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# **State Foresters by the Numbers: Data and Analysis from the 2008 NASF State Forestry Statistics Survey**

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A report prepared by QB Consulting and Straight Arrow Consulting  
on behalf of the National Association of State Foresters



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## Overview of Key Findings

**Private forestlands make up 59 percent of the total forestland in the U.S., state and local government make up 10 percent, and federal forestlands, 31 percent.** Almost seven out of every 10 acres of forestland in the United States are in non-federal ownership. [page 5]

**State forestry agencies manage 49 million acres of forestland in the U.S.,** one-third more acreage than is managed by forest industry. State Foresters support and promote sound forestry management practices on all non-federal lands in addition to managing state-owned forest land. [page 7]

Within the most populous 15 states, representing two-thirds of the nation's population, **the amount of non-federal forest land is 4 times that of the federal forest land.** With higher percentages of non-federal forestlands found closest to concentrated centers of population, State Foresters are often the public face of forestry. [page 7]

**On average state forestry agencies spend 79 percent of their budgets providing services to private and local government-owned forestland and other wildland areas in their states.** Almost four out of every five dollars spent by state forestry agencies are for services to lands not owned by the state. [page 9]

**State forestry agencies provided technical assistance to 182,479 forest landowners in 2008,** an increase of 16,105, or 10 percent, since 2004. State Forestry agencies are the primary source of forest management advice for family forest owners. [page 15]

**Program expenditures for Landowner Assistance, Urban & Community Forestry, Forest Legacy, Forest Recreation, and Forest Health programs** have increased by \$100 MM, or 44 percent, in the past ten years. [pages 15-17]

**State Foresters face increasing demands for services, such as wildfire protection, water quality, and landowner assistance, at a time when funding sources for programs are vulnerable to budget cutbacks.** While state, county, and municipal support of forestry programs grew 30 percent and 28 percent between 2006 and 2008, federal support remained essentially flat. [page 18]

**Over \$1.6 B annually is spent by state forestry agencies on wildfire, protection, prevention and suppression.** This number has more than doubled in the past ten years. [page 10]

**State forestry agencies trained 99,500 rural firefighters in 2008 which represents a 31 percent increase over the number trained in 2006.** NASF members also help communities prioritize their preparedness and mitigation efforts through the development of Community Wildfire Protection Plans. [page 14]

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## Foreword

NASF is a non-profit organization that represents the directors state forestry agencies in the 50 states, eight U.S. territories (American Samoa, the Federated States of Micronesia, Guam, the Northern Marianas Islands, Palau, Puerto Rico, Republic of the Marshall Islands, and the U.S. Virgin Islands), and the District of Columbia. This report uses “states” as an inclusive term for both states and territories.

Approximately every two years NASF conducts a survey of its 59 members to capture key information about the non-federal forestlands in the United States and the role of State Foresters in enhancing their value, representing public interests, and protecting these lands from fire, disease, fragmentation and other resource threats. The survey includes information about forestry programs, agency budgets, and funding support pertinent to each state and territory.

This report summarizes the responses received from members for fiscal year 2008. Part I of the report looks at forestland and forestland ownership; Part II at state forestry agency jurisdiction, expenditures, and employment; Part III at program delivery areas; and Part IV at demand for services and funding challenges. In many cases, survey responses have been summarized by region. The NASF regions are described in Appendix I of this report.

The 2008 survey was sent out to NASF members in July of 2009 with 48 of the 50 states, and the District of Columbia, providing responses. In this report, territories are not included due to limited response both in 2008 and in previous years. In order not to distort trends across years with different participation levels from the states, only those states reporting in all years of an identified trend were included in the trend line determinations. Further explanation of methodology is provided in detailed endnotes found in Appendix II.

Previous year’s surveys from 2006, 2004, 2002, and 1998 as well as data from a few outside sources are also included in some of the analysis. References for the outside sources are provided in Appendix III. The results from the 2008 NASF Forestry Statistics Survey and a complete database of results from the past 5 surveys are available at <http://www.stateforesters.org/publication-type/stats>.

This report was prepared for NASF by consulting foresters, Nancy Budge of QB Consulting and Tom Montzka of Straight Arrow Consulting, and funded by a USDA Forest Service grant awarded to NASF in 2009.

## Part I: State, Local and Private Forestland in the United States

**Forestland Area:** Forests make up 751 MM acres of the total 2.3 B acres, or 33 percent of the total land area of the United States. Forest cover in individual states ranges from 90 percent of the state's total land area (Maine) to 2 percent (North Dakota). The forestlands of U.S. represent 7.7 percent of the world's forests and the U.S. ranks fourth in comparison with other countries in total forest area (behind the Russian Federation, Brazil, and Canada) (FAO, 2009).

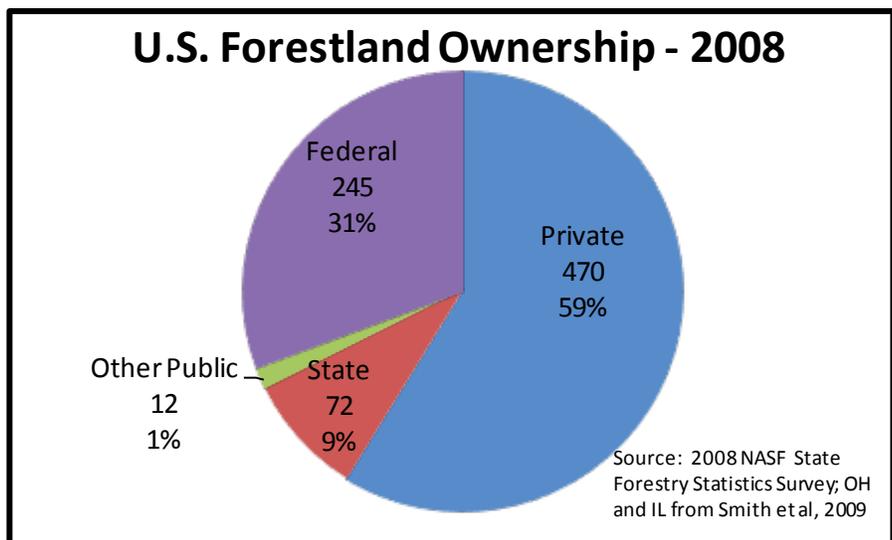
Definition of "Forestland" = Land at least 10 percent stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 1 acre (Smith et al. 2004).

% Forest Area By State - Highest 5/Lowest 5		
	State	% Forestland of Total Land Area
1	Maine	90%
2	New Hampshire	79%
3	West Virginia	78%
4	Vermont	77%
5	Alabama	71%
<hr/>		
46	Iowa	8%
47	Kansas	4%
48	South Dakota	3%
49	Nebraska	3%
50	North Dakota	2%
TOTAL U.S.		35%

Source: NASF Forest Statistics Survey 2008 & FIA/RPA

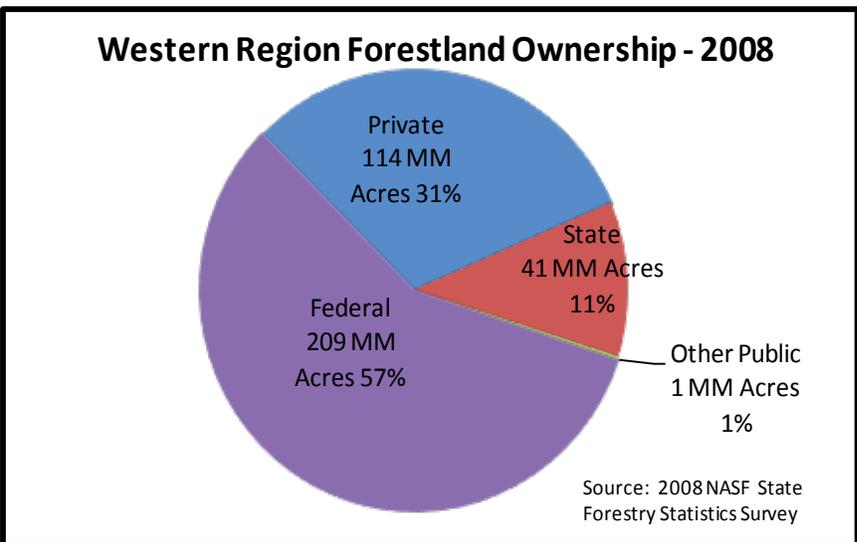
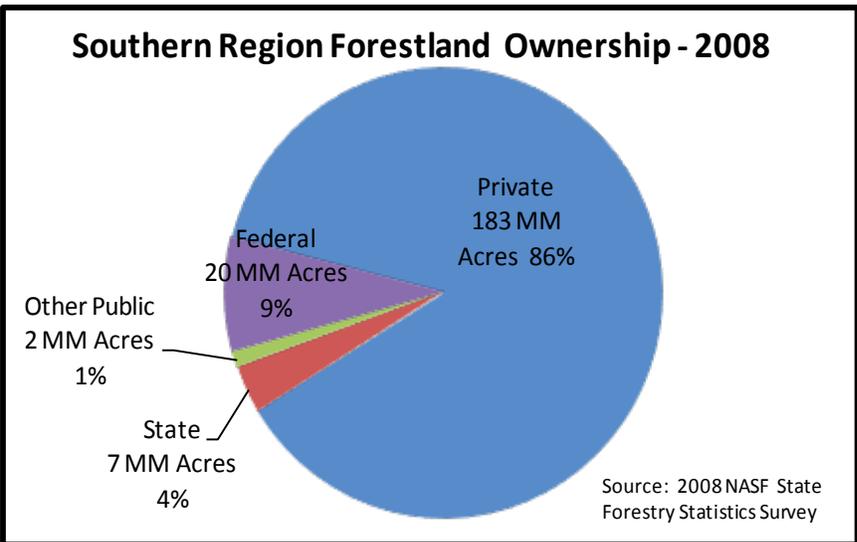
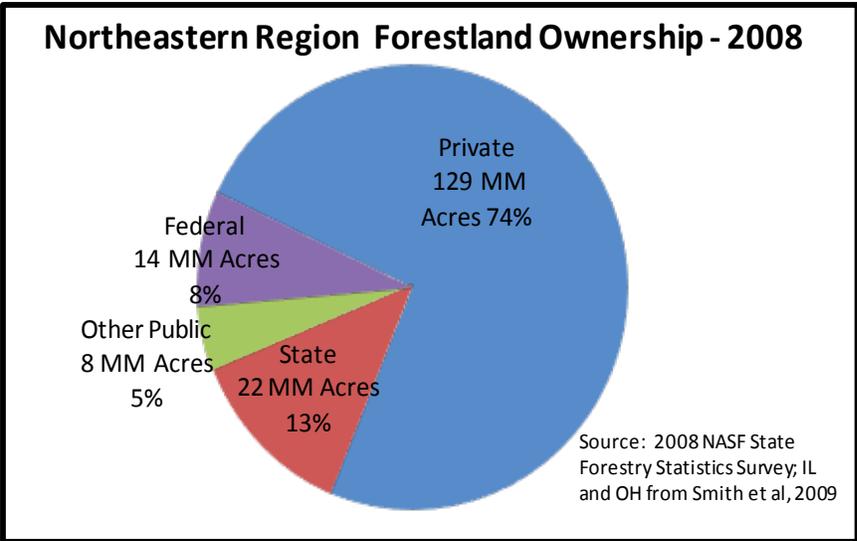
**Total Forest Ownership<sup>1</sup>:** More than half of the nation's forests are held in private ownership; states and other public entities, such as counties and municipalities, own 10 percent; and the federal government, such as National Forests and Bureau of Land Management, own 31 percent. Almost seven out of every 10 acres of forestland in the United States is non-federal. The non-federal lands are where state forestry agencies focus their efforts. These numbers are updated every two years with the NASF survey.

Private forestland is composed of several owner groups: corporate, forest industry, non-industrial private, and Native American. The largest owner group within private is non-industrial private, comprising 67 percent of the total private forest in 2008. The next largest group within private is corporate ownership at 22 percent. Corporate represents business owners without a wood processing plant within the state; many of these owners manage their forest properties as an investment. This group's share of the private forest has been climbing over the past three NASF surveys, from 14 percent in 2004 to 22 percent in 2008. The increase has been the result of forest industry owners selling their forestlands. Forest industry ownership in 2008 fell to 8 percent of the private forest, down from 12 percent of the private forest in the 2006 survey. Native American ownership in 2008 comprised 3 percent of the private forest.



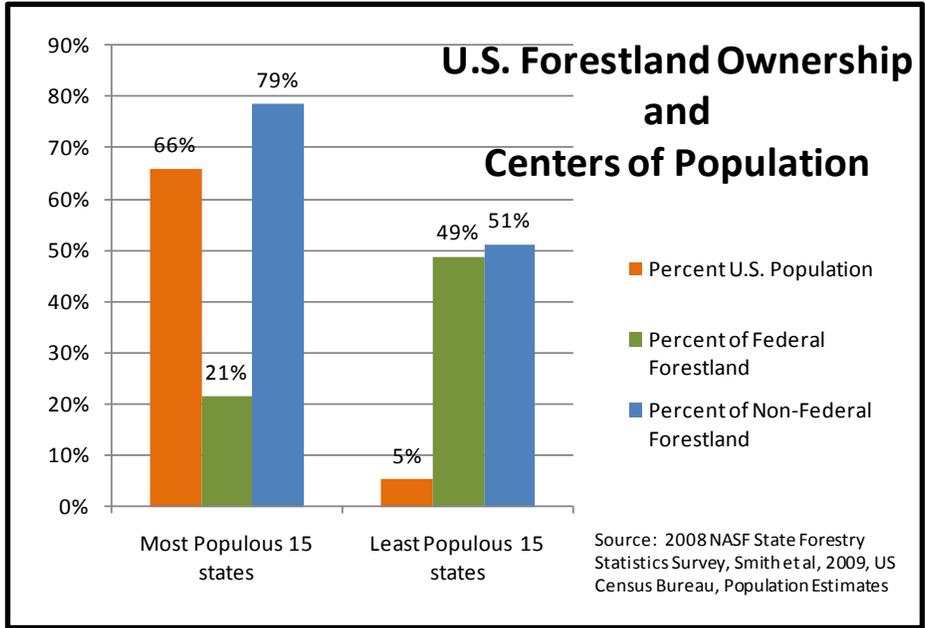
**Regional Forest Ownership:**

NASF works with three regional organizations – the Northeastern Area Association of State Foresters (NAASF), the Southern Group of State Foresters (SGSF), and the Council of Western State Foresters (CWSF) – to support forest management practices and policies unique to the regional characteristics of U.S. forests. (See Appendix I for more on the NASF Regions) The Northeast and South have predominately private ownership of their forestlands while the West has high federal ownership. The different ownership profiles impact priorities and work for the state forestry organizations.



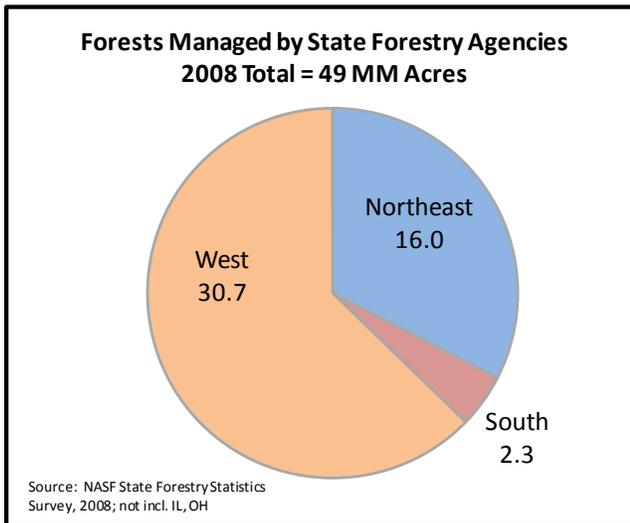
**Forest Ownership and Centers of Population:**

The unique role of state forestry agencies becomes more apparent when contrasting the location of non-federal forestlands with respect to U.S. population centers. Within the most populous 15 states, representing two-thirds of the nation's population, the amount of non-federal forest land is four times that of the federal forest land. State forestry agencies have influence over those areas closest to population centers and consequently greater responsibilities for interacting and informing the public.



Protection and sustainable management of these forestlands have positive impacts on water protection, air quality, wildlife habitat, renewable forest products for building, raw materials for paper and packaging products, jobs, and recreation.

**Forestlands Managed by State Forestry Agencies:** State forestry agencies directly manage 49 MM acres of forestlands. This is more total acreage than the 37.8 MM acres of forestlands managed by the forest industry in 2008<sup>2</sup>. While most of the forestlands managed by state forestry agencies are in the West, 7 of the 10 agencies managing the most state forestland are in the Northeast and South. Over 2.3 B board feet were harvested in 2008 to provide revenues to the agencies for program expenditures. Thirteen states



reported in 2008 that 16.8 MM acres of state-owned forestlands have been independently certified

Top 10 States by Total Acreage	Forestland Managed by State Forestry Agency (000 acres)
Alaska	24,700
Minnesota	4,500
Michigan	3,900
Pennsylvania	2,100
Washington	2,100
Florida	1,044
Idaho	985
New York	977
Wisconsin	924
New Jersey	809

Source: NASF State Forestry Statistics Survey 2008

as sustainably managed under the independent/joint certification standards of the Forest Stewardship Council (10 states), Sustainable Forest Initiative (8 states), and the American Tree Farm System (3 states).

## Part II: Role of State Forestry Agencies

**Jurisdiction of State Foresters and State Forestry Agencies:** All 50 states, 8 territories, and the District of Columbia have forestry agencies, departments or divisions. Names, locations, and other contact information can be found at [http://www.stateforesters.org/about\\_nasf](http://www.stateforesters.org/about_nasf). Sometimes the forestry department is a stand-alone agency; in other states, forestry falls under the hierarchy of an agriculture, department of conservation, natural resources agency, or universities. A State Forester is a state government employee that oversees and manages the forestry agency, department, or division in their state.

Collectively state forestry agencies have three broad areas of responsibility: providing services and outreach to the natural resource community and landowners within the state, managing land and natural resources within the state, and forest practices oversight activities including compliance, regulatory, monitoring, and policy development. Though primarily responsible for forests on state and privately owned lands, State Foresters continually work with their federal agency partners such as the USDA Forest Service and Natural Resources Conservation Service. The breadth of services that state/territorial forestry agencies provide to their communities is extensive and jurisdiction of State/Territorial Foresters can include the following:

Jurisdiction of State/Territorial Forestry Agencies	Associated Federal Programs
<b>Services &amp; Outreach:</b> providing services and outreach to the natural resource community	USDA Forest Service State Fire Assistance (SFA) Forest Stewardship (FSP) Forest Land Enhancement (FLEP) Economic Action (EAP) Cooperative Forest Health Forest Legacy (FLP) Urban & Community Forestry (U&CF)
Fire Control/Prevention/Protection/Fuels Management	
Cooperative Forestry/Landowner Assistance/ Outreach	
Forest Health and Conservation	
Conservation Education	
Urban and Community Forestry	
Forest Nurseries	
Native Plants/Endangered Plants/Natural Heritage Sites	
Invasive Species	
Recreation	
Inmate Work Programs	
Minerals	
<b>Land Management:</b> managing land and natural resources	
Recreation	
Silviculture/Timber Sale Program	
<b>Forest Practices Oversight:</b> compliance, regulatory, monitoring, and policy development activities related to natural resource management	
Forest Practices Act Compliance	
Law Enforcement/Timber Theft/Arson	
Watershed/Water Quality Protection/BMPs	Farm Service Agency Biomass Crop Assistance (BCAP) Conservation Reserves Enhancement (CREP)
Source: 2008 NASF State Forestry Statistics Survey	

**Primary Orientation is to Services and Outreach on Private and Other Local Forestlands:** On average NASF members allocated 79 percent<sup>3</sup> of their expenditures to provide outreach services to private and other local constituencies in the states in which they reside. They spent an average of 16% on land management and 5% on forest practices oversight. However, the degree to which individual states carry these responsibilities varies state-to-state.

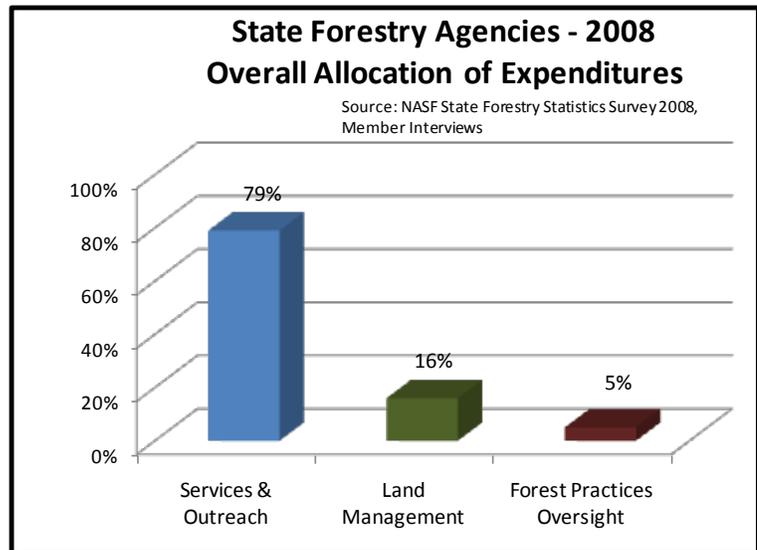
As part of the 2008 survey, members were interviewed regarding their respective organizations' mission and priorities. Based on these interviews three functional types of organizations were identified: organizations primarily focused on service and outreach, organizations with significant land management responsibilities, and organizations that operated under dual orientation that balanced service with land management.<sup>4</sup>

By far the largest grouping in NASF represents states with a service and outreach mission. Thirty-two of the fifty-nine members share this as their primary objective and collectively 95 percent of their program expenditures are dedicated to meeting this objective. Those services include wildfire detection, prevention, and protection, insect and disease detection and prevention, landowner assistance programs, tree nurseries, forest recreation, economic development, and forest products marketing and utilization.

Eight of NASF's fifty-nine members have significant responsibilities in land management. This group dedicates 43 percent of their financial resources to managing state forestlands but still provides substantial in-state services and outreach, averaging 45 percent of their resources.

Nineteen of NASF's members can be best characterized as carrying dual responsibilities, balancing service and land management missions. This group spends close to 70 percent of their program expenditures on services and this allocation grew 10% between 2006 and 2008.

Fifty-one of NASF's fifty-nine members perform some type of forest practices oversight including monitoring and policy activities within the state. About half the states by agency type could be considered "active" in forest practices oversight, and half "limited." The average financial resources expended by all members for forest practices oversight is 5 percent.

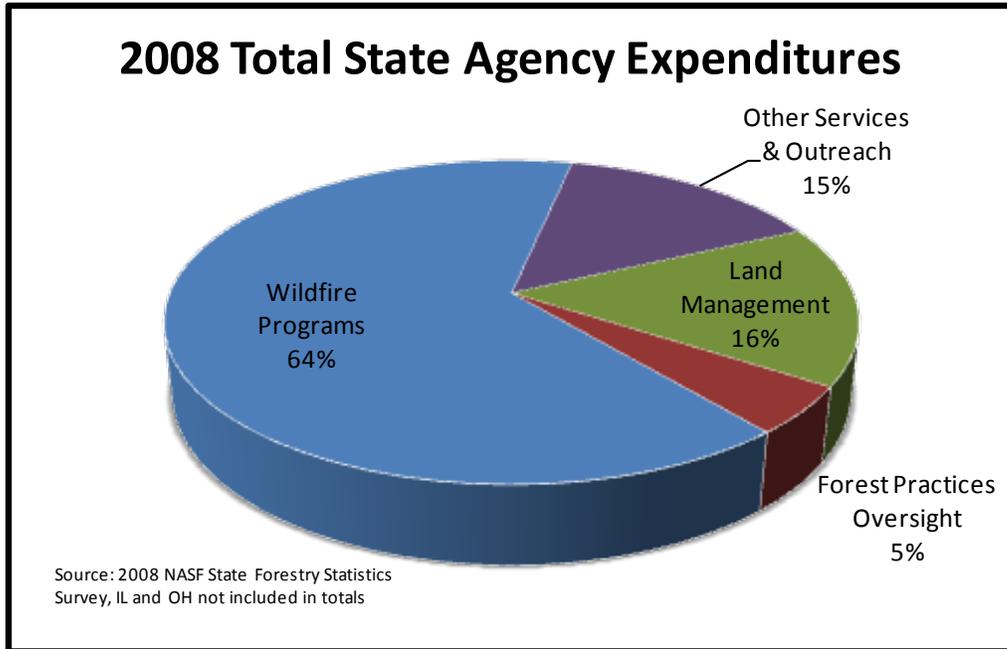


### State Forestry Agencies - Grouped By Orientation

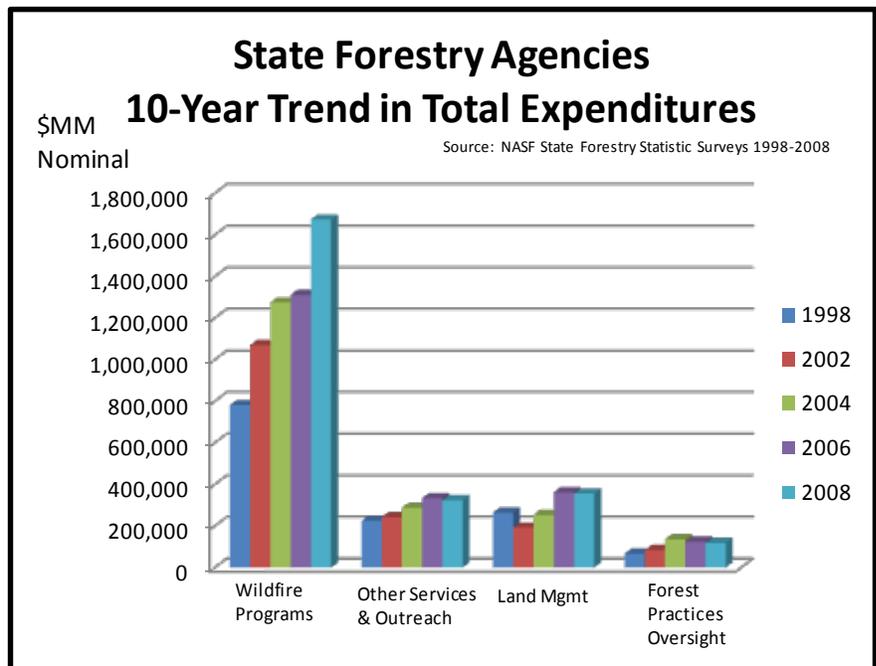
Agency Type	# States	% Expenditures		
		Service & Outreach	Land Management	Forest Practices Oversight
<b>Service &amp; Outreach Orientation</b>	<b>32</b>	95%	3%	2%
<b>Dual Orientation</b>	<b>19</b>	73%	23%	4%
<b>Land Management Orientation</b>	<b>8</b>	45%	43%	12%

Source: NASF State Forestry Statistics Survey, 2008; Member Interviews

**Total 2008 Expenditures:** State forestry agency expenditures in 2008 totaled \$2.7 B. The majority of these expenditures, 64 percent<sup>5</sup>, were related to fire control, prevention, protection and management. Most of these wildfire related expenses are incurred on non-state lands and this is a significant budget item for every NASF member. Expenditures related to wildfire have been increasing, both in total and as a percentage of the total expenditures for state forestry agencies over the last ten years.



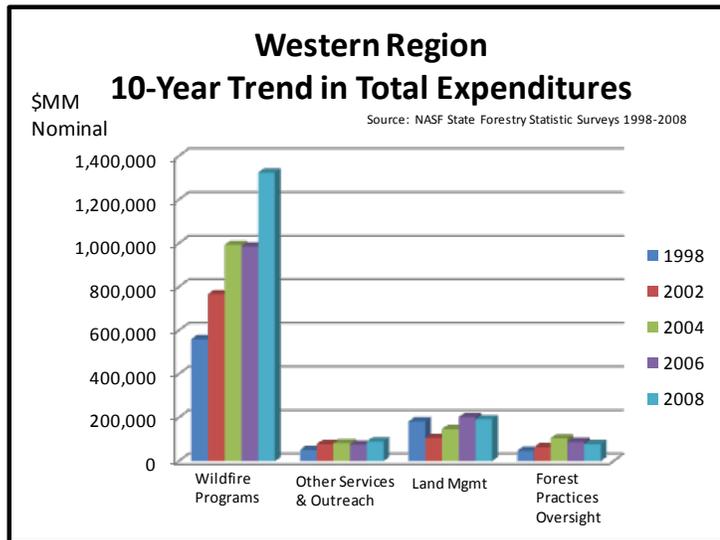
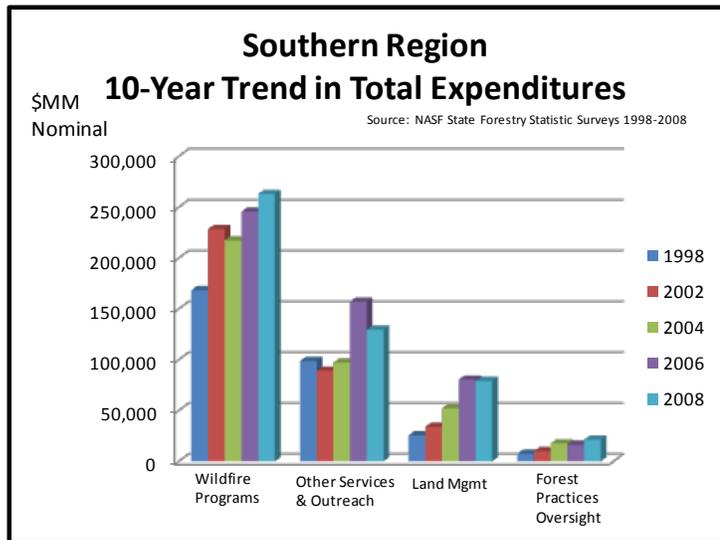
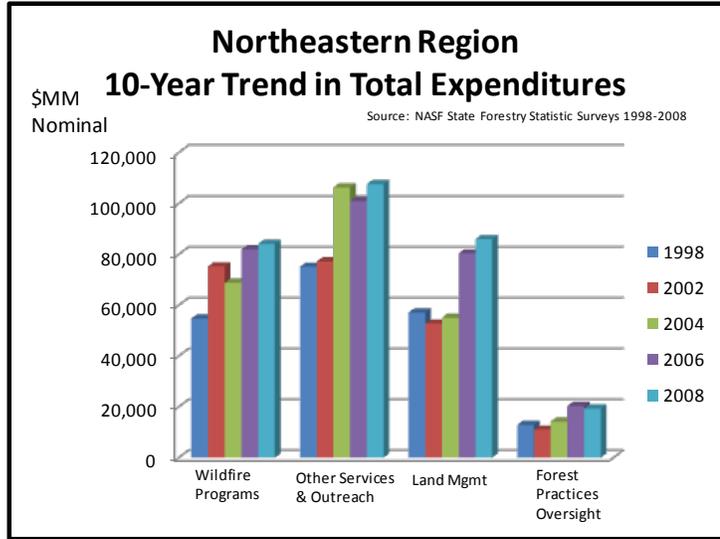
**Trends in Total Expenditures:** Ten-year trends<sup>6</sup> in total expenditures show that wildfire-related expenditures have more than doubled, from \$730 MM to \$1,600 MM over the last ten years. Other Services & Outreach spending has gone up \$100 MM, or 44%, due largely to increases in Cooperative Forest Management, Forest Health, and Urban & Community Forest programs. Land Management expenditures are up \$90 MM and Forest Practices Oversight expenditures are up \$50 MM between 1998 and 2008.



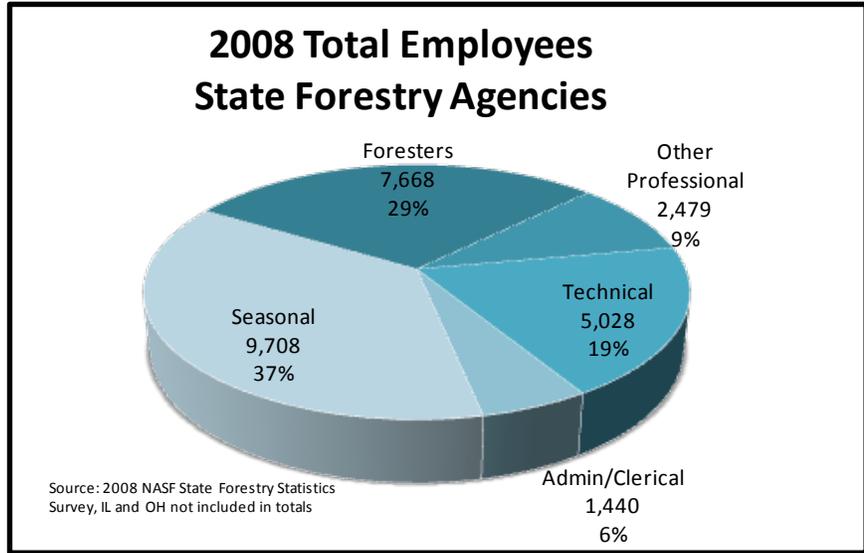
**Regional Trends in Expenditures:** A regionally focused review of expenditures shows both different distributions of funds across program areas as well as different trends<sup>6</sup> over time. While wildfire-related expenditures remain significant, the northeastern region has a greater emphasis on other service and outreach programs than the other two regions. These include programs such as Cooperative Forest Management and Urban & Community Forestry, all of which receive higher percentages of total agency budgets than in other regions. Land management expenditures are up in the Northeast due largely to an increase of \$18 MM which occurred in 2006 and 2008 in Minnesota. The Northeast is the only region where nursery expenditures have increased instead of declined.

The southern region dedicates higher percentages of agency budgets on wildfire related programs (50 percent on average for 2008) compared to the Northeast but still maintains considerable amounts in other service and outreach programs, particularly Forest Health programs. Land management expenditures are up in the South due to notable increases in Florida (\$20 MM) and Mississippi (\$7 MM) since 2002.

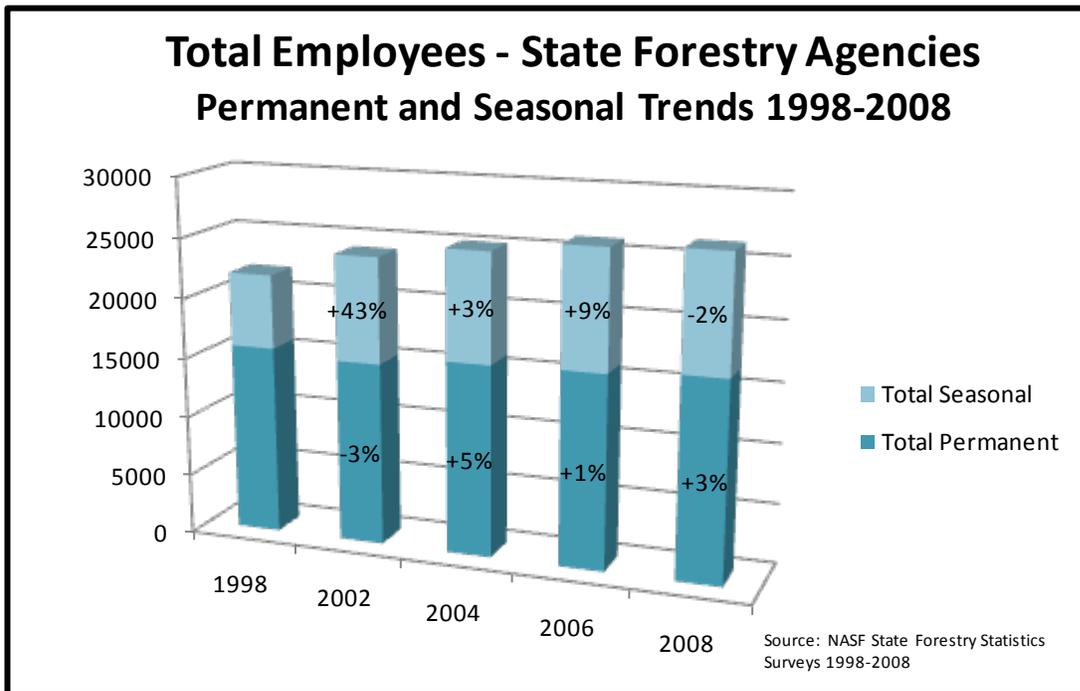
The western region expenditures on wildfire related programs are significant and heavily influence the NASF totals and trends. California alone spent over \$1 B on wildfire related expenses in 2008, which is substantially over the total of all the rest of the state agencies combined (\$670MM). California also accounts for the majority of the increase in wildfire related expenses over the past 10 years. While relatively small compared to regional fire expenditures, expenditures for land management are more than double in the West on an absolute basis than the other two regions.



**Employees in 2008:** State forestry agencies employed over 26,000 individuals in 2008. The largest category of permanent employees consists of the professional foresters. Other professional employees include biologists, botanists, information technology, and accounting professionals. The technical category includes employees who work in the nurseries, drive heavy equipment and those who provide technical support to the resource professionals. Seasonal employees are involved in field work such as planting, inventory, and monitoring. Two thirds of the state forestry agencies have cooperative programs to work with private consulting foresters to provide additional capacity when needed.



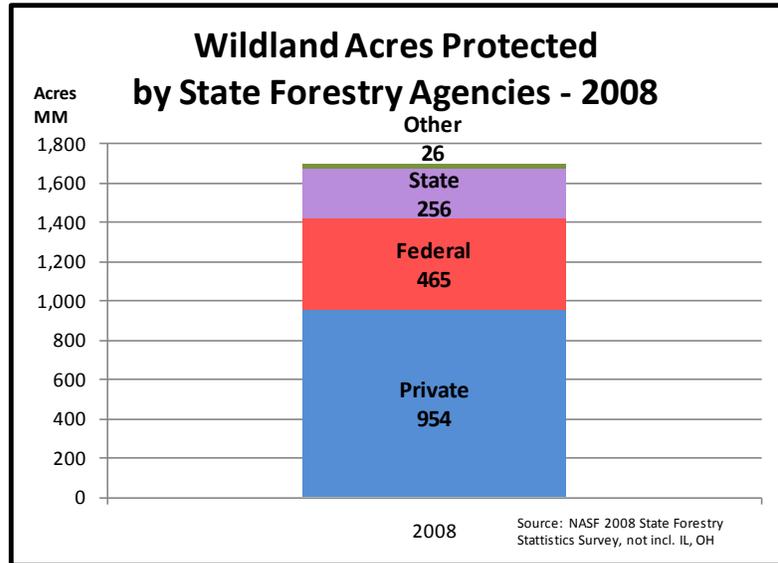
**Employment Trends:** Although overall employment at state forestry agencies has increased in the past ten years by 4,445 employees, 3,575 of these new jobs have been seasonal<sup>7</sup>. Employment growth was essentially flat between 2006 and 2008 with declines in managerial forester, technical, and administrative positions offset with increases in entry level forester, field forester, and other professional jobs.



## Part III: State Forestry Agency Program Areas

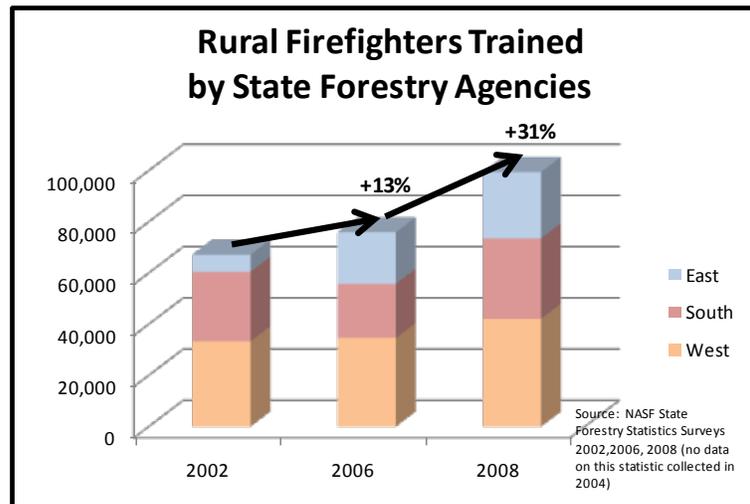
This section reports on survey data gathered for programs delivered by state forestry agencies which includes a range of information on wildfire protection, landowner assistance, watershed protection, nurseries, urban & community forestry and other programs.

**Wildfire Protection Activities:** As discussed in the previous section, wildfire related programs take a majority of the budget and staff resources of most state forestry agencies, particularly in the West and the South. Land under wildfire protection by state forestry agencies in 2008 totaled close to 1.7 B acres. Over half of these acres are located in wildland areas other than forestland such as rangeland and unincorporated areas surrounding communities. Acres under wildfire protection by state agencies jumped 24 percent between 2006 and 2008 with this growth occurring across all



regions. State forestry agencies were also involved in fuel treatment programs. In 43 of the 50 member states, state forestry agencies burned 91 MM acres under a prescribed burn plan in 2008. The acres of prescribed burn treatment have gone up over 100 percent since 2002 and 2004.

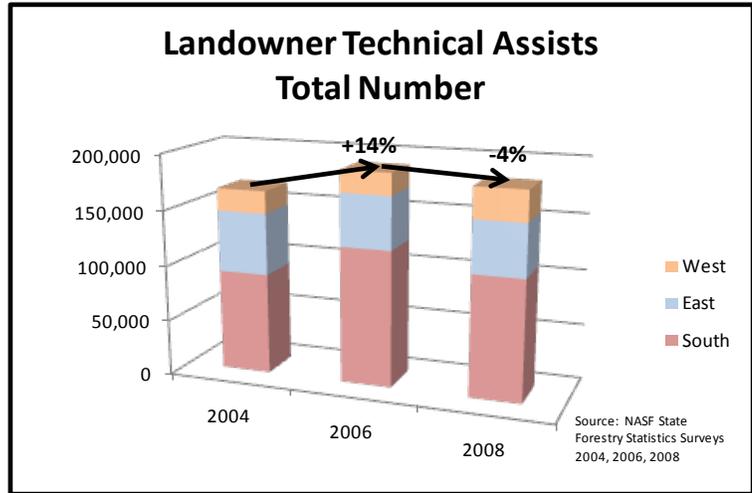
**Community Capacity Building:** State forestry agencies help communities develop preparedness and response capabilities through rural firefighter training supported by the federal State Fire Assistance program. NASF members trained 99,500 rural firefighters in 2008 which represents a 31 percent increase over the number trained in 2006<sup>8</sup>. Increases in the numbers of rural firefighters trained are taking place across all NASF regions



NASF members also help communities prioritize their preparedness and mitigation efforts through the development of Community Wildfire Protection Plans (CWPPs). These planning efforts are an outcome of the enactment of the Healthy Forests Restoration Act (HFRA) in 2003. Through year-end 2009, 5,567 communities have been covered by a CWPP with the assistance of state forestry agencies<sup>9</sup>.

**Landowner Assistance, Cooperative Forest Management, and Forest Stewardship Plans:**

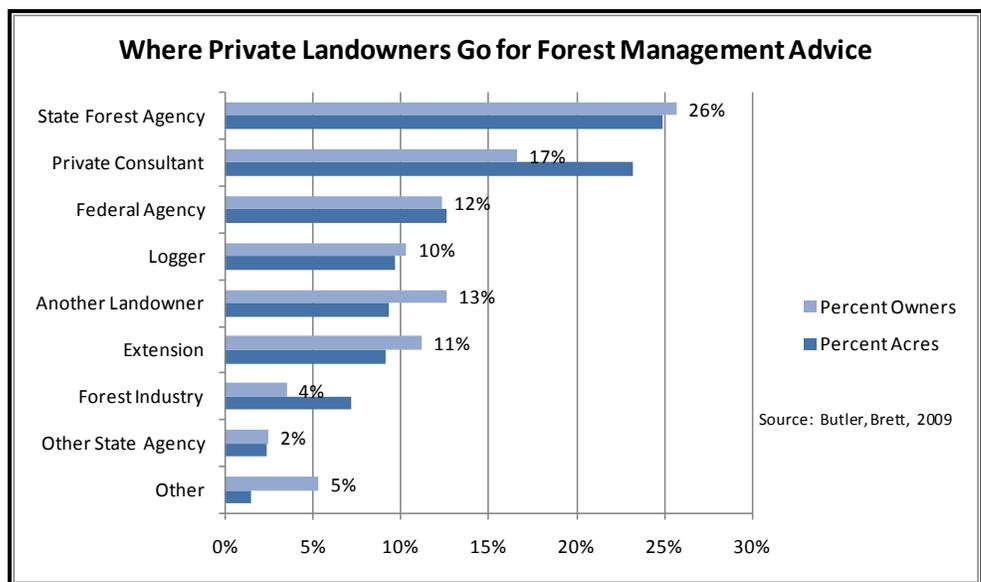
State forestry agencies offer professional forestry assistance, answer technical questions, and provide other services for landowners concerning their forestlands. This may include advice on timber marketing, fuels management, insects and disease, seedling purchase, tree planting, equipment rental, and thinning. State forestry agencies also help private landowners develop and implement Forest Stewardship Plans and participate in Cooperative Forest Management cost share programs.



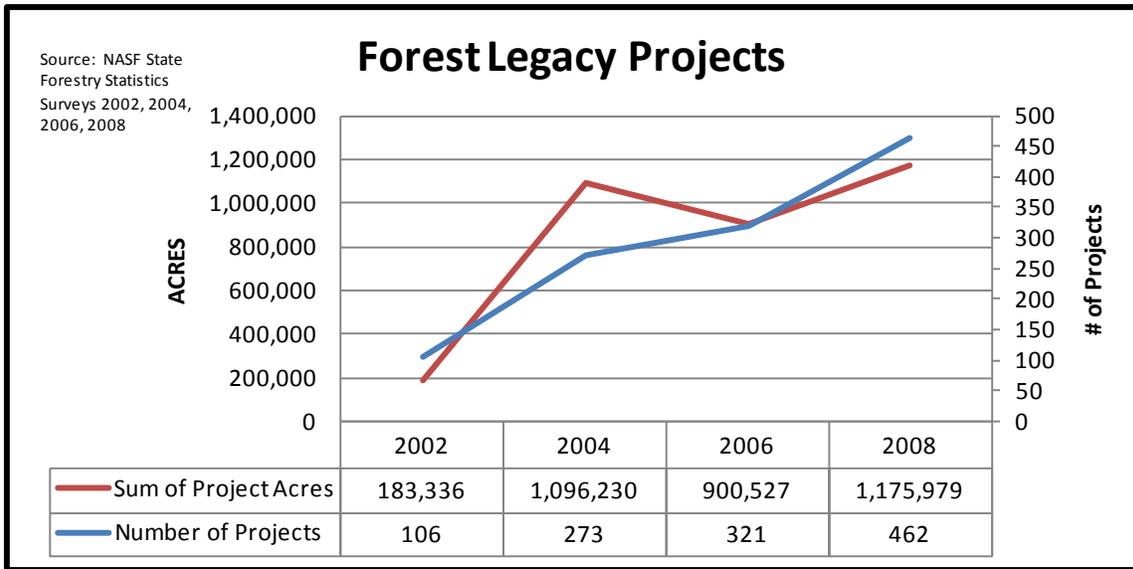
Forest Stewardship Plans, part of the USDA Forest Stewardship program (FSP) since 1991, are written to assist non industrial private landowners prioritize objectives such as timber, wildlife, recreation, aesthetics, soil, and water conservation. A Forest Stewardship Plan is also a prerequisite for a private landowner to participate in a variety of other assistance and programs including USDA cost-share, state tax abatement, forest certification and emerging ecosystem service and renewable energy markets. State forestry agencies provided technical assistance to 182,479 landowners in 2008, an increase of 16,105 or 10 percent<sup>10</sup>, since the survey began collecting this data in 2004. Between 2006 and 2008, landowner assistance, Forest Stewardship Plans and acres under Cooperative Forest Management plans decreased slightly. A falling housing market and dropping demand for wood products throughout 2008 reduced the demand for stumpage and the urgency for land owners to make/update forest plans.

**Advice to Family Forest Owners:** Between 2002 and 2006, the U.S. Forest Service conducted surveys of the estimated 10 MM family forest owners in the United States. The published results (Butler, Brett, 2009) showed that family forest owners account for 92 percent of the private forest owners and 62 percent of the private forestland.

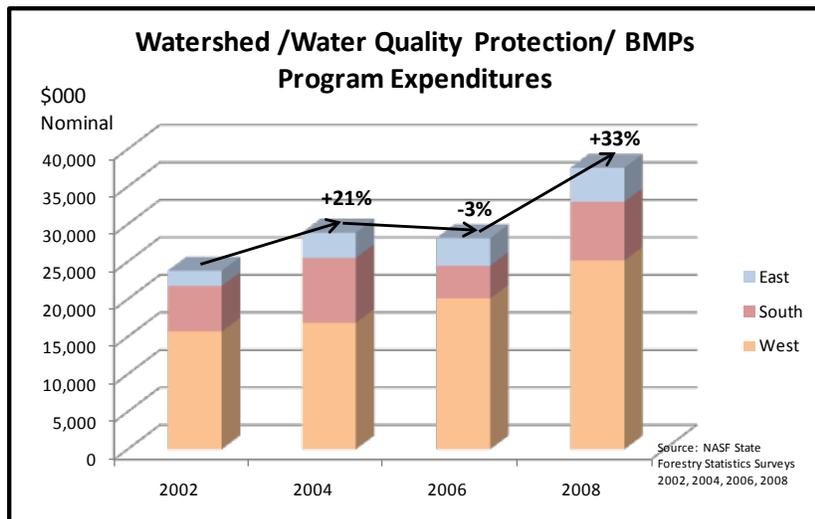
When asked if they received advice about their forestland, 14 percent of the family forest owners, who own 37 percent of the family forest land, said yes and that the most common source of advice was from state forestry agencies.



**Forest Legacy Projects:** State forestry agencies are extensively involved with the Forest Legacy program (FLP). This program is partially funded through the U.S. Forest Service's State and Private Forestry (SPF) budget. It helps states to protect working forestlands that are threatened by development or other land uses, either through outright (fee simple) purchase or conservation easements. Landowner participation in FLP is completely voluntary. Landowners who choose to put a conservation easement on their lands must have a Forest Stewardship Plan prepared with technical assistance from the state forestry agency. This program has grown rapidly since 2002<sup>11</sup> with the rate of growth dependent on the availability of federal dollars for the program.



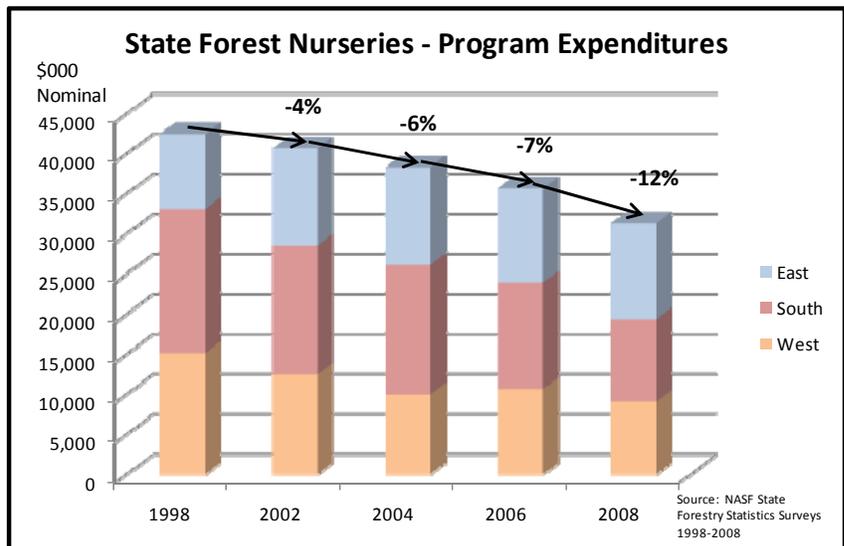
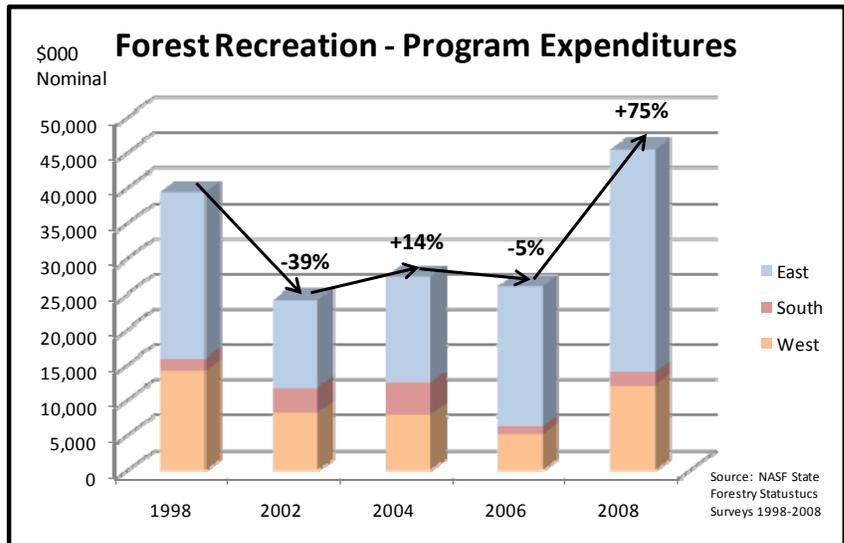
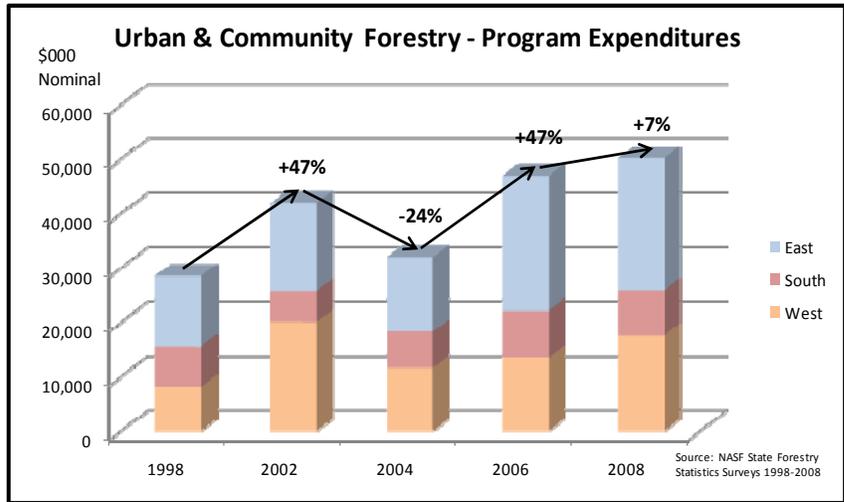
**Watershed/Water Quality Protection/BMPs:** Most state forestry agencies are the lead agency for water quality protection related to forest silviculture on forestlands within their states. To this end, state forestry agencies have been involved in the development and field monitoring of best management practices (BMPs). A 2004 survey of the results of field monitoring showed 91 percent rate of BMP use among the respondents which represented 29 of the 50 states (Archery, Warren E. 2004). Emerging issues with anadromous fish habitat, invertebrate habitat, enforcement, and BMP effectiveness have resulted in higher state forestry agency workload and expenditures in this area. In 2008, total expenditures rose 33 percent<sup>12</sup> over 2006 which represents \$9.3 MM, and took place across all regions. Other issues requiring additional spending include addressing stormwater run-off, purchasing aquifer recharge lands to improve both groundwater supply and surface water quality, restoration of riparian areas on grazed land, and addressing heightened public concerns over maximum pollutant levels (TMDLs).



**Urban & Community Forestry (U&CF) and Forest Recreation Programs:**

Two other programs areas with increased expenditures in 2008 are Urban & Community Forestry and Forest Recreation. These include programs to maintain, restore, and improve parks, street trees, landscaped boulevards, and to provide public recreational opportunities in state and other non-federal forests. Spending on Urban & Community Forestry has increased 56 percent, or \$18 MM, since 2004<sup>13</sup>, and spending on Forest Recreation programs have increased 69 percent, or \$18 MM, since 2004<sup>14</sup>. The number of communities receiving assistance from state forestry agencies was 9,216 in 2008 which represents an increase of 2,182 since 2006<sup>15</sup>. A majority of this increase occurred in the Northeast.

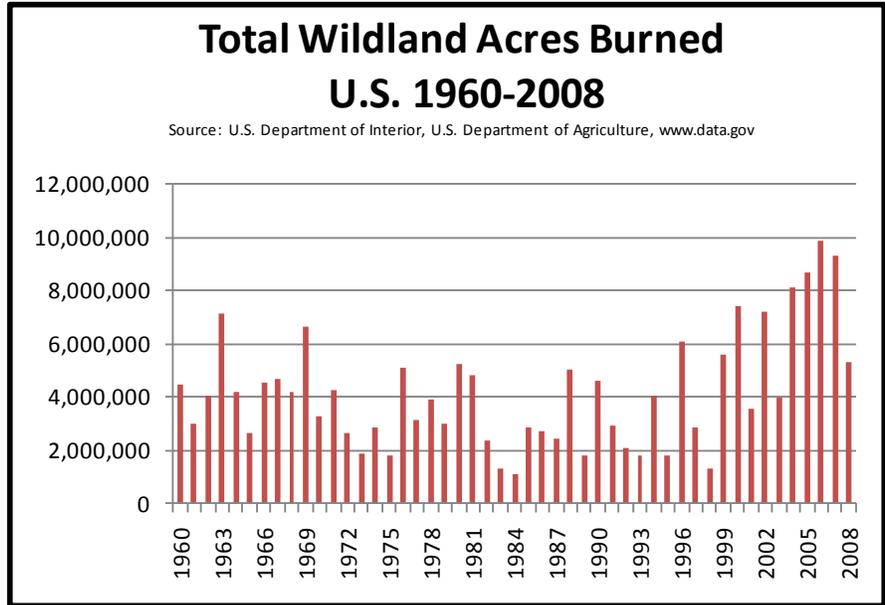
**State Forest Nursery Program:** Expenditures on state forest nursery programs have steadily decreased over the past ten years<sup>16</sup>. The numbers of state nursery operations and seed orchards dropped significantly during this time. Although the amount of forestland planted annually in the United States has declined from a peak in 1988 of 3.3 MM acres to current levels of 1.5 MM acres, the decreases in state nursery programs has implications for long-term reforestation capacity.



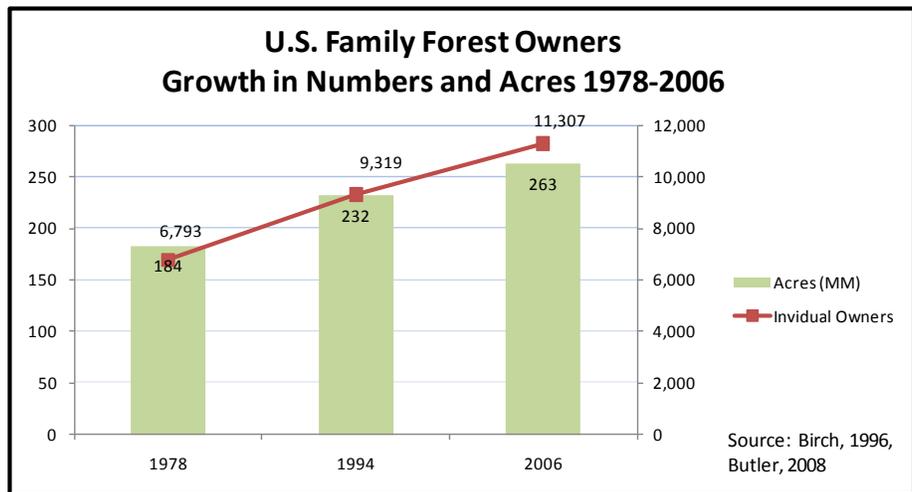
## Part IV: Demand for Services and Funding Challenges

**Growing Demand for Services:** The 2008 NASF State Forest Statistics Survey indicates significant increased expenditures in several areas such as wildfire related programs, Watershed/ Water Quality Protection/BMP programs, and Forest Recreation programs. Demand for the services provided by state forest agencies is expected to continue to increase over time. High density population centers continue to grow in proximity to the non-federal forestlands for which services from state forestry agencies are utilized. Fire programs continue to grow in response to increasing trends in annual wildland acres burned.

At the same time the services of state forestry agencies are growing in demand, the capacity for state forestry agencies to meet this demand is vulnerable to what is going on with the economy in general. Although total employee numbers and funding increased between 1998 and 2008, the survey results also indicate some reasons to be concerned about the future. While overall employment was up during this period, 80 percent of the job increases have been seasonal employees.

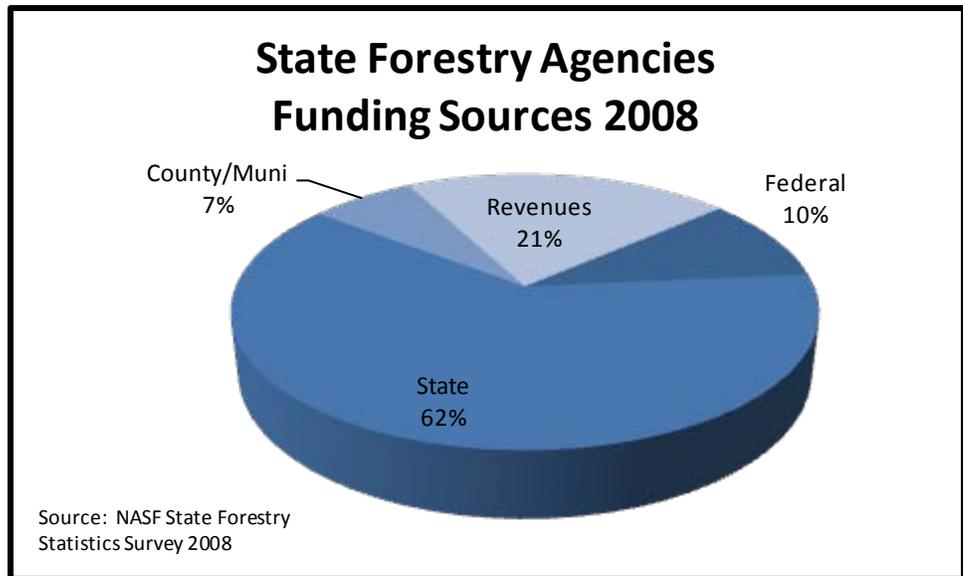


Another important trend expected to impact state forestry agencies is the changing pattern and structure of forest ownership among family forest owners. Total area in private, non-corporate ownership is increasing (38 percent between 1978 and 2006) and greater numbers of these ownerships are in smaller size tracts. In addition, as reported by the National Woodland Owners Survey in 2006, one in four acres of these private forestlands is owned by people who plan to sell or transfer the acreage in the near future (Butler, 2008). With increasing fragmentation of ownership, and decreasing average size of forest tracts, the resources required for state forestry agencies to conduct outreach with education and technical forest management expertise will be stretched to a much greater degree than what has been experienced in the past.

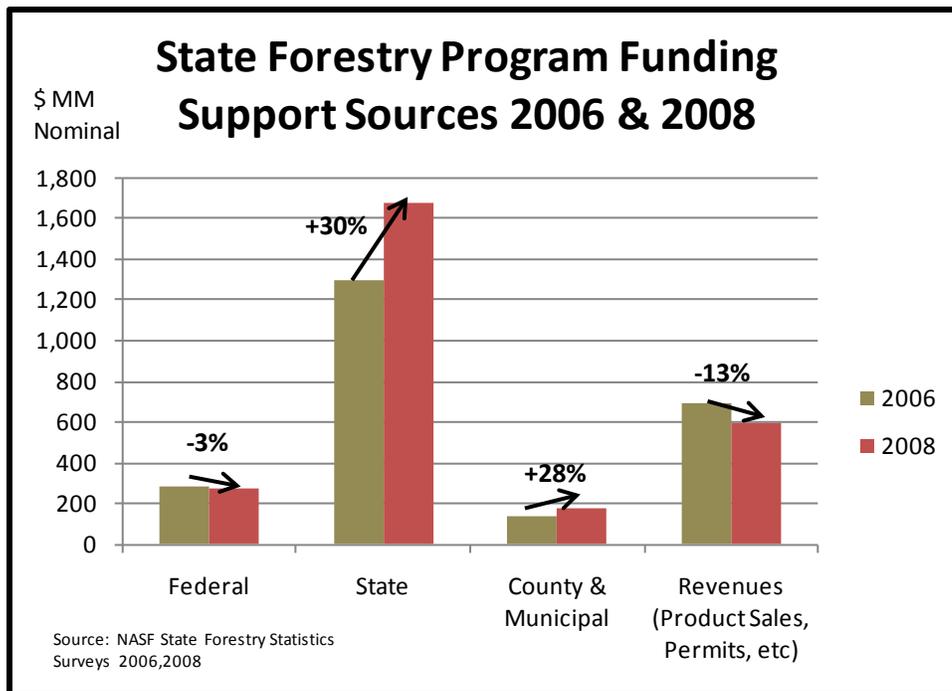


**Funding Challenges:** Overall funding support for state forestry agency programs came from state government (62 percent), federal government (10 percent), county and municipal government (7 percent), and forest-based revenues (21 percent). These percentages varied only slightly between the West and South, with the Northeast showing less in state government support and more in revenues.

Although overall funding continued to grow in 2008, the sources of funding for forestry programs have shifted. While state, county, and municipal government support of state forestry programs grew 30% and 28% between 2006 and 2008<sup>17</sup>, federal support remained flat, and funding from revenues



decreased 13%. Since 2008 revenue sources are down due to still lower stumpage prices and levels of demand for wood products. Concurrently economic conditions in 2009 and 2010 will further strain state and local funding sources. This will be something to watch carefully as state forestry agencies see a higher and higher amount of their budgets going to critical services such as fire response and clean water protection.



## Appendix I: NASF Regions

### **Northeastern Region**

Partner Organization: Northeastern Area Association of State Foresters (NAASF)

<http://www.northeasternforests.org/>

### **Southern Region**

Partner Organization: Southern Group of State Foresters (SGSF)

<http://www.southernforests.org/>

### **Western Region**

Partner Organization: Council of Western State Foresters (CWSF)

<http://www.wflcweb.org/council/>

## Appendix II: Endnotes

- The numbers used to calculate forest ownership percentages in the United States came from the 2008 NASF Forest State Forestry Statistics Survey except for Ohio and Illinois. These two states provided no response for the survey. Forest ownership data for Ohio and Illinois came from Forest Resources of the United States, 2007 (2010 RPA).
- The number of total forestlands managed by the forest industry of 37.8 MM acres does not include any acreage for Ohio or Illinois. The 2010 RPA no longer reports acreage owned by forest industry.
- The total 2008 expenditures of State Forestry Agencies were allocated to the categories of “Services & Outreach,” “Land Management,” and “Forest Practices Oversight” by classifying the specific expenditure line items in the 2008 survey as follows:
  - Land Management: consisted of the “State Forest Management” line item plus one third of the “Other.”
  - Forest Practices Oversight: consisted of “Watershed/Water Quality Protection/BMP” plus one third of “Other.”
  - Service and Outreach: consisted of the balance of remaining expenditure line items.
- Functional groups were created by correlating data collected in the survey with interview responses from a sample of states that indicated percentages of budget, staff time, and staff priorities by these three responsibility areas. These results from the sampled states were extended to the entire NASF membership via linear regressions fit to items in the NASF survey collected for all responding states. The independent variables used were based on responses from a state averaged over all surveys received, from 1998 to 2008. The specific results are as follows:

<b>NASF Members Grouped by Functional Type</b>					
<b>Service &amp; Outreach Orientation</b>		<b>Land Management Orientation</b>		<b>Dual Orientation</b>	
<b>Active Forest Practices Oversight</b>	<b>Limited Forest Practices Oversight</b>	<b>Active Forest Practices Oversight</b>	<b>Limited Forest Practices Oversight</b>	<b>Active Forest Practices Oversight</b>	<b>Limited Forest Practices Oversight</b>
American Samoa	Alabama	Haw aii	Idaho	Alaska	Connecticut
Arizona	California	Minnesota	Michigan	Colorado	Delaw are
Arkansas	Georgia	Oregon	Montana	Maryland	District of Columbia
Guam	Louisiana	Washington	Pennsylvania	Massachusetts	Florida
Illinois	Nebraska			New Hampshire	Indiana
Kansas	Nevada			New Jersey	low a
Kentucky	North Carolina			New Mexico	Mississippi
Maine	North Dakota			Vermont	Missouri
Marshall Islands	Oklahoma			Wisconsin	New York
Micronesia	Palau				Ohio
Northern Marianas	South Carolina				
Puerto Rico	South Dakota				
Rhode Island	Texas			Shading = interview ed state	
Tennessee	Virginia				
Utah	Virgin Islands			Source: NASF State Forestry Statistics Surveys 2006, 2008	
West Virginia	Wyoming			and interviews with 19 member States	

- The 2008 survey collected 11 line-item categories of state forestry agency expenditures. Past surveys included an additional 4 line items which are no longer being collected. These categories are combined to the four areas (Wildfire Programs, Other Services & Outreach, Land Management, and Forest Practices Oversight) for total 2008 and trend analysis by the allocation described below:

Land Management: Includes “State Forest Management” plus one third of “Other.”

Wildfire Programs: Includes “Fire Control/Prevention/Protection/Management” plus a portion of “Other” prorated to Wildfire Programs by the percentage of the total Services Outreach expenditures represented by “FireControl/Prevention/Protection/Management” multiplied by one third of the “Other.”

Other Services & Outreach: For 2008, includes “Cooperative Forestry Management/Landowner Assistance,” “Forest Products Utilization and Marketing,” “Forest Health,” “Urban and Community Forestry,” “Nursery,” “Forest Recreation,” “Forest Inventory and Analysis,” plus a portion of “Other” prorated to Other Services & Outreach by the percentage of the total Services & Outreach expenditures represented by the sum of these line items, multiplied by one third of the “Other.” For trends based on past surveys, Other Services & Outreach also includes expenditures in “Forest Insects & Disease,” “RC&D,” and “Economic Action.”

Forest Practices Oversight: For 2008, includes “Watershed/Water Quality Protection/BMP” plus one third of “Other.” For trends based on past surveys, Forest Practices Oversight also includes “FPA Administration.”

6. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends between survey years use only data from states that have participated in all 5 surveys during that 10 year period. This is to avoid trend comparisons that are the result of changes in the set of states reporting as opposed to trends based on actual changes in expenditures for different programs. The states that did not participate in all survey years, and therefore are not included in the 10-year trend analysis are listed in the table at right.

Alaska	Maine
American Samoa	Marshall Islands
Arizona	Micronesia
Arkansas	Nevada
District of Columbia	Northern Marianas
Guam	Ohio
Hawaii	Palau
Illinois	Pennsylvania
Louisiana	Puerto Rico
	Virgin Islands

7. Trends for employees at state forestry agencies were determined by calculating the percentage changes for permanent and seasonal employees reported in the data from states that have participated in all 5 surveys during the 10 year period. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (which included all states except for Ohio, Illinois, and the territories). The adjustment in this case was 12% for numbers of permanent employees and 9% for seasonal employees. This methodology was used so that the scale of numbers in the chart and those discussed in the text more accurately portrayed what was going on in the field. See sample calculation at right:

<b>1. Determine Trendline with numbers from states reporting in all years</b>					
	1998	2002	2004	2006	2008
Total Permanent	14,093	13,621	14,309	14,444	14,871
Total Seasonal	5,614	8,045	8,322	9,043	8,886
	19,707	21,666	22,631	23,487	23,757
<b>2. Resulting Trendline</b>					
% change	1998	2002	2004	2006	2008
Total Permanent		-3%	5%	1%	3%
Total Seasonal		43%	3%	9%	-2%
<b>3. Determine scale adjustments</b>					
	2008 - states reporting in all years (98-08)	2008 - all states reporting - except IL, OH	Adjustmt		
Permanent	14,871	16,628	12%		
Seasonal	8,886	9,708	9%		
<b>4. Adjust historical numbers to scale to 2008 numbers</b>					
	1998	2002	2004	2006	2008
Total Permanent	1665.0798	1609.313	1690.592	1706.5266	16628
Total Seasonal	519.34193	744.2032	769.8651	836.5233	9708
	2184.4217	2353.516	2460.457	2543.0499	26336

8. Trends for the numbers of rural firefighters trained by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in the 2002, 2006, and 2008 surveys. Data on the number of rural firefighters trained was not collected in either the 1998 survey or the 2004 survey. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 21%.

9. For more information on the development of Community Wildfire Protection Plans (CWPPS), please go to the following link on the NASF web site: <http://www.stateforesters.org/communities-at-risk-2009>.

10. Trends for numbers of landowner technical assists by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in the 2004, 2006, and 2008 surveys. Data on the number of landowner technical assists was not collected in surveys prior to the 2004 survey. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 7%.

11. Trends for the numbers of Forest Legacy projects and Forest Legacy acres were determined by calculating the percentage changes in the data reported from states that participated in the 2002, 2004, 2006, and 2008 surveys. Data on the Forest Legacy program was not collected in the 1998 survey. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 11% for the number of projects and 6% for the project acres.

12. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends for the watershed/water quality protection/BMP expenditures by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in the 2002, 2004, 2006, and 2008 surveys. Data on this expenditure category was not collected in the 1998 survey. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 12%.

13. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends for the Urban & Community Forestry expenditures by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in all 5 surveys. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 26%.

14. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends for the Forest Recreation expenditures by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in all 5 surveys. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 28%.

15. Trends for the number of communities receiving assistance from state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in the 2004, 2006, and 2008 surveys. Data on this expenditure category was not collected in the 1998 or 2002 surveys. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 14%.

16. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends for the state forest nurseries expenditures by state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in all 5 surveys. This trend was maintained while scaling results to total 2008 by adjusting the historical numbers so the 2008 numbers matched the total numbers reported in 2008 (See endnote #7 for detailed example of methodology). The adjustment in this case was 11%.

17. All dollars shown for trends in expenditures are nominal dollars which have not been adjusted for inflation. Trends for the funding of state forestry agencies were determined by calculating the percentage changes in the data reported from states that participated in the 2006 and 2008 surveys. This is to avoid trend comparisons that are the result of changes in the set of states reporting as opposed to trends based on actual changes in funding. (See endnote #6 for states not included in numbers reported for this trend analysis).

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