stands throughout the state and that these small pockets may expand rapidly in the near future.

With respect to geographic distribution, there does seem to be an important difference in disease incidence and severity between northern and southern Wisconsin. The number of pockets, as well as the average and maximum size of pockets per stand is lower in northern Wisconsin. Pocket size also seems to be more dependent on site quality in the north. For instance, mesic sites have

significantly lower levels of disease than very dry sites in northern Wisconsin whereas, in the south, there's no difference between dry and mesic habitat types.

There are several possible reasons for this difference. In southern Wisconsin, red pine is on the lower edge of its range (Burns and Honkala, 1990) and may be more susceptible to temperature variations. There is evidence that temperatures, specifically average winter minimum temperatures have risen substantially in Wisconsin in the last 10 years (Wisconsin State Climatology Office). This may contribute both to higher levels of stress on red pine and to increased winter survival or activity of insects like the red turpentine beetle.

Site quality in general did not seem to be strongly correlated with disease incidence. Habitat type was only significant in northern Wisconsin where an increase in the incidence of disease was observed on very dry sites. Other site factors, however, may affect where pockets are initiated. For instance, it was frequently observed that new pockets were located adjacent to forest roads, low-lying areas or wetlands. Along roads this may be due to root and stem damage caused by logging machinery and in wet areas, damage to red pine root systems caused by water-logged soils. For older pockets, it was usually too difficult to determine pocket origin.

A very important finding of this survey was the co-occurrence of red turpentine beetle (*Dendroctonus valens*) and *Leptographium spp.* in the vast majority of pockets. For instance, *Leptographium* was recovered in wood samples from 95% of stands, 91% of all pockets and most importantly, 96% of pockets with evidence of *D. valens*. Of the two species of *Leptographium*, *L. terebrantis* and *L. procerum* (Klepzig et al, 1991) which are consistently isolated from symptomatic pockets, *L. terebrantis* is much more commonly associated with red turpentine beetle (*D. valens*). This lower stem-feeding bark is primarily recovered from beyond the pocket margin whereas the root-feeding insects are more abundant within pockets.

These facts suggest that *D. valens* and *L. terebrantis* may play an aggressive role in pocket expansion and possibly in pocket initiation. A primary feeding site for these beetles is freshly cut stumps as well as healthy trees nearby. We noticed in this survey that pockets were almost nonexistent in unthinned stands, i.e. where no stumps were present. We also observed very high numbers of *D. valens* in very recently thinned stands surveyed during the period of beetle flight in late spring. These observations point to the possible role of thinning and specifically the time of year in which a stand is thinned in pocket formation..

Areas of Future Investigation

Several questions were raised by the results of the first stage of this study that we would like to address in the intensive phase. These include: 1) does the rate of pocket expansion vary on different sites or in different parts of the state 2) does the time of year when a stand is thinned affect vector populations and the probability of pocket initiation, and 3) can we more accurately assess the species of *Leptographium* which play a role in pocket initiation and/or expansion with the use of DNA analysis? We will continue research on these questions in the subsequent 2-5 years.

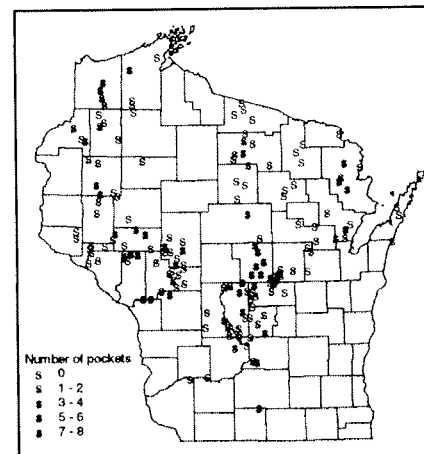


Figure 2. There were 344 pockets in the 157 sampled stands

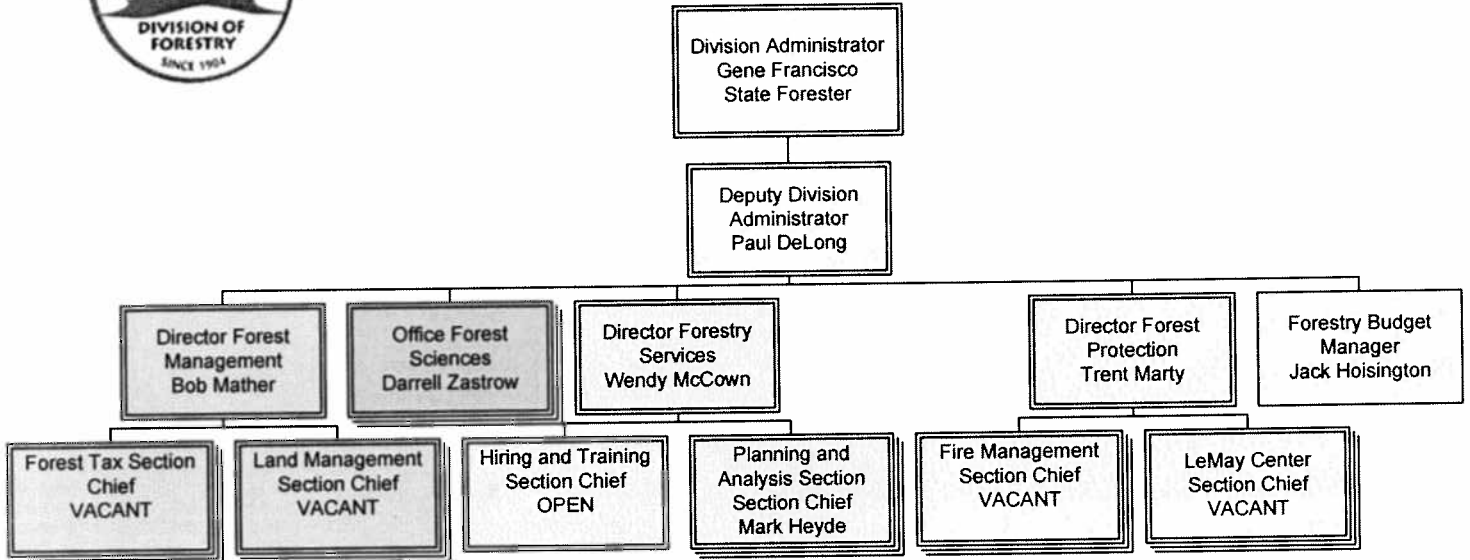
CNNF 2003 Timber Program

Chequamegon-Nicolet National Forest will offer about 90 million board feet of timber in fiscal year 2003. Approximately 11 million board feet was offered and sold during the first quarter of fiscal year 2003 (Oct - Dec 2002). During the first quarter there was a delay in offering some volume due to the implementation of a new national timber database program, Forest Service officials reported, and that volume will be offered during the next three quarters of fiscal year 2003 (Jan - Sept 2003).





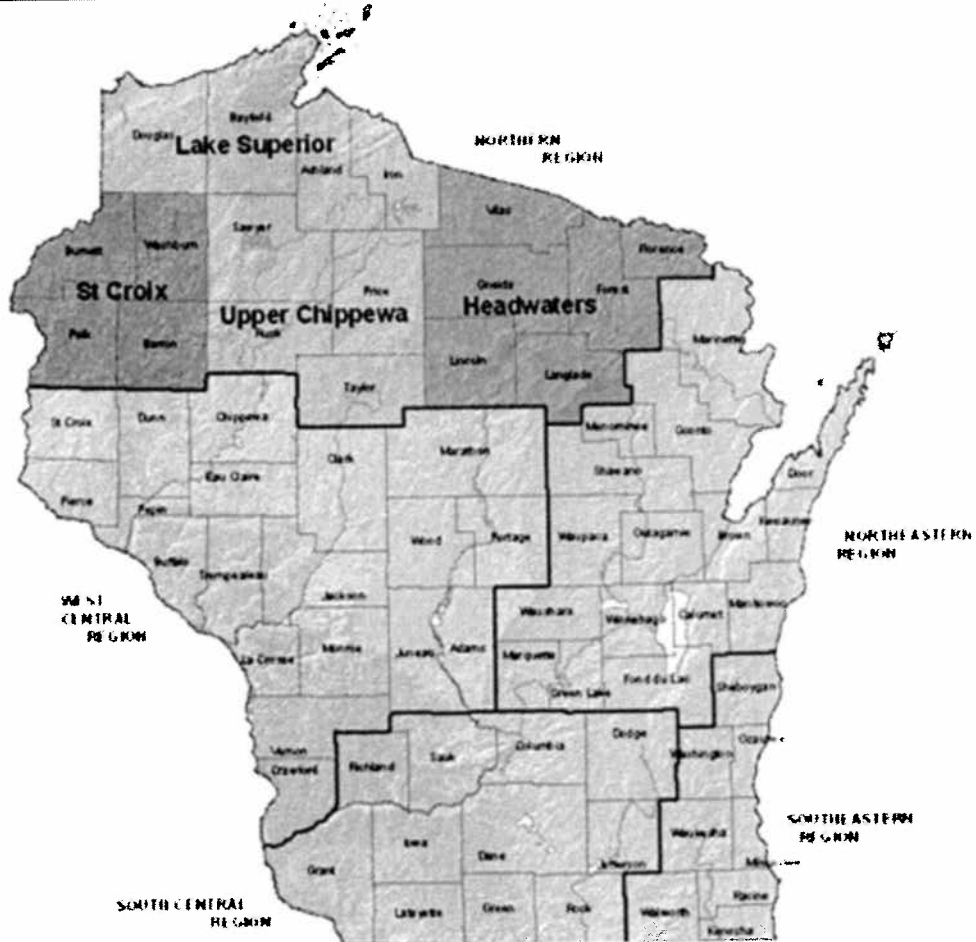
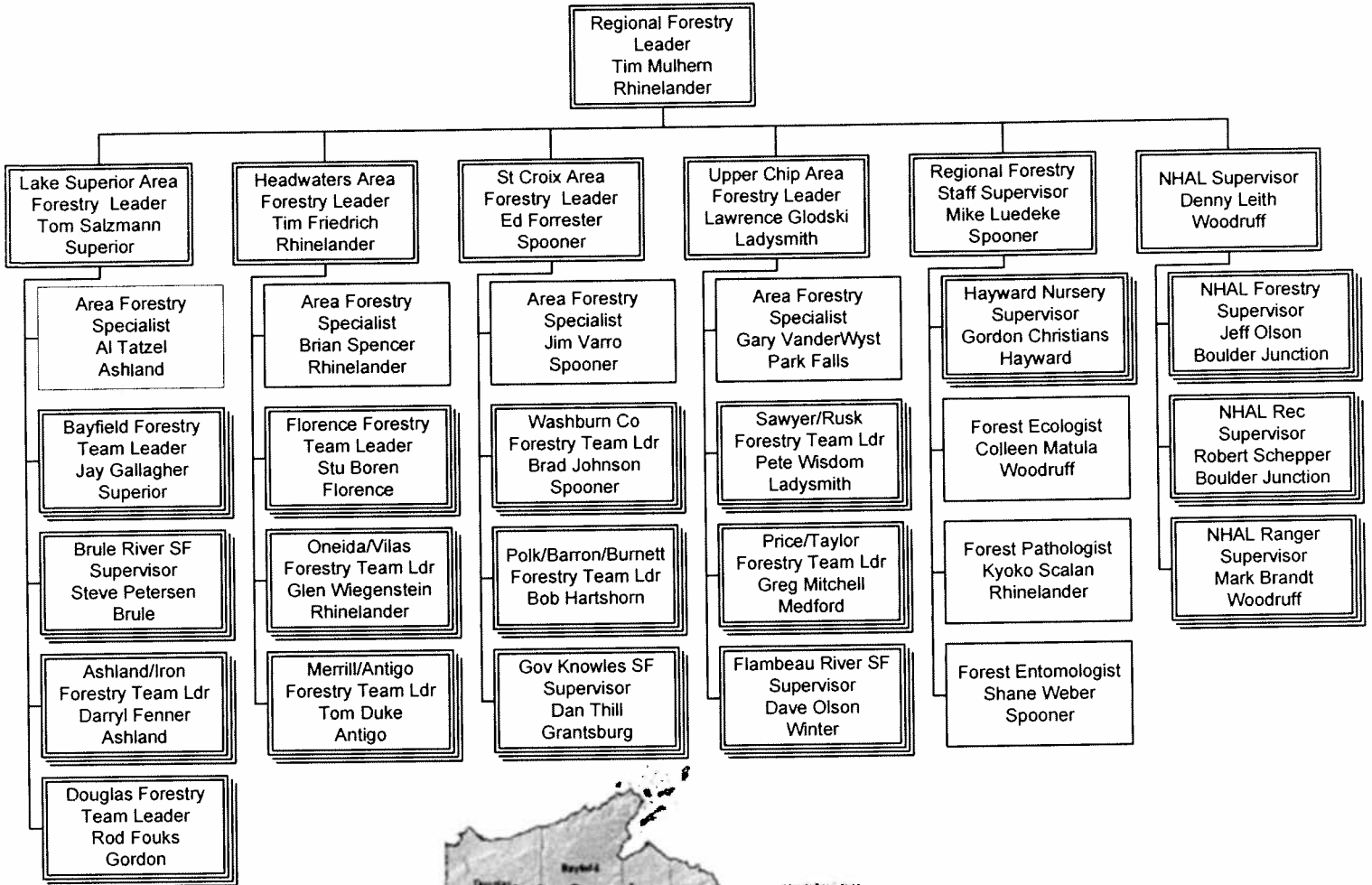
Division of Forestry



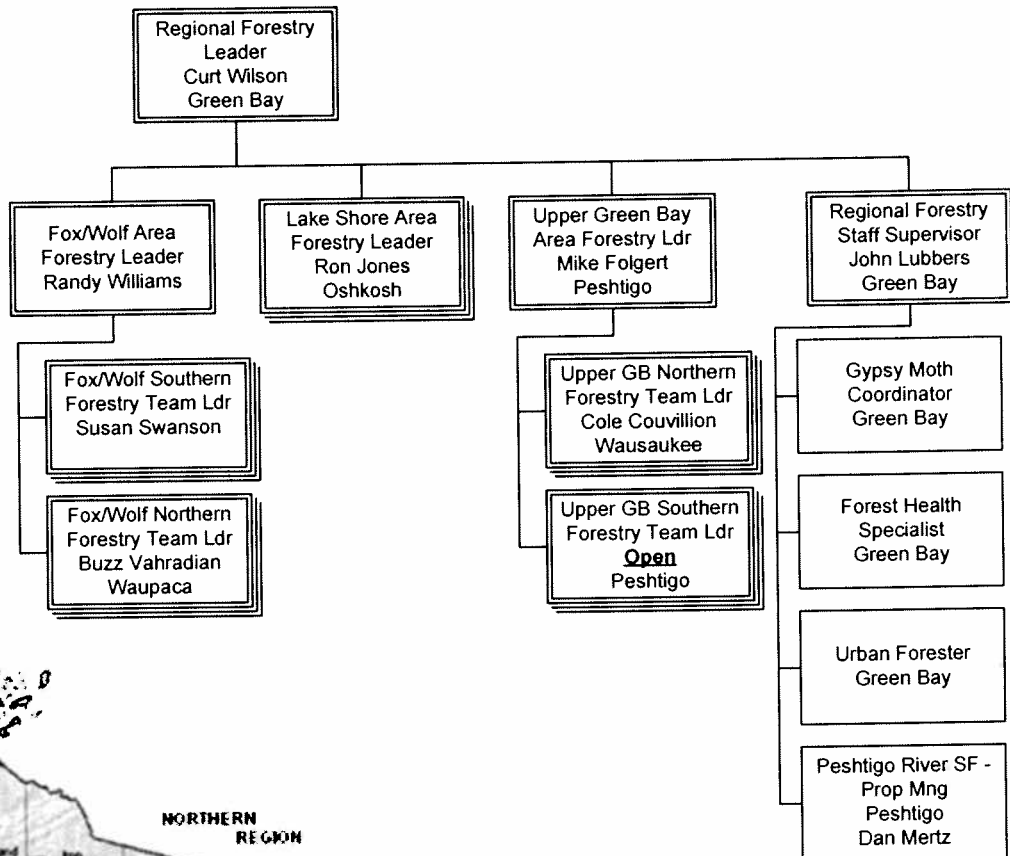
Forestry Leadership Team

- Gene Francisco
- Paul DeLong
- Trent Marty
- Darrell Zastrow
- Wendy McCown
- Bob Mather
- Curt Wilson
- Arvid Haegen
- Richard Denny
- Richard Wojciak
- Tim Mulhern

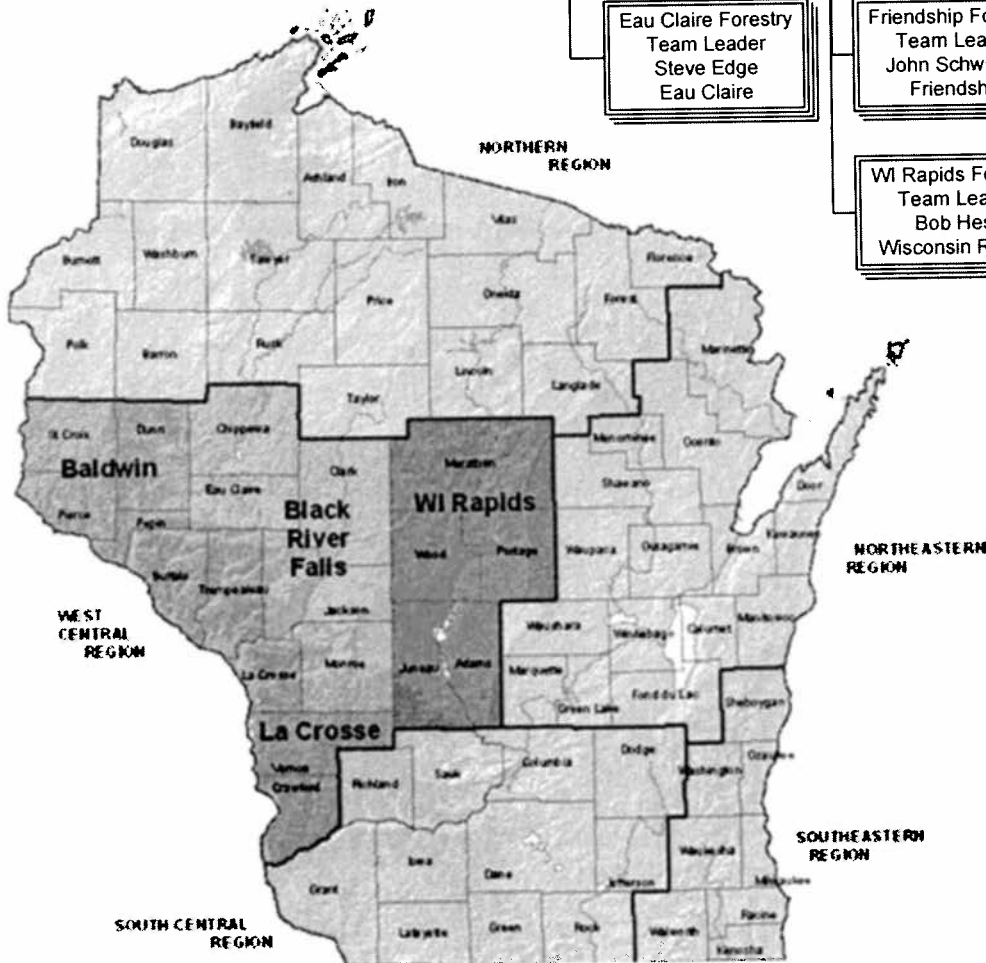
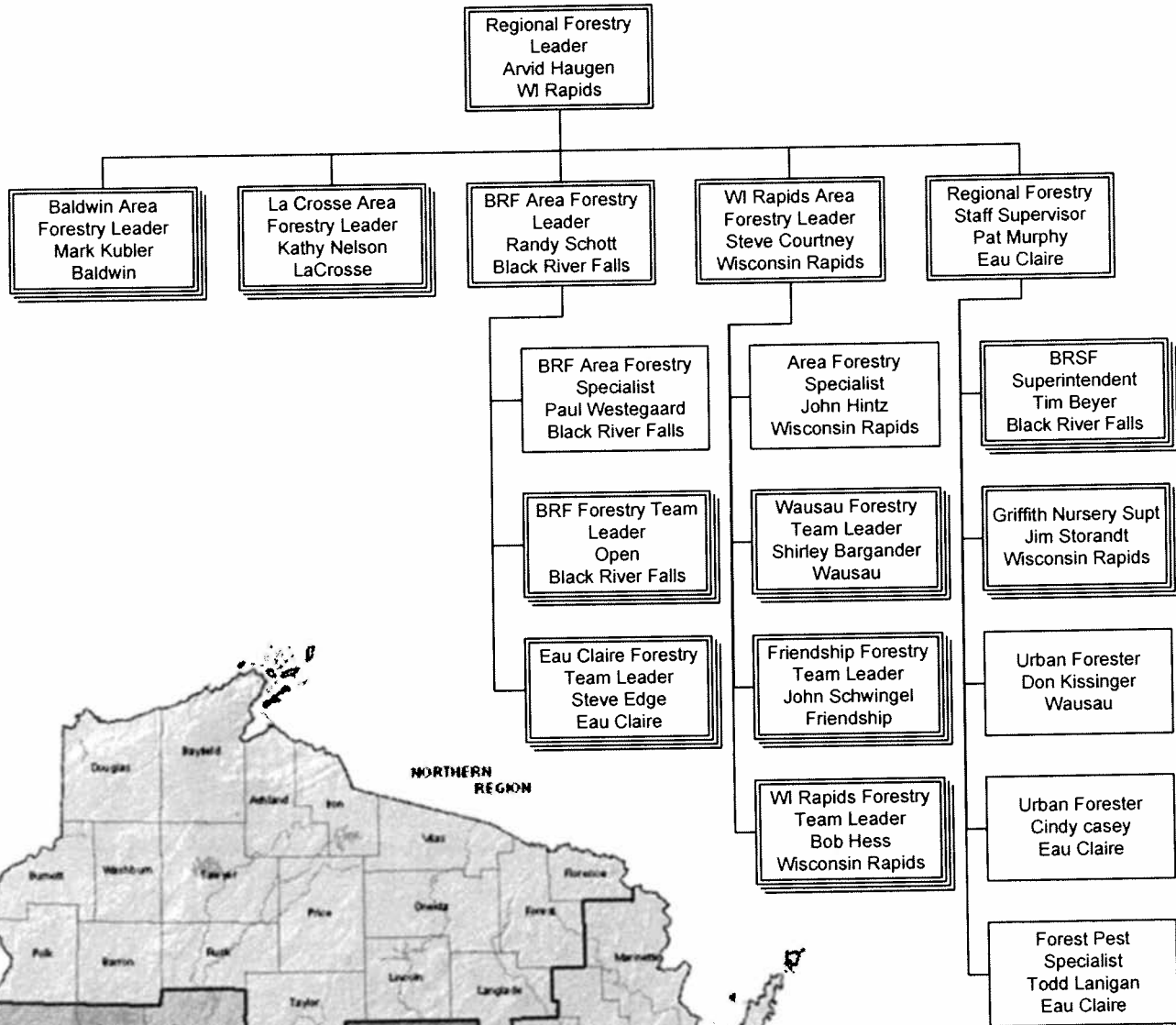
Northern Region - Forestry



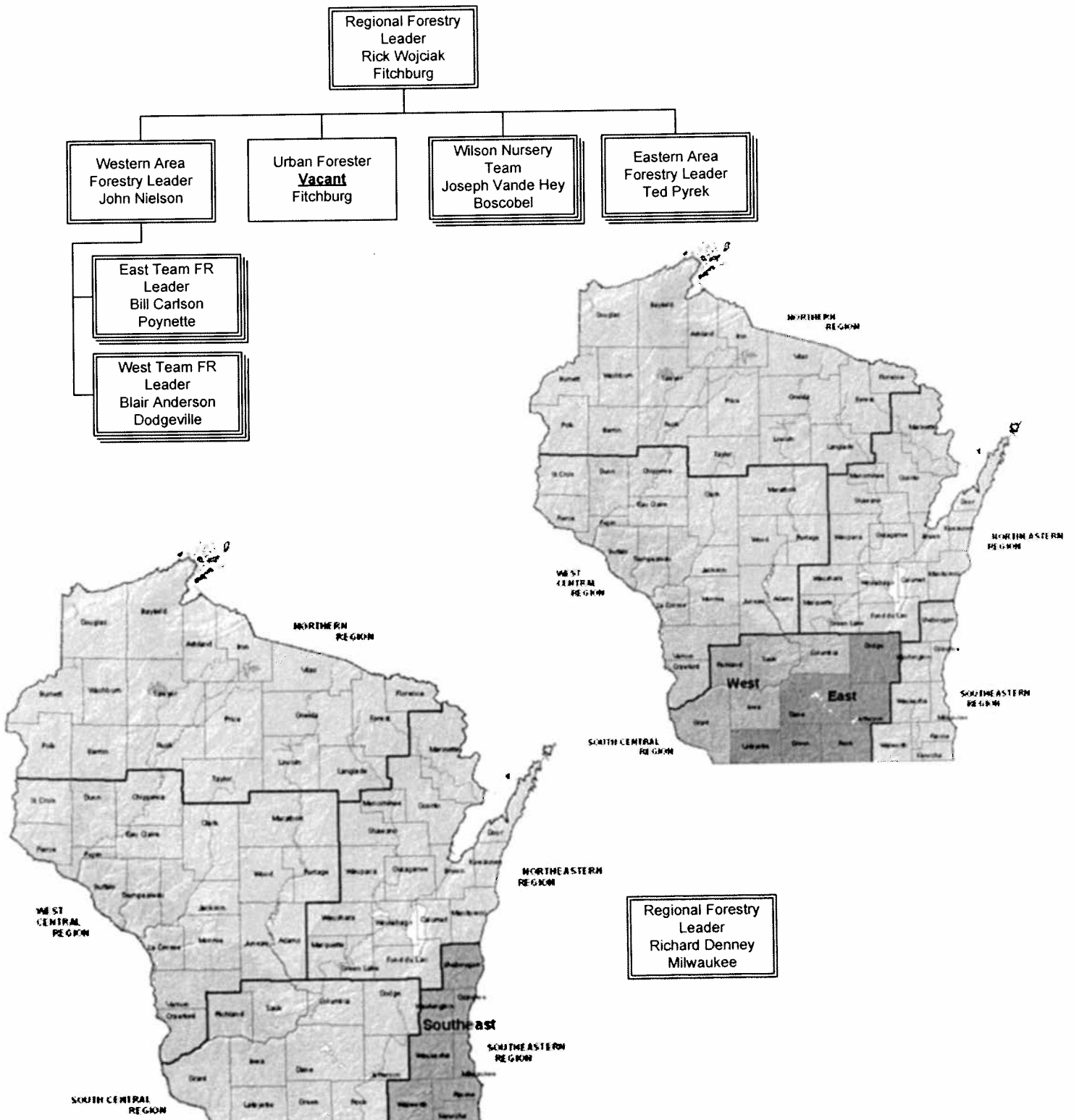
Northeast Region - Forestry



West Central Region - Forestry



South Central and Southeast Region - Forestry





Packaging Corporation of America Business Concerns

Health Care

- Health care costs have doubled in the last three years.
- Health professionals forced to manage to liability as much as patient care.
- Businesses are forced to share these cost increases with employees.
- Overhaul of current system necessary:
 - Managed care
 - Individual premiums based on use rate

Regulatory Issues

- Air / water / solid waste WI fees are high relative to other PCA facilities nationwide. Fee increases worsen the competitive disadvantage that already exists.
 - 106% higher than MI
 - 165% higher than TN
 - 33% higher than GA
- New Source Review
 - Ever-changing regulatory interpretations leave business in a 'compliance quandary'.
 - Manufacturers need simple, direct ability to conduct routine maintenance and repair w/o fear of enforcement.
 - Businesses need timely turnaround of construction permits. Current average turnaround is ~ 9 months.
- New regulatory initiatives must be subject to robust cost/benefit analysis. Scarce capital cannot be squandered on environmentalist or regulatory 'wish lists'.
 - Fish passage / barrier nets - >\$200,000 spent in legal and consulting fees and language buyout.
 - Replace 10-pound mercury emissions cap (effectively a production cap) with individually negotiated energy efficiency agreements.
 - Coal dust control proposal despite lack of reliable technical support.

Energy

- WI needs more transmission capacity for reliability & flexibility.
- Increased costs due to changes in electrical transmission vs. distribution billings.

Taxes

- Maintain machinery/equipment property tax exemption.
- No increase in or expansion of sales tax.

Containerboard Industry Status

- Severe, sustained contraction.
- 20% of nation's mills have closed in the past 2 years.
- Product demand has declined for 3 consecutive years.
- Foreign encroachment into West Coast markets underway.
- Tonnage decreases due to voluntary downtime replaced in quantity by foreign supply.
- Ensure that "Free Trade" is "Fair Trade."
- Foreign manufacturers paying 35 – 75% premium for secondary fiber.

Forestry

- NR 115 – Shoreline Zoning Rule Revision: Needs to reflect Forestry Best Management Practices.
- N. Highland American Legion State Forest Management Plan revision: Ensure industry access to productive forest acreage.



Paper Industry Economic Cluster Initiative

Part I

The State of Wisconsin's Paper Industry

Original

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Return to
office

February 2003

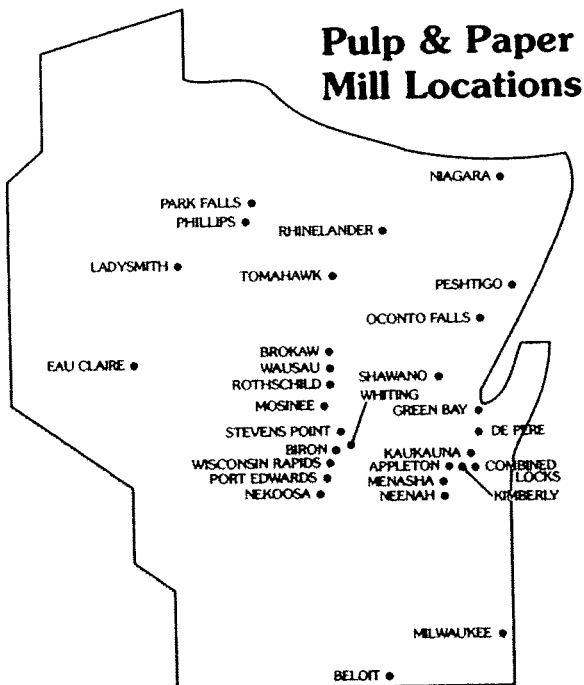
Prepared by the Wisconsin Paper Council

The State of Wisconsin's Paper Industry

Introduction

The Wisconsin Department of Commerce is coordinating the implementation of a "cluster-based" approach to economic development. This strategy targets and supports industries that create quality, high paying jobs in Wisconsin. This nationally recognized development strategy will help drive Wisconsin's economy and will help to create better jobs and a stronger economy.

Industry clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field. Eleven industrial and regional clusters have been identified in Wisconsin, including a paper industry cluster.



The Wisconsin Paper Council is working with the Department of Commerce and other interested stakeholders, including other state agencies, the University of Wisconsin, suppliers and customers, to develop a set of recommendations aimed at protecting and enhancing the pulp and paper industry in Wisconsin.

The State of the Paper Industry in Wisconsin is the first document prepared as part of the paper industry economic cluster initiative. It is not intended to be an exhaustive treatise on the economics of the pulp and paper industry. It is intended to provide a general overview of the pulp and paper industry nationally and in Wisconsin and to highlight some of the key factors affecting the economic health of the industry at this time.

The State of the Paper Industry in Wisconsin is intended to set the stage for the development of recommendations for action by industry and/or government. Development of these recommendations has begun and will continue to be developed cooperatively with other stakeholders. An initial stakeholders meeting held October 23 in Green Bay identified seven general categories for recommendations: government, public relations, partnerships, infrastructure, research and development, economics, and education. These general areas will be refined first by paper industry representatives, then by the broader group of stakeholders. Final recommendations will be presented later in 2003.

Executive Summary

Paper is one of the essential building blocks of society. Wisconsin has a 155 year history of providing this essential building block. Beginning with the first mill in Milwaukee, Wisconsin's pulp and paper industry evolved into the #1 papermaking state in the nation, a title held for 50 years.

Wisconsin papermakers produce more than 5.3 million tons of paper and over 1.1 million tons of paperboard annually. Pulp, paper and allied firms employ approximately 50,000 men and women. Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually, compared to an average state wage of about \$30,000 annually. In addition, the paper industry indirectly supports tens of thousands of jobs in other, related industries.

In recent years the paper industry has faced a number of economic challenges. The U.S. and other world economies slumped beginning in 2000. This reduced demand for paper products. Although U.S. production dropped between 1997-2000, Wisconsin production continued to increase.

Even before this slump the paper industry was confronting a significant supply-demand imbalance. Mills and machines were being shut down to reduce over-capacity. Wisconsin suffered employment losses and mill/machine shutdowns, but it appears that the state fared better than the rest of the nation.

Mergers and acquisitions were taking place as companies sought to gain market share and rationalize assets. In general, foreign competitors take advantage of newer, larger, faster machines to keep production costs lower than in North America.

A strong dollar allowed foreign imports to make significant in-roads into the North American market. It is estimated that imports captured 90% of increased U.S. demand between 1997-2000.

Industry capital spending on new equipment dropped. In Wisconsin, this drop in spending was more significant than the nation as a whole.

The results were declining prices for finished products and a renewed focus on reducing costs. In fact, controlling production costs has been identified as the key to profitability and long-term success in the paper industry.

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment. This means focusing on key cost drivers – fiber, labor, energy, environmental regulation – and identifying ways to reduce costs and increase investment.

In addition to providing an overview of the issues facing the paper industry in Wisconsin, this report highlights significant cost drivers for paper companies in Appendix 1 and priorities for action in Appendix 2.

The long-term success of Wisconsin's pulp and paper industry has resulted from technological advances, an ability to adapt, innovative management, and a quality workforce. These strengths have carried the industry through periods of economic challenges and business transitions in the past. In cooperation with other stakeholders and the state, these strengths will continue to carry the industry in the future.

The State of Wisconsin's Paper Industry

Background

Paper's Role In Society

Paper is one of the essential building blocks of society. Paper products – such as printing and writing papers, tissue, packaging, specialty papers, and paperboard – permeate the social fabric of modern civilization. Paper is in many of the items we come in contact with every day – books, magazines, newspapers, mail, catalogs, computer paper, notepads, food packaging, labels, gift wrap, product boxes, business cards. This list is nearly endless. Paper, made from renewable and sustainable resources, is clearly a mainstay of our societal needs today, as it has been in the past, and as it will be into the future.

Papermaking in Wisconsin: A Proud Tradition

The paper industry in Wisconsin began in 1848 with the opening of a mill to make newsprint for the Milwaukee Sentinel & Gazette. In the 1870s, the center of the state's paper industry moved to the Fox River Valley. There, with access to water and timber resources, the industry prospered.

The success of Wisconsin's paper industry has resulted from technological advances, an ability to adapt, innovative management, and a quality workforce. These strengths have carried the industry through periods of economic challenges and business transitions over the past 155 years.

For example, Wisconsin was once the nation's leading newsprint producer. However, the removal of tariffs on Canadian mills in 1911 required the industry to make

the necessary transitions to produce other paper grades and develop new customers.

Similarly, in the late 1920s the growth of the paper industry in southern states threatened Wisconsin's industry. Again, technical innovation and aggressive management came to the rescue. Most of the state's mills turned to higher quality products, shifting manufacturing to printing and writing papers, tissue, specialty papers, and paperboard. The strategy of upgrading and diversifying was sound. Today, Wisconsin is not only the nation's leading papermaking state, but is also first in product diversity.

Papermaking is the Backbone of Wisconsin's Economy

Wisconsin is the #1 papermaking state in the nation and has been the leader for 50 years. More than 5.3 million tons of paper and over 1.1 million tons of paperboard are produced here annually. In addition, approximately 2.7 million tons of pulp is produced to supply papermaking operations.

The value of shipments from Wisconsin's paper companies tops \$12.4 billion annually, while combined shipments of paper, lumber and wood products are valued at nearly \$16.8 billion.

There are approximately 28 companies operating about 45 mills in Wisconsin. (Some variation in count can exist because of the different types of facilities that fall into standard classifications.) About half of all production in Wisconsin is related to printing and writing grades, with tissue,

The State of Wisconsin's Paper Industry

paperboard and specialty grades accounting for the rest. The size of mills ranges from some of the smallest to some of the largest in the world. Each has found a way to compete effectively.

Pulp, paper and allied firms employ approximately 50,000 men and women, representing one in every 11 to 12 manufacturing jobs in Wisconsin. Pulp and paper manufacturing account for about 60 percent of the jobs; 40 percent are in converting operations that

In addition to direct employment, papermaking indirectly supports jobs for 125,350 more people, according to the Department of Urban and Regional Planning at the University of Wisconsin - Madison. Several thousand people work for companies that design and manufacture papermaking machines and related equipment. Installation of new paper machines, plant expansions and facility upgrades provide employment for several thousand construction and trades workers annually.

Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually. Over \$2.55 billion in wages are earned annually by the industry's workforce.

transform jumbo paper rolls into the widest variety of paper products made in any state.

Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually, according to the U.S. Department of Commerce. Over \$2.55 billion in wages are earned annually by the industry's workforce.

These wages turn into a \$4.38 billion benefit that surges through Wisconsin's economy as the industry's workforce spends some of its earnings on goods and services such as food, clothing, personal items, medical care and recreation. Some of the monies return to communities and neighborhoods in the form of charitable and other public services supported by corporate and personal donations, as well as by taxes paid by paper companies and their employees.

Convenient access to quality Wisconsin-made paper is a big reason why there's a vigorous, growing printing industry here. More than 54,700 printers earn \$1.8 billion in annual wages. Those economic benefits are shared across the state as about half of all printing and publishing jobs are in Milwaukee and southeast Wisconsin.

In 28 Wisconsin counties, the paper and forest products industry is the largest employer; in 14 more counties it is among the top three. Rural Wisconsin is home to many of these firms, helping to assure viable communities statewide.

The State of Wisconsin's Paper Industry

Wisconsin's Challenges

The following discusses fundamental economic challenges facing Wisconsin's paper industry at this time. The issues raised in this general discussion may or may not apply to individual companies and mills. For example, foreign competition and the value of the U.S. dollar may affect some mills and paper grades more directly than others.

Fundamental Economic Changes

Ten-to-fifteen years ago, the paper industry in Wisconsin and the U.S. had the following general characteristics:

- The U.S. economy was healthy.
- Demand for paper products was increasing. While some paper grades were facing competition from competing materials and other media, the "paperless society" had failed to materialize.
- Capital spending was strong and increasing; capacity was being added.
- Production and market share was fragmented among many companies.
- Exports of paper and paperboard (not including newsprint) exceeded imports.

This picture has changed:

- The U.S. and other world economies slumped, beginning in 2000.
- A global supply-demand imbalance became apparent in the mid-1990s. Demand was waning and competition from competing materials and media was increasing. Electronic media began to affect demand. Over-capacity was being addressed through plant and machine shutdowns.

- Consolidation – mergers and acquisitions – became a driving factor as companies sought to gain market share and rationalize assets.
- Foreign competition – globalization – became a major factor, with imports of paper and paperboard exceeding exports.
- Capital spending was significantly reduced.

Supply and Demand

The North American market accounts for about one-third of the worldwide purchases of paper and paperboard products. Per capita use of paper products far exceeds that in other parts of the world. However, the North American market is also a mature market. Overall demand for paper products in North America has been described as stagnant.

Other major markets include Western Europe and Asia. Demand increased in both areas, particularly in Asia, between 1999-2001 according to information from *Pulp & Paper International*. In general, demand can be expected to increase most rapidly in developing countries and economies.

Pulp and paper manufacturing is a cyclical industry. New capacity is very expensive to add, takes years to bring on-line, and has tended to come on-line in large blocks as several competitors attempt to be the first to meet growing demand. The result has been periods of good times, when demand caught up to supply, and periods of bad times, when capacity exceeded demand because of new mill/machine additions.

The State of Wisconsin's Paper Industry

The late 1980s and early 1990s were a period of strong economic growth and demand was increasing. This was a period of record capital spending in the paper industry. However, just as this wave of new capacity began full operation, demand began to slow. This resulted in a significant supply-demand imbalance. Demand did not catch up to supply.

Comparable figures for Wisconsin show a 5% decline.

Basic economics would indicate that an excess of supply over demand should depress prices. Information from the U.S. Bureau of Labor Statistics confirms this. *The Producer Price Index for paper products declined by*

In aggregate, papermakers were receiving less for their products in 2002 than in 1996.

Since then, the pulp and paper industry has been taking dramatic steps to bring capacity in line with demand. Old, inefficient operations are being shut down. This painful process resulted in 72 mill closures in the U.S. between 1997 and 2001, according to the American Forest and Paper Association. In the 2001-2002 period, a total of 40 mills and 104 paper or paperboard machines were permanently closed.

Wisconsin was not immune from this economic pain. According to Fisher International, 21 machines in Wisconsin have been shut down since 1999, both for economic reasons and because of mergers/acquisitions. Fisher International estimates that, even following these shutdowns, Wisconsin's pulp and paper industry operates more machines (137) than any other state or province in North America.

Despite these shutdowns, Wisconsin appears to have fared better than most other paper-making states from an employment standpoint. Information from the U.S. Bureau of Labor Statistics shows that total employment in the pulp and paper industry dropped almost 20% from 1997 through 2002.

3% between 1996 and 2002, while the PPI for all commodities increased by 2.7%. In aggregate, papermakers were receiving less for their products in 2002 than in 1996.

This price pressure has focused attention on cutting costs in order to remain competitive. It is not unusual to hear of individual mills reducing costs by millions, even tens of millions of dollars.

Production data for the U.S. shows a picture that is similar to the pricing data. According to figures cited in the January 2003 issue of *Pulp & Paper* magazine, total U.S. paper and paperboard production fell by about 0.4% between 1997 and 2000, from just over 95 million tons to about 94.6 million tons. Some industry sectors have seen year over year reductions in demand and output.

Once again, Wisconsin's industry appears to have fared better than the nation. Between 1997 and 2000, paper and paperboard production increased by 6.4%, from about 6.1 million tons to nearly 6.5 million tons.

Even though demand, on the broad scale, is weak, companies are working hard to develop

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new products and uses for paper that would increase demand. Some companies have tied financial performance goals to new product development.

The reasons for Wisconsin's apparent superior performance are not clear. One reason could be that the specialized and diversified structure of Wisconsin's industry, along with innovative management and a high-quality workforce has paid off again. Another reason could be that the Wisconsin industry is simply lagging the broader economic trends affecting the industry.

Overall, in the face of very difficult economic times that have seen demand weaken and paper prices decline, Wisconsin mills have responded with aggressive cost cutting and new product development. Wisconsin has

been to take over existing mills, rather than to construct new mills.

According to a study by DRI-WEFA, an economic research firm, 25% of the global industry is likely to be involved in a merger over the next five years. This movement has already had a significant impact on the paper industry in Wisconsin. Green Bay's Fort Howard Paper Company merged with James River Corporation to become Fort James Corporation, only to be subsequently acquired by Georgia-Pacific Corporation. Wisconsin Rapids' Consolidated Papers was purchased by Stora Enso North America. Wisconsin Tissue Mills in Menasha was purchased by Georgia-Pacific Corporation and became Georgia-Pacific Tissue, and was later sold to SCA Tissue.

In 1980, there were 35 paper companies in Wisconsin. Today, there are 28. In 1990, there were 13 paper companies headquartered in Wisconsin. Today, there are 11.

generally fared better than their counterparts in the rest of the country, but it is unclear if this will continue.

Consolidation

The paper industry has historically been a highly fragmented industry, with market share spread among many competitors. It was not unusual for market leaders to have less than 20% of the market.

In recent years, paper companies have consolidated in order to raise market share and replace older, less efficient capacity with newer, lower-cost operations. The trend has

Despite the changes in ownership, all of these facilities are survivors. Wisconsin's high quality, well run mills appear to be just what consolidating companies are looking for.

These changes will hopefully be a positive development in the long run, as companies improve competitive position. However, change can be stressful and can raise uncertainty in the short run.

In 1980, there were 35 paper companies in Wisconsin. Today, there are 28. In 1990, there were 13 paper companies headquartered in Wisconsin. Today, there are 11 - Appleton, Badger Paper Mills, Beloit Box Board, Fox River Fiber, Fox River Paper,

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Green Bay Packaging, Little Rapids Corporation, Oconto Falls Tissue, Riverside Paper, Wausau-Mosinee Paper Corporation and George Whiting Paper Company. Today, the majority of Wisconsin's paper mills are owned and headquartered outside of Wisconsin and six are headquartered out of the country.

Effects of these changes include the loss of Wisconsin-based corporate headquarters and the fact that these mills are operating as part of a larger corporate asset base. Historically, in-state companies have focused capital investments in local production facilities – a locally

This also places pressure on state and local governments to provide a competitive business climate – not only from a cost-to-do-business standpoint, but from an attitude/perception standpoint. Large companies with multi-state or multi-national operations can expect to have several internally-competing mills that offer very similar returns on investment. In these cases, it is not unusual for intangible factors to carry the day – What incentives are available? How quickly can regulatory permitting requirements be met? How easy or difficult are government officials to deal with?

Competition for new investment is fierce, with decisions increasingly being made on a global, rather than a local basis.

owned company with a limited number of mills has a limited number of investment options.

The current trend is toward locally owned, Wisconsin mills becoming part of large global corporations that own many mills in multiple countries. Investment decisions are often made hundreds or thousands of miles away from Wisconsin. Instead of walking across the street, many of Wisconsin's mill managers now fly across the country or across the world for the attention of corporate decision-makers.

These large global companies operate much like holding companies. Capital available for new investments is subject to intense internal competition. Individual mills are often viewed as profit centers, requiring new investments to be justified on an asset performance basis that places tremendous pressure on these mills to control costs.

A significant portion of the paper industry is changing in a fundamental way. Consolidation is underway and is expected to continue. Competition for new investment is fierce, with decisions increasingly being made on a global, rather than a local basis.

Globalization

International trade has always played a role in the North American paper industry. However, papermaking was generally considered to be a regional industry. Within the past ten years a new globalization has manifested itself in important ways. One is the increasing role played by imports. Outside of the past several months, the U.S. dollar has been very strong compared to the currencies of our major competitor countries. This creates a significant price advantage for imported products. In some cases, foreign mills can produce

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paper, ship it to the U.S., and sell it for less than a local mill can produce it.

The following example of how this affects local companies appeared in the December 11, 2002, edition of the Appleton Post-Crescent's Fox Valley Inc. In an article entitled "More jobs not making it", the president of a Fox Valley printing company indicated

an estimated 6.9 million tons in 2002, an increase of 20%.

To a large extent, the paper industry has shifted from a regionally-based industry to a globally-based industry. Low-cost imports, taking advantage of a strong U.S. dollar, are placing increased pressure on Wisconsin mills to reduce costs in order to compete.

"The buyers today aren't asking where the paper's made. They're asking, 'What's the price?' I can buy paper made in the Far East at half the price I can get it for down the street. I'm forced to use it."

that "he would gladly accommodate customers' requests for printing paper made locally or stateside, but clients don't care where the raw materials come from." He stated, "The buyers today aren't asking where the paper's made. They're asking, 'What's the price?' I can buy paper made in the Far East at half the price I can get it for down the street. I'm forced to use it."

The net effect, according to the American Paper and Forest Association, is that imports captured 90% of increased U.S. demand between 1997 and 2000. Over this time period, imports of paper and paperboard (other than newsprint) increased by almost 36%. The flip side of the foreign exchange coin is that U.S. exports have become relatively more expensive. U.S. exports of paper and paperboard (other than newsprint) increased only about 6.6% between 1997-2000, after rising over 25% between 1994-1997. The result is that the U.S. trade deficit with respect to paper, paperboard and converted products has consistently expanded during recent years, climbing from 5.7 million tons in 1999 to

Capital Spending and Reinvestment

Investment in new assets and reinvestment in existing assets is critical to any industry. It is particularly important in the paper industry. The paper industry is highly capital intensive and is characterized by large fixed costs. According to the U.S. Department of Agriculture, it is the most capital-intensive manufacturing sector in the U.S. economy. The installed cost of a large, state-of-the-art paper machine is between \$300 million and \$500 million, and a large, new integrated pulp and paper facility can cost more than \$1 billion. Upgrades to existing machines can cost tens of millions of dollars.

This high fixed cost base creates pressure to operate facilities at high levels to reduce the cost per ton and generate cash. This creates pricing and earnings pressures when the industry has excess capacity.

Unfortunately, but predictably, capital spending has fallen dramatically in these difficult economic times. According to an article in the January 2003 issue of *Pulp & Paper* magazine spending for capital projects in the

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North American pulp and paper industry is expected to continue a declining trend, at least in the short-term, as companies seek to control capacity and offset the impacts of a weakened economy and foreign imports.

Because of the size of paper industry investments and the long time period required to complete large projects, capital spending is reported in terms of a three-year rolling average. The most recent *Pulp & Paper* data shows total known U.S. spending to be \$4.3 billion for the 2002-2004 period. This is the

there was installed after 1975. In South America and the Asia-Pacific region, significant new capacity installed in the 1980s and 1990s now serves the global market place. However, the U.S. paper industry still has active paper machines that were originally brought into service in the late 1800s. Some of these machines are operating in Wisconsin. Fisher International estimates that 51% of North American capacity is produced on machines built prior to 1970.

Unfortunately, but predictably, capital spending has fallen dramatically in these difficult economic times.

lowest level of capital spending in recent years. U.S. spending peaked at \$18 billion in 1989-1991 and, with the exception of 1994-1996 and 1995-1997, has been steadily declining.

The picture in Wisconsin is much the same. Using the same *Pulp & Paper* database, capital spending peaked in the 1992-1994 period at \$1.68 billion. Using the *Pulp & Paper* database and information from Wisconsin Paper Council members, capital spending in Wisconsin will be significantly lower for the 2001-03 period; the lowest level in almost 30 years.

This dramatic drop in capital spending is all the more troubling because Wisconsin's asset base is aging. According to Dr. James McNutt at the Center for Paper Business and Industry, the oldest significant paper machine in Finland, a major competitor of the U.S. paper industry, was first put in service in the mid-1950s and nearly all of the major capacity

Aging assets are a significant concern within the context of global competition. While the North American industry was spending considerable amounts of capital in the late 1980s and early 1990s, this spending was, to a large extent, in the form of upgrades to the old, existing asset base. This made sense within the context of what was then a predominantly regional industry. At about the same time, however, spending was occurring in foreign competitor nations that was, to a large degree, on new assets to serve fast growing markets. The result is a foreign asset base that is generally comprised of newer, larger, faster machines than in the North American market. This has the effect of lowering production costs. For example, fixed costs are spread over more tons, lowering per ton costs, and some variable costs, such as labor, are lower because it takes fewer workers to operated new, technologically advanced machines.

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Exacerbating this situation is the fact that foreign competitors, taking advantage of a more productive asset base and a strong U.S. dollar, can afford to make additional investments that could widen their competitive advantage. New investment in North America is needed to combat this situation.

Economy and Profits

The paper industry was already facing difficult supply-demand conditions when the overall U.S. manufacturing sector slowed in late 2000. Things got worse in 2001 when the U.S. economy slipped into recession, a situation exacerbated by the events of September 11.

A recent Pulp & Paper Week survey of 2002 year-end earnings results showed operating profits for a group of 23 U.S. paper companies fell 5.5%...it marked the second consecutive year of decline in industry earnings.

Aging assets are not always a problem. As long as innovative management is able to match these resources to market niches, small and slow machines can mean quick response and custom service. This has been the case for some companies in Wisconsin.

However, in general, aging assets in combination with limited capital spending is cause for concern.

A recent *Pulp & Paper Week* survey of 2002 year-end earnings results showed operating profits for a group of 23 U.S. paper companies fell 5.5%, to \$3.2 billion from \$3.4 billion in 2001. Although this decline was relatively small, it marked the second consecutive year of decline in industry earnings. As recently as 2000, U.S. paper manufacturers earned \$6.5 billion, and industry earnings topped \$11 billion in 1995.

These results are not surprising given the previous discussions regarding demand, capacity reductions, and foreign competition.

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Conclusion

Wisconsin's pulp and paper industry has a long and proud tradition in Wisconsin. The state remains the #1 paper producer in the nation. Wages are high. The industry serves as one of the foundations of Wisconsin's economy. It is the base for a cluster of suppliers, service providers and related businesses.

Within the current environment, the ability to control costs is critical. As stated in a recent Paperloop.com article on the key to long-term profitability – *The answer, quite simply, is production costs.*

International and inter-state cost comparisons are difficult to come by, since this is highly valued

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment.

However, a number of challenges face the industry:

- Demand in traditional markets has been stagnant.
- Supply – capacity – exceeds demand.
- Overall prices for paper products have declined.
- Consolidation has resulted in many Wisconsin mills becoming part of global companies, fighting internally for investments on an asset performance basis.
- Imports, taking advantage of a strong U.S. dollar, have taken market share.
- Foreign competitors have utilized newer, larger, faster machines to reduce production costs and gain competitive advantage.
- Profits have tumbled.
- Capital spending, following suit, has also tumbled.

Wisconsin mills are responding by:

- Developing new products and new markets.
- Reducing capacity.
- Aggressively cutting costs.
- Consolidating, where appropriate, to gain market share and rationalize assets.

and closely held information. The general consensus appears to be that North American mills generally are not the low cost producers compared to the rest of the world. Within the U.S., Wisconsin appears to be competitive in some areas, but higher cost in other areas. Appendix 1 provides some background on key cost factors for Wisconsin's pulp and paper industry.

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment.

The second phase of the paper industry economic cluster initiative will focus on developing a set of recommendations intended to help meet this bottom line goal. The industry will work cooperatively with other stakeholders to develop these recommendations. However, some issues were previously identified by the industry as being priorities. These issues are included in Appendix 2 as a starting point for future discussions.

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Appendix 1: Key Cost Factors

Fiber

Almost all paper and paperboard products come from wood fiber, whether they are manufactured using pulpwood or recycled wastepaper. According to the American Forest and Paper Association, wood fiber costs are one of the most important factors in determining the competitiveness of the paper industry. Depending on what type of paper is being produced, fiber ranges from 20% to 60% of product cost.

Paper mills obtain fiber from three major sources – pulpwood (logs used by a pulp mill to make pulp), market pulp (pulp purchased for use in a paper mill), and wastepaper. Wisconsin mills rely on a mix of these sources.

The importance of fiber costs in determining competitiveness poses challenges for Wisconsin's paper industry. In a broad sense, Wisconsin is in the northern reaches of the hemisphere – where, due to colder temperatures, trees do not grow as rapidly (thus economically) as in warmer climates.

Within the state, the forest products industry, including papermakers, owns only about 7% of the state's total forest land. About 57% of state forest land is under the control of private, non-industrial landowners – typically individuals, like farmers, with 40-80 acres. The remaining state forest land is owned by government.

While there is little that the industry can do about climatic factors, the industry and the

state have taken steps to assist private landowners to manage their lands for long-term sustainability and productivity. Papermakers are active in the Wisconsin Paper Council's *Green Guarantee* and the American Forest and Paper Association's *Sustainable Forestry Initiative*[®] programs. Both promote environmentally sound forest management aimed at providing an ample, sustainable supply of fiber within the state. In fact, statewide forest inventories indicate that forest growth far exceeds timber harvesting. The State of Wisconsin has an effective Managed Forest Law that provides tax incentives to landowners who agree to manage their forests responsibly.

The U.S. Bureau of Labor Statistics' Producer Price Index for pulpwood on a national level shows that the index dropped by 27% between 1996 and 2002. This reflects pricing pressures from mills that have seen prices erode and must cut costs. In 2001, Wisconsin mills used approximately 2.6 million cords of wood.

We are not aware of regional pulpwood indices that would offer a direct comparison of cost variations within the U.S. and internationally. However, industry sources have indicated that pulpwood costs in the Great Lakes region are comparatively high. As a result, mills in Wisconsin can, in some cases, purchase fiber overseas cheaper than from local sources.

The Bureau of Labor Statistics Producer Price Index for woodpulp on a national level shows

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that the index dropped 13% between 1996 and 2002. Again, this reflects broader economic conditions.

Wisconsin mills recycle about 2.6 million tons of wastepaper annually. The Producer Price Index for wastepaper shows this to be a very volatile commodity. Between 1992 and 2002 the index ranged from a low of 117.4 to a high of 371.1. Between 1996 and 2002 the index increased by 22%, with yearly index values following a saw tooth pattern. Short-term fluctuations can have a significant impact on the profitability of individual mills.

Energy

Papermaking is a very energy intensive industry. The paper industry is the largest energy consumer in the manufacturing sector.

The industry depends on a mix of renewable and fossil fuel-based energy resources. In Wisconsin, of industry's purchased power needs, coal provides 33%, with natural gas supplying 22%, electricity accounting for 15%, and recycled pulp liquors contributing another 15% to the mix. Bark and other unpulpable wood fiber, recovered waste (e.g., wastewater treatment sludge), fuel oil, and propane account for most of the remainder. Despite purchasing large amounts of energy, the industry is also a leader in self-generated energy.

According to the American Forest and Paper Association, energy costs traditionally have been one of the top cost items for the industry. It is not unusual for a typical paper plant to have separate electric and natural gas bills of \$750,000 to \$1 million monthly.

Information from the U.S. Department of Energy indicates that, when measured on a cost-per-kilowatt hour basis, U.S. energy costs for electricity, natural gas and coal are competitive with other countries. This may present an incomplete picture and additional research is needed. Within the U.S., Wisconsin has traditionally had lower cost energy.

However, the paper industry in Wisconsin is confronting steadily climbing prices for natural gas and electricity, compounded by grave concerns over the reliability of electric generation and transmission.

One of the ways the paper industry deals with energy cost issues is through conservation measures. From 1972 until 2000, paper production in Wisconsin rose 80%, but total energy use rose only 25%. The bottom line: a 30% decrease in the amount of energy used per ton of production.

Labor

Wisconsin's pulp and paper industry benefits from a highly qualified, dedicated work force. And while that work force is a highly valuable asset, it is also a cost of doing business. Labor is a significant cost for paper companies and, for some companies, can be the largest single cost component.

It has already been noted that Wisconsin papermakers are the highest paid manufacturing workers in the state. International comparisons by Jaakko Poyry presented to the North Carolina State University Pulp and Paper Foundation show North American personnel costs per ton of production for some paper grades to be the highest in the world.

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One expert estimates U.S. labor costs to be at least 50% higher than competitor nations.

To a large extent, labor costs are a function of the standard of living in a country and the standard of living in the U.S. is high. It is not surprising that workers operating complex, multi-million dollar machines in an affluent country command some of the highest wages in the world.

Another aspect of labor costs is the age and technological advancement of the machines that are being operated. Newer, more advanced machines take fewer people to operate. It was noted in the report that U.S. machines are, generally speaking, older than the machines in key competitor areas. This could result in increased labor costs being associated with more workers.

Environmental Regulation

The pulp and paper industry is highly regulated. Because it is a natural resource-based industry, environmental regulations can have a significant effect on costs. The paper industry in Wisconsin spends millions of dollars annually to comply with an array of federal and state environmental regulatory initiatives. However, the paper industry within the U.S. is generally subject to similar standards and our foreign competitors are also regulated. The cost of different regulatory frameworks throughout the world has been studied and the results are less than clear.

One of the difficulties in comparing environmental regulatory costs is the lack of standard measures. As a result, one industry may find regulatory costs in Europe to be

higher than in the U.S., while another industry may find that costs are higher in the U.S. than in Europe. Assessments of regulatory costs end up being based, to at least some extent, on personal experience and perceptions. However, some companies have done confidential, internal "benchmarking" studies that appear to confirm personal experience and perception.

The general industry view of the U.S. environmental regulatory system could be described as providing about the same level of overall environmental protection as many of our competitor nations, but at a higher cost to industry. The higher cost may be attributed to the highly legalistic and adversarial nature of the U.S. system compared to other countries. As a result, there are high "transaction" costs – steps in the regulatory process designed to provide legal certainty and satisfy skeptics, but that provide little, if anything, in terms of environmental protection. This can be costly in terms of additional staff time and effort, the need for external technical and legal consultants, and time delays associated with regulatory reviews.

The general industry view of the Wisconsin regulatory system is that we have higher transaction costs than in other states – and more costs for internal and external resources, as well as longer time delays. The unfortunate reality is that this view is held by a significant portion of the business community.

Two examples can provide insight into the concerns and frustration of the paper industry and others in the business community. At the national level, the Environmental Protection Agency operates the New Source Review program. In principle, this program

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requires that a company changing operations in a way that results in a significant increase in air emissions must evaluate the need to install the best available technology. However, in practice, the rule forces industrial facilities to vastly overstate estimated air emission increases. This can turn real emission decreases into phantom emission increases. The practical effect is that many small projects that would be environmentally beneficial are not undertaken because the added cost of the technology review and potential controls makes the project uneconomical. U.S. assets, already older than many of our competitors, are not upgraded or are upgraded at a higher cost. EPA has finalized rules to change this situation, but the changes have been highly politicized and will be subject to legal challenge.

example, it could be possible that an air emission source could be subject to the federal rule for emissions of some substances, but subject to the state rule for emissions of other substances. This increases compliance costs.

It is important to remember that these concerns are not directly related to the standards themselves. The paper industry in Wisconsin has a long record of commitment to environmental protection.

The *Pollution Prevention Partnership* between the Wisconsin Paper Council and the Department of Natural Resources has resulted in dramatic reductions in releases to the air and water, as well as the need to land-fill solid waste. These reductions are voluntary and beyond compliance. The Paper Council issues an annual *Pollution Prevention*

One thing is clear: the traditional "command-and-control" system for protecting and improving the environment is outdated and not cost effective.

At the state level, the Department of Natural Resources operates a regulatory program for hazardous air emissions that is unique to Wisconsin. Demonstrating compliance with the standards often requires the need for external consultants that can model emissions from the facility. This can add thousands of dollars to a project that would not be incurred in other states.

This program pre-dates the federal hazardous air emissions rules and takes a fundamentally different approach to regulation than the federal rules. Wisconsin intends to leave this program in place, creating potential conflicts and confusion between the two programs. For

Partnership report that details the environmental performance of participating mills. We are aware of no other industry that make this type of public commitment.

Further, the paper industry in Wisconsin became one of the first industry sectors in the nation to commit to implementing formal environmental management systems as part of the Wisconsin Paper Council *Environmental Management System*. Again, this is a voluntary initiative.

One thing is clear: the traditional "command-and-control" system for protecting and improving the environment is outdated and not cost effective. Allowing for a systems

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approach with regulatory flexibility will achieve greater environmental results at a lower cost to industry.

Taxation

Wisconsin appears to have a corporate taxation climate that is competitive with other states. Various measures show the state to be in the middle of the pack on overall corporate taxes. The state has several programs that are particularly important for the paper industry, such as the property tax exemptions for machinery and equipment used in manufacturing, and for pollution abatement equipment. Also important are sales tax exemptions for manufacturing machinery and equipment, manufacturers' raw materials, and pollution abatement, waste treatment, and recycling equipment. Regarding the corporate income tax, the sales tax credit for fuel and electricity used in manufacturing is extremely important for an

energy intensive industry like papermaking. However, this credit is not working as originally intended and should be changed.

The taxation picture appears to be different at the national level. A 2001 study prepared by price Waterhouse Coopers for the American Forest and Paper Association compared the U.S. tax system to six competitor countries. The study concludes, among other things, that the U.S. tax system is very close to being the most unfavorable among competing nations, with an effective tax rate that is higher than five of the six countries. For four of the countries, the U.S. rate was significantly higher.

The report includes recommendations aimed at bringing the U.S. rate down to the average of our main competitors. These recommendations cover income tax rates, investment tax credits, and depreciation. These issues will be reviewed further in the next phase of the economic cluster process.

Appendix 2: Recommendations for Action

The following recommendations were identified by Wisconsin Paper Council members prior to involvement in the Economic Cluster Initiative and are offered as a starting point for future discussions.

Taxation

Wisconsin should replace the current income tax credit for sales taxes paid on fuel and electricity used in manufacturing with a sales tax exemption.

While Wisconsin has a competitive corporate taxation climate, not all current policies are working as intended. One policy that isn't working as intended and that needs change is the income tax credit for sales taxes paid on fuel and electricity used in manufacturing.

Most states exempt inputs to the manufacturing process from the sales tax. These inputs include raw materials, machinery and equipment, and fuel and electricity. In Wisconsin, raw materials and machinery and equipment are exempt, but fuel and electricity is taxable.

Instead of a sales tax exemption, the state provides a credit against income for sales taxes paid on fuel and electricity. This was intended to be equivalent to an exemption. However, it is not working that way.

Wisconsin manufacturers are unable to fully offset sales taxes paid because income is not sufficient. As a result, the state currently owes manufacturers approximately \$125 million in income tax credits for sales taxes paid. The

paper industry, which accounts for approximately 30% of Wisconsin's industrial energy use and is facing difficult economic times, is owed more than any other industry.

The solution is to change the current income tax credit to a sales tax exemption. This would allow state policy to function as intended and would help paper companies and other manufacturers reduce costs and improve competitiveness.

The change from a credit to an exemption is not cheap. The Department of Revenue estimates a \$9 million annual cost to the state from such a change, plus up to \$29 million per year until accrued credits have been recovered. However, the paper industry has been working with DOR staff to explore options, such as amortizing accrued credits over a fixed number of years, that would reduce the annual cost to a more manageable level.

The paper industry is sensitive to the fiscal problems facing the state and understands that this change may not be feasible in the near future. We are committed to working with the administration and state legislature to find a way to deliver this needed change when the state is in a financial position to do so.

Environmental Regulation

The State of Wisconsin should support the New Source Review (NSR) rules that were finalized by the U.S. Environmental

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Protection Agency on December 31, 2002, and should move to quickly implement these rules in Wisconsin. The result of these rules should be a more clearly defined, flexible, and fairly enforced NSR program that will remove the current disincentives for paper companies and other businesses to improve process efficiency and become more competitive, while reducing emissions.

The NSR program, first established under the 1977 Clean Air Act Amendments, is a pre-construction permitting program for large industrial sources intended to prevent significant air emission increases that could result from major expansions or modifications at a facility. Instead of having clear regulations to implement the program, EPA has amassed more than 4,000 pages of confusing and often conflicting guidance. Over the years, particularly in the last few years, the program has evolved to cover nearly anything industry does to expand or improve operations – even when these changes reduce air emissions and improve efficiency.

Perhaps the most fundamental flaw in the current program is the way EPA measures an emission increase for the purpose of determining if stringent controls are needed at industrial facilities. The NSR program requires these stringent controls if emission increases exceed specified thresholds for certain substances. Instead of using a straightforward measure of actual emissions before and after a project, EPA compares actual emissions before a project to the maximum potential emissions after a project.

This “actual-to-potential” test can have the effect of triggering stringent controls on insignificant emission increases – even emission decreases. How? If a facility is operating

at less than maximum conditions (the normal situation) and the difference between actual emissions and maximum potential emissions of a covered substance is greater than the NSR threshold (very common), *any change in emissions will automatically exceed the NSR threshold and will trigger an expensive review of control options and the potential installation of these controls – even if actual emissions resulting from the project would decrease.*

Another major flaw in the program relates to activities at facilities that are considered routine maintenance, repair, and replacement. EPA proposed changes to address this issue at the same time it finalized rules relating to the “actual-to-actual” test. The NSR program includes an exemption for routine maintenance and similar activities, intended to avoid regulatory review of minor changes at a facility. This is consistent with the intent of the program to focus on significant changes. However, in recent years EPA has revised its interpretation of this exemption to the point that it is available in only extremely limited circumstances (e.g. – replacement of a worn out 30 year old part with an identical part – not a similar or functionally equivalent part, the exact same part that was in use 30 years ago). This results in virtually any maintenance activity becoming subject to NSR review and substantial additional cost.

What are the practical impacts of these and other flaws in the NSR program? Companies avoid changes that would improve process efficiency and competitiveness, increase energy efficiency, and/or reduce emissions because the cost of the NSR review and the potential controls that could be imposed as a result of this review would be too expensive.

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Our manufacturing base slowly loses competitiveness as needed investments are not made by U.S. companies or shifted to other countries by global companies. Voluntary emission reductions – sought by both industry and the DNR – are frustrated for the same reason. NSR has turned into a program that stymies both industrial competitiveness and environmental improvement.

While these concerns are stated in terms of international investment and competitiveness, they will soon apply on a regional basis. Our neighboring states of Minnesota, Illinois, Indiana, and Michigan are all required to begin implementing the new NSR changes on March 3. While there are questions that need to be resolved that could delay implementation, these states are on track to have the NSR changes in place far in advance of Wisconsin (assuming the courts do not stay the federal changes). This provides a distinct competitive advantage for these states compared to Wisconsin.

The recent changes to the NSR program are long overdue and should be allowed to take effect as quickly as possible. The paper industry and other industries are not seeking to roll back environmental protections or end the NSR program – and the EPA rules would not do this. We simply want a clearly defined, workable, and fairly enforced NSR program that allows companies the flexibility to operate efficiently and maintain and improve mills in order to stay competitive in the global marketplace – while meeting environmental obligations. The EPA rules go a long way toward meeting this goal.

Systems Approach for Pulp and Paper Air Emissions Sources

The traditional command-and-control system for protecting and improving the environment has accomplished much over the past thirty years. The system, however, is outdated. It is not cost-effective.

The paper industry, for example, continues to spend millions of dollars annually to comply with an array of federal and state environmental regulatory initiatives. We are spending more and more to produce smaller and smaller results.

The paper industry cannot afford to continue to spend valuable and limited capital in such a haphazard manner and remain competitive in a global marketplace. Our industry is already saddled with higher fiber, fuel and labor costs than our foreign competitors, and the value of the dollar gives them a significant additional advantage.

During the next several years, the paper industry will be facing several new state and federal regulatory initiatives related to air emissions, particularly from combustion sources. These initiatives include MACT II, industrial boiler MACT, nitrogen oxide reductions, mercury reductions, NR 445 revisions, and global climate change issues.

Rather than address these issues singularly, or incrementally, the members of the Wisconsin Paper Council are recommending the development of a “systems approach” – an innovative process that will provide meaningful environmental improvement through the cost-effective use of capital and technology. The goal, in other words, is to achieve the opti-

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mum environmental improvement at the least cost to the paper industry.

The systems approach incorporates the implementation of upcoming environmental requirements in a manner consistent with the capital planning cycle of individual paper companies.

Under this approach, regulatory authorities and paper industry representatives will design and establish both short term and long term priorities for the industry's air emission sources, particularly its combustion sources

The establishment of these priorities will lead to the greatest environmental improvement with the most cost-effective use of capital and technology for the industry to remain competitive in a global marketplace.

Under this "systems approach," the Wisconsin Paper Council is proposing the following key concepts:

- Primary attention will focus on combustion sources; however, the scope of the effort would include all air emissions sources, i.e. companies could include other sources, such as paper machines, on a site-specific basis.
- Primary attention will focus on nitrogen oxides, mercury, carbon dioxide, and hazardous air pollutants; however, other emissions could be considered on a site-specific basis.
- Implementation of a clean unit technology concept that would be defined on a case-by-case basis. Firms installing the clean unit technology would not have to install additional or new technologies for an agreed

upon and specified period of time, 15-20 years, i.e. the useful life of the clean unit technology. This is similar to the clean unit provision in the recently announced new source review changes, but broader in that it would apply to all regulations.

- Use of a bubble or emissions trading concept that could be facility-wide, company-wide, industry-wide, or regional. For example, a firm with multiple operations within the state could "bubble" its entire operation thereby spending capital on those projects that would be economically feasible and environmentally beneficial. As with the clean unit concept, this is similar to, but broader than the announced plantwide applicability limits under the new source review program.
- Flexibility or deferral of compliance deadlines to accommodate capital planning cycles and the development and/or implementation of "clean unit" or emerging technologies.

In addition to these key concepts, the paper industry also recommends this systems approach include:

- Flexibility/relief from burdensome PSD new source review requirements (EPA's recently announced changes appear to make good progress on this front);
- Flexibility/relief from state and federal administrative burdens during permitting and when complying with regulations; and
- Expansion of government assistance programs, such as industrial revenue bonds, to include consideration of environmental improvement.

The State of Wisconsin's Paper Industry

Implicit in the development of this systems approach is implementation of an environmental management system on a company-by-company basis, and continued emphasis on pollution prevention.

Constructive third-party involvement is a necessary part of the process. The public needs to understand and support this type of innovation.

We envision that this systems approach, accomplished via "pact" or covenant, or other such mechanism, would be legally binding.

This innovative systems approach will provide enhanced, cost-effective environmental improvement and create an incentive for companies to try new technologies with limit-

ed risk. In other words, more meaningful environmental improvements and technology development will be achieved through this system than through the traditional incremental, or rule-by-rule approach.

It is also important to note that emission reductions will potentially occur not only from regulated pollutants, but also from non-regulated pollutants. This systems approach, like the *Pollution Prevention Partnership* (P3) is "beyond compliance."

The development of this systems approach should also result in a reduced DNR workload. Companies, for example, might opt to write their own Title V permit for agency consideration.



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