

14. Outdoor recreational participation and facilities

Based on experience with MFL and changes in state trespass laws, private landowners are allowing less public access to their property. A statute change in 2007 that prohibits leasing of closed MFL land is also restricting the supply of private land available for hunting leases.

New demographics –

The baby boom population is reaching retirement age and will increase demand for a number of more passive recreational activities.

15. Investments in forest health, management, research, education, and wood processing

15.1 Northeastern Area State and Private Forestry (NA S&PF) funding

The metric presents the amount of USDA Forest Service - Northeastern Area State and Private Forestry (NA S&PF) funding to partners in Wisconsin. This type of funding is a direct measure of federal investment in Wisconsin forests and the forest products industry. The mission of the NA S&PF program is to provide technical and financial assistance to private landowners, state agencies, tribes, and community resource managers to help sustain the nation's urban and rural forests and to protect communities and the environment from fires, insects, disease, and invasive plants (USDA Forest Service, 2007). NA S&PF funding is roughly 5% of the Division of Forestry's total budget.

In 2008, the U.S. Forest Service began implementing a "[Redesigned](#)" S&PF program. The S&PF Redesign assumes that our collective efforts will be most effective if available resources are focused on issues and landscapes of national importance and prioritized, using state and regional assessments, on activities that promise meaningful outcomes on the ground. The Redesign Board of Directors identified "competitive resource allocation" as an effective means of ensuring that federal S&PF dollars are invested in the most important activities.

Beginning in federal fiscal year 2008, 15% of the S&PF allocation to states was invested in projects selected through a competitive process. This competitive process is administered through a joint effort between the state forestry agencies and USFS leadership. The DNR Forestry Division manages the development and submission of proposals in Wisconsin, screening competitive proposals that typically exceed available allotments by a very wide margin.

Figures 15.a and 15.b show the level of grants in 2005 through 2008 and the dollar amounts awarded in the six tracking categories in 2008. An average of \$5,261,707 was received in grants annually over the four-year period. The amount of funding awarded to each category has been relatively consistent with the exception of the Forest Legacy program, used to purchase forest land or conservation easements. Funding for Legacy acquisitions is the most sensitive as projects compete nationally for limited funds.

15. Investments in forest health, management, research, education, and wood processing

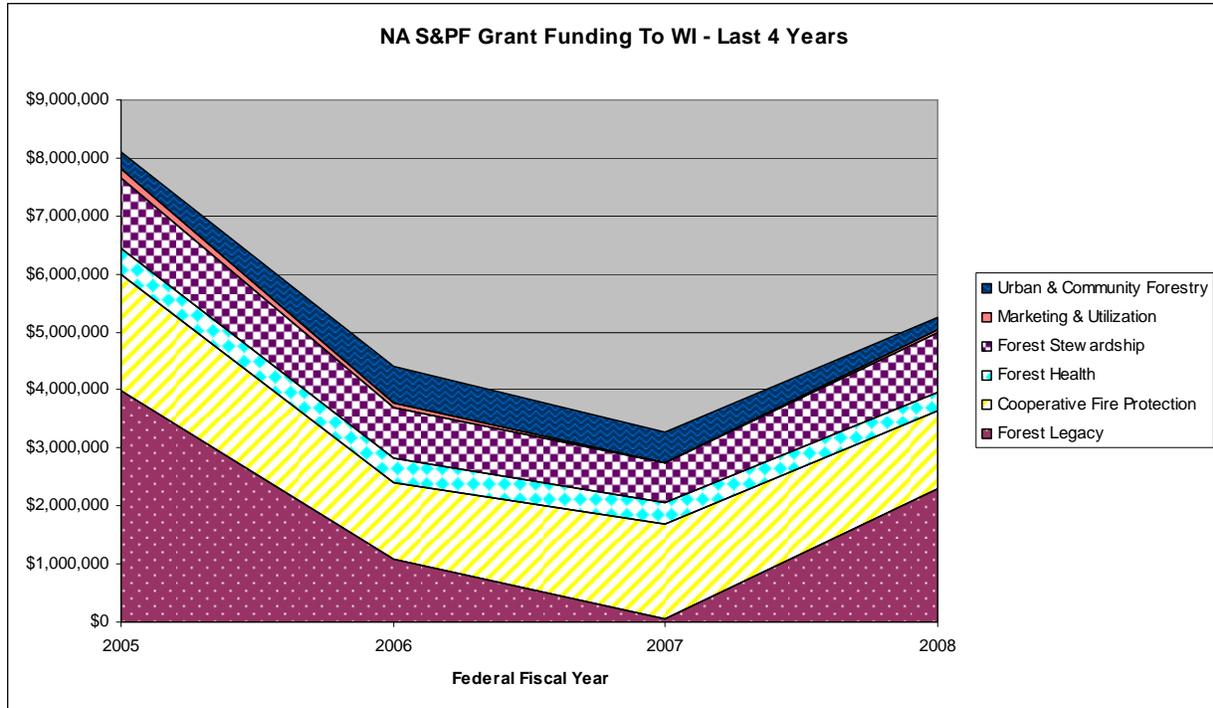


Figure 15.a: NA S&PF grant funding to Wisconsin
(Source: DNR, Division of Forestry, 2008)

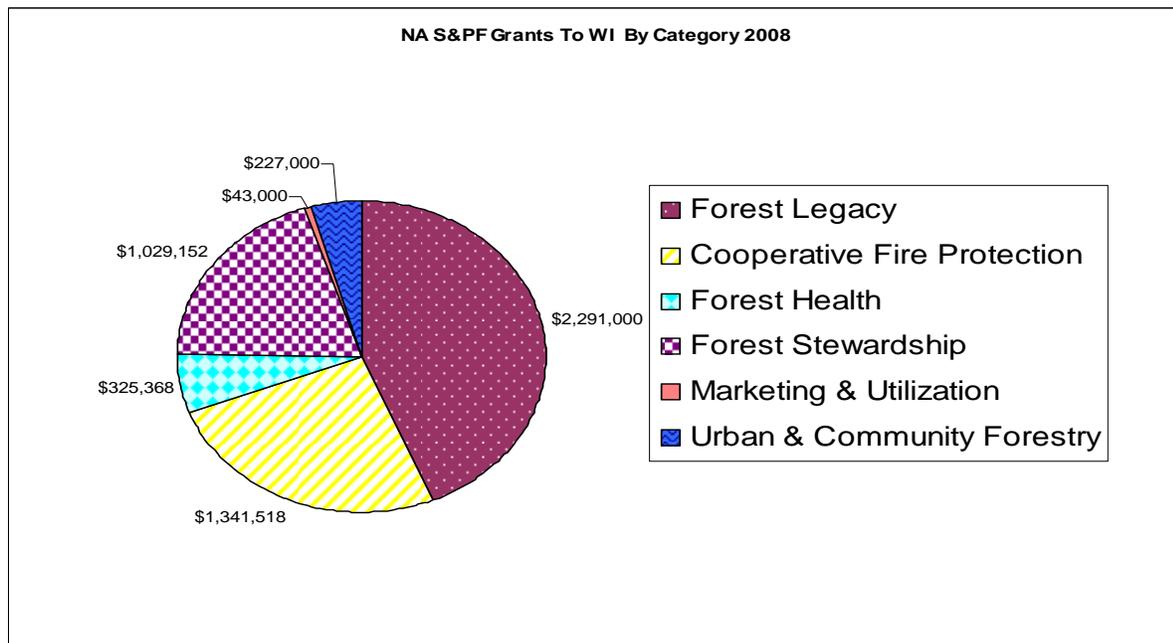


Figure 15.b: NA S&PF grants to Wisconsin 2008
(Source: DNR, Division of Forestry, 2008)

Funding for NA S&PF grants is tied directly to the Federal budget process. Depending on national issues, funding for S&PF can fluctuate greatly. To assure continued support for this important work, stakeholders have found it essential to engage the political process. The

15. Investments in forest health, management, research, education, and wood processing

Division of Forestry through the National Association of State Foresters, the Governor, conservation organizations, and the public through their representatives in Congress actively continue requesting Federal resources for forestry stewardship.

15.2 State forestry agency funding

State funding for the Wisconsin DNR Forestry Program is a direct measure of state investment in Wisconsin forests and the forest products industry. Wisconsin is fortunate to have a stable source of segregated forestry account funding that is able to support a relatively robust program.

Article VIII, Section 10, of the Wisconsin Constitution allows the state to appropriate moneys for the purpose of acquiring, preserving and developing the forests of the state through a tax on property not to exceed 0.2 mils (20¢ per \$1,000 of property value). This tax is frequently referred to as the "forestry mil tax" and is the only property tax levied by the state. The rate of the mil tax, which is established in statute, was set at 0.2 mils in 1937 and did not change until 2005.

Revenue to the forestry account of the conservation fund from the mil tax increased an average 7.4% per year from 1970-71 to 2004-05. 2005 Act 25 limited the forestry mil tax levy to an annual increase of no more than 2.6% for the next three years. The act also specifies that the mil rate determined by the Department of Revenue for the property tax assessment as of January 1, 2007 (mil tax revenue received in the forestry account in 2007-08), would be the rate of the tax imposed for all subsequent years. The rate is now 0.1697 (16.97¢ per \$1,000 of property value or about \$28.65 on a home valued at a 2007 state median value of \$168,800).

For 2007-08, the tax generated \$84.5 million, which is 81% of the total revenue that was credited to the forestry account in that fiscal year. Statutorily, at least 12% of the revenue generated by the tax must be used to acquire and develop forests within a sixteen-county region southeast of a line running generally from Rock to Outagamie to Manitowoc Counties.

Other sources of revenue to the forestry account include: (a) revenues from the sale of timber on state forest lands; (b) revenues from the sale of growing stock from the state's tree nurseries; (c) camping and entrance fees at state forests; (d) severance and withdrawal payments from timber harvests on cooperatively-managed county forests and on privately-owned land entered under the forest crop law and managed forest law programs; (e) closed acre fees under the managed forest law program; and (f) a portion of the revenue from the sale of the conservation patron licenses, to reflect the fact that license holders are granted admission to state forests at no additional charge as part of the license. Figure 15.c shows changes in total forestry account revenue since 1999.

15. Investments in forest health, management, research, education, and wood processing

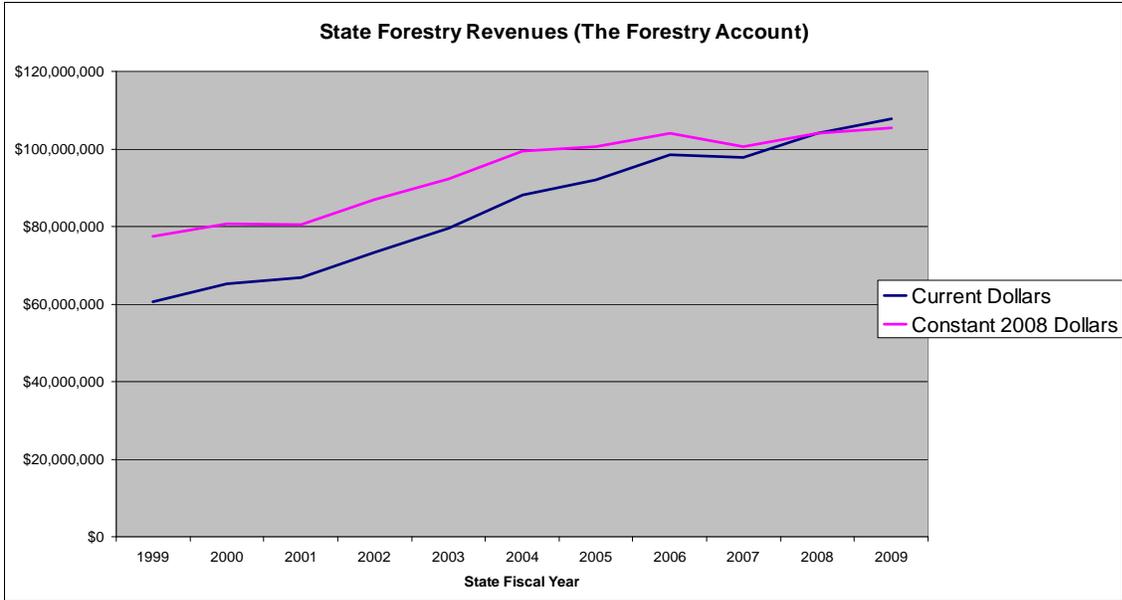


Figure 15.c: State forestry revenues 1999-2009
Source: DNR, Division of Forestry, 2009

In addition to Division of Forestry services to manage and protect public and private forest land (about half of the expenditures from the fund), the State Legislature appropriates money from the forestry account for other “forestry related” activities, the definition of which is at the Legislature’s discretion. Figure 15.d shows expenditures by general categories. Table 15.a details forestry account expenditures in fiscal years 2008 and 2009. See Wisconsin Legislative Fiscal Bureau, [Informational Paper 59 – Conservation Fund](#) for a detailed description of forestry account uses.

15. Investments in forest health, management, research, education, and wood processing

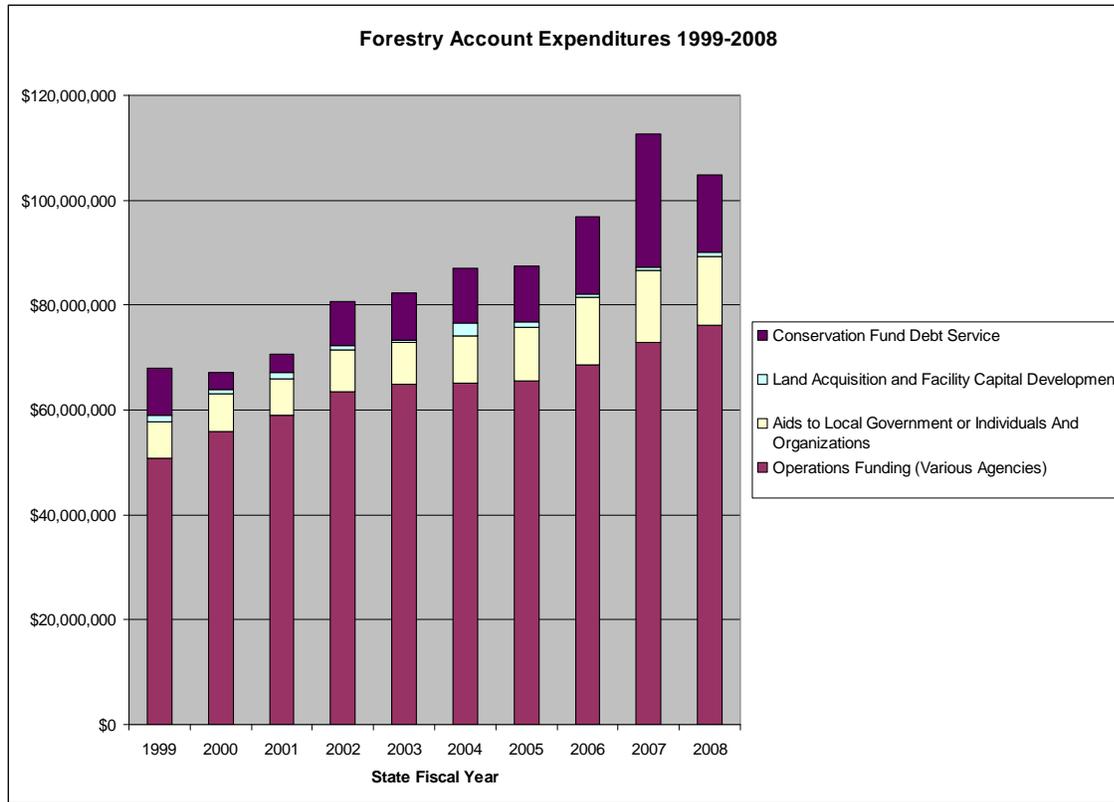


Figure 15.d: Forestry account expenditures

Source: DNR, Division of Forestry, 2008

Table 15.a: Forestry account expenditures fiscal years 2008 and 2009

	2007-08 Actual	2008-09 Appropriated	2007-08 % of Total	2008-09 Staff
Forestry Program Appropriations				
State Forestry Operations	\$47,379,500	\$50,780,500	47.40%	463.44
Southern Forest Operations	5,147,600	5,384,400	5.15	45.75
Stewardship Debt Service	13,500,000	13,500,000	13.51	0
FCL and MFL Aids	1,250,000	1,250,000	1.25	0
County Forest, FCL and MFL Aids	1,352,700	1,416,400	1.35	0
Outdoor Recreation Land Acquisition Grants	0	1,000,000	0	0
County Forest Loans	557,000	622,400	0.56	0
County Forest Project Loans	413,600	400,000	0.41	0
County Forest Loan Severance Payments	87,000	0	0.09	0
County Forest Project Loan Severance Payments	347,700	0	0.35	0
Urban Forestry, County Forest Grants, and County Forest Administrator Grants	1,934,600	2,128,100	1.94	0
Forestry Management Plan Contracts	0	320,000	0	0
Fish, Wildlife and Forestry Recreation Aids	235,900	234,500	0.24	0
Recording Fees	50,800	90,000	0.05	0
Fire Emergency Other States	74,800	0	0.07	0
Reforestation	122,500	101,500	0.12	0
Wisconsin Private Forest Landowner Grants	888,700	1,710,000	0.89	0

15. Investments in forest health, management, research, education, and wood processing

Table 15.a: Forestry account expenditures fiscal years 2008 and 2009

	2007-08 Actual	2008-09 Appropriated	2007-08 % of Total	2008- 09 Staff
Fire Suppression Grants	443,400	448,000	0.44	0
Assistance for NCOs and Private Conservation	228,400	230,000	0.23	0
Forestry Public Education	175,500	200,000	0.18	0
Forestry Education Curriculum	200,000	200,000	0.2	0
Campground Reservations	288,500	0	0.29	0
Forestry Education and Professional Development	5,600	150,000	0.01	0
Karner Blue Butterfly Habitat	9,700	10,000	0.01	0
Cooperating Foresters	3,900	0	0	0
Split-Funded Appropriations				
Administration and Technology Services	\$7,658,600	\$8,030,900	7.66%	70.96
Customer Assistance and Licensing	4,013,600	3,276,500	4.02	34.19
Land Program Management	126,800	120,300	0.13	1.02
Bureau of Facilities and Lands	3,193,300	3,380,900	3.19	32.35
Bureau of Science Services	609,900	820,800	0.61	6.63
Bureau of Endangered Resources	236,100	255,500	0.24	2.63
Administrative Facility Repair and Debt Service	1,263,800	1,547,500	1.26	0
Aids in Lieu of Taxes	4,452,100	4,454,000	4.45	0
Resource Acquisition and Development	736,800	770,800	0.74	0
Rent and Property Maintenance	220,700	2,600	0.22	0
Taxes and Assessments	18,400	29,900	0.02	0
Miscellaneous	12,800	0	0.01	0
Other Agency Appropriations				
Agriculture, Trade and Consumer Protection	\$1,452,400	\$1,560,400	1.45%	9.75
University of Wisconsin System	441,300	531,100	0.44	1
State Historical Society	52,800	49,000	0.05	1
Kickapoo Reserve Management Board	718,300	744,900	0.72	3
Wisconsin Conservation Corps	800	0	0	0
Lower Wisconsin State Riverway Board	44,400	46,700	0.04	0.25
Total	\$99,950,300	\$105,797,600	100.00%	671.97

Source: DNR, Division of Forestry, 2009

Use of forestry account revenue is a contentious issue, diversions of the funds being a subject of intense debate. For example, the forestry account was first tapped for \$1 million for aid in lieu of property tax payments (for conservation land purchased by DNR) in fiscal year 2003-2004. That has since grown to \$4.45 million a year, most of which is likely to continue as a permanent draw on the account. Recurrent state budget shortages, including a \$6.6 billion shortfall projected by mid-2011, have forced the State Legislature to use every available dollar in the forestry account. The effective reserve in the account is nearly zero, and the inflexibility of some charges like aid in lieu of tax payments means that core forest management functions risk substantive future reductions if revenue sources decline or fail to keep up with inflation.

15.3 Funding for forestry research

Forestry research by academic institutions and government agencies is primarily dependent on public funding. Research is typically a multi-year endeavor with some studies requiring inputs and yielding findings over decades. One measure of research support and investment is the willingness of the public and others to make such multi-year commitments.

Research funding (i.e., grants, agreements, projects) included in these data is a blend of competitive grants, federal formula funds, and funds conveyed through cooperative agreements. It is a coarse look at funds by state, federal, and industry sources. The primary organizations responsible for forestry-related research in the state are the UW-Madison, UW-Stevens Point, USDA Forest Service Northern Research Station, USDA Forest Service Forest Products Laboratory, and the DNR-Bureau of Science Services. These organizations receive the vast majority of research funding. In the case of UW-Madison and Stevens Point, portions of research funding also support activities of the UWEX Cooperative Extension Service.

Many types of research in various disciplines benefits forest management. For the following data, forestry research includes the knowledge areas of: management and sustainability of forest resources, management and control of forest and range fire, urban forestry, and outdoor recreation. The sources of the funds come from a variety of federal agencies, state government, and industry grants and agreements. This data is compiled by the USDA National Institute of Food and Agriculture (previously known as the Cooperative State Research Education and Extension Service (CSREES)) Data are available through their Current Research Information System website (<http://cris.nifa.usda.gov/Welcome.html>).

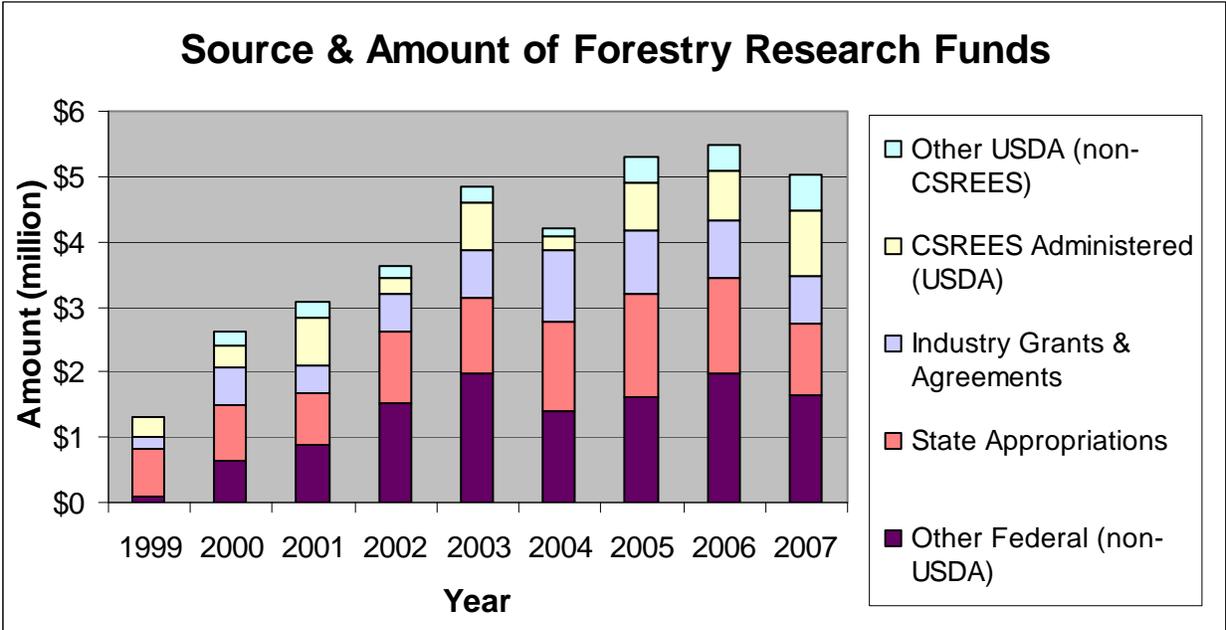


Figure 15.e: Source and amount of forestry research funds (USDA, CREES, 2009)

15. Investments in forest health, management, research, education, and wood processing

2003	\$18,795,190
2004	\$19,278,065
2005	\$17,144,743
2006	\$23,295,494
2007	\$20,738,950
(USDA, REEIS, 2009)	

Figure 15.a does not include funds from the Forest Service, which maintains a significant presence in Wisconsin through the Forest Products Laboratory and research stations in Rhinelander and elsewhere. The Forest Service share (Table 15.b) includes all expenditures (i.e., salaries, benefits, facilities, supplies, etc) and extends to all knowledge areas as opposed to just those listed in Fig 15.e.

Both the UW-Madison and Stevens Point campuses of the UW-System receive formula fund from the USDA NIFA through the McIntire-Stennis Act. These funds provide for state-focused forestry research. Under the federal formula, Wisconsin received \$576,607 in 2008 and \$641,156 in 2009. The majority of this support is directed to the UW-Madison (the College of Agricultural and Life Sciences specifically), which has an explicit focus on research. The McIntire-Stennis Act support represents the largest share of the CSREES administered share in Fig 15.e.

The sources that make up the vast majority of the remaining federal support (i.e., non NIFA and FS) include Department of Defense, Department of Energy, National Aeronautic and Space Administration (NASA), National Science Foundation (NSF), and US AID (Agency for International Development).. An important caveat for all funding identified is that the research may or may not be Wisconsin or even regionally focused.

Over the last three years, the amount of research funding remained fairly stable across the state. There are some changes within funding sources. Industry grants and agreements hit a high in 2004 (\$1,082,000) and declined since. The amount of CSREES grants steadily increased over the last four years.

In terms of research impact, there are few specific measures. The DNR, Bureau of Science Services compiled a list of over 100 forestry research activities that are occurring or recently completed as of 2008 (Martin and Pollentier, 2008). In a 2006, Journal of Forestry article, the UW-Madison Department of (then) Forest Ecology and Management ranked in the top 10 of all North American forestry programs in the nation on several measures of research publication outputs between 1997 and 2001 (Laband & Zhang 2006).

In 2006, the Wisconsin Council on Forestry recognized the need to prioritize various initiatives started by the Council, the Governor's Conference on Forestry, and Governor Doyle's Conserve Wisconsin program. They developed the "Wisconsin Research Agenda" (WI Council on Forestry, 2006). Their top research priorities are grouped by the following eight areas of emphasis:

15. Investments in forest health, management, research, education, and wood processing

- 1) Sustainable Management Certification for Wisconsin's State, County, and Private Forests
- 2) Conserving Wisconsin's Biological Diversity
- 3) Enhancing Wisconsin's Urban Forests
- 4) Managing the Impacts of Changes in Wisconsin's Land Use and Forest Ownership
- 5) Enhancing Assistance to Wisconsin Private Forest Landowners
- 6) Minimizing the Threat of Invasive Exotic Species to Wisconsin's Forests
- 7) Maintaining Wisconsin's Forest-Based Economy
- 8) Minimizing Recreational Use Conflicts in Wisconsin Forests

The Council recommended that the Division of Forestry develop an initiative for \$200,000 per year of base funding for the 2007-2009 biennium to support forestry research that addresses needs identified in the Wisconsin Forestry Research Agenda. As well, they recommended the Division of Forestry work with the UW-System to develop a cooperative grant program for forestry research supported with WI-DNR funds. A final recommendation was for the Division of Forestry to formulate a process for assessing and prioritizing forestry research needs when developing future statewide forest plans, and develop biennial updates and revisions of the research agenda.

Despite some degree of research coordination among agencies and especially individuals, harmonization could be improved. Efforts are underway among research institutions to build closer relationships. Future assessment might consider the extent to which coordination is occurring through metrics such as co-authored publications co-principal investigator status on proposals that span different research institutions, and greater organizational ties through formal agreements and joint events.

15.4 Capital expenditures by manufacturers of wood-related products

Total capital expenditures include new and previously owned expenditures for: (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity, if they were of the type for which depreciation accounts are ordinarily maintained. Capital expenditures by wood-related product manufacturers in Wisconsin are a direct measure of private industry investment in Wisconsin forest products industry.

Data for this metric is readily available from U.S. Department of Commerce, Census Bureau and Economic Census. The Economic Census is conducted by the U.S. Department of Commerce, Bureau of the Census every five years, in years ending in "2" and "7" (such as 1997, 2002, 2007). There is some time lag in the ability to analyze this data. As required by Federal law governing census reports, no data are published that would disclose information regarding an individual establishment or company. This provision results in some missing data in states or industries for which there are a smaller number of establishments.

For purposes of analysis, forest product manufacturers can be separated into five distinct sectors: (1) sawmills and wood preservation, (2) veneer, plywood, and engineered wood product manufacturing, (3) other wood product manufacturing, (4) paper manufacturing, (5) wood furniture and related product manufacturing. These subsectors are described below.

15. Investments in forest health, management, research, education, and wood processing

Sawmills and wood preservation - This industry group comprises establishments whose primary production process begins with logs or bolts that are transformed into boards, dimension lumber, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips. Establishments that cut and treat round wood and/or treat wood products made in other establishments to prevent rotting by impregnation with creosote or other chemical compounds are also included in this industry group

Veneer, plywood, and engineered wood product manufacturing – This industry comprises establishments primarily engaged in one or more of the following manufacturing activities:

1. veneer and/or plywood;
2. engineered wood members; and
3. reconstituted wood products (e.g. hardboard, particleboard, insulation board, medium density fiberboard, waferboard, and oriented strandboard).

This industry includes manufacturing plywood from veneer made in the same establishment or from veneer made in other establishments, and manufacturing plywood faced with non-wood materials, such as plastics or metal.

Other wood product manufacturing – All other miscellaneous wood product manufacturing

Paper manufacturing - Industries in the paper manufacturing subsector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. The paper manufacturing subsector is subdivided into two industry groups, the first for the manufacturing of pulp and paper and the second for the manufacturing of converted paper products. Pulp mills, paper mills and paperboard mills comprise the first industry group. Establishments that make products from purchased paper and other materials make up the second industry group, converted paper product manufacturing.

Wood furniture and related product manufacturing – includes the manufacturing of various products such as wood kitchen cabinets, furniture, custom architectural woodwork and millwork, shelving, and shade manufacturing.

Wisconsin's forest products industries are significant contributors to the economy, with total capital expenditures of \$711.2 million, comprising over 17% of capital expenditures in the manufacturing sector as a whole (see Figure 15.f). Three-quarters of private investment in forest products manufacturing occurs in the paper manufacturing subsector (see Figure 15.g), which in 2006 had over \$533.8 million in estimated total capital expenditures, representing 13% of total capital expenditures in all manufacturing sectors. Other wood product manufacturing ranks second among forest products subsectors, with \$84.3 million in total capital expenditures. Total capital expenditures in the wood furniture subsector have dropped sharply from 2002 (\$70.1 million) to 2006 (\$39.5 million). The sawmill and wood preservation subsector has relatively minor total capital expenditures (\$30.4 million in 2006), but that number has nearly tripled since

15. Investments in forest health, management, research, education, and wood processing

2002. Capital expenditures in the veneer, pulpwood, and engineered wood product manufacturing subsector are relatively low and constant.

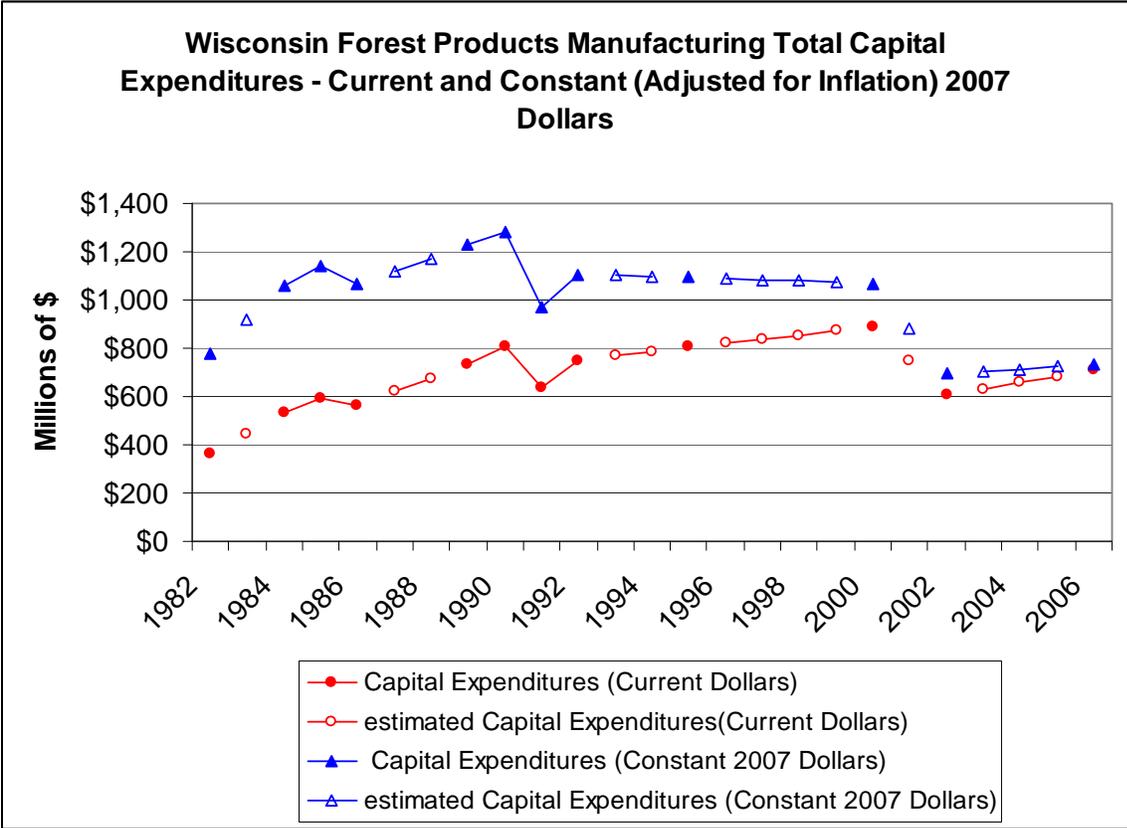


Figure 15.f: Wisconsin forest products manufacturing total capital expenditures
 (Source: Wisconsin Economic Development Institute, Inc., Madison, WI)

15. Investments in forest health, management, research, education, and wood processing

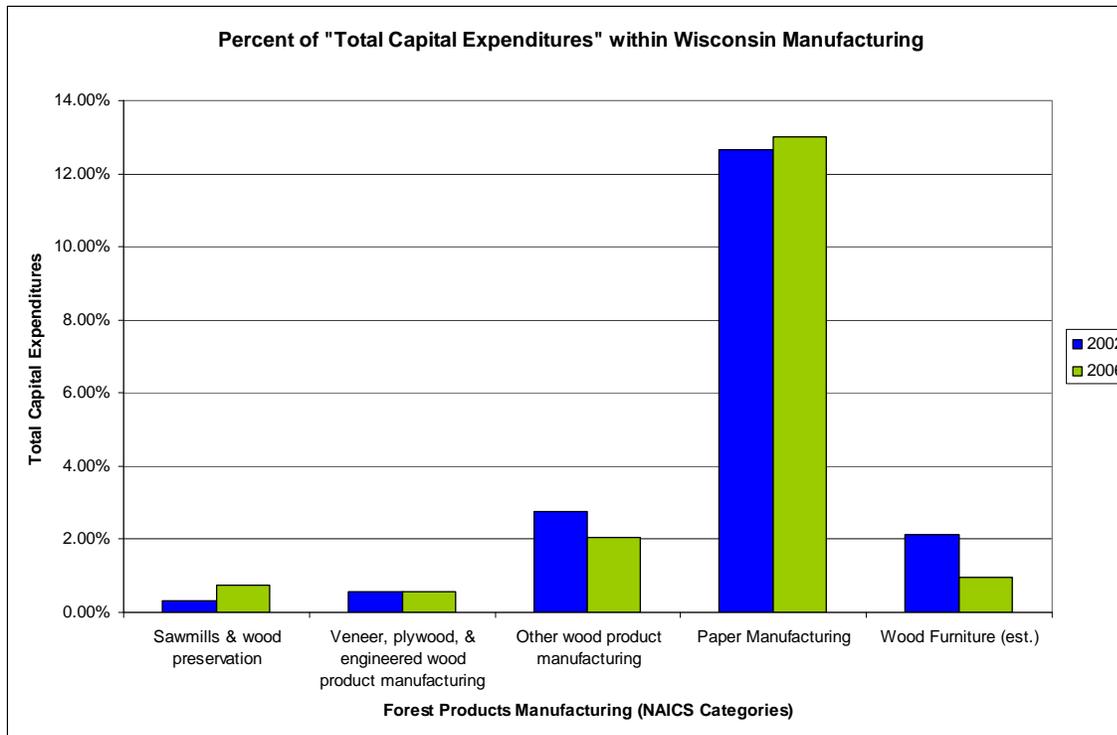


Figure 15.g: Percent of total capital expenditures within Wisconsin manufacturing
(Source: Wisconsin Economic Development Institute, Inc., Madison, WI)

In terms of constant 2007 dollars, total capital investment in Wisconsin's forest products manufacturing has been below 1982 levels since 2002. When accounting for inflation, capital expenditures peaked in 1990 (\$1.3 billion in constant 2007 dollars), then leveled off until 2000, when capital expenditures plummeted as wood products manufacturers divested in timberland and closed down mills. From 2002 to 2006, capital expenditures in wood products manufacturing as a whole have rebounded somewhat, especially in the paper manufacturing subsector and the sawmill and wood preservation subsector. However, given competition with global markets, it is unlikely that wood products manufacturing will return to a point where it comprises nearly a third of all capital expenditures in manufacturing, as was the case in 1990 (31.3%).

Since 1990, the wood products manufacturing sector has seen its share of capital investment steadily decline as firms take advantage of relatively low labor and transportation costs in other locales. However, the paper manufacturing subsector remains a strong draw for capital expenditure, ranking second among 65 manufacturing subsectors.

15.5 Funding for Forestry Education (K-12)

People's views of forests are complicated and debates over their management are often in the public spotlight. As the population became more urbanized, values shifted. In some cases, knowledge about the many products that our forests provide on a daily basis has been incompletely understood, resulting in polarized debate.

15. Investments in forest health, management, research, education, and wood processing

Kindergarten through twelfth grade (K-12) educational programming introduces young citizens to the dynamic nature of forests and forest management and informs learners about forests both as complex ecosystems and as economic resources. K-12 programming about our forest resources envisions inspired and informed citizens that are actively engaged in sustaining healthy forests and communities. Advancing excellence in K-12 forestry education through partnerships that develop, disseminate, implement and evaluate relevant resources and services makes both good ecological and economic sense and will ultimately sustain the forest resource through informed dialogue, science based knowledge and critical thinking.

There are many institutions that focus on forestry education. For this assessment, seven were chosen to highlight (see Table 15.c). They were selected because of their statewide extent and exemplified a variety of missions. The intent of reporting the level of funding for each organization is to assess whether there is continued support for these groups by those that fund them (i.e. government, grant programs, donations). Some of these groups are young and only have a few years of data. Others were also able to report how many students their programs educated. Overall, programs that are funded through the state or federal sources have shown the most stability.

Table 15.c: K-12 forestry organizations level of funding and people served

Organization	Funding (1990's)	Funding (2008)	# of people served (1990's)	# of people served (2008)	Explanatory Notes
WEEB	\$200,000 (1998)	\$400,000	N/A	>20,000 (2007)	Funding shown is specifically for the forestry program, not the total WEEB budget. # of people reached with 2007 grants is a total of only 33 of 69 projects reporting.
Trees for Tomorrow	\$691,080 (1998)	\$930,000	18,713 (1998)	14,000 (2007)	No funding comes from state or federal sources.
LEAF	\$250,000 (2002)	\$379,500	N/A	293,101	LEAF was founded in 2002. # of people served in 2008 includes >200,000 visits to LEAF website.
PLT	\$45,000 (1998)	\$85,933	803 (1998)	7,509	Some state funding.
DNR Fire	N/A	\$25,000	36,865 (2005)	32,356	No data from 1990's but most likely \$25,000.
Woodlinks	\$30,000 (1997)	\$46,000	60	700	In 1997, the program started with 3 schools (20 students/school); now 35 schools in 2008.
WFREA	N/A	\$75,000	N/A	1,576	WFREA began in 1998.

(Source: Each organization provided data, 2009)

15. Investments in forest health, management, research, education, and wood processing

Wisconsin Education & Environmental Board (WEEB)

The Wisconsin Environmental Education Board (WEEB) was established by 1989 Wisconsin Act 299, becoming law in 1990. Since the program's inception in 2005, the Board has invested over \$230,000 to assist 48 school districts with their efforts to create a school forest education plan. The WEEB has a strong and active board made up of several members of the Legislature. The forestry portion of their budget doubled over the last ten years.

Trees for Tomorrow

Since this is a self-supporting property-based environmental education facility, the rising costs of building maintenance, utilities, vehicles, postage and general house-keeping may become burdensome in the near future. A slight decline in the overall number of people served over the years underscores the continued need for marketing and fund raising. To best benefit forestry education, current trends indicate that an increased focus on adult off-site programming is a possible growth area. Increased educational programming targeting older audiences with greater disposable incomes, coupled with focused marketing may sustain this facility and increase fundraising and donations. Future growth in traditional outreach to elementary, middle and high school students reflects school populations and thus maybe limited.

LEAF

Trends for this program indicate that it is a sound investment for sustained growth in forestry education. Annual increases in the number of people served coupled with up to date electronic services, targeted marketing, and access to university expertise and grant writing expertise; position this program for growth. Any decline in the principle source of funding, a surcharge on the sale of DNR nursery program tree seedlings, will impact this program's base funding and impact its ability to deliver forestry education. The LEAF budget annually leverages over \$150,000 in in-kind matching contributions from partners. Best areas for growth are in professional development for educators, increased electronic outreach to audiences and updated revisions to lesson guides. Forestry education focused on school-ground tree planting and family home site tree planting could slow revenue decline.

Project Learning Tree (PLT)

PLT funding and number of people served increased over the last decade. More than half of the budget is funded by the DNR. This program has strong ties to the national PLT. There is a grant program called "GreenWorks!" that is the service-learning, community action program of PLT that partners PLT educators, students, and communities in environmental neighborhood improvement projects.

Wisconsin DNR, Fire Prevention Education

The DNR, Division of Forestry provides K-12 education through school programs, Boy/Girl Scout programs, the Juvenile Fire Setter program, and miscellaneous outdoor programs. DNR Fire Rangers communicate the Smokey the Bear message in their local schools. The state is dependent on federal funds to continue these types of programs. Historically, this has been \$25,000/year. There is no state-based funding.

WoodLINKS Wisconsin

15. Investments in forest health, management, research, education, and wood processing

WoodLINKS Wisconsin provides educational tools and resources to teach manufacturing processes and technologies that are used in the forestry/wood products industry. This is a unique topic that is not specifically addressed by other education groups. As the forestry/wood employment sector ages, a new cohort of trained woods workers is needed. Unfortunately, the program is dependent on a variety of short term grants. A foundation was established to support this program but due to the recession this has not done well. Glacierland RC&D applied for grants to support WoodLINKS in Wisconsin but was not successful. Even with financial instability, the program has grown from 3 schools to 35. Wisconsin has the most schools in the nation in the WoodLINKS program.

Wisconsin Forest Research and Education Association (WFREA)

WFREA began in 1998 as a nonprofit organization dedicated to promoting education about sustainable forestry to Wisconsin residents and resource users. They worked in partnership with many of the other organizations such as the UW-Extension and Dovetail Partners, Inc. The association operated on grant funds; a challenge in this economy. In 2009, the association decided to end the program.

15.6 Number of university and technical college forestry graduates

Forestry will see a large percentage of the workforce turnover in the next decade due to the baby boomer generation entering retirement. Within the DNR, over 50% of forestry professionals will likely retire. It is important to understand the graduation trends of foresters and technicians so forestry employers better prepare for the challenges of the shrinking candidate pool. With the loss of trained forestry professionals and fewer forestry graduates entering the workforce, there will be a dramatic increase in the competition to recruit and retain qualified forestry professionals. This competition forces the Division of Forestry, one of the largest employers in this field, to analyze and evaluate its position on salary, benefits, and other factors important to attracting top candidates. The DNR is required to hire foresters who have a degree in forestry from a Society of American Foresters (SAF) accredited school.

Data was collected from the Wisconsin, Minnesota, and Michigan SAF accredited forestry schools. For employers in the Great Lakes region, these schools provide the majority of qualified candidates (see Table 15.d). Data was also collected from regional natural resources technician programs, which provide forestry technician candidates as well as feeding the regional SAF degree programs (see Table 15.e). Six-year totals for baccalaureate degrees spike in 2004 but then drop. Just as the regional Midwest programs are supplying fewer candidates, this trend is evident nationwide and across all the natural resource fields.

Table 15.d: Number of forestry graduates in the Great Lakes Region

Baccalaureate Degrees Awarded in Forestry						
	2002	2003	2004	2005	2006	2007
Michigan State University	n/a	n/a	27	5	n/a	7
Michigan Technological University	n/a	20	13	18	12	10
University of Minnesota - St. Paul	n/a	n/a	28	31	14	18

15. Investments in forest health, management, research, education, and wood processing

University of Wisconsin - Madison	12	17	10	11	11	11
University of Wisconsin - Stevens Point	90	101	105	68	89	63
Total (for available data)	102+	138+	183	133	126+	109
Source: FAEIS - Food and Agriculture Education Information Systems						

Table 15.e: Number of forestry graduates in the Great Lakes Region

Degrees Awarded from Regional Technical Colleges						
	2002	2003	2004	2005	2006	2007
Fox Valley Technical College - Natural Res. Tech	31	n/a	n/a	n/a	n/a	20
Mid State Technical College - Urban Forestry Tech	n/a	14	14	27	17	17
Vermillion Community College - Natural Res. Tech	15	26	17	18	19	n/a
Total (for available data)	46+	40+	31+	45+	36+	37
Source: School website and/or Instructor contact						

National level data from the U.S. Department of Education also shows a decline in forestry related degrees over the last decade (Figure 15.g). The number of overall forestry degrees fell about 24% between 2002 through 2008. These include a compilation of the degrees granted in the following fields of study at postsecondary institutions: general forestry, forest sciences and biology, forest management/forest resources management, urban forestry, wood science and wood products/pulp and paper technology, forest resources production and management, forest technology/technician, and other forestry. ([U.S. Department of Education – Institute of Educational Sciences, 2002-2008](#))

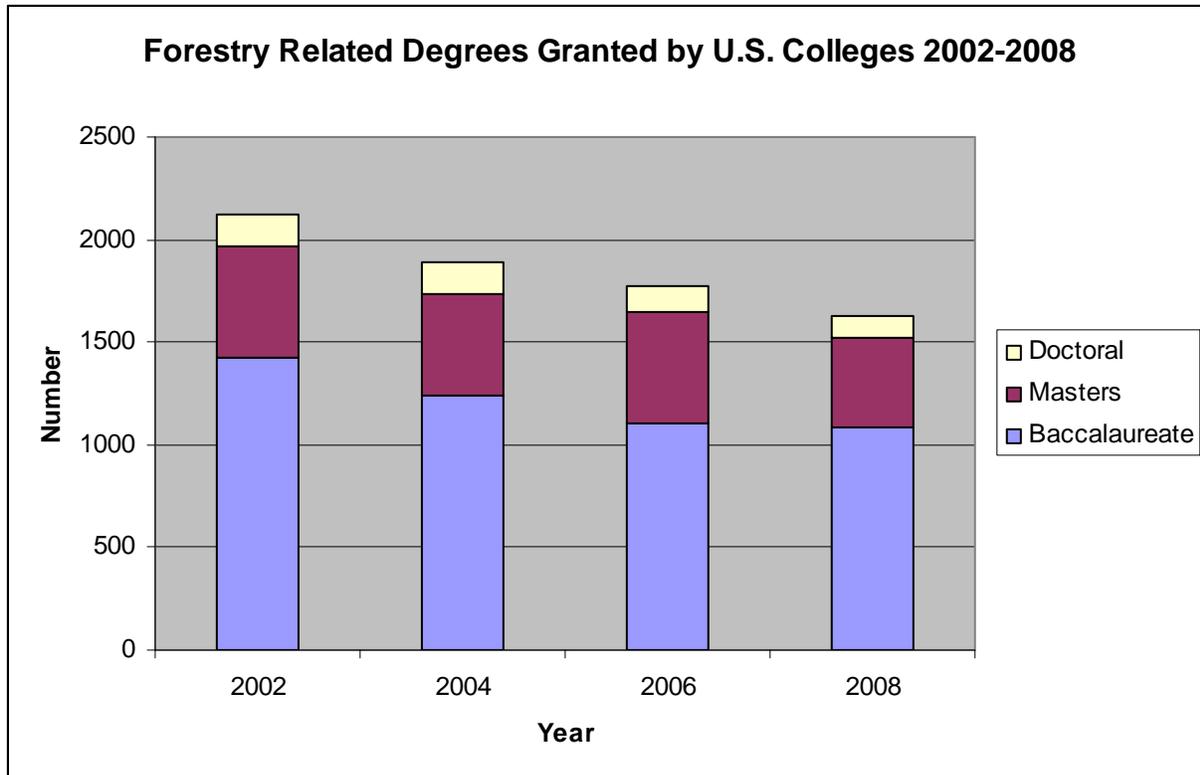


Figure 15.g: Forestry Related Degrees Granted by U.S. Postsecondary Institutions 2002-2008

Source: [U.S. Department of Education – Institute of Educational Sciences, 2002-2008](#)

The future of sustainable forest management relies upon the quality of the workforce. A shortage of forestry graduates could result in prolonged vacancies, increased labor costs, or acceptance of less qualified replacements. It is critical to adapt recruiting strategies, and potentially rebrand forestry programs as a 'green' career, in order to meet employment needs in this critical job market.

15.7 Funding for continuing forestry education for foresters and loggers and number of participants

The discipline of forestry and logging is continually changing due to new technology and research improving ecological and silvicultural practices. Foresters and loggers must keep abreast of these developments in order to best manage forests and stay current in professional societies and certifications. As well, additional education and certification such as Master Logger or SFI certification may improve a foresters or logger's competitive advantage in the market.

In order to understand whether there are opportunities for forestry professionals and loggers to obtain continuing education and whether it is supported or not, data was sought from major organizations that require or provide education. SAF, the largest professional foresters association in the nation, in 2008 offered over 200 continuing forestry education credits in Wisconsin. Of approximately 470 Wisconsin SAF members in 2009, 55 had chosen to be a "SAF Certified Forester", which requires 60 hours of continuing education every two years. Forest Industry Safety and Training Alliance (FISTA) is the largest provider of logger training and education and maintains a database of trained loggers and foresters for the Sustainable Forestry

15. Investments in forest health, management, research, education, and wood processing

Initiative® (SFI®). More detailed summary data were available from the DNR and the Wisconsin Arborist Association.

Continuing education for urban foresters

Urban foresters receive continuing education from a variety of sources—workshops, conferences, university and technical college classes, certificate programs, etc. The two main sources of statewide continuing education are the Wisconsin DNR urban forestry program and the Wisconsin Arborist Association, the industry’s professional association. The DNR provides a variety of information sources from print and electronic newsletters, reference publications, an extensive web site, direct technical consultation and two annual opportunities for formal continuing education—a one-day urban forestry workshop series and a three-day annual conference held jointly with the Wisconsin Arborist Association. The Wisconsin Arborist Association holds two additional continuing education events annually – a summer workshop and a fall seminar.

The International Society of Arboriculture Arborist Certification requires testing to initially receive various levels of certification and then requires annual continuing education credits to maintain the certifications. Table 15.f shows the development of certified arborists in Wisconsin. These metrics can be used both as indicators of statewide capacity of trained professionals as well as indicators of ongoing annual training.

Table 15.f: Certified arborists in Wisconsin

Year	Certified Arborist	Utility Specialist	Municipal Specialist	Tree Worker	Board Certified Master Arborist
2001	187	2	0	0	0
2002	211	3	0	0	0
2003	252	5	0	0	0
2004	291	5	0	0	0
2005	318	5	0	0	0
2006	353	7	2	2	6
2007	390	9	2	3	6
2008	433	11	4	3	9
2009	485	13	5	3	10

(Source: International Soc. of Arboriculture, 2009)

The number of certified arborists in Wisconsin has increased 160% since 2001 and there has been a steady increase in certified arborists with additional specializations. This currently represents a minimum of 5291 hours of continuing education required annually for these professionals.

Continuing education for DNR employees

The DNR provides on average 600 class hours of training a year (see Table 15.g). Training is provided in both forest management and fire. See Figure 15.h for Division of Forestry expenditures on forest management and fire training in 2008. (Specific DNR fire training classes are described below in metric 15.8)

15. Investments in forest health, management, research, education, and wood processing

Table 15.g: Division of Forestry Training Program number of courses, hours, and average tuition

Division of Forestry Training Statistics FY01-FY08				
Fiscal Year	Forest Management Courses	Fire Management Courses	Total Students Attending**	Course Hours
FY01	11	29	817	not available
FY02	17	27	746	not available
FY03	26	35	1554	895
FY04	9	21	826	543
FY05	13	27	1055	658
FY06	12	8	564	318
FY07	24	24	751	697
FY08	19	21	626	595

**Total student numbers include DNR and partners.

Source: DNR, Division of Forestry, 2008

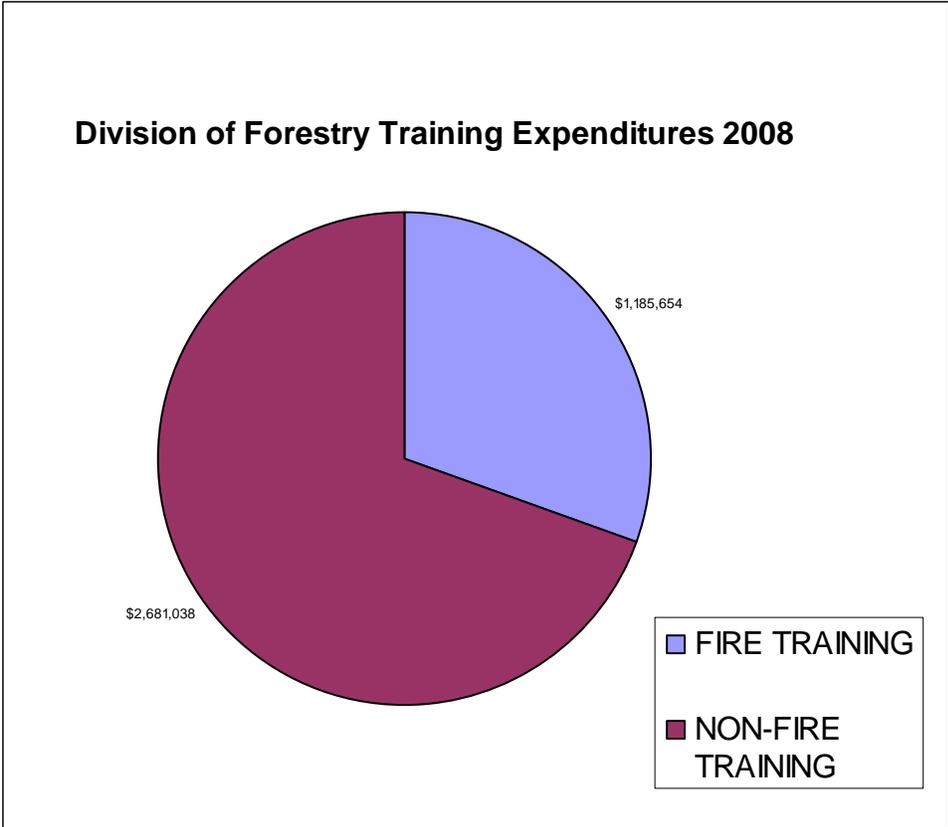


Figure 15.h: Division of Forestry fire and non-fire training expenditures 2008
(Includes all training provided to Division of Forestry staff by the Division of Forestry Training Program, DNR, and external/partner training opportunities)
Source: DNR, Division of Forestry, 2008

15.8 Fire protection investment

The investments in time and money for forest fire protection in Wisconsin are significant. Investments are made at many levels, locally through fire departments, statewide through DNR, and federally through grants to all levels. The DNR fire management program plays a key role in the sustainable management of forest resources, through limiting the damage fire causes and performs a vital service to protect public health and safety. Data on wildland fire investments is available through the DNR and Forest Service.

The following data describes the federal and state funding for the DNR’s fire management program. The Forest Fire Protection (FFP) Grant program was created twelve years ago to expand the capabilities of local fire departments to respond to forest fires. DNR adopted National Wildfire Coordinating Group (NWCG) training standards and qualification system to assist federal partners on the wildland fire issues across the country. Those standards require investments of time and effort by state fire staff. One of the largest capital investments occur in fire suppression equipment. The DNR maintains a facility to design, build and evaluate a wide variety of specialized forest fire vehicles and equipment.

15. Investments in forest health, management, research, education, and wood processing

Federal fire grant funding continues to be a vital part of the overall funding of the fire management program in Wisconsin. The general grant funding trend has been downward. Current federal grant funding is 50% of the total from five years ago. Without these funds, the DNR fire management program must reduce the amount of grants it distributes. See Figure 15.i

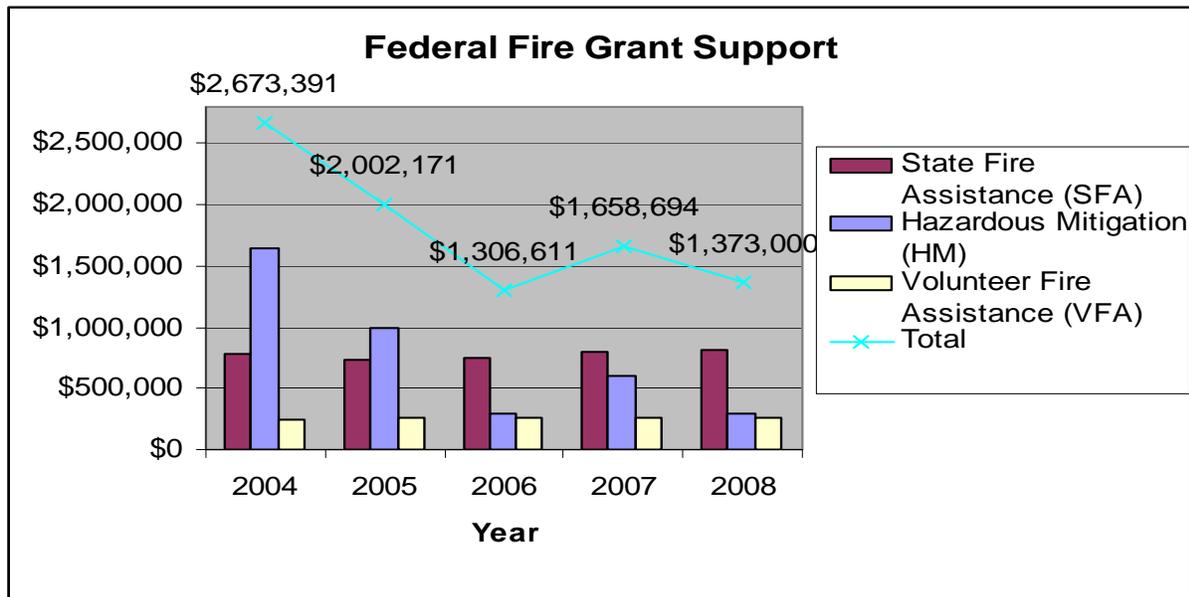


Figure 15.i: Federal fire grant support 2004-2008
(Source: DNR, 2009)

Wisconsin receives several federal fire grants and they are used for a variety of essential programs.

- The State Fire Assistance (SFA) grant monies, (dispersed to states under the National Fire Plan), support several programs. Some funding supplements Wisconsin's Forest Fire Protection (FFP) grant program. The balance of the SFA grant monies are used to support DNR fire management positions, equipment for DNR fire suppression, and safety equipment.
- SFA Hazardous Mitigation (HM) grant dollars are utilized to reduce the risk of catastrophic wildfire impacting communities. The program focuses on hazardous fuels reduction, prevention/education, and community planning in the wildland-urban interface. The program promoted Firewise practices, resulted in the creation of numerous Community Wildfire Protection Plans, and reduced flammable wildland fuels, especially in the vicinity of structural improvements. Viable projects located in a Community at Risk are prioritized for funding. This funding component dropped the most over the recent five year period.
- Volunteer Fire Assistance (VFA) grant monies, (dispersed to states under the National Fire Plan), are used to fund the DNR Forest Fire Protection (FFP) grant program which is a 50/50 cost share grant program for fire departments to purchase equipment and supplies to improve their capabilities and safety on wildland fires.

15. Investments in forest health, management, research, education, and wood processing

The state funds more than 75% of the DNR fire management program. State fire costs have increased in recent years. Suppression costs have varied depending on the severity and number of fires. Pre-suppression costs have continued to increase due to rising costs of vehicles, vehicle operations, personnel and equipment (see Figure 15.j). State fire program costs have fluctuated from \$3.6 million (2004) to \$5.6 million (2007). Fire suppression responsibilities may need to be reconsidered in light of the 2008 economic situation. Other states have required citizens to take more responsibility for protecting their assets if located in extreme fire hazard areas. State and federal budget reductions stemming from a recession in 2008-2009 have created uncertainty about future fire management funding, but Wisconsin has a history of support for this critical mission.

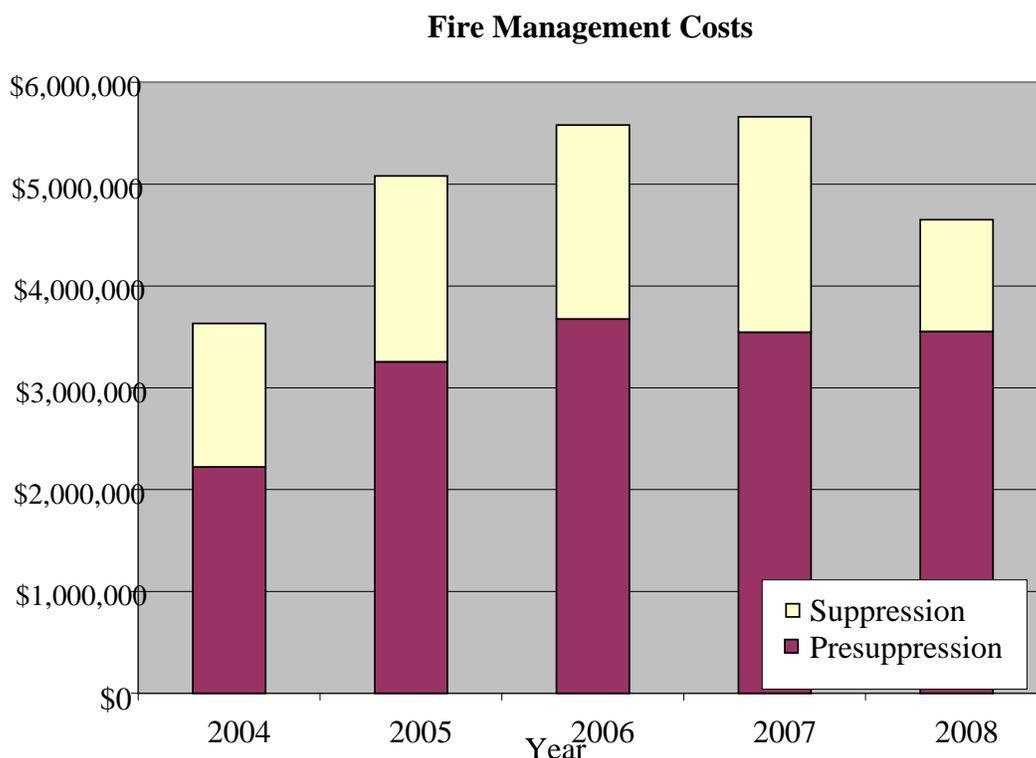


Figure 15.j: Fire management costs

(Source: DNR, 2009)

The DNR Forest Fire Protection (FFP) Grant provides cost share grants to fire departments. Federal funds provide significant support to the DNR FFP grant program. State funding of this program declined and the federal funds offset these losses. Due to the current economic downturn, further cuts in state funding to the DNR FFP grant program have taken place. The federal share of the FFP grant funding grew from 47% in 2003 to 58% in 2008. See Figure 15.k.

Local fire department grant applications average \$2.4 million a year. Of those requests, an average of \$800,000 is funded. This represents an unfunded need from fire departments of \$400,000 every year. A recent survey of local fire departments showed that 94% have improved the safety and efficiency of their forest fire suppression efforts as a result of this grant program.

15. Investments in forest health, management, research, education, and wood processing

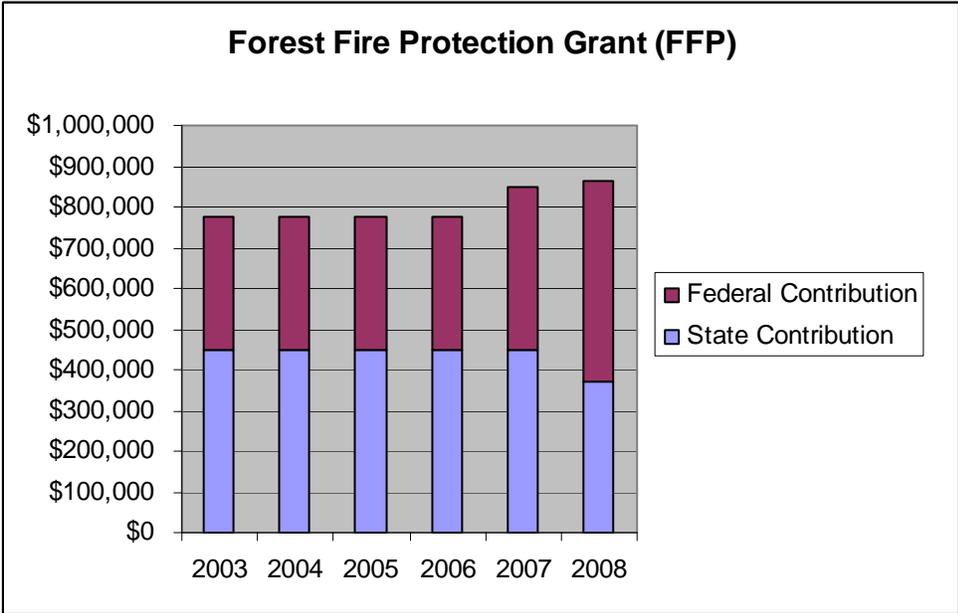


Figure 15.k: Forest fire protection grant (FFP)
(Source: WDNR, 2009)

DNR must make a substantial investment of time and dollars to train personnel to meet National Wildfire Coordinating Group position qualifications. DNR met target position quantities at the ICT4, ENGB and TRPB levels (see Figure 15.1). All of these are lower level positions in operations and command. The training gap analysis shows significant shortages in higher level command, operations, planning and logistics positions. As the DNR workforce ages and retires, critical shortages of qualified wildfire personnel will develop.

15. Investments in forest health, management, research, education, and wood processing

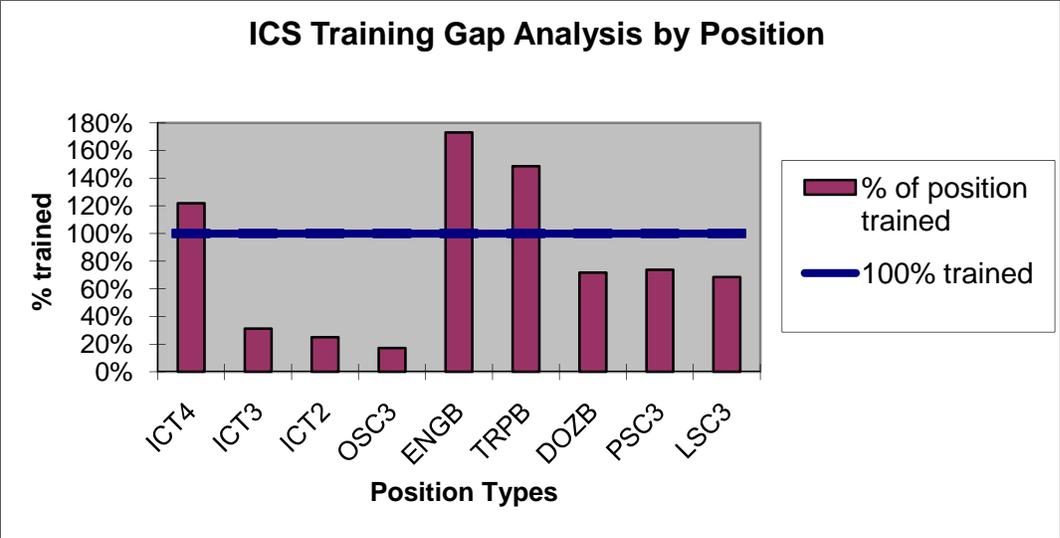


Figure 15.1: Incident command system (ICS) training gaps by position:
 (Source: WDNR, 2009)

- ICT4** – Incident Commander Type 4
- ICT3** – Incident Commander Type 3
- ICT2** – Incident Commander Type 2
- OSC3** – Operations Section Chief Type 3
- ENGB** – Engine Boss
- TRPB** – Tractor Plow Boss
- DOZB** – Dozer Boss
- PSC3** – Planning Section Chief Type 3
- LSC3** – Logistics Section Chief Type 3

The DNR maintains 55 ranger stations to house fire management personnel and equipment. The DNR has a fleet of 11 type 6 engines, 47 type 7 engines, 20 type 8 engines, 83 type 4 engines, 4 marsh rigs and 79 type 5 tractor plows. This fleet of wildfire suppression equipment was assembled at a cost of over \$12.7 million, and provides protection to more than 35 million acres of Wisconsin lands.

The use of fire towers and detection aircraft have been key components of the forest fire detection system for decades, identifying a significant percentage of Wisconsin’s forest fires. Because of deteriorating infrastructure, and the prohibitively high cost of broad scale replacement, towers will be a part of the future detection system to a decreasing extent. Detection aircraft do not provide the comprehensive detection platform that towers do, and are increasing in their cost. Alternative and cost effective means of efficiently locating fires in their earliest stages, whether through technological development or through some sort of enhanced effort by partners, needs to be identified and developed in the next 10+ years.