

State Government Regulation of Forestry Practices Applied to Nonfederal Forests: Extent and Intensity of Agency Involvement

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ABSTRACT

In 2003, 276 state government agencies regulated forestry practices applied to nonfederal forests. Fifty-four percent of these agencies were moderately to extensively involved in such regulation, and 68% engaged in moderate to extensive regulatory coordination with a state's lead forestry agency. The agencies employed an estimated 1,047 full-time equivalents (FTE) staff, of which nearly one-third was assigned to forest resource management agencies and one-quarter was assigned to air and water pollution control agencies. In 2003, about \$57 million was invested by state governments in the regulation of forestry practices. Fifteen states are responsible for 59% of this total and 59% of the FTEs nationwide.

Keywords: regulation, forestry practices, state government agencies

The application of acceptable forestry practices is critical to the conservation and long-term sustainability of forests. Unfortunately, there are circumstances when some persons or entities are unwilling to voluntarily apply such practices. In these cases, government regulatory sanctions may be necessary (in the form of an order, fine, or incarceration). Forest practice regulatory laws and programs personify these sanctions, although their application implies a delicate balancing of public and private responsibility for promoting the sustainability of forests. History is replete with examples of rancorous political battles that sought to define this balance and of equally intense struggles to define the role that government should play in directing the application of forestry practices generally (Clepner 1971, Dana and Fairfax 1980, Cabbage 1995, Ellefson 2000).

Regulation of forestry practices applied to nonfederal forests has been an activity of state government since at least the 1930s, when many states enacted seed tree laws and established minimum cutting diameters. Driven by public interest in environmental protection generally, the 1970s saw a dramatic increase in state regulatory initiatives—especially in California, Idaho, Oregon, and Washington. In the 1980s and early 1990s, new laws enacted by states such as Alaska, Montana, New Mexico, Virginia, and West Virginia imposed additional restrictions on forestry practices, including practices that can impact wetlands, riparian areas, scenic values, and endangered species. In the Northeast, Connecticut, Maine, and Massachusetts enacted statewide forest practice laws, often as a way to harmonize the conflicting ordinances adopted by local governments. By 2003, 15 states had especially

prominent regulatory programs focused on the application of forestry practices on nonfederal forests, with most programs being administered by a state's lead forestry agency (e.g., Oregon Department of Forestry and Virginia Department of Forestry; Cabbage and Ellefson [1980], Cabbage and Siegel [1985], Brown et al. [1993], Green and Siegel [1994], and Ellefson et al. [2004]).

Forestry agencies have not been the only entities of state government to engage in the regulation of forestry practices. Especially since the early 1970s, environmental laws have granted a number of state agencies the authority to address a broad set of resources (air, water, soil, wildlife, wetlands, and coastal zones) and to regulate a variety of activities that might impair the condition of these resources (noise, pesticides, hazardous waste, thermal discharges, urban development, and transportation systems). The extent to which these environmental laws are used as authorities for regulating forestry practices depends on the exactness of statutory directives and on how aggressively an agency decides to exercise its assigned legal authorities. From a forest practice perspective, especially prominent are state environmental laws that regulate endangered species of plants (e.g., California), chemicals and pesticides (Minnesota), lakeshore vegetation (Montana), sediment reduction (South Carolina), air quality (Colorado), and wetlands (Maine). Water quality laws are an es-

pecially common basis for regulating forestry practices. In 1998, water quality laws in 37 states authorized state agency regulatory authority over nonpoint forest sources of water pollutants (Environmental Law Institute 1997, 1998).

Adding further to the regulatory landscape has been local government ordinances that regulate the application of forestry practices. Nationwide in 1991, nearly 400 ordinances existed, a total that by 1993 had risen to 522 (68% in the Northeast, 27% in the South). As of 2000, county and municipal governments in 10 of 13 southern states had enacted 346 forest-related ordinances (Georgia and Virginia accounted for one-half the total). Statewide forest practice laws in some states prohibit or severely restrict local governments from regulating forest practices (e.g., Idaho and Washington). Oregon's Forest Practices Act is quite specific in this respect "... no unit of local government shall adopt any rules, regulations, or ordinances ... that in any way affect forest practices on forestland." Although local ordinances directed at forestry practices are not the purview of state government, they are another important segment of the regulatory systems that operate in many states (Martus et al. 1995, Granskog et al. 2002, Ellefson and Hubbard 2005).

Although state governments have increasingly become engaged in the regulation of forestry practices applied to nonfederal forests, few nationwide assessments have been made of the nature and extent of this regulatory landscape. Reviews of the regulatory involvement of state forestry agencies were undertaken in 1980, 1985, and 1992, each of which tended to focus primarily on states with comprehensive forest practice acts (Cubbage and Ellefson 1980, Henly and Ellefson 1986, Ellefson et al. 1995). In 2000, a review of state agencies exercising authority over forests generally provided additional but modest insight about state agency regulatory responsibilities involving forests (Ellefson et al. 2003). In reality, there never has been a comprehensive national assessment of state government involvement in the regulation of forestry practices applied to nonfederal forests. This is ironic, given that few issues involving forests evoke such passion as the thought of private landowners' being required to comply with forest practice standards formulated by government. Therefore, what is the nature and extent of forest practice regulatory programs

Table 1. State agencies regulating forestry practices on nonfederal forests, by agency primary function, region, and number of agencies (2003).

Agency primary function	State agencies engaged in regulation			
	North	South	West	Total
Air and water pollution control	30 (1.5)	24 (1.8)	27 (1.6)	81 (1.6)
Forest resource management	23 (1.2)	15 (1.2)	19 (1.1)	57 (1.1)
Fish and wildlife management	12 (0.6)	8 (0.6)	10 (0.6)	30 (0.6)
Soil and resource conservation	5 (0.2)	11 (0.8)	5 (0.3)	21 (0.4)
Insect, disease, and invasive species	3 (0.2)	3 (0.2)	2 (0.1)	8 (0.2)
Land-use planning and management	5 (0.2)	0 (0.0)	6 (0.4)	11 (0.2)
Parks and natural area management	6 (0.3)	2 (0.2)	2 (0.1)	10 (0.2)
Economic development and transportation	3 (0.2)	0 (0.0)	0 (0.0)	3 (0.1)
Other functions	23 (1.2)	19 (1.5)	13 (0.8)	55 (1.1)
Total	110 (5.5)	82 (6.3)	84 (4.9)	276 (5.5)

Note: Numbers in parentheses are agencies per state rounded to tenth of an agency. Regions are defined as North, Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin; South, Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia; and West, Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

that are being implemented by state governments?

What Did We Set Out to Do?

A nationwide assessment of state agencies responsible for programs that regulate the use, management, and protection of nonfederal forests was undertaken in 2003 (Ellefson et al. [2004] following Dillman [2000]). Using 1,453 state agencies previously identified as having influence over nonfederal forests (Ellefson et al. 2003), an executive-level administrator of state forestry programs in each state was asked to identify which of these agencies implemented regulatory programs, the resource focus of each agency's regulatory activities, the magnitude of investments made in regulatory initiatives, and the extent to which regulatory activities are coordinated with other regulating agencies. An administrator from all 50 states responded to the survey (state forester, deputy state forester, private forest management program director, or forest practice regulatory program director). For purposes of the assessment, regulation was defined as a system of rules and directives established and enforced by government authority.

How Many Agencies and What Do They Regulate?

In 2003, forestry practices applied to nonfederal forests were regulated by 276 different state agencies, with an average of about 5–6 agencies per state (Table 1). States in the South modestly exceeded the top of this range (6.3 agencies per state), fol-

lowed by the North (5.5 agencies) and the West (4.9 agencies). Masked by these averages is state-by-state diversity in the number of agencies. For example, 3 state agencies in Alabama and 2 agencies in South Dakota reportedly regulate forestry practices and 9 agencies in Washington and 21 agencies in Kentucky are responsible for regulatory programs involving forestry. Compared with states in other regions, the South tends to have more air and water pollution control agencies and soil and conservation agencies regulating forestry practices. Western states report more regulation by land-use planning agencies. As for agencies in which their primary responsibility is forest resource management, most states have but one such agency engaged in the regulation of forestry practices.

Forestry practices that have potential to affect adversely the quality of air and water resources are the primary focus of state regulating agencies (29% of the 276 agencies nationwide). Including these agencies, other focal points for agency regulation of forestry practices are

- Air and water pollution control and management—29% of agencies (81 agencies).
- Forest resource management—21% (57 agencies).
- Fish and wildlife management—11% (30 agencies).
- Soil and resource conservation—7% (21 agencies).
- Land-use planning and management—4% (11 agencies).
- Parks and natural area management—4% (10 agencies).

Table 2. State agencies regulating forestry practices on nonfederal forests, by agency primary function and extent of agency involvement (2003).

Agency primary function	Extent of agency involvement in regulation of forestry practices (% of agencies)		
	Extensive	Moderate	Minimal
Air and water pollution control	12	44	44
Forest resource management	49	37	14
Fish and wildlife management	20	43	37
Soil and resource conservation	10	14	76
Land-use planning and management	0	9	90
Parks and natural area management	0	50	50
Insect, disease, and invasive species	12	12	76
Economic development and transportation	0	0	100
Other functions	7	35	58
Total	18	36	46

Note: Extensive involvement, staff of eight or more FTEs, and a complex approval process resulting in the issuance of permits or licenses usually issued before commencing the application of forestry practices; moderate involvement, staff of three to seven FTEs, and requirements that harvesters and landowners inform an agency of intent to voluntarily apply certain forestry practices; and minimal involvement, fewer than three FTE staff, and agency policy requiring the application of certain forest practice standards (timely reforestation, appropriate slash disposal, and limit environmental degradation), which are unlikely to be enforced.

- Insect, disease, and invasive species—3% (8 agencies).
- Economic development and transportation—1% (3 agencies).
- Other regulatory focus—20% (55 agencies).

The diversity of regulatory agency foci is highlighted by the number of agencies (20% of total) in the “other regulatory focus” category. Agencies in this category regulate reclamation of mined land in forested areas, enforce the application of forest tax programs and related revenue collection activities, engage in the licensing and certification of forest resource professionals, enforce standards for worker health and safety in forested areas, implement rules governing the use and care of forest trails and roads, enforce standards protecting archeological and historic sites located in forested areas, and regulate the placement (or removal) of solid waste and hazardous materials in forested areas.

How Intense Are Agency Regulatory Programs?

The forest practice regulatory initiatives of state agencies are not uniform in magnitude or complexity. For purposes of this assessment, an agency’s regulatory involvement was categorized as extensive, moderate, or minimal (defined in Table 2). Applying these categories to the 276 state agencies previously identified, 149 agencies (54%) were reported to be either extensively (18%) or moderately (36%) engaged in forest practice regulatory activities (Table 2). Forty-six percent (127 agencies) had only

minimal regulatory involvement. Examples of the latter group are agencies in which their primary function involves land-use planning, soil and resource conservation, insect and disease protection, and the management of parks and natural areas. In absolute numbers, extensive regulatory involvement was greatest for forest resource management agencies, viz., 49% of 57 agencies (30 agencies). A distant second and third were air and water pollution control agencies (10 of 81 agencies with extensive agency involvement) and fish and wildlife management agencies (6 of 30 agencies).

Advisory or governing entities of state government also may have regulatory responsibility over forestry practices. Such entities are variously known as boards, councils, or commissions and in some cases are a state’s lead forestry agency (e.g., Arkansas Forestry Commission). Their members usually are appointed by a state’s governor or by a chief administrator of a state agency. Forestry program administrators identified 62 advisory or governing entities with regulatory program responsibility (in addition to the 276 agencies previously identified). Of that total, 16 were reported as exercising extensive involvement in the regulation of forestry practices, and moderate or minimal regulatory involvement was assigned to 22 and 24 advisory or governing units, respectively. Examples of advisory or governing entities engaged in forest practice regulatory activities are the California Water Resources Control Board, Maryland Chesapeake Bay Critical Area Commission, Oregon Watershed Enhancement Board, South Carolina Forestry Commission, Virginia Board of Re-

forestation, and the Washington Forest Practices Board.

Over the years, responsibility for forests and forestry have been assigned most often to a state’s lead forestry agency (e.g., North Carolina Division of Forest Resources, Oregon Department of Forestry, and Pennsylvania Bureau of Forestry). Based on information from administrators participating in this assessment, the lead forestry agency in 37 states is responsible for some form of forest practice regulation. Of these 37 states, the regulatory activities of lead agencies in 15 states are considered extensive, and in 13 and 9 states a lead agency’s regulatory involvement is viewed as moderate or minimal, respectively.

How Much Program Coordination by Agencies?

Forest practice regulatory programs are not implemented without some consequences for other levels of government (e.g., local, regional, state, or federal) or for other units within the same level (e.g., state division of forestry and a state pollution control agency). For purposes of harmonizing the implementation of regulatory responsibilities, almost all state laws and rules requiring regulation of forest practices expect some form of cross-agency coordination (e.g., memorandums of agreement, joint budgetary commitments, and formal mechanisms such as boards and commissions). An example is Alaska, where the state’s Forest Resources and Practices Act specifies that the administering agency “. . . shall coordinate with other agencies and affected coastal districts that have jurisdiction over activities subject to regulation under this [Act]” (AK Stat. Title 41, § 41.17.098). Similarly, the Oregon Forest Practices Act directs the State Board of Forestry to (before adopting rules) “. . . consult with other agencies of the state or any of its political subdivisions that have functions with respect to the purposes [of the act] or programs affected by forest operations. Agencies and programs subject to consultation under this subsection include, but are not limited to [listing of 11 different state or local agencies]. Board shall consider and accommodate the rules and programs of other agencies to the extent deemed to be appropriate and consistent with the purposes of the Act. . . .” (OR Rev. Stat. Title 44, Chap. 527, § 710).

Coordination can occur generally between state agencies that have regulatory re-

Table 3. State agencies regulating forestry practices on nonfederal forests by agency primary function and amount of coordination with lead state forestry agency (2003).

Agency primary function	Portion of regulating agencies coordinating with state's lead forestry agency on regulatory activities (% of agencies)			
	Extensive	Moderate	Minimal	None
Air and water pollution control	26	38	34	2
Forest resource management	88	10	2	0
Fish and wildlife management	40	37	20	3
Land and resource conservation	29	24	33	14
Land-use planning and management	0	45	55	0
Parks and natural area management	10	20	60	10
Pest, disease, and invasive species	38	24	38	0
Economic development and transportation	0	100	0	0
Other functions	20	34	33	13
Total	38	30	27	5

Extensive coordination, once every 6 months engages in coordination activities; moderate coordination, once every 12 months; minimal coordination, once every 18 months.

responsibility for forest practices, but it also occur with a state's lead forestry agency as the focal point for coordination. Regarding the former, in 2000 the frequency of coordinating activities among all state entities regulating forestry practices was as follows: regularly coordinate, 42% of entities; somewhat coordinate, 50%; and never coordinate, 8% (Ellefson et al. 2003). Regulatory agencies do coordinate their programs with a state's lead forestry agency, but it is modest. The 276 regulating agencies identified by this assessment, administrators report that 38% (105 agencies) engage in extensive coordination on regulatory matters, and slightly less (32%, 88 agencies) have no or minimal coordinating involvement with a state's lead forestry agency (Table 3, including definitions). Fish and wildlife management agencies, air and water pollution control agencies, and agencies responsible for forest protection (insects, diseases, and invasive species) were more inclined to coordinate with a lead forestry agency, whereas soil conservation agencies, land-use planning agencies, and parks and natural area agencies are less inclined to do so.

How Much Investment in Regulatory Programs?

The implementation of regulatory programs by state agencies can require substantial investment in a variety of administrative tasks. For example, rule-making procedures, issuance of permits, onsite inspections, enforcement actions, and response to legal challenges initiated by the regulated public. Administrators responding to this assessment reported that the 276 agencies regulat-

ing forestry practices applied to nonfederal forests required the services of nearly 1,047 full-time equivalent (FTE) staff in 2003 (Table 4). Nearly one-third (323 FTEs) of these staffs were assigned to an agency in which its primary function is forest resource management, and slightly more than one-quarter (266 FTEs) were affiliated with air and water pollution control agencies. As for the regional distribution of regulatory staff, the following conditions exist:

- North—419 FTEs (40% of national total), 31% of which are used by forest resource management agencies and 25% by air and water pollution control agencies.
- South—291 FTEs (28% of national total), 24% of which are used by forest resource management agencies and 25% by air and water pollution control agencies.
- West—337 FTEs (32% of national total), 35% of which are used by forest resource management agencies and 26% by air and water pollution control agencies.

The core staff of a regulatory program typically is very modest in size. Fifty-seven percent of the agencies engaged three or fewer FTE staff, 20% engaged three to seven FTE staff, and 23% engaged seven or more FTE staff. The actual staff size of a single agency ranges from about one FTE (economic development and transportation agencies) to more than five (5.7) for forest resource management agencies. Excluding the "other functions" category, 72% of the agencies have 3.2 or more FTE staff assigned to programs that regulate forestry practices. Each additional entity that becomes engaged in regulatory activities adds an average of five additional FTEs to the total number of

FTEs involved in a state's overall regulatory program.

Assuming an FTE staff requires an annual investment of \$55,000, the 1,047 FTE total staff assigned forest practices regulatory responsibilities with state agencies required an investment of about \$57 million in 2003. Of this total, 74% was accounted for by the forest practice regulatory programs of state agencies in 15 states (Table 5). These same 15 states employed 59% (618 FTEs) of the nationwide total FTEs employed to implement state regulatory programs focused on nonfederal forests in 2003 (Ellefson et al. 2004).

What Challenges Are Posed by a Dispersed Regulatory Landscape?

Forest practice regulatory initiatives emanating from many different state agencies can pose a number of challenges. What conditions do program administrators and managers view as especially important? In response to open-ended questions, three-quarters or more of the respondents identified each of the following as a special concern: (a) regulatory responsibilities being assigned to too many different agencies ("agencies often work at cross purposes . . . huge gaps in understanding of applied forest science occurs between agencies . . . such hinders implementation of regulatory responsibilities and confuses stakeholders"); (b) limited funds and staff being spread over many programs in many agencies, some of which are not effective because of their small size and narrow focus ("extreme budgetary and financial stress across entire [regulatory] program landscape . . . many programs cannot be effectively implemented"); (c) multi-agency resistance to comprehensive monitoring of regulatory program effects ("extreme concern over how to institutionalize across agencies a cost-effective compliance and effectiveness monitoring program"); and (d) public reluctance to accept regulatory initiatives emanating from many different state agencies ("need to stabilize enforcement activities and make them consistent between owners, harvesters, and the growing number of regulating agencies").

What Conclusions and What Do They Mean?

State Agencies Regulating Forestry Practices Are Substantial in Number. Forestry practices are regulated by 276 state

Table 4. State agencies regulating forestry practices on nonfederal forests by agency primary function, number of agencies, and size and distribution of staff (2003).

Agency primary function	Number of agencies engaged in regulation	Distribution of FTE staff involved in regulation of forestry practices (% of agencies)			Total FTE staff involved in regulation of forestry practices		
		<3 FTEs	3-7 FTEs	>7 FTEs	Total FTEs	%	FTEs/agency
Air and water pollution control	81	67	15	18	266	26	3.3
Forest resource management	57	28	21	51	323	31	5.7
Fish and wildlife management	30	50	17	33	131	12	4.3
Soil and resource conservation	21	67	19	14	68	6	3.2
Land-use planning and management	11	91	9	0	22	2	1.9
Parks and natural area management	10	50	30	20	41	4	4.1
Insect, disease, and invasive species	8	76	12	12	22	2	2.8
Economic development and transportation	3	100	0	0	5	1	1.3
Other functions	55	65	29	6	169	16	3.0
Total	276	57	20	23	1,047	100	3.8

Note: Total FTEs based on interpretation of FTE categories as follows: <3 FTEs = 1.5 FTEs, 3-7 FTEs = 5.5 FTEs, and >7 FTEs = 8.0 FTEs.

Table 5. State expenditures and agency staff of prominent forest practices regulatory programs focused on nonfederal forests, by state and state law (2003).

State and state law	Program expenditures (US\$)	Program staff (FTEs)
Alaska Forest Resources and Protection Act	718,000	7.9
California Z'berg-Nejedly Forest Practices Act	13,748,000	124.5
Connecticut Forest Practices Act	165,000	3.0
Idaho Forest Practices Act	1,457,000	20.0
Maine Timber Harvest Reporting Law	1,155,000	16.5
Massachusetts Forest Cutting Practices Act	460,000	16.0
Montana Notification and Streamside Management Acts	614,000	18.4
Nevada Forest Practice Act	704,500	7.0
New Mexico Forest Conservation Act	500,000	9.0
Oregon Forest Practices Act	7,800,000	94.0
Utah Forest Practices Act	220,000	4.0
Vermont Heavy Cutting and Water Pollution Acts	330,000	6.0
Virginia Forest Practices Notification Act	4,000,000	50.0
Washington Forest Practices Act	9,656,000	176.0
West Virginia Logging Sediment Control Act	760,558	66.0
Total	42,288,058	618.3

Note: Expenditures are estimated for Maine and Vermont; staff are estimated for Utah and Washington.

agencies, averaging five to six agencies per state. An additional 62 advisory or governing entities also regulate forestry practices. Combined, these entities represent 23% of the 1,453 state agencies that have an influence over the use and management of forests. On average, the South has the most agencies engaged in regulation whereas the West has the least.

Air and Water Quality Impacts Are the Primary Focus of Regulation. Twenty-nine percent of the 276 identified agencies focus on forestry practices impacting air and water quality; 21% focus on activities involving forest resource management generally.

Regulatory Intensity Is Appreciable Among State Agencies. Extensive or moderate involvement in forestry practices regulation was reported by 54% of the 276 identified state agencies. Forty-six percent of the

latter had minimal involvement in regulatory initiatives.

Lead State Forestry Agencies Are Involved in Regulation. A state's lead forestry agency in 37 of the 50 states is responsible for a program(s) that regulates forestry practices. In 15 of these 37 states, the regulatory involvement of the lead forestry agency is considered extensive.

Coordination of Regulatory Programs Is Limited. Among state agencies, generally, regulatory program coordination is modest (42% regularly coordinate, the remainder seldom or never coordinate). Coordination with a state's lead forestry agency is similarly modest (of 276 agencies, 38% coordinate extensively, 32% no or minimal coordination).

Investments in State Regulatory Programs Are Substantial. Regulatory activi-

ties of the 276 identified agencies required 1,047 FTEs. Over one-half (57%) engaged three or fewer staff, and 23% engaged seven or more FTEs in regulatory activities. At \$55,000 per FTE, \$57 million was invested by state agencies in the implementation of programs regulating forestry practices. Nearly three-quarters of this total was accounted for by 15 states, which also accounted for 59% of the FTEs nationwide.

Challenges to Administration of Regulatory Programs Are Many. Regulatory program administrators are concerned with conflicting regulatory agency responsibilities, limited staff and funds for program implementation, resistance to cross-agency monitoring of regulatory program results, and public confusion with multiagency regulatory initiatives.

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